HYOSUNG

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HYOSUNG MOTORS & MACHINERY INC.

RX 125

RX 125

SERVICE MANUAL

SERVICE MANUAL

99000-97100

FOREWORD

This manual contains an introductory description on HYOSUNG RX 125 and procedures for its inspection/service and overhaul of its main como-nents.
Other information considered as generally known is not included.
Read GENERAL INFORMATION section to familiarize yourself with outline of the vehicle and MAINTE NANCE and other sections to use as a guide for proper inspection and service.
This manual will help you know the vehicle better so that you can assure your customers of your optimum and quick service.

* *This manual has been prepared on the basis of the latest specification at the time of publi-cation.*
  If modification has been made since then, difference may exist between the content of this manual and the actual vehicle.
* *Illustrations in this manual are used to show the basic principles of operation and work procedures.*
  They may not represent the actual vehicle exactly in detail.
* *This manual is intended for those who have enough knowledge and skills for servicing HYOSUNG vehicles. Without such knowledge and skills, you should not attempt servicing by relying on this manual only.*
  Instead, please contact your nearby authorized HYOSUNG motorcycle dealer.

GROUP INDEX

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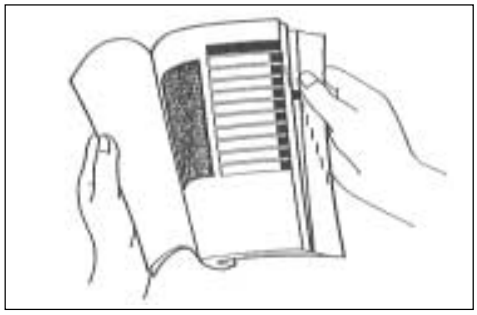
HOW TO USE THIS MANUAL

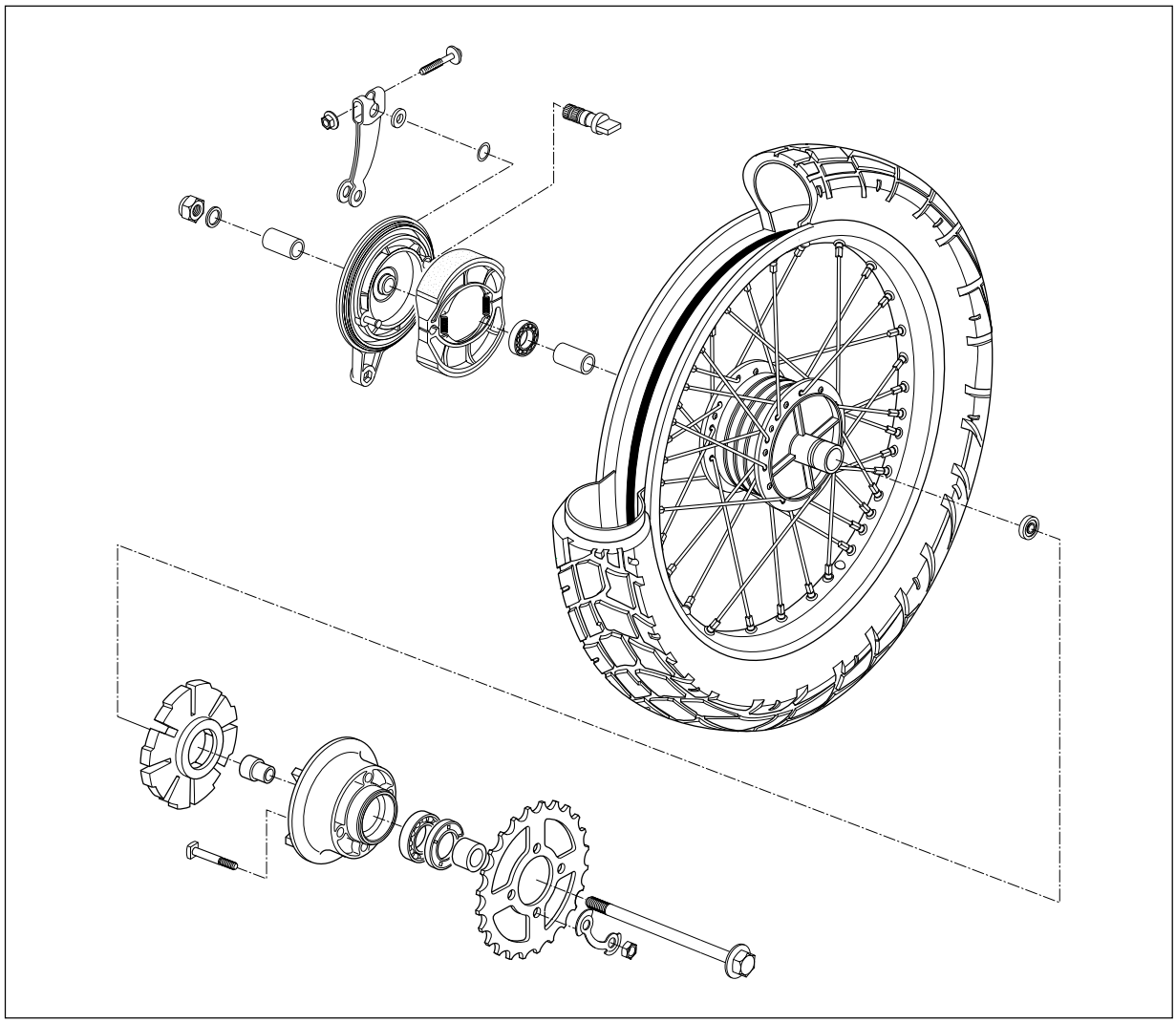


TO LOCATE WHAT YOU ARE LOOKING FOR:

1. The text of this manual is divided into sections.
2. As the title of these sections are listed on the previous page as GROUP INDEX, select the section where what you are looking for belong.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. On the first page of each section, its contents are listed. Find the item and page you need.

COMPONENT PARTS

Example: Rear wheel/Rear brake



SYMBOL

Listed in the table below are the symbols indicating instructions and other information necessary for servicing and meaning associated with them respectively.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		Apply THREAD LOCK “1324”.
	Apply oil. Use engine oil unless otherwise specified.		Apply or use brake fluid.
	Apply SUPER GREASE “A”.		Measure in voltage range.
	Apply SUPER GREASE “C”.		Measure in resistance range.
	Apply SILICONE GREASE.		Measure in current range.
	Apply MOLY PASTE.		Use special tool.
	Apply BOND “1215”.		

GENERAL INFORMATION

1

CONTENTS

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

Indicates a potential hazard that could result in death or injury.

⚠ CAUTION

Indicates a potential hazard that could result in vehicle damage.

NOTE:
Indicates special information to make maintenance easier or instructions cleaner.

Please note, however, that the warning 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 judgement 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 PRECAUTIONS

⚠ WARNING

- **Proper service and repair procedures are important for the safety of the service machanic and the safety and reliability of the vehicle.**
- **When 2 or more persons work together, pay attention to the safety of each other.**
- **When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.**
- **When working with toxic or flammable materials, make sure that the area you work in is wellventilated and that you follow all off the material manufacturer's instructions.**
- **Never use gasoline as a cleaning solvent.**
- **To avoid getting burned, do not touch the engine, engine oil or exhaust system during or for a while after engine operation.**
- **After servicing fuel, oil, exhaust or brake systems, check all lines and fittings related to the system for leaks.**

⚠ CAUTION

- If parts replacement is necessary, replace the parts with HYOSUNG 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, and also lubricated when specified.
- When use of a certain type of lubricant, bond, or sealant is specified, be sure to use the specified type.
- When removing the battery, disconnect the negative cable first and then positive cable. When reconnecting the battery, connect the positive cable first and then negative cable, and replace the terminal cover on the positive terminal.
- When performing service to electrical parts, if the service procedures do not require use of battery ower, disconnect the negative cable at the battery.
- Tighten cylinder head and case bolts and nuts, beginning with larger diameter and ending with smaller diameter, from inside to outside diagonally, to the specified tightening torque.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, cotter pins, circlips, and certain other parts as specified, be sure to replace them with 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 expand 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-locking nuts a few times over.
- Use a torque wrench to tighten fasteners to the torque values when specified. Wipe off grease or oil if a thread is smeared with them.
- After reassembly, check parts for tightness and operation.

- To protect environment, do not unlawfully dispose of used motor oil and other fluids: batteries, and tires.
- To protect Earth's natural resouces, properly dispose of used vehicles and parts.

HYOSUNG RX125

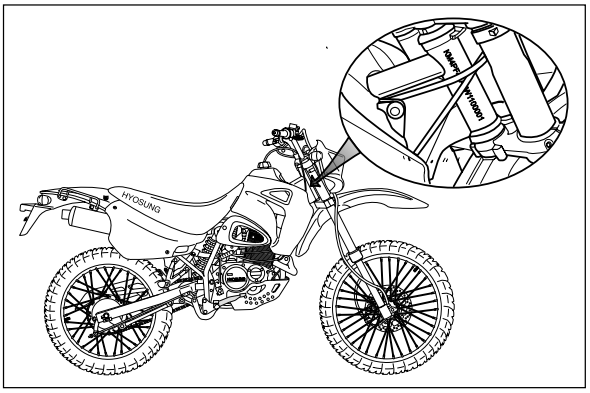
RIGHT SIDE

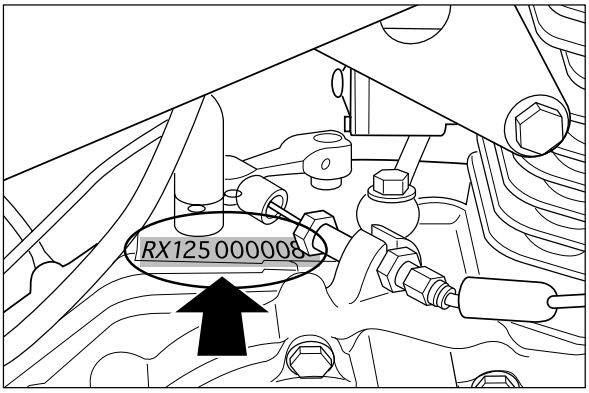
LEFT SIDE

* Difference between photographs and actual motorcycles depends on the markets.

SERIAL NUMBER LOCATION

The frame serial number or V.I.N. (Vehicle Identification Number) is stamped on the right side of the steering head pipe. The engine serial number is located on the left upside of the crankcase.
These numbers are required especially for registering the machine and ordering spare parts.





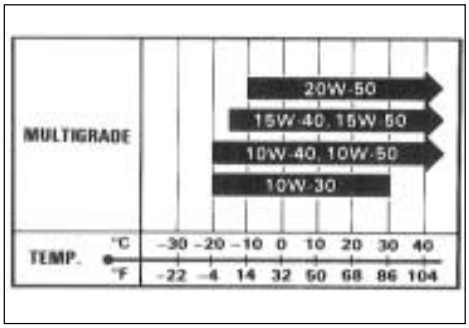
FUEL AND OIL RECOMMENDATION

FUEL

Gasoline used should be graded 85–95 octane (Research Method) or higher. An unleaded gasoline type is recommended.

ENGINE OIL

Make sure that the engine oil you use comes under API classification of SH, SG or SF and that its viscocity rating is SAE 10W/40. If an SAE 10W/40 motor oil is not available, select an alternate according to the right chart.



BRAKE FLUID

Specification and classification: SAE J1703, DOT3 or DOT4

⚠ WARNING

Since the brake system of this motorcycle is filled with a glycol-based brake fluid by the manufacturer, do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will result.
Do not use any brake fluid taken from old or used or unsealed containers.
Never re-use brake fluid left over from a previous servicing, which has been stored for a long period.

FRONT FORK OIL

Use fork oil : SS8 Oil

BREAK-IN PROCEDURES

During manufacture only the best possible materials are used and all machined parts are finished to a very high standard but it is still necessary to allow the moving parts 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:

Initial 800km	Below 5,000rpm
Up to 1,600km	Below 7,000rpm
Over 1,600km	Below 10,000rpm

- Keep to these break-in engine speed limits:
- Upon reaching an odometer reading of 1,600 km you can subject the motorcycle to full throttle operation. However, do not exceed 10,000rpm at any time.
- Do not maintain constant engine speed for an extended period during any portion of the break-in. Try to vary the throttle position.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2,190 mm(86.2 in)
Overall width	800 mm(31.5 in)
Overall height	1,160 mm(45.7 in)
Wheelbase	1,425 mm(56.1 in)
Ground clearance	295 mm(11.6 in)
Dry mass	125 kg(276 lbs)

ENGINE

Type	Four-stroke, SOHC
Number of cylinder	1
Bore	57 mm(2.24 in)
Stroke	48.8 mm(1.92 in)
Piston displacement	124.5㎤(7.6 cu.in)
Carburetor	PD18F
Air cleaner	Wet filter type
Starter system	Kick/self starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Final reduction	3.357
Gear ratio, Low	2.75
2nd	1.785
3rd	1.368
4th	1.045
Top	0.913
Drive chain	428H 132 links

CHASSIS

Front suspension	Telescopic
Rear suspension	Swingarm type
Steering angle	40 ° (right & left)
Caster	29 °
Trail	125 mm(4.9 in)
Turning radius	2.5 m(8.2 ft)
Front brake	Disk brake
Rear brake	Drum brake
Front tire size	2.75-21 45P
Rear tire size	4.10-18 59P
Front fork stroke	250 mm(9.8 in)

ELECTRICAL

Ignition type	Battery Ignition (CDI)
Ignition timing	15 ° B.T.D.C.at 2,250 rpm and 35 ° B.T.D.C.at 4,000 rpm
Spark plug	C8EH-9
Battery	12V 6Ah
Fuse	15 A
Headlight	12V 35/35 W×2
Turn signal light	12V 1.7 W×2
Tail/Brake light	12V 21/5 W×2
Speedometer light	14V 3.4 W
High beam indicator light	12V 1.7 W
Turn signal indicator light	12V 1.7 W
License plate lens	12V 5 W

CAPACITIES

Fuel tank	9.0 ℓ
Engine oil, oil change	950 ㎖
with filter change	1,050 ㎖
overhaul	1,400 ㎖
Front fork oil (One side)	443cc±2.5cc

The specifications are subject to change without notice.

PERIODIC MAINTENANCE

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CONTENTS

PERIODIC MAINTENANCE SCHEDULE

The chart below lists the recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy.

NOTE:
More frequent servicing should be performed on motorcycles that are used under severe conditions.

PERIODIC MAINTENANCE CHART

ENGINE

Item \ Interval	Initial 1,000 km	Every 4,000 km	Every 8,000 km	page
Battery	Inspect	Inspect	–	2–3
Cylinder head nuts, cylinder nuts, exhaust pipe bolts and nuts	Inspect	Inspect	–	2–3
Air cleaner element	Clean every 3,000 km			2–4
Cam drive chain tensioner	Adjust at initial and every 3,000 km			3–25
Valve clearance	Inspect	Inspect	–	2–5
Compression pressure	Inspect	Inspect	–	3–1
Spark plug	Inspect	Inspect	Replace	2–6
Fuel line	Inspect	Inspect	–	2–7
	Replace every 4 years			
Engine oil	Change	Change	–	2–7
Engine oil filter	Replace	Replace	–	2–8
Oil pressure	–	Inspect	–	3–1
Oil sump filter	–	–	Clean	2–8
Carburetor	Inspect	Inspect	–	2–9
Clutch	Inspect	Inspect	–	2–9

CHASSIS

Item \ Interval	Initial 1,000 km	Every 4,000 km	Every 8,000 km	page
Drive chain	Inspect and clean every 1,000 km			2–10
Brakes	Inspect	Inspect	–	2–11
Brakes fluid (Disk Brake)	Change every 2 years			2–11
Tires	Inspect	Inspect	–	2–13
Steering	Inspect	Inspect	–	2–14
Front fork oil	Change	–	Change	2–14
Chassis bolts and nuts	Inspect	Inspect	–	2–15

LUBRICATION CHART

The maintenance schedule, which follows, is based on this philosophy. It is timed by odometer indication, and is calculated to achieve the ultimate goal of motorcycle maintenance in the most economical manner.

Item \ Interval	Interval and Every 4,000 km	Every 8,000 km
Throttle cable	Motor oil	–
Throttle grip	–	Grease
Clutch cable	Motor oil	–
Brake cable	Motor oil	–
Speedometer cable	–	Grease
Speedometer gear box	–	Grease
Drive chain	Motor oil every 1,000 km	
Brake pedal	Grease or oil	Motor oil
Brake cam shaft	–	Grease
Steering stem bearing	Grease every 2 years or 20,000 km	
Swing arm bearing		

⚠ WARNING

Be careful not to apply too much grease into the brake camshaft. If grease is on the linings, brake slippage will result.

Lubricate exposed parts which are subject to rust, with either motor oil or grease whenever the motorcycle has been operated under wet or rainy conditions.
Before lubricating each part, clean off rusty sports and wipe off grease, oil, dirt or grime.

MAINTENANCE PROCEDURE

This section describes the service procedures for each section of the periodic maintenance.

BATTERY

NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

● Remove the seat for measure of battery voltage.
● Using pocket tester, measure the battery voltage.
If the tester reading is less than 12.8V, recharge battery by a battery charger.

Voltage	How to charge
Less than 11.5V	Charge 20Hour as 0.7A
Between 11.5~12.8V	Charge 5~10Hour as 0.7A
More than 12.8V	No charge

⚠ CAUTION

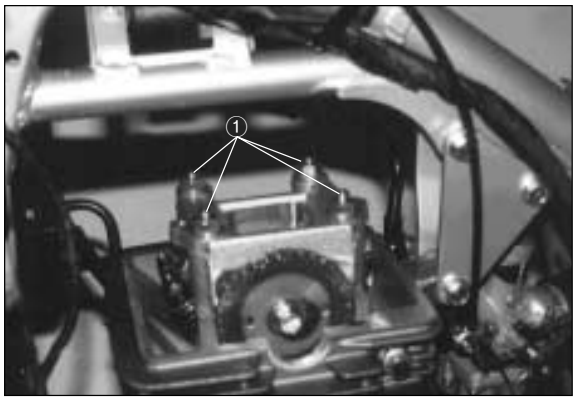
· When recharging the battery remove the battery from motorcycle.
Otherwise, regulator/rectifier unit should be an obstacle.
· When recharging the battery, do not remove the caps.
· When recharging the battery, above the charge electric current and time should be kept as 12V.

CYLINDER HEAD NUTS, CYLINDER NUTS, EXHAUST PIPE BOLTS AND NUTS

NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

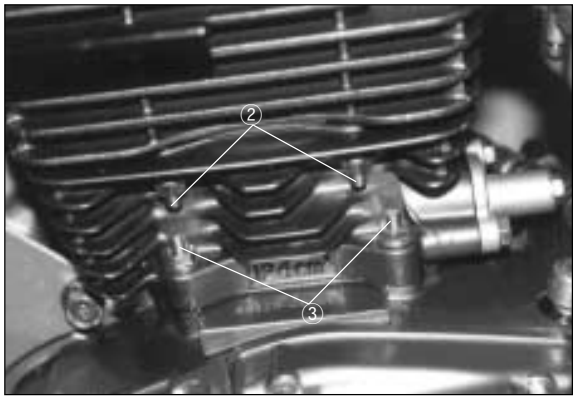
CYLINDER HEAD NUTS

● Remove the seat and fuel tank.
(Refer to page 3-2)
● Remove the cylinder head cover.
● Tighten the four 12 mm nuts ① and two 10 mm nuts ② to the specified torque with a torque wrench, when engine is cold.



