Haojue

HJ110-2/2A

SERVICE MANUAL

95500H51121H000

FOREWORD

This manual contains an introductory description on HAOJUE HJ110-2/2A and procedures for their inspection/maintenance and overhaul of their main components. Other information considered as generally known is not included.
Apprentice mechanics and do it yourself mechanics will also find this an extremely useful repair guide.

* This manual provides you with more information about your motorcycle and ensures users best and quickest service.
* This manual is for those adequately informed and skilled in the maintenance of HAOJUE motorcycle. If you are not well-informed and skilled in this respect, you should not attempt to effect maintenance and repair only by the help of this manual.
* This manual contain up-to-date information at the time of its issue. There might be minor discrepancies between your motorcycle and this manual as a result of modifications made after the publication of this manual.
  Please contact your nearest authorized HAOJUE motorcycle dealer.

JIANGMEN DACHANGJIANG GROUP CO.,LTD.
October, 2008

GROUP INDEX

GENERAL INFORMATION

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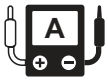
CONTENTS

SYMBOLS

The following symbols illustrate necessary information of directions and servicing.

Symbol	Item	Symbol	Item
	Controlling torque Near data indicates specified torque		THREAD LOCK BOND “1342”
	Oil filling Use engine oil unless otherwise stated		Filling or using brake fluid
	SUPER GREASE “A”		Measure the voltage
	SUPER SILICONE GREASE		Measure the resistance
	MOLY PASTE		Measuring the current
	BOND No.4		Using special tool
	THREAD LOCK BOND “1322”		

WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol and the words WARNING,CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

⚠ WARNING

Personal safety of the rider is involved, and disregard of the information could result in injury.

⚠ CAUTION

For the protection of the motorcycle, the instructions and rule must be highly strictly adhered to.

NOTE:

Advice calculate to facilitate the repair of the motorcycle is given under this heading.

Please note, however, that the WARNINGS and CAUTIONS contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing of the motorcycle. In addition to the WARNING and CAUTION stated, you must use good judgment and basic mechanical safety principles. If you are unsure about how to perform a particular service operation, ask a more experienced mechanic for advice.

GENERAL PRECAUTION

⚠ WARNING

- Proper service and repair procedures are important for the safety of the servicing mechanic, the safety and the reliability of the motorcycle.
- When 2 or more persons perform work in cooperation, pay attention to safety of each other.
- When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoor.
- When working with toxic or flammable materials, make sure that the area you work in is well-ventilated and that you follow all of the material manufacturer's instructions.
- Never use fuel as a cleaning solvent.
- To avoid getting burned, do not touch the engine, engine oil and muffler until they have cooled.
- After servicing the fuel, oil, muffler or brake system, check all hoses and fittings related to the system for leaks.

⚠ CAUTION

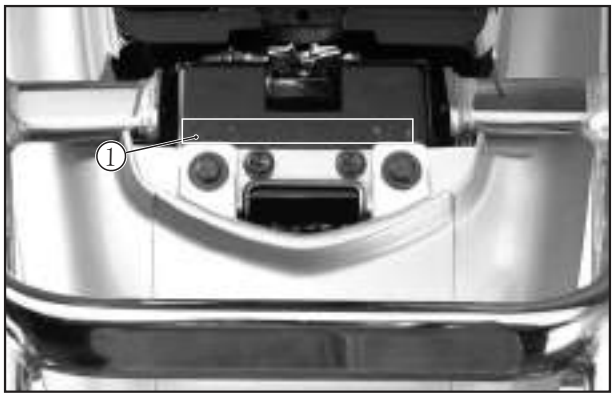
- If parts replacement is necessary, replace the parts with the HAOJUE GENUINE PARTs or their equivalent.
- When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
- Be sure to use special tools when instructed.
- Make sure that all parts used in reassembly are clean. Lubricate them when specified.
- Use the specified lubricant, bond, or sealant.
- When performing service to electrical parts, if the service procedures not required to use the battery power, disconnect the positive pole.
- When removing the battery, disconnect the negative wire first and then the positive wire.
  When reconnecting the battery, connect the positive wire first and then the negative wire, and place the pole cover on the positive pole.
- When tightening cylinder head and crankcase bolts and nuts, tighten the larger sizes first.
  Always tighten the bolts and nuts diagonally from the inside working out.
- Whenever you remove oil seals, gaskets, packing, O-rings, lock washers, cotter pins, circlips, and certain other parts as specified, be sure to replace them with the new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
- Never reuse a circlip. When installing a new circlip, take care not to expend the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure that it is completely seated in its groove and securely fitted.
- Do not use self-lock nuts a few times over.
- Use a torque wrench to tighten fasteners to the specified torque, and wipe off grease or oil if a thread is smeared with them.
- After reassembly, check parts for tightness and proper operation.

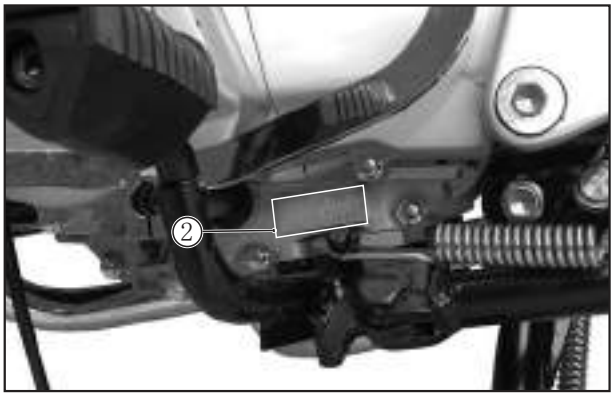
NOTE:

- To protect environment, do not unlawfully dispose of used engine oil and other fluids, batteries and tires.
- To protect Earth's natural resources, properly dispose of the used motorcycle and parts.

SERIAL NUMBER LOCATIONS

The V.I.N (Vehicle Identification Number) ① is stamped on the chassis rear under the saddle. The engine serial number ② is located on the lower of the left crankcase.
These numbers are required especially for registering the motorcycle and ordering the spare parts.





FUEL AND OIL RECOMMENDATIONS

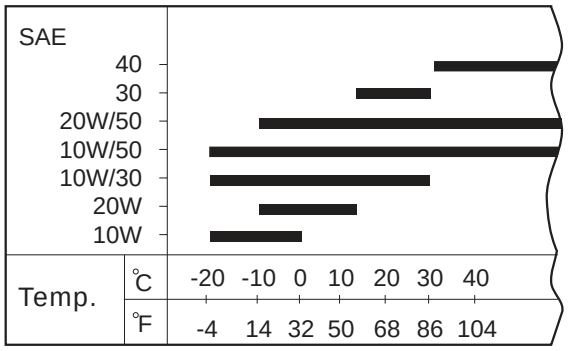
FUEL

Use fuel with an octane number of 90-97 (Research method), preferably unleaded.

NOTE:
Unleaded fuel will extend spark plug life.

ENGINE OIL

Be sure that the motorcycle engine oil you use comes under API classification of SF or SG and its viscosity rating is SAE 10W-40. If SAE 10W-40 engine oil is not available, select the oil viscosity according to the following chart:



BREAK-IN PROCEDURE

During the manufacture only the best possible materials are used and all machined parts are finished to a very high standard, it is still necessary to allow the moving part to “BREAK-IN” before subjecting the engine to maximum stresses . The future performance and reliability of the engine depends on the care and restraint exercised during its early life . The general rules are as follows:

- The break-in mileage is 500 km.
- The throttle must not be opened to the full during the new motorcycle's break-in period. Throttle opening should be limited to ≦3/4 of its maximum, while violent acceleration should be avoided.
- Do not maintain constant engine speed for an extended time period during any portion of the break-in. Try to vary the throttle position.

SPECIFICATIONS

DIMENSIONS AND CURB WEIGHT

Overall length	1909 mm（HJ110-2) 1906 mm(HJ110-2A)
Overall width	677 mm(HJ110-2) 676 mm(HJ110-2A)
Overall height	1088 mm(HJ110-2) 1085 mm(HJ110-2A)
Wheelbase	1218 mm(HJ110-2) 1202 mm(HJ110-2A)
Ground clearance	120 mm
Curb weight	104 kg(HJ110-2) 106 kg(HJ110-2A)

ENGINE

Type	Four-stroke, air-cooled, OHC
Number of cylinders	1
Bore	52.4 mm
Stroke	49.5 mm
Piston displacement	107 ml
Compression ratio	9.1:1
Carburetor	VM type PZ26S
Air cleaner	Polyurethane foam element
Starting system	Electric starter with kick starter
Lubrication system	Pressure splash

TRANSMISSION

Clutch	Wet automatic centrifugal type
Transmission	Reciprocal shift(driving), cyclic shift(parking)
Gearshift pattern	4-speed gear transmission
Primary reduction	4.059
Final reduction	2.571
Gear ratios, low	2.833
2nd	1.705
3rd	1.238
4th	0.958
Drive chain	428, 100 links

ELECTRICAL

Ignition type	DC-CDI
Ignition timing	15° B.T.D.C. below 1500r/min and 30° B.T.D.C. above 5000r/min
Spark plug	TORCH A7RC or NHSP LD A7RTC
Battery	12V 5Ah
Fuse	15A
Headlight	12V, 35W/35W
Tail/Brake light	12V, 5W/21W
Turn signal light	12V, 21W (front) 12V,21W(rear) (HJ110-2) 12V, 21W (front）12V,16W(rear) (HJ110-2A)
Position light	12V, 5W
Gear position indicator light	12V, 2W×5
Dashboard panel light	12V, 2W
High beam indicator light	12V, 2W
Turn signal indicator light	12V, 2W×2

CHASSIS

Front suspension	Telescopic, coil spring, oil dampened
Rear suspension	Swing arm, coil spring, oil dampened coil spring 5-way adjustable
Steering angle	42°
Caster	27°
Trail	93 mm
Turning diameter	3.7 m
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	2.50-17-4PR
Rear tire size	2.75-17-4PR

CAPACITIES

Fuel tank including reserve	4.7 L
Engine oil	900 ml
Front absorber oil	57 ml

* These specifications are subject to change without notice.

PERIODIC MAINTENANCE

CONTENTS

PERIODIC MAINTENANCE

The chart below lists recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at performance and economy. Mileage are expressed in terms of kilometer and times for your convenience.

NOTE:
More frequent servicing should be considered if the motorcycle is operated under the rough conditions.

PERIODIC MAINTENANCE CHART

ITEM \ INTERVAL	km	1,000	3,000	6,000	PAGE
	month	3	6	12	
Battery		Inspect	Inspect	–	2-3
Air cleaner		Clean	Clean	–	2-4
Muffler mounting nuts &bolts		Tighten	Tighten	–	2-5
Cylinder head&cylinder nuts &bolts		Tighten	Tighten	–	2-5
Valve clearance		Inspect	Inspect	–	2-6
Spark plug		Inspect	Inspect	–	2-7
		Replace Every 12,000 km			
Engine oil		The first change at Initial 500 km, the second change at 1,000km total mileage, while further change Every 3,000 km.			2-8
Oil strainer		Clean Every 12,000 km			2-9
Clutch		Inspect	Inspect		2-9
Carburetor (Idle speed)		Inspect	Inspect	–	2-9
Throttle cable play		Inspect	Inspect	–	2-10
Fuel hose and secondary air hose		Inspect	Inspect	–	2-10
		Replace Every 4 years			
Fuel filter		Inspect	Inspect	Replace	2-10
Drive chain		Inspect, clean & lubricate Every 1,000 km			2-11
Brakes		Inspect	Inspect	–	2-14
Tires		Inspect	Inspect	–	2-15
Steering		Inspect	Inspect	–	2-16
Front and rear absorber		–	Inspect	–	2-16
Lights and signal lights		Inspect	Inspect	–	2-17
Chassis and engine mounting bolts and nuts		Inspect	Inspect	–	2-17

NOTE:
The inspection items above may require, if necessary, further cleaning, tighten, adjustment or replacement
"-" stands for not required.

LUBRICATION CHART

The following is a basic lubrication requirement for a motorcycle operated in an economical manner and based on the mileage displayed by the odometer.

ITEM \ INTERVAL	km	Initial and Every 6,000 km	Every 12,000 km
	month	6	12
Throttle cable		Engine oil	–
Throttle grip		–	Grease
Odometer cable		–	Grease
Speedometer gear box		–	Grease
Drive chain		Engine oil Every 1,000 km	
Brake pedal axle		Grease or engine oil	–
Brake cam		–	Grease
Steering bearing		Grease Every 2 years or 24,000 km	
Rear rocker arm bearing bush			

⚠ WARNING

Do not apply too much lubrication grease on the brake cam to prevent the brake from slipping.

⚠ CAUTION

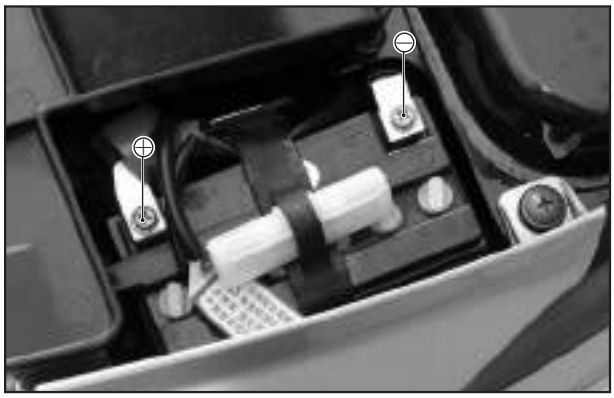
When driving on wet roads or under rainy conditions, lubricate the parts with engine oil or grease to avoid rust. Be sure to remove oily contamination or rust.

NOTE:
“-"stands for not required

MAINTENANCE PROCEDURES

BATTERY

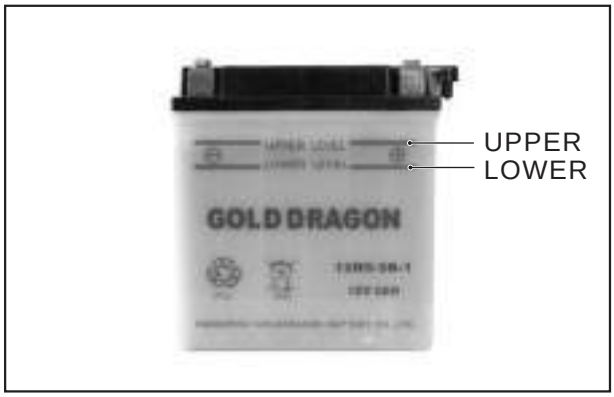
Inspect at Initial 1,000 km and Every 3,000 km



- Unlock and open the saddle; remove the wires on both the positive ⊕ and negative ⊖ poles, Remove the battery.

NOTE:
When remove the battery, remove the negative ⊖ wire first.

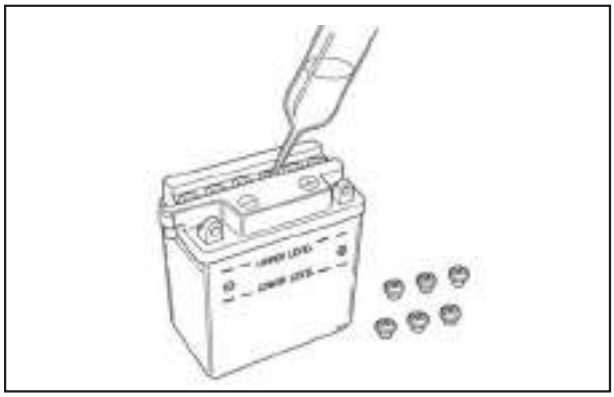
- Inspect the electrolyte level, which should be kept within “UPPER LEVEL” (the upper limit) and “LOWER LEVEL” (the lower limit). If the level is below the “LOWER LEVEL”, pour the distilled water up to the “UPPER LEVEL”.



NOTE:
Only the distilled water should be poured.

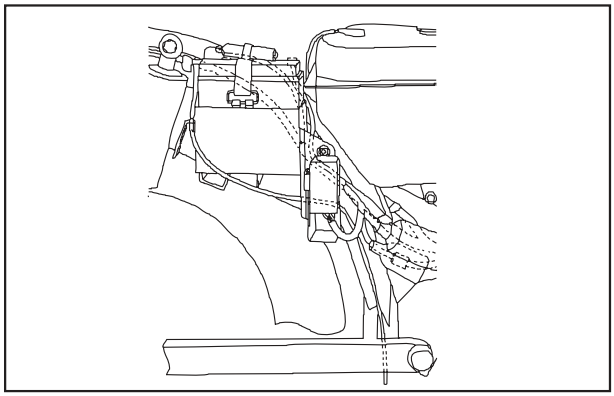
⚠ CAUTION

Once the battery is put into use, no more diluted sulfuric acid should be poured.



⚠ WARNING

Do not bend, clog the exhaust pipe of the battery or alter its path. Make sure that one end of the pipe is securely connected with the battery while the another end is through.
When connecting to the battery, be sure to connect the positive and negative poles correctly. The red wire is for the positive pole while the black wire is for the negative pole. Wrongly connecting to the battery poles may result in damage to the electrical circuit and the battery itself.



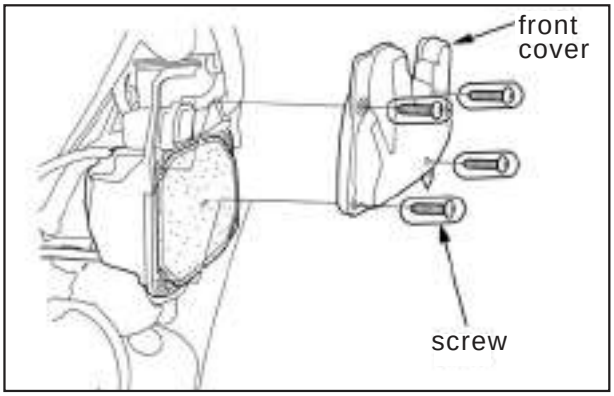
Please refer to page 6-12 for information about the battery charging time and current.

AIR CLEANER

Clean at Initial 1,000 km and Every 3,000km.

If the air cleaner is clogged with dust, intake resistance will be increased with a resultant decrease in power output and an increase in fuel consumption.

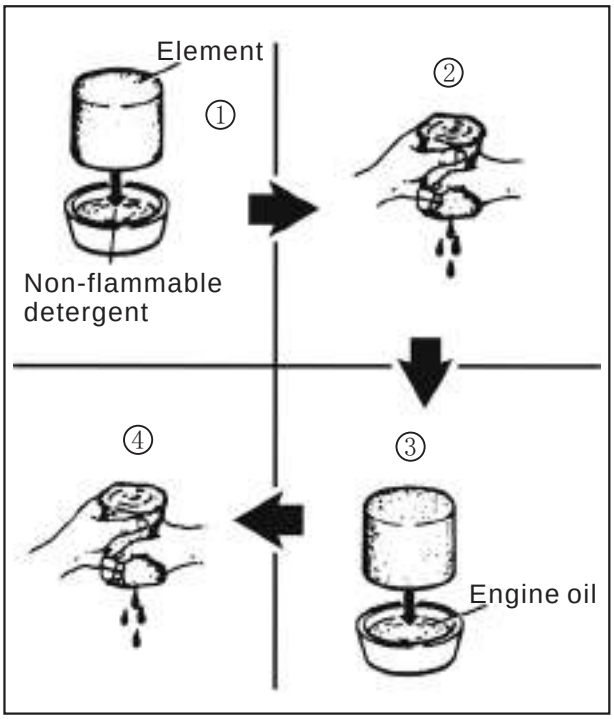
- Remove the front basket (for HJ110-2) and the front panel,
- Remove the front left / right side covers.
- Loosen the front cover screws of the air cleaner element, remove the front cover, the element and the element support.
- Pour non-flammable detergent into a wash pan of appropriate size, dip the element into the detergent solution and clean it.
- Squeeze the liquid out of the element by pressing it with both hands. Never twist the element to avoid breaking it.
- Dip the element into the engine oil again, squeeze out excessive oil to keep the element slightly wet.



⚠ WARNING

Look carefully for fractures on the element before and during cleaning. In case fractures are found, replace the element immediately.

- Assemble the element in the reversed order of disassembly. Make sure the element is correctly installed at specified position and properly sealed.



⚠ WARNING

When driving in dusty environments, please carry out filter element inspection, clean and replacement more frequently. If any defect such as clog, damage or dust infiltration occurs, replace it immediately. Do not wait until the next scheduled maintenance. Start the engine without installing the filter element will accelerate engine wear-off.

MUFFLER MOUNTING NUTS & BOLTS

Inspect at Initial 1,000 km and Every 3,000 km

- Tighten the muffler mounting nuts and bolts.

CYLINDER HEAD & CYLINDER NUTS & BOLTS

Tighten at Initial 1,000 km and Every 3,000 km

CYLINDER HEAD LEFT NUT

- Tighten the right nut of the cylinder head to the specified torque.

Specified torque: 8-12 N•m

CYLINDER HEAD NUTS

- Tighten the nuts of cylinder head to the specified torque.

Specified torque: 15-18 N•m

CYLINDER HEAD SIDE BOLT

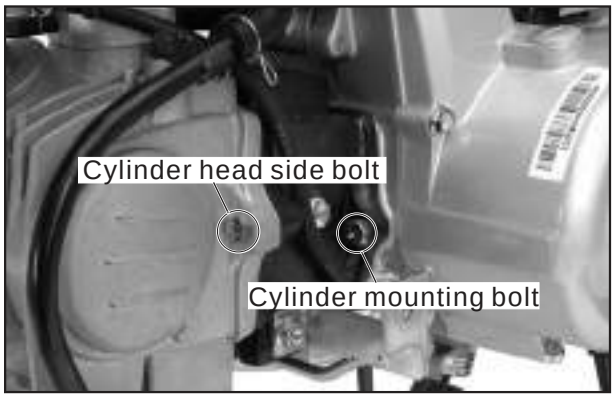
- Tighten the cylinder connecting bolt to the specified torque.

Specified torque: 8-12 N•m

CYLINDER MOUNTING BOLT

- Tighten the cylinder mounting bolt to the specified torque.

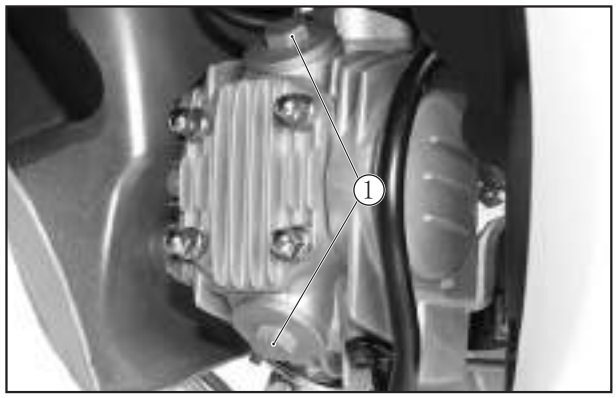
Specified torque: 15-18 N•m



VALVE CLEARANCE

Inspect at Initial 1,000 km and Every 3,000 km

NOTE:
The valve clearance must be checked and adjusted under cooled engine states.



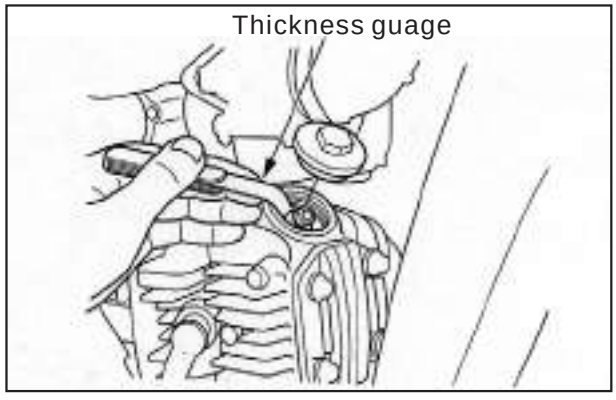
- Remove spark plug, valve inspecting caps ①, and valve timing inspecting plug③.

- Remove the generator cover cap ② and rotate the generator rotor with a 14-mm socket wrench to set the piston at T.D.C of the compression stroke.
  (Rotate the generator rotor until the “T”line on the rotor is aligned with the center of hole on the left crankcase cover.)

⚠ CAUTION

The crankshaft must be rotated counter-clockwise. If the crankshaft is already rotated clockwise due to negligence, it must then be rotated counterclockwise by two or more turns. The adjusted valve can only be ensured to be correct when the “T” mark on the rotor is aligned with the mark line on the crankcase. Since when crankshaft rotates clockwise, the pressure-reducing cam takes action to result in incorrect valve clearance.

- Insert the thickness gauge between the tappet adjusting screw and valve stem to measure the clearance of the intake/exhaust valve.



Valve clearance	0.03-0.07 mm

TOOL 09900-20803: Thickness gauge

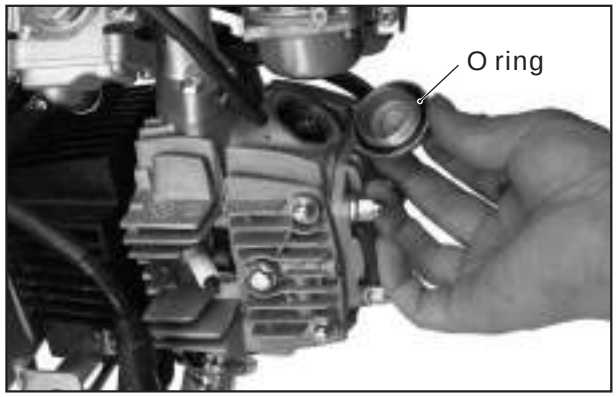
ADJUSTMENT

- Loosen the lock nut, turn the tappet adjusting screw until the gauge feels a slight resistance.
- Fix the tappet adjusting screw and tighten the lock nut to the specified torque.

TOOL 09917-14910: Tappet adjusting driver

- Check the valve clearance again.
- Check if the O-ring of the valve inspecting caps is damaged, replace it if necessary.
- Apply engine oil on the O-ring, and mount it onto the valve inspection caps.
- Apply engine oil on the thread of the valve inspecting caps, and tighten to the specified torque.

Specified torque: 10-14 N•m



- Check if the O-rings of valve timing inspection plug and the generator cover cap is damaged, replace if necessary.
- Apply engine oil on the thread parts of both valve timing inspection plug and the generator cover cap, and install them.

SPARK PLUG

Inspect at Initial 1,000 km and Every 3,000 km. Replace Every 12,000 km.

- Remove the spark plug with a socket wrench.

Pay attention to the color of the ceramic and the electrode of the spark plug. The status of the spark plug can be determined by observing its color. If the standard spark plug looks wet and black, use a hot plug instead. If the spark plug looks white, it means that the spark plug has overheated and should be replaced with a cold one.

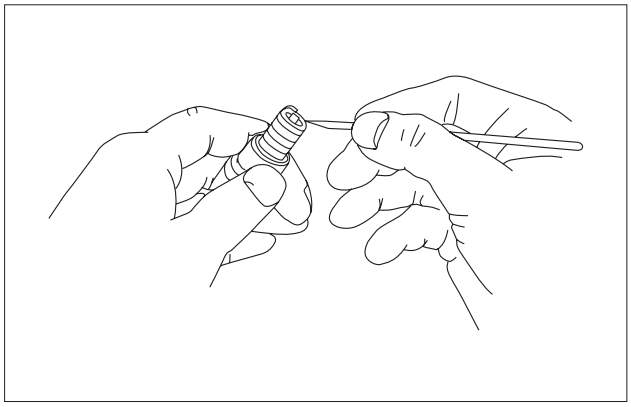
KIND	TYPE
HOT TYPE	TORCH A6RC or NHSP LD A6RTC
STANDARD	TORCH A7RC or NHSP LD A7RTC
COLD TYPE	TORCH A8RC or NHSP LD A8RTC

ELECTRODE'S CONDITION

Check for the worn or burnt condition of the electrodes. If it is extremely worn or burnt, replace the spark plug. And also replace the spark plug if it has a broken insulator, damaged thread, etc.

CARBON DEPOSIT

Check for the carbon deposit on the plug.
If the carbon is deposited, remove it with a spark plug cleaner machine or a needle carefully.

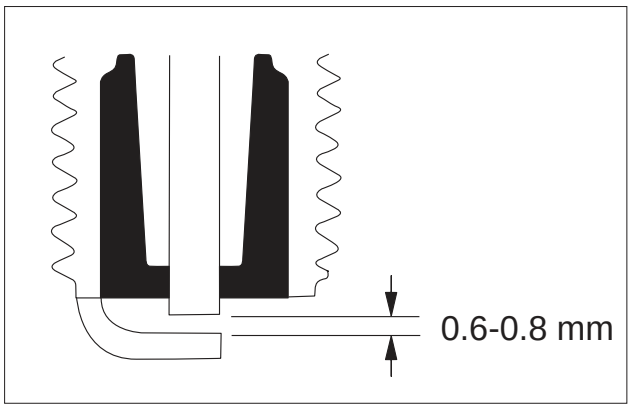


SPARK PLUG GAP

Measure the spark plug gap with a thickness gauge if it is correct. If not, adjust it to the following gap.

Spark plug gap	Standard
	0.6~0.8 mm

TOOL 09900-20803: Thickness gauge

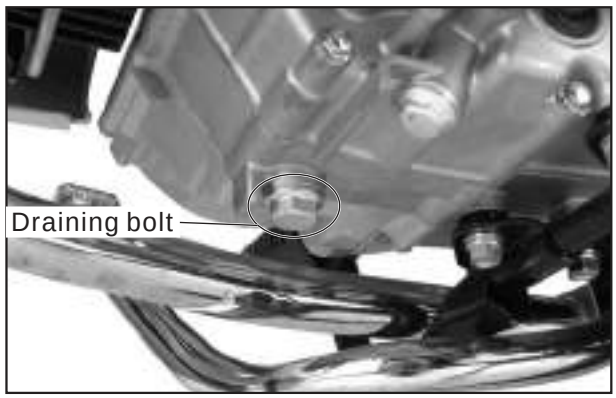


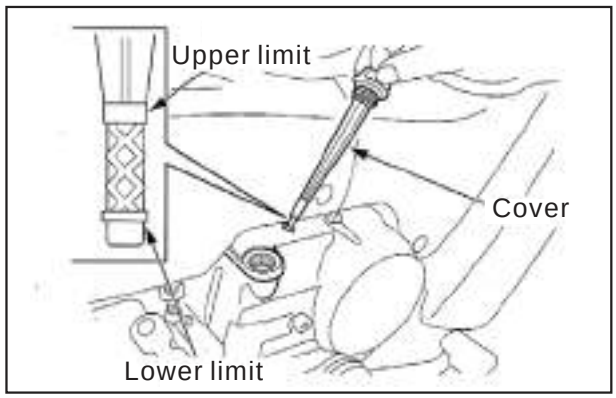
ENGINE OIL

The first change at Initial 500 km, the second change at 1,000km total mileage, while further change Every 3,000 km.

Engine oil replacement should be made when the engine is warm as follows:

- Support the motorcycle by the main stand.
- Remove the draining bolt on the engine bottom to drain out the used engine oil after unscrewing the filling hole cover.
- Check whether the sealing washer of the draining bolt is properly mounted; screw the draining bolt properly to avoid over-tightening.
- Fill 800 ml (the first filling of a new motorcycle is 900 ml) engine oil into the filling hole; screw the filling hole cover properly to avoid over-tightening.
- Start the engine, keep it at idle speed for several minutes.
- Shut down the engine, 1 minute later, check the oil lever. The oil level should be near the upper limit mark.





OIL STRAINER

Clean Every 12,000 km

The right crankcase cover has to be removed to check the engine oil strainer. Replace with a new one if necessary.

⚠ CAUTION

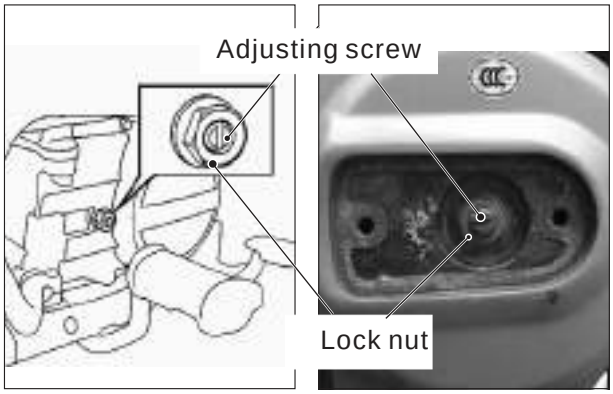
Since the right crankcase cover has to be removed to check the engine oil strainer, the decision to replace the strainer should be made by qualified mechanic.
Check carefully for any oil leakage at the draining bolt.

CLUTCH

Inspect at Initial 1,000 km and Every 3,000 km

- Support the motorcycle with the main stand.
- Remove the brand plate cover (HJ110-2A).
- Loosen the lock nut of clutch adjusting screw rotate the adjusting screw clockwise by 1 turn (do not overturn), rotate the adjusting screw counterclockwise slowly until feeling a slight resistance.
- Rotate the adjusting screw clockwise by 1/18 turn and tighten the lock nut to the specified torque.

(HJ110-2) (HJ110-2A)



NOTE:
When tightening the lock nut, fix the adjusting screw.
After adjusting, check the operation of the clutch.

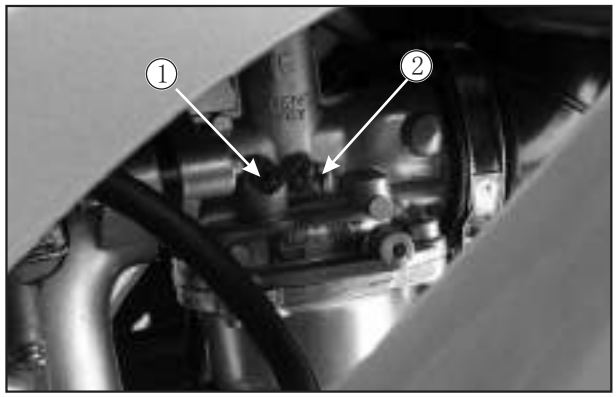
Specified torque: 15-18 N•m

(HJ110-2) (HJ110-2A)

CARBURETOR (IDLE SPEED)

Inspect at Initial 1,000 km and Every 3000 km,

- Start the engine, keep it at idle speed till fully pre-heated.
- Once the engine has pre-heated, release the throttle; turn the pilot screw ① and the air adjusting screw ② clockwise or counter-clockwise to keep the idle speed within 1,400~1,600 RPM(refer to page 4-6).



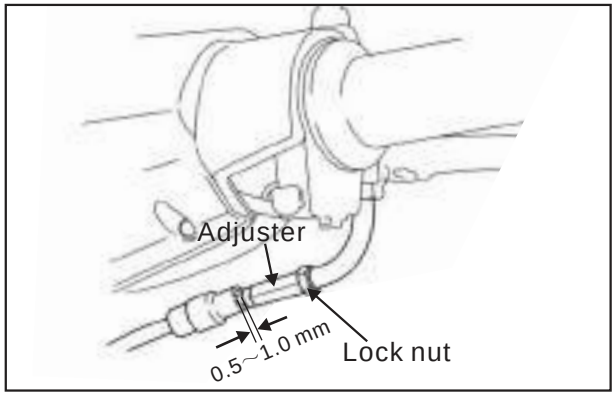
NOTE:
The adjustment of the engine idle speed should be done when the engine has fully pre-heated.

THROTTLE CABLE PLAY

Inspect at Initial 1,000 km and Every 3,000 km.

- Loosen the lock nut .
- Turn the adjuster to adjust the cable play to keep it between 0.5-1.0 mm.
- Tighten the lock nut securely after the play adjustment is completed.

Throttle cable play	0.5~1.0 mm



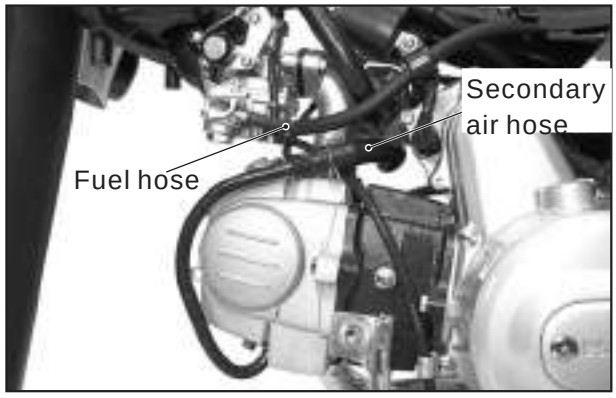
⚠ WARNING

After the adjustment of throttle cable play was completed, make sure that the throttle grip position should be able to return freely, and the adjustment has not raised the engine idle speed.
In the meantime, make sure that the engine idle speed was not caused to change while turning the handlebar to the left and right.

FUEL HOSE AND SECONDARY AIR HOSE

Inspect at Initial 1,000 km and Every 3,000 km Replace Every four years.

Check for damage, fracture or fuel leakage on the fuel hose and secondary air hose as well as their connections. If problem was found, replace the fuel hose or the secondary air hose immediately.



FUEL FILTER

Inspect at Initial 1,000 km and Every 3,000 km. Replace Every 6,000 km.

If the fuel filter is dirty with sediment, fuel will not flow smoothly and decrease in power output may result.
Clean the filter cup with non-flammable detergent.

DRIVE CHAIN

Inspect ,clean and lubricate Every 1,000 km

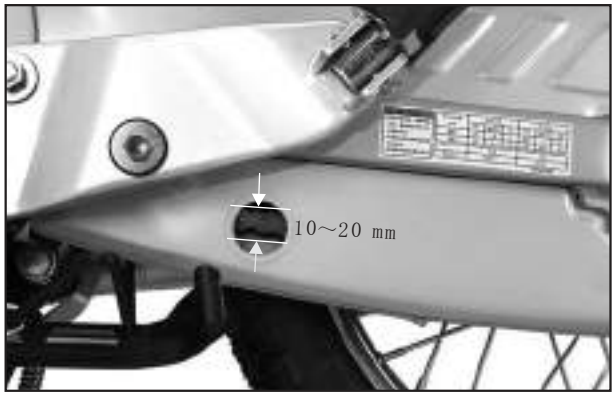
CHAIN SAG

⚠ WARNING

It is prohibited to check and adjust the chain sag when the engine is running.

- Turn-off the engine; support the motorcycle with the main stand; shift the gear to neutral.
- Remove the inspection hole cover of the chain.
- Check the chain sag in the inspection hole.

Chain sag	10-20 mm



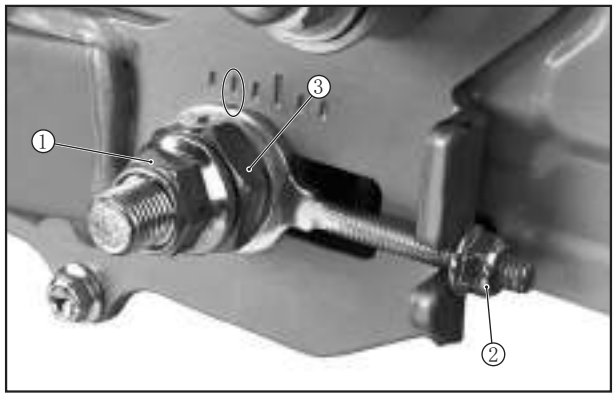
⚠ WARNING

Excessive chain sag may result in an accident caused by the chain falling-off as well as severe engine damage.

ADJUSTMENT

- Loosen the rear axle nut ① and ③.
- Rotate the adjusting nut ② to obtain correct chain sag.
- Confirm alignment of the front ends of the two adjusters to the mark on the rear swing arm.
- Tighten the nut ③ to the specified torque.

Specified torque: 40~50 N•m



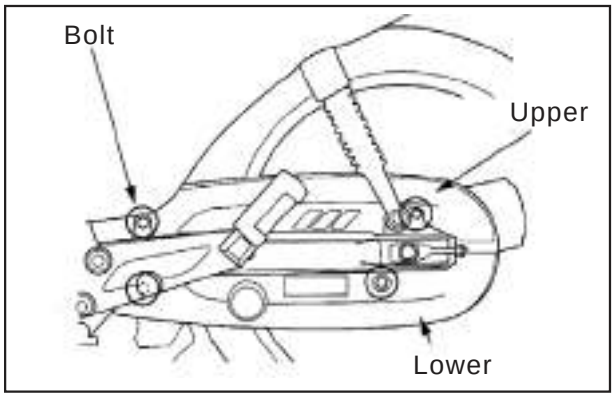
- Tighten the rear axle nut ① to the specified torque.

Specified torque: 48~58 N•m

- Tighten the two adjusting nuts ②.
- Check the chain sag and free rotation of rear wheel.
- Check the free travel of the rear brake pedal (refer to page.2-14). Adjust if necessary.

INSPECTION/CLEAN & LUBRICATION

- Remove the four bolts as well as the upper / lower chain guard.



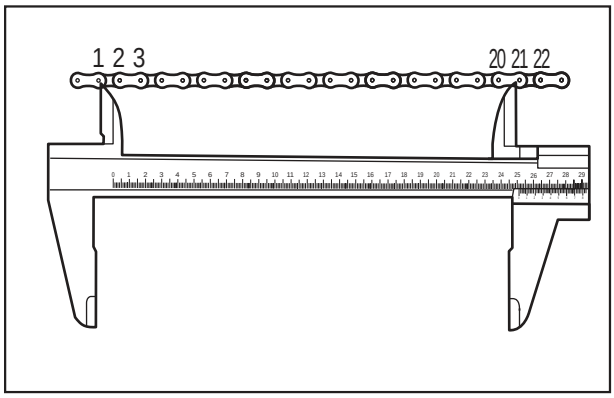
- If the chain is too dirty, remove the chain and wash it before lubrication.
- Disassemble the chain and chain board after removing the chain lock plate carefully with plier.

- Clean the chain with non-flammable detergent and make it dry.
- Apply #80-90 gear oil on the chain when it is completely dry.
- Wipe away excessive gear oil.

- Check the drive chain for damage or wear.
  If damaged, loose or twisted defects are found on the chain, replace it immediately.
- Stretch the chain to measure its length.

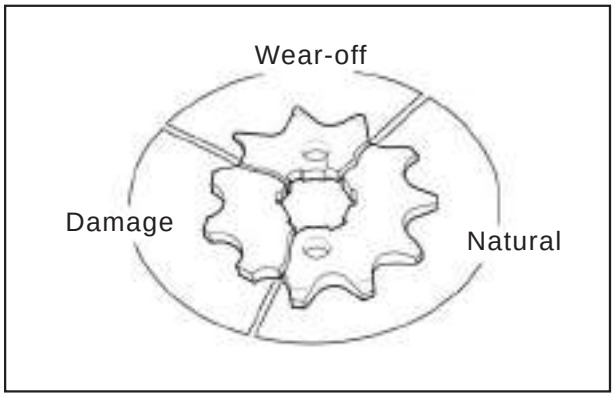
Drive chain 20pitch length service limit	259.0 mm

TOOL **09900-20103 vernier caliper**

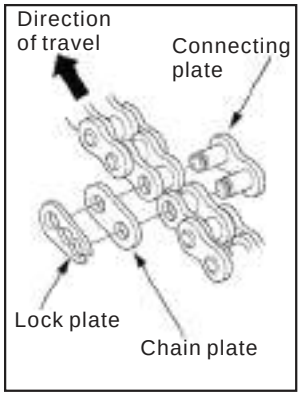


SPROCKET INSPECTION

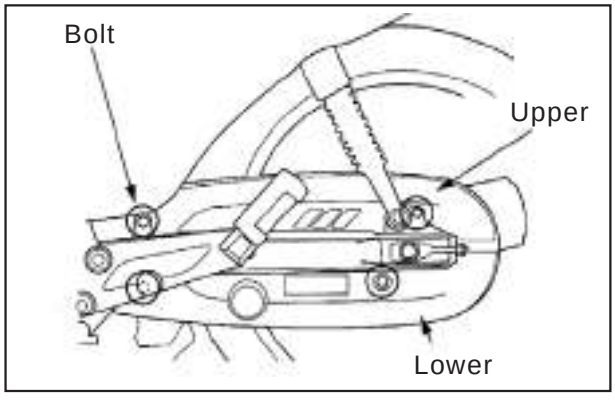
- Installing a new chain on an used sprocket may accelerate chain wear-off.
- Check for wear-off or damage of the sprocket, replace if necessary. Never install a new chain on a worn sprocket.



- Check the bolts and nuts of drive and driven sprockets. Tighten the bolts and nuts if they were loosed.
- Install the chain onto the sprocket; mount the connecting plate and the chain plate.
- Install the lock plate; keep the opening of the lock plate opposite to the motion direction of the chain.



- Install the chain guard and tighten the chain guard bolt.