Cylinder head nut (12mm) : 25~29 N · m (2.5~2.9 kg · m)
Cylinder base nut (10mm) : 6~8 N · m (0.6~0.8 kg · m)

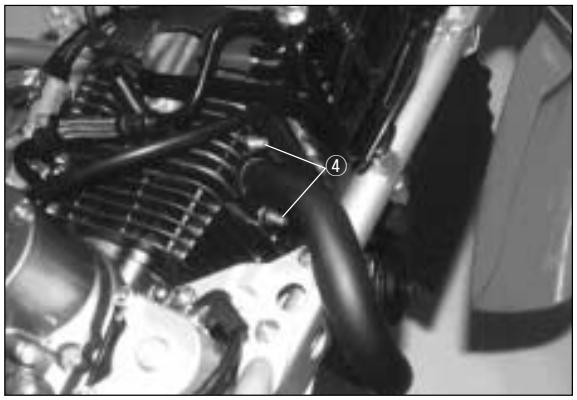
● When installing cylinder head cover, the rubber packing is reached the mating surface of cylin der head cover.



CYLINDER NUTS

● Tighten the two 10 mm nuts ③ to the specified torque.

Cylinder base nut (10mm) : 6~8 N · m (0.6~0.8 kg · m)



EXHAUST PIPE NUTS AND MUFFLER CLAMP BOLT

● Tighten the exhaust pipe nuts ④ and muffler clamp bolt ⑤ to the specified torque.

Exhaust pipe nuts : 18~22 N · m (1.8~2.2 kg · m)
Muffler clamp bolt : 9~16 N · m (0.9~1.6 kg · m)

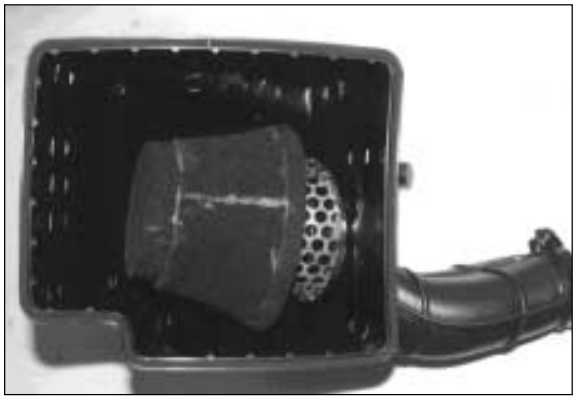
AIR CLEANER ELEMENT

NOTE:
Clean Every 3,000 km,
Replace Every 12,000 km.

If the air cleaner is clogged with dust, intake resistance will be increased resulting with decrease in power output and increasing fuel consumption.
Check and clean the element in the following manner.

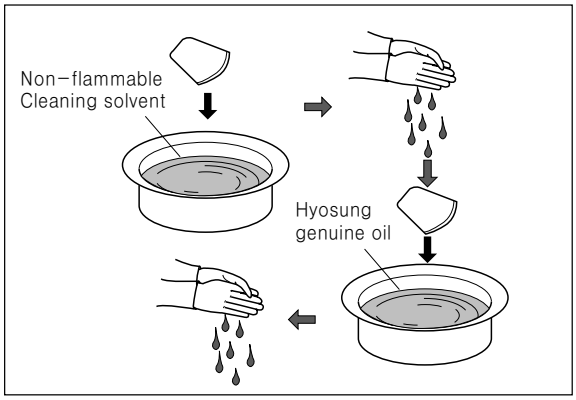
● Remove the upside frame cover.
● Remove the screw and take out the cover.
● Separate the element from the element cover.

- Fill a washing pan of a proper size with non-flammable cleaning solvent. Immerse the elements in the cleaning solvent and wash them clean.
- Squeeze the cleaning solvent out of the washed element by pressing it under the palms of both hands : do not twist or wring the element or it will develop tears.
- Immerse the element in Hyosung genuine oil, and squeeze the oil out of the element leaving it slightly wet with oil.
- Fit the elements to the cleaner case properly.



⚠ CAUTION

Before and during the cleaning operation, inspect the element for tears. A torn element must be replaced.
Be sure to position the element snugly and correctly, so that no incoming air will bypass it.
Remember, rapid wear of piston rings and cylinder bore is often caused by a defective or poorly fitted element.

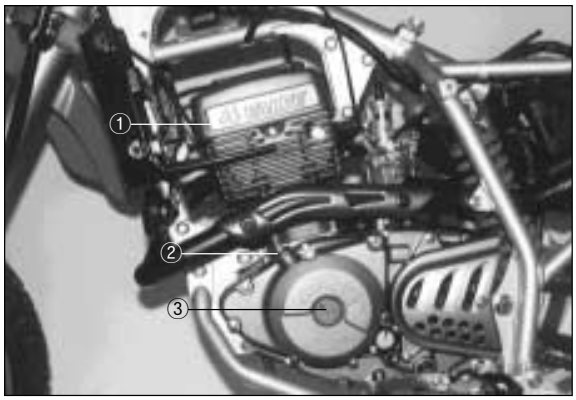


VALVE CLEARANCE

NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

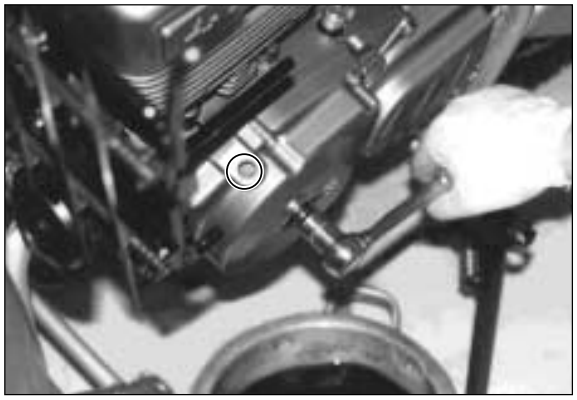
Excessive valve clearance results in valve noise and insufficient valve clearance results in valve damage and reduced power. At the distances indicated above, check and adjust the clearance to the following specification.
The procedure for adjusting the valve clearance is as follows :

- Remove the seat and fuel tank.



- Remove spark plug, cylinder head cover ①, and valve timing inspection plug ②.
- Remove the magneto cover cap ③ and rotate the magneto rotor with the 14 mm box wrench to set the piston at (TDC) of the compression stroke.
  (Rotate the rotor until the "T" line on the rotor is aligned with the center of hole on the crankcase.)
- Insert the thickness gauge to the valve stem end and the adjusting screw on the rocker arm.

TOOL Thickness gauge : 09900-20803

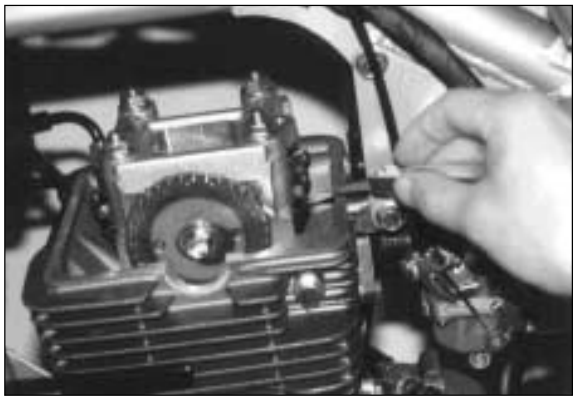


Valve clearance specifications

Valve clearance of IN. and EX.	0.08~0.13 mm

- If clearance is off the specification, bring it into the specified range by using the special tool.

TOOL Tappet adjust driver : 09917-13210



- Reinstall spark plug, cylinder head cover, valve timing inspection plug and magneto cover cap.

⚠ CAUTION

Valve clearance should be checked when the engine is cold.
Both the intake and exhaust valves must be checked and adjusted when the piston is at Top-Dead-Center (TDC) of the compression stroke.

COMPRESSION PRESSURE

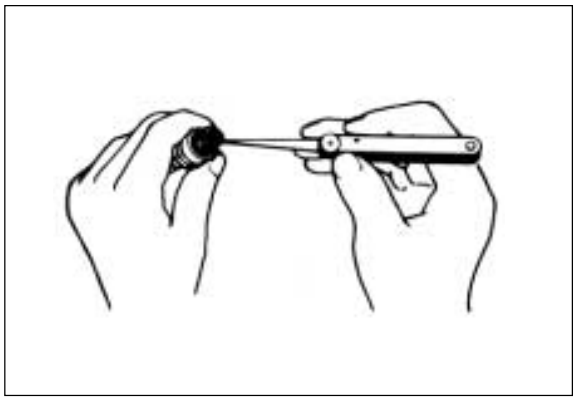
NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

(Refer to page 3-1)

SPARK PLUG

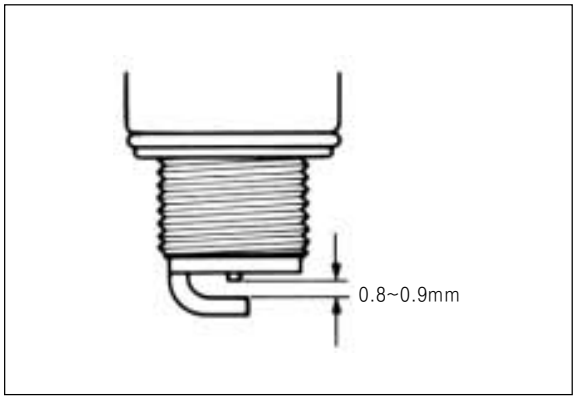
NOTE:
Inspect Initial 1,000 km and 4,000 km,.
Replace Every 8,000 km.

Remove the carbon deposits with a wire or pin and adjust the spark plug gap to 0.8~0.9 mm, measuring with a thickness gauge.
When removing carbon deposits, be sure to observe the appearance of the plug, the color of the carbon deposits. The color observed indicates whether the standard plug is suitable or not. If the



standard plug is apt to get wet, a hotter plug should be used. If the standard plug is apt to overheat (porcelain is whitish in appearance), replace with a colder one.

TYPE	SPARK PLUG SPECIFICATION
Hot type	N.G.K C7EH-9
Standard	N.G.K C8EH-9
Cold type	N.G.K C9EH-9



FUEL LINE

NOTE:
Inspect Initial 1,000 km and Every 4,000 km,
Replace every four years.

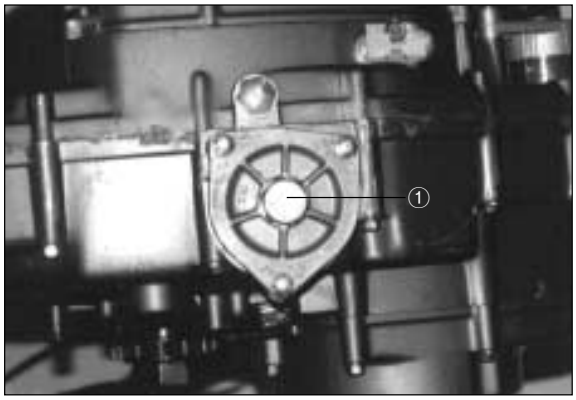
Inspect the fuel line and connections for damage and fuel leakage.
If any defects are found, the fuel line must be replaced.

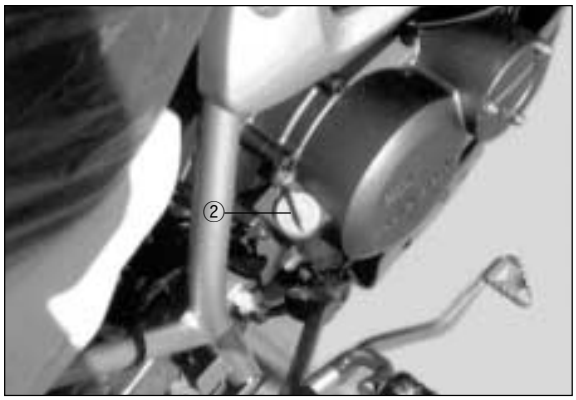
ENGINE OIL

NOTE:
Change Initial 1,000 km and Every 4,000 km.

The oil should be changed with the engine hot.
The procedure is as follows :

- Support the motorcycle by side stand.
- Drain the oil by removing the drain plug ① and filler cap ②.
- Fit drain plug securely and add fresh oil through the filler. The engine will be held about 950 ㎖ of oil.
  Use SAE 10W/40 viscosity of oil under API classification of SF or SG, SH.
- Start up the engine and allow it to run for several seconds at idling speed.
- Shut down the engine and wait about one minute. Then check the oil level in the oil level gauge. The motorcycle must be in a level. Upright position for accurate measurement. If the level is below the top limit mark, add oil until the level reaches the top limit mark.

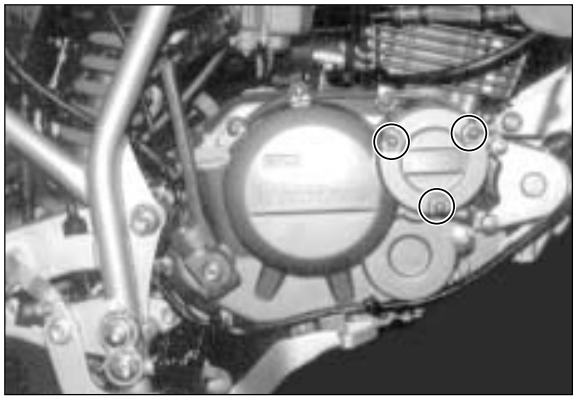




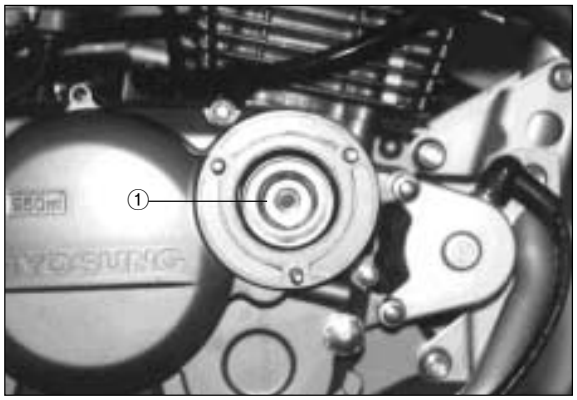
ENGINE OIL FILTER

NOTE:
Replace Initial 1,000 km and Every 4,000 km.

Replace the filter in the following manner.
- Drain engine oil by removing the drain plug.
- Remove the three screws securing the filter cap.
- Take off the cap, and pull out the filter ①,

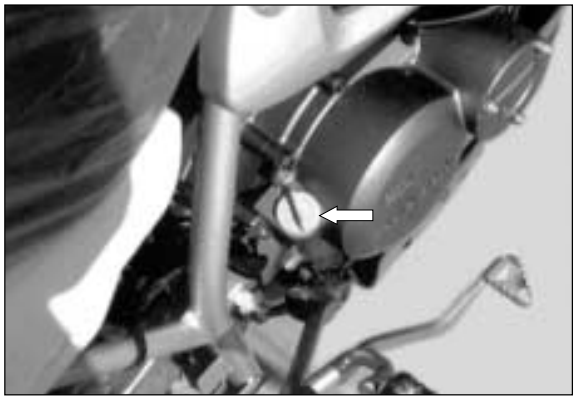


- Replace the filter with a new one.
- Before installing on the filter, check to be sure that the O-ring is properly installed.
- Before putting on the filter cap, check to be sure that the filter spring and the O-ring are installed correctly.
- Install the filter cap and tighten the screws securely.
- Pour in engine oil and check the level.



⚠ CAUTION

Pour about 950 mℓ of engine oil into the engine only when changing oil and about 1,050 mℓ of it when replacing oil filter.
When performing engine overhaul, the amount of oil to be replenished is 1,400 mℓ.



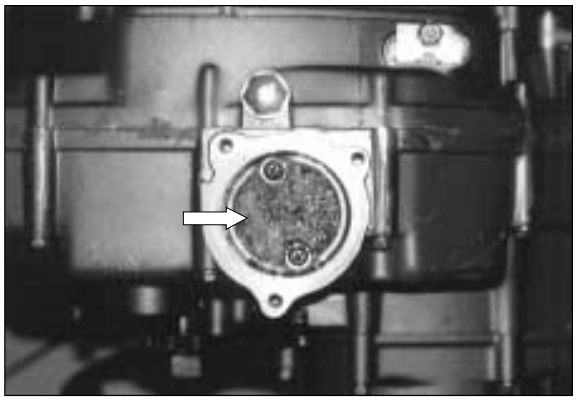
⚠ WARNING

When reassembling the oil filter, make sure to check the oil filter installed as shown in illustration. If the filter is installed improperly, serious engine damage may result.

OIL PRESSURE

NOTE:
Inspect Every 4,000 km.

(Refer to page 3-1.)



OIL SUMP FILTER

NOTE:
Clean Every 8,000 km.

Clean the sump filter screen to remove any foreign matter that may be collected there. Inspect the screen to insure that it is free of any sign of damage.

CARBURETOR

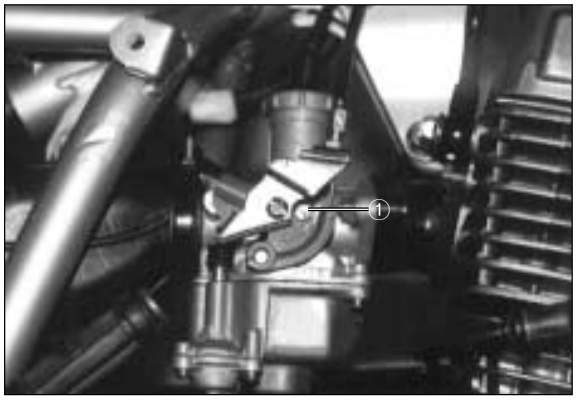
NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

IDLING ADJUSTMENT

NOTE:
Make this adjustment when the engine is hot.

- Start up the engine and set its speed at anywhere between 1,400 and 1,500 rpm by turning throttle stop screw ①.

Enginge idle speed	1,450±100 rpm

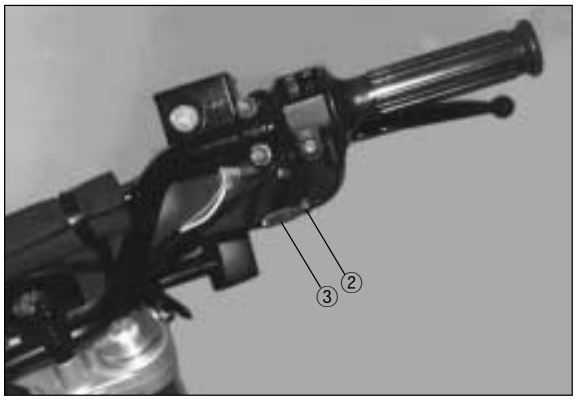


THROTTLE CABLE PLAY

There should be 0.5~1.0 mm play on the throttle cable. To adjust the throttle cable play.

- Tug on the throttle cable to check the amount of play.
- Loosen the lock nut ② and turn the adjuster ③ in or out until the specified play is obtained.
- Secure the lock nuts while holding the adjuster in place.

Throttle cable play	0.5~1.0 mm



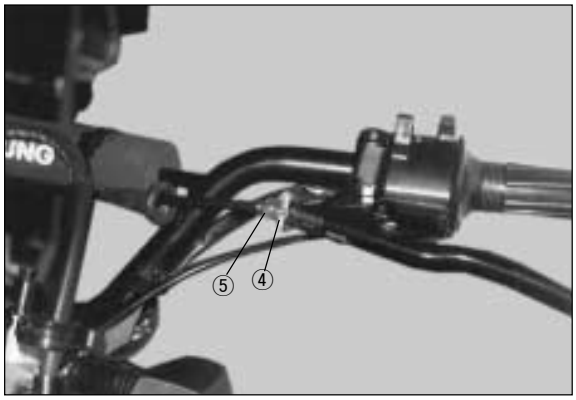
CLUTCH

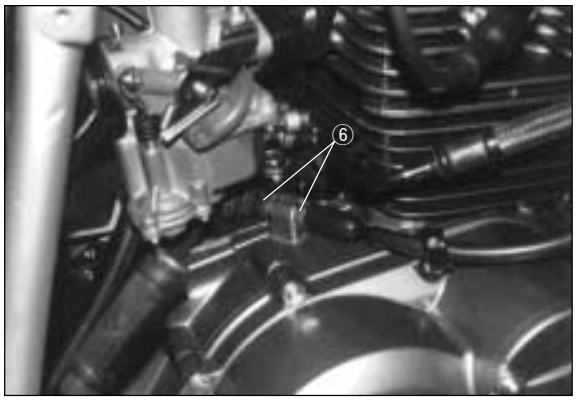
NOTE:
Inspect Initial 1,000 km and Every 4,000 km

Clutch play should be 4 mm as measured at the clutch lever holder before the clutch begins to disengage. If the play in the clutch is incorrect, adjust it in the following way :

- Loosen the lock nut ④ and screw the adjuster ⑤ on the clutch lever holder all the way in.
- Loosen clutch cable adjuster lock nut ⑥.
- Turn the clutch cable adjuster ⑤ in or out to acquire the specified play.
- Tighten lock nut while holding the adjuster in position.

The clutch cable should be lubricated with a light weight oil whenever it is adjusted.





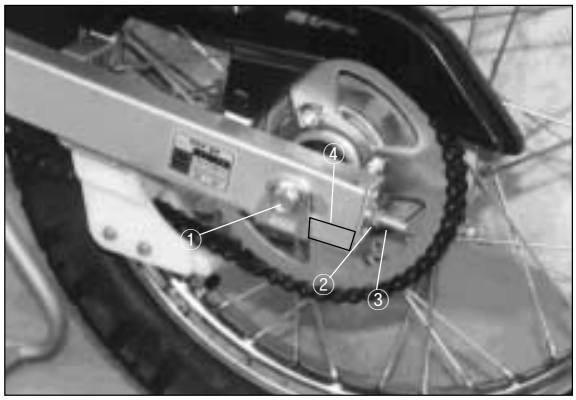
DRIVE CHAIN

NOTE:
Inspect and Clean Every 1,000 km.

Visually inspect the drive chain for the below listed possible abnormality. (Lift the rear wheel by placing the jack or block, and turn the rear wheel slowly by hand, with the transmission in NEUTRAL.)
Inspect for :
1. Loose pins
2. Damaged rollers
3. Rusted links
4. Twisted or seized links
5. Excessive wear

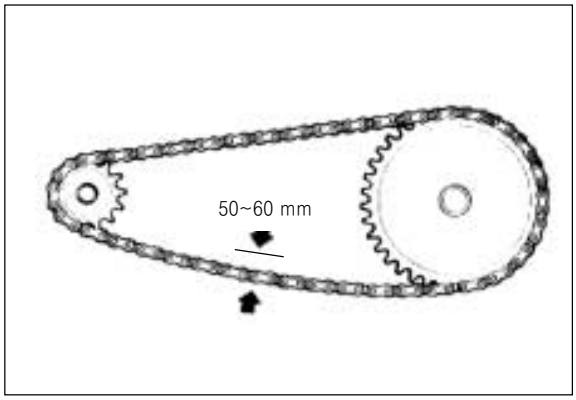
If any defects are found, the drive chain must be replaced.

- Wash the chain with kerosene. If the chain tends to rust faster, the interval must be shortened.
- After washing and drying the chain, lubricate it with chain lube or gear oil SAE # 90.
  Check the drive chain for wear and adjust the chain tension as follows.
- Loosen axle nut ① after pulling out cotter pin and loosen the lock nut ②.
- Adjust the drive chain carefully by tightening the adjuster ③.



CHAIN SAG

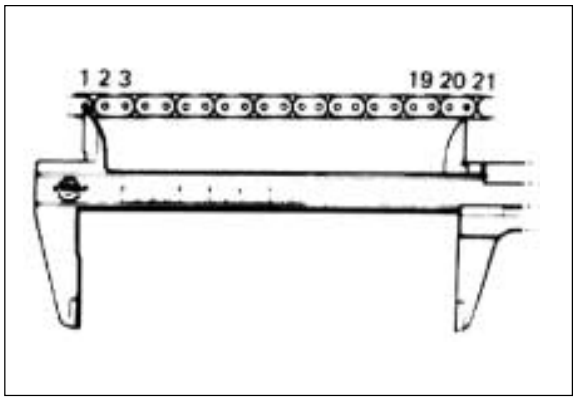
- Loosen the adjuster ③ until the chain 50~60 mm of sag at the middle between engine and rear sprockets.
  The mark ④ on both chain adjusters must be the same position on the scale to ensure that the front and rear wheels are correctly aligned.
- After adjusting the drive chain, tighten the axle nut ① securely and lock with cotter pin.
  Always use a new cotter pin.



CHAIN WEAR

- Count out 21 pins on the chain and measure the distance between 20-pitch. If the distance exceeds 259.4 mm, the chain must be replaced.

Drive chain 20-pitch length	Service Limit 259.4 mm



BRAKE

NOTE:
Inspect Initial 1,000 km and Every 4,000 km,.
Replace the hoses Every four years,.
Replace the brake fluid Every two years.

FRONT BRAKE

Brake fluid level

- Upright position of the motorcycle, and place the handlebars straight.
- Check the brake fluid level by observing the lower limit line on the brake fluid reservoir.
- When the level is below the lower limit line, replenish with brake fluid that meets the following specification.

Specification and Classification	DOT3, DOT4 or SAE J1703

HYOSUNG Brake fluid : 99000-07100

⚠ WARNING

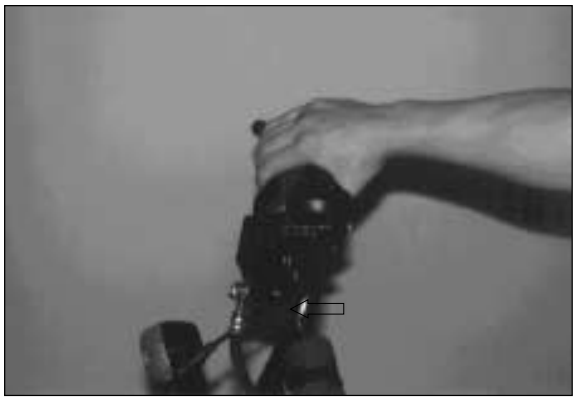
The brake system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will be caused. Do not use any brake fluid taken from old or used unsealed containers.
Never re-use the brake fluid left over from the last servicing and stored for long periods.

⚠ WARNING

Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces.
Check the brake hoses for cracks and hose joint for leakage before riding.

Brake pads

Wearing condition of brake pads can be checked by observing the red limit line marked on the pad. When the wear exceeds the limit line, replace the pads with new ones.



Brake light switch

Adjust the brake light switch with new one when brake light dose not come on just before a pressure is felt when the brake lever is squeezed.

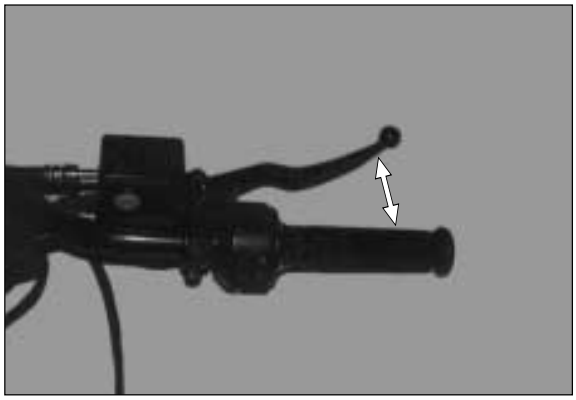
AIR BLEEDING THE BRAKE FLUID CIRCUIT

Air trapped in the fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the caliper brake. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force. Considering the danger to which such trapped air exposes the machine and rider, it is essential that, after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit should be purged of air in the following manner.

- Fill up the master cylinder reservoir to the "HIGH" level line. Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the caliper bleeder valve, and insert the free end of the pipe into a receptacle.

Bleeder valve : 6~9 N · m (0.6~0.9 kg · m)

- Squeeze and release the brake lever several times in rapid succession, and squeeze the lever fully without releasing it. Loosen the bleeder valve by turning quarter of it so that the brake fluid runs into the receptacle ;
  this will remove the tension of the brake lever causing it to touch the handlebar grip. Then, close the valve, pump and squeeze the lever, and open the valve. Repeat this process untill the fluid flowing into the receptacle no longer contains air bubbles.



⚠ CAUTION

Replenish the brake fluid reservoir as necessary while bleeding the brake system.
Make sure that there is always some fluid visible in the reservoir.

- Close the bleeder valve, and disconnect the pipe.
  Fill the reservoir to the "HIGH" level line.

⚠ WARNING

Handle the brake fluid with care : the fluid reacts chemically with paint, plastics, rubber materials, etc.

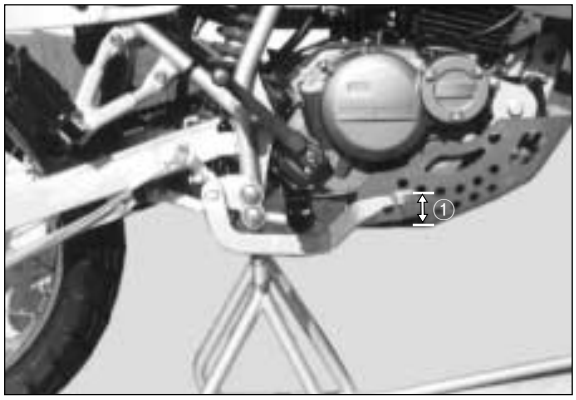
REAR BRAKE

This is effected by turning the brake pedal stopper. Be sure to tighten the lock nut securely after set-ting the bolt.

After adjusting the rear brake height, adjust the brake pedal traval, First set the pedal at position for comfortable riding by turning the brake pedal stopper, and then adjust the free travel ① to 10~20 mm.

If adjustment is necessary, trun the rear brake adjuster ② to obtain the specific play.

Brake pedal travel	10~20 mm

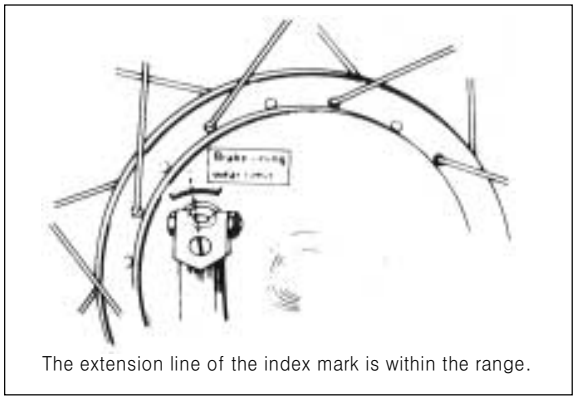


BRAKE LINING WEAR LIMIT

This motorcycle is equipped with brake lining wear limit indicators on both rear brakes. As shown in the illustration at right, at the condition of normal lining wear, an extended line from the index mark on the brake camshaft should be within the range embossed on the brake panel with the brake on.

To check wear of the brake lining, follow the steps below.

- First check if the brake system is properly adjusted.
- While operating the brake, check to see that the range on the brake panel.
- If the index mark is outside the range as shown in the illustration at right, the brake shoe assembly should be replaced to ensure safe operation.



The extension line of the index mark is within the range.

TIRES

NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

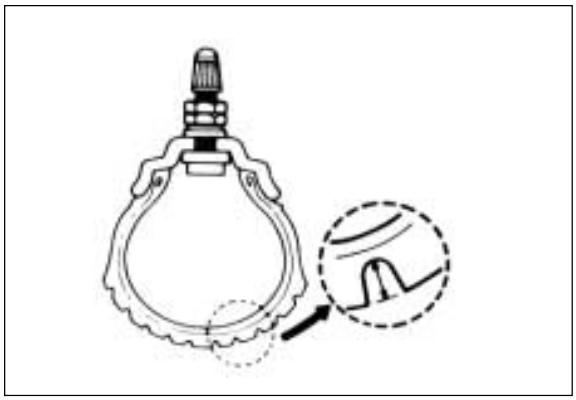
TREAD DEPTH SERVICE LIMIT

Front	1.6 mm
Rear	1.6 mm

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

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING			
	SOLO RIDING		DUAL RIDING	
	kpa	kg/㎠	kpa	kg/㎠
FRONT	172	1.75	172	1.75
REAR	197	2.00	221	2.25



STEERING

NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

Steering stem bearings should be adjusted properly for smooth turning of the handlebars and safe running.
steering which is too stiff prevents smooth move-ment of handlebars.
Steering which is too loose will cause vibration and damage to the steering bearings. Check to see that there is no play in the front fork attachment.

If the play is found, perform steering bearing adjustment as described in page 6-24 of this manual.

Tightening torque

Fork top cap bolt(①) : 30~40 N · m (3.4~4.0 kg · m)
Steering stem head bolt(②) : 80~100 N · m (8.0~10.0 kg · m)
Fork top clamp bolt(③) : 22~30 N · m (2.2~3.0 kg · m)
Front fork lower clamp bolt(④) : 20~30 N · m (2.0~3.0 kg · m)

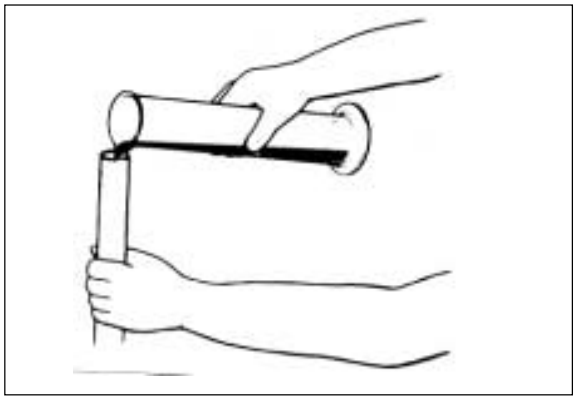
FRONT FORK OIL

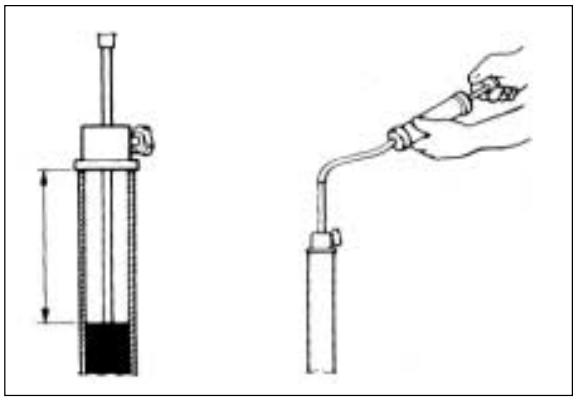
NOTE:
Change Initial 1,000 km and 8,000 km.

- Remove the front fork.
- Drain the fork oil.
- Pour specified amount of oil from the top of the inner tube.

Specified amount(for each leg)	443 cc±2.5 cc

Specification	SS8 Oil



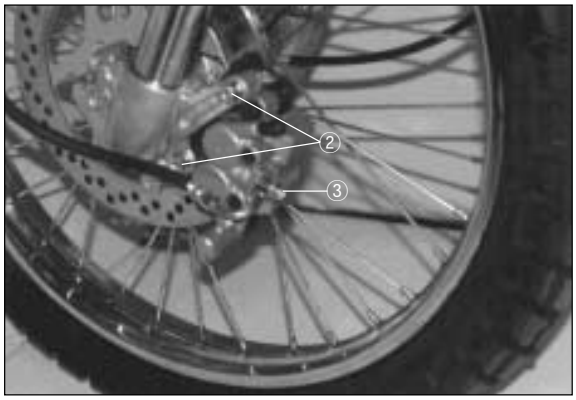


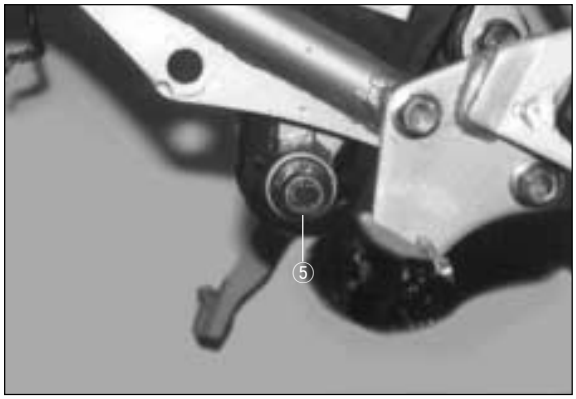
CHASSIS AND ENGINE MOUNTING BOLTS AND NUTS

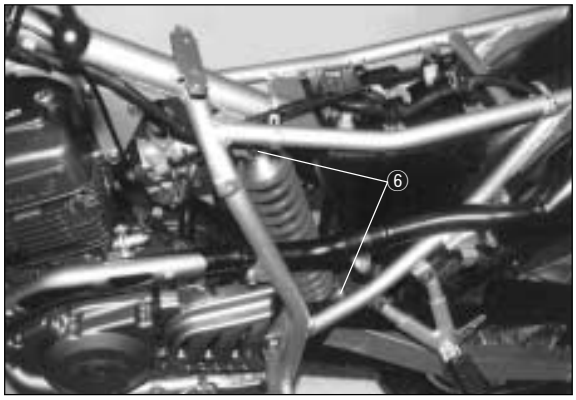
NOTE:
Inspect Initial 1,000 km and Every 4,000 km.

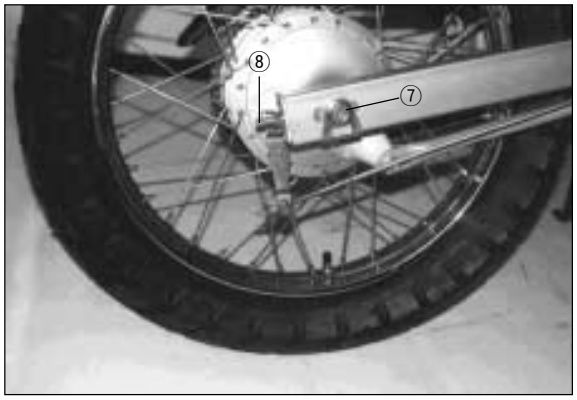
The nuts and bolts listed are important parts, and they must be in good condition for safety. They must be retightened, as necessary, to the specified torque with a torque wrench.

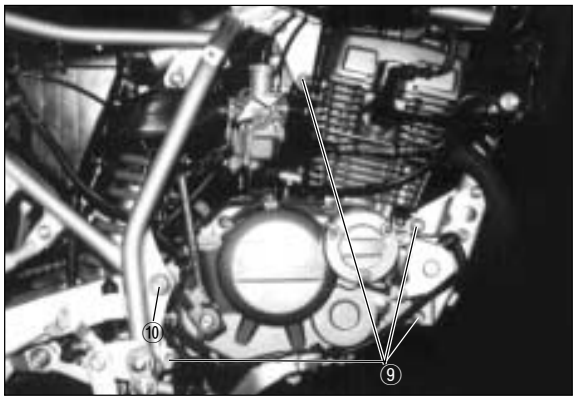
Front axle bolt(①) : 50~80 N · m (5.0~8.0 kg · m)
Caliper mounting bolt (②) : 18~28 N · m (1.8~2.8 kg · m)
Brake hose union bolt(③) : 20~25 N · m (2.0~2.5 kg · m)
Master cylinder bolt(④) : 5~8 N · m (0.5~0.8 kg · m)
Swing arm pivot nut(⑤) : 50~80 N · m (5.0~8.0 kg · m)
Rear shock absorber fitting nut(⑥) : 40~60 N · m (4.0~6.0 kg · m)
Rear axle nut(⑦) : 50~80 N · m (5.0~8.0 kg · m)
Rear brake cam lever bolt(⑧) : 8~12 N · m (0.8~1.2 kg · m)
Engine mounting bolt(⑨) : 22~33 N · m (2.2~3.3 kg · m)
Engine mounting bolt(⑩) : 48~72 N · m (4.8~7.2 kg · m)











ENGINE

CONTENTS

COMPRESSION PRESSURE AND OIL PRESSURE

COMEPRESSION PRESSURE

⚠ CAUTION

Before inspecting for compression pressure, make sure that the cylinder head nuts and bolts are tightened to specified torque values and valves are properly adjusted.
Have the engine warmed up by idling before testing it.

TOOL **Compression gauae : 09915-64510**

- Remove spark plug.
- Fit the compression gauge 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 starter motor or kick starter, and read the highest gauge indication as the compression of the cylinder.