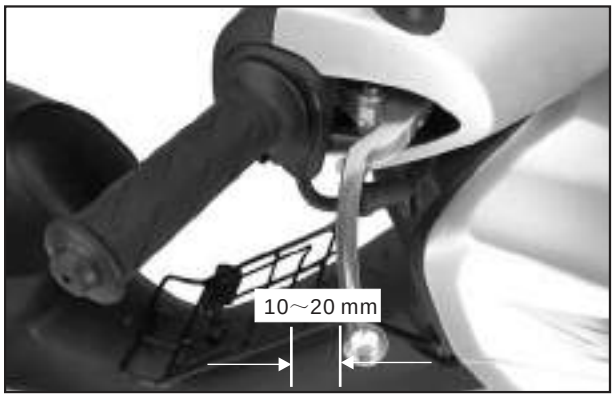
BRAKES

Inspect at Initial 1,000 km and Every 3,000 km

FREE TRAVEL OF THE BRAKE LEVER

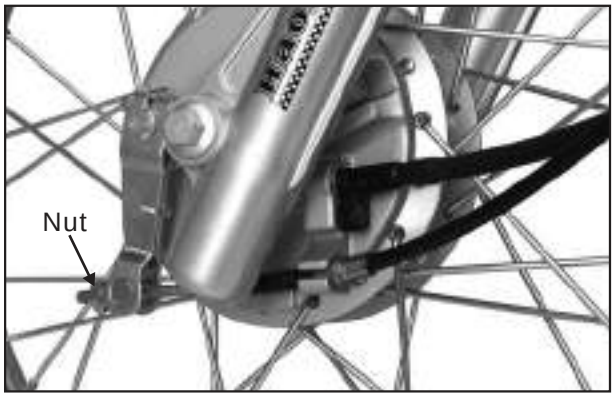
- Measure the free travel of the front brake lever at the end of it.

Free travel	10-20 mm



- Rotate the front brake adjusting nut to obtain a specified free travel if necessary.

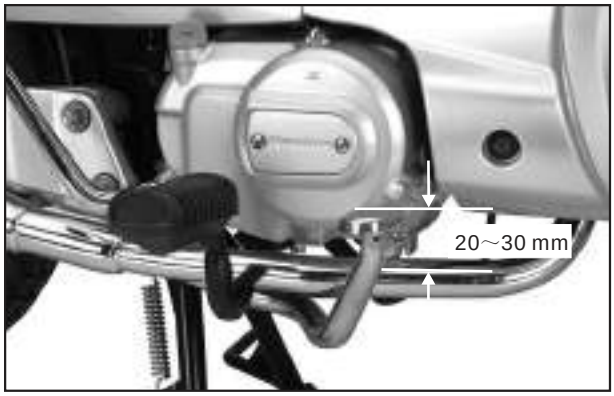
Note
After adjusted, check whether the arc slot of the nut is al igned with the round pin of the brake swinging arm.



FREE STROKE OF THE BRAKE PEDAL

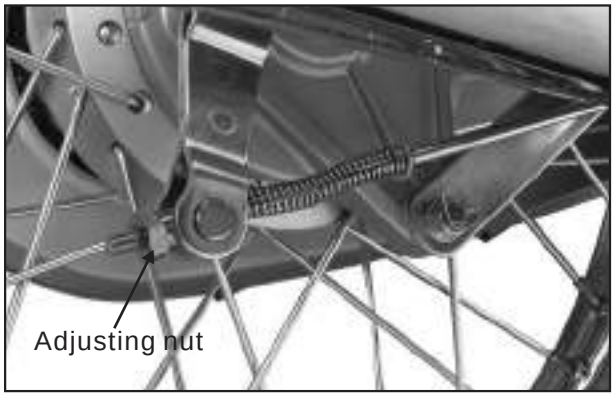
- Measure the free stoke of the top end of rear brake pedal.

Free stroke	20-30 mm



- Rotate the rear brake adjusting nut to obtain a specified free stroke if necessary.

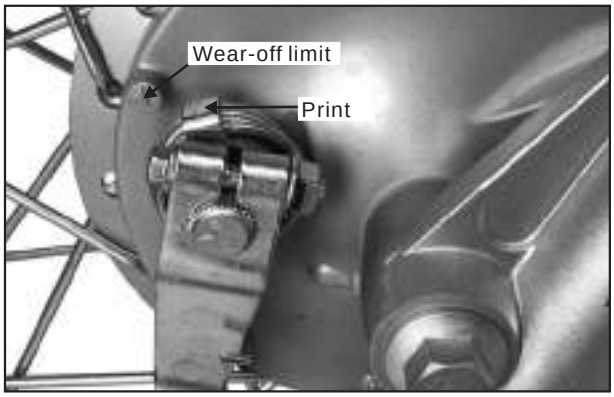
Note:
After the adjustment is done, check if the arc slot is aligned with the round pin of the brake swinging arm.



BRAKE SHOES WEAR-OFF

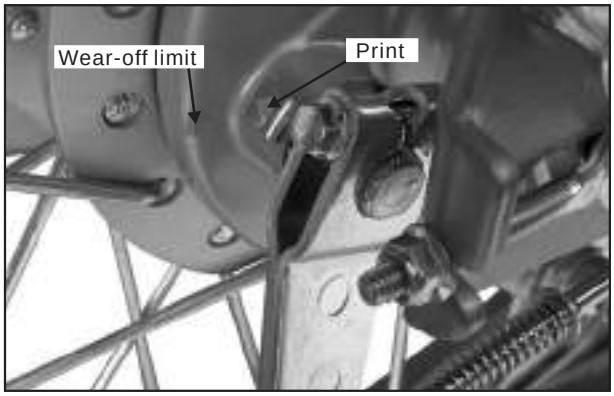
FRONT BRAKE SHOES

- If, when applying the brakes, the arrow on the indication plate aligns to the "△" mark on the wheel hub panel, check the brake shoes and wheel hub panel and replace the brake shoes if necessary.



REAR BRAKE SHOES

- If, when applying the brakes, the arrow on the indication plate aligns to the "△" mark on the wheel hub panel, check the brake shoes and wheel hub panel, and replace the brake shoes if necessary.



BRAKE LIGHT SWITCH

- The rear brake switch is located at the lower right of the chassis. To adjust it, turn the nut and move it up and down. Enable the brake light on when feeling a bit pressure by stepping down on the pedal.

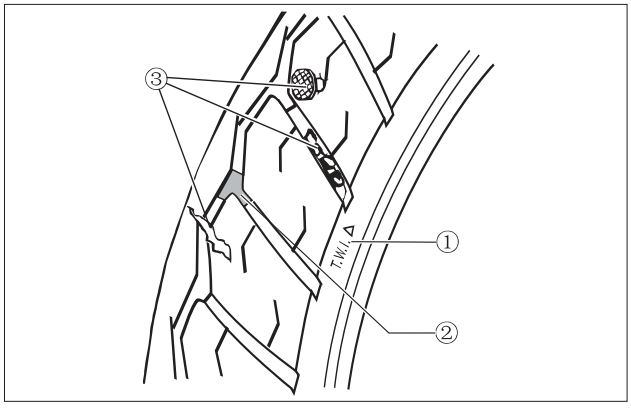
TIRES

Inspect at Initial 1,000 km and Every 3,000 km

TIRE STATUS

There are several wear marks ① located on the tire. Check around the wear marks ① (boss in tire tread channels ②) to make sure the tire pattern is deep enough. If the wear marks are abraded, which means there is 0.8 mm of tire thread remaining, the tire needs to be changed.

Examine the wear-off and damage ③ (punctures or fractures) on the tire surface visually. As excessive wear-off or surface damage may reduce the driving stability, such tires should be replaced.



Check the tire pressure, and examine the calve for evidence of air leakage.

TIRE PRESSURE

	SOLD RIDING	DUAL RIDING
FRONT	1.75kg/cm^2 175KPa	2.00 kg/cm^2 200KPa
REAR	2.00 kg/cm^2 200KPa	2.25 kg/cm^2 225KPa

STEERING

Inspect at Initial 1,000 km and Every 3,000 km

- Support the motorcycle with the main stand to lift the front wheel from the ground.
- Make sure the steering handlebar can move flexibly while the brake cables do not obstruct.
- If the steering handlebar cannot move smoothly or shows radial run-out, check the steering column bearing carefully.

FRONT/REAR ABSORBER

Inspect Every 3,000 km

FRONT ABSORBER

- Grip the front brake, squeeze the front absorber to check its motion, check for leaks or damage.
  Replace damaged parts and tighten all bolts and nuts.

REAR ABSORBER

- Press down the rear of the motorcycle repeatedly to check the performance of the rear absorber.
  Check for leaks or damage; tighten all bolts and nuts.

LIGHTS AND SIGNAL LIGHTS

Inspect at Initial 1,000 km and Every 3,000 km

Check all the lights and signal lights that must be correct.
Refer to page 6-8 and page 6-9.

CHASSIS AND ENGINE MOUNTING BOLTS AND NUTS

Inspect at Initial 1,000 km and Every 3,000 km

Check the tightening torque of the bolts and nuts for the motorcycle according to the table below:

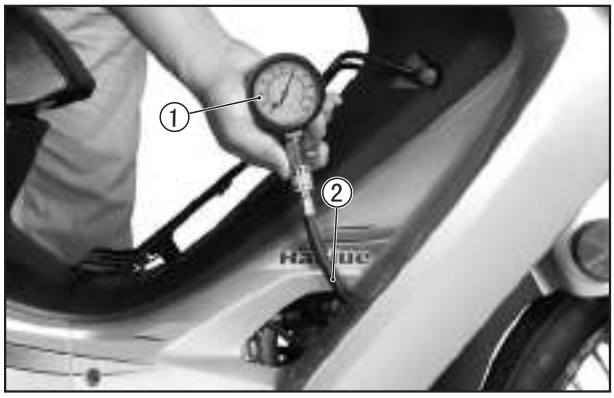
ITEM			Kg•m	N•m
1	Handlebar lock bolt/nut		4.5~5.5	45.0~55.0
2	Front absorber lock bolt		3.5~5.5	35.0~55.0
3	Steering lock nut		2.5~3.5	25.0~35.0
4	Front axle nut		4.8~5.76	48.0~57.6
5	Front footrest bolt		1.5~2.0	15.0~20.0
6	Engine mounting bolt/nut		3.5~4.5	35.0~45.0
7	Rear swing pivot nut		2.5~3.5	25.0~35.0
8	Rear absorber nut		2.0~3.0	20.0~30.0
9	Rear footrest bolt		1.8~2.8	18.0~28.0
10	Rear axle nut		4.8~5.8	48.0~58.0
11	Brake cam lever bolt/nut	F	0.6~0.8	6.0~8.0
		R	0.7~1.0	7.0~10.0
12	Hub assy nut		4.0~5.0	40.0~50.0
13	Torque link bolt/nut		1.0~1.6	10.0~16.0
14	Rear sprocket nut		1.8~2.8	18.0~28.0
15	Kick starter bolt		1.0~1.35	10.0~13.5

COMPRESSION PRESSURE

INSPECTION

NOTE:
Before testing the compression pressure of the engine, be sure that the nuts and bolts of the cylinder head are securely tightened to the specified torque, and the valve clearance is correct.
Keep the engine running idle for several minutes before carrying-out the test.

- Remove the spark plug.
- Fit the compression gauge ① and adapter ② to the plug hole, taking care to make the connection absolutely tight.
- Twist the throttle grip into wide-open position.
- Crank the engine several times with the starting motor, and read the highest gauge indication as the compression of the cylinder.



TOOL 09915-64510 : Compression gauge ①
09915-63210 : Adapter ②

Compression pressure

Standard	Limit
10-14 kgf/cm^2	8 kgf/cm^2

A low compression pressure may indication any of the following malfunctions:
* Excessively worn cylinder wall.
* Worn piston or piston rings.
* Piston rings stuck in the grooves.
* Poor seating contact of valves.
* Defective cylinder head gasket.

When the compression pressure noted is down to or below the limit indication above, the engine must be disassembled, inspected and repaired as required.

ENGINE

CONTENTS

REMOVE ENGINE PARTS WITH ENGINE UNREMOVED

The following parts can be dismounted and remounted without removing the engine. Refer to sections about parts dismounting and remounting.

ENGINE PARTS

RIGHT SIDE OF ENGINE

LIFT SIDE OF ENGINE

ENGINE REMOVAL AND REMOUNTING

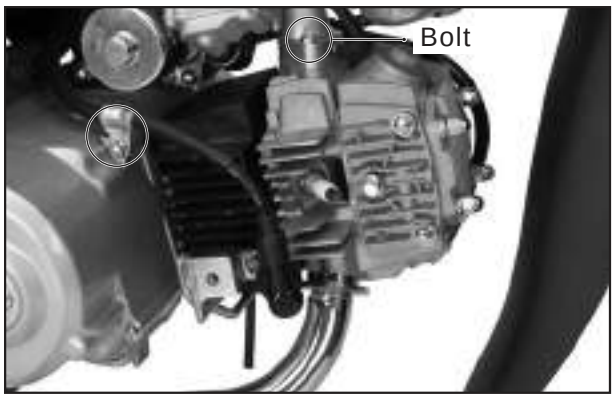
ENGINE REMOVAL

Before take the engine out of the chassis, clean the engine with a suitable cleaner completely.

- Support the motorcycle with the main stand.
- Drain out the engine oil.
- Remove the front panel, the front left / right side covers, the central guard, the suffer cover, the saddle, the rear bracket ,the tail cover, and the left / right side cover.

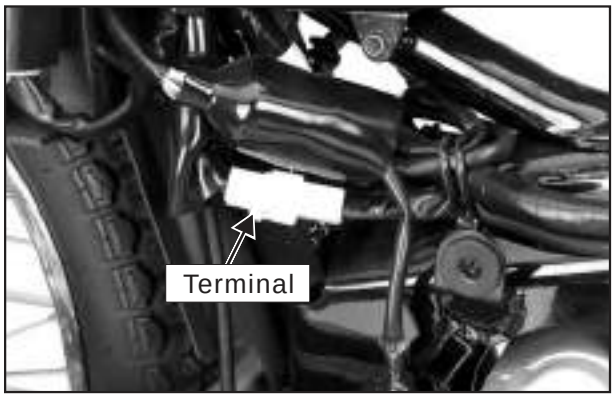
- Remove the muffler mounting nuts and bolts.
- Remove the muffler.

- Unplug the spark plug cap and loose the wire clamp.
- Remove the intake pipe bolts.

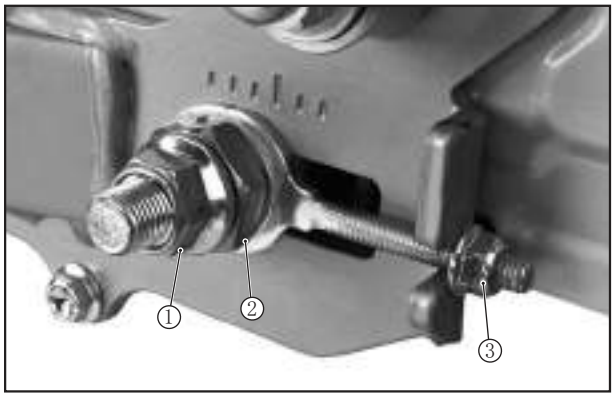


- Disconnect the plug terminals of gear switch, generator stator.

● Disconnect the plug terminal of the starting motor.



● Loosen the rear wheel axle nut ①; lock nut ② and the sprocket adjusting nut ③.



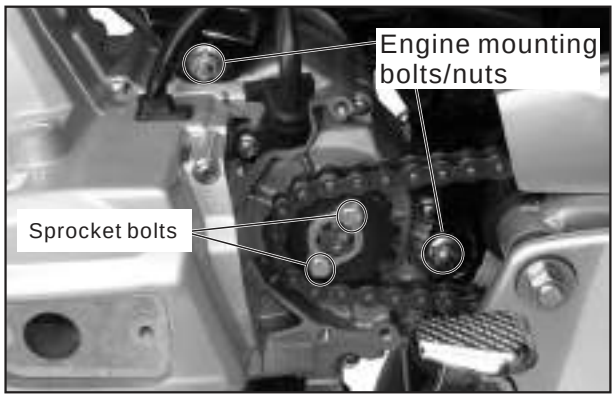
● Push the rear wheel axle forward to enable the chain to be loose enough.

● Remove the gear rod and the bolt .

- Remove the bolts and the front footrest bar.

- Remove the bolts and the engine sprocket cover.

- Remove the sprocket bolts, the gasket and the sprocket.
- Loose the engine mounting nuts.
- Support the engine with a jack or wooden block to facilitate removing the lower mounting bolt.
- Remove the mounting bolts and the engine from the chassis.



ENGINE REMOUNTING

The engine can be mounted in the reverse order of removal.

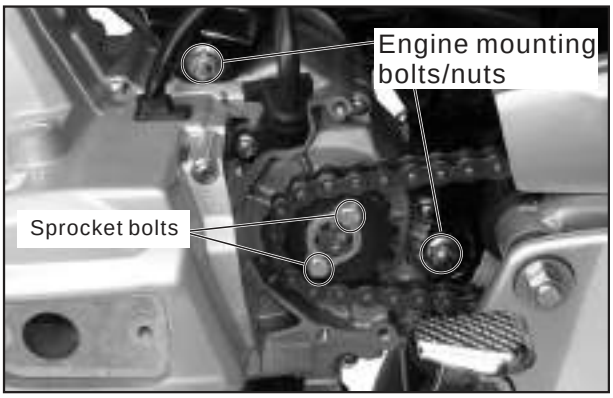
- Support the engine with a jack or wooden block; place the engine onto the chassis; mount the engine mounting bolts from the right to the left.

⚠ CAUTION

Be careful not to damage the chassis.

- Tighten the engine mounting nut to the specified torque.

Specified torque: 35~45 N•m



- Mount the chain on shaft, put on the gasket and sprocket bolts, and tighten them to the specified torque.

Specified torque: 8~12 N•m

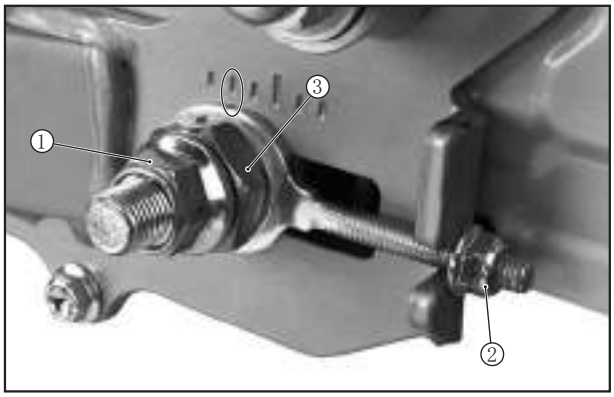
- Adjust the chain sag (refer to page 2-11).
- Confirm the alignment of the front ends of the two adjusters to the mark on the rear swing arm.

- Tighten the nut ③ to the specified torque.

Specified torque: 40~50 N•m

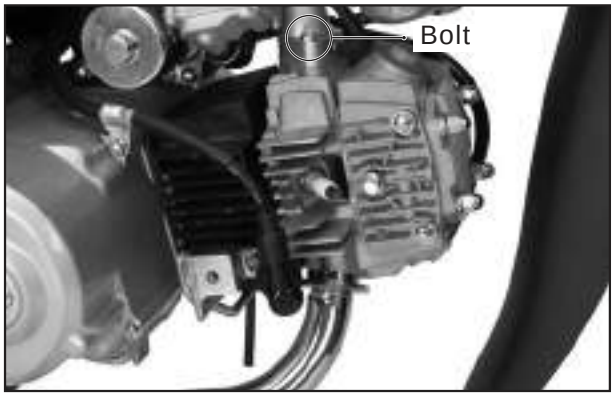
- Tighten the adjusting nut ② .
- Tighten the nut ① to the specified torque.

Specified torque: 48~58 N•m



- Mount the new O-ring into the groove of the intake pipe, and tighten the bolts of the intake pipe to the specified torque.

  Specified torque: 8~12 N•m



- Tighten the bolts of the front footrest bar to the specified torque .

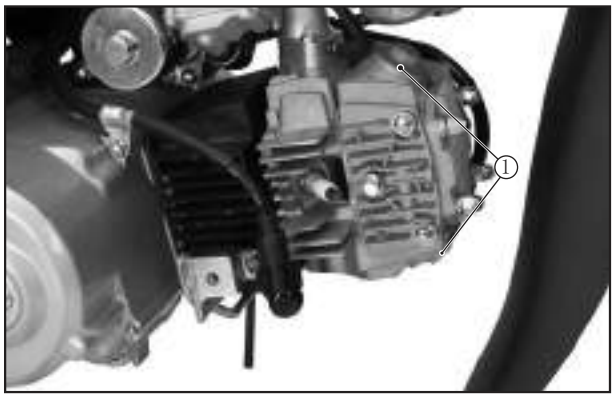
Specified torque: 18~28 N•m

- Pour engine oil to the proper level (refer to page 2-8).
- Adjust the free travel of the brake pedal (refer to page 2-14).

CYLINDER HEAD AND VALVE

CYLINDER HEAD REMOVAL

- Remove valve inspecting caps ① and spark plug.

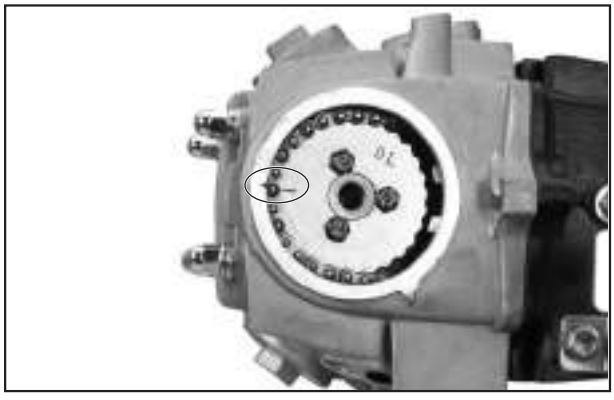


- Loosen the cylinder head side cover bolts.
- Tap on the bolt to remove the left cover from the cylinder head.
- Remove the bolt, gasket and cylinder head left cover.

- Remove the chain tensioner.
- Remove the crank hole cover and timing hole cover.
- Rotate the crankshaft counterclockwise, align the "T" mark on the generator rotor to the mark on the left crankcase.

- Make sure that the mark on the camshaft sprocket is aligned to the slot of cylinder head.
- Make sure that the piston at T.D.C. of compression stroke by swing the rocker arm.
- Remove the bolt, sprocket and dowel pin.

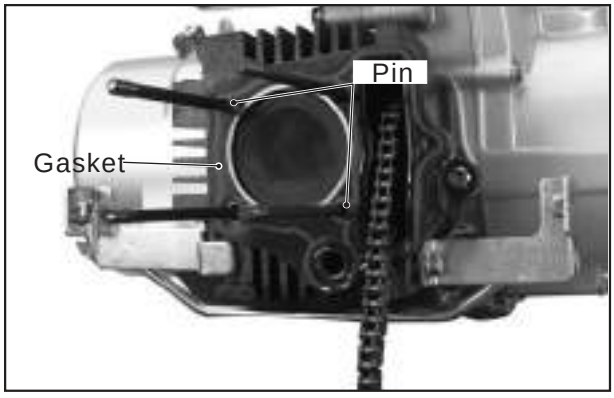
NOTE:
Block the chain with the help of a wire to prevent it from falling onto the cylinder.



● Remove the nut, sealing washer and copper washer as well as the cylinder head cover and sealing gasket.

● Remove the side bolt and the cylinder head.

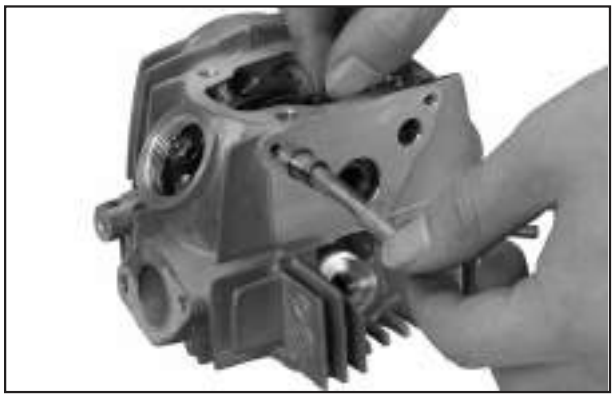
● Remove the sealing gasket and pin of the cylinder head.



CYLINDER DISASSEMLY

● Remove the bolts and right side cover of the cylinder head.

● Screw a bolt M8 into the hole of the rocker arm axle temporarily, draw the rocker arm axle out, remove the rocker arm and the locating plate.



● Remove the camshaft from the cylinder head.

● Remove the valve spring clamp by using the special tool.

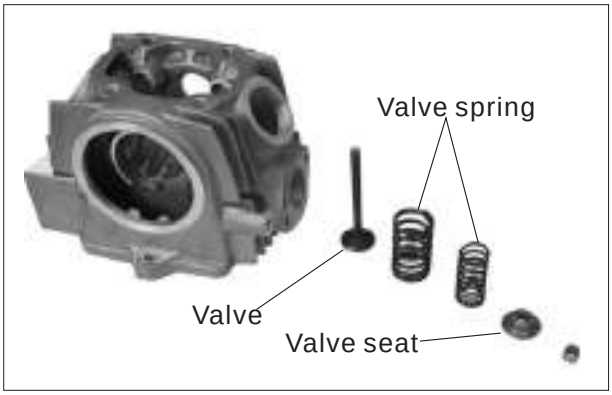
TOOL 09916-14510 : Valve spring compressor

⚠ CAUTION

Do not over-press the spring to avoid loss of elasticity.

● Remove the following parts:
  * Valve seat
  * Inner/outer valve spring
  * Valve

NOTE:
To ensure correct installation, make marks to all disassembled parts.



INSPECTION

CAMSHAFT

Rotate the outer loop of the camshaft bearing by hand. The rotation must be smooth and without noise. Check if the inner ring of the bearing fits tightly with the camshaft. If they do not match tightly, replace the camshaft with a new one.

Worn-down cams are often the cause of mistimed valve operation resulting in reduced output power. The limit of cam wear is specified for both intake and exhaust cams in terms of cam height, which is to be measured with a micrometer. Replace the camshaft if fount it worn down to the limit.

TOOL 09900-20202 : Micrometer (25~50 mm)

CAMSHAFT HEIGHT	IN	26.26 mm
	EX	26.00 mm

PRESSURE-REDUCING CAM

- Rotate the pressure-reducing cam by hand, make sure that the pressure-reducing cam can only clockwise other than counterclockwise. If any malfunction is found with the pressure-reducing cam, replace with a new camshaft.

- Check for any damage on the locating plate, replace with a new locating plate if necessary.

CYLINDER HEAD

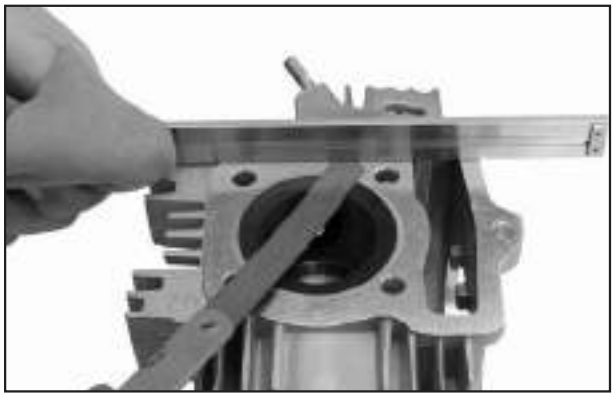
- Remove accumulated carbon in the combustion chamber.
- Check for fractures at the spark plug hole and valve seat.

NOTE:
Avoid damaging the surface of the sealing gasket.

- Check the evenness of the cylinder head plane with ruler and thickness gauge.

TOOL 09900-20803 : Thickness gauge

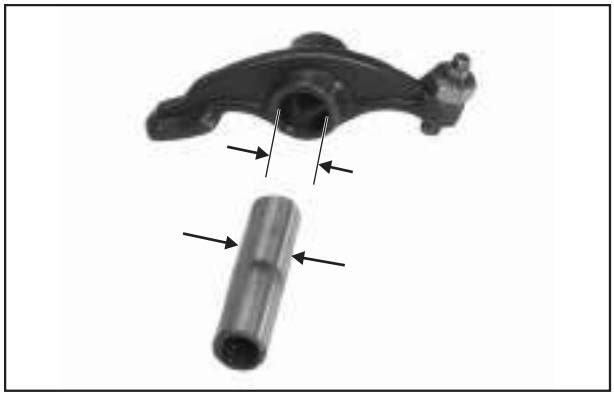
Service limit	0.05mm



ROCKER ARM

- Check for damage or wearing on the sliding surface of the rocker arm.
- Check whether the oil hole is clogged.

NOTE:
If the rocker arm needs repairing or replacement, check for scratching, breaking or spots on the camshaft.



- Measure the inner diameter of the rocker arm.

Standard	10.000～10.015mm

- Check for damage or wear-off of the rocker arm.
- Measure the outer diameter of the rocker arm.

Standard	9.972～9.987mm

TOOL 09900-20605 : Dial gauge
09900-20205 : Micrometer (0~25mm)

VALVE SPRING

- Measure the length of internal/external valve spring. If the length is less than the utility limit, replace with a new valve spring.

TOOL 09900-20101 : Vernier calipers (150mm)

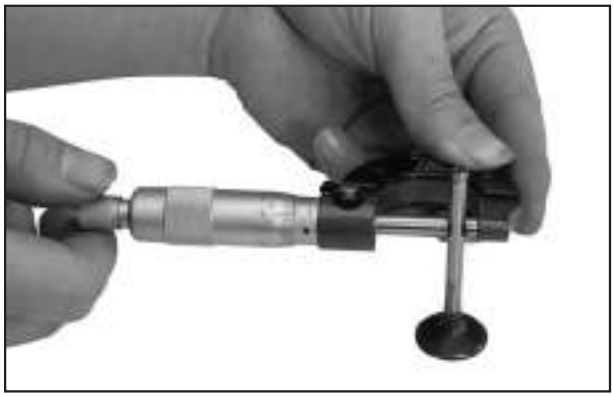
Service limit	INNER	31.47mm
	OUTER	34.13mm

VALVE

- Check if the valve is bent, burnt or abnormally worn.
- Check for valve motion in the valve tube, measure the O.D of the valve.

Standard	IN	4.970～4.985mm
	EX	4.955～4.970mm

TOOL 09900-20205 : Micrometer (0~25mm)



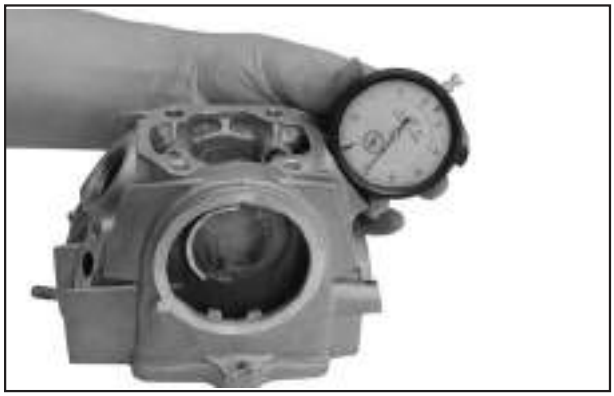
- Remove carbon first before examine the valve tube.
- Insert the reamer from the combustion chamber side of the cylinder head.

TOOL 09916-34570 : Throttle bush reamer (5.0mm)

- Measure the inner diameter of the valve tube with an O.D. micrometer, and calculate the clearance between the valve and valve tube. If the dimension is out of range, replace the cylinder head.

Standard	5.000～5.012mm

TOOL 09900-20508 : Cylinder gauge set



VALVE SEAT INSPECTION AND SERVICING

● Clean the intake/exhaust valve completely to remove carbon. Apply a thin layer of Prussian blue on the surface of the valve seat, rotate the valve with rubber stick or other handle.

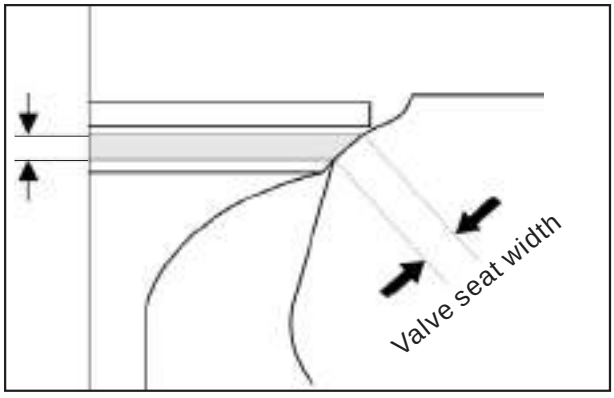
● Remove and inspect the valve.

⚠ CAUTION

The valve must not grind. If the surface of the valve is severely burnt, damaged or shows an uneven seat surface, replace the valve.

● Measure the width of every valve seat plane.

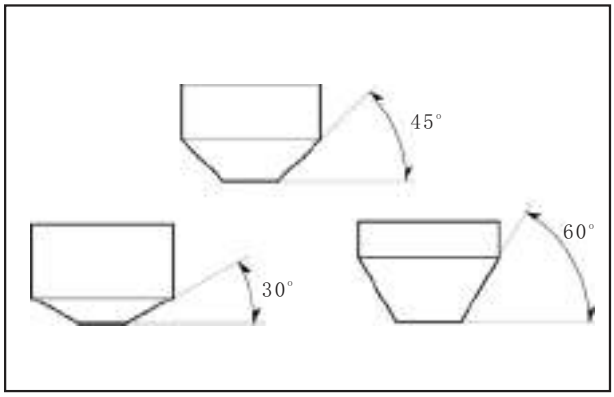
Standard	1.0～1.6mm



VALVE SEAT SERVICING

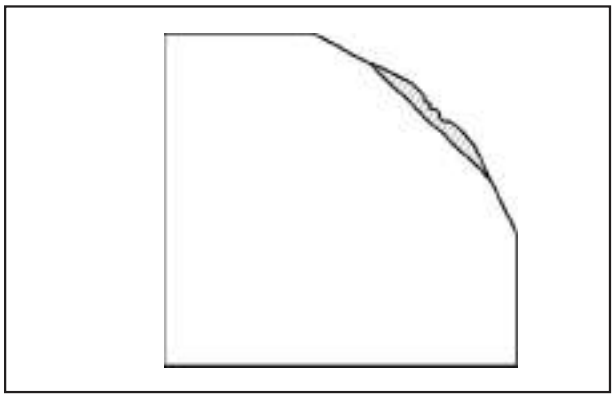
● Process the valve seat with a reamer, grinding compounds or other tools.

TOOL 09916-20610 : Valve seat cutter (N121)
09916-20620 : Valve seat cutter (N122)
09916-20630 : Valve seat cutter (N126)
09916-24311 : Solid pilot (N-100-5.0)
09916-21110 : Valve seat cutter set

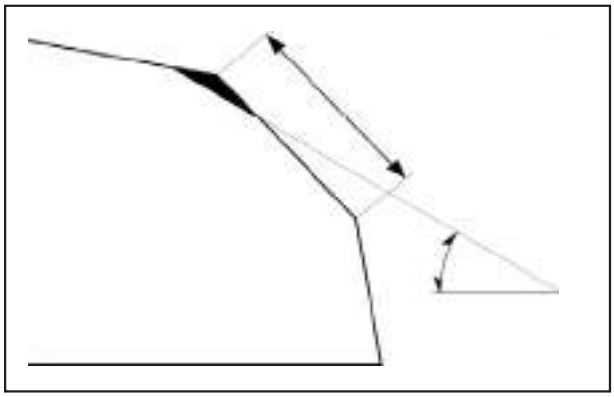


- Grind the uneven or irregular surface with 45° tooling.

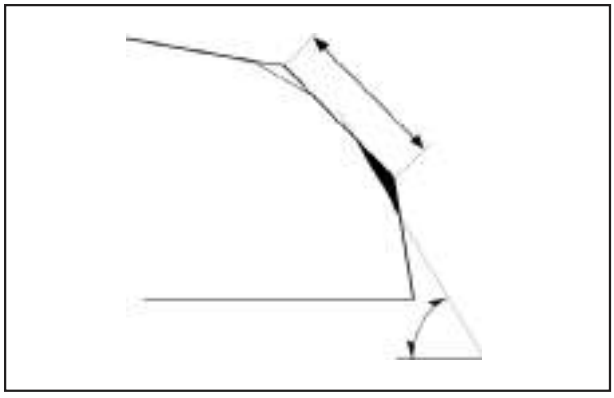
NOTE:
Finish the valve seat surface with 45° tooling after the valve is replaced.



- Grind the top surface of the original valve seat by 1/4 of its width with 30° tooling.



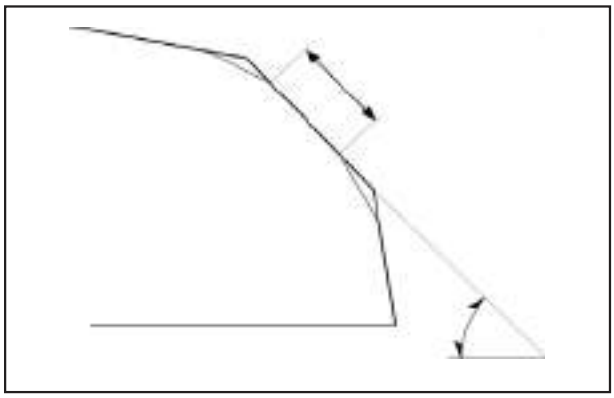
- Grind the bottom of the original valve seat by 1/4 of its width with 60° tooling.



- Process the valve seat surface to standard height with 45° tooling.

Standard	1.0～1.6mm

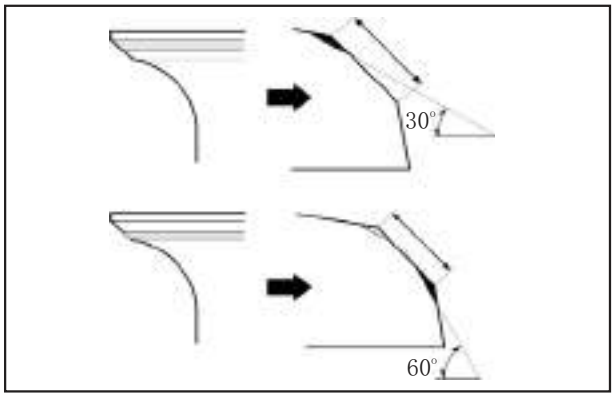
NOTE:
Make sure that all dents and uneven places have been removed, re-process the surface if necessary.



- Apply a thin layer of Prussian blue on the surface of the valve seat; insert the valve into the tube and squeeze it, leaving a clear. dent on the valve seat.

NOTE:
The seat position is significant to the performance of the valve.

- If the contact face of the valve is too high, finish it with 30° tooling to reduce the height.

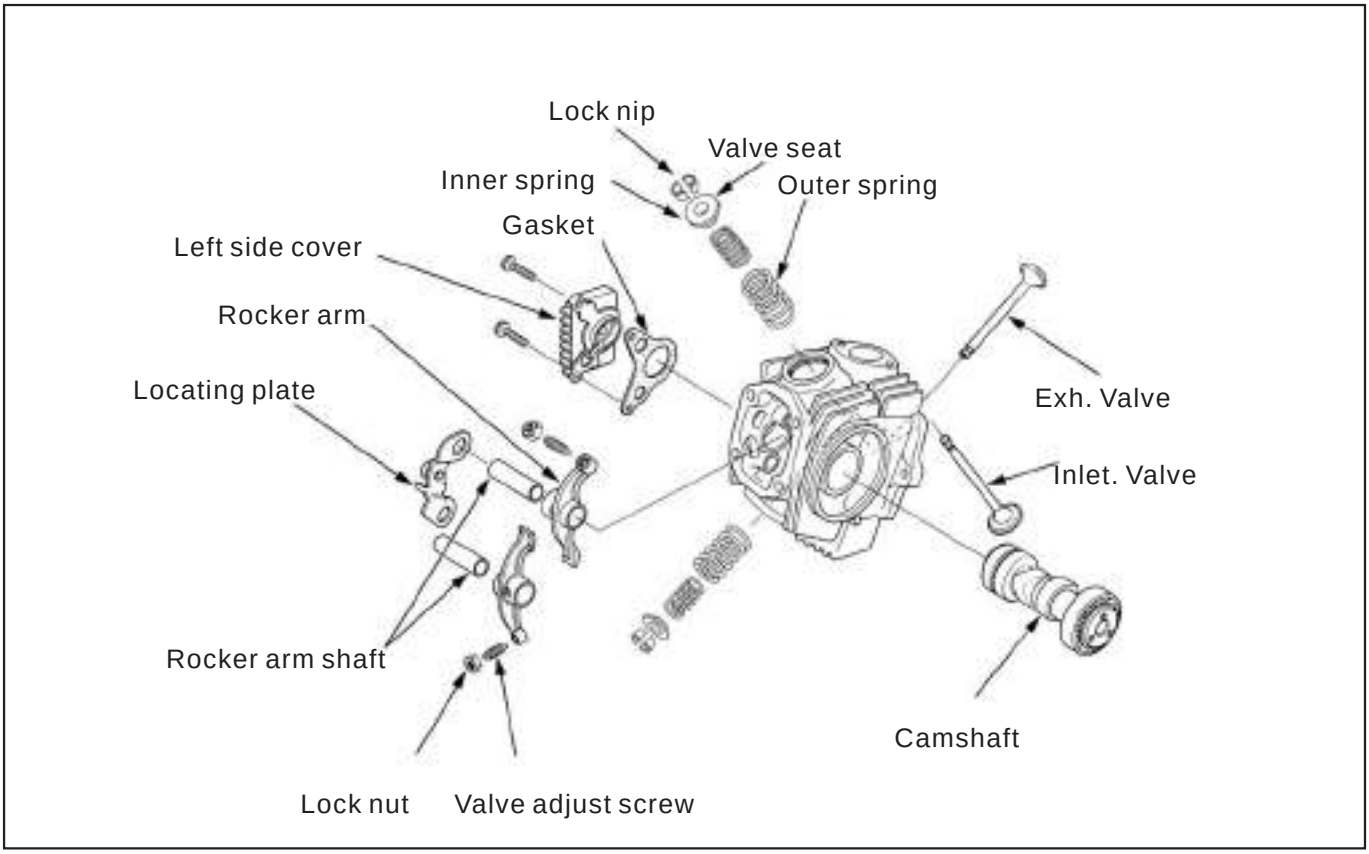


- If the contact face of valve is too low finish it with 60° tooling to increase the height.
- Finish the valve seat surface again to standard range with 45 tooling.

- After the seat surface is processed, apply the grinding compound on the valve surface and grind it with light pressure. Clean the cylinder head and valve after grinding.

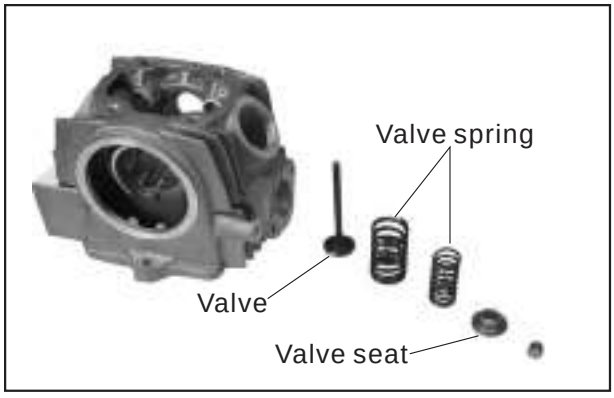
NOTE:
Do not let the grinding compound move into the valve tube.

CYLINDER HEAD REASSEMBLY

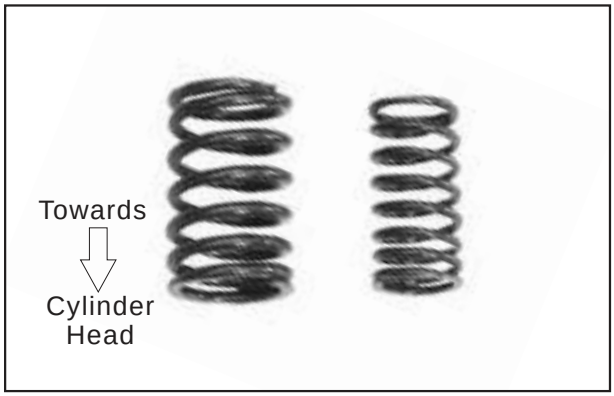


- Clean the cylinder head with detergent and blow the tube with compressed air.
- Install the valve spring seat ring and new oil seal.
- Lubricate the valve stem with Moly Paste, then insert it into the valve tube.
- Rotate the valve slowly after the valve stem is inserted, avoid damaging the valve oil seal.

99000-25140 : MOLY PASTE



- Install the valve spring; align the side with more loops toward the combustion chamber.
- Install the valve spring seat ring.



- Mount the valve clamp with special tool .

TOOL 09916-14510 : Valve spring compressor

⚠ CAUTION

Do not over-press the spring to prevent from loss of elasticity.

- Tap on the sleeve with plastic hammer to let the clamp fall into exact place.

⚠ CAUTION

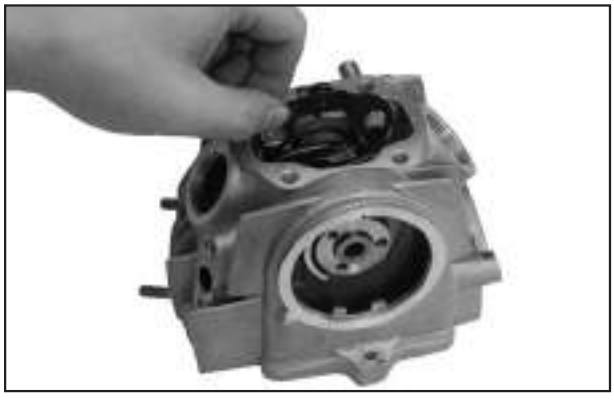
Place the cylinder head on the surface of operation table to prevent from valve damage.

- After applying engine oil on the camshaft and bearing, install the camshaft into the cylinder head, aligning the camshaft toward the combustion chamber.