Compression pressure

Compression pressure (Standard)	15.6 kg/㎠ (500 rpm)
Compression pressure (Limit)	8 kg/㎠

A low compression pressure may indicate any of the following malfunction :

- Excessively worn cylinder wall.
- Worn piston or piston rings.
- Piston rings stuck in the grooves.
- Poor sealing contact of valves.
- Defective cylinder head gasket

When the compression pressure noted is down to or below the limit indicated above, the engine must be disassembled, inspected and repaired as required to overhaul the engine, with these five abnormality in mind.

OIL PRESSURE

Install the oil pressure gauge in the position shown in the illustration.
Warm up the engine as follows.

- Summer approx. 10 min. at 2,000 rpm.
- Winter approx. 20 min. at 2,000 rpm.

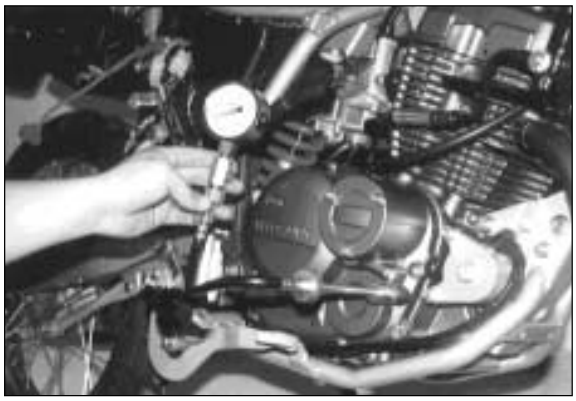
After the warming up operation, increase the engine speed to 3,000 rpm, and read the oil pressure gauge.

NOTE:
Engline oil must be warmed up to 60℃ (140°F) when checking the oil pressure.

Oil pressure

Oil pressure	0.4 ~ 0.6 kg/㎠ (at 60℃ · 3,000 rpm)

TOOL **Oil pressure gauge : 09915-74510**



It the oil pressure is lower or higher than the specifications, several causes may be considered.

- Low oil pressure is usually the result of a clogged oil damaged oil seal, a defective oil pump or a combination of these items, filter, oil leakage from the oil passage, (damaged oil seal, a defective oil pump or a combination of these items.)
- High oil pressure is usually caused by a engine oil which is too heavy a weight, a clogged oil passage, improper installation of the oil filter or a combination of these items.

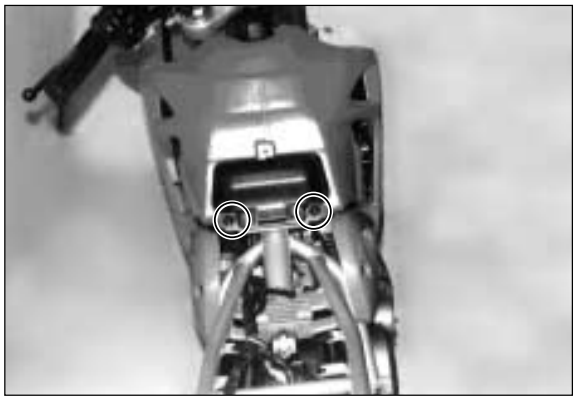
ENGINE REMOVAL AND REMOUNTING

ENGINE REMOVAL

Before taking the engine out of the frame, thoroughly clean the engine with a suitable cleaner. The procedure of engine removal is sequentially explained in the following steps.

● Take off the seat by loose two volts below seat.
● Take off the right and left frame cover.

● Take off the right and left fuel cover.

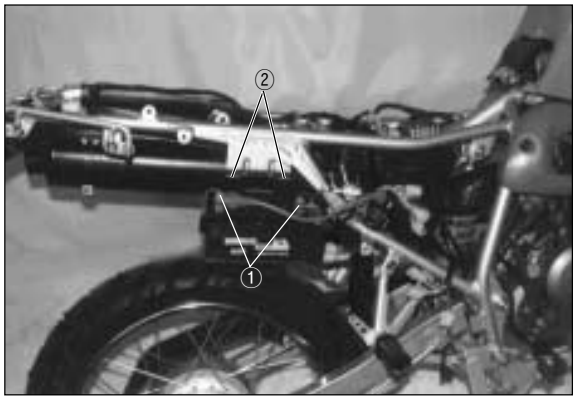


● Disconnect the ⊖ and ⊕ lead wires of battery ①.

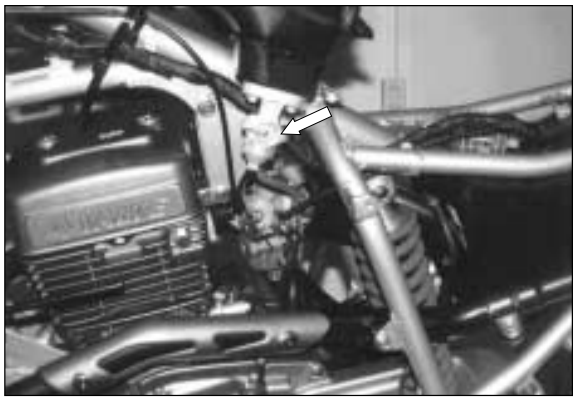
⚠ CAUTION

First, disconnect the ⊖ lead wire.

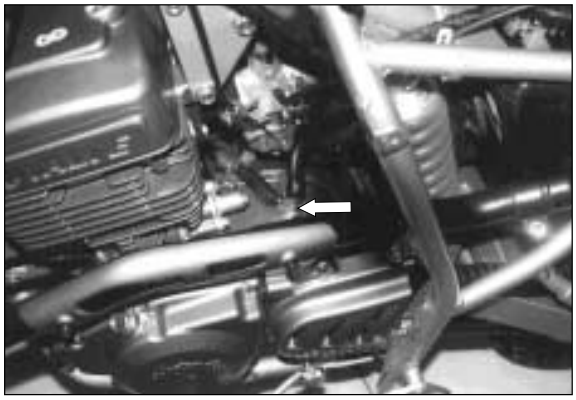
● Take off the fuel tank by removing the mounting bolts ②.

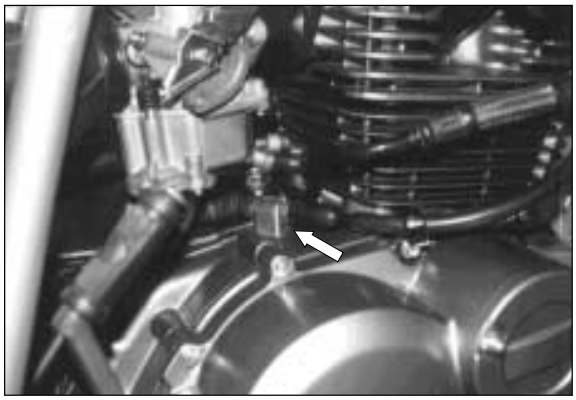


● Turn the fuel cock lever to the "OFF" position.
● Take off the fuel hose.
● Remove the fuel tank.

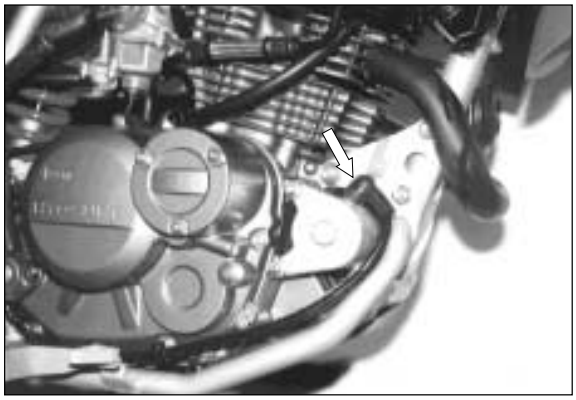


● Take off the clutch cable by removing the clutch lever bolts and adjuster lock nut.

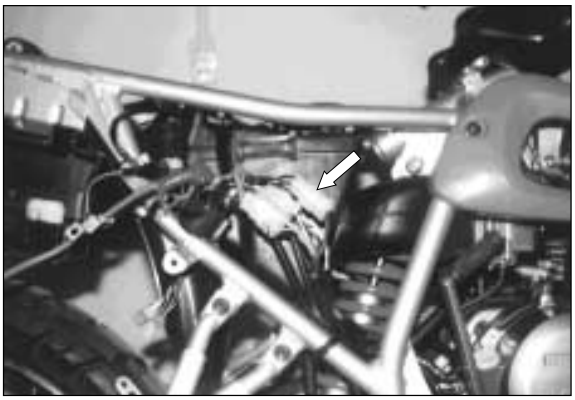


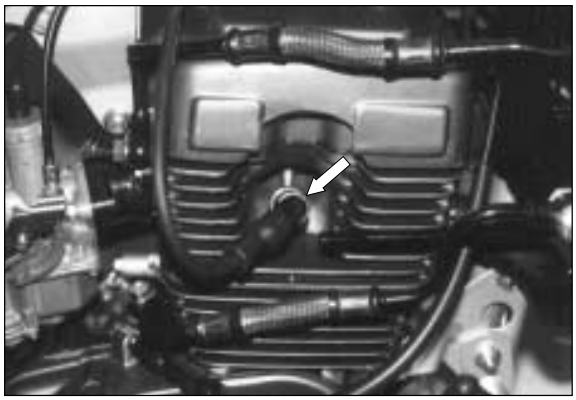


● Disconnect the lead wire of starter motor.

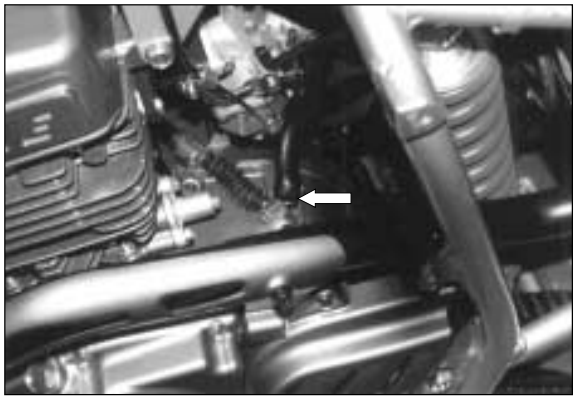


● Take off the magneto.
● Take off the spark plug cap.

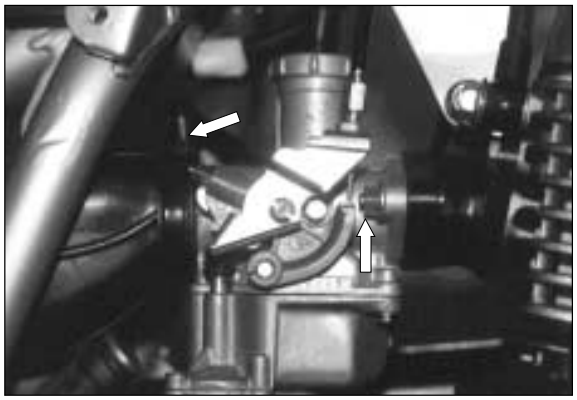




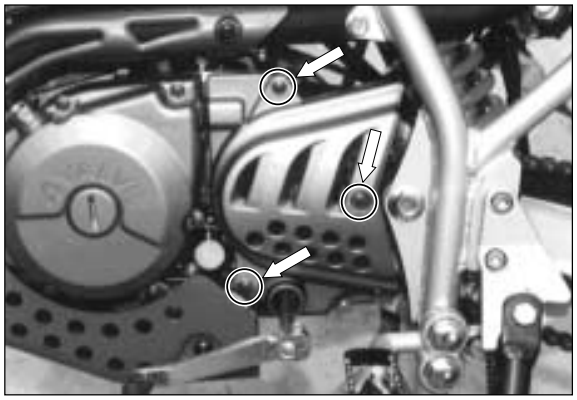
● Take off the breather hose.



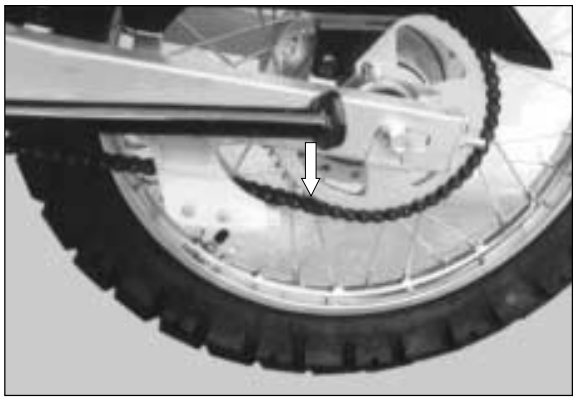
● Loosen the two clamp screws, bolt and take off the carburetor.



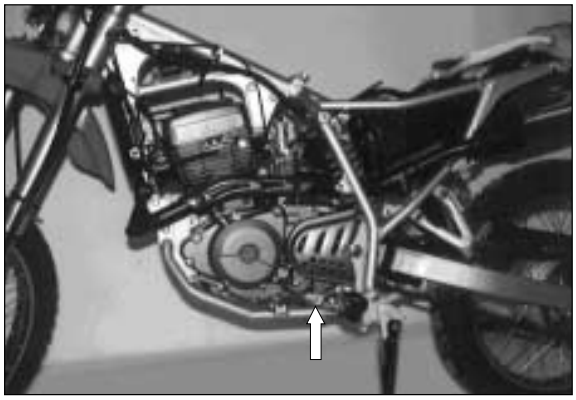
● Remove the engine sprocket cover.



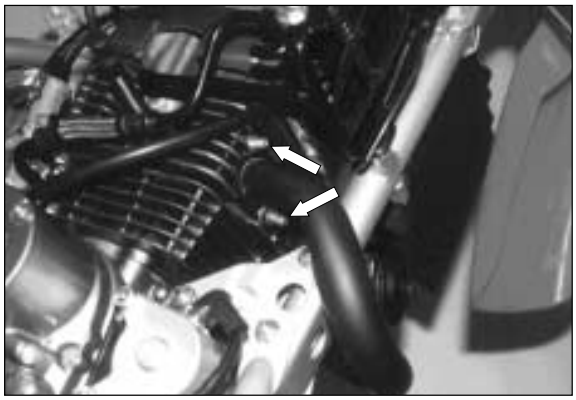
● Take off the drive chain by removing the clip.



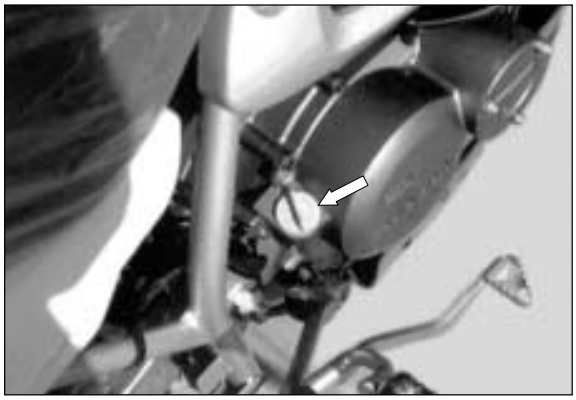
● Disconnect the ground wire from the crankcase.
● Take off the gear shift lever by removing the bolt.



● Remove the exhaust pipe nuts and muffler mounting bolt, then take off the muffler.



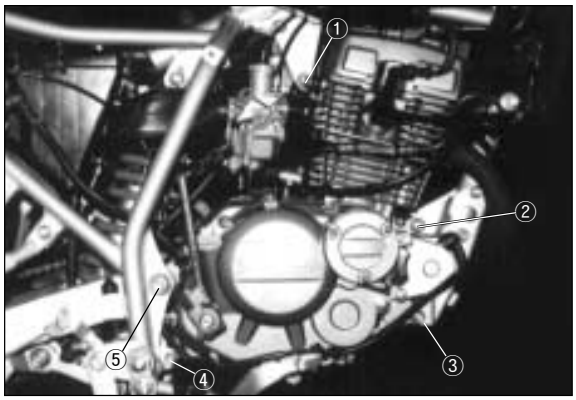
● Take out only one third of shaft after remove the swing arm pivot nut.
● Remove engine mounting bolts ①, ②, ③, ④, ⑤ after remove the swing arm pivot nut.
● Use both hands, and lift the engine from the frame.



NOTE:
The engine must be taken out from the right side.

⚠ CAUTION

Take out only one third from the left side to the right side swing arm pivot nut.



ENGINE REMOUNTING

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

● Temporarily fasten the engine mounting bracket before inserting the engine mounting bolts.

⚠ CAUTION

The engine mounting nuts are self-lock nuts. Once the nut has been removed, it is no longer of any use. Be sure to use new nuts and tighten them to the specified torque.

Engine mounting bolt (M : 17 mm) : 48~72 N · m (4.8~7.2 kg · m)
Engine mounting bolt (The others) : 22~33 N · m (2.2~3.3 kg · m)
Exhaust pipe nuts : 18~22 N · m (1.8~2.2 kg · m)
Muffler clamp bolts : 9~16 N · m (0.9~1.6 kg · m)

● Pour 1,400 ㎖ of engine oil SAE 10 W/40 graded SF or SG, SH into the engine after overhauling the engine.

● Start up the engine and allow it run for several seconds at idle speed. About one minute after stopping the engine, check the oil level.

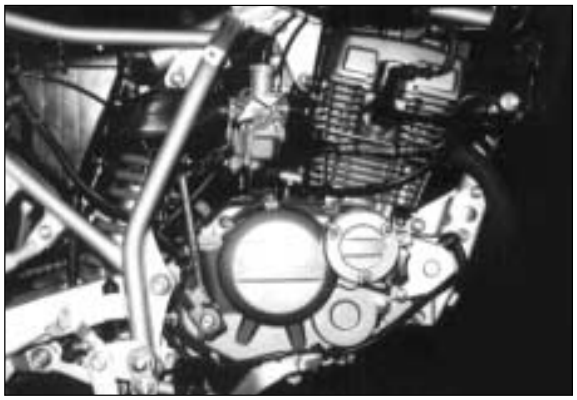
If the level is below the "top limit" mark, add the oil until the level reaches the "top limit" mark

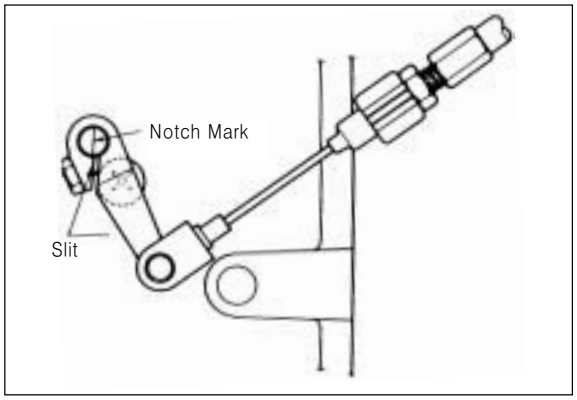
Installing position for clutch release arm

● Align the release arm slit surface with the notch mark on the release cam shaft.

● After remounting the engine, following adjustments are necessary.

❖ Throttle cable (Page : 2-9)
❖ Clutch cable (Page : 2-9)
❖ Drive chain (Page : 2-10)
❖ Rear brake pedal (Page : 2-13)
❖ Idling speed (Page : 2-9)





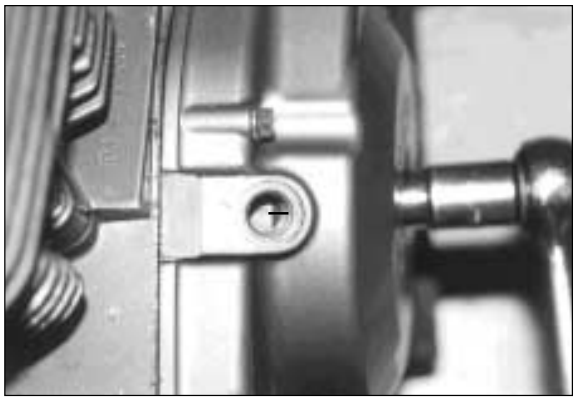
UPPER END COMPONENTS DISASSEMBLY

CYLINDER HEAD COVER-CAMSHAFT

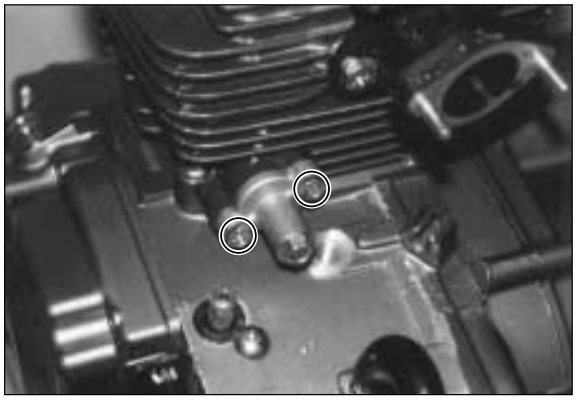
● Bring the piston to top dead center.