OIL Engine oil

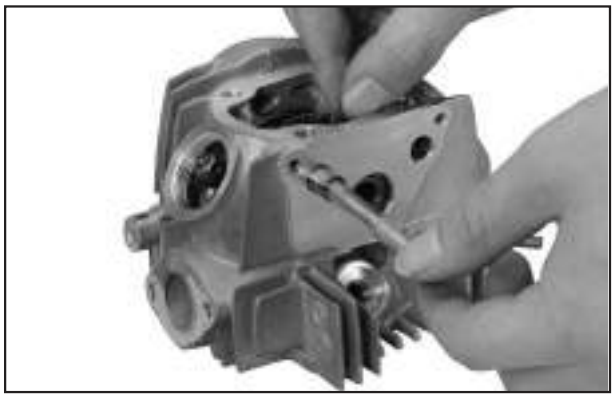
- Apply engine oil on the friction surface and into the hole of the rocker arm axle.
- Install the rocker arm into the cylinder head, and mount the locating plate.

OIL Engine oil

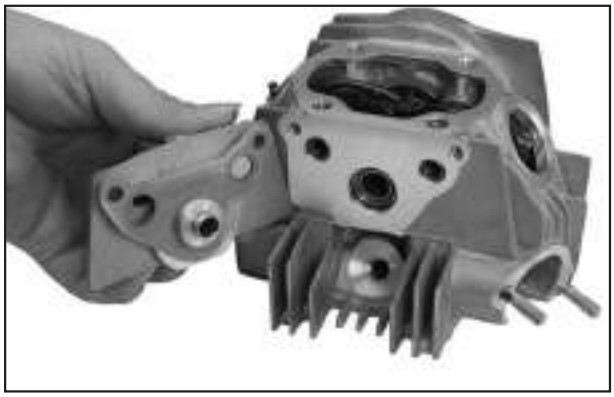


- Install the rocker arm.

NOTE:
Align the threaded end toward outside.

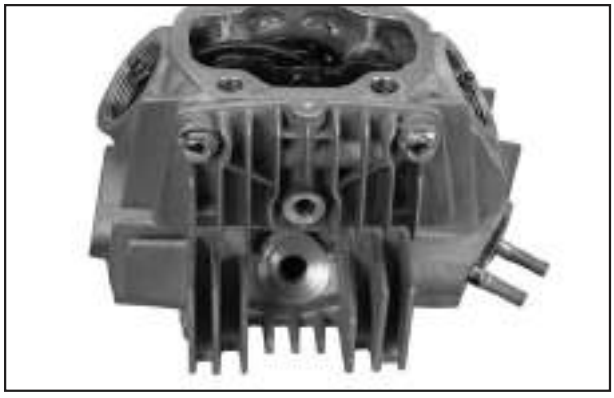


- Mount a new seal gasket on the right side cover and install the right side cover onto the cylinder head.



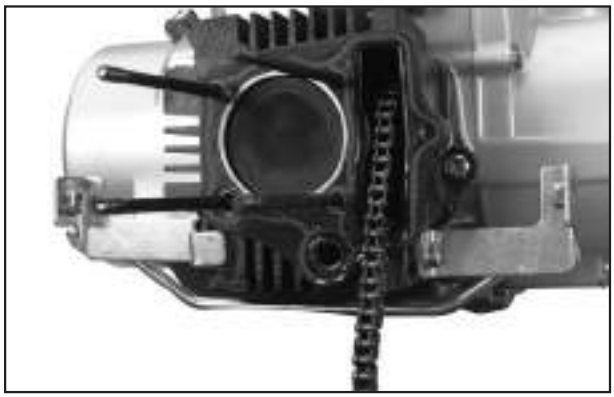
- Install and tighten the nut of right side cover to the specified torque.

Specified torque: 8~12 **N•m**



CYLINDER REMOUNTING

- Remove the used sealing gasket on the cylinder surface.
- Install the dowel pins and new sealing gasket.

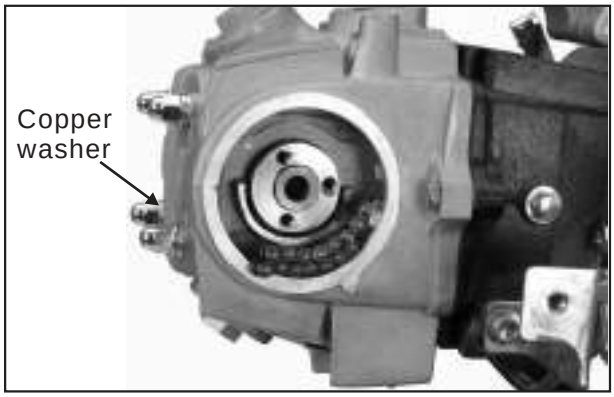


- Install the cylinder head and put a new sealing gasket on it. Then, mount the head cover.

NOTE:
Put the cover on the cylinder head with the arrow pointing downwards.

- Install a new sealing gasket and cap-shaped nut.

NOTE:
Position of copper washer.



- Tighten the cap-shaped nut of cylinder head as regulated.

Specified torque: 15~18 N•m

- Install and tighten the cylinder head nut to the specified torque.

Specified torque: 8~12 N•m

- Rotate the crankshaft counterclockwise; align the "T" mark on the generator rotor to the dent on the left crankcase.

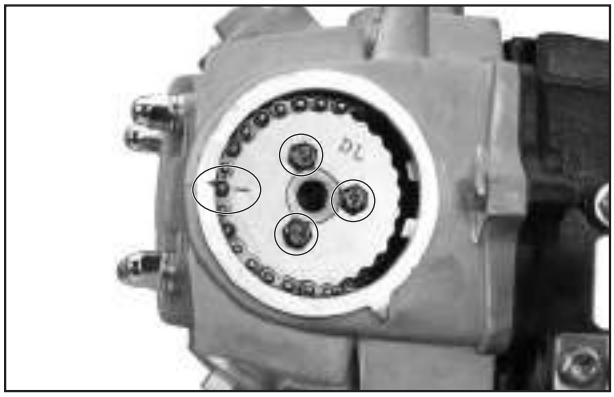
- Apply the engine oil on the timing chain.
- Install the timing chain and the sprocket, apply THREAD LOCK BOND “1342” on the bolt thread of the sprocket; tighten it to the specified torque.

Engine oil

1342 99000-32050 : THREAD LOCK BOND“1342”

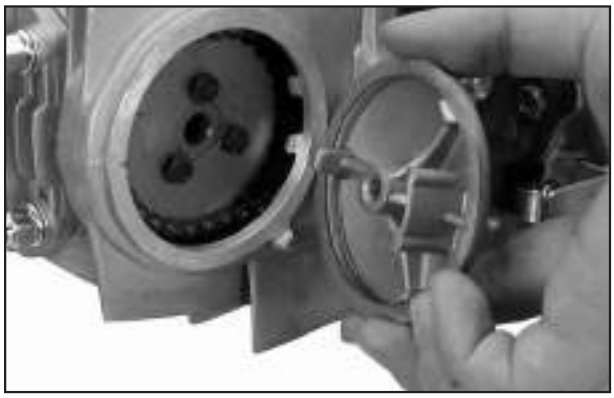
Specified torque: 7~10 **N m**

NOTE:
Align the mark on the sprocket to that on the cylinder head.

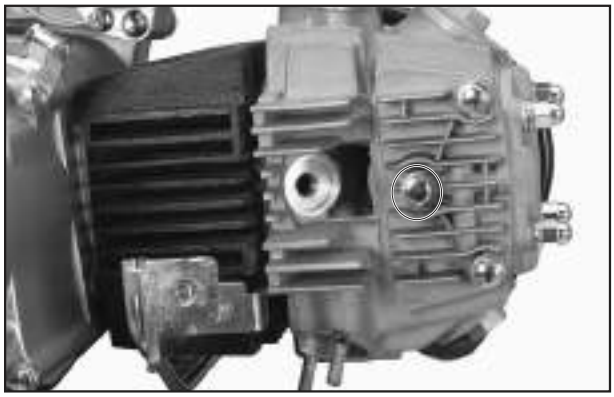


- Assemble the new sealing gasket and the left cover on the cylinder head.

NOTE:
Rest the plane boss of the cover at the side of the top dead center of the cylinder head.



- Mount the M6 bolt with new sealing gasket on the right side cover and tighten it.



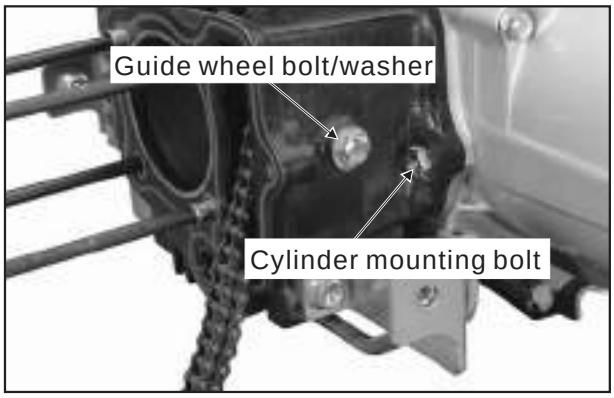
- Adjust the valve clearance (refer to page 2-6).
- Apply engine oil on the thread of watch hole plug. Install the inspection hole plug after confirming that the O-ring status is normal.

Engine oil

CYLINDER AND PISTON

CYLINDER DISASSEMBLY

- Remove the cylinder head (refer to page 3-7).
- Remove the bolt for timing chain guide wheel, washer and guide wheel.
- Remove the cylinder mounting bolt and the cylinder.



- Remove the dowel pins and sealing gasket.

PISTON DISASSEMBLY

- Remove the piston pin circlip with circlip pliers.

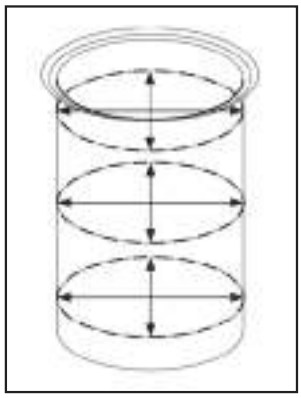
NOTE:
Insert a piece of clean cloth into the contact face between the crankcase and the cylinder case to prevent the piston pin circlip from falling into it.

- Push out the piston pin and remove the piston.

- Remove the piston ring.

NOTE:
Be careful not to damage the piston ring during disassembly.

CYLINDER AND PISTON INSPECTION

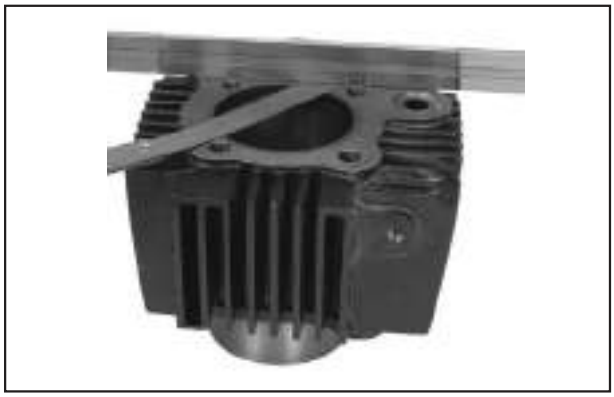


- Check for damage or wearing of the cylinder.
- Measure the cylinder I.D. both in "X" and "Y" directions on three levels, and determine the cylinder wear with the maximum value.

Service limit	52.535 mm

TOOL 09900-20508 : Cylinder gauge set

- Examine the evenness of the cylinder top as shown in the right figure.



Service limit	0.05 mm

TOOL 09900-20803 : Thickness gauge

- Remove the carbon in the piston ring slot with a used piston ring.

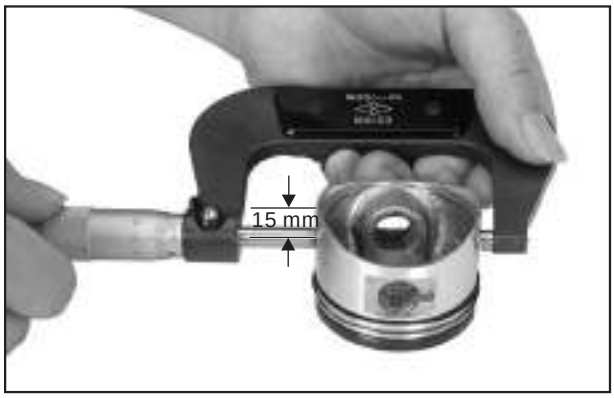
- Push the piston ring into the slot, measure the clearance between the piston ring and the ring slot.

Piston ring	Service limit
1st	0.12 mm
2nd	0.12 mm

- Check for damage or wearing of the piston.
- Measure the piston O.D. at 15 mm along the vertical direction of the piston pin.

TOOL 09900-20202 : Micrometer (25~50mm)

Service limit	52.25 mm



- Measure the hole inner diameter of the piston pin.

TOOL 09900-20605 : Dial calipers

Service limit	13.055 mm

- Measure the outer diameter of the piston pin.

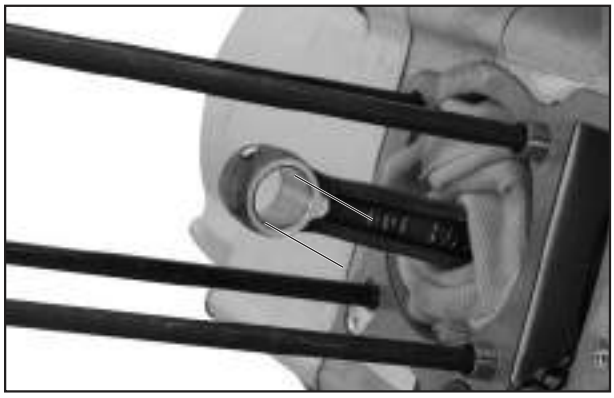
TOOL 09900-20205 : Micrometer (0~25mm)

Service limit	12.98 mm

- Measure the inner diameter of the smaller end of connecting rod.

TOOL 09900-20605 : Dial calipers

Service limit	13.10 mm



- Put the piston ring horizontally on the cylinder bottom to measure the opening clearance.

Piston ring	Service limit
1st	0.5 mm
2nd	0.5 mm

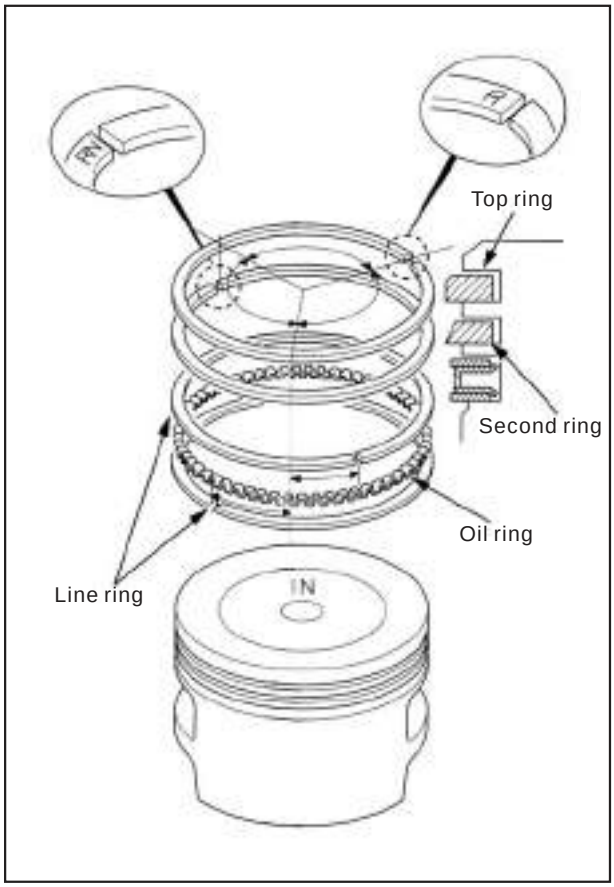
PISTON RING ASSEMBLY

- Clean the piston ring slot completely and assemble the piston ring.

Engine oil

NOTE:
Apply engine oil on all piston rings.
Avoid damaging the piston and piston ring during assembly.
Align the mark on the piston ring upward during assembly, pay attention to distinguish the marks of the top ring and the second ring.

- Keep the opening of each ring cross at 120°, do not leave the oil ring opening on the same line.
- The piston ring must be able to rotate freely in the ring slot after installation.



PISTON ASSEMBLY

- Remove the residues of sealing material on the contact surface between the crankcase and the cylinder case.

- Apply clean engine oil on the outer surface of the piston pin.
- Install the piston with the "IN" mark aligned to the valve.
- Install the piston pin and click the new pin circlip securely.

NOTE:
Do not leave the pin circlip opening aligned to the piston gap.
Do not let the pin circlip fall into the crankcase.

CYLINDER REASSEMBLY

- Install the dowel pin and new sealing gasket.

- Apply engine oil on the outer surface of the piston as well as on the ring slot and inner cylinder wall.
- Compress the cylinder installed with piston rings.

OIL Engine oil

NOTE:
Avoid damaging the piston rings during assembly.
Do not let the timing chain fall into the crankcase.

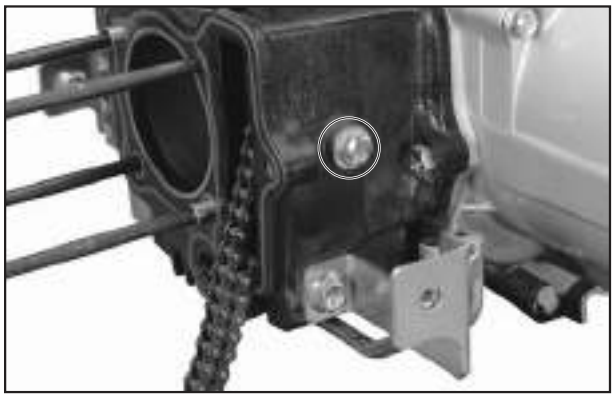
- Apply engine oil on the inner surface of the timing chain guide wheel.
- Install the timing chain guide wheel, new sealing washer and guide pin bolt.

OIL Engine oil

- Tighten guide pin bolt of the timing chain to the specified torque.

Specified torque: 7~10 N•m

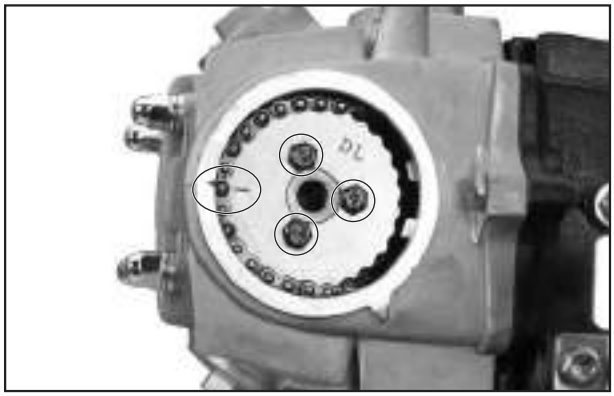
- Install cylinder bolt, leave it untighten first.



- Install the cylinder head and tighten the bolts and nuts.
- Tighten the cylinder bolt to the specified torque.

Specified torque: 15~18 N•m

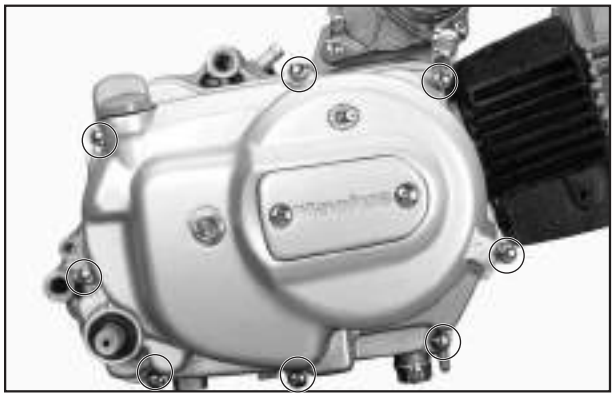
- Assemble the removed parts in the reversed order of disassembly.

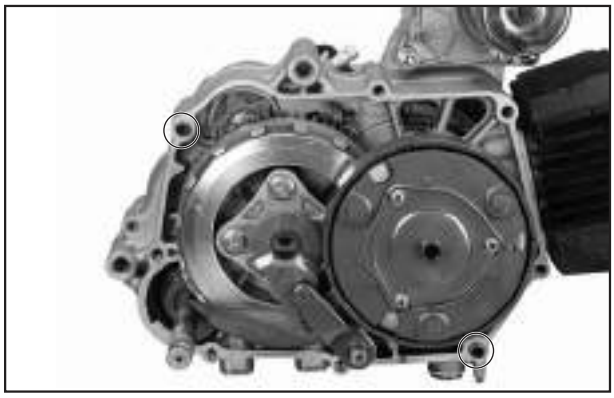


CLUTCH AND GEAR SHIFT

RIGHT CRANKCASE COVER DISASSEMBLY

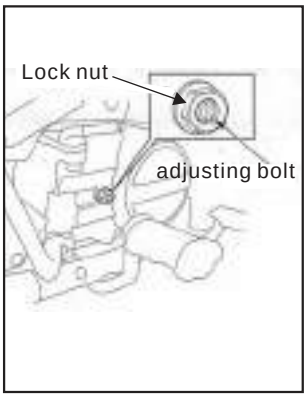
- Drain out the engine oil; remove the engine (refer to 3-2).
- Remove the bolt and kick starter lever.
- Remove right crankcase cover after unscrew the bolts.



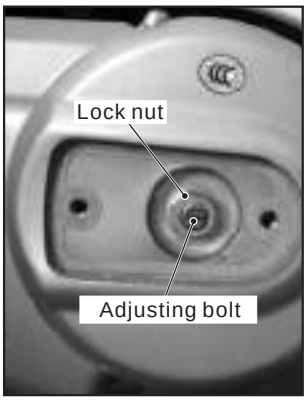


RIGHT CRANKCASE COVER

- Remove the clutch lock nut, washer, O-ring and clutch adjusting bolt (HJ110-2).



- Remove the clutch lock nut, washer, O-ring and clutch adjusting bolt (HJ110-2A).

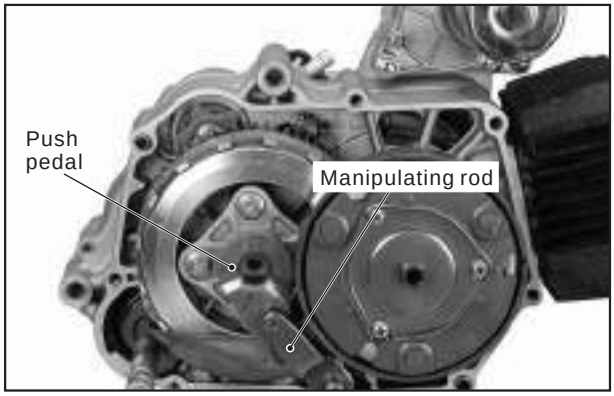


- Check if the oil seal of the kick starter lever is in normal condition, replace it if necessary.

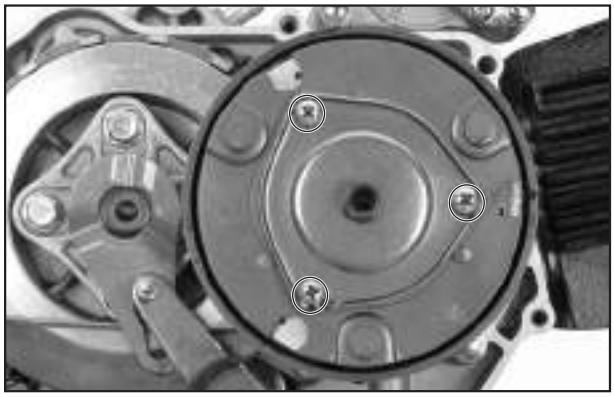
CLUTCH DISASSEMBLY

DOUBLE CLUTCHING (HJ110-2)

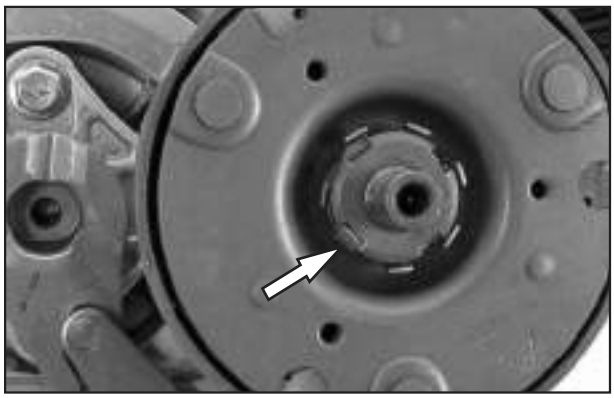
- Remove the clutch manipulating rod and push pedal.



- Remove the screws and oil filter rotor cover.



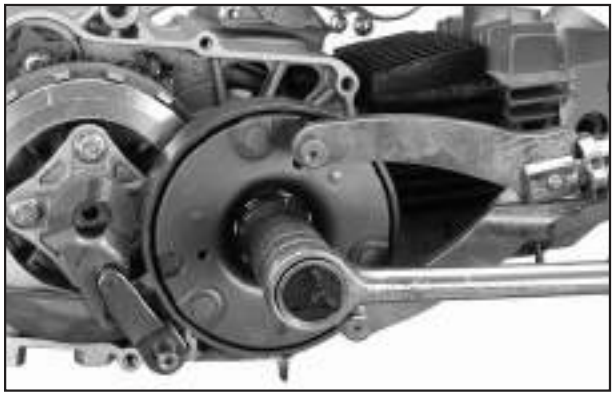
- Open the lock washer.



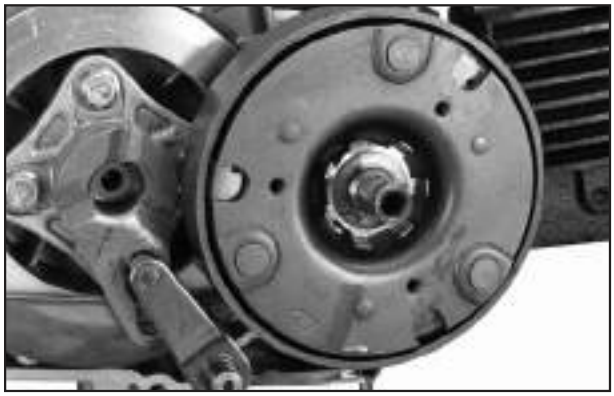
- Remove the lock nut with special tool.

TOOL 09930-40113 : Rotor and sprocket holder
09940-14921 : 4-jaw socket wrench

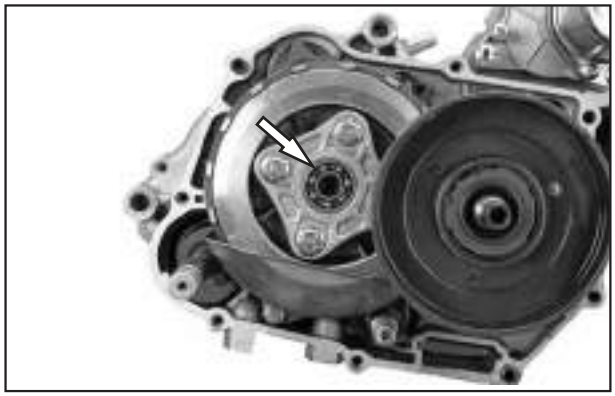
Specified torque: 35~38 N•m



- Remove the lock spacer, lock washer and primary clutch drive disc/clutch shoe assy.



- Remove the clutch bearing.

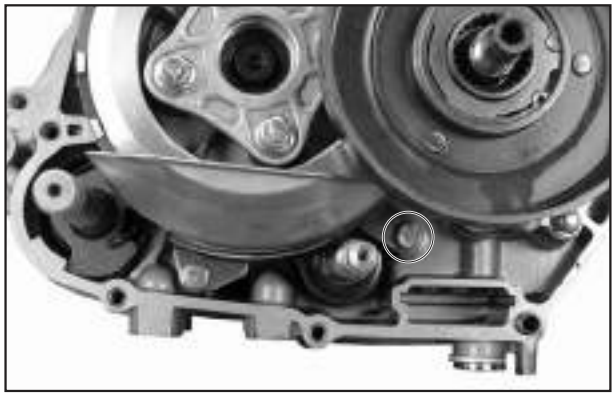


- Fix the drive and driven gears, loose the lock nut of shift clutch.

Specified torque: 35~38 N•m

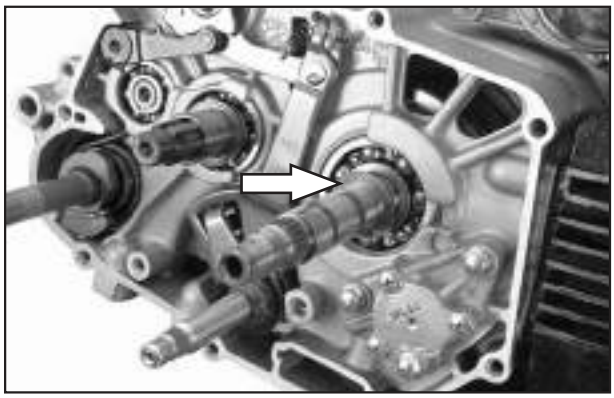
- Remove the lock nut, lock washer and gasket.

- Remove the bolt for oil separating cover.

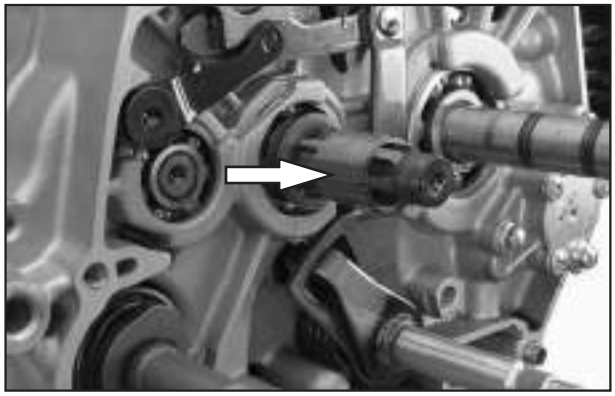


- Remove the primary clutch enclosure, clutch and oil separating cover as a whole.

- Remove the washer from crankshaft.



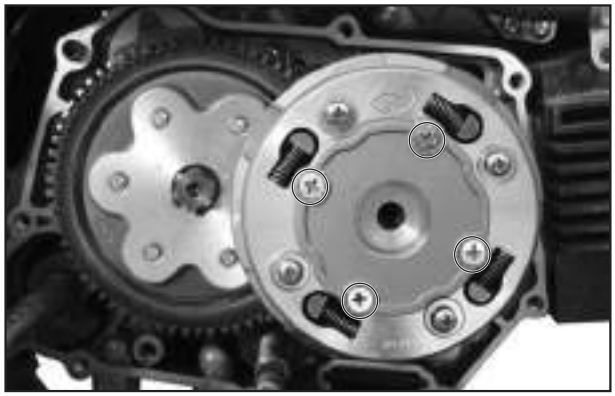
- Remove the bush from main shaft.



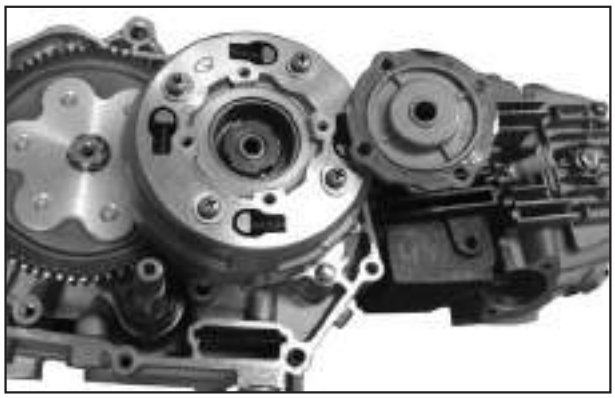
SINGLE CLUTCHING (HJ110-2A)

- Remove the oil pipe and pipe spring.
- Remove the separating arm and separating cam of the clutch.

- Dismantle the washer and end cover screws.

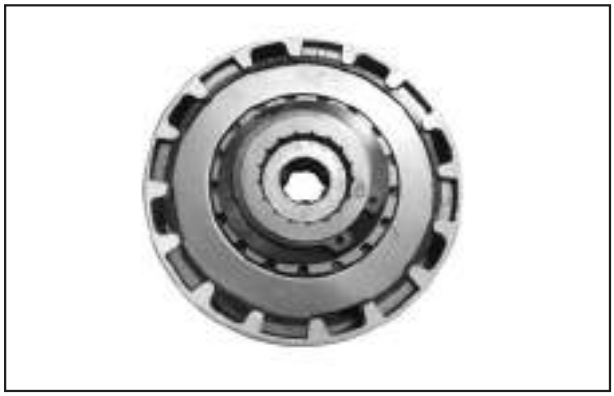


- Remove the end cover of the clutch.



- Dismantle the lock washer and the clutch lock nut.

- Remove the clutch.



- Remove the driven gear and its circlip.

PRIMARY CLUTCH (HJ110-2)

DISASSEMBLY AND INSPECTION

ONE-WAY LUTCH

- Rotate the driving disc and inspect the operation conditions of the one-way clutch.
- Confirm that the driving disc can only rotate clockwise and not counterclockwise.

- Remove the hole circlip and washer.

TOOL 09900-06108 : Snap ring pliers (closing type)

- Remove the roller and starting clutch spring.
- Remove the inner cover of the starting clutch.

- Check for damage or wearing on the roller and spring, replace it if necessary.

- Check for damage or wearing of the clutch.

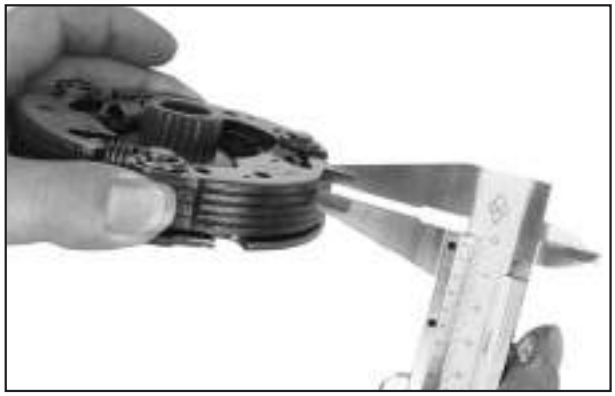
- Check for damage or wearing on the inner and outer slide surface of the starting clutch, replace it if necessary.

CLUTCH CENTRIFUGAL SHOE

- Check for wearing of the clutch centrifugal shoe.
- Measure the thickness of every clutch centrifugal shoe.

TOOL 09900-20101 : Vernier calipers

Service limit	1.0 mm



- Remove the shaft circlip and washer.

- Lift the clutch centrifugal shoe; remove the shoe and the spring.

NOTE:
The clutch centrifugal shoe should be replaced in complete set.

- Separate the spring and the centrifugal shoe.

- Check for damage or wearing of the pin axle of for the driving disc.

- Check for damage or wearing of the clutch centrifugal shoe.

ENCLOSURE

- Check for scratch or wear-off on the inner surface of the clutch enclosure.
- Measure the clutch enclosure O.D.

TOOL 09900-20101 : Vernier calipers

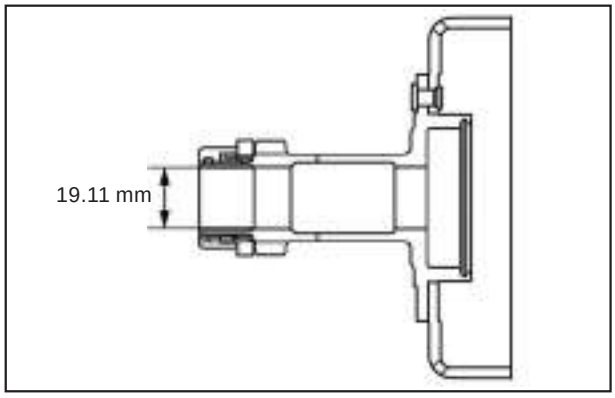
Service limit	104.3 mm

PRIMARY DRIVE GEAR

- Rotate the pinion to check for wearing.
- Measure the I.D. of primary transmission gear.

Service limit	19.11 mm

TOOL 09900-20605 : Dial calipers

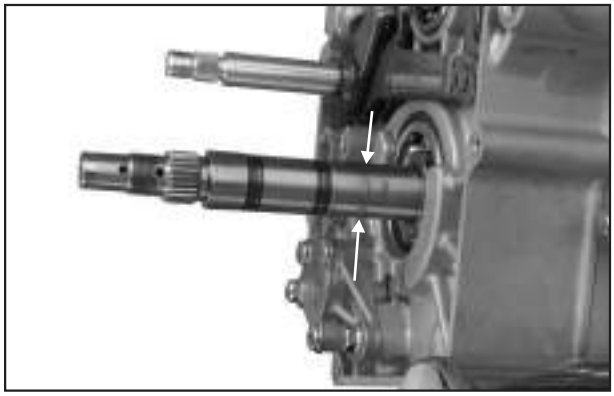


CRANKCASE

- Measure the crankshaft O.D.

Service limit	18.92 mm

TOOL 09900-20205 : Micrometer (0~25mm)



CLUTCH CENTRIFUGAL SHOE REASSEMBLY

- Apply engine oil on the surface of pin axle of for the driving disc.

- Install the circlip.

STARTING CLUTCH REASSEMBLY

- Apply clean engine oil on the sliding surface of starting clutch.
- Install the inner cover of the starting clutch.
- Install the spring and roller of the starting clutch.

- Install the hole circlip and washer.

CLUTCH

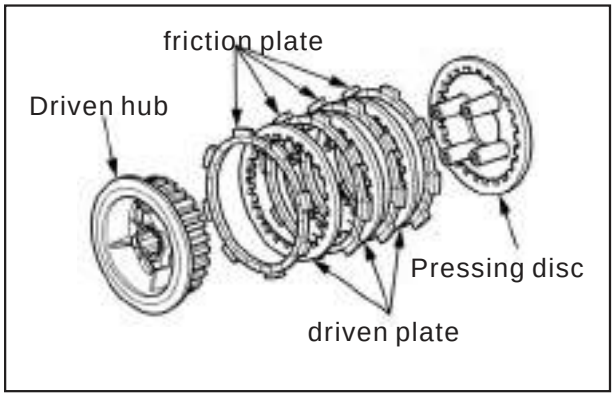
DIAASSEMBLY

- Fix the clutch exterior with the generator rotor clamp, then loosen and remove the bolt, push pedal and spring.

TOOL 09930-44400 : Rotor holder

NOTE:
Loosen the bolts of clutch push pedal in diagonal sequence.

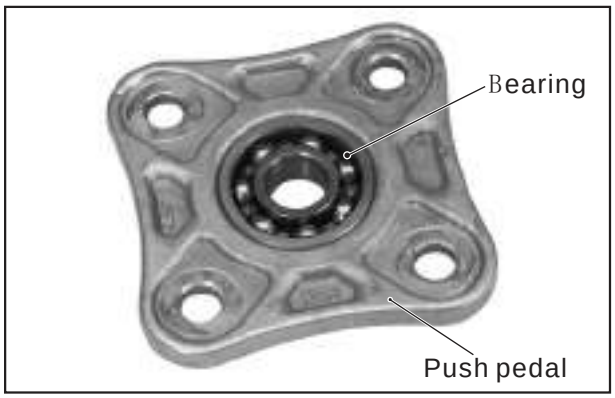
- Remove the clutch driven hub, friction plate and driven plate.
- Remove the pressing disc.



INSPECTION

BEARING AND CLUTCH PUSH BOARD

- Rotate the inner loop of the push pedal bearing by hand. The bearing must revolve smoothly without excessive clearance. If necessary, replace it.
- Check for damage or wearing of the clutch pedal. If necessary, replace it.

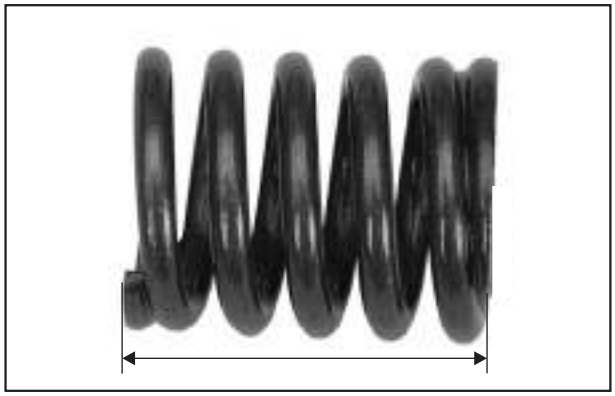


SPRING

- Check for fatigue or damage on the spring, and measure the free length of the spring.

TOOL 09900-20101 : Vernier caliper

Service limit	34.5 mm



DRIVEN HUB

- Check for damage or wearing of the driven hub, replace it if necessary.

FRICTION PLATE

- Replace the friction plate which is burnt or whose color is changed.
- Measure the thickness of the friction plate.

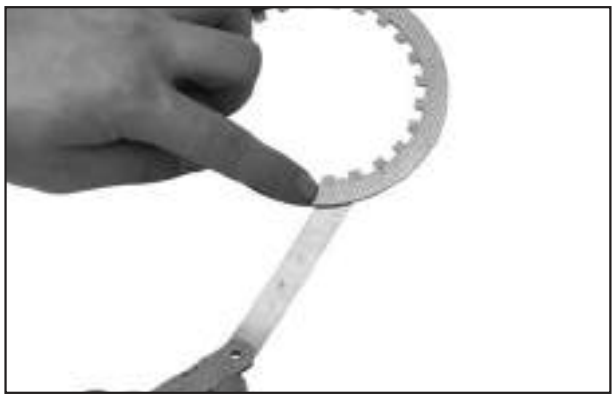
TOOL 09900-20101 : Vernier caliper

Service limit	2.6 mm

DRIVEN PLATE

- Examine the evenness of the driven plate with thickness gauge.

Service limit	0.20 mm



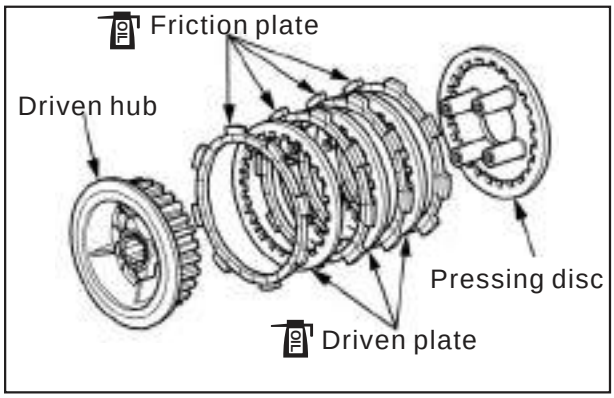
CLUTCH JACKET/BUSH

- Check if the long slot on the clutch jacket is damage or wear-off caused by the friction

- Apply clean engine oil on the surface of friction plate or driven plate.

Engine oil

NOTE:
Place the snug of the outer friction plate into the shallow slot on the clutch enclosure.



- Remove the driven hub, friction plate and driven plate onto the clutch jacket.
  Install the clutch spring, push pedal and bolt.

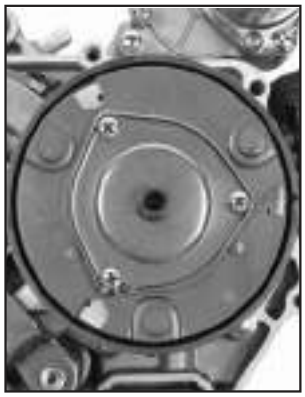
NOTE:
Fix the clutch jacket with rotor clamp, then tighten the push pedal bolt in diagonal sequence.

TOOL 09930-44400 : Rotor holder

CLUTCH REMOUNTING

- Mount the separating washer onto the main shaft.

(HJ110-2)

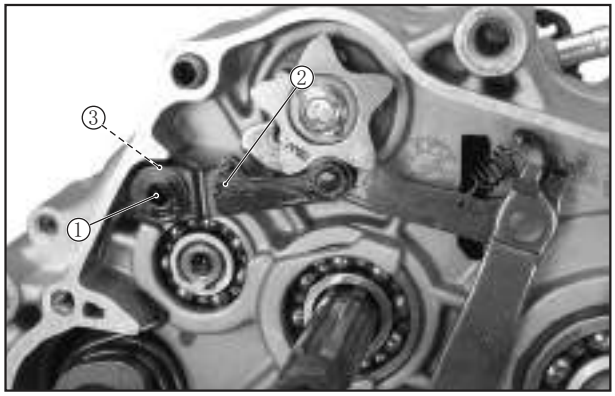


(HJ110-2A)

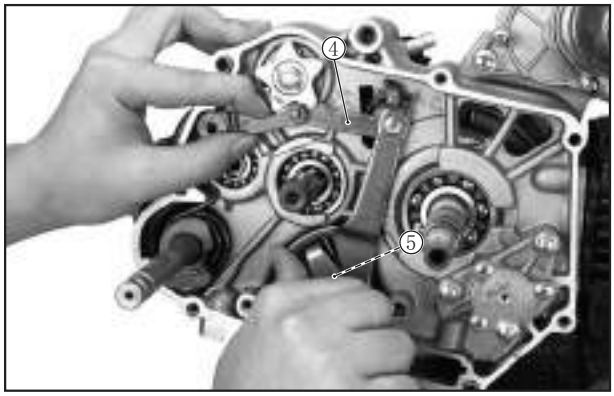
GEAR SHAFT ROD

DISASSEMBLY

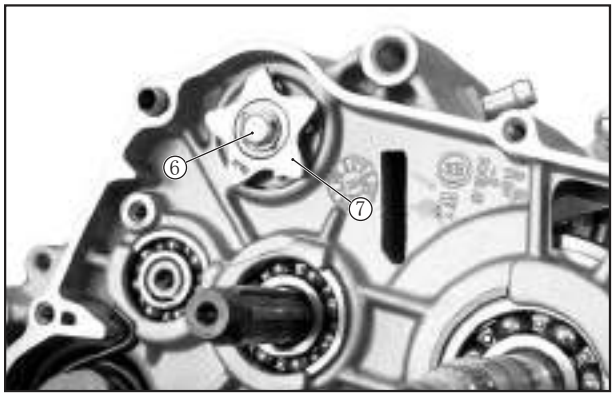
- Remove the bolt ①, stop arm ② and return spring ③.



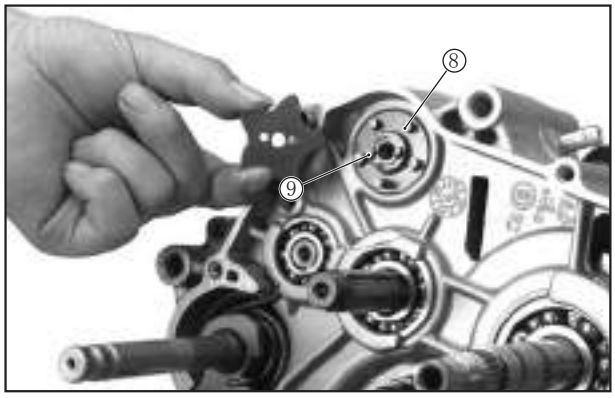
- Pull down the shift arm ④ , remove the shift shaft ⑤.



- Remove the bolt ⑥ and the shift shaft guard ⑦.



- Remove the pins of the shift rod ⑧ and the pins of the shift shaft guard ⑨.

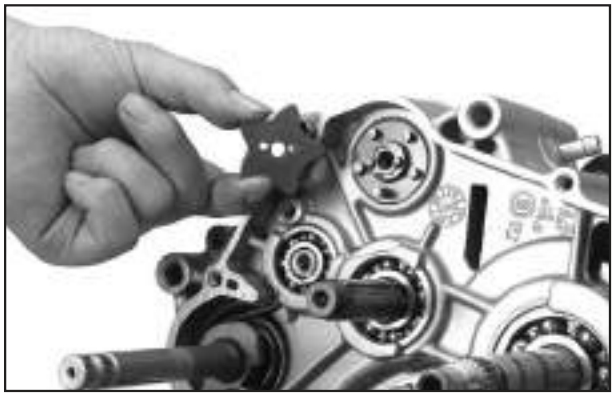


INSPECTION

- Check of bend, damage or wearing of the shift shaft.
- Check of damage or wearing of the shift arm spring as well as the return spring.

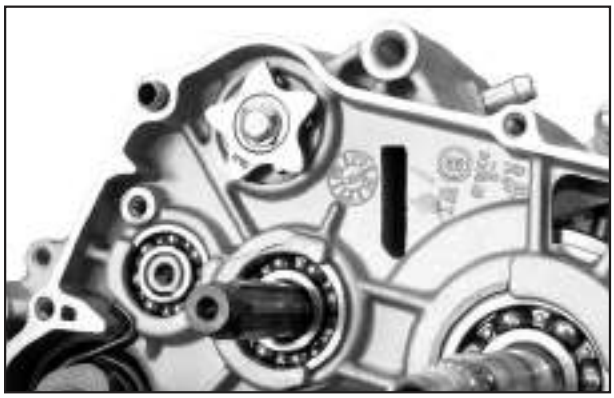
REASSEMBLY

- Mount the pins of the shift camshaft and the pins of the shift shaft guard into the holes on the shift camshaft drum.
- Align the hole on the guard to the pins on the shift camshaft drum, then install the guard.



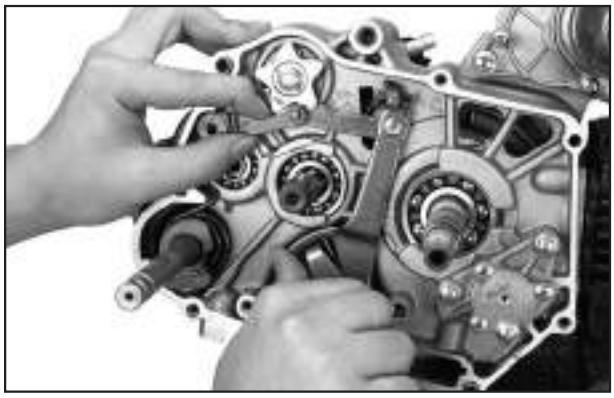
- Tighten the bolt to the specified torque.

Specified torque: 8~12 N•m



- Apply engine oil at the oil seal of the starting shaft.
- Pull down the shift arm as shown in the figure; install the shaft.

NOTE:
When installing the shaft, snap the end of the return spring in the spring pin of the crankcase.



- Install the return spring and stop arm, then tighten to the specified torque.

Specified torque: 8~12 N•m

- Install the clutch and the primary clutch as a whole (refer to page 3-41).

- Install the shaft and tighten the bolt.

RIGHT CRANKCASE COVER ASSY

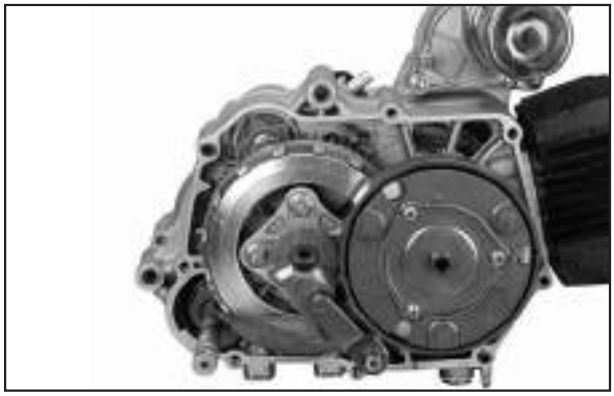
CLUTCH ROD

- Install the clutch rod, align the boss to the hole on crankcase cover.
- Put the new O-ring onto the bolt of clutch rod.

- Install the washer and lock-up screw, and tighten the lock-up nut to the specified torque.

Specified torque: 15~18 N•m

- Install the dowel pin and new sealing gasket onto the crankcase.
- Install the right crankcase cover.



⚠ CAUTION

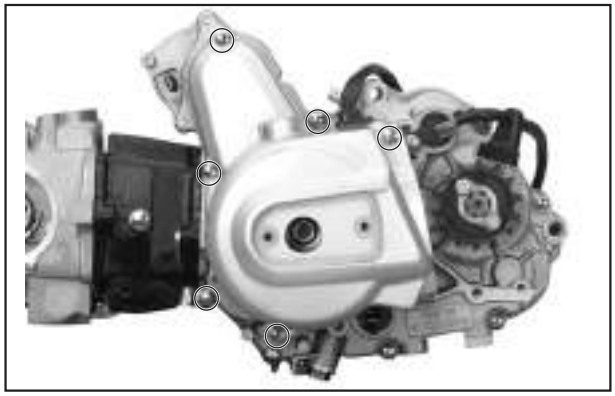
Do not damage the lip of the oil seal of the kick starter shaft.

- Install a new oil seal of the kick starter shaft and apply engine oil on the lip of the oil seal.
- Install and tighten the bolts of the right crankcase cover to the specified torque.

Specified torque: 10~15 N•m

GENERATOR, STARTING CLUTCH AND TIMING CHAIN TENSIONER

LEFT CRANKCASE COVER DISASSEMBLY



- Remove the left crankcase cover and the bolt.

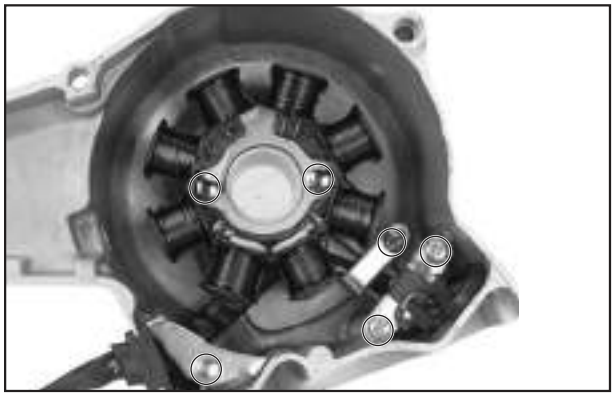
⚠ CAUTION

The left crankcase cover is likely to be affected by the magnetic force of the generator rotor, so please be careful during disassembly.

- Remove the sealing gasket and dowel pin.

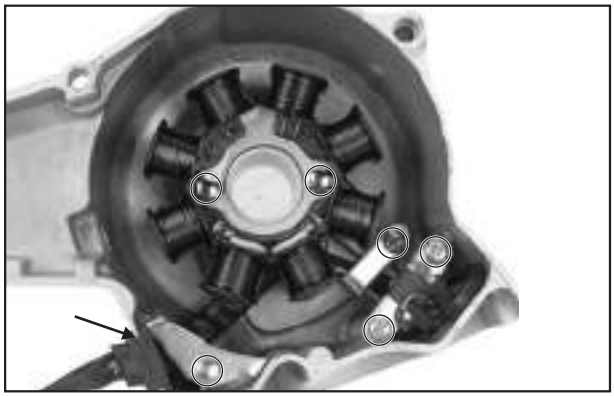
GENERATOR

DISASSEMBLY



- Remove the bolt and plate; loosen the wire clip of the generator at the left crankcase cover.
- Remove the bolt and the generator assy from the left crankcase cover.

ASSEMBLY



- Install the generator assy on the left crankcase cover, lay out the cable, and put the wire clip into the slot of the left crankcase cover.
- Apply THREAD LOCK BOND“1342” on the bolts thread of the generator rotor and the trigger coil.
- Lay the plate and tighten the plate bolt.

Specified torque: 8~12 N•m

1342 99000-32050 : THREAD LOCK BOND“1342”

GENERATOR ROTOR DISASSEMBLY

- Fix the rotor with the special tool, then remove the rotor nut and washer.

TOOL 09930-44400 : Rotor holder

- Remove the rotor with the special tool.

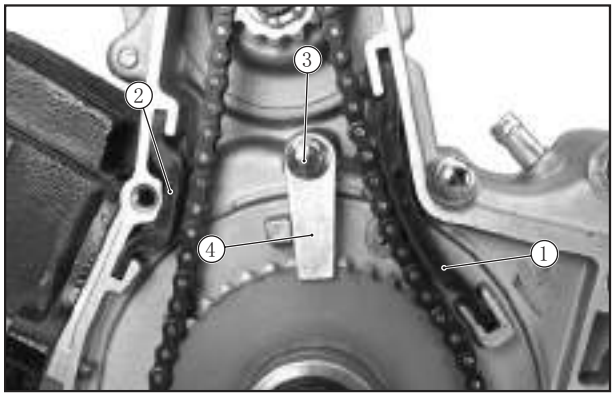
TOOL 09930-30102 : Slide shaft
09930-34951 : Rotor remover

- Remove the semi-circular key from crankshaft.

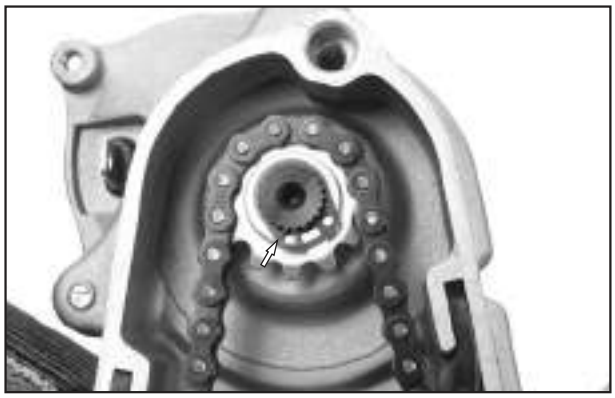
STARTING CLUTCH

DISASSEMBLY

- Remove the generator rotor .
- Remove the guide plate ① and the protector ② of the starting sprocket.
- Remove the bolt ③ and sprocket plate ④.



- Remove the shaft snap ring from the starting motor shaft.
- Remove the starting drive and driven sprockets as a whole.



- Remove the roller, roller spring and roller cover from the starting clutch enclosure.

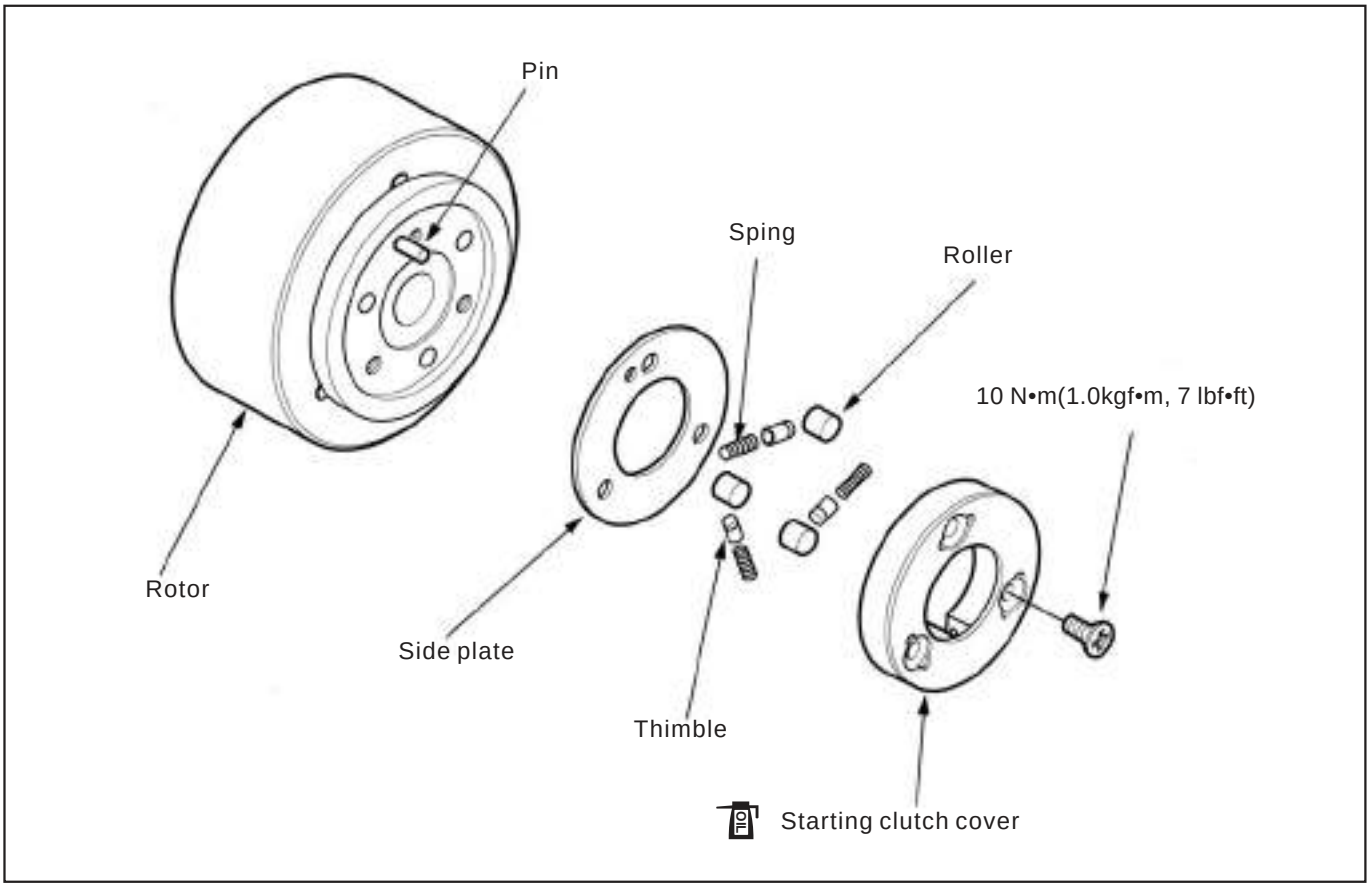
- Remove the 3 screws on the starting clutch enclosure with an impact screwdriver.
- Remove the starting clutch enclosure, side board and dowel pin.

INSPECTION

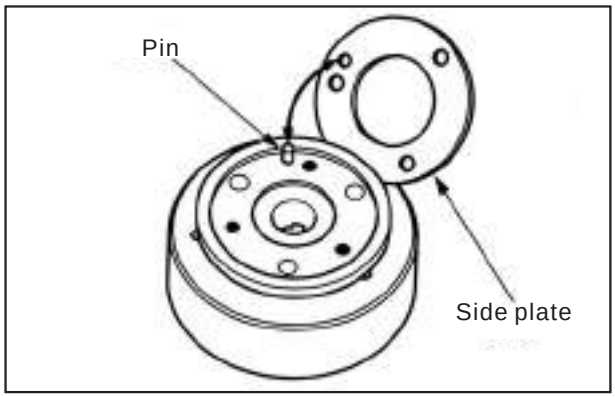
- Check of damage or wearing of the starting driven sprocket.
- Check of excessive damage or wearing of the starting driven sprocket.
- Check of damage or wearing of the oil seal or needle bearing.

● Check for damage or wearing of the starting clutch.

ASSEMBLY

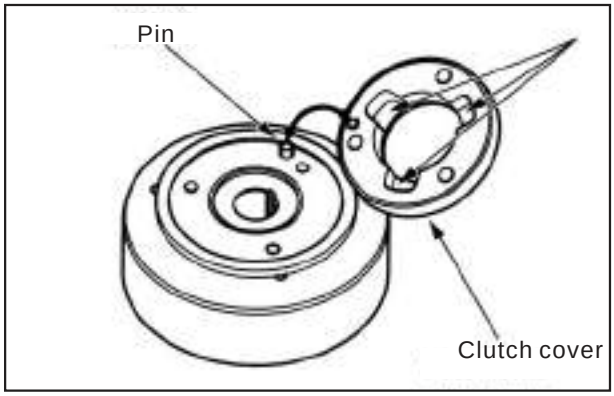


● Install the side plate; align the hole to the pin.



- Apply engine oil on the surface of the starting clutch enclosure.
- Install the starting clutch enclosure; align the hole on the enclosure to the dowel pin.

Engine oil



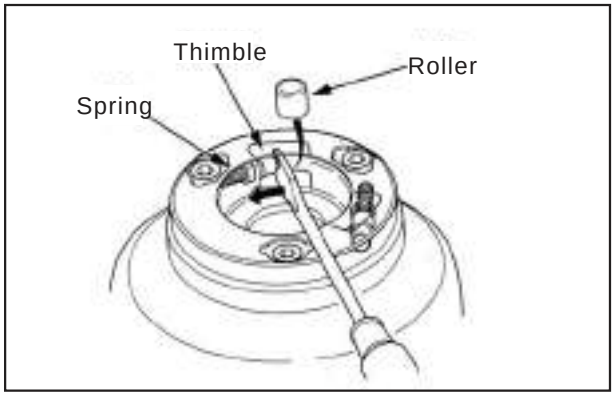
- Apply THREAD LOCK BOND “1342” on the screw thread and tighten it to the specified torque.

Specified torque: 12~15 N•m

99000-32050 : THREAD LOCK BOND “1342”

- Install the roller spring, cover and roller of the starting clutch.

- Push the spring as shown in the figure, install the starting clutch roller.
- Make sure the starting clutch operates smoothly.



- Apply engine oil on the surface of starting driven sprocket and needle bearing.
- Mount the starting driven sprocket onto the starting clutch, rotate the starting driven sprocket; check the operation of the starting clutch.
- The starting driven sprocket should be able to revolve clockwise and not counter-clockwise.

Engine oil

- Install the starting drive and driven sprockets as a whole.
- Put the shaft snap ring into the slot on the starting motor shaft.

- Apply engine oil on the starting chain protector, guiding plate, and starting chain.
- Install the starting sprocket plate and tighten the bolt.
- Install the chain guiding plate and the protector.

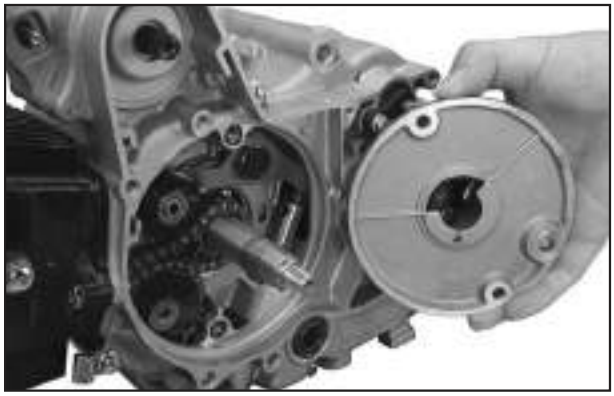
Engine oil

TIMING CHAIN TENSIONER

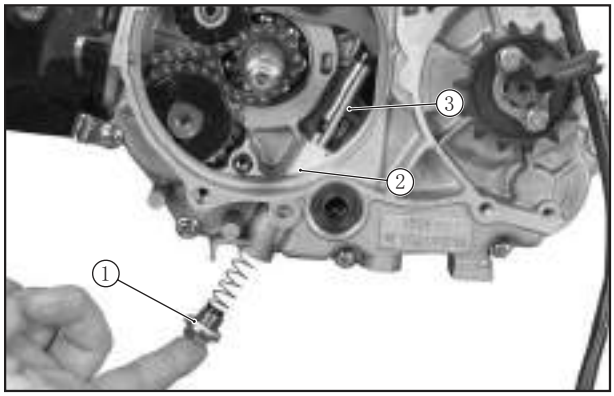
DISASSEMBLY

- Remove the starting motor.
- Remove the screws of oil separating cover.

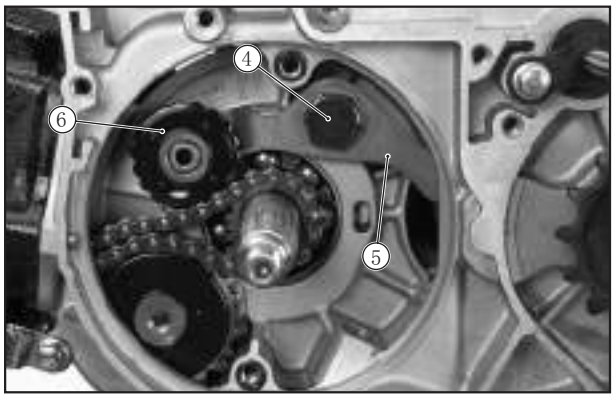
- Remove the oil separating cover.



- Remove the seal ring/bolt ①, tension spring ② and rod ③.

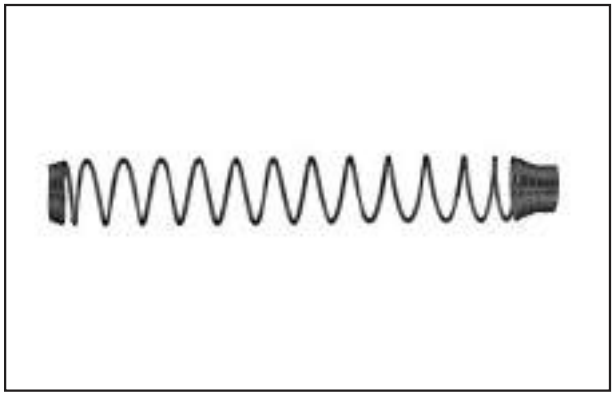


- Remove the tension arm bolt ④, tension arm ⑤ and tension roller ⑥.



INSPECTION

- Check the free length of tension spring.



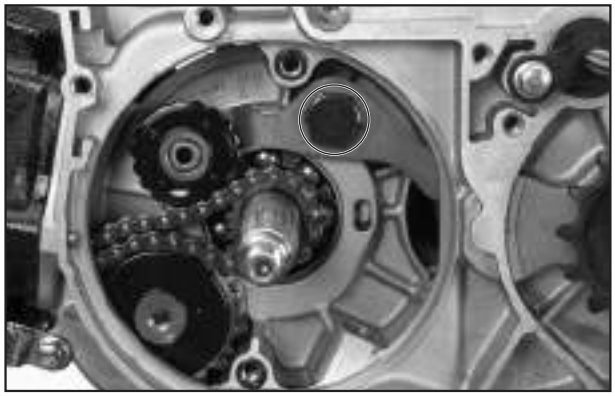
- Check for damage or wear-off of the tension rod.

REASSEMBLY

- Install the tension wheel, arm and bolt after applying engine oil on the inner surface of the spprocket wheel, and tighten the bolt of the tension arm to the specified torque.

Engine oil

Specified torque: 15~17 N•m



- Install tension rod and spring.
- Check that the seal ring is undamaged; install the seal ring/bolt and tighten to the specified torque.

Specified torque: 25~30 N•m

- Remove the sealing bolt and washer of the crankcase.
- Apply 1-2 ml of engine oil on the tension rod.

Engine oil

- Check for damage on oil separating cover, replace it if necessary.
- After applying engine oil on the O-ring, assemble it onto the crankcase and oil separating cover.

Engine oil

- Install the oil separating cover and tighten the screws.

Specified torque: 8~11 N•m

CAUTION

Pay attention not to damage the lip of the oil seal.

ROTOR REASSEMBLY

- Apply engine oil on the surface of the driven sprocket.
- Clean the grease on the crankshaft and rotor, install the semi-circular key.
- Install the washer and rotor nut, fix the rotor with special too kit, then tighten the lock-up nut to the specified torque.

Engine oil

09930-44400 : Rotor holder

Specified torque: 8~12 N•m

LEFT CRANKCASE COVER ASSEMBLY

- The left crankcase can be mounted in the reverse order of removal.

Specified torque: 8~12 N•m

CAUTION

The left crankcase cover is likely to be affected by the magnetic force of the rotor, so please be careful during disassembly.

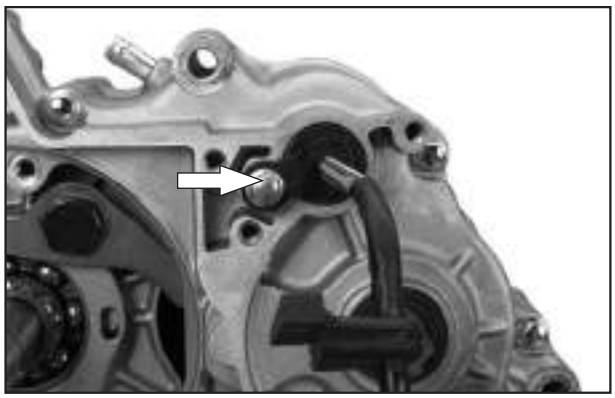
CRANKSHAFT, TRANSMISSION AND KICK STARTER

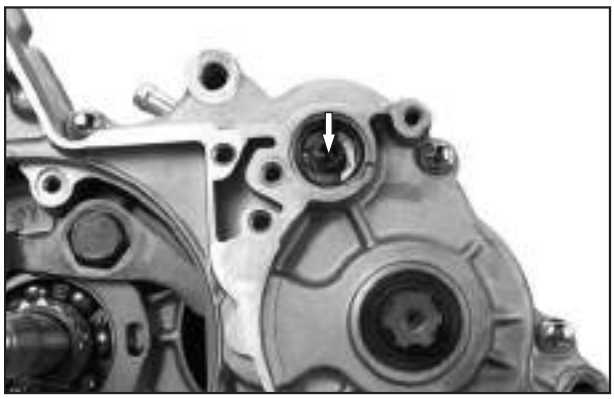
CRANKCASE DISASSEMBLY

- Remove the starting motor.

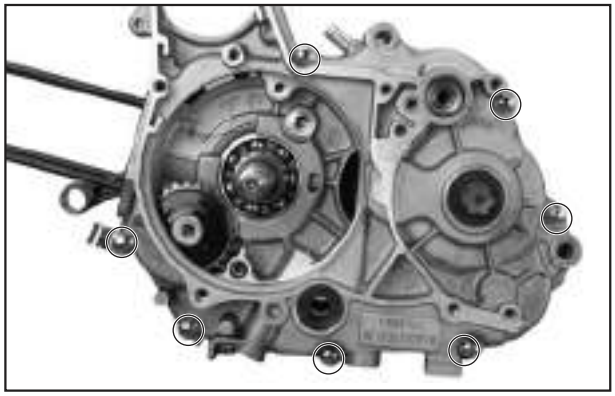
- Remove the shaft snap ring from the kick starter shaft.
- Loosen the return spring, remove the spring and the seat.

- Remove the bolt and the gear position switch.



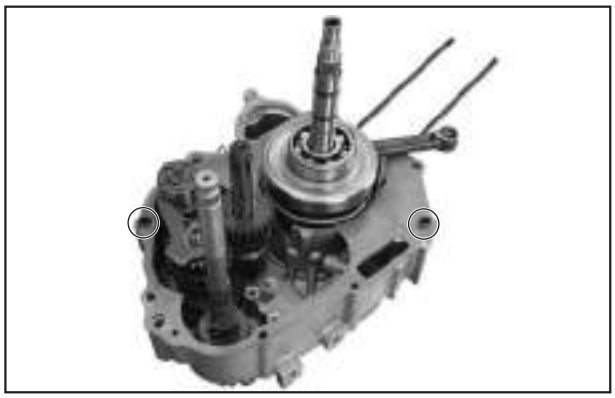


- Loosen the crankcase bolt in diagonal sequence.



- Dismantle the crankcase with the left crankcase facing downwards.

- Remove the sealing gasket and dowel pin.

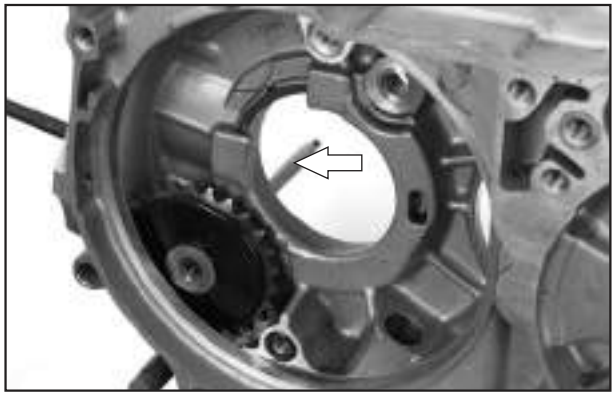


CRANKSHAFT

DISASSEMBLY

- Remove the crankshaft from the left crankcase.

- Remove the oil pump sprocket and shaft if necessary.



INSPECTION

- Measure the clearance at the larger end of the connecting rod with thickness gauge.

TOOL 09900-20803 : Thickness gauge

Service limit	0.6 mm

- Measure the radial clearance at the larger end of the connecting rod at the symmetrical points as shown in the figure.

TOOL 09900-20606 : Dial gauge
09900-21304 : V-block
09900-20701 :magnetic stand

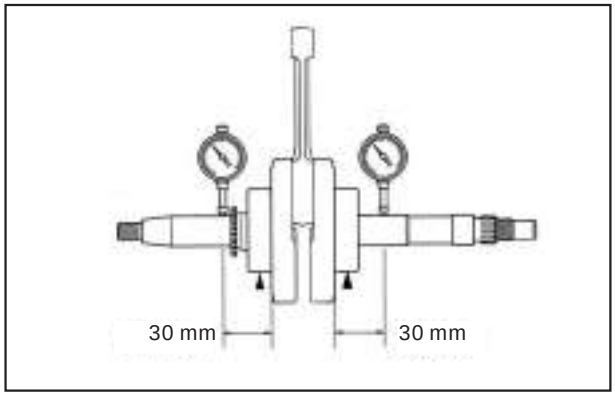
Service limit	0.05 mm

- Rotate the outer loop of the camshaft bearing by hand. The rotation must be smooth and without obstruction.
- Check if the inner ring of the bearing fits tightly with the camshaft.

- Place the crankshaft on a V-shaped block and measure the radial run-out with a dial gauge.

TOOL 09900-20606 : Dial gauge
09900-21304 : V-block
09900-20701 : magnetic stand

Service limit	0.05 mm



REASSEMBLY

- Install the oil pump sprocket and shaft after applying engine oil on the inner surface of the sprocket.

OIL Engine oil

- Pour a little engine oil into the crankshaft bearing at the larger end of the connecting rod; install the crankshaft into the left crankcase.

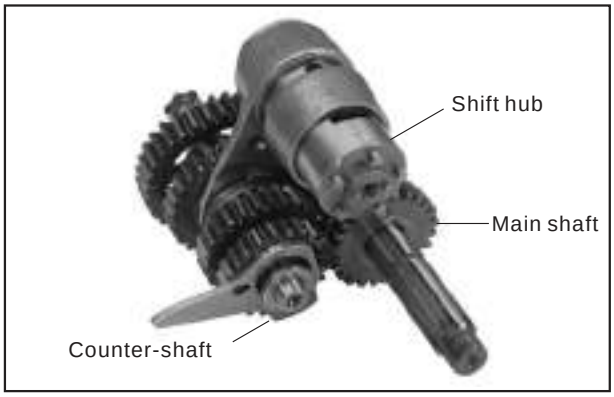
OIL Engine oil

TRANSMISSION

DISASSEMBLY

- Remove the kick starter lever.
- Remove the main shaft, counter-shaft and shift hub as a whole.

- Disassembling the main shaft, counter-shaft and shift hub.



INSPECTION

- Check the gear engaging flange, flange hole or gear teeth of abnormal wear-off or insufficient lubrication.

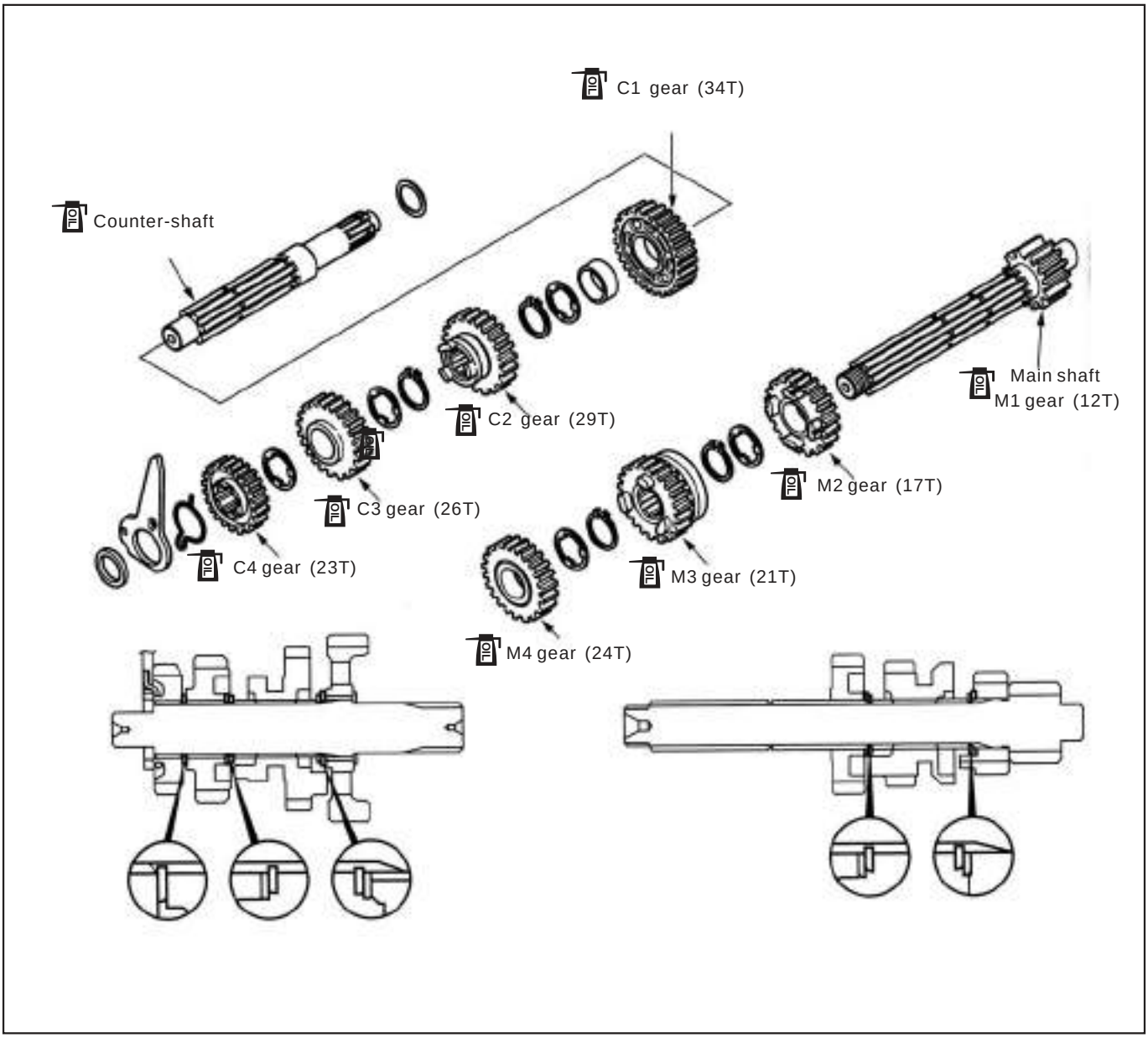
- Check the gear shaft of excessive damage or wear-off.

REASSEMBLY

● Reassembly in the reversed order of dis-assembly.

NOTE:
Apply the engine oil on the rotating / sliding area and the side of the shaft and gear.

OIL Engine oil



SHAFTING HUB DISASSEMBLY

- Remove the clamp of the guide pin.
- Remove the guide pin, then the fork.

- Check for damage or wearing of the shift hub.

- Measure the inner diameter of the shift hub.

Service limit	34.14 mm

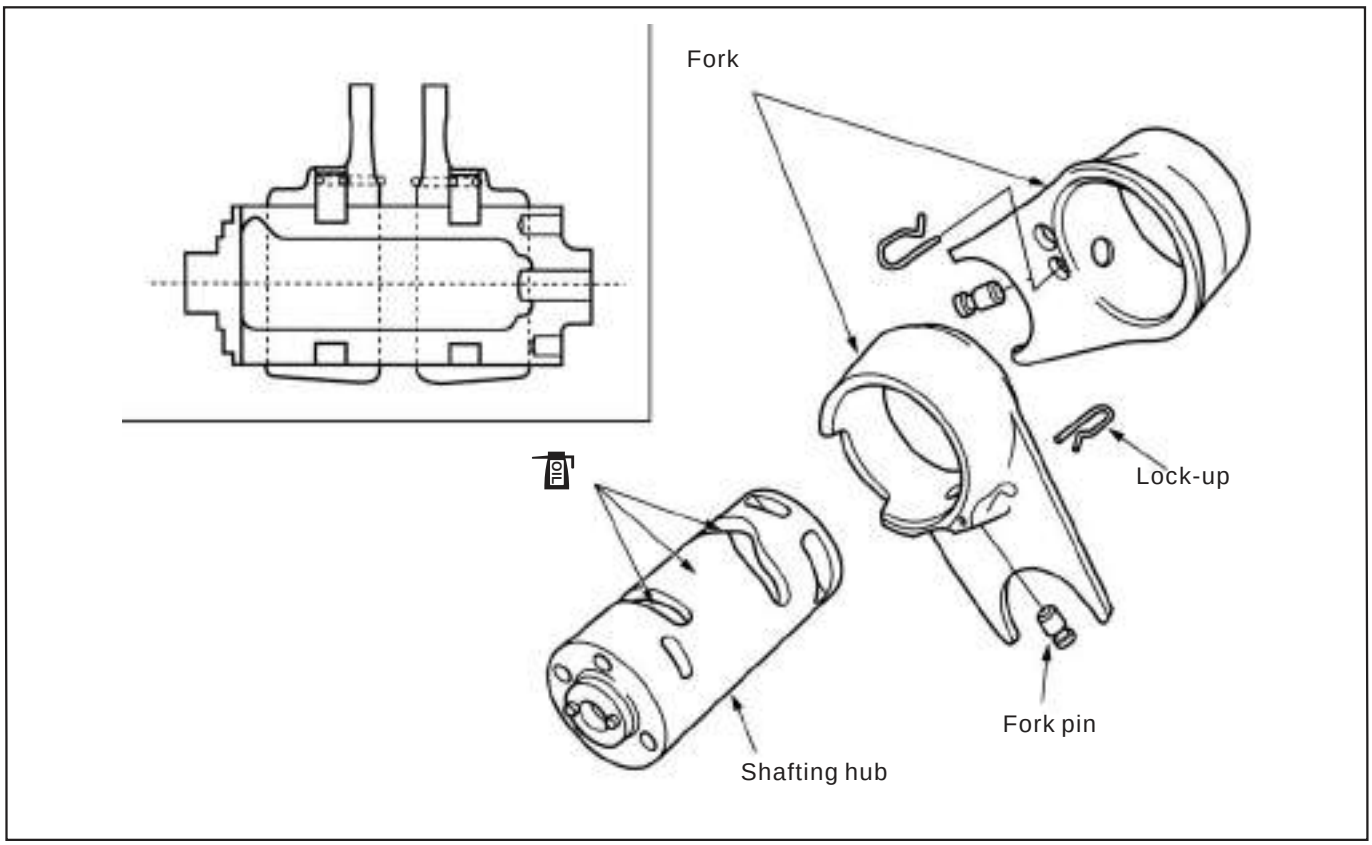
TOOL 09900-20101 : Vernier calipers

- Measure the thickness of the fork jaw.

Service limit	4.6 mm

TOOL 09900-20205 : Micrometer (0~25 mm)

SHAFTING HUB REASSEMBLY

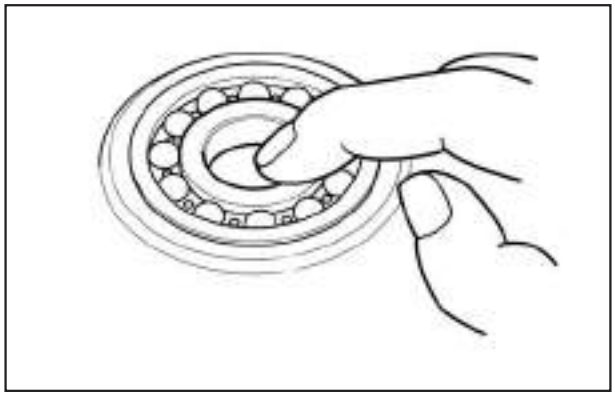


- Applying engine oil on the shift hub and the ring slot of the fork pin, mount the fork on the shift hub.
- Install the guiding pin and clamp.

Engine oil

BEARING REPLACEMENT

- Rotate every bearing by hand; Check for rotation smoothness as well as the movement of the outer ring in the crankcase; replace with new bearings if necessary.



● Remove the oil seal of the counter-shaft.

● Remove the bearings of left/right crankcase with special tool.

TOOL 09923-73210 : Bearing puller

09930-30102 : Rotor remove slide shaft

● Mount new bearings with special tool.

TOOL 09940-53311 : Bearing installer
09924-84510 : Bearing installer
09913-75820 : Bearing installer
09913-80112 : Bearing installer

● Mount a new oil seal.

REASSEMBLY

- Coat a layer of SUPER GREASE "A" on the new counter-shaft.
- Assembling the main shaft, counter-shaft and shift hub as shown in the figure.

99000-25010 : SUPER GREASE “A”

- Install the main shaft, counter-shaft and shift hub into the left crankcase as a whole, rotate the shift hub, check the operation of the shaft.

KICK STARTER

DISASSEMBLY

- Remove the kick starter assembly from the left crankcase.

- Remove the washer.
- Remove the shaft snap ring as well as the spring of the starting rachet wheel.

- Remove the snap ring, washer and starting gear.

INSPECTION

- Check if the start shaft is bent.
- Check if the spring is defective.
- Check for damage or wear-off on each part, replace if necessary.

ASSEMBLY

- Assembly in the reversed order of disassembly.

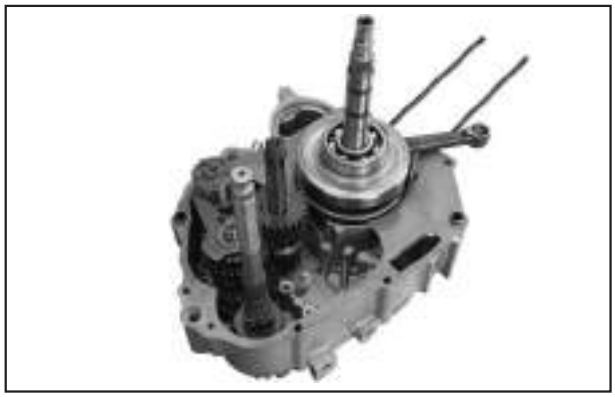
NOTE:
Direction of the snap ring.

- Apply engine oil on the rotating/sliding section of the kick starter shaft.

Engine oil

- Align the spring to the slot on crankcase cover; install the kick starter shaft.

CRANKCASE REASSEMBLY



- Clean the contact area of the crankcase before installation.

NOTE:
Grind the tiny rough or uneven plane with whetstone if necessary.
Lubricate the camshaft bearing and other contact area with engine oil.