⚠ CAUTION

When removing the cylinder head cover, the piston must be at top dead center on compression stroke.

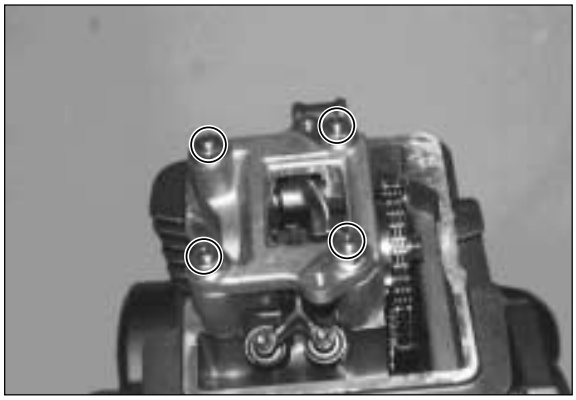


● Remove the cam chain tensioner.



● Loosen the cylinder head cover bolts and detach the head cover.

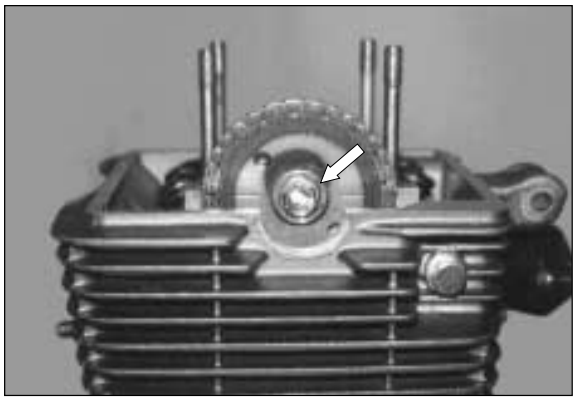
● Loosen the camshaft holder lock nuts diagonally, then detach the camshaft holder.



● Remove the camshaft center bolt.

⚠ CAUTION

This is a left-hand thread nut.



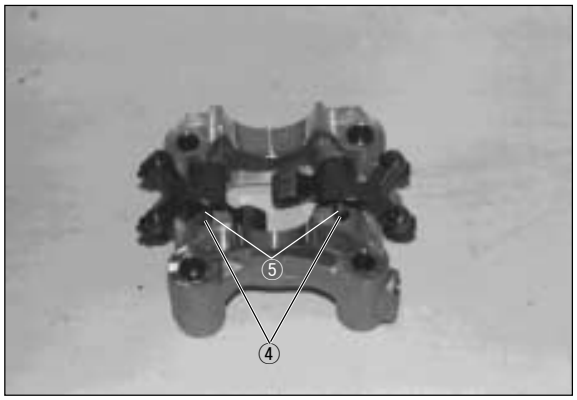
● Remove the camshaft ①, cam sprocket ② and C-ring ③

⚠ CAUTION

Do not drop the camshaft drive chain, key and sprocket into the crankcase.

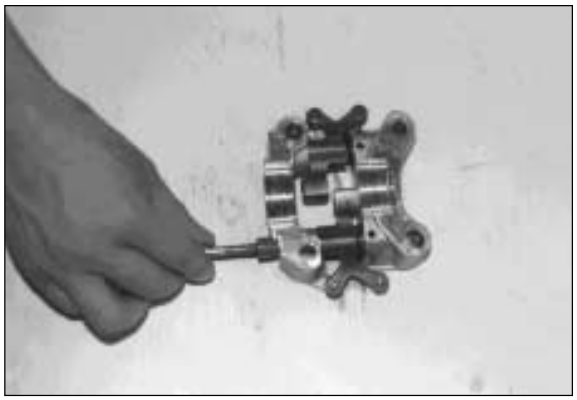
CAMSHAFT HOLDER

● Take off the rocker arm spring ⑤ from the dowel pin ④.



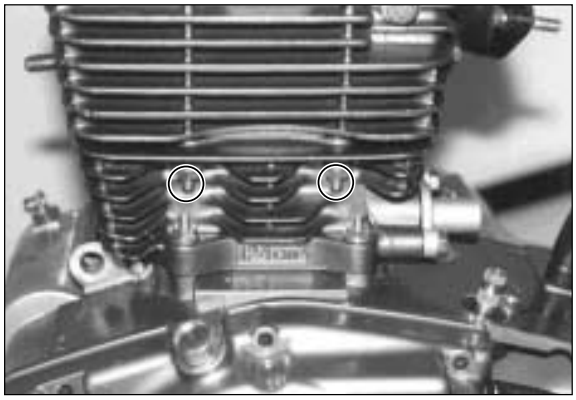
● Remove the dowel pin with the long-nose pliers.

● Install the bolt by the rocker arm shaft and pull out the rocker arm shaft.
● Remove the rocker arm and spring
● Remove the rocker arm shaft by the same manner at the opposite side.



CYLINDER HEAD

● Loosen the cylinder head nuts, then detach the cylinder head.

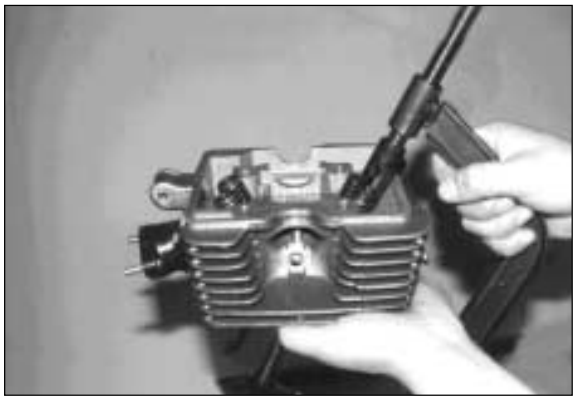


⚠ CAUTION

If it is difficult to remove the cylinder head, gently pry it off while tapping the finless portion of the cylinder head with a plastic hammer. Be careful not to break the fin.

● Compress the valve spring by using the special tool.

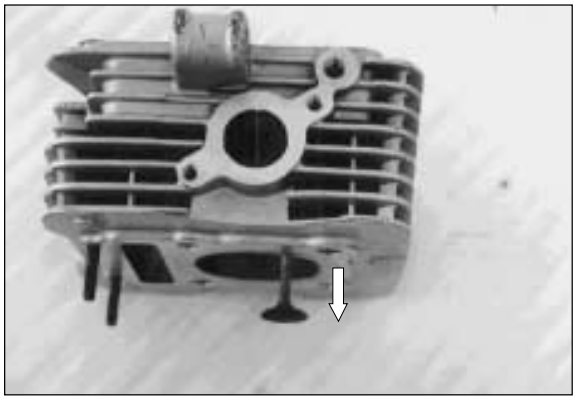
TOOL **Value spring compressor : 09916-14510**
Value spring compressor attachment : 09916-14910



● Take off the valve cotters from the valve stem.

TOOL **Tweezers : 09916-84511**

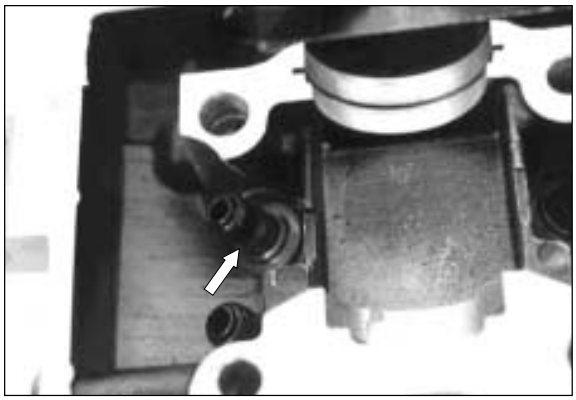
● Take out the valve spring retainer and spring.
● Pull out the valve from the other side.



⚠ CAUTION

Do not compress the valve spring more than necessity for prevent damage of the spring tension.

● Remove the oil seal, using the long-nose pliers.
● Take out the spring seat, valve guide.
● Decarbonate in the combustion chamber.

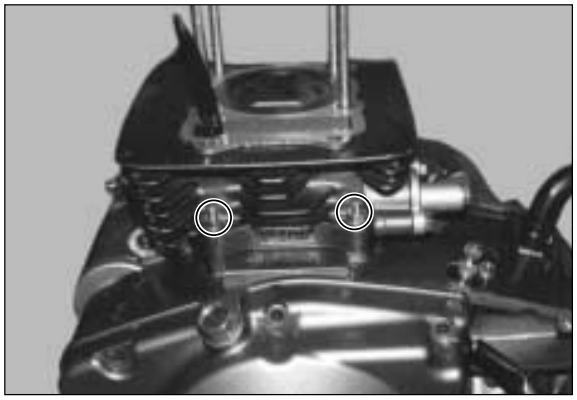


⚠ CAUTION

Removed parts should be marked for install at the original position.

CYLINDER

● Remove the cylinder base nuts and cylinder.

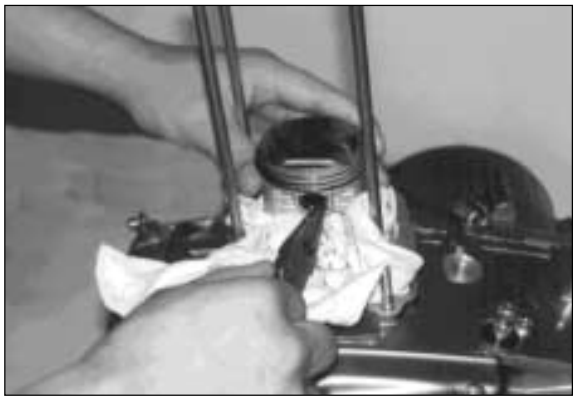


⚠ CAUTION

If tapping with the plastic hammer is necessary, do not break the fins.

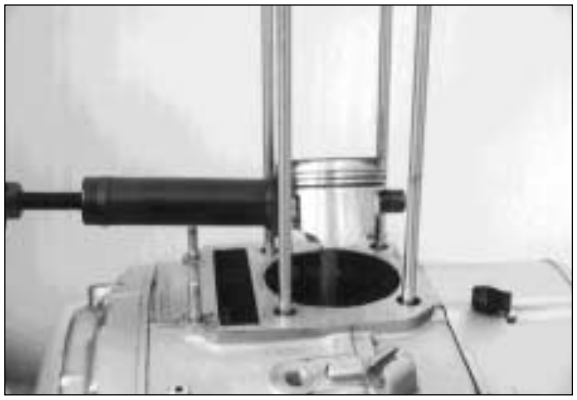
PISTON

● Place a clean rag over the cylinder base to prevent the piston pin circlip from dropping into the crankcase and then, remove the piston pin circlip with the long-nose pliers.

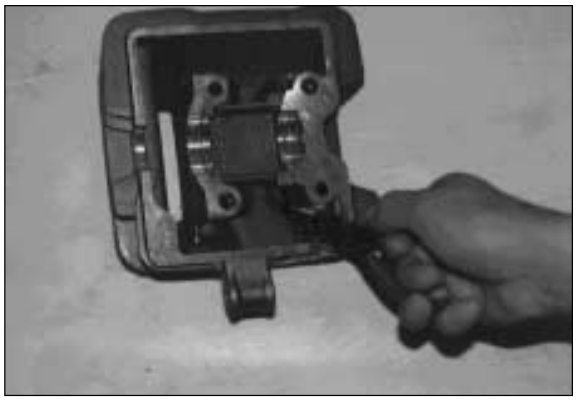


● Remove the piston pin.

TOOL **Piston pin puller : 09910-34510**



● Remove the knock pin with the long-nose pliers.



UPPER END COMPONENTS INSPECTION AND SERVICING

CAMSHAFT HOLDER DISTORTION

After removing the oil from the fitting surface of the camshaft holder, place the camshaft holder on a surface plate and check for distortion with a thickness gauge. Check points are shown in Fig.

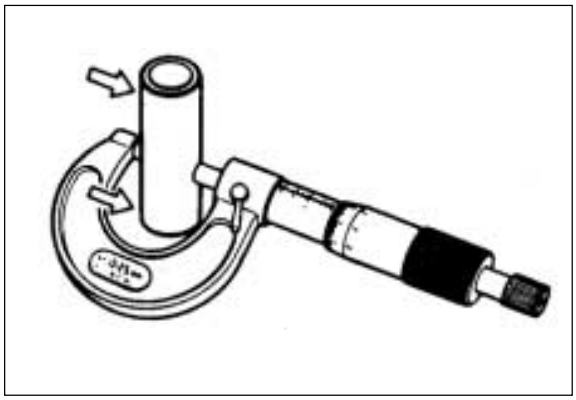
Camshaft holder distortion	Service limit 0.05 mm

● If the distortion exceeds the service limit, replace the camshaft holder.

ROCKER ARM SHAFT O.D.

Measure the diameter of rocker arm shaft.

Rocker arm shaft O.D.	Standard 11.977~11.995mm

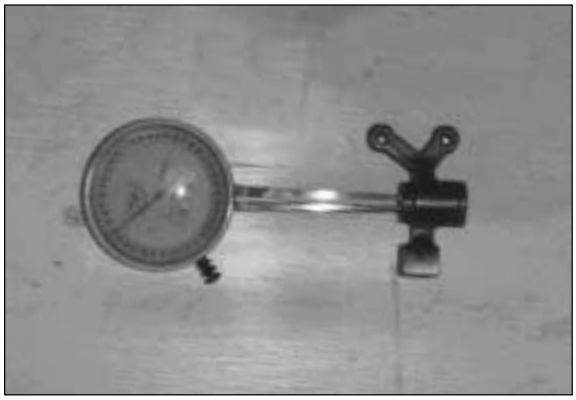


ROCKER ARM I.D.

When checking the valve rocker arm, the inside diameter of the valve rocker arm and wear of the camshaft contacting surface should be checked.

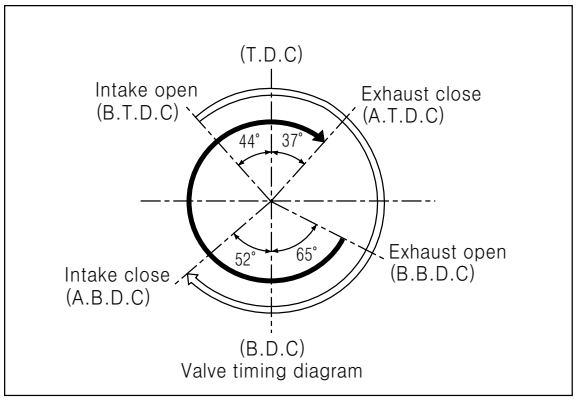
Rocker arm I.D.	Standard 12.000~12.018mm

TOOL **Dial caliper : 09900-20605**



CAMSHAFT

The camshaft should be checked for runout and also for wear of cams and journals if the engine has been noted to produce abnormal noise or vibration or a lack of output power. Any of these abnormality could be caused by a worn camshaft.



Valve timing diagram

CAMSHAFT CAM WEAR

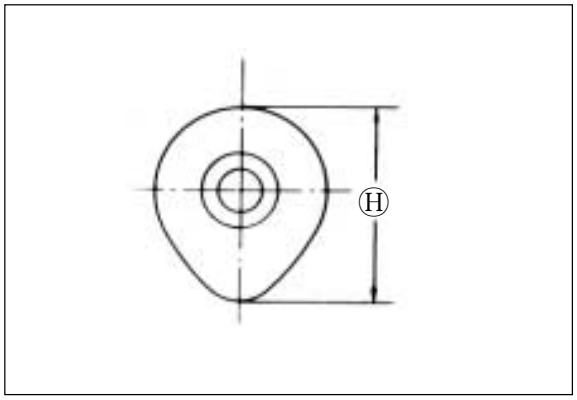
Worn-down cams are often the cause of mistimed valve operation resulting in reduced output power. The limit of cam wear is specified for both intake and exhaust cams in terms of cam height Ⓗ, which is to be measured with a micrometer. Replace camshafts if found it worn down to the limit.

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

Can height

Height Ⓗ	Service limit
Intake cam	34.18 mm
Exhaust cam	33.55 mm

Inspect the camshaft and the camshaft bearing wear, damage, or the oil hole is clogged.



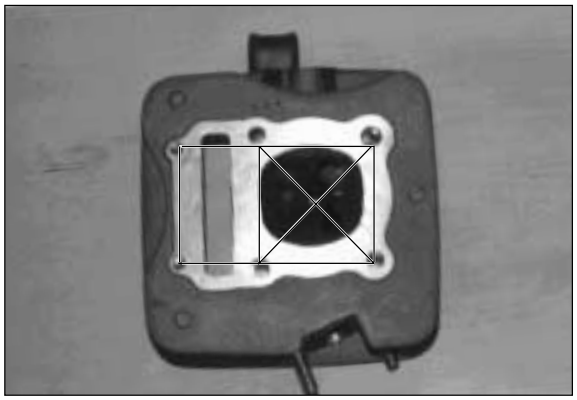
CYLINDER HEAD DISTORTION

Decarbonate in combustion chamber.

Check the gasketed surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places as indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder head.

TOOL **Thickness gauge : 09900-20806**

Cylinder head distortion	Service limit 0.05 mm



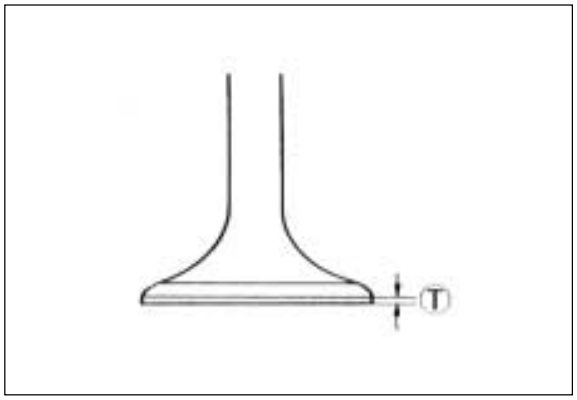
VALVE FACE WEAR

Measure the thickness Ⓣ and, if the thickness is found to have been reduced to the limit, replace the valve.

⚠ CAUTION

Visually inspect each valve for wear of its seating face. Replace any valve with an abnormally worn face.

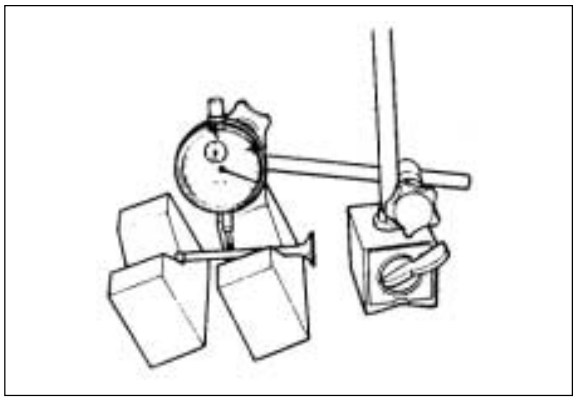
Valve face wear	Service limit 0.5 mm



VALVE STEM RUNOUT

Support the valve with "V" blocks, as shown, and check its runout with a dial gauge. The valve must be replaced if the runout exceeds the limit.