Engine oil

Crankcase mounting bolt specified torque: 10~15 N•m

Shafting hub specified torque: 8~12 N•m

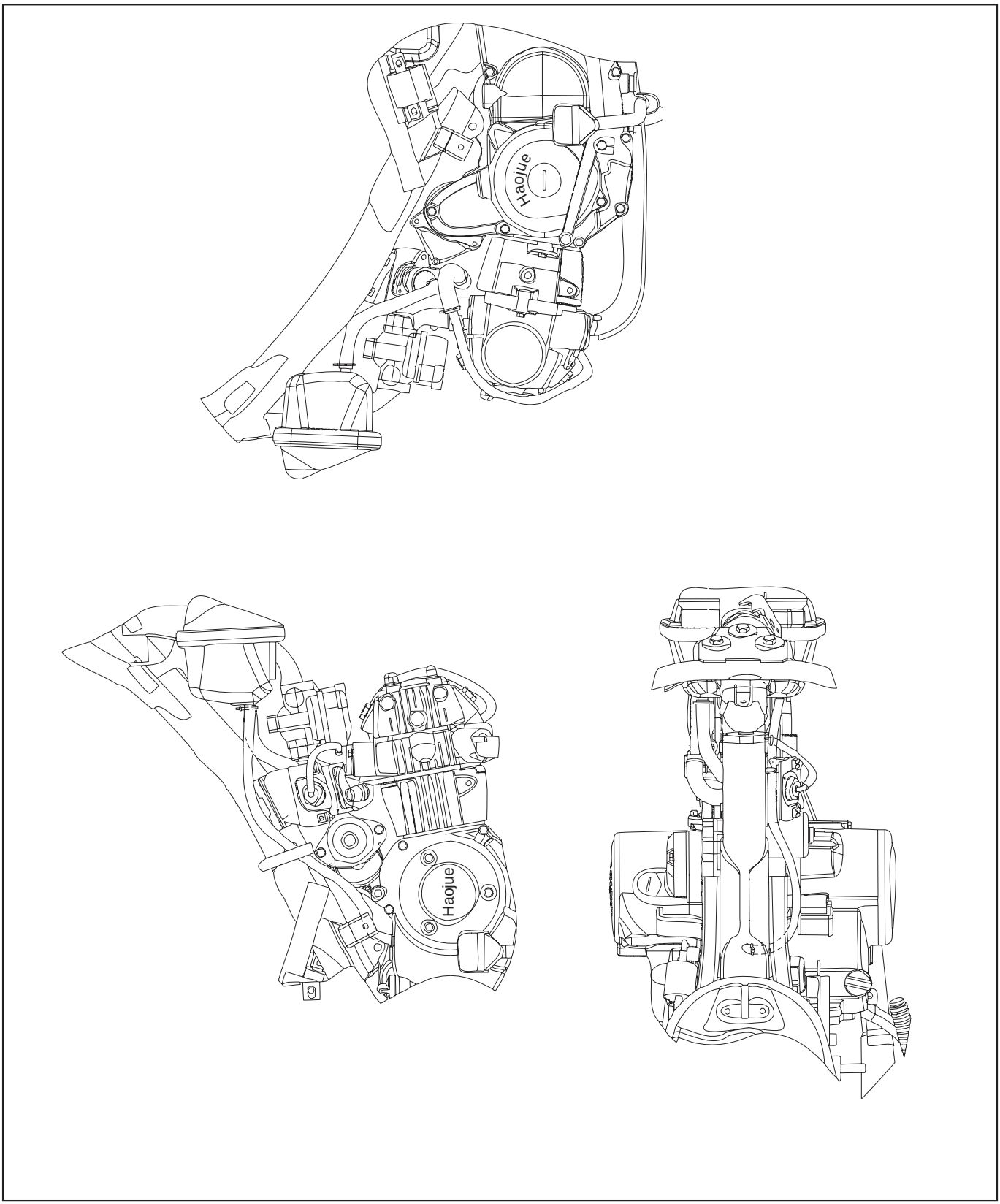
- Install the return spring and spring seat on the start shaft.

NOTE:
Install the spring seat, with the boss inserted into the crankcase slot.

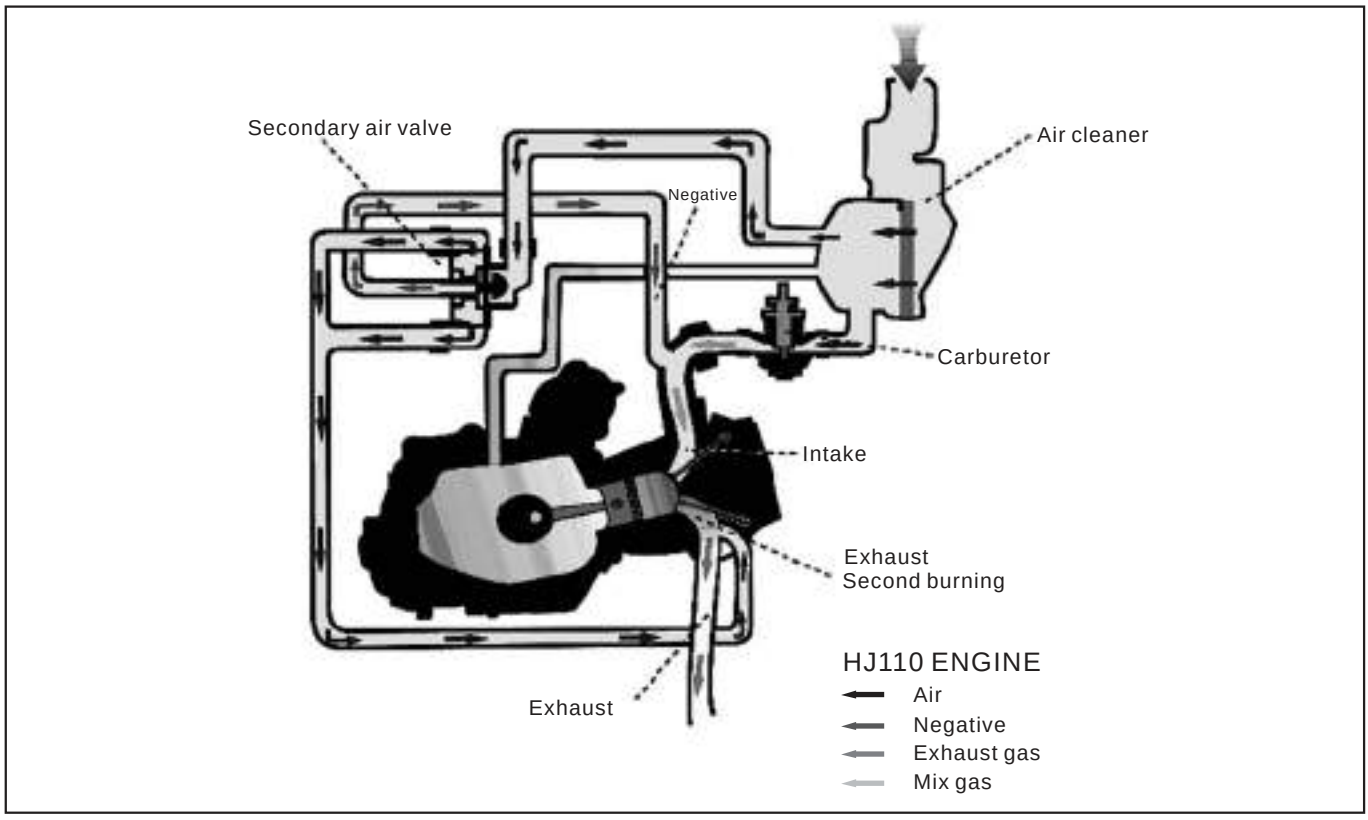
- Put the snap ring into the starting shaft slot.
- Assemble the removed parts in the reversed order of disassembly.

SECONDARY AIR SYSTEM

When the engine is started, fresh air will flow through the air filter, intake pipe, secondary air valve and secondary intake tube to blend with the exhaust gas generated by in-engine combustion of secondary combustion, and the exhaust gas will be expelled through the muffler.



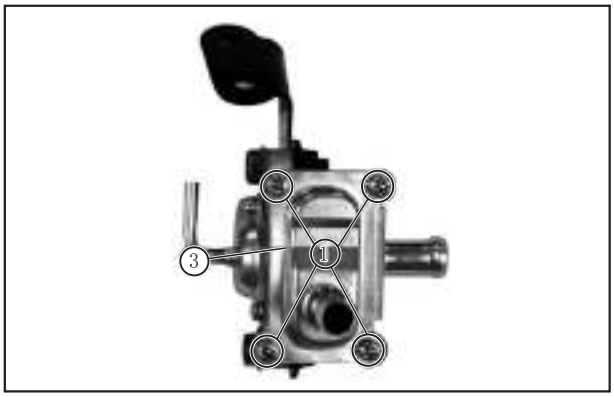
SCHEMATIC PLAN



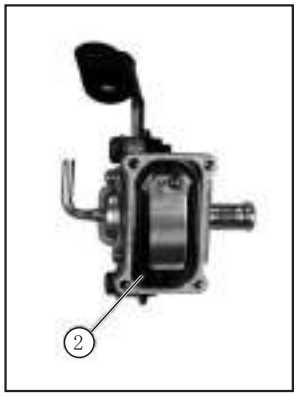
REMOVAL AND INSPECTION

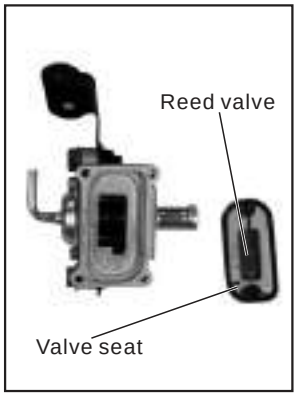
- Remove the fixing bolt of the secondary air valve.
- Unplug the intake tube, negative-pressure tube and intermediate tube; remove the secondary air valve .
- Check for damage or twisting of all tubes; replace with new tubes if damage or twisting is found.

- Remove the four screws ① and the reed valve



- Remove the reed valve ②, check the reed valve and gasket, replace it if it has damnification.
- Check the reed valve and the valve seat face, replace the reed valve, if reed distortion.





REMOUNTING

- Remount the secondary air valve in the reversed order of disassembly.

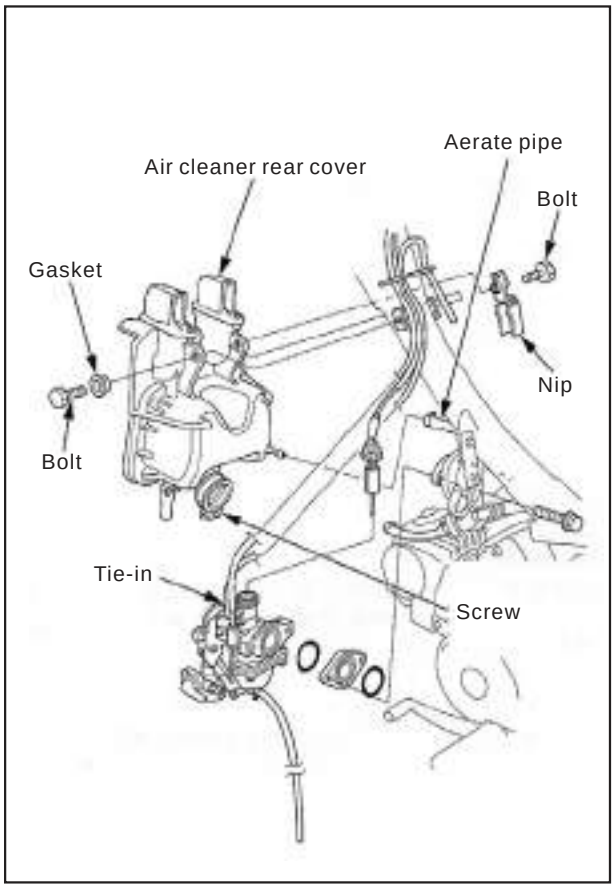
FUEL AND LUBRICATION

CONTENTS

AIR CLEANER

REMOVAL

- Remove the front panel and the front left & right covers.
- Disconnect the air cleaner pipe and crankcase air pipe at the rear cover of the air cleaner.
- Loosen the screws of the pipe clamp.
- Remove the bolts, sleeve, wire clip and rear cover assy.



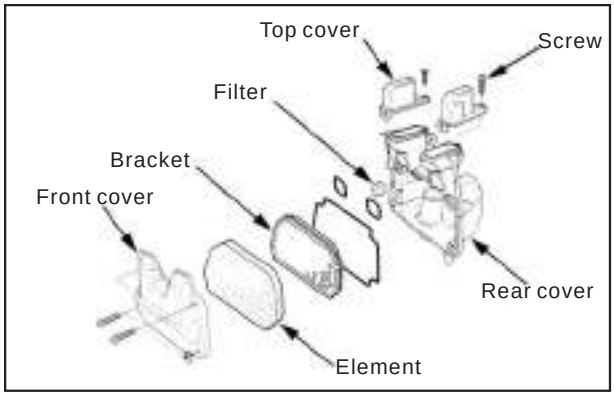
REMOUNTING

- Remounting in the reversed order of removal.

DISASSEMBLY AND REASSEMBLY

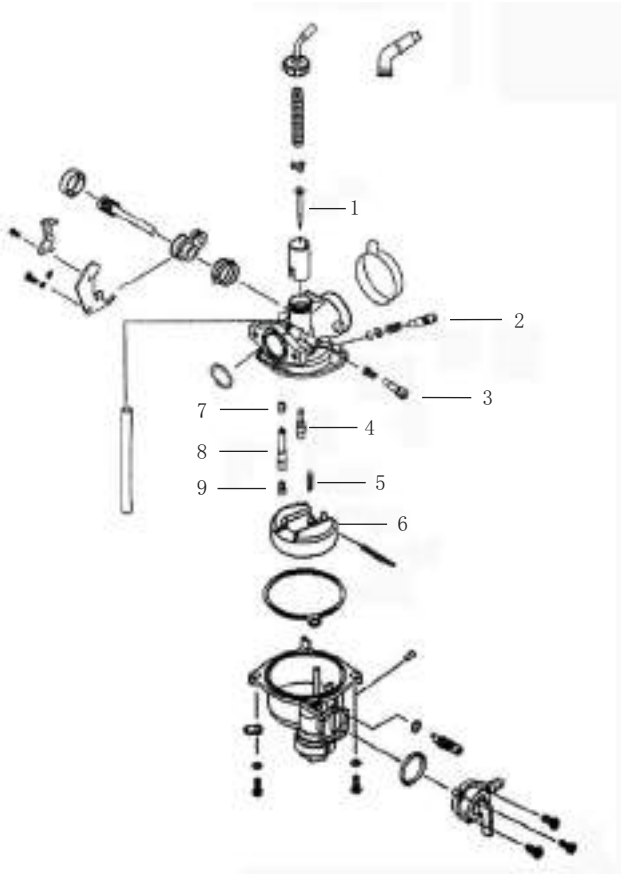
- Remove the screws and upper cover of the air cleaner.
- Remove the screws, front cover and air cleaner element.

- Reassembly in the reversed order of dis-assembly.



CARBURETOR

CARBURETOR CONSTRUCTION



1. Fuel needle
2. Idle air screw
3. Idle screw
4. Idle jet
5. Needle valve
6. Float
7. Main jet
8. Bubbler
9. Main fuel jet

ITEM	SPECIFICATION	ITEM	SPECIFICATION
Carburetor type	Pz19	Bubbler	Φ 2.6 mm
Bore size	Φ19 mm	Idle jet	# 110
I.D. No	PZ19	Idle screw	PRE-SET{(3/2) turn out}
Idle	1, 400~1, 600 r/min	Fuel needle	B6SQ-3
Main fuel jet	# 92	Throttle cable play	0.5~1.0 mm

⚠ WARNING

Fuel is flammable and explosive, so please handle it with extreme care and the operation should be carried out in a well ventilated place.
Smoking at work or fuel storage locations is prohibited and may cause an explosion.

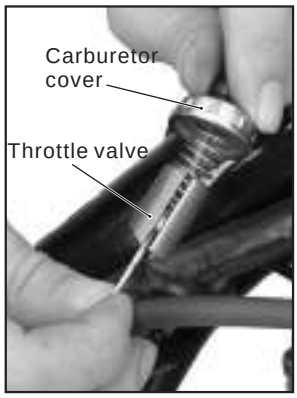
⚠ CAUTION

Jets are fragile, so please handle with care.

CARBURETOR REMOVAL

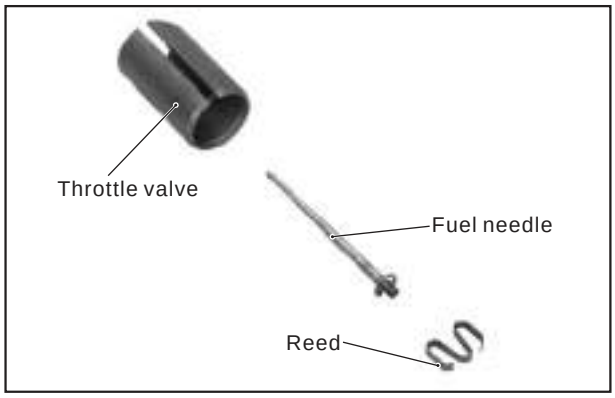
CARBURETOR THROTTLE VALVE

- Remove the front panel and the front left & right covers.
- Loosen the carburetor cover.
- Remove the carburetor cover and the throttle valve from the carburetor.
- Compress the throttle spring; remove the throttle cable from the throttle valve.
- Check for dents, damage or wearing of the throttle valve and the fuel needle.



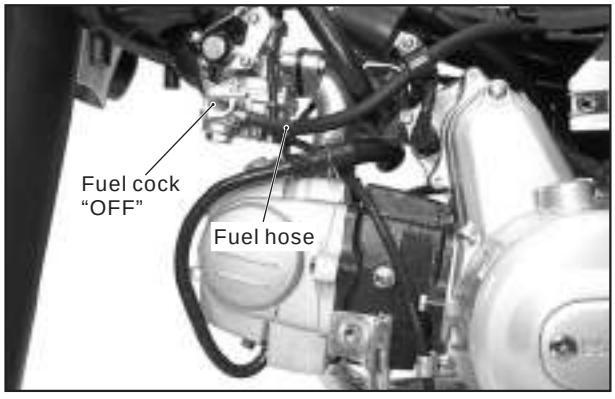
CARBURETOR FUEL NEEDLE

- Remove the spring, the reed, and the fuel needle.



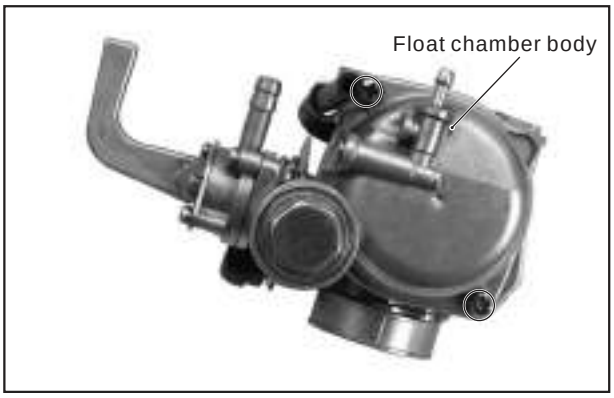
CARBURETOR BODY

- Turn the fuel cock to the “OFF" position,
- Loosen the drain screw and drain the fuel from the float chamber into a container,
- Disconnect the fuel hose.
- Loosen the screw of the choke cable clamp and disconnect the choke cable.
- Disconnect the air pipe and fuel release pipe from the carburetor body,
- Loosen the screws of the pipe clamp,
- Remove the bolts, the carburetor and the thermal insulation pad.

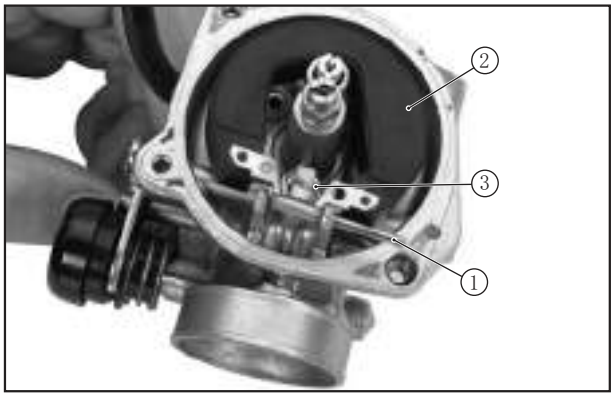


CARBURETOR DISASSEMBLY

- Remove the screws and the float chamber body.

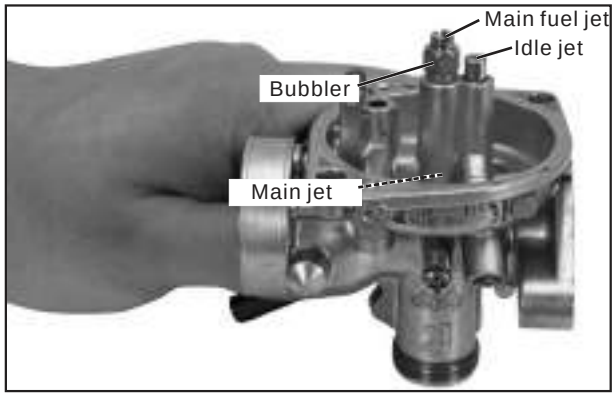


- Remove the pin ①, float ② and needle valve ③.
- Check for damage or deformation of the float.
- Check for dents, scratch, block or damage of the float needle valve seat.
- Check the motion of the float needle valve.



- Dismantle the following parts:
  * Idle jet
  * Main fuel jet
  * Bubbler
  * Main jet

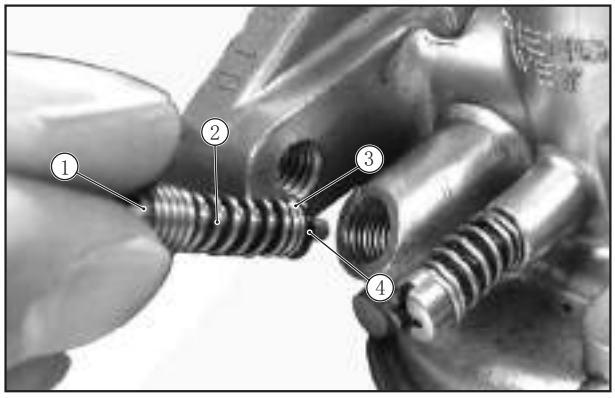
- Check for damage or wearing of each jet, replace it if necessary.



- Turn the idle air screw ① inward, and record the number of the rotation by rotating slightly to the end.
- Remove the idle air screw①, the spring②, the washer ③ and the O-ring ④.

⚠ CAUTION

The idle air screw seat may be damaged if it is over-tightened.



CARBURETOR REASSEMBLY

- Reassembly in the reserved order of the disassembly.

NOTE:

Before reassembly, blow through all the air-channels and fuel-channels on the carburetor body with the compressed air.

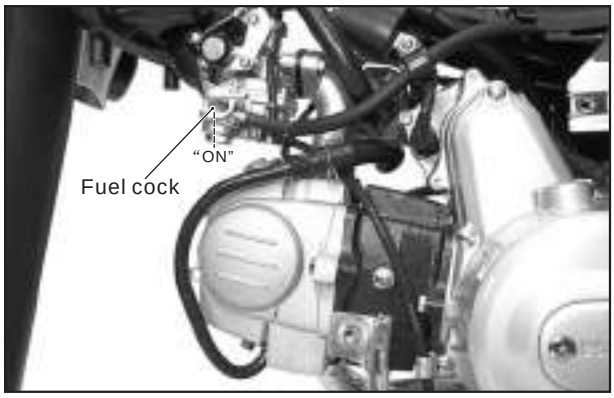
- Install the idle air screw; turn it to the original position recorded before disassembly.
- If a new idle air screw is to be installed, adjustment should be made accordingly.

- Install a new O-ring on the carburetor body.

CARBURETOR REMOUNTING

- Remount in the reserved order of the removal.
- Install the new O-ring into the slot on the thermal insulation pad and carburetor body.
- Install the throttle valve on the carburetor body, align the idle screw.
- Check the throttle cable play (refer to page 2-9).

- Tighten the drain screw.
- Install the fuel release hose and fuel hose.
- Turn the fuel cock to “ON".



- Check the engine idle speed as follow steps.

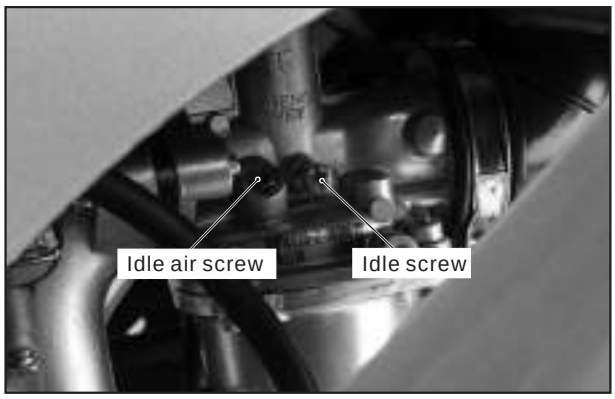
IDLE SPEED ADJUSTMENT

⚠ WARNING

Be sure to start the engine at a place well ventilated or equipped with a ventilation system. Poisonous carbon monoxide is contained in the waste gas which is hazardous to humans.

NOTE:
The idle air screw is already preset at the factory, so adjustment is not necessary unless during a carburetor overhaul or replacement with a new idle air screw.
Adjustment must be made under a warm engine with the engine running for over 10 minutes.
Use a tachometer with a range of no more than 50 turns in order to display the change at 50.

1. Rotate the idle air screw lightly to the end clockwise and then return to the specified turns.



⚠ CAUTION

The idle air screw seat may be damaged if it is over-tightened.

Turns	3/2 turn out

2. Start the engine, keep it at idle speed till fully pre-heated.
3. Turn off the engine, connect the tachometer according to the instructions.
4. Start the engine and adjust the idle speed with the idle screw.

Idle speed	1,500±100 r/min

5. Turn the idle air screw slowly outwards to gain the maximum engine speed.
6. Repeat above 4 and 5.
7. Re-adjust the idle speed.
8. Open the throttle slightly to check if the engine accelerates evenly, repeat the procedure 4-7 as above.

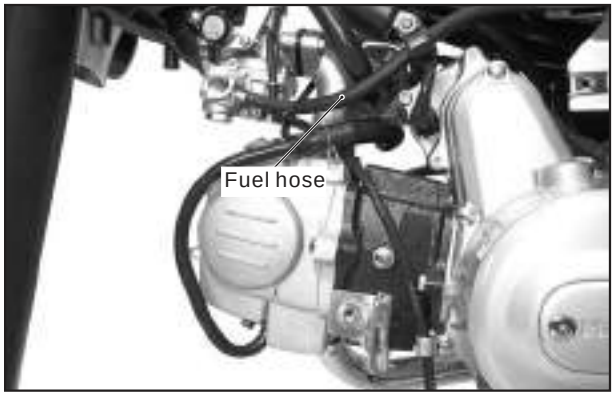
FUEL TANK

REMOVAL

⚠ WARNING

Fuel is flammable and explosive, so please handle with extreme care.

- Remove the front left/right cover.
- Remove the fuel hoses.
- Drain the fuel into a proper container.



Dismantle the following parts:
* Saddle
* Protective covers

Disconnect the fuel level sensor connector.

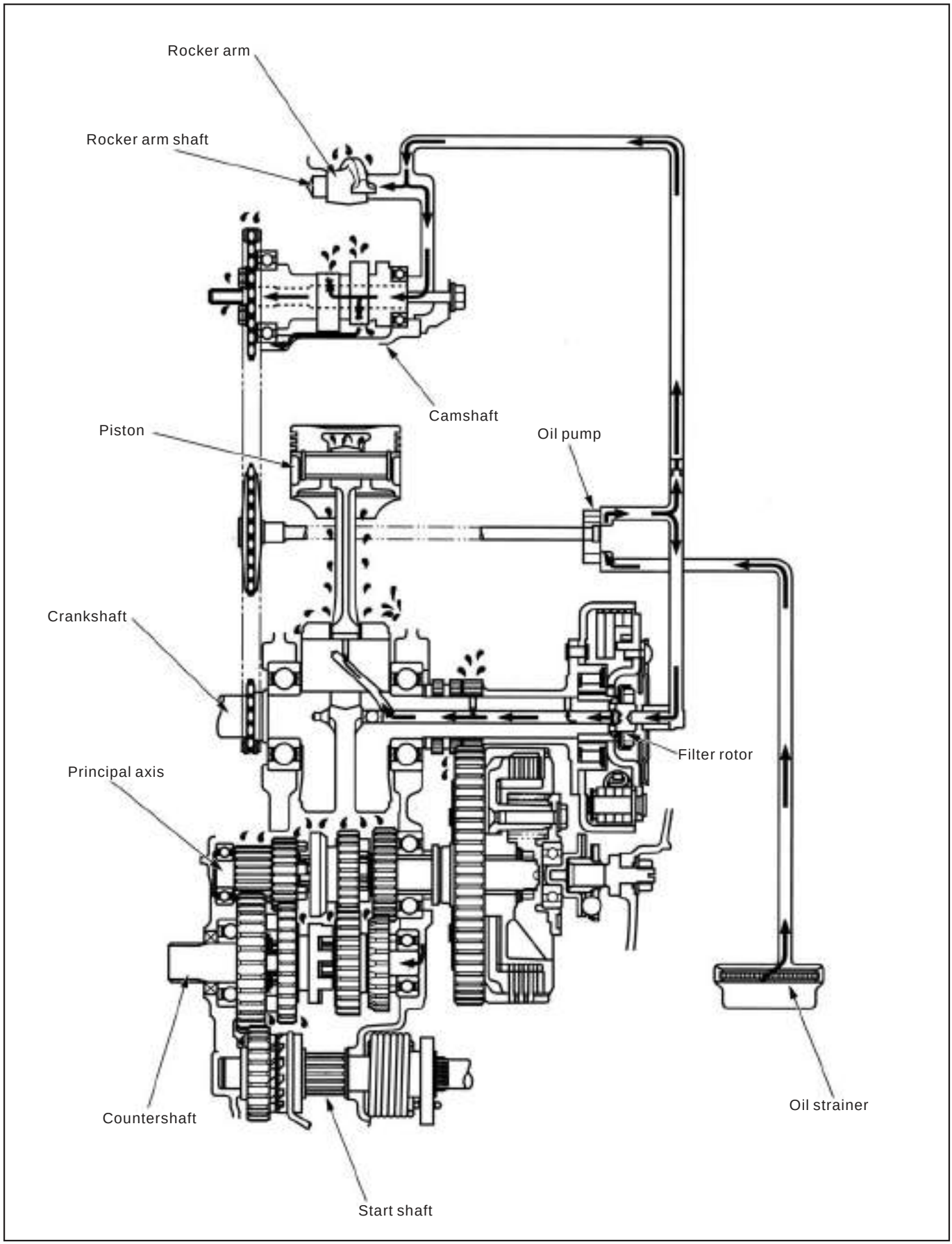
- Remove the 4 bolts of fuel tank.
- Lift the fuel tank, remove it after disconnect the fuel hose.

REMOUNTING

- Remounting in the reversed order of removal.

NOTE:
Place the fuel cock to the “ON” position after remounting, and ensure that no fuel leaks.

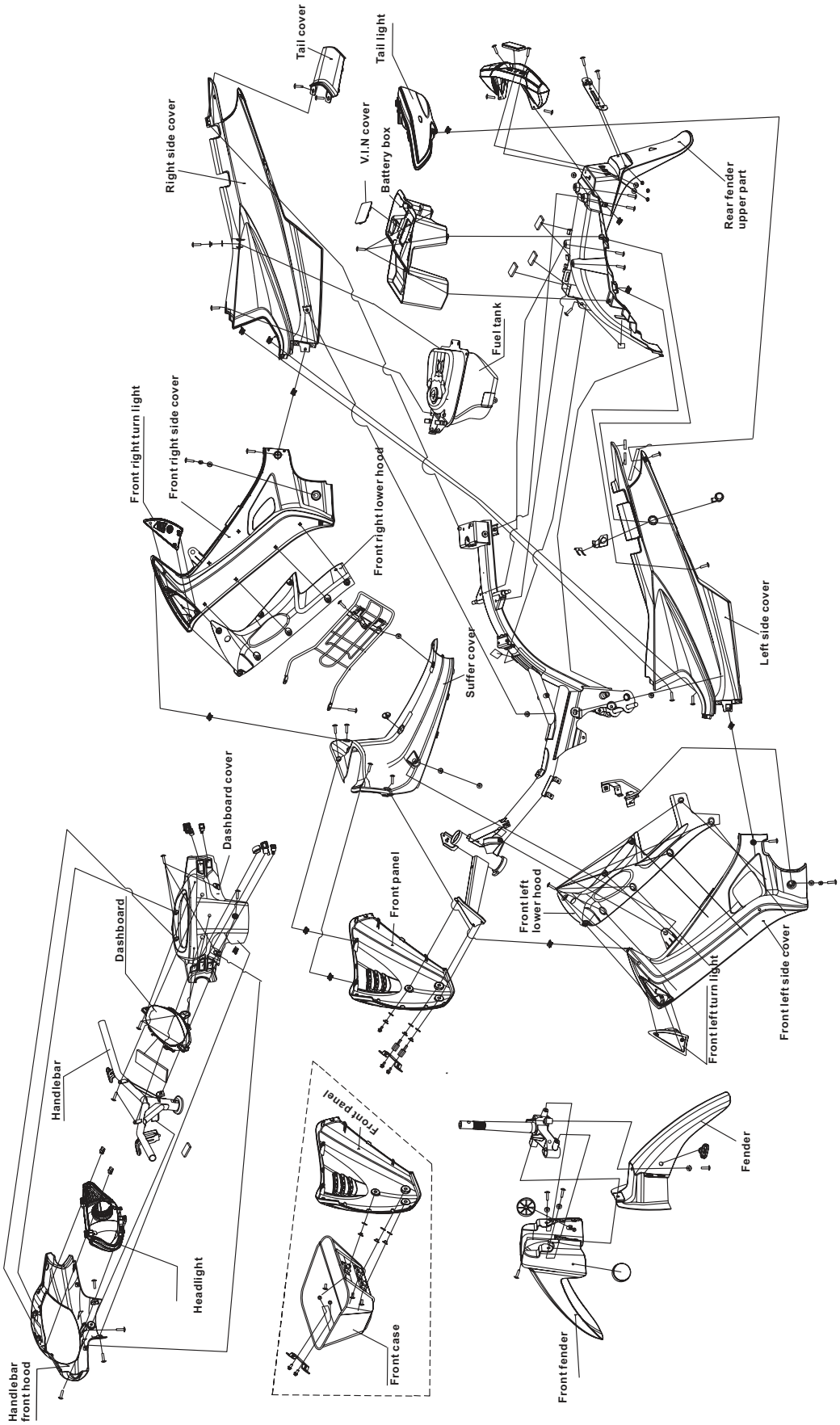
LUBRICATION SYSTEM



CHASSIS

CONTENTS

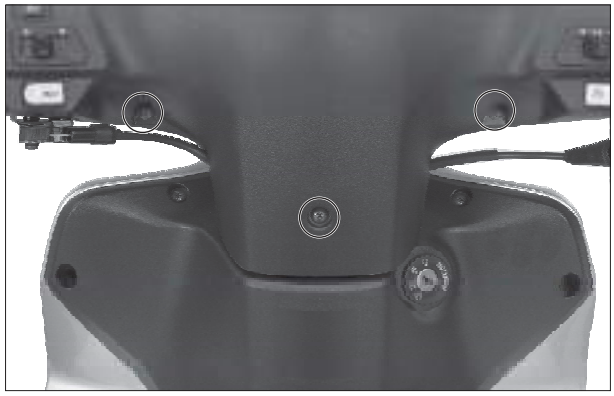
EXTERIOR PARTS REMOVAL AND REMOUNTING



HANDLEBAR

REMOVAL

- Remove left and right rearview mirrors.
- Remove the mounting screws, and remove the handlebar front hood and dashboard cover.



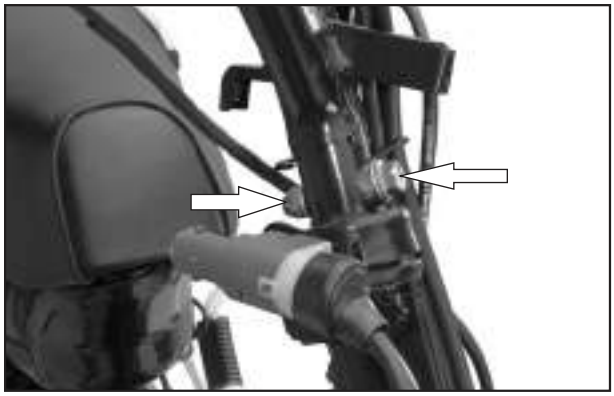
- Disconnect the brake switch connector, and starting switch connector.
- Remove the screws and the dashboard.

- Remove the screws, washer and choke lever; remove the choke cable.

- Remove the bolts of the throttle cover.

- Disconnect the throttle cable and remove the throttle grip.

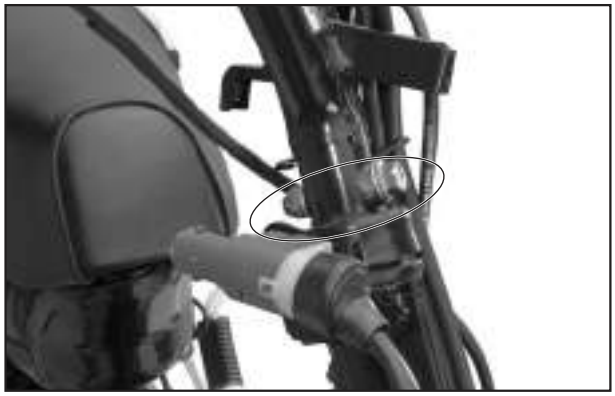
- Remove the bolt and nut of the handlebar.



REMOUNTING

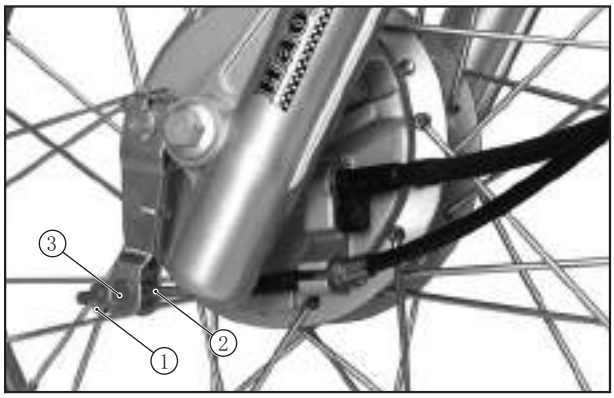
- The handlebar can be mounted in the reverse order of removal.
- Tighten bolt and nut of the handlebar to the specified torque..

Specified torque: 45~55 N•m

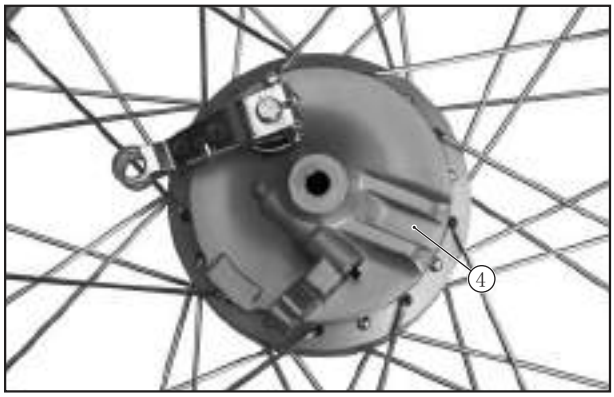


FRONT WHEEL

REMOVAL

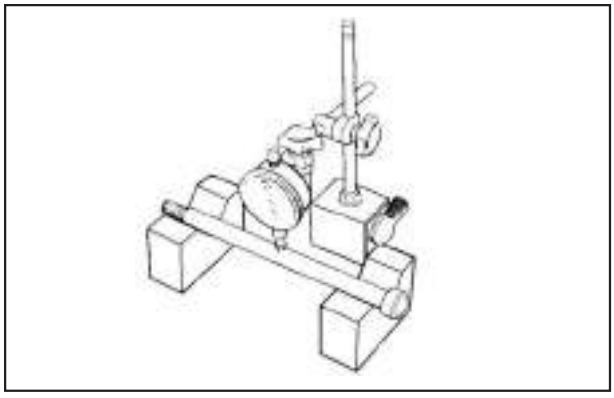


- Support the motorcycle with a jack or wooden block.
- Remove the bolt for the flexible cable of odometer and disconnect it.
- Remove the adjustment nut ①, brake cable ② and brake arm pin ③ of the front brake.



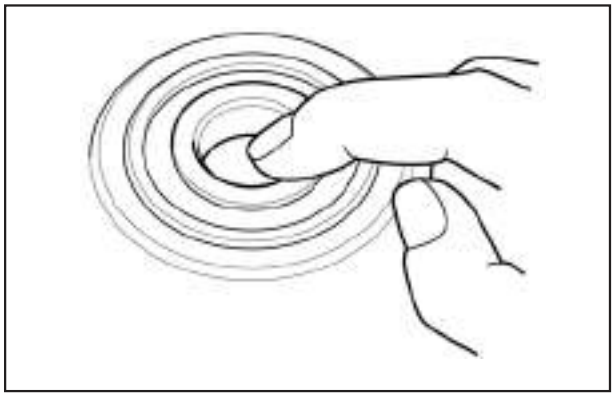
- Remove the wheel axle nut, hub and front wheel, remove the bush from the right side.
- Remove the brake drum cover ④ from the left.

INSPECTION



- Place the wheel axle on a V-shaped block and measure the radial run-out.
- Actual run-out should be 1/2 of the reading.

Service limit	0.25mm

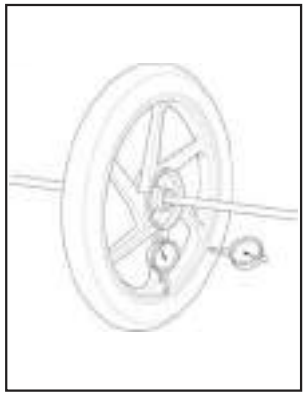


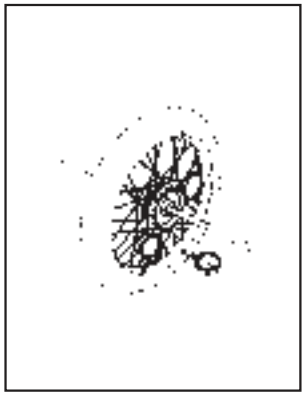
- Rotate the inner ring of each bearing with fingers; the rotation must be smooth without abnormal noise.
- Check if the outer ring of the bearing fits tightly with the wheel hub. If the rotation is not smooth or it fits too loosely with the hub, replace with new bearings.

Note:
Replace the bearing in pairs.

- Place the wheel hub on a revolving bracket, rotate the wheel manually and measure the radial movement with a micrometer, examine radial run-out of the hub.
- Actual run-out should be 1/2 of the reading.

Service limit	Axial	2.0mm
	Radial	2.0mm

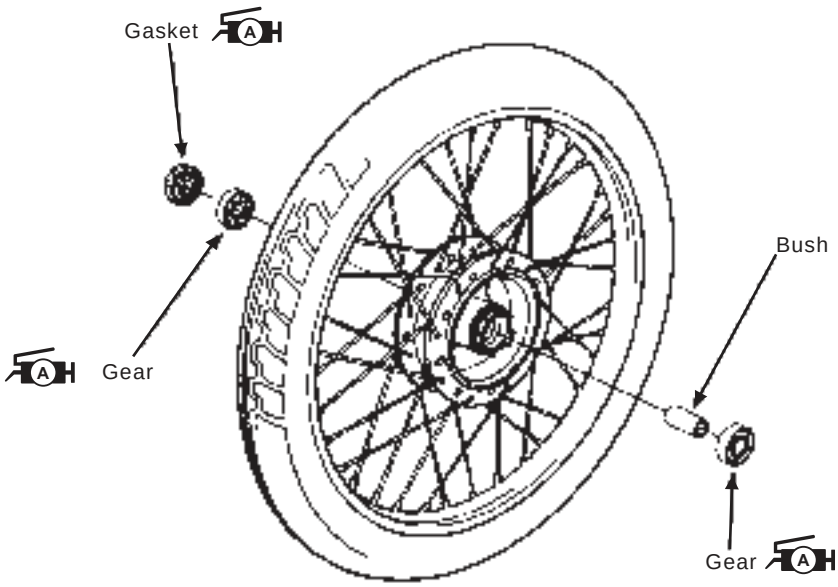




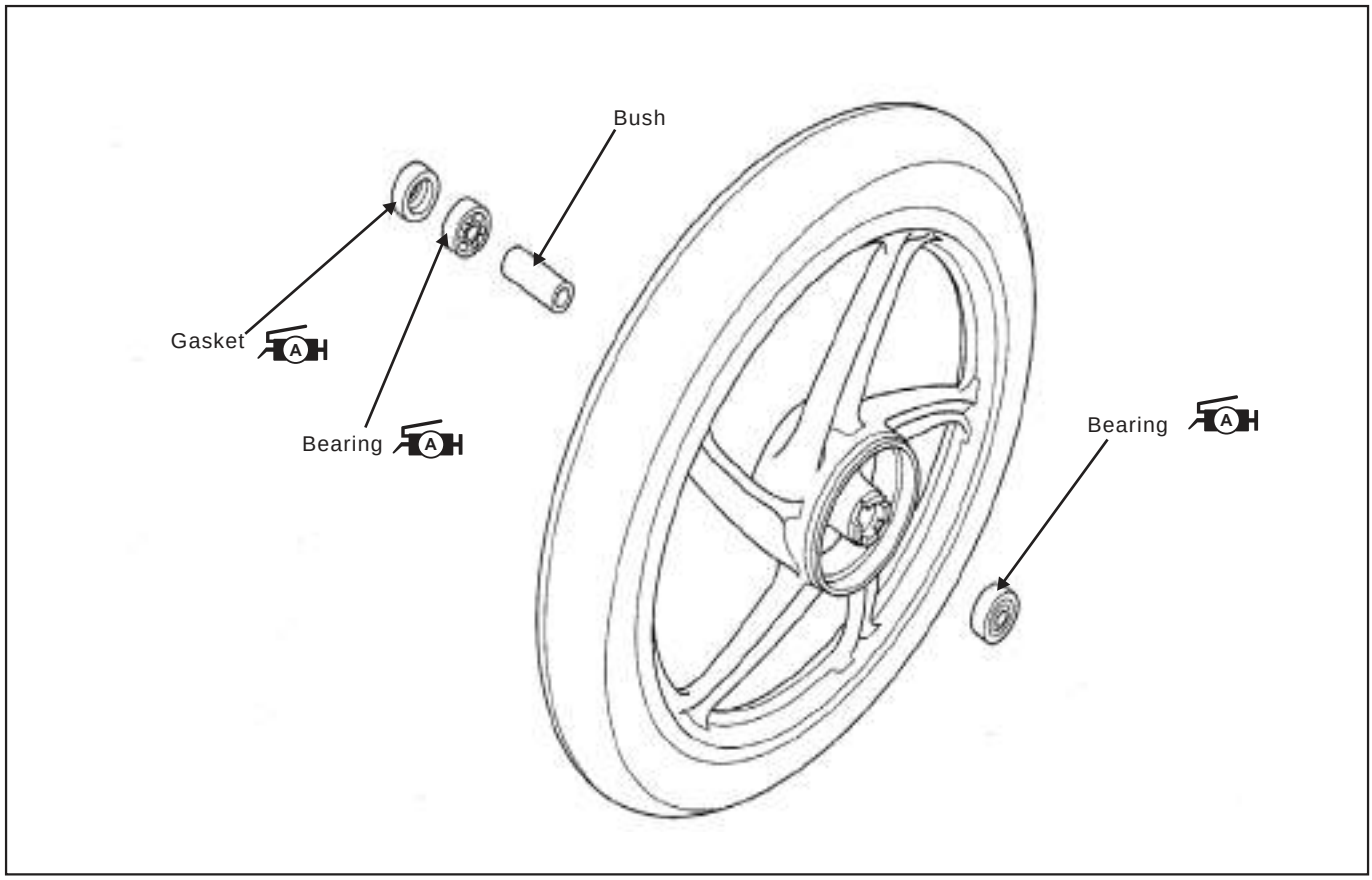
- Remove the oil seal, bearing or bush from the right of the hub and check for damage Replace if necessary.