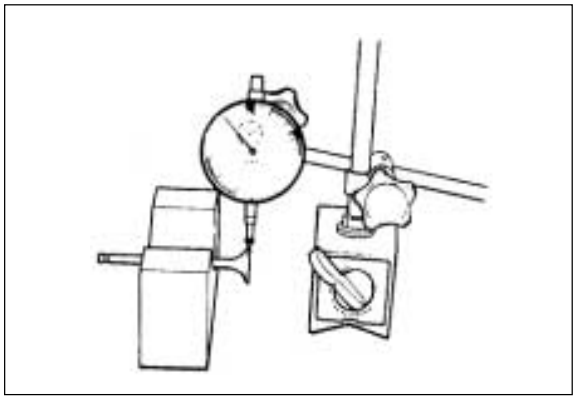
Valve stem runout	Service limit 0.05 mm



VALVE HEAD RADIAL RUNOUT

Place the dial gauge at right angles to the valve head, and measure the valve head radial runout.
If it measures more than limit, replace the valve.

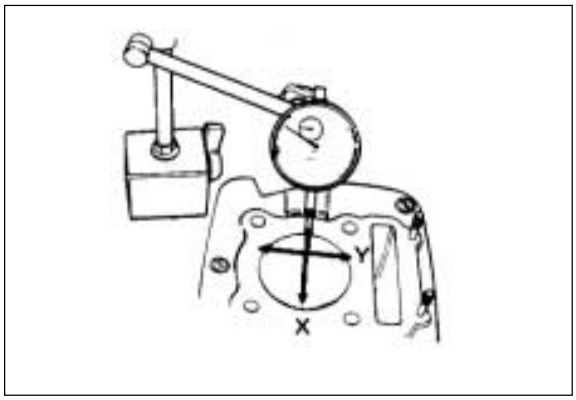
Valve head radial runout	Service limit 0.03 mm



VALVE GUIDE-VALVE STEM CLEARANCE

Measure the clearance in two directions, "X" and "Y", perpendicular to each other, by rigging up the dial gauge as shown. If the clearance measured exceeds the limit specified below, then determine whether the valve or the guide should be replaced to reduce the clearance to within the standard range:

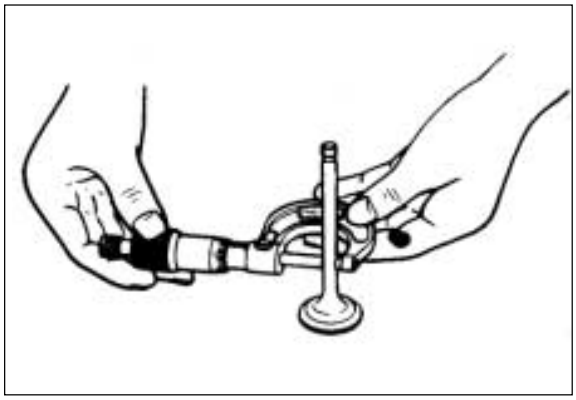
valve	Standard	Service limit
IN	0.010~0.037 mm	0.35 mm
EX	0.030~0.057 mm	0.35 mm



VALVE STEM WEAR

If the valve stem is worn down to the limit, when measured with a micrometer, and the clearance is found to be in excess of the limit previously indicated, replace the valve, if the stem is within the limit, then replace the valve guide. After replacing valve or guide, be sure to recheck the clearance.

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



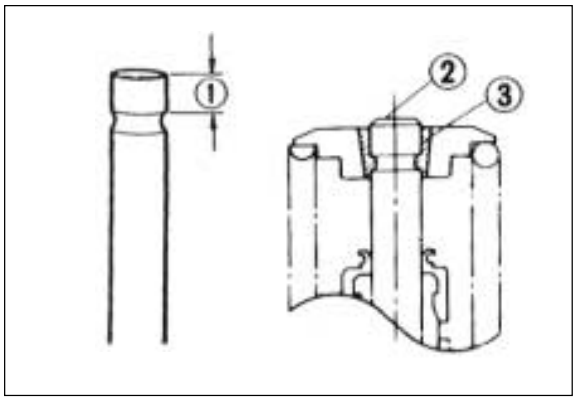
VALVE STEM O.D.

● Check face into end of valve stem and wear.

valve	Standard
IN	4.975~4.990 mm
EX	4.955~4.970 mm

⚠ CAUTION

Inspect the valve stem end face for pitting and wear. If pitting or wear of the stem end face are present, the valve stem end may be resurfaced, providing that the length ① will not be reduced to less than 3.38 mm. If this length becomes less than 3.38 mm, the valve must be replaced. After installing a valve whose stem end has been ground off as above, check to ensure that the face ② of the valve stem end is above the cotters ③.

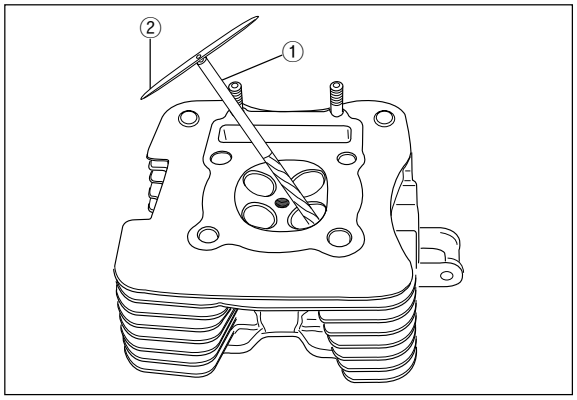


VALVE GUIDE INSTALLATION

● Re−finish the vave guide holes in cylinder head with a 10.5 mm reamer ① and handle ②.

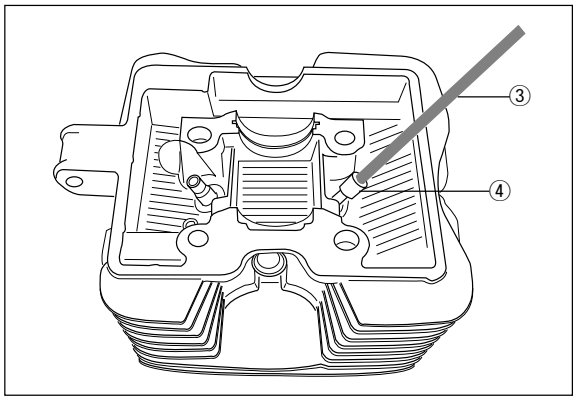
TOOL **10.5 mm Reamer : 09916H34575**
Handle : 09916-34541

● Fit a ring to each valve guide. Be sure to use new rings and valve guides. Use of rings and valve guides removed in disassembly must be discarded.



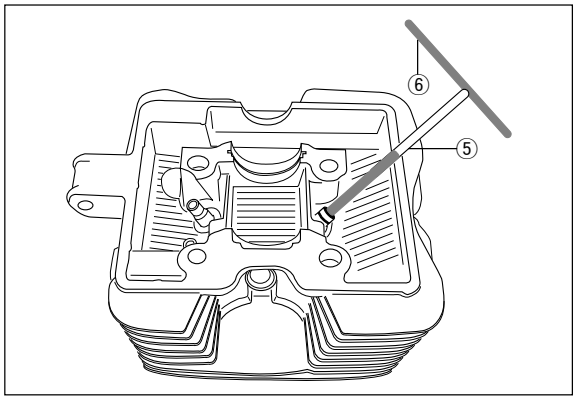
● Lubricate each valve guide and drive the guide into the guide hole using the valve guide installer handle ③ and valve guide installer attachment ④.

TOOL **Valve guide installer and remover : 0916-44910**
Valve guide installer attachment : 09916-44920

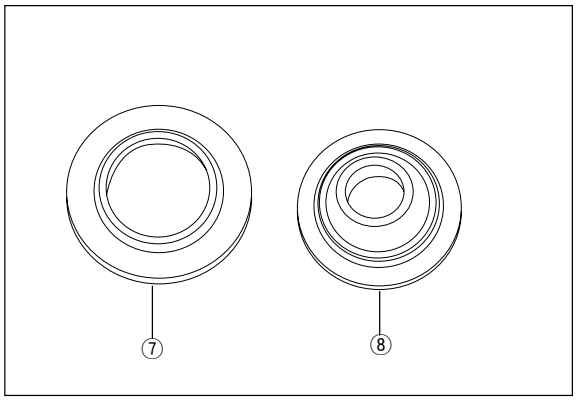


● After fitting all valve guides, re−finish their guiding bores will a 5.0 mm reamer ⑤ and handle ⑥. Be sure to clean and oil the guides after reaming.

TOOL **5.0 mm Reamer : 09916-34571**
Reamer handle : 09916-34541



● Install valve spring lower seat ⑦. Be careful not to confuse the lower seat with the spring retainer ⑧.

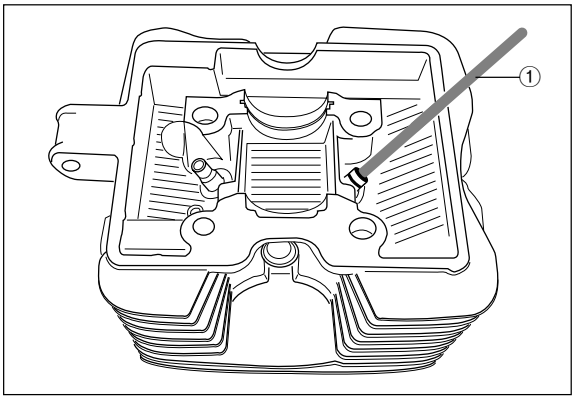


● Lubricate each seal, and drive them into position with the valve stem seal installer ①.

⚠ CAUTION

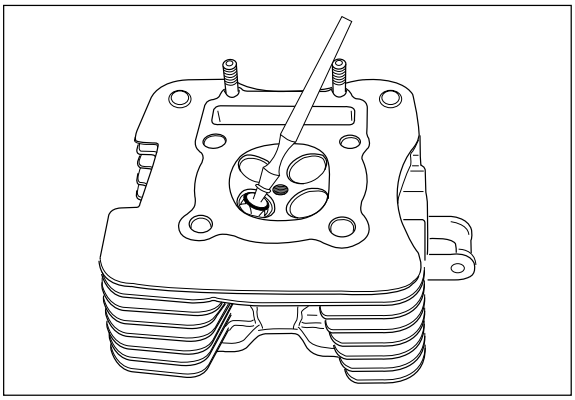
Do not reuse the oil seals.

TOOL **Valve guide installer and stem seal installer : 09916-44910**



VALVE SEAT WIDTH

● Coat the valve seat with prussian blue uniformly. Fit the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating cotact. In this operation, use the valve lapper to hold the valve head.

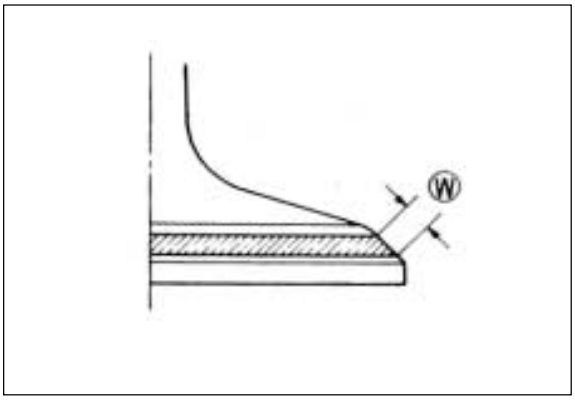


● The ring-like dye impression left on the valve face must be continuous-without any break. In addition, the width of the dye ring, which is the visualized seat "width", must be within the specification.

Valve seat width

Valve seat width	Standard 0.9~1.1mm

If either requirement is not met, correct the seat by servicing it as follows.



VALVE SEAT SERVICING

The valve seats for both intake and exhaust valves are angled to present two bevels, 15° and 45°.

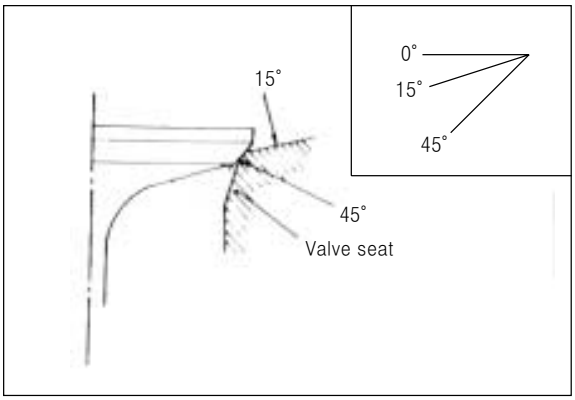
TOOL **Valve seat cutter set : 09916-21110**

Use only for 15° of intake side

TOOL **15°×75°Valve seat cutter : 09916-24910**
Solid pilot (N-140-5.5) : 09916-24480

⚠ CAUTION

The valve seat contact area must be inspected after each cut.



1. Insert with a slight rotation, the solid pilot that gives a snug fit. The shoulder on the pilot should be about 10㎜ from the valve guide.
2. Using the 45° cutter, descale and cleanup the seat with one or two turns.
3. Inspect the seat by the previous seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.

⚠ CAUTION

Cut the minimum amount necessary from the seat to prevent the possibility of the valve stem becoming too close to the rocker arm for correct valve contact angle.

If the contact area is too low or too narrow, use the 45° cutter to raise and widen the contact area. If the contact area is too high or too wide, use the 15° cutter to lower and narrow the contact area.

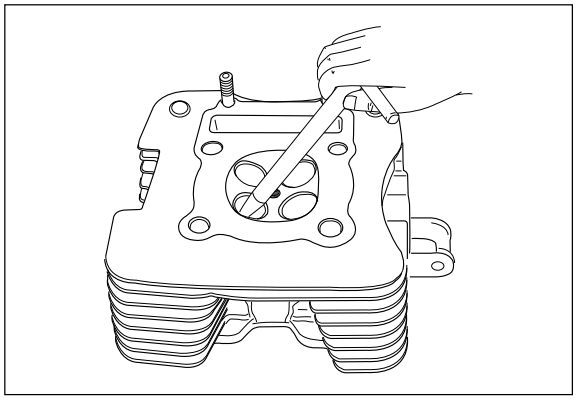
4. After the desired seat position and width is achieved, use be 45° cutter very lightly to clean up any burrs caused by the previous cutting operations. DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few sec onds of engine operation.
5. Clean and assemble the head and valve com-ponents. Fill the intake and exhaust ports with gasoline to check for leaks. If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.

⚠ WARNING

Always use extreme caution when handling gasoline.

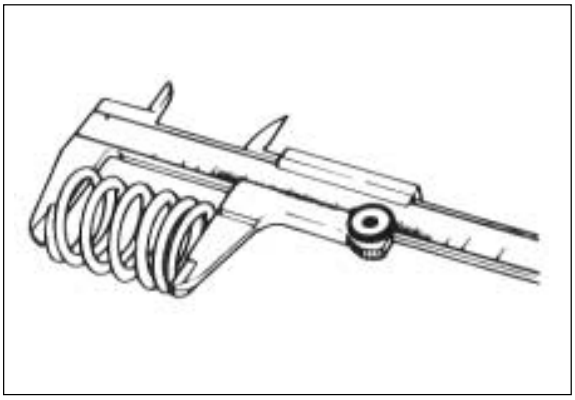
⚠ CAUTION

Be sure to adjust the valve clearance after reassembling the engine.



VALVE SPRINGS

Check the springs for strength by measuring their free lengths and also the force required to compress them. If the limit indicated below is exceeded by the free length reading or if the measured force does not fall within the range specified, replace with a HYOSUNG spring as a set.



Valve spring free length

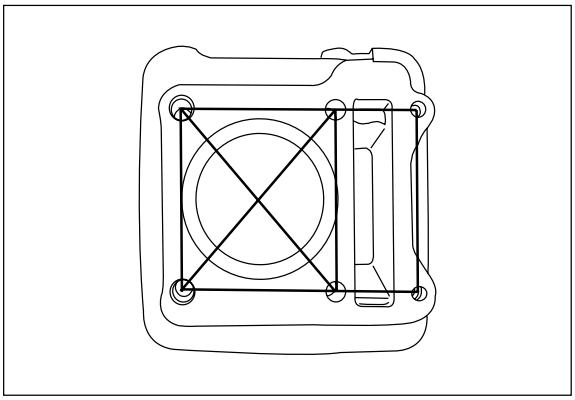
Valve spring free length IN. & EX.	Service limit
	41.65 mm

Valve spring tension(Assembly condition)

Valve spring tension IN. & EX.	Standard
	13.6~16.6 kg / 36.6 mm

CYLINDER DISTORTION

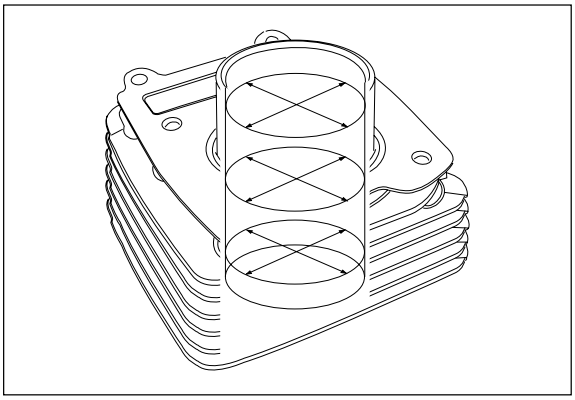
Check the gasketed surface of the cylinder for distortion with a straightedge and thickness gauge, taking a clearance reading at several places as indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder.



Cylinder distortion	Service limit 0.05 mm

CYLINDER BORE

Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize, or replace the cylinder.

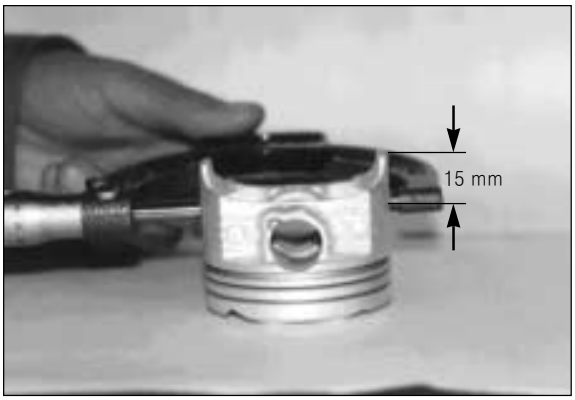


TOOL **Cylinder gauge set : 09900-20508**

Cylinder bore diameter	Service limit 57.080 mm

PISTON DIAMETER

Using a micrometer, measure the piston outside diameter at the place 15 mm from the skirt end as shown in Fig. If the measurement is less than the limit, replace the piston.



TOOL **Micrometer (50~75 mm) : 09900-20203**

Piston diameter	Service limit 56.880 mm
Piston oversize	0.5, 1.0 mm

⚠ CAUTION

Using a soft-metal scraper, decarbon the crown of the piston. Clean the ring grooves similarly.

PISTON-CYLINDER CLEARANCE

As a result of the above measurement, if the piston to cylinder clearance exceeds the limit shown in the table below, overhaul the cylinder and use an over-size piston, or replace both cylinder and piston.

Piston cylinder clearance	Service limit 0.120 mm

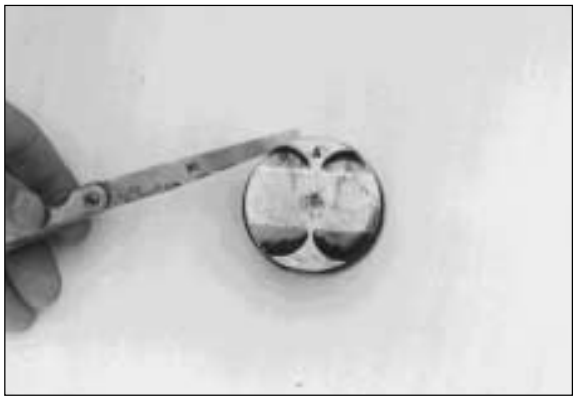
PISTON RING-GROOVE CLEARANCE

Using a thickness gauge, measure the side clearance of the 1st and 2nd rings. If any of the clearances exceeds the limit, replace both piston and piston rings.

TOOL **Thickness gauge : 09900-20803**

Piston ring-groove clearance	Service limit
1st	0.180 mm
2nd	0.150 mm

Piston ring-groove width	Standard
1st	1.01~1.03 mm
2nd	1.01~1.03 mm
Oil	2.01~2.03 mm



PISTON RING FREE END GAP AND PISTON RING END GAP

Before installing piston rings, measure the free end gap of each ring using vernier calipers.
Next, fit the ring in the cylinder, and measure each ring end gap using a thickness gauge.
If any ring has an excess end gap, replace the ring.