REMOUNTING

SPOKE WHEEL



CAST WHEEL



- Fill the bearing cavity with SUPPER GREASE "A".
- Tap the new bearing evenly into the right side of the hub with the sealing side facing outwards, mount the bushing, then tap another new bearing into the left side with the sealing side facing outwards.

⚠ CAUTION

Do not reuse used bearings. Replace with new bearings once they are removed.

A 99000-25010 : SUPPER GREASE "A"

- Check the radial run-out of the wheel rim when installing the spokes.
- Apply grease on the rim of the seal ring, and install it into the wheel hub.

A 99000-25010 : SUPPER GREASE "A"

REMOUNTING

- Install the bushing.

- Align the boss of the counter wheel with the hub slot, and mount the brake drum cover onto the left side of the wheel hub.

- Align the slot on the brake drum cover to the boss of the absorber bottom, then mount the front wheel between the bottom of the two absorbers.
- Install the front wheel axle from the right side after applying a bit of grease.

- Install and tighten the nut for the wheel axle to the specified torque.

Specified torque: 48~57.6 N•m

- Install dowel pin, brake cable and adjusting nut.
- Connect the odometer flexible cable and secure it.

- Adjust the free stroke of the front brake lever and check its operation.

FRONT BRAKE

REMOVAL

- Remove the brake drum cover from the wheel hub (refer to page 5-4).

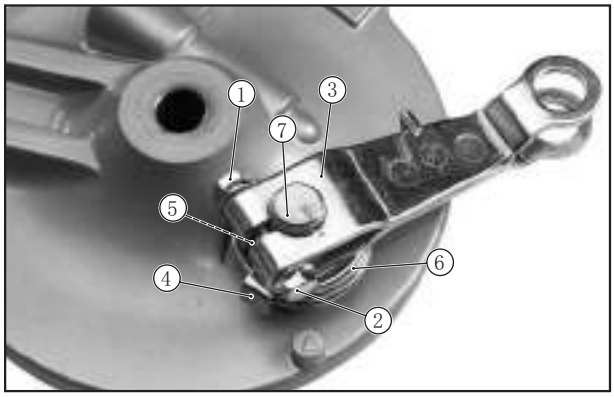
INSPECTION

- Measure the inner diameter of the wheel hub.

Service limit	111.0mm

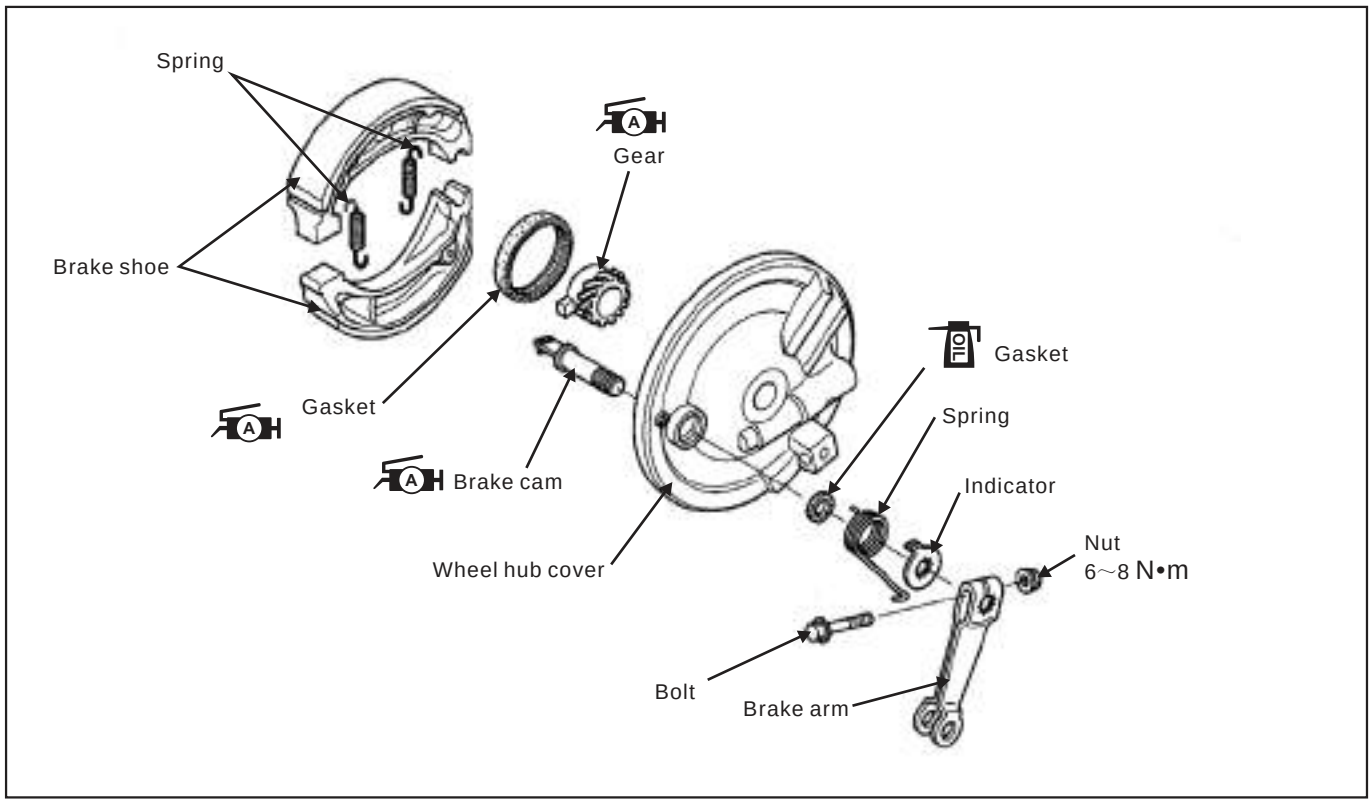
DISASSEMBLY

- Remove the brake shoes and the springs.
- Remove the counter wheel and dust-proof sealing gasket.



- Remove the nut ①, bolt ② and brake arm ③.
- Remove the indication plate ④, seal ring ⑤, return spring ⑥ and brake cam ⑦.

REASSEMBLY



- Apply SUPPER GREASE “A” on the lip of the new dust-proof seal ring, and then install it into the brake drum cover.
- Apply SUPPER GREASE “A” on the counter wheel, and then install it into the brake drum cover.

99000-25010 : SUPPER GREASE “A”

- Apply grease on the dowel pin and brake cam.
- Then install the brake cam into the brake drum cover.

99000-25010 : SUPPER GREASE “A”

- Apply grease on the seal ring, and then install it into the brake drum cover.
- Install the return ring and press the spring end into the hole of the brake drum cover.

- Install the indication plate on the brake cam, with the wider tooth aligned to the wider slot on the brake cam.

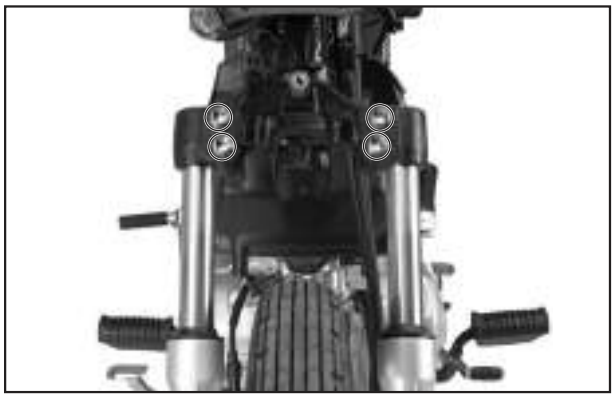
- Install the brake arm with its mark aligned to that on the brake cam.
- Mount the bolt of the brake arm, then tighten the bolt to the specified torque.

Specified torque: 6~8 N•m

- Install the brake shoe and the spring.
- Mount the brake drum cover on the left side of the wheel hub.

FRONT ABSORBER

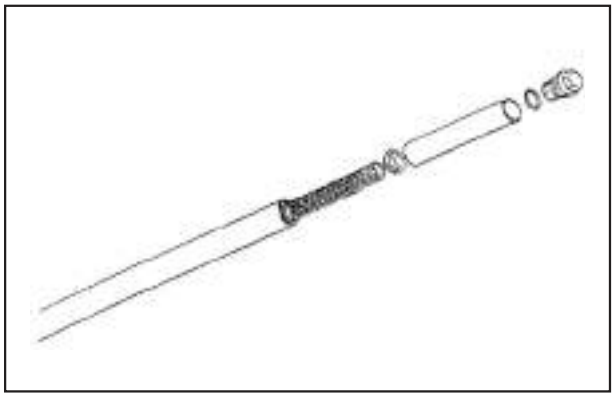
REMOVAL



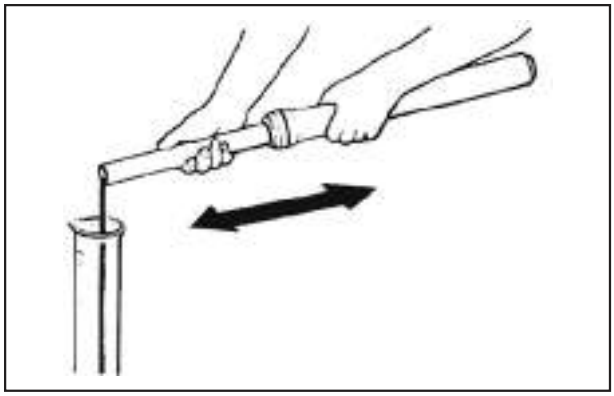
- Remove the following parts:
  * Front panel
  * Front fender
  * Front wheel

- Disassemble the clamping bolt of the front absorber, then loosen the bolt of the front absorber and remove the front absorber.

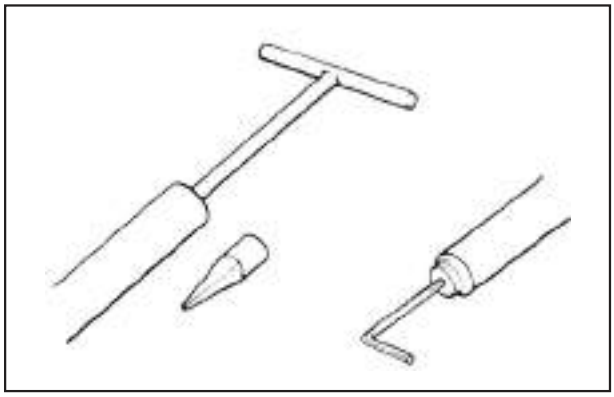
DISASSEMBLY



- Take off the bush of the front absorber, spring and spring seat.



- Incline the front absorber, push it several times and drain the oil from it.
- Place the front absorber with bottom up for 30 minutes.

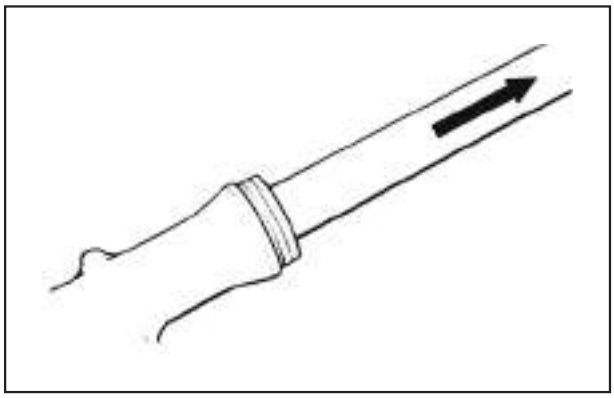


- Remove the bolt of the piston rod with the special tools and 8mm hex socket wrench.

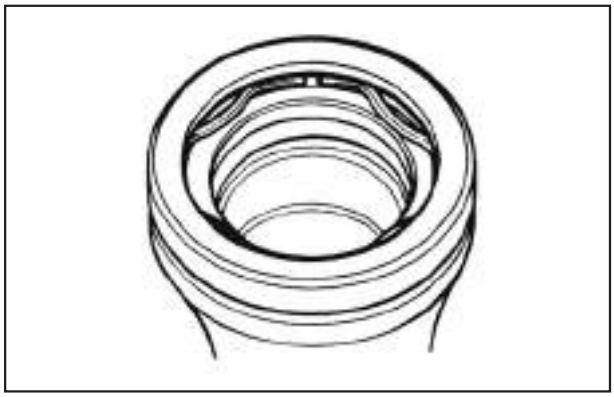
TOOL 09940-34520 : “T” handle

09940-34561 : Attachment “D”

- Remove the seal spacer, piston rod and buffer spring.
- Remove the inner tube from the outer tube.



- Remove the retaining ring.

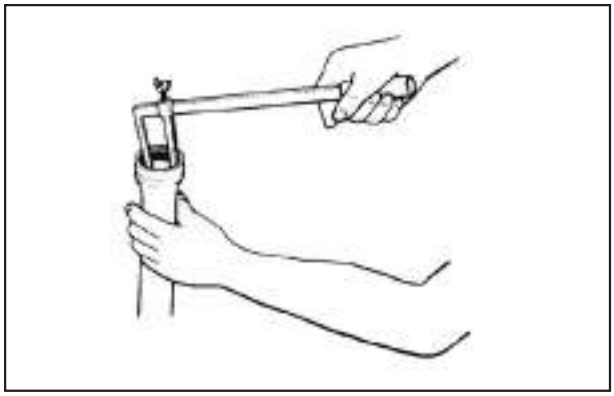


- Remove the oil seal with special tool .

TOOL 09913-50121 : Oil seal remover

⚠ CAUTION

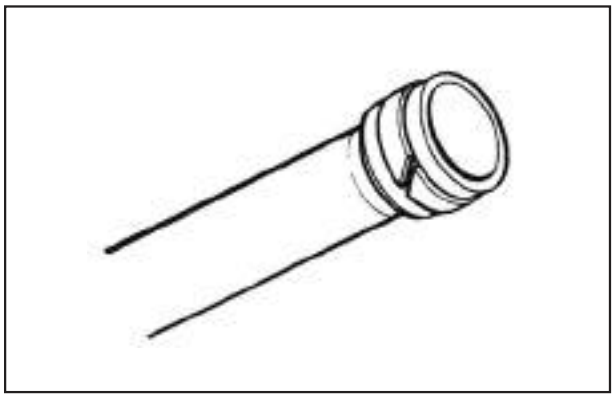
Removed oil seals must not be reused. New oil seals must be used.



INSPECTION

PISTON RING

- Check for damage or wearing of the piston ring.



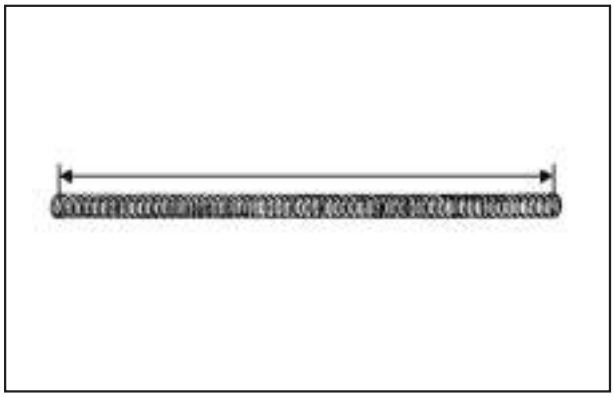
INNER TUBE AND OUTER TUBE

- Inspect the inner tube and outer tube sliding surfaces for any scuffing or flaws.

ABSORBER SPRING

- Measure the absorber spring free length. If it is shorter than the service limit, replace it.

Service limit	329.4mm

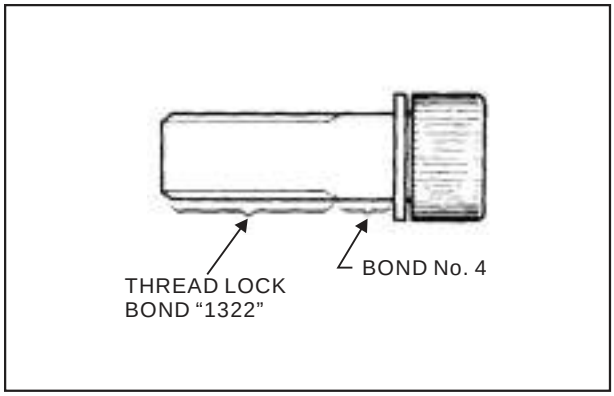


REASSEMBLY

Reassemble and remount the front absorber in the reverse order of disassembly and removal, and also carry out the following steps:

DAMPER ROD BOLT

- Apply BOND No. 4 and THREAD LOCK BOND "1322" to the damper rod bolt and tighten the bolt by using the 8mm hexagon wrench and special tools to the specified torque.

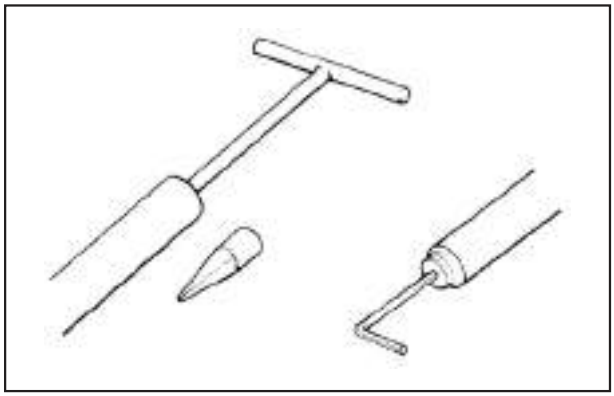


No.4 99100-31030 : BOND No. 4

1322 99000-32110 : THREAD LOCK BOND "1322"

TOOL 09940-34520 : "T" handle

09940-34561 : Attachment "D"

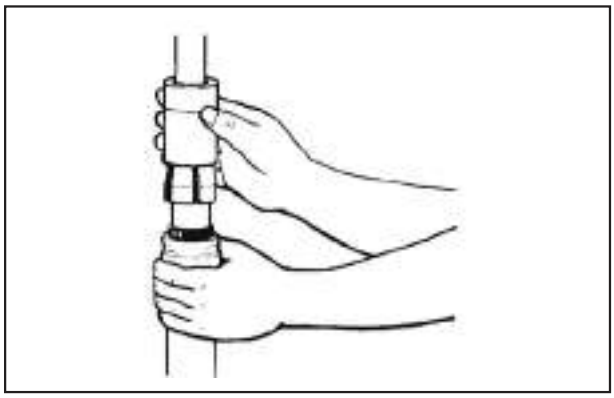


Specified torque: 20~26 N•m

OIL SEAL

- Install the oil seal to the outer tube by using the special tool as shown.

TOOL 09940-50112 : absorber oil seal installer

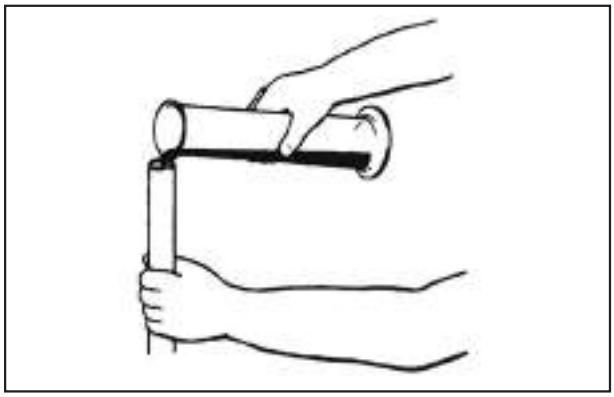


ABSORBER OIL

- For the absorber oil, be sure to use the front absorber oil whose viscosity rating meets specifications below.

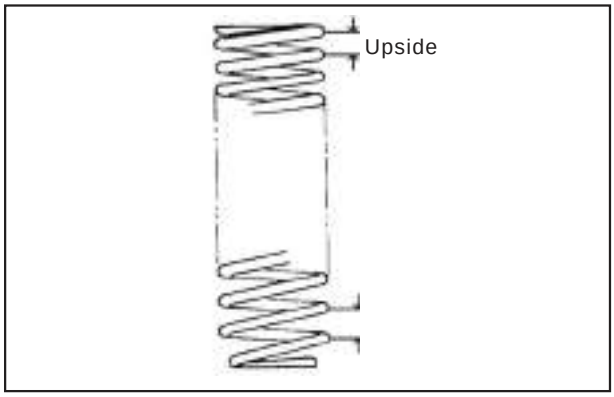
Specification	Special absorber oil

Capacity (each leg)	57ml



ABSORBER SPRING

- When installing the front absorber spring, the close pitch end should toward upside.

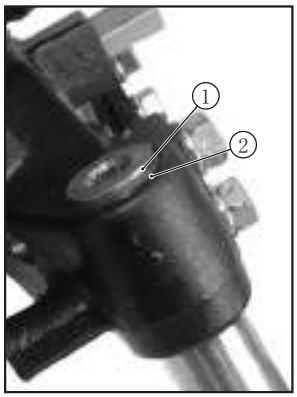


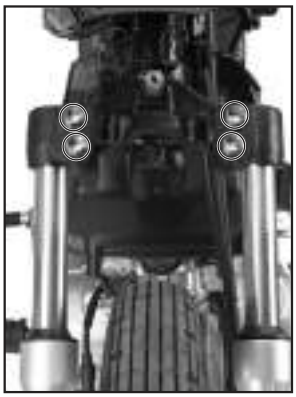
REMOUNTING

- When installing the front absorber assembly, align the top ① of inner tube to the upper surface ② of the steering stem upper bracket.

- Tighten the lower clamp bolts to the specified torque.

Specified torque: 25~35 N•m

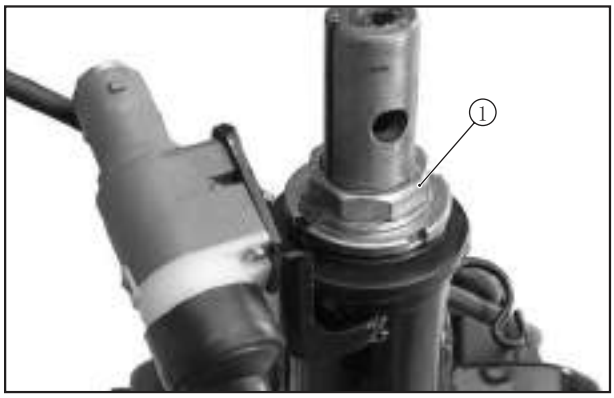




STEERING

REMOVAL

Remove the following parts:
* handlebar
* front absorbers



- Remove the screws, nuts, bush and seat of the steering handlebar.

- Remove the nut ①and washer ②.

- Remove the lock-up nut ③ .

Removal the following parts:
* upper circlip
* upper steel ball (23)
* steering stem
* lower steel ball (29)

⚠ CAUTION

Do not lose the steel ball.

BEARING REPLACEMENT

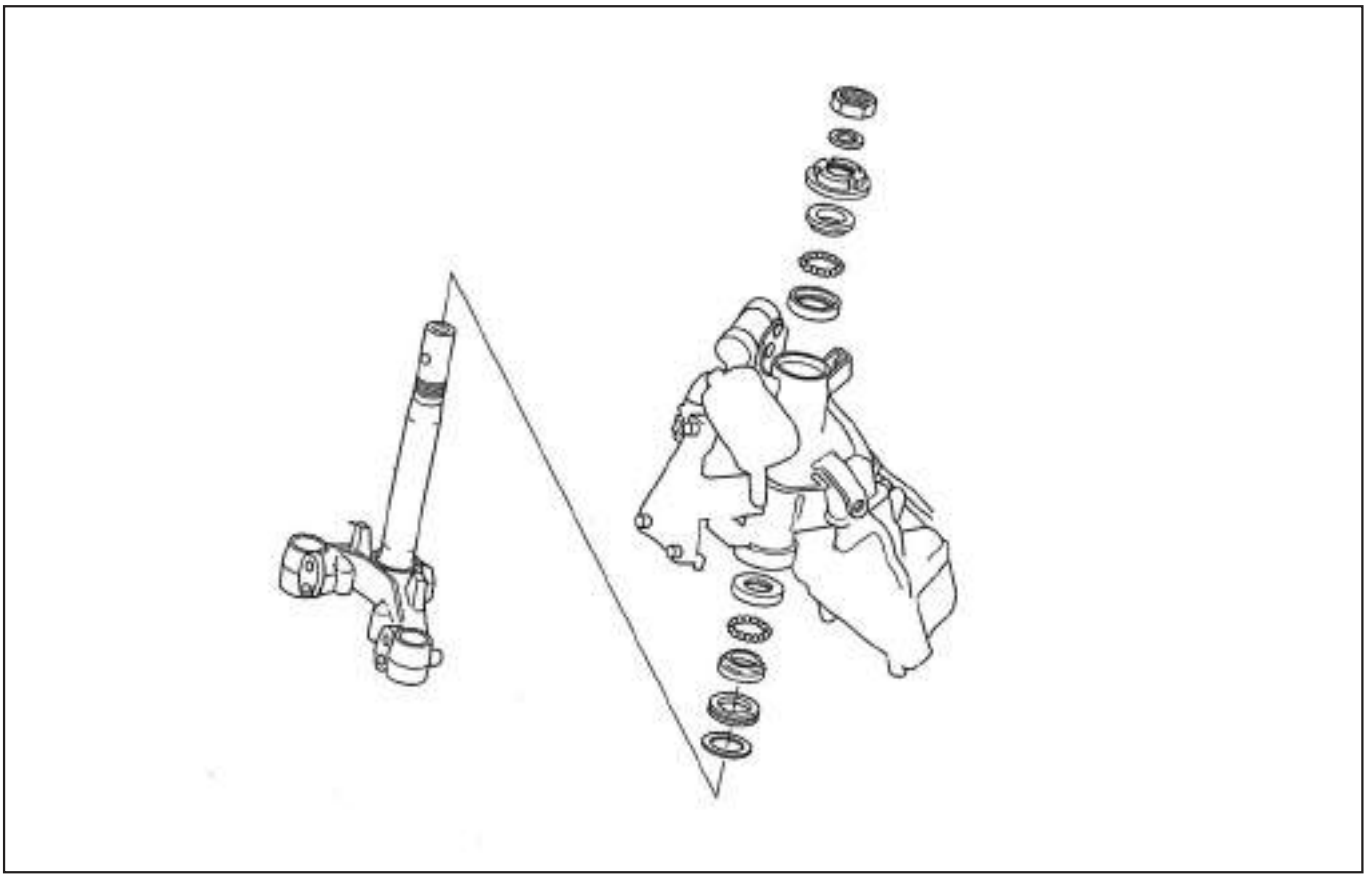
Note:
Bearing and guard bowl should be replaced in pairs.

- Remove the upper and lower bearing guard bowl.

- Remove the lower bearing guard bowl with a professional tool kit or similar.
- Do not damage the steering stem when disassembling the guard bowl.
- Remove dust-proof sealing gasket and washer.

- Install washer of steering stem, apply grease on the lip of the new dust-proof seal ring, and then install it onto the steering stem.
- Install a new lower guard bowl.
- Install a new guard bowl into the vertical tube .

REASSEMBLY



Assemble the steering stem in the reversed order of disassembly.
Apply grease on the upper and lower guard bowl.

99000-25010 : SUPPER GREASE

Number of balls	Upper	23
	Lower	29

- Insert the steering stem into the vertical tube, pay attention to not leave the steel balls out.
- Install the upper guard bowl and lock-up nut of the steering stem.

- Tighten the lock-up nut with special tool.

TOOL 09941-14911 : Steering nut socket wrench

- Rotate the steering stem right and left to ensure it moves smoothly without gap and bending.

- Tighten the steering stem nut.

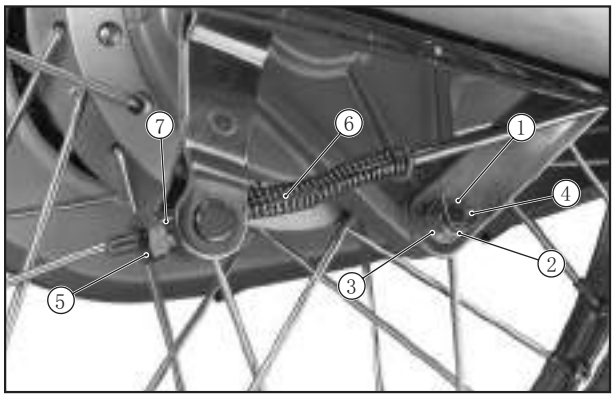
- Install the steering handlebar seat on the steering stem.
- Align the thread hole, bolt, sleeve, nut and lock-up screw, and tighten the nut to the specified torque.

Specified torque: 25~35 N•m

Install the following components:
* Steering handlebar
* Front absorbers
* Front fender
* Front wheel

REAR WHEEL

REMOVAL



- Support the motorcycle by the main stand.

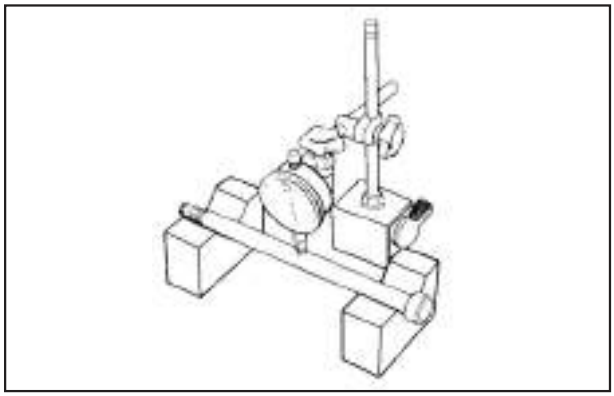
Dismantle the following parts:
* Dowel pin ①
* Nut ②, washer ③
* Stop bolt ④
* Adjusting nut ⑤
* Spring ⑥, pin ⑦

- Remove the rear wheel axle nut ⑧ and the chain adjuster ⑨.

- Remove the rear wheel axle and bushing from the left.
- Move the rear wheel to the right, remove it from the sprocket hub.
- Remove the rear wheel by pulling it back wards.

INSPECTION

REAR WHEEL AXLE



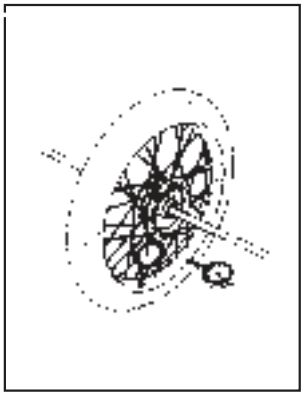
- Place the rear wheel axle on a V-shaped block and measure the radial run-out (1/2 of actual reading).

Service limit	0.25mm

REAR WHEEL

- Place the rear wheel on a revolving bracket, check the radial run-out of wheel rim and measure with dial gauge.

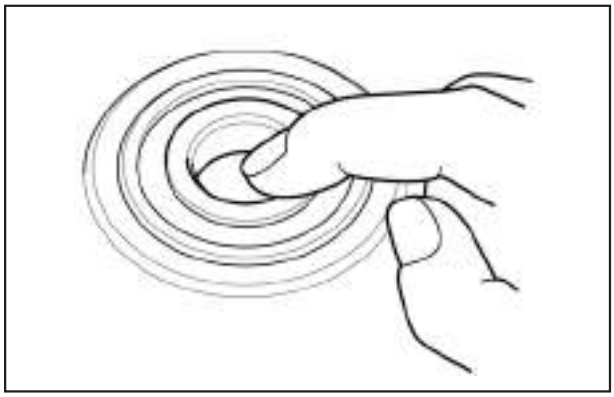
Service limit	Radial	2.0mm
	Axial	2.0mm



BEARING

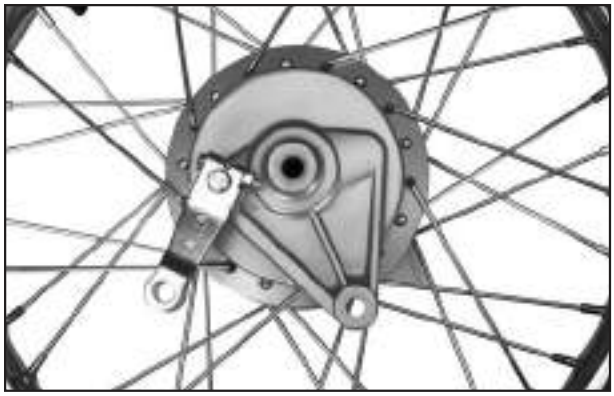
- Rotate the inner loop of the bearing by hand; the rotation should be smooth without abnormal noise.
- Check if the outer ring of the bearing fits tightly with the hub. If not, replace the bearing immediately.

Note:
Replace the bearing in pairs.

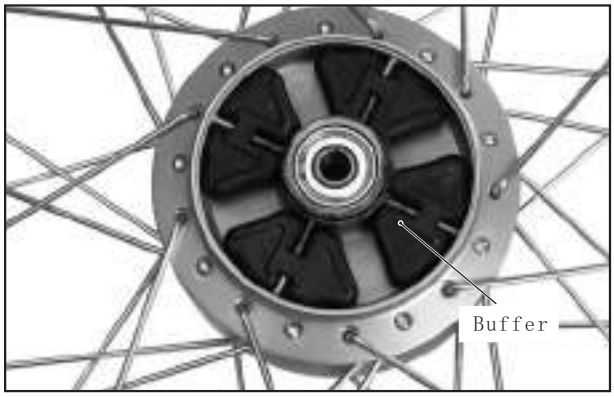


DISASSEMBLY

- Remove the rear brake drum cover assembly from the right wheel hub.



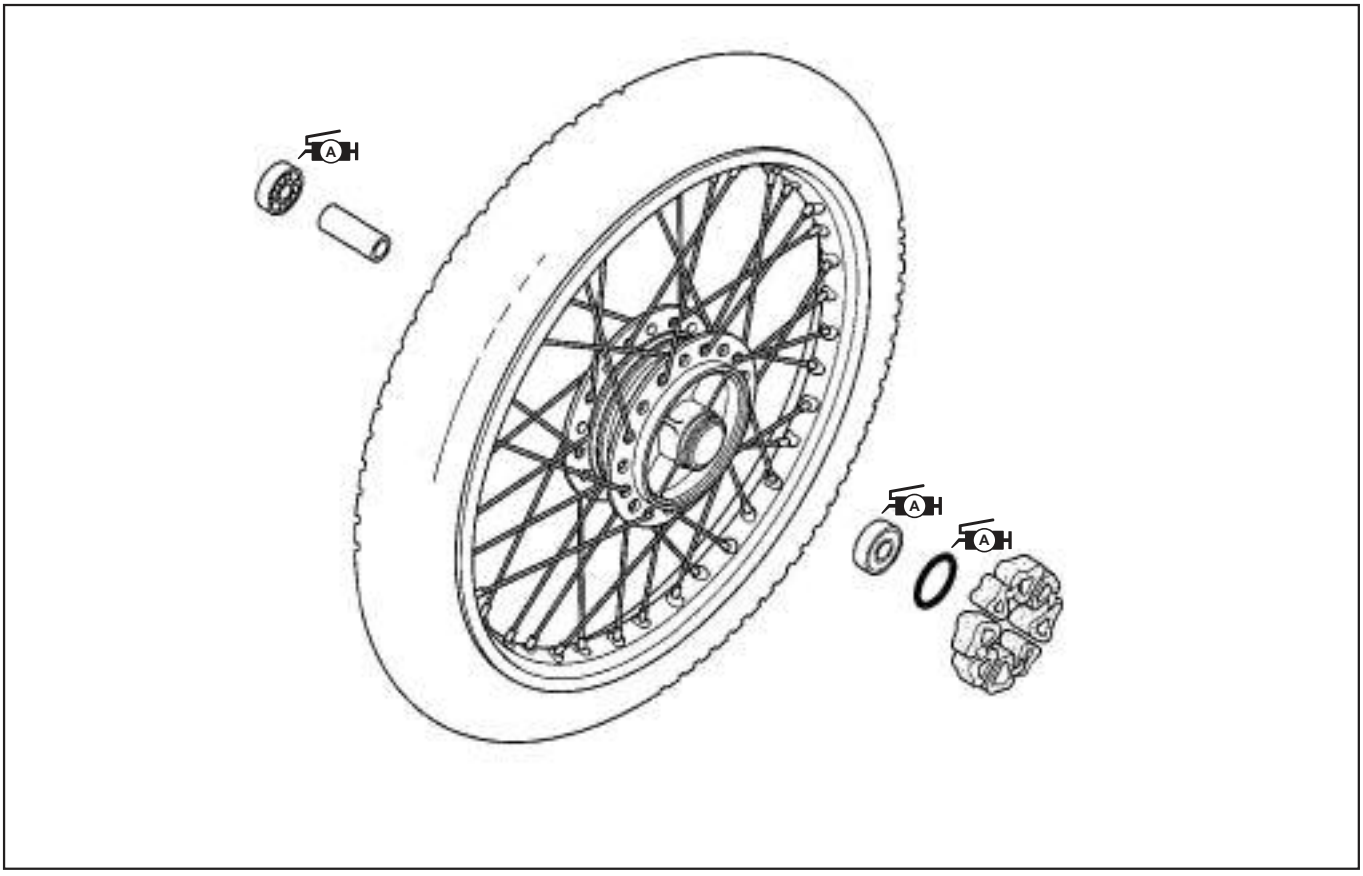
- Remove the buffer block and O-ring.



- Remove the left/right bearing of the rear wheel hub.

Note:
Replace with new bearings once they are removed.

REASSEMBLY



- Install the right/left bearings after filling the bearing cavity with grease.

A H 99000-25010 : SUPPER GREASE

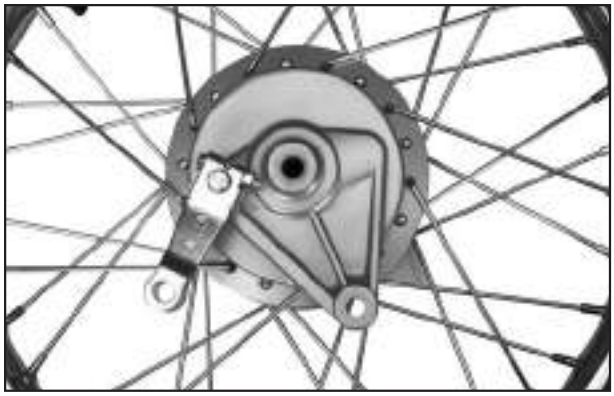
- Check the radial run-out of the wheel rim when installing new spokes.

- Mount the wheel buffer block into the hub. Apply grease on the new O-ring and mount it in the slot of the hub.

⚠ CAUTION

Do not let the grease move into the hub, or brake performance may be affected.

- Mount the brake drum cover on the right side of the wheel hub.



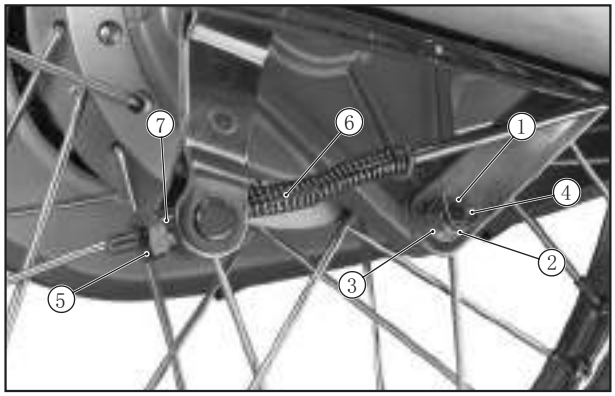
REMOUNTING

- Put the rear wheel into the chassis.
- Install the sleeve, coat a layer of grease on the shaft and insert it from the right.

AH 99000-25010 : SUPPER GREASE

● Install the left drive chain adjuster and the nut of the rear wheel axle.

Install the following parts:
* Spring ⑥, pin ⑦
* Adjusting nut ⑤
* Stop screw ④
* Rubber gasket, washer ③



● Tighten the arm stop nut ②.
● Install a new dowel pin ①.
● Adjust the rear brake (refer to page 2-14).

SPROCKET HUB

REMOVAL

- Remove the bolts and the sprocket cover.

- Remove the nuts of sprocket bushing, remove the chain from the wheel, left chain adjuster and sprocket hub.
- Remove the rear wheel.

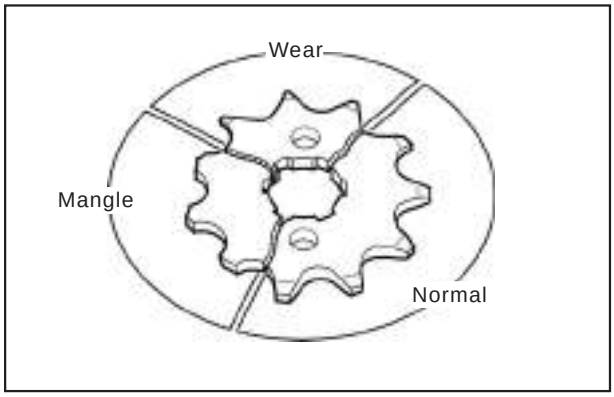
DISASSEMBLY

- Install the sprocket hub into the wheel hub temporarily, and remove the driven sprocket and the nut.
- Remove the left bushing and sealing gasket.

INSPECTION

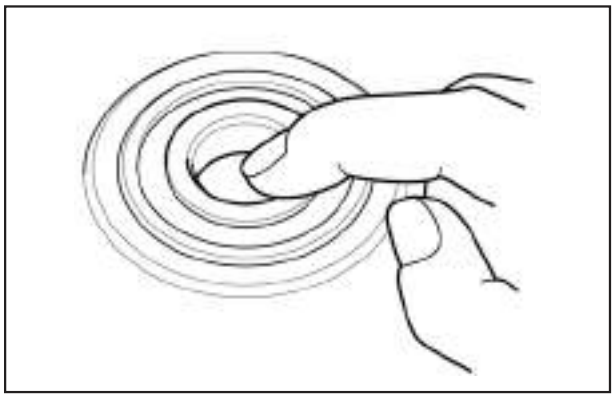
- Check for damage or wear of the sprocket , and replace with a new sprocket immediately if damage or wear are found.

Note:
Examine the chain and the sprocket if it is necessary to replace the sprocket.
DO NOT mount a new chain onto a worn sprocket , or mount a worn chain onto a new sprocket.



BEARING

Rotate the inner loop of the bearing by hand; the rotation should be smooth without abnormal noise. In the meantime, check if the outer ring of the bearing fits tightly with the chain hub. If the rotation of the inner and outer rings is not smooth, noisy or in loose fit with the wheel hub, remove and replace the bearing.



BEARING REPLACEMENT

- Knock out the bearing of the sprocket hub.
- Knock the new bearing into the sprocket hub.

NOTE:
Replace the used bearing with new one once they were removed.

REASSEMBLY

- Apply grease on the lip of the seal ring, then install it into the sprocket hub.
- Install the left sleeve, apply engine oil on the thread of the nut, install the sprocket and tighten to specified torque.

Specified torque: 18~28 N•m

REMOUNTING

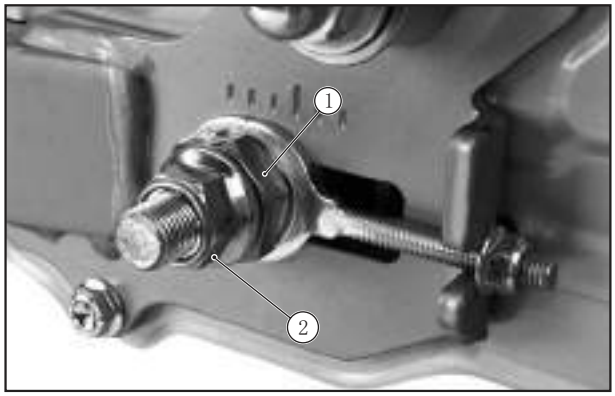
- Sprocket hub can be mounted in the reverse order of removal.
- Tighten the bushing nut ① to the specified torque.

Specified torque: 40~50 N•m

- Tighten the rear wheel axle nut ② to the specified torque.

Specified torque: 48~58 N•m

- Check the free travel of the rear brake pedal (refer to page 2-14).



REAR BRAKE

REMOVAL

- Remove the rear wheel.
- Remove the rear brake drum cover from the rear wheel.

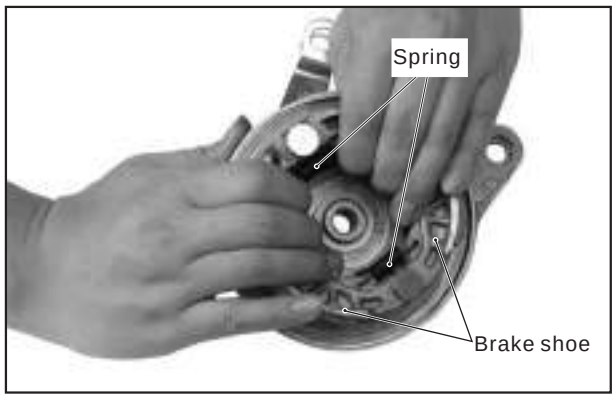
INSPECTION

- Measure the inner diameter of the rear brake hub.

Service limit	111mm

DISASSEMBLY

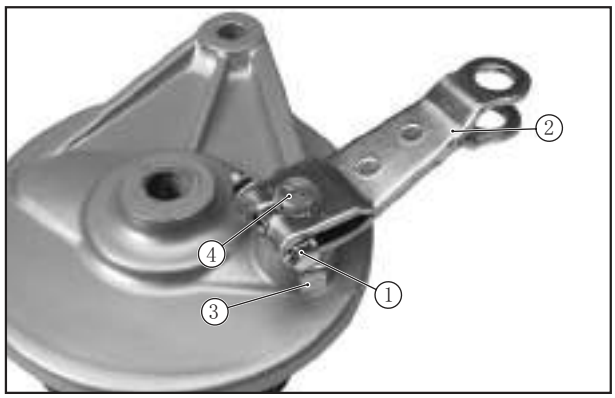
- Remove the brake shoe and the spring.



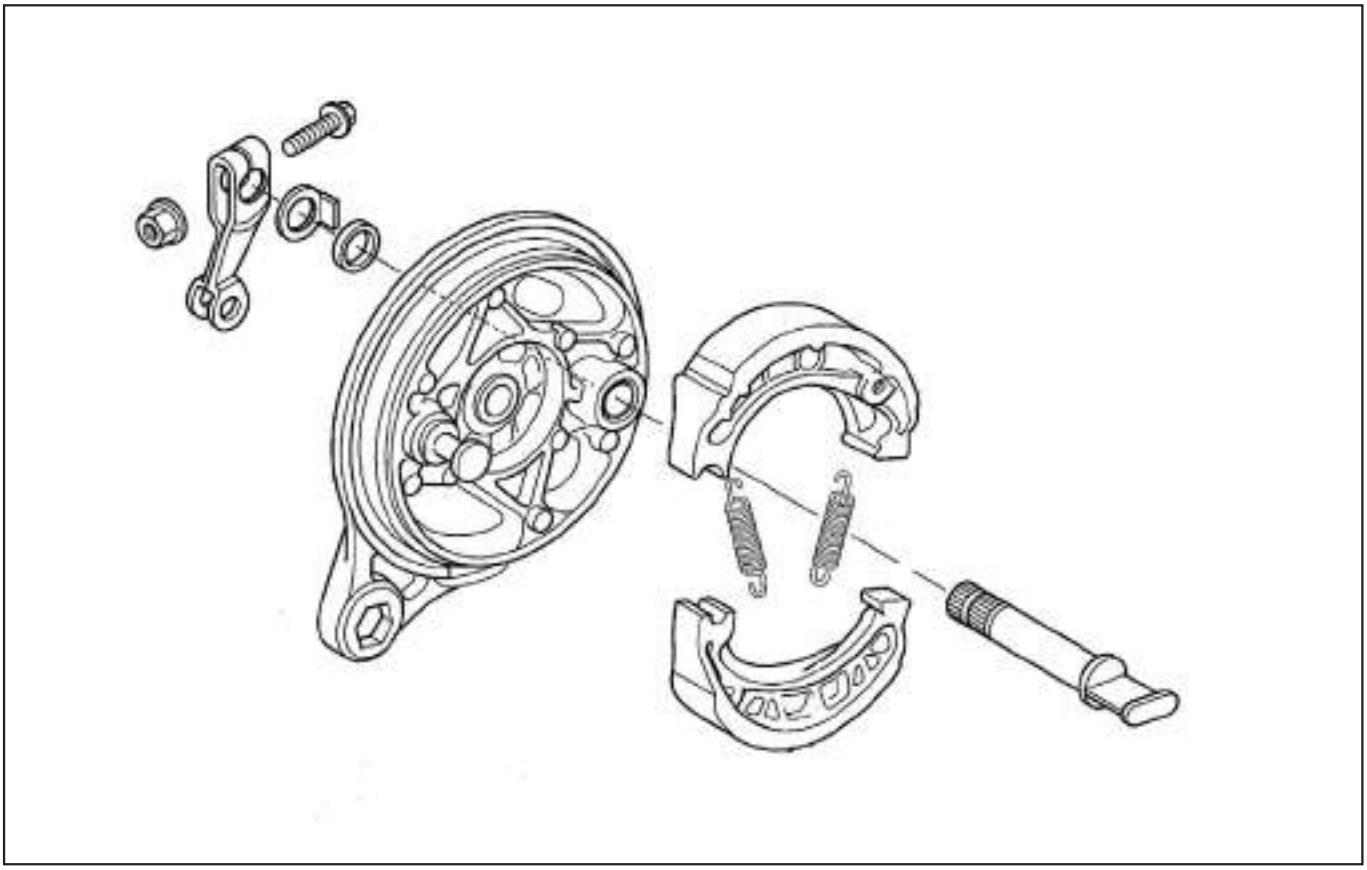
⚠ CAUTION

Replace the brake shoe in pairs.
If the shoe skin is removed, make a mark for correct reassembly.

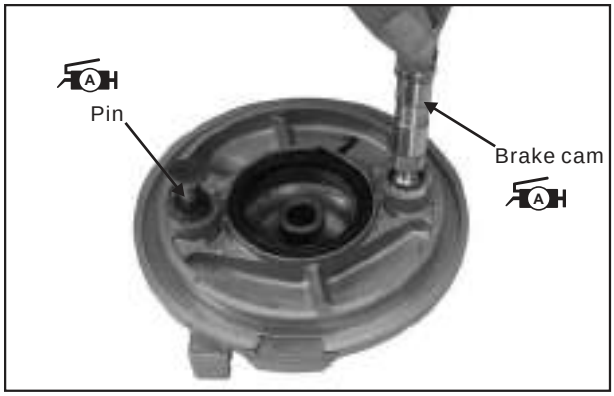
- Remove the clamp nut and bolt ① of brake arm.
- Remove the indication plate ③, oil seal ④ and rear brake arm ②.



ASSEMBLY



- Install the brake cam onto the rear brake drum cover after applying grease on the dowel pin and brake cam.



99000-25010 : SUPPER GREASE

- Apply engine oil on the oil seal and install it onto the rear brake drum cover.
- Install the indication plate on the brake cam, with the wider tooth aligned to the wider slot on the brake cam.

- Install the rear brake arm, aligning it with the mark on the cam.
- Mount the bolt of brake arm, tighten the nut to specified torque.

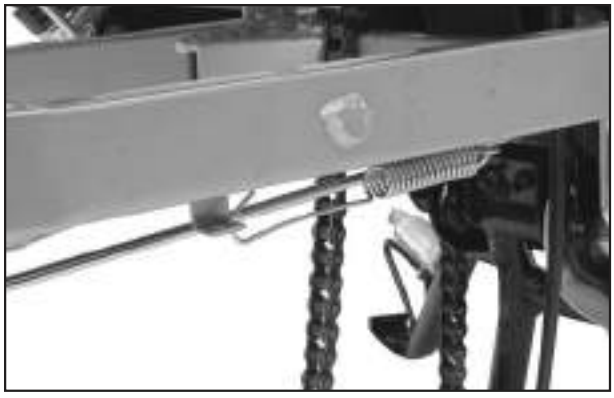
Specified torque: 7~10 N•m

- Install the brake shoe and the spring.
- Mount the rear brake drum cover on the rear wheel hub.
- Install the rear wheel.

REAR SWING ARM

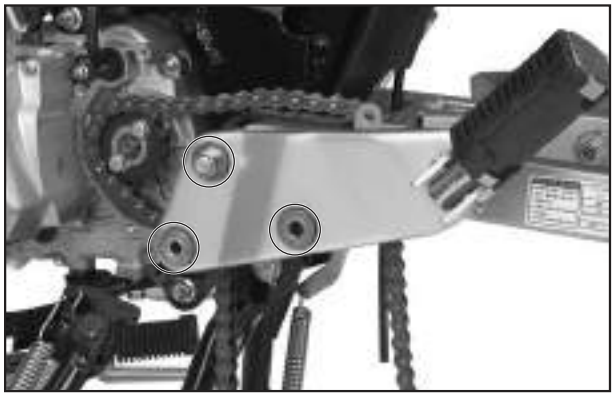
REMOVAL

Dismantle the following components:
* Muffler
* Sprocket hub



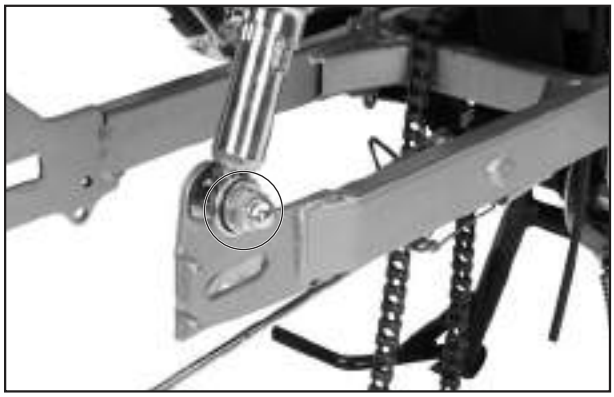
- Release the return spring of the brake pedal from the rear rocker arm.

- Remove the bolt, washer, sleeve and nut of the left footrest seat as well as the footrest support.

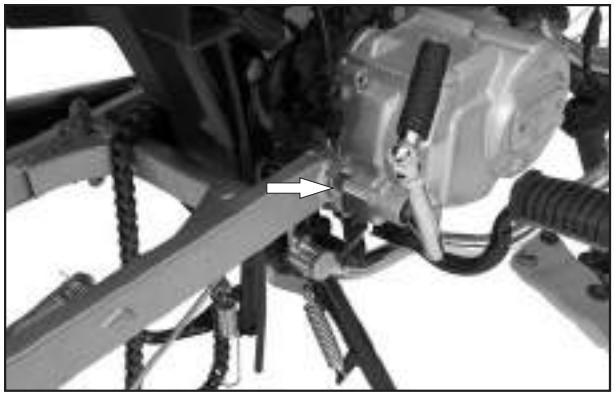


- Remove the bolts, washer, and left footrest support.

- Remove the nuts and washers of the lower part of rear absorbers.

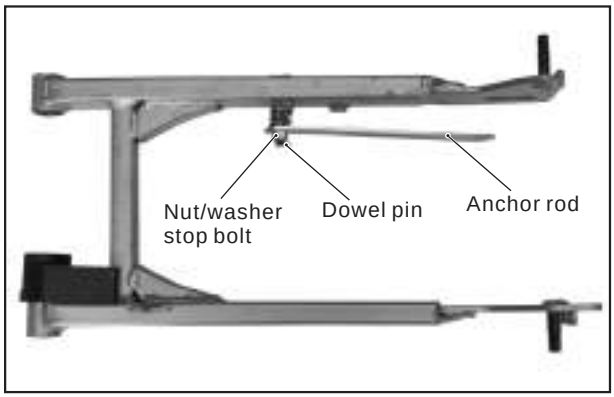


- Remove the rear rocker arm as well as the nut and axle.

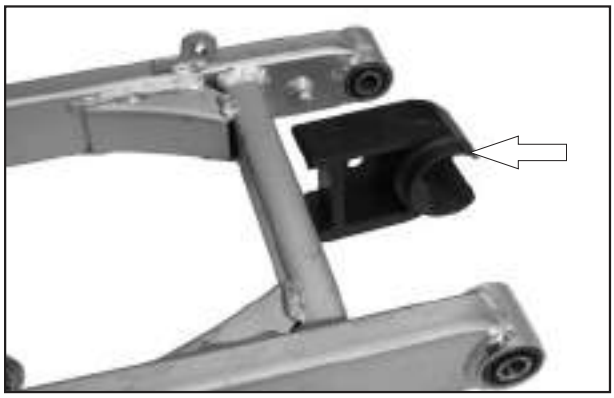


DISASSEMBLY

Dismantle the following parts:
* Dowel pin
* Nut, washer
* Stop bolt
* Anchor rod

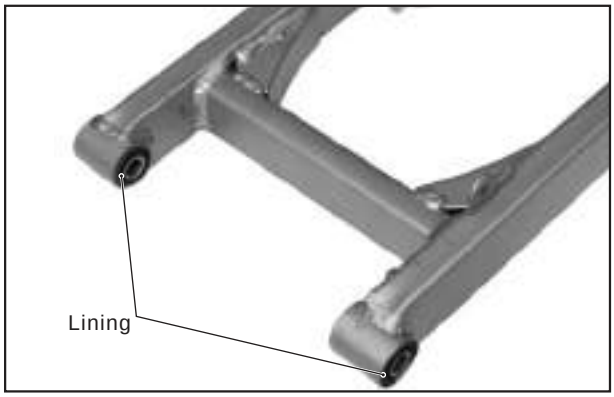


- Remove the chain guide.



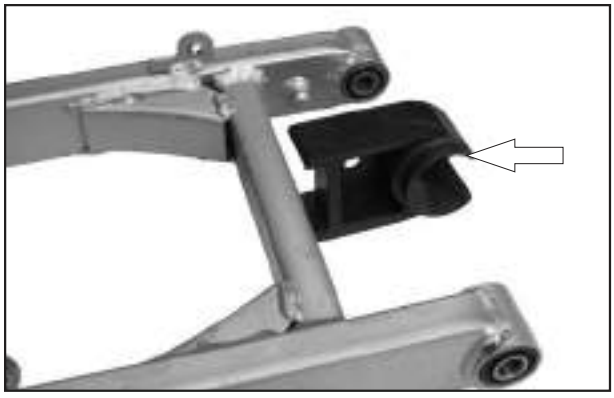
INSPECTION

- Check for damage or wearing of lining.
- Check for damage or wear of the rear rocker arm.

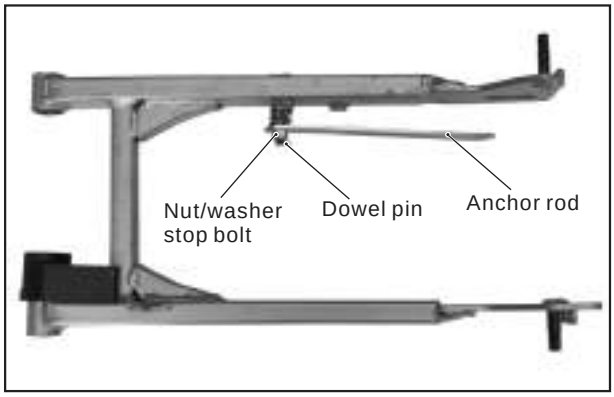


REASSEMBLY

- Install the chain guide.



- Install the anchor rod, stop bolt, washer and nut, then tighten the nut.
- Install new dowel pin to lock the nut.



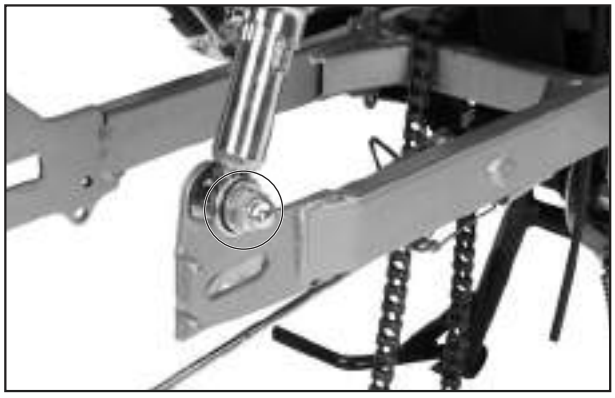
REMOUNTING

Remounted in the reverse order of removal.

- Tighten the nut to the specified torque.

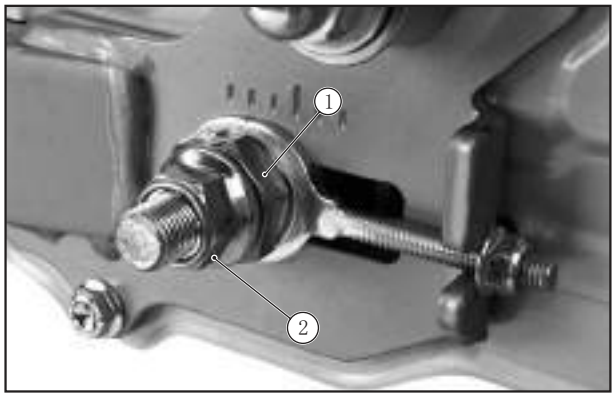
Specified torque: 25~35 N•m

- Tighten the rear absorber nuts to the specified torque.



Specified torque: 20~30 N•m

- Tighten the bushing nut ① to the specified torque.



Specified torque: 40~50 N•m

- Tighten the rear wheel axle nut ② to the specified torque.

Specified torque: 48~58 N•m

- Check the chain sag (refer to page 2-11).
- Check the free travel of the rear brake pedal (refer to page 2-14).

ELECTRICAL

CONTENTS

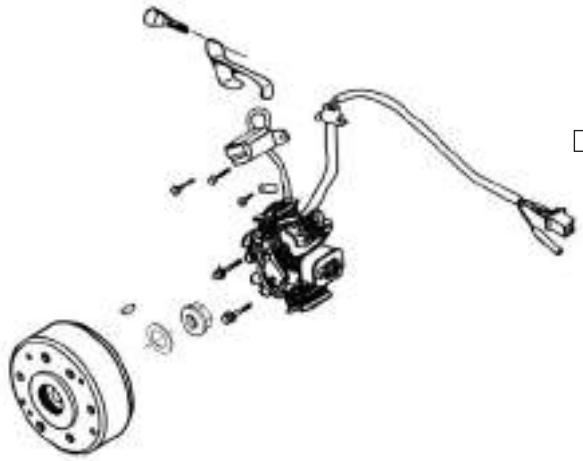
IGNITION SYSTEM

DESCRIPTION

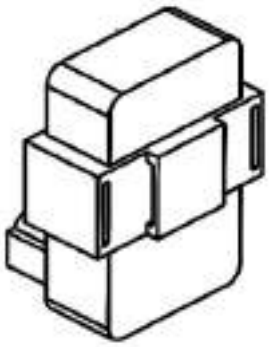
DC-CDI ignition system charges the capacitor with the electric output from the ignition source to battery boosted by a converter.

The electrical current supplied by the battery is first boosted through a converter, and then used to charge the capacitor. The electronic signal generated by the signal generator flows to the SCR through the ignition time testing circuit to activate the SCR. Thus a high voltage current is generated between the spark plug and the electrode by the current from the capacitor to the ignition coil.

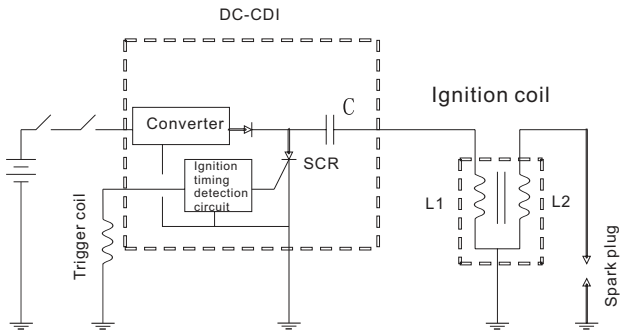
GENERATOR



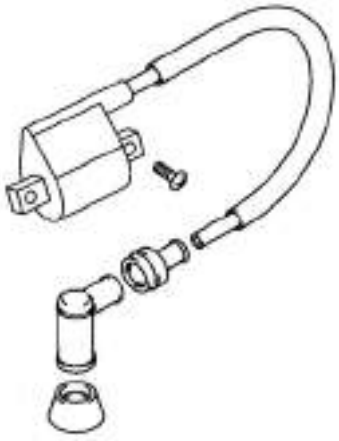
IGNITOR



ILLUSTRATIVE DIAGRAM



IGNITION COIL



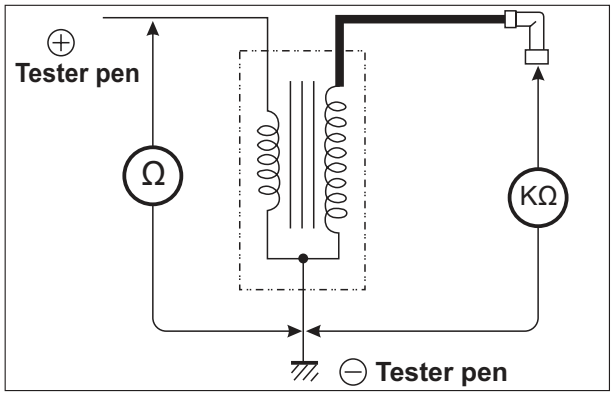
INSPECTION

IGNITION COIL

- Remove the front panel and the left/right cover.
- Remove the ignition coil.
- The conductivity of the primary or secondary coil can be examined with a pocket tester.
- Precise result is not necessary. If the winding is normal, take a record about the approximate values.

TOOL 09900-25002 : Pocket tester

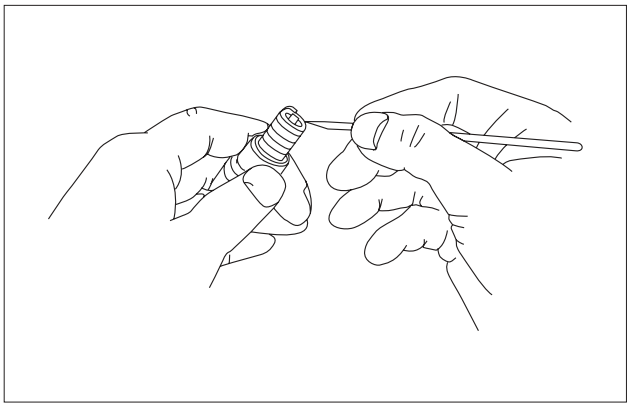
Ignition coil resistance	
Primary	0.24~0.36 Ω
Secondary	3.15~3.85 kΩ

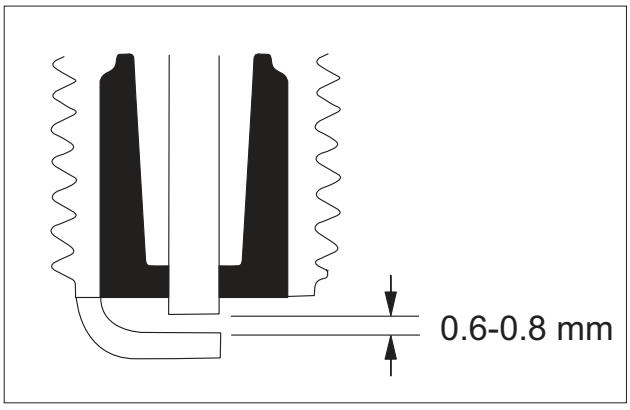


SPARK PLUG

- Unplug the spark plug cap.
- Remove the spark plug.

Clean the plug, remove the carbon deposit, check the heating specification, the electrode's condition and the gap. (Refer to page 2-8)





CHARGING SYSTEM

CHARGING OUTPUT CHECK

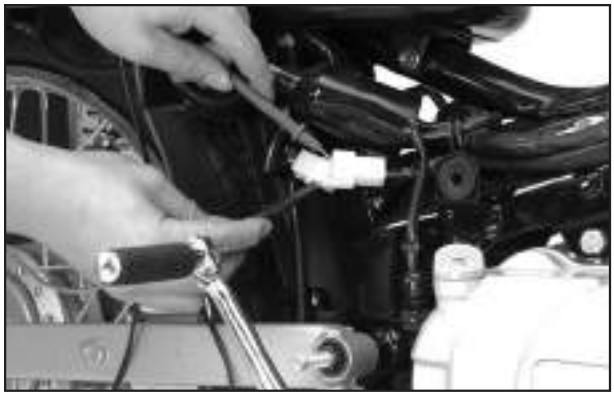
Start the engine and keep it running at 5000 r/min. Using the pocket tester, measure the DC voltage between the battery terminal ⊕ and ⊖.
If the tester reads under 14.0 V or over 15.0 V, check the AC generator no-load performance and regulator/rectifier.

Note:
when making this test, be sure that the battery is full-charged condition.

Standard charging output	
14.0～15.0 V	5000 r/min

TOOL 09900-25002 : Pocket tester

AC GENERATOR NO-LOAD PERFORMANCE



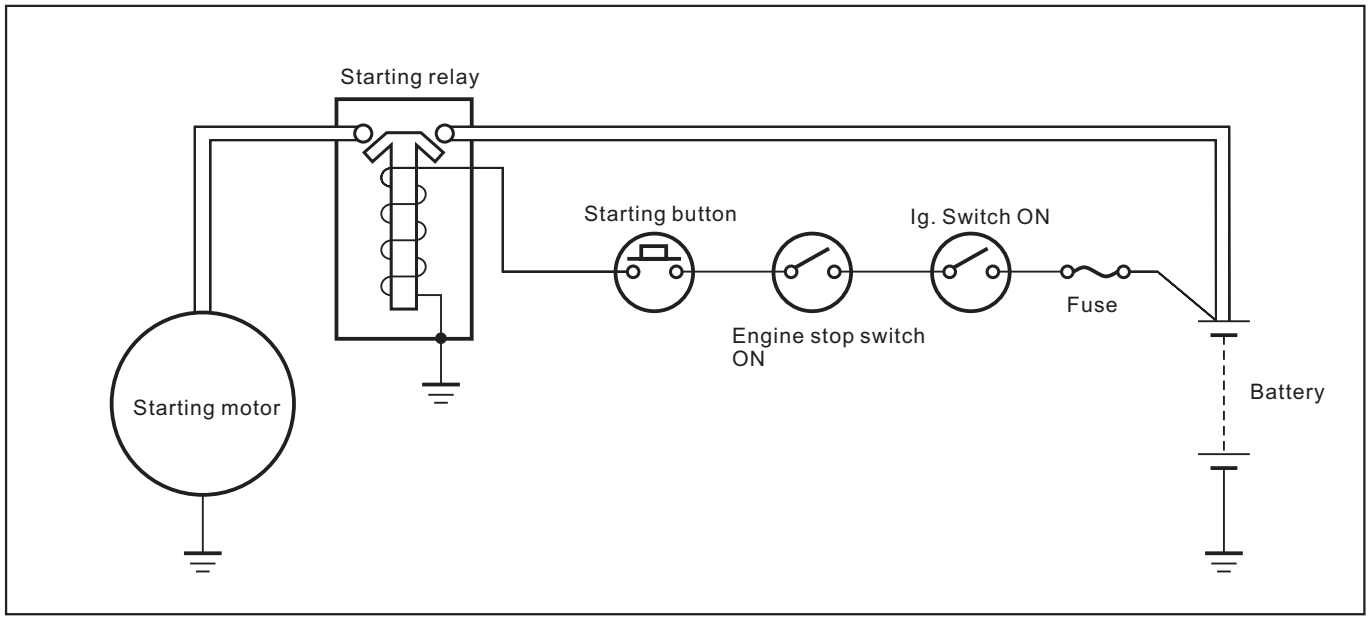
Disconnect the three lead wires from the AC generator terminal.
Start the engine and keep it running at 5000 r/min.
Using the pocket tester, measure the AC voltage between the three lead wires.
If the tester reads under 70V, the AC generator is faulty.

Standard No-load performance
More than 70V (AC) at 5000 r/min

STARTING SYSTEM

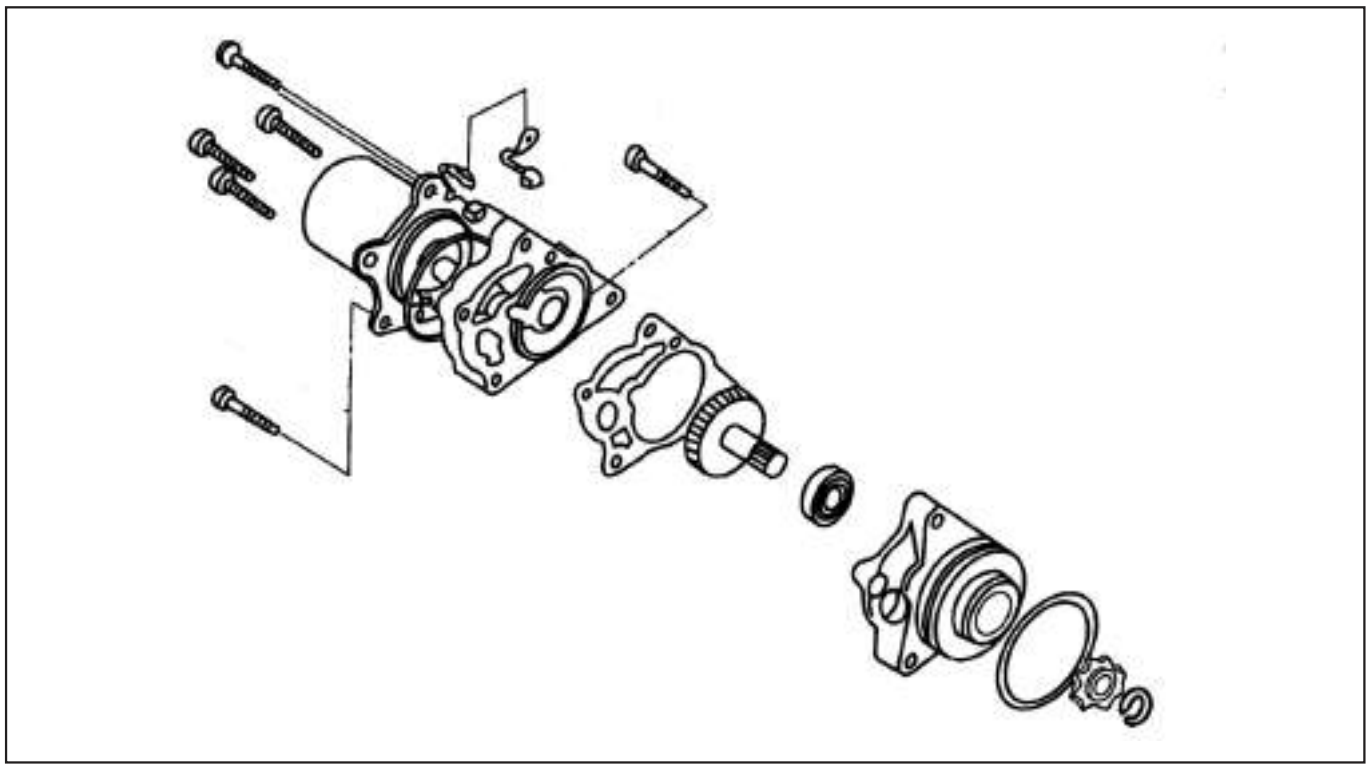
DESCRIPTION

The starting system is shown in the diagram below: namely, the starting motor, the starting relay, engine stop switch, IG switch, starting button and battery. Depressing the starting button (on the right handlebar switch box) energizes the relay, causing the contact points to close which connects the starting motor to the battery. The starting motor draws about 80 amperes to start the engine.



STARTING MOTOR REMOVAL AND DISASSEMBLY

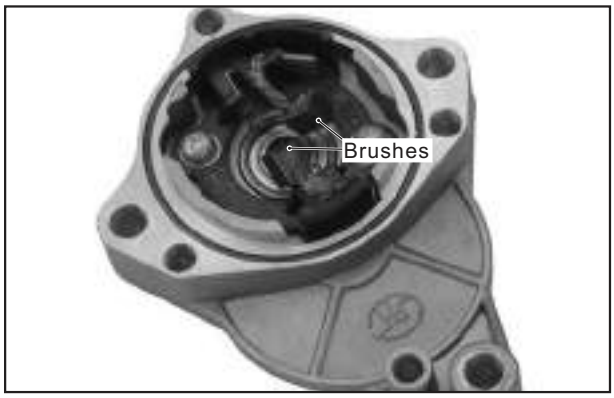
- Remove the starting motor.
- Disassemble the starting motor as follows.



STARTING MOTOR INSPECTION

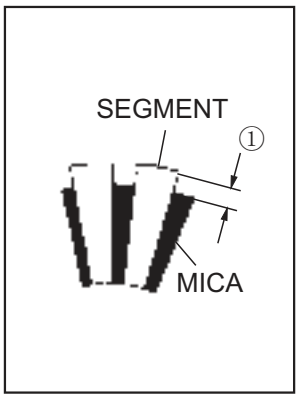
CARBON BRUSHES

When the brushes are worn, the motor will be unable to produce sufficient torque, and the engine will be difficult to turn over. To prevent this, periodically, inspect the length of the brushes, replacing them when they are too short or chipping.



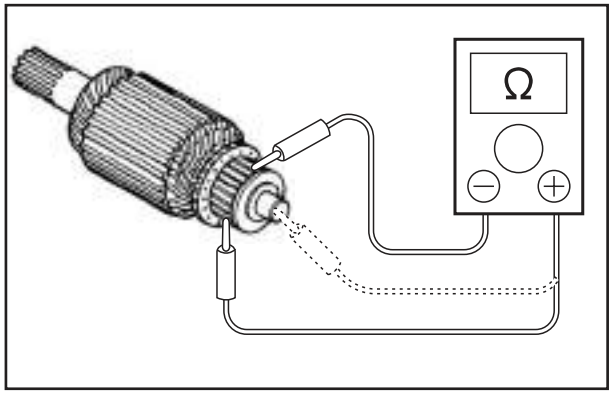
COMMUTATOR

If the commutator surface is dirty, starting performance decreases. Polish the commutator with #400 or similar fine emery paper when it is dirty.
After polishing it, wipe the commutator with a clean dry cloth.
Check the commutator under cut ①.



ARMATURE COIL

Using a pocket tester, check the coil for open and ground by placing probe pins on each commutator segment and rotor core (to test for ground) and on any two segment at various places (to test for open), with the brushes lifted off the commutator surface.
If the coil found to be open-circuited or grounded, replace the armature. Continuous use of a defective armature will cause the starting motor to suddenly fail.



TOOL 09900-25002 : Pocket tester

STARTING MOTOR REMOUNTING

BRUSH HOLDER AND HOUSING END

- Fix the carbon brush bracket on the starting motor cover.

SECURING SCREW

Apply THREAD LOCK “1342” to starting motor securing screw.

1342 09900-32050 : THREAD LOCK “1342”

Specified torque: 9~14 **N•m**

STARTING RELAY INSPECTION

Disconnect lead wire of the starting motor at starting relay.
Turn on the ignition switch, inspect continuity between the terminals, positive and negative, when pushing the starting button.
If the starting relay is in sound condition, continuity is found.

TOOL 09900-25002 : Pocket tester

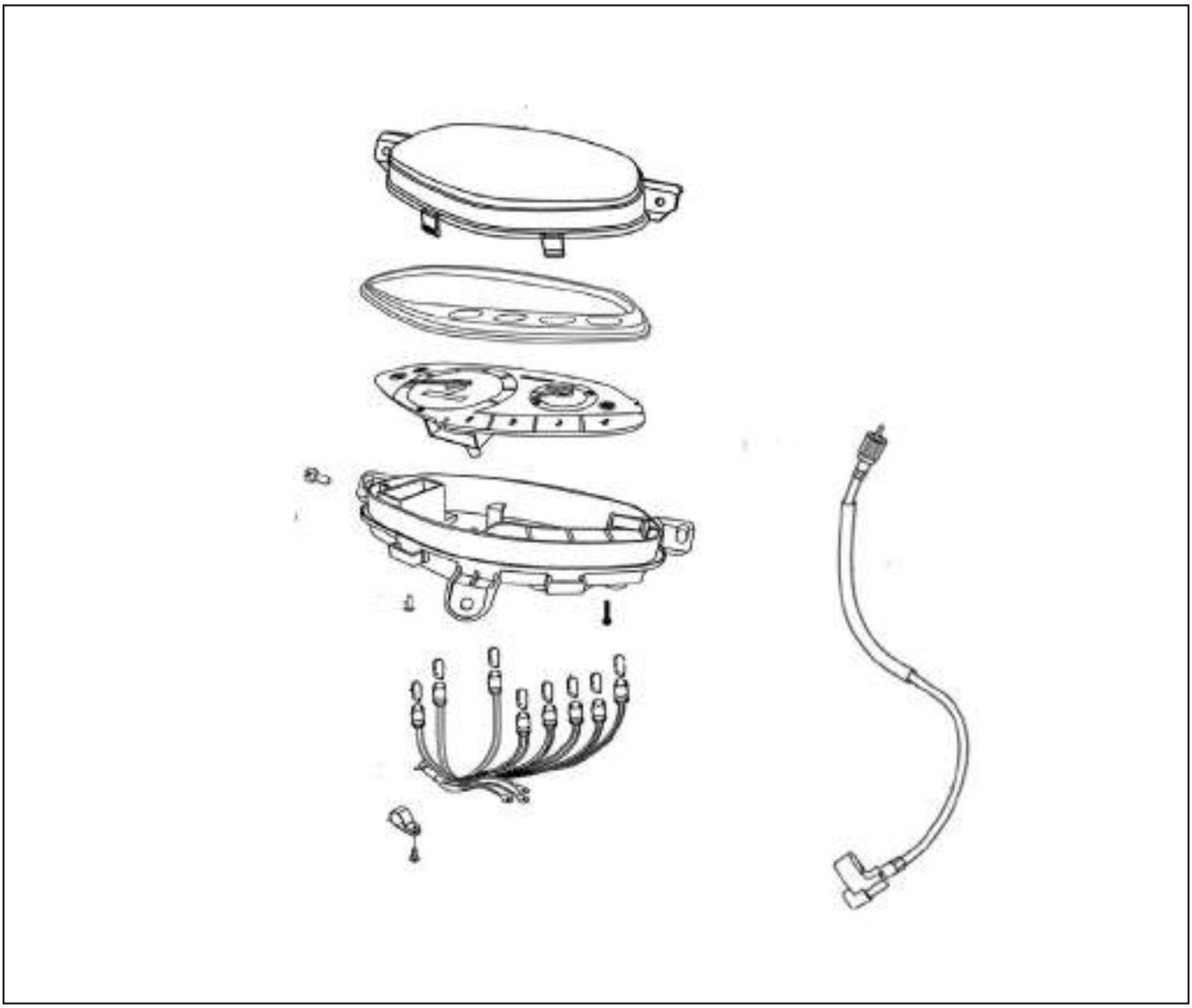
Check the coil for “open”, “ground” and ohmic resistance. The coil is in good condition if the resistance is as follows.

TOOL 09900-25002 : Pocket tester

Standard resistance	2–6 Ω

DASHBOARD

- Remove the dashboard.
- Disassembly the dashboard as follows.



INSPECTION

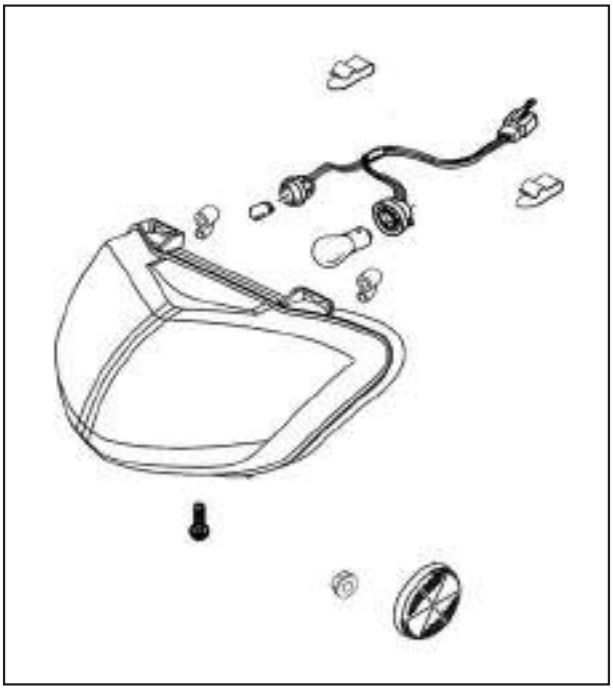
Using the pocket tester, check the continuity between lead wires in the following diagram.
If the continuity measured is incorrect, replace the respective part.

TOOL 09900-25002 : Pocket tester

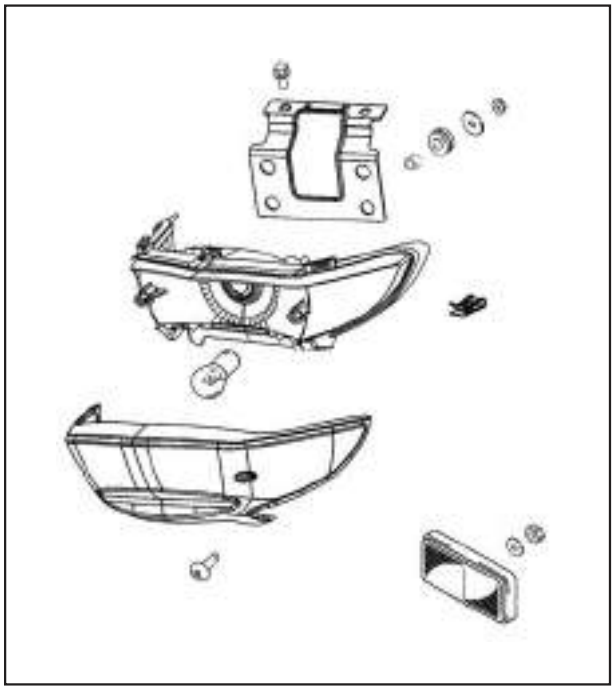
NOTE:
When making this test, it is not necessary to remove the dashboard.

LIGHTS

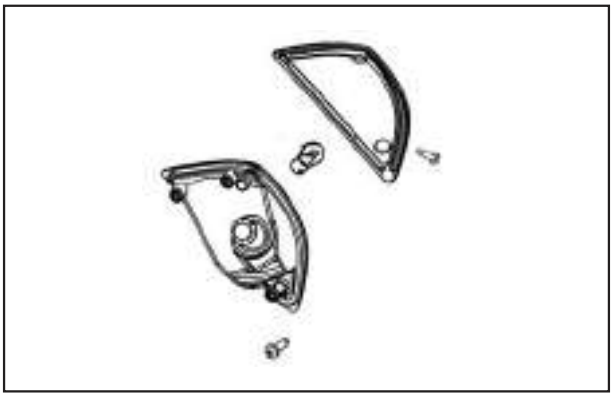
HEADLIGHT



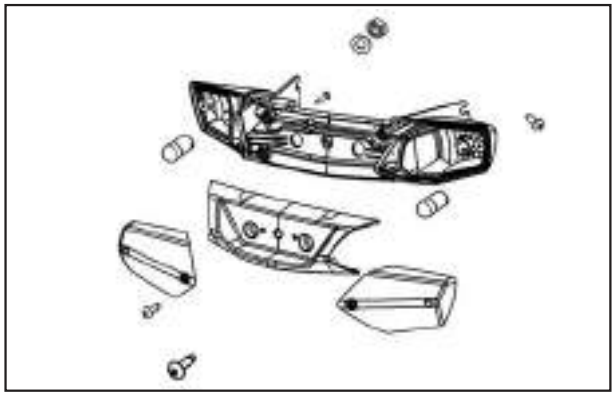
TAIL/BRAKE LIGHT



TURN SIGNAL (FRONT)



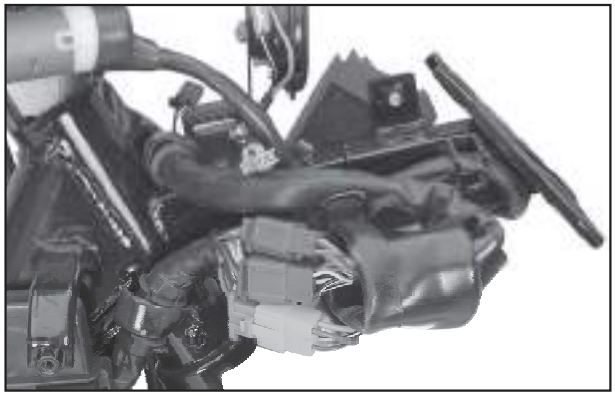
TURN SIGNAL (REAR)



SWITCHES

Inspect each switch for continuity with the pocket tester referring to the chart. If it is found any abnormality, replace the respective switch assembly with new one.