Piston ring free end gap(Free condition)

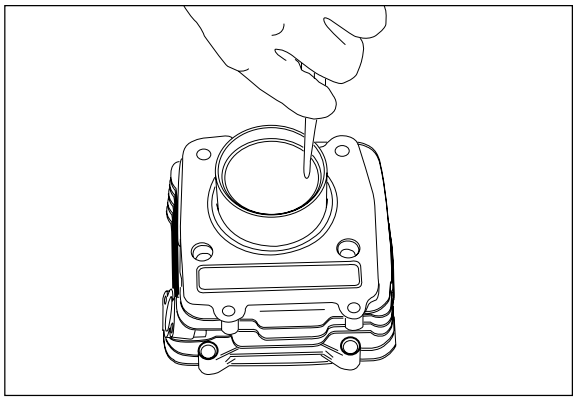
R : (RIKEN)

Piston ring free end gap		Service limit
1st	R	5.7 mm
2nd	RN	4.6 mm

TOOL **Vernier calipers : 09900-20101**

Piston ring free end gap(Assembly condition)

Piston ring free end gap	Service limit
1st and 2nd	0.50 mm

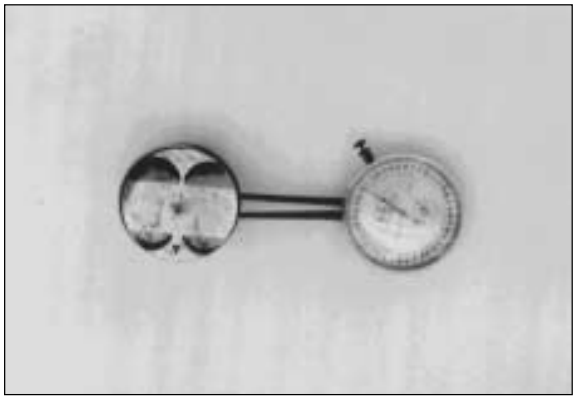


TOOL **Thickness gauge : 09900-20803**

Piston ring thickness

Piston ring thickness	Standard
1st	0.970~0.990 mm
2nd	0.970~0.990 mm

OVERSIZE RINGS



● Oversize piston rings

The following two types of oversize piston rings are used. They bear the following identification numbers.

Oversize piston ring	1st	2nd
0.5 mm	50	50
1.0 mm	100	100

● Oversize oil rings

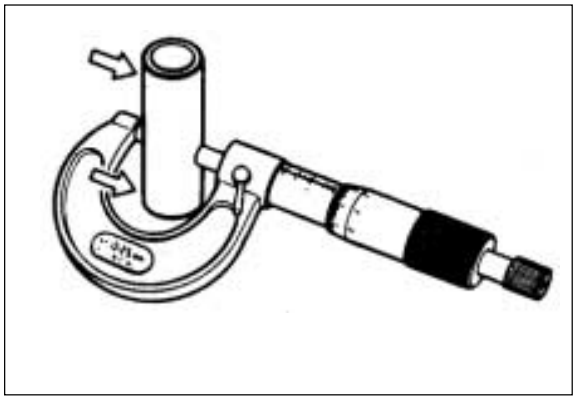
The following two types of oversize oil ring are used. They bear the following identification marks.

Oversize oil ring	Color classification
0.5 mm	Painted red
1.0 mm	Painted yellow

● Oversize side rail

Just measure outside diameter to identify the side rail as there is no mark or numbers on it.

PISTON PIN-PIN BORE



Using a caliper gauge, measure the piston pin bore inside diameter, and using a micrometer measure the piston pin outside diameter. If the difference between these two measurements is more than the limits, replace both piston and piston pin.

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

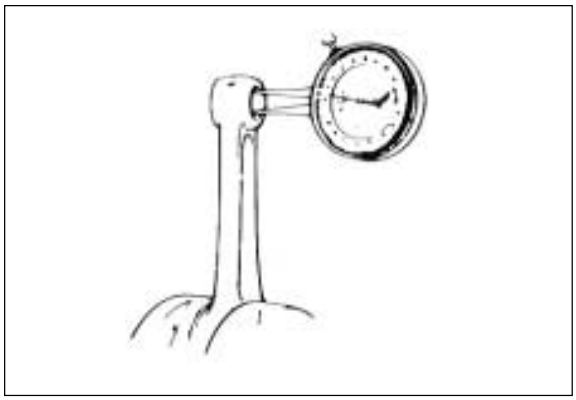
Piston pin bore

Piston pin bore	Service limit 15.030 mm

Piston pin O.D.

Piston pin O.D.	Service limit 14.980 mm

CONROD SMALL END I.D.



Using a caliper gauge, measure the conrod small end inside diameter.

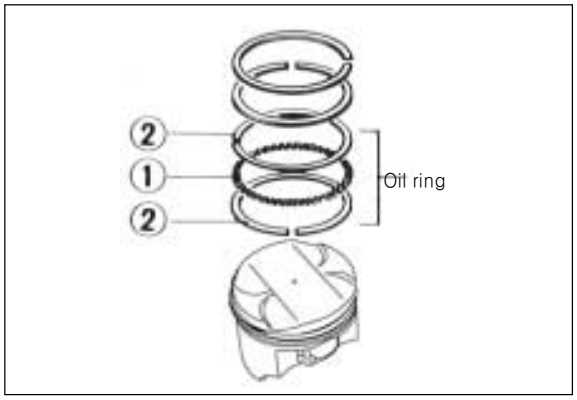
Conrod small end I.D.	Service limit 15.040 mm

● If the conrod small end bore inside diameter exceeds the limit, replace conrod.

UPPER END COMPONENTS REASSEMBLY

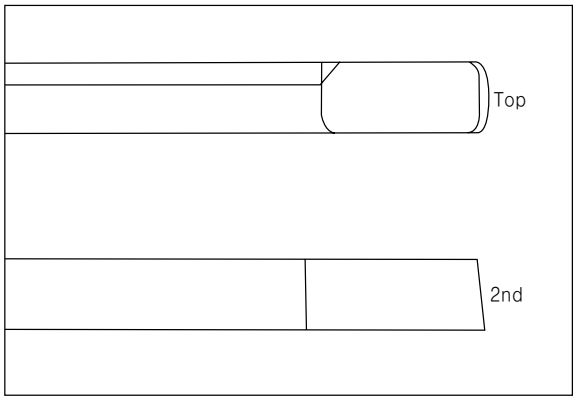
OIL RING

Install spacer ① into the bottom ring groove first. Then install both side rails ②, one on each side of the spacer. The spacer and side rails do not have a specific top or bottom when they are new. When reassembling used parts, install them in their original place and direction.

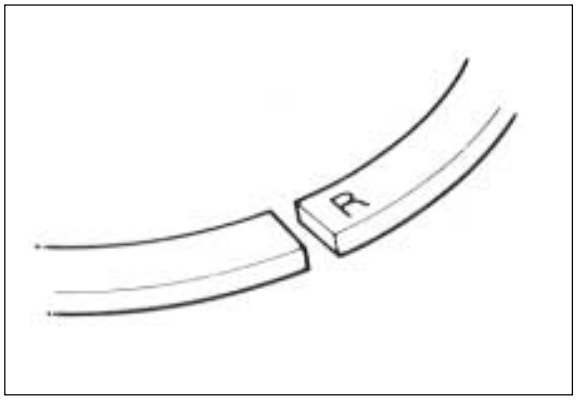


TOP RING AND 2ND RING

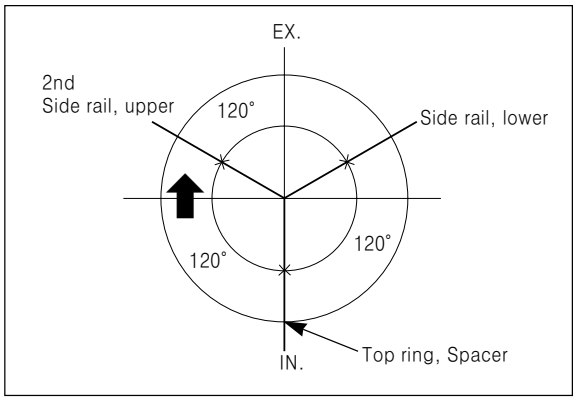
Top ring and 2nd ring differ in the shape of ring face and the face of top ring is chrome-plated whereas that of 2nd ring is not. The color of 2nd ring appears darker than that of the top one.



Install expander ring into the 2nd ring groove. Top and 2nd rings have the letter "R" or "Y" marked on the top. Be sure to bring the marked side to the top when fitting them to the piston.



Position the gaps of the three rings as shown. Before inserting piston into the cylinder, check that the gaps are so located.



PISTON

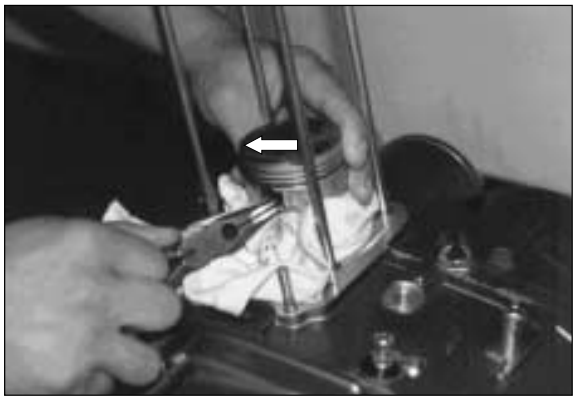
The following are reminders for piston installation:

- Rub a small quantity of HYOSUNG MOLY PASTE onto the piston pin.
- Place a clean rag over the cylinder base to prevent piston pin circlip from dropping into crankcase, and then fit the piston pin circlip with long-nose pliers.

⚠ CAUTION

Use a new piston pin circlip to prevent circlip failure which will occur with a bent one.

- When fitting the piston, turn arrow mark on the piston head to exhaust side.



CYLINDER

Before mounting the cylinder, oil the big end and small end of the conrod and also the sliding surface of the piston.

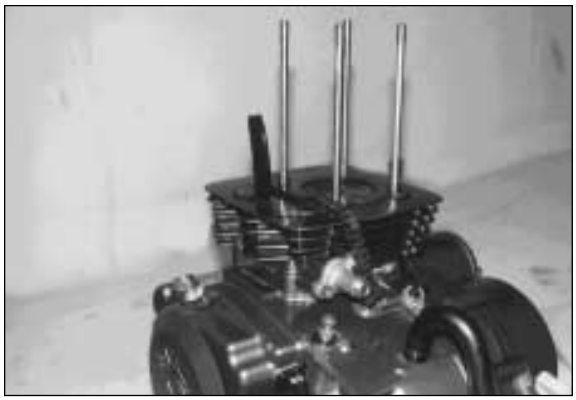
- Fit dowel pins ① to crankcase and then fit gasket.

⚠ CAUTION

To prevent oil leakage, do not use the old gasket again, always use new one.

- Hold each piston ring with the piston rings properly spaced and insert them into the cylinder.

  Check to insure that the piston rings are properly inserted into the cylinder skirt.



⚠ CAUTION

When mounting the cylinder, after attaching camshaft drive chain, keep the camshaft drive chain taut. The camshaft drive chain must not be caught between cam drive chain sprocket and crankcase when crankshaft is rotated.

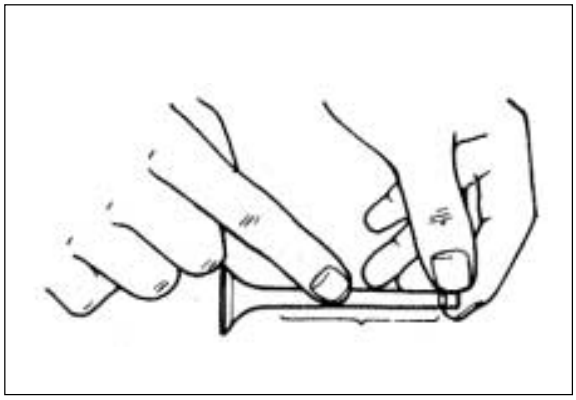
⚠ CAUTION

There is a holder for the bottom end of the cam chain guide cast in the crankcase. Be sure that the guide is inserted properly or binding of the cam chain and guide may result.

VALVE AND SPRING

● Insert the valves, with their stems coated with (HYOSUNG MOLY PASTE) all around and along the full stem length without any break.
Similarly oil the lip of the stem seal.

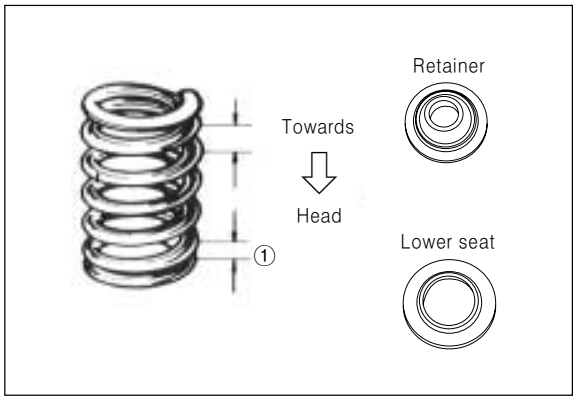
HYOSUNG MOLY PASTE



⚠ CAUTION

When inserting each valve, take care not to damage the lip of the stem seal.

● Insert valve springs, making sure that the close-pitch end ① of each spring goes in first to rest on the head. The coil pitch is vary: the pitch decreases from top to bottom, as shown in the illustration.

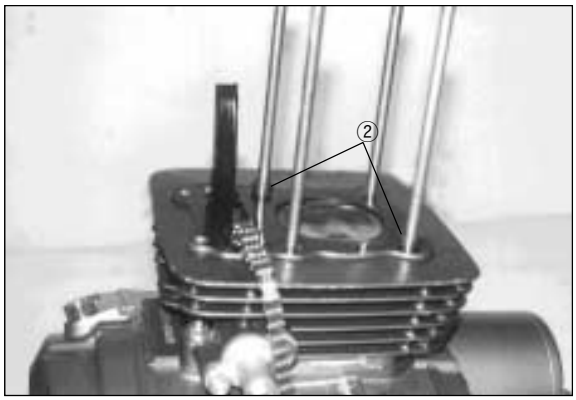


● Fit valve spring retainer, compress spring with a valve spring compressor and insert cotters.

TOOL Valve spring compressor : 09916-14510

CYLINDER HEAD

● Fit dowel pins ② to cylinder head, and then attach new gasket to cylinder head.



⚠ CAUTION

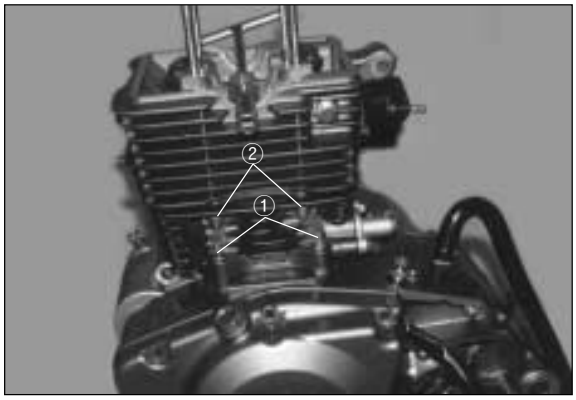
Use a new cylinder head gasket to prevent oil leakage. Do not use the old gasket.

● Fit the cylinder head.
● Tighten the cylinder base nuts ①, ②.

Cylinder base nut : 6~8 N · m (0.6~0.8 kg · m)

⚠ CAUTION

When mounting the cylinder, after attaching camshaft drive chain, keep the camshaft drive chain taut. The camshaft drive chain must not be caught between cam drive chain sprocket and crankcase when crankshaft is rotated.

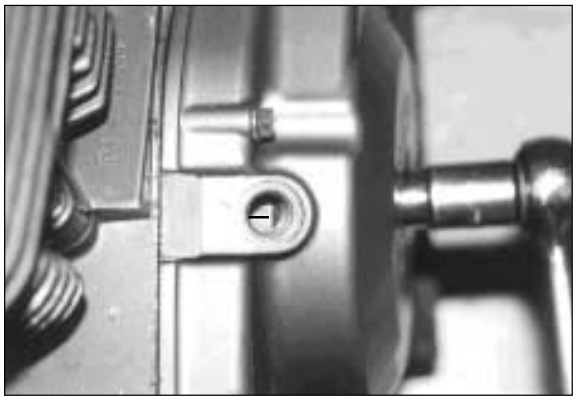


CAMSHAFT

● Align the mark on magneto rotor with the index mark on the crankcase keeping the camshaft drive chain pulled upward.

⚠ CAUTION

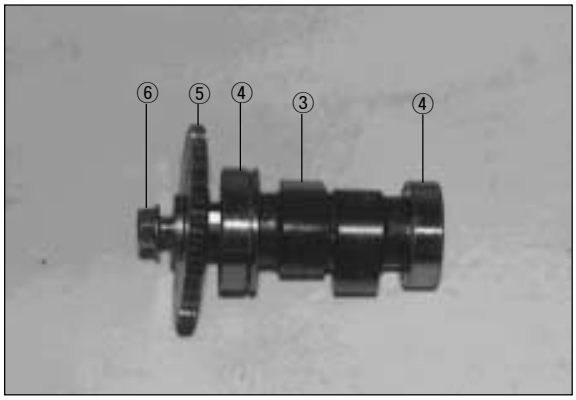
If crankshaft is turned without drawing the camshaft drive chain upward, the chain will be caught between crankcase and cam chain drive sprocket.



● Install the camshaft ③, bearing ④ and cam sprocket ⑤, tighten it.

⚠ CAUTION

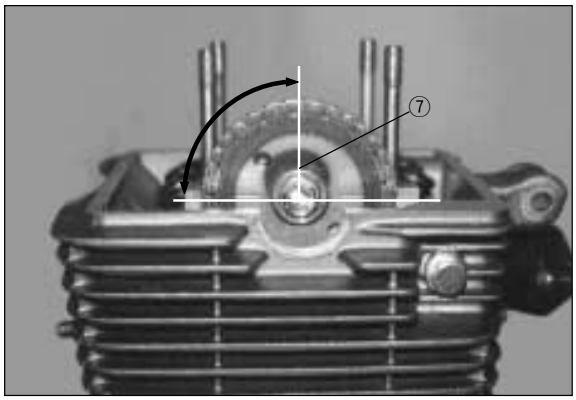
This ⑥ is a left-hand thread bolt.



● Align the key-groove ⑦ on the camshaft so it is vertical with the surface of the cylinder head.

⚠ CAUTION

Do not rotate magneto rotor while doing this. When the sprocket is not positioned correctly, turn the sprocket.

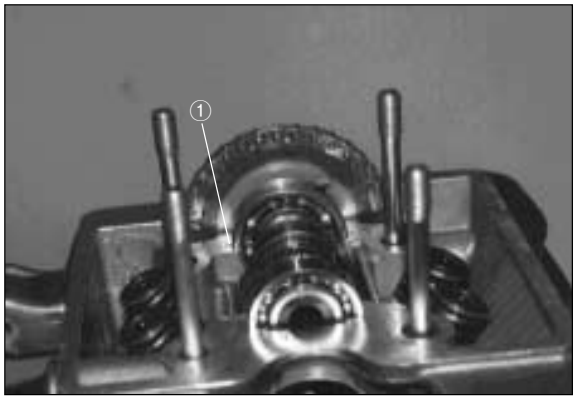


● Install the camshaft lock C-ring ①.

⚠ CAUTION

Align the both end face of C-ring and cylinder head face.

● Apply HYOSUNG MOLY PASTE properly to the camshaft bearing and camshaft face.