TOOL 09900-25002 : Pocket tester

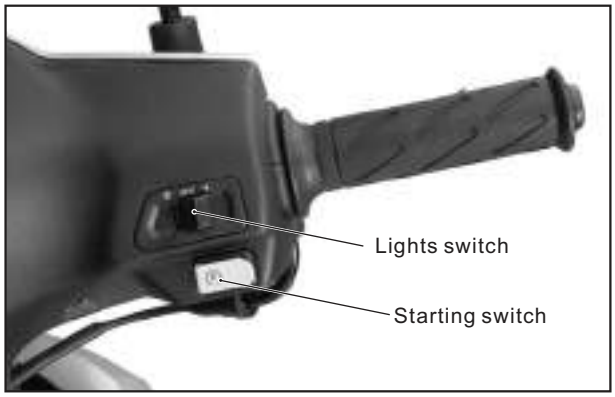


IGNITION SWITCH

	Bl/Y	B/W	R	O
LOCK	○	○		
OFF	○	○		
ON			○	○

LIGHTING SWITCH

	Gr	O	O	Y/W
●				
≡D≡	○	○		
☼	○	○	○	○

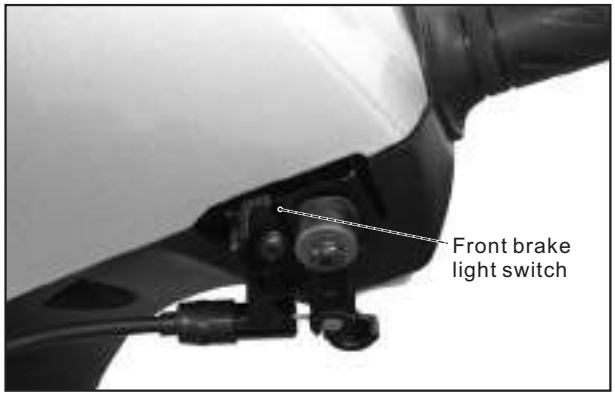


STARTING SWITCH

	Y/G	B/W
●		
⚡	○	○

FRONT BRAKE LIGHT SWITCH

	W/B	O
OFF		
ON	○	○



DIMMER SWITCH

	Y/W	W	Y
≡O	○	○	
≡O	○		○

TURN SIGNAL LIGHT SWITCH

	B	Lbl	Lg
⇨		○	○
●			
⇦	○	○	

HORN SWITCH

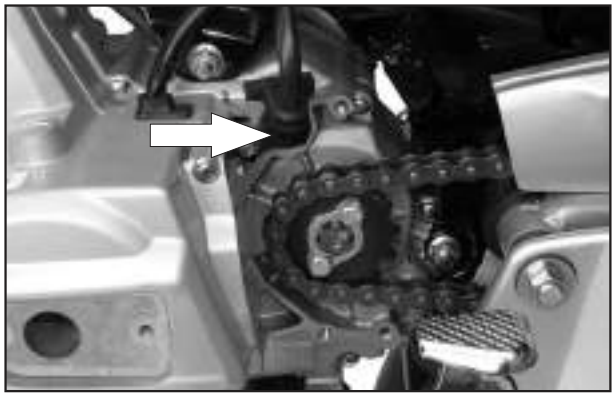
	G	O
OFF		
▶	○	○

REAR BRAKE LIGHT SWITCH

	W/B	O
OFF		
ON	○	○

GEAR POSITION INDICATOR LIGHT SWITCH

	Y/Bl	G/Bl	R/B	W/Y	Bl	Ground
4th	○					○
3rd		○				○
2nd			○			○
Low				○		○
Neutral					○	○

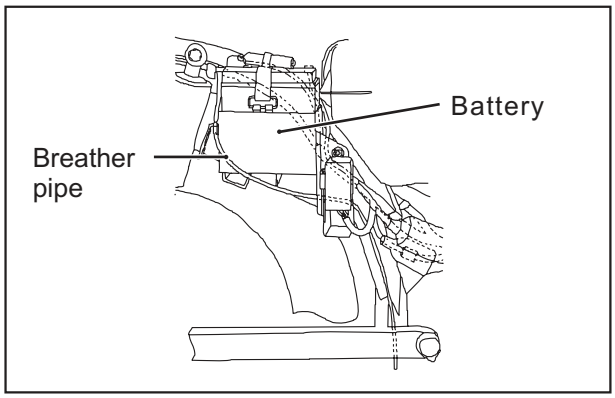


BATTERY

SPECIFICATIONS

Type designation	12N6-3B
Capacity	12V 5Ah
Standard electrolyte S.G.	1.28±0.01 20℃

In fitting the battery to the motorcycle, connect the breather tube to the battery vent.



INITIAL CHARGING

Filling electrolyte

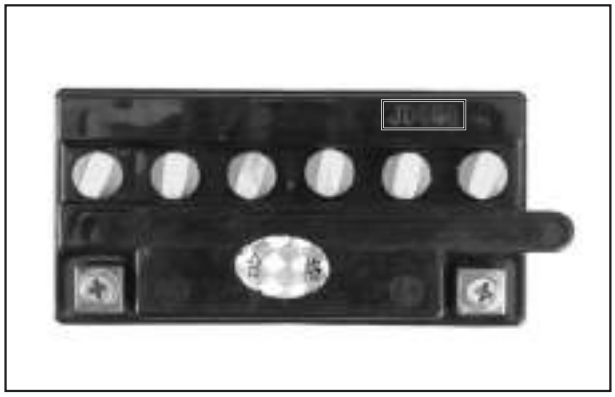
Remove short sealed tube before filling electrolyte. Fill battery with electrolyte (dilute sulfuric acid solution with acid concentration of 35% by weight, having a specific gravity of 1.28 at 20℃) up to indicate UPPER LEVEL. Filling electrolyte should be always cooled below 30℃ before filling into battery. Leave battery standing for half an hour after filling. refill additional electrolyte if necessary.

Charge battery with standard charging current as described in the table shown below.

Standard charging current	0.5 A

Charging time

The charging time for a new battery is determined by the number of months that have elapsed since the date of manufacture.



Confirmation for date of manufacture

The manufacture date is represented with numbers in 4 parts, standing respectively for factory, year, month and batch number.

Adjust the specific gravity to specified value when charging is almost complete.

Increase the electrolyte level to the upper limit by filling distilled water when charging is completed.

Months after manufacturing	6-12	Over 12
Necessary charging hours	5	8

Servicing

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one.

If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

Check the electrolyte level and refill distilled water, as necessary, to raise the electrolyte to each cell upper level.
Check the battery for proper charge by taking an electrolyte S.G. reading. If the reading is 1.22 or battery is still in a run-down condition and needs recharging.

NOTE:
First, remove the ⊖ lead wire.

BASED ON S.G. READING RECHARGING OPERATION

To correct an S.G. Reading 20℃, use following table.
To read the S.G. on the hydrometer, bring the electrolyte in the hydrometer to eye and read the graduations on the float scale bordering on the meniscus (curved-up portion of electrolyte surface), as shown in figure.
Check the reading (as corrected to 20℃) with chart to determine the recharging time in hours by constant-current charging at a charging rate of 0.5 amperes (which is a tenth of the capacity of the present battery).
Be careful not to permit the electrolyte temperature to exceeded 45℃, at any time, during the recharging operation. Interrupt the operation, as necessary, to let the electrolyte cool down. Recharge the battery to the specification.

Electrolyte specified gravity	1.28±0.01 20℃

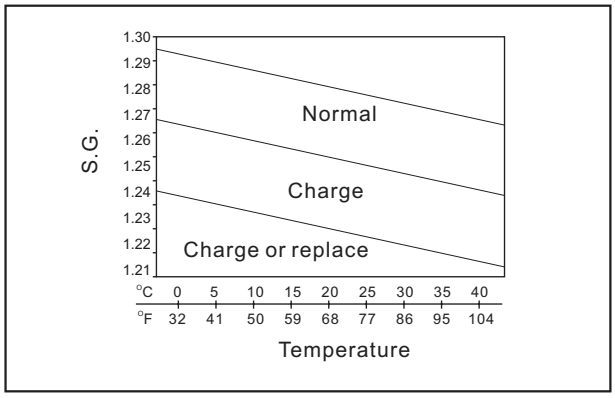
TOOL 09900-28403 : Hydrometer

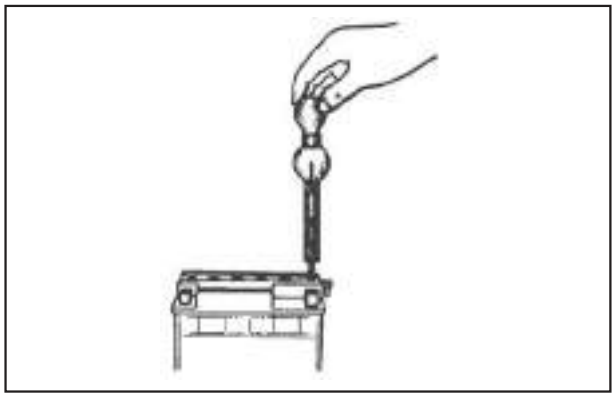
⚠ CAUTION

Constant-voltage charging, otherwise called "quick" charging, is not recommendable for it could shorten the life of the battery.

⚠ WARNING

Before charging a battery, remove the seal cap from each cell.
Keep fire and sparks away from a battery being charging.
When removing a battery from the motorcycle, be sure to remove the ⊖ terminal first.





SERVICE LIFE

Lead oxide is applied to the pole plates of the battery which will come off gradually during the service. When the bottom of the battery case becomes full of the sediment, the battery cannot be used any more. If the battery is not charged for a long time, lead sulfate is generated the performance. Replace the battery with new one in such a case.

When a battery is left for a long term without using, it is apt to be subject to sulfuration. When the motorcycle is not used for more than 1 month (especially during the winter season), recharge the battery once a month at least.

SERVICING INFORMATION

CONTENTS

TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	**Compression too low**	
	1. Valve clearance out of limit.	Adjust.
	2. Worn valve guides or poor seating of valves.	Repair or replace.
	3. Valves mistiming.	Adjust.
	4. Piston rings excessively worn.	Replace.
	5. Worn-down cylinder bore.	Replace.
	6. Poor seating of spark plug.	Retighten.
	7. Starting motor cranks but too slowly.	Refer to "electrical complaints"
	Plug not sparking	
	1. Fouled spark plug.	Clean or replace.
	2. Wet spark plug.	Clean and dry.
	3. Defective trigger coil.	Replace.
	4. Defective ignitor unit.	Replace.
	5. Defective ignition coil.	Replace.
	No fuel reaching the carburetor	
	1. Clogged hole in the fuel tank cap.	Clean.
	2. Clogged or defective fuel cock.	Clean or replace.
	3. Defective carburetor needle valve.	Replace.
	4. Clogged fuel hose.	Clean or replace.
	5. Clogged fuel filter.	Clean or replace.
Noisy engine	**Excessive valve chatter**	
	1. Valve clearance too large.	Adjust.
	2. Weakened of broken valve springs.	Replace.
	3. Worn down rocker arm or rocker arm shaft.	Replace.
	Noise appears to come from the piston	
	1. Piston or cylinder worn down.	Replace.
	2. Combustion chamber fouled with carbon.	Clean.
	3. Piston pin or piston pin bore worn.	Replace.
	4. Piston rings or ring groove worn.	Replace.
	Noise seems to come from the clutch	
	1. Worn teeth of clutch plates.	Replace.
	2. Distorted clutch plates, driven and drive.	Replace.
	3. Clutch damper weakened.	Replace.
	Noise seems to come from crankshaft	
	1. Worn of burnt bearings.	Replace.
	2. Big-end bearings worn and burnt.	Replace.
	3. Thrust clearance too large.	Replace.
	Noise seems to come from transmission	
	1. Gears worn of rubbing.	Replace.
	2. Badly worn splines.	Replace.
	3. Primary gears worn or rubbing.	Replace.
	4. Badly worn bearings.	Replace.

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	1.Starter jet is clogged. 2.Starter pipe is clogged. 3. Air leaking from a joint between choke body and carburetor. 4.Choke is not operating properly.	Clean. Clean. Check choke body and carburetor for tightness, adjust and replace gasket. Check and adjust.
Engine stalls easily	1. Fouled spark plug. 2. Defective trigger coil. 3. Defective ignitor unit. 4. Clogged fuel hose. 5. Clogged jets in carburetor. 6. Valve clearance out of limit. 7. Clogged fuel filter.	Clean. Replace. Replace. Clean. Clean. Adjust. Clean or replace.
Engine idles poorly.	1.Valve clearance out of limit. 2.Poor seating of valves. 3.Defective valve guides. 4.Worn rocker arm or arm shaft. 5.Defective trigger coil. 6.Defective ignitor unit. 7.Spark plug gap too wide. 8.Defective ignition coil resulting in weal sparking. 9.Clogged jets.	Adjust. Replace. Replace. Replace Replace. Replace. Adjust or replace. Replace. Clean.
Engine runs poorly in high speed range.	1.Valve springs weakened. 2.Valve timing out of limit. 3.Worn cams or rocker arms. 4.Spark plug gap too narrow. 5.Defective ignition unit. 6.Defective trigger coil or ignitor coil 7.Clogged air cleaner element. 8.Clogged fuel hose, resulting in inadequate fuel supply to carburetor	Replace. Adjust. Replace. Repair. Replace. Replace. Clean. Clean and prime.
Engine lacks power.	1. Loss of valve clearance. 2. Weakened valve springs. 3. Valve timing out of limit. 4. Worn piston ring or cylinder. 5. Poor seating of valves. 6. Fouled spark plug. 7. Worn rocker arms or its shafts. 8. Spark plug gap incorrect. 9. Clogged jets in carburetor. 10. Clogged air cleaner element. 11. Too much engine oil. 12. Suck air intake pipe.	Adjust. Replace. Adjust. Replace. Repair. Clean or replace. Replace. Adjust or replace. Clean. Clean. Drain out excess oil. Retighten or replace.

Complaint	Symptom and possible causes	Remedy
Slipping clutch.	1. Clutch control out of limit or loss of play. 2. Weakened clutch springs. 3. Worn or distorted pressure plate. 4. Distorted clutch plates, driven and drive.	Adjust. Replace. Replace. Replace.
Dragging clutch.	1.Clutch control out of limit or too much play. 2.Some clutch springs weakened. 3.Distorted pressure plate or clutch plates.	Adjust. Replace. Replace.
Transmission will not shift.	1.Broken gearshift cam. 2.Distorted gearshift forks. 3.Worn gearshift pawl.	Replace. Replace. Replace.
Transmission will not shift back.	1.Broken return spring on shift shaft. 2.Shift shafts are rubbing or sticky. 3.Distrorted or worn gearshift forks.	Replace. Repair. Replace.
Transmission jumps out of gear.	1.Worn shifting gears on driveshaft or countershaft. 2.Distorted or worn gearshift forks. 3.Weakened stopper pawl spring on gearshift cam. 4.Worn gearshift pawl.	Replace. Replace. Replace. Replace.
Dirty or heavy exhaust smoke.	1.Too much engine oil in the engine. 2.Worn piston rings or cylinder. 3.Worn valve guides. 4.Cylinder wall scored or scuffed. 5.Worn valves stems. 6.Defective stem seals.	Check and drain excess oil. Replace. Replace. Replace. Replace. Replace.
Engine overheats.	1. Heavy carbon deposit on piston crown. 2. Not enough oil in the engine. 3. Defective oil pump or clogged oil circuit. 4. Air leak from intake pipe. 5. Use of incorrect engine oil.	Clean. Add oil. Repair or clean. Retighten or replace. Change.
Idling or low-speed trouble.	1. Idle jet and idle air jet are clogged or loose. 2. Idle outlet or bypass is clogged. 3. Choke is not fully closed.	Check and clean. Check and clean. Check and adjust.
Medium or high-speed trouble.	1. Main fuel jet or main air jet is clogged. 2. Main jet is clogged. 3. Throttle valve is not operating properly. 4. Filter is clogged.	Check and clean. Check and clean. Adjust Check and clean.
Overflow and fuel level fluctuations.	1. Needle valve is worn or damaged. 2. Spring in needle valve is broken. 3. Float is not working properly. 4. Foreign matter has adhered to needle valve.	Replace. Replace. Check and adjust. Clean.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	1.Starter jet is clogged. 2.Starter pipe is clogged. 3. Air leaking from a joint between choke body and carburetor. 4.Starter plunger is not operating properly.	Clean. Clean. Check choke body and carburetor for tightness, adjust and replace gasket. Check and adjust.
Idling or low-speed trouble.	1. Pilot jet, pilot air jet are clogged or loose. 2. Pilot outlet or bypass is clogged. 3. Choke plunger is not fully closed.	Check and clean. Check and clean. Check and adjust.
Medium or high-speed trouble.	1. Main jet or main air jet is clogged. 2. Needle jet is clogged. 3. Throttle valve is not operating properly. 4. Filter is clogged.	Check and clean. Check and clean. Check throttle valve for operation. Check and clean.
Overflow and fuel level fluctuations.	1. Needle valve is worn or damaged. 2. Spring in needle valve is broken. 3. Float is not working properly. 4. Foreign matter has adhered to needle valve.	Replace. Replace. Check and adjust. Clean.

BRAKE

Complaint	Symptom and possible causes	Remedy
Poor braking. (front and rear)	1. Not enough brake fluid in the reservoir. 2. Air trapped in brae fluid circuit. 3. Pads worn down. 4. Top much play on brake lever or pedal. 5. Linings worn down.	Refill to level mark. Bleed air out. Replace. Adjust. Replace.
Insufficient brake power.	1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion on engaging surface of pads. 4. Worn disc. 5. Air in hydraulic system.	Repair or replace. Replace. Clean disc and park Replace Bleed air
Brake squeaking	1.Carbon adhesion on pad surface. 2.Tilted pad. 3.Damaged wheel bearing. 4.Loose front-wheel axle or rear-wheel axle. 5.Worn pads. 6.Foreign material in brake fluid. 7.Clogged return port of matter cylinder	Repair surface with sandpaper. Modify pad fitting. Replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder.
Excessive brake lever stroke.	1.Air in hydraulic system. 2.Warn brake lever cam. 3.Insufficient brake fluid. 4.Improper quality of brake fluid.	Bleed air. Replace brake lever. Replenish fluid to specified lever; bleed air. Replace with correct fluid.
Leakage of brake fluid.	1.Insufficlent tightening of connection joints. 2.Cracked hose. 3.Worn piston and/or cup.	Tighten to specified torque. Replace. Replace piston and/or cup.

ELECTRICAL

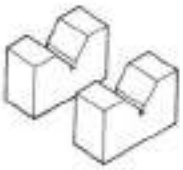
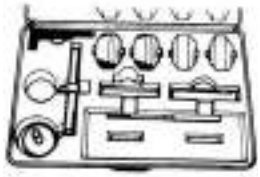
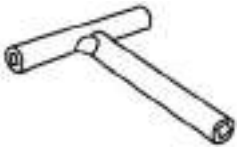
Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective trigger coil or ignitor unit.	Replace. Replace. Replace.
Spark plug soon become fouled with carbon.	1. Mixture too rich. 2. Idling speed set too high. 3. Incorrect fuel. 4. Dirty element in air cleaner. 5. Spark plug too cold.	Adjust carburetor. Adjust carburetor. Change. Clean. Replace by hot type plug.
Spark plug become fouled too soon.	1.Worn piston rings. 2.Pistons or cylinder worn. 3.Excessive clearance of valve stems in valve guides. 4.Worn stem oil seals.	Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1.Spark plug too hot. 2.The engine overheats. 3.Defective trigger coil or ignitor unit. 4.Spark plug loose. 5.Mixture too poor.	Replace by cold type plug. Tune up. Adjust. Retighten. Adjust carburetor.
Generator does not charge.	1.Open or short in lead wires, or loose lead connections. 2.Shorted, grounded or open generator coils. 3.Shorted or destroyed regulator/rectifler.	Repair or replace or retighten. Replace. Replace.
Generator charge, but charging rate is below the specification.	1.Lead wires tend to get shorted or open-circuited or loosely connected at terminals. 2.Grounded or open-circuited generator stator. 3.Defective regulator/rectifier. 4.Not enough electrolyte in the battery. 5.Defective cell plates in the battery.	Repair or retighten. Replace. Replace. Pour distilled water between the level lines. Replace the battery.
Generator overcharges.	1.Internal short-circuit in the battery. 2.Resistor element in the regulator/rectifier damaged or defective. 3.Regulator/rectifier poorly grounded.	Replace the battery. Replace. Clean and tighten ground connection.
Unstable charging.	1.Lead wire insulation frayed due to vibration, resulting in intermittent short circle. 2.Generator internally short circle. 3.Defective regulator/rectifier.	Repair or replace. Replace. Replace.
Starting button is not effective.	1.Battery run down. 2.Defective switch contacts. 3.Brusnes not seating properly on commutator in starting motor. 4.Defective start relay.	Recharge or replace. Replace. Repair or replace. Replace.

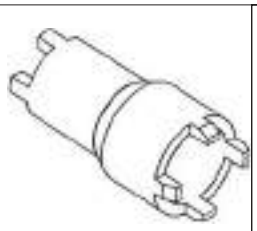
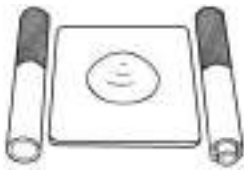
BATTERY

Complaint	Symptom and possible causes	Remedy
"Sulfation", acidic white powdery substance or spots on surface of cell plates.	1. Not enough electrolyte. 2.Battery case is cracked. 3.Battery has been left in a run-down condition for a long time. 4.Contaminated electrolyte (Foreign matter has enters the battery and become mixed with the electrolyte.)	Pour distilled water, if the battery has not been damaged and "sulfation" has not advanced too far, and recharge. Replace the battery. Replace the battery. If "sulfation" has not advanced too far, try to restore the battery by replacing the electrolyte, recharging it fully with the battery detached from the motorcycle and then adjust the electrolyte S.G.
Battery runs down quickly.	1. The charging method is not correct. 2. Cell plates have lost much of their active material as result of over-charging. 3. A short-circuit condition exists within the battery due to excessive accumulation of sediments caused by the high electrolyte S.G. 4. Electrolyte S.G. is too low. 5. Contaminated electrolyte. 6. Battery is too old.	Check the generator, regulator/rectifier and circuit connections, and make necessary adjustments to obtain specified charging operation. Replace the battery, and correct the charging system. Replace the battery. Recharge the battery fully and adjust electrolyte S.G. Replace the electrolyte, recharge the battery and adjust the S.G. Replace the battery.
Reversed battery polarity.	The battery has been connected the wrong way round in the system, so that it is being charged in the reverse direction.	Replace the battery and be sure to connect the battery properly.
Battery "sulfation".	1. Changing is rate too low or too high. (When not in use, battery should be recharged at least once a month to avoid sulfation.) 2. Battery electrolyte is excessive or insufficient, or its specific gravity is too high or too low. 3. The battery left unused for too long in cold season.	Replace the battery. Keep the electrolyte up to the prescribed level, or adjust the S.G. by consulting the battery manufacturer's directions. Replace the battery, if badly sulfated.
Battery discharges too rapidly.	1. Dirty container tap and sides. 2. Impurities in the electrolyte or electrolyte S.G. is too high.	Clean. Change the electrolyte by consulting the battery manufacturer's directions.

SPECIAL TOOLS

Note: The tools list below is partical tools, and only for reference, check the actual tools listed in previous section.

 09900-06107 snapring pliers	 09900-06108 snapring pliers	 09900-20101 vernier caliper (1/50mm,150mm)	 09900-20103 vernier caliper (1/50mm,300mm)	 09900-20202 micrometer (1/100mm,25~50mm)
 09900-20203 micrometer (1/100mm,50~75mm)	 09900-20205 micrometer (1/100mm,0~25mm)	 09900-20508 cylinder bore gauge kit (1/100mm,40~80mm)	 09900-20605 dial calipers (1/100mm,10~34mm)	 09900-20606 dial meter (1/100mm,10mm)
 09900-20701 magnetic bracket	 09900-20803 thickness gauge	 09900-21304 V-block (set)(100mm)	 09900-25002 pocket tester	 09900-28403 hydrometer
 09913-50121 oil seal remover	 09913-75820 bearing installer	 09913-80112 Bearing installer	 09915-64512 cylinder pressure gauge 09915-63310 (adapter)	 09916-21111 valve seat cutter kit
 09917-14910 valve adjustor	 09920-13120 crankcase separator	 09923-73210 bearing puller (15 17mm)	 09924-84510 bearing installer set	 09930-30104 slide shaft
 09930-44511 rotor holder	 09940-50112 front absorber oil seal installer	 09941-14911 steering stem nut wrench	 09941-34513 steering race installer	 09941-74910 steering bearing installer

				
11F14-001 rotor holder	11F14-002 rotor separator	11F14-010 front absorber tool	11F14-011 four claw wrench	11F14-018 valve spring tool

TIGHTENING TORQUE

ENGINE

ITEM	Kg•m	N•m
Engine oil drain plug	2.5~3.5	25~35
Crankcase mounting bolt	1.0~1.5	10~15
Cylinder right cover bolt	0.8~1.2	8~12
Primary drive gear/oil pump drive gear nut	3.5~3.8	35~38
Clutch cover bolt	1.0~1.5	10~15
Clutch adjusting nut	1.5~1.8	15~18
Guide wheel bolt	1.1~1.5	11~15
Cylinder head cap nut	1.5~1.8	15~18
Starting motor bolt	0.8~1.2	8~12
Generator rotor nut	4.5~5.0	45~50
Cylinder bolt	0.8~1.2	8~12
Cylinder head left cover bolt	0.8~1.2	8~12
Swing arm adjusting nut	1.1~1.4	11~14
Valve inspection cap	1.0~1.4	10~14
Left crankcase cover bolt	0.8~1.2	8~12

CHASSIS

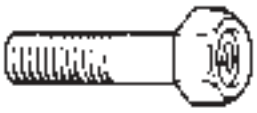
ITEM	Kg•m		N•m
Handlebars clamp bolt/nut	4.5~5.5		45.0~55.0
Front absorber clamp bolt	3.5~5.5		35.0~55.0
Steering stem locknut	2.5~3.5		25.0~35.0
Front wheel axle nut	4.8~5.76		48.0~57.6
Front footrest	1.5~2.0		15.0~20.0
Engine mounting bolt/nut	3.5~4.5		35.0~45.0
Swing arm pivot nut	2.5~3.5		25.0~35.0
Rear absorber nuts	2.0~3.0		20.0~30.0
Rear footrest bolt	1.8~2.8		18.0~28.0
Rear wheel axle nut	4.8~5.8		48.0~58.0
Brake cam swing arm nut	F	0.6~0.8	6.0~8.0
	R	0.7~1.0	7.0~10.0
Mounting hub nut	4.0~5.0		40.0~50.0
Rear torque link nut	1.0~1.6		10.0~16.0
Rear sprocket nuts	1.8~2.8		18.0~28.0
Kick starter rod bolt	1.0~1.35		10.0~13.5

TIGHTENING TORQUE CHART

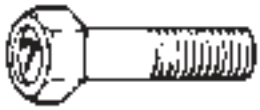
For other bolt and nuts who's torque is not listed, refer to this chart:

Bolt Diameter (mm)	Conventional or "4" marked bolt		"7" marked bolt	
	Kg•m	**N•m**	**Kg•m**	**N•m**
4	0.1-0.2	1.0-2.0	0.15-0.3	1.5-3.0
5	0.2-0.4	2.0-4.0	0.3-0.6	3.0-6.0
6	0.4-0.7	4.0-7.0	0.8-1.2	8.0-12.0
8	1.0-1.6	10.0-16.0	1.8-2.8	18.0-28.0
10	2.2-3.5	22.0-35.0	4.0-6.0	40.0-60.0
12	3.5-5.5	35.0-55.0	7.0-10.0	70.0-100.0
14	5.0-8.0	50.0-80.0	11.0-16.0	110.0-160.0
16	8.0-13.0	80.0-130.0	17.0-25.0	170.0-250.0
18	13.0-19.0	130.0-190.0	20.0-28.0	200.0-280.0

Conventional bolt



"4" marked bolt



"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm

ITEM	STANDARD		LIMIT
Valve diam	IN.	19.9～20.1	———
	EX.	22.9~23.1	———
Valve stem deflection	IN.	———	0.35
	EX.	———	0.35
Valve clearance (cold)	IN. or EX.	0.03~0.07	———
Valve guide to valve stem clearance	IN.	0.015~0.042	0.08
	EX.	0.030~0.057	0.10
Valve guide I.D.	IN. or EX.	5.000~5.012	5.03
Valve stem O.D.	IN.	4.970~4.985	4.92
	EX.	4.955~4.970	4.92
Valve stem runout	IN. or EX.	———	0.05
Valve seat width	IN. or EX.	1.0~1.6	———
Valve spring free length (IN. or EX.)	INNER	32.78	31.47
	OUTER	35.55	34.13

CAMSHAFT + CYLINDER HEAD

Unit: mm

ITEM	STANDARD		LIMIT
Cam height	IN.	26.503~26.623	26.26
	EX.	26.318~26.438	26.00
Cam shaft runout	IN. or EX.	———	0.10
Swing arm I.D.	IN. or EX.	10.000~10.015	———
Swing arm O.D.	IN. or EX.	9.972~9.987	———
Cylinder head distortion	———	———	0.05
Cylinder head cover distortion	———	———	0.05

CYLINDER + PISTON + PISTON RING

ITEM	STANDARD		LIMIT
Compression pressure	10~14 kgf/cm^2		8 kgf/cm^2
Cylinder I.D.	52.40~52.415 mm		52.535 mm
Piston O.D.	52.37~52.38 mm		52.25 mm
Cylinder distortion	———		0.05 mm
Piston ring end gap	1st	0.10~0.25 mm	0.05 mm
	2nd	0.10~0.25 mm	0.05 mm
Piston ring to groove clearance	1st	0.015~0.050 mm	0.12 mm
	2nd	0.015~0.050 mm	0.12 mm
Piston pin bore	13.002~13.008 mm		13.055 mm
Piston pin O.D.	13.994~13.000 mm		12.98 mm

CONROD + CRANKSHAFT

Unit: mm

ITEM	STANDARD	LIMIT
Conrod small end I.D.	13.016~13.034	13.10
Conrod big end side clearance	0.10~0.35	0.5
Conrod big end oil clearance	———	0.08
Crankshaft runout	———	0.05
Crank pin O.D.	———	18.92

CLUTCH

Unit: mm

ITEM	STANDARD	LIMIT
Clutch cover I.D.	104.0~104.2	104.3
Primary drive gear I.D.	19.030~19.058	19.11
Drive plate thickness	2.92~3.08	2.6
Driven plate distortion	———	0.2
Clutch spring free length	35.0~36.5	34.5

TRANSSION GEAR + DRIVE BELT

ITEM		STANDARD	LIMIT
Primary reduction ratio		4.059	———
Final reduction ratio		2.571	———
Gear ratio	Low	2.833	———
	2nd	1.705	———
	3rd	1.238	———
	4th	0.958	———
Shift fork I.D.		34.075~34.100 mm	34.14 mm
Shift fork thickness		4.86~4.94 mm	4.60 mm
Drive chain slack		10~20 mm	———

CARBURETOR

ITEM	SPECIFICATION	ITEM	SPECIFICATION
Carburetor type	Pz19	Bubbler	Φ 2.6 mm
Bore size	Φ19 mm	Idle jet	# 110
I.D. No	PZ19	Idle screw	PRE-SET{(3/2) turn out}
Idle	1, 400~1, 600 r/min	Fuel needle	B6SQ-3
Main fuel jet	# 92	Throttle cable play	0.5~1.0 mm

ELECTRICAL

ITEM		STANDARD		LIMIT
Ignition timing		15° B.T.D.C. Below 1500 r/min and 30° B.T.D.C. Above 5000 r/min.		
Spark plug		Type	TORCH A7RC or NHSP LD A7RTC	
		Gap	0.6~0.8 mm	
Spark performance		Over 8 mm at 1 atm.		
Ignition coil resistance		Primary	0.24~0.36 Ω	
		Secondary	3.15~3.85 kΩ	
Generator no-load voltage		More than 70V (AC) at 5000 r/min		
Regulated voltage		14.0~15.0V at 5000r/min		
Battery	Type	12N5-3B		
	Capacity	12V,5AH		
	Standard electrolyte S.G.	1.280 ± 0.01 (20℃)		
Fuse		15 A		

ITEM		SPECIFICATION	ITEM	SPECIFICATION
Headlight	HI	12V,35W	Neutral indication light	12V,2W
	LO	12V,35W	Tachometer light	12V,2W
Tail/brake light		12V,5W/21W	High beam indicator light	12V,2W
Turn signal light	HJ110-2 HJ110-2A(F)	12V,21W	Turn signal indicator light	12V,2W
	HJ110-2A(R)	12V,16W	Speedometer light	12V,2W
Parking or position light		12V,2W		

SUSPENSION

Unit: mm

ITEM	STANDARD	LIMIT	NOTE
Front absorber stroke	90	———	
Front absorber spring free length	336.1	329.4	
Rear wheel stroke	75	———	

BRAKE + WHEEL

Unit: mm

ITEM	STANDARD		LIMIT
Rear brake pedal free travel	20~30		———
Brake drum I.D.	———		111.0
Wheel rim runout	Front	———	2.0
	Rear	———	2.0
Wheel axle runout	Front	———	0.25
	Rear	———	0.25
Tire size	Front	2.50-17 4PR	———
	Rear	2.75-17 4PR	———
Tire tread depth	Front	———	1.6
	Rear	———	2.0

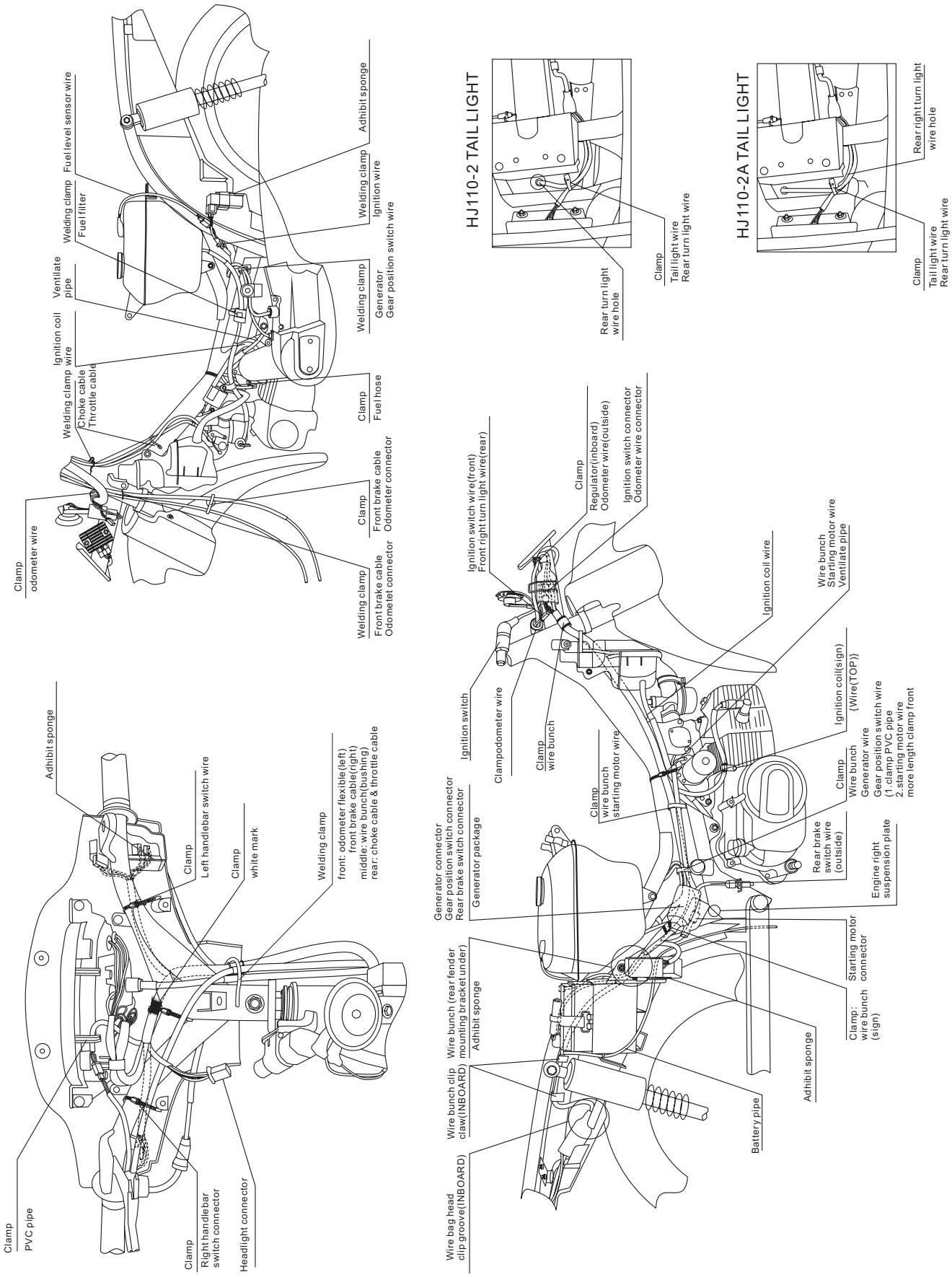
TIRE PRESSURE

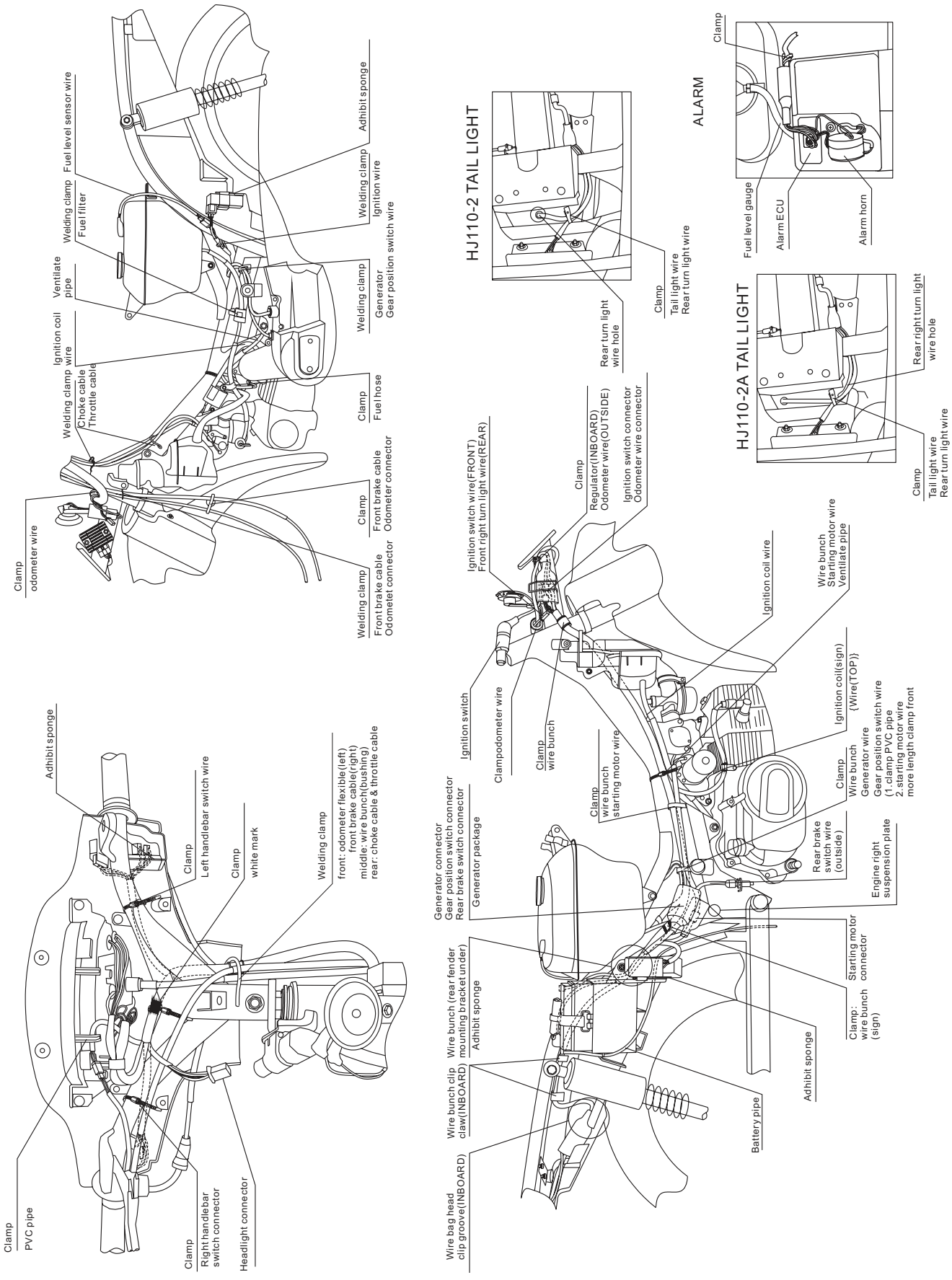
COLD INFLATION TIRE PRESSURE	SOLO RIDING		DUAL RIDING	
	KPa	kg/cm^2	KPa	kg/cm^2
FRONT	175	1.75	200	2.00
REAR	200	2.00	225	2.25

FUEL +OIL

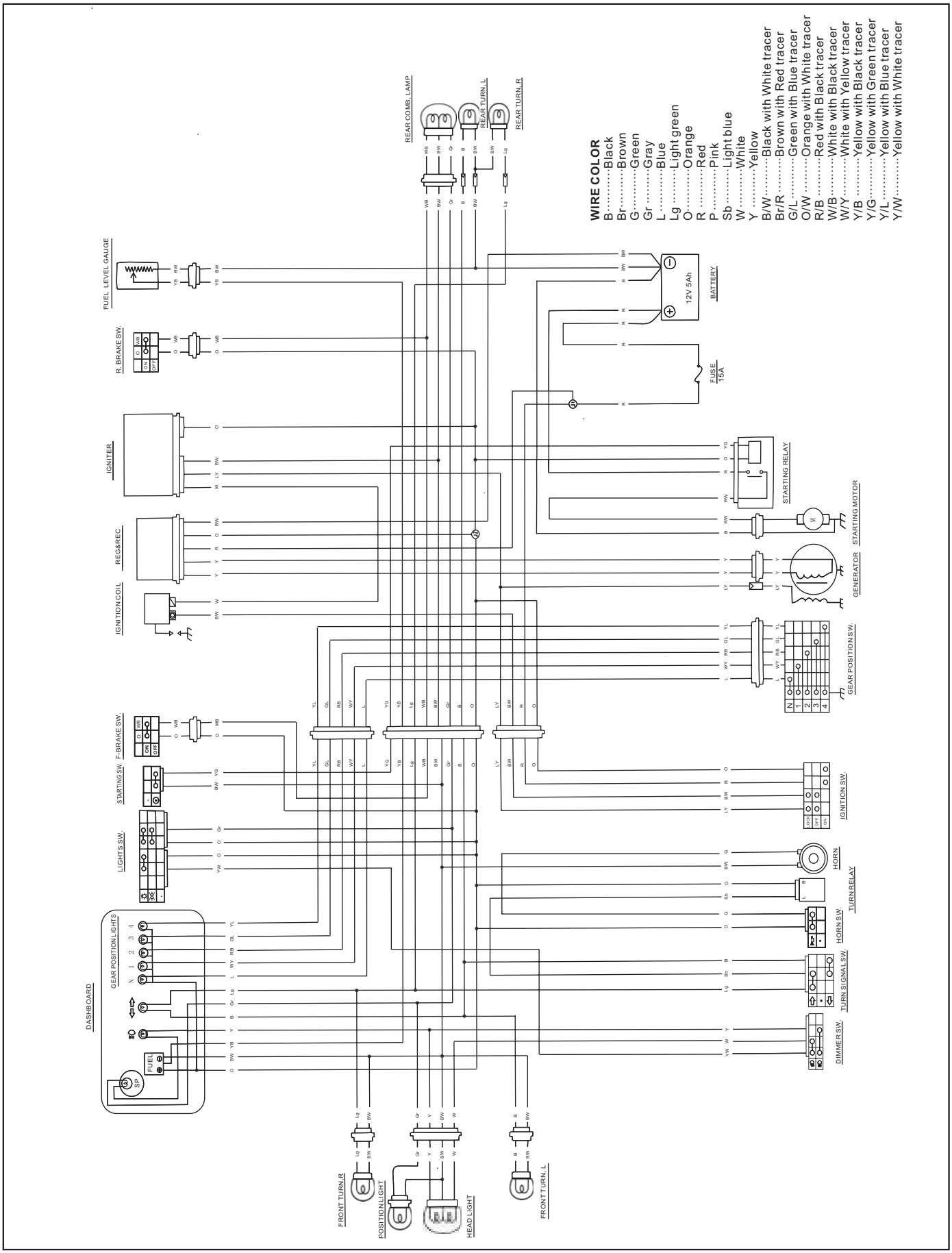
ITEM	SPECIFICATION	NOTE
Fuse type	Fuel used should be graded 90-97 octane (Research Method). An unleaded fuel is recommended	
Fuel tank capacity	4.7 L	
Engine oil type and grade	SAE10W/40, API SF or SG	
Engine oil capacity	900 ml	
Front absorber oil capacity (each leg)	57 ml	

WIRE AND CABLE ROUTING





WIRING DIAGRAM



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