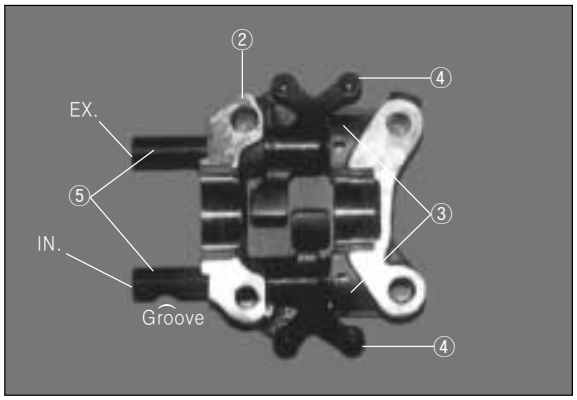
CAMSHAFT HOLD

● Apply HYOSUNG MOLY PASTE to the rocker arm shafts ⑤, then inserting the camshaft hold.

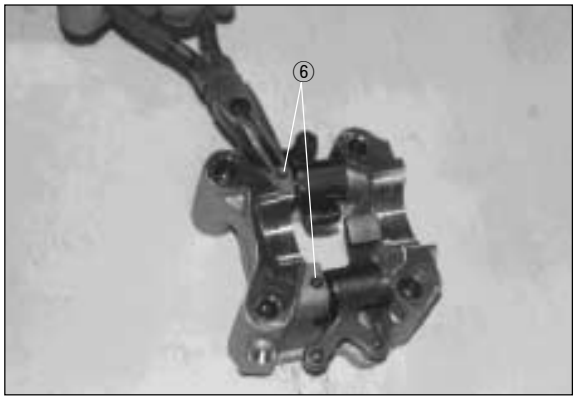
● Install the rocker arm spring ③, rocker arm ④ and inserting the camshaft hold ②.

⚠ CAUTION

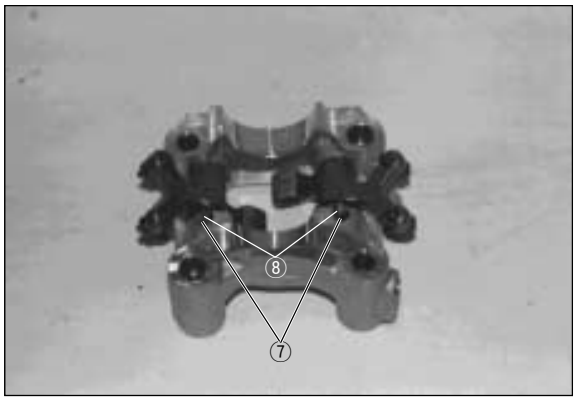
Pay attention to the exhaust side rocker arm that have not confused, the groove at the intake side rocker arm so that avoid contact with stud bolt.



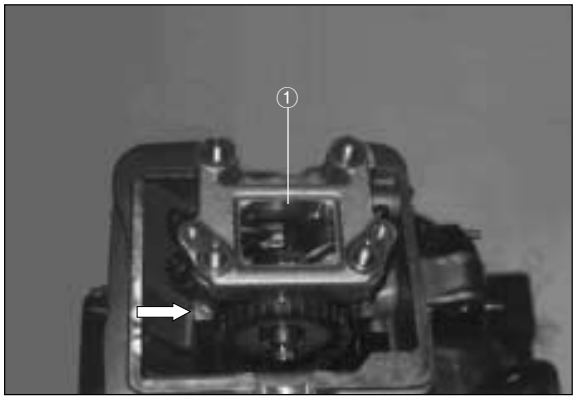
● Fit the two dowel pins ⑥ to the camshaft holder.



● When fitting rocker arm spring, hook part ⑦ of rocker arm spring onto rocker arm and hook part of rocker arm spring onto the dowel pins ⑧.

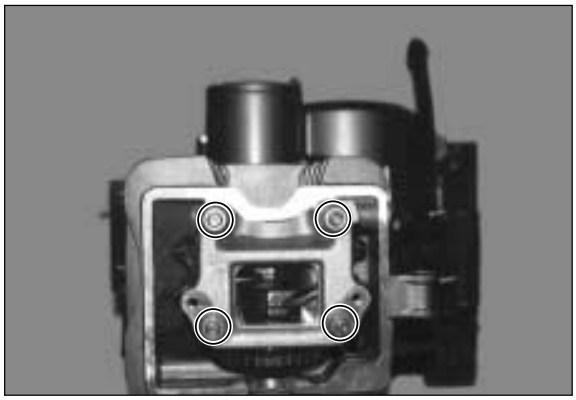


● Fit the two dowel pins and install the camshaft holder ①.



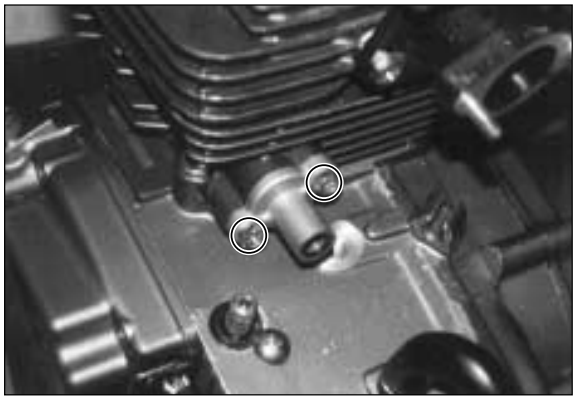
● Tighten the camshaft holder nuts diagonally to the specified.

Camshaft holder nut : 25~35 N · m (2.5~3.5 kg · m)

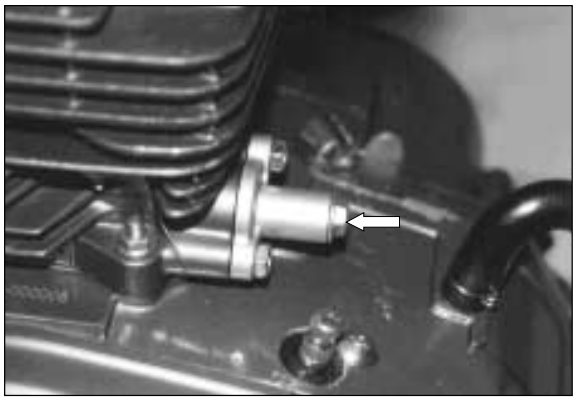


CHAIN TENSIONER

● Mount the tensioner body on the cylinder.



● Install the spring and bolts.



VALVE CLEARANCE

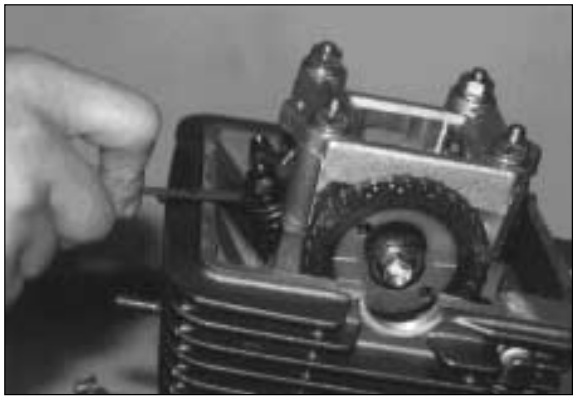
● After tightening the camshaft holder lock nuts, check and adjust the valve clearance.

Valve clearance specifications

IN and EX. valve clearance	0.08~0.13 mm

⚠ CAUTION

Valve clearance is to be checked when the engine is cold.
Both the intake and exhaust valves must be checked and adjusted when the piston is at Top-Dead-Center(TDC) of the compression stroke.



CYLINDER HEAD COVER

● Clean off oil from the surfaces of cylinder head and cover.
● Fit the packing ② to the cylinder head cover ①.

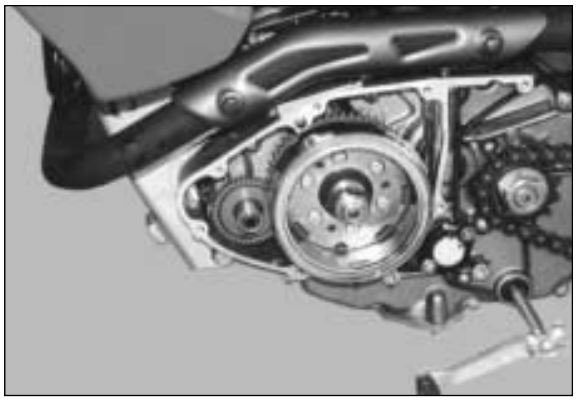
● Tighten the cylinder head cover bolts with the hexagon wrench.

Cylinder head cover : 12~16 N · m (1.2~1.6 kg · m)

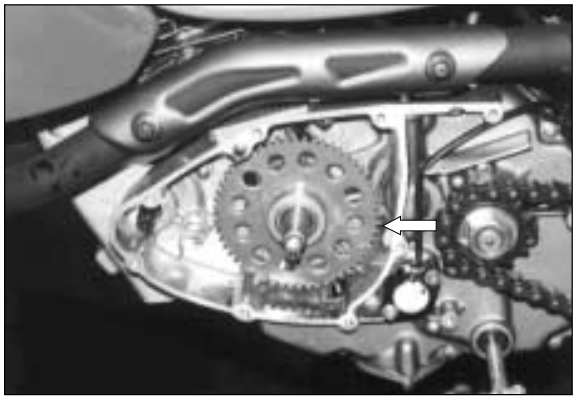
LEFT ENGINE DISASSEMBLY

● Remove the magneto rotor and key.

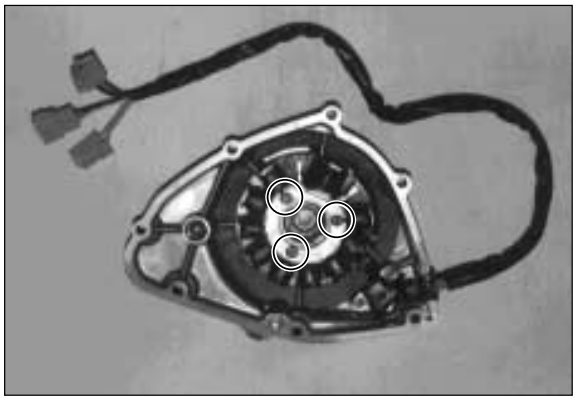
Rotor remover : 09930-30162



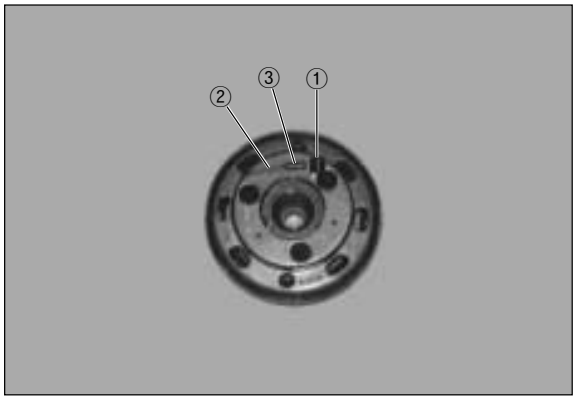
● Remove the starter clutch gear.



● Remove the starter screw by using the impact drive and detach the stator.



● Remove the roller①, spring ② and push piece ③ from the stater clutch.

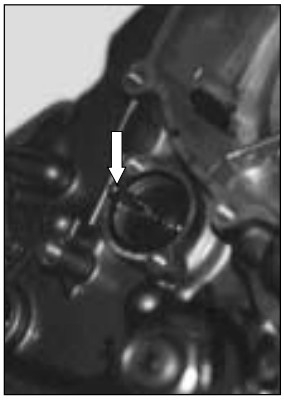


● Clamp the rotor with a vise taking care not to damage it and remove the three bolts using the 5 mm "T" type hexagon wrench.

TOOL **"T" type hexagon wrench (5 mm) : 09911-73730**

GEAR POSITION SWITCH

● Remove the gear position indicator switch by removing the screws.



⚠ CAUTION

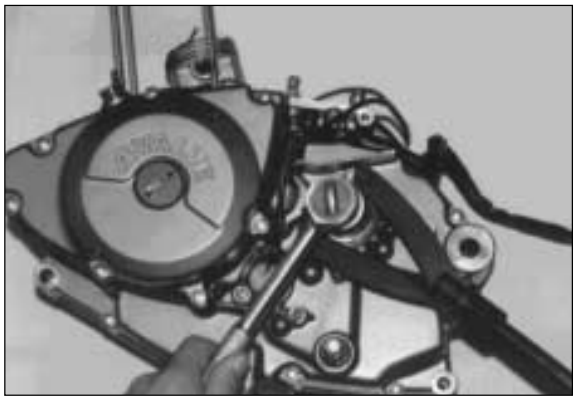
When removing gear position switch, do not lose the O-ring, switch contact and its spring.

RIGHT ENGINE DISASSEMBLY

ENGINE SPROCKET

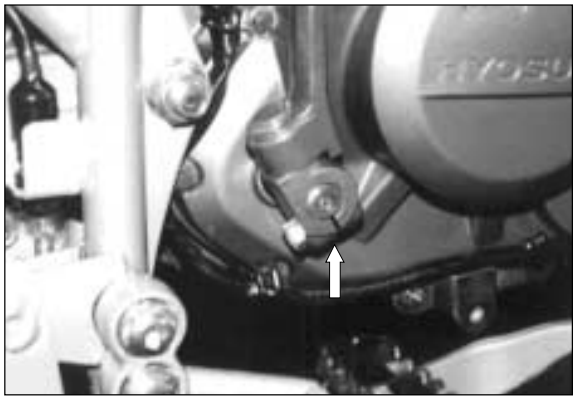
● Flatten the lock washer, then remove the sprocket nut by using the special tool.

TOOL **Rotor holder : 09930-40113**

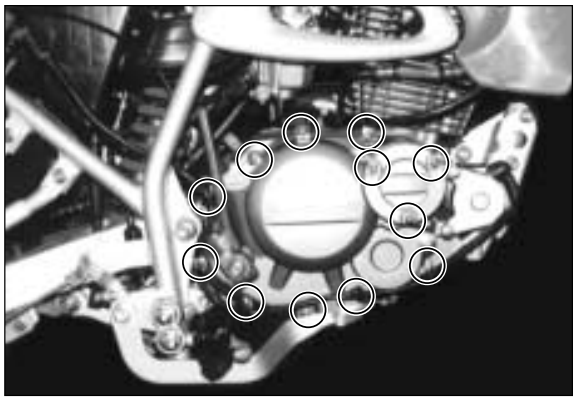


CLUTCH

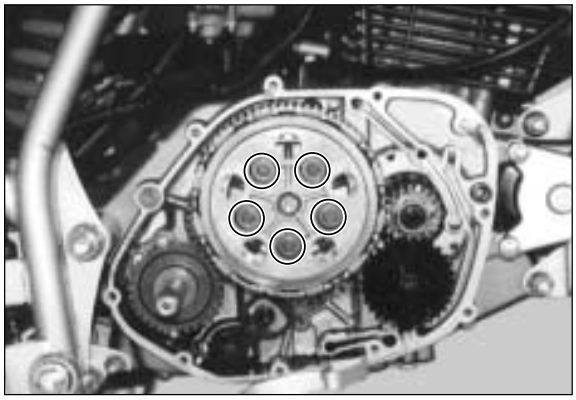
● Remove the kick starter by removing the bolt.



● Remove the clutch cover bolts and oil filter cap bolts, and detach the clutch cover by tapping with a plastic hammer.



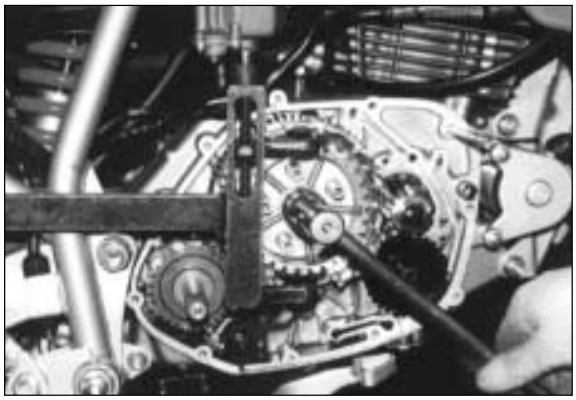
● Remove the clutch spring mounting bolts diago–nally while holding the primary driven gear, and remove the clutch pressure plate.



● After removal of clutch drive and driven plates, flatten the lock washer and remove the clutch sleeve hub by using the special tool.

TOOL **Clutch sleeve hub holder : 09920-53710**

● Take off the sleeve hub with the primary driven gear ass'y
This time well deposite the washer behind the hub.



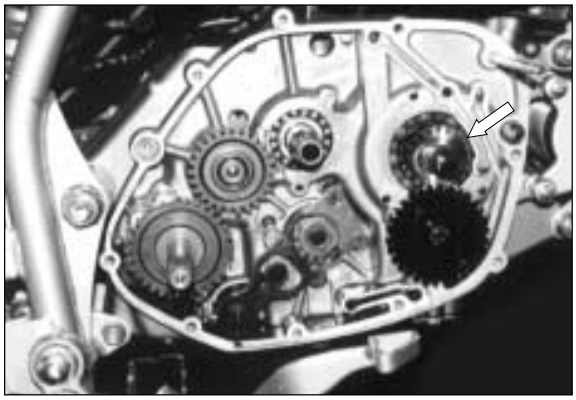
OIL PUMP DRIVE GEAR, DRIVEN GEAR AND PRIMARY DRIVE GEAR

● Flatten the lock washer, then remove the nut, lock washer and oil pump drive gear.

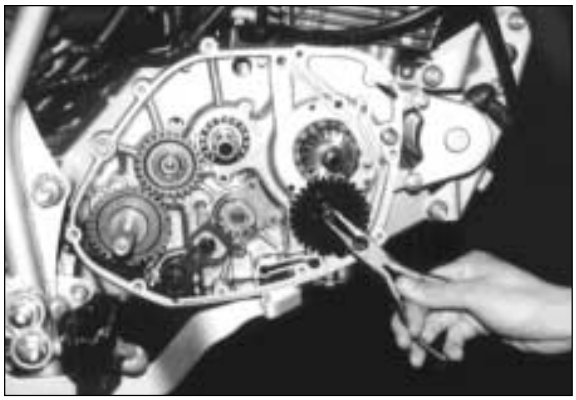
TOOL **Conrod holder : 09910-20116**

⚠ CAUTION

This is a left-hand thread nut.

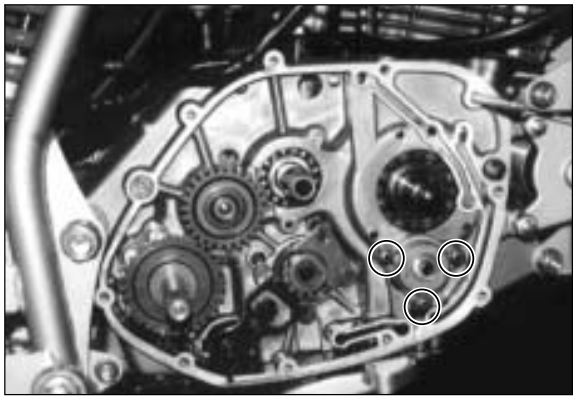


● Remove the oil pump driven gear, then remove the primary drive gear and key.



OIL PUMP

● Remove the oil pump mounting screws and take off the oil pump body.

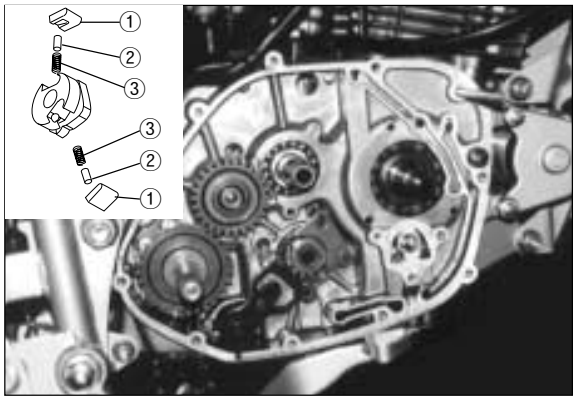


GEAR SHIFTER

● To remove the cam driven gear, first remove the gear shifting shaft, and loosen the pawl lifter and cam guide screws with an impact driver.

⚠ CAUTION

When removing the cam driven gear, do not lose the gear shifting pawl ①, pin ② and spring ③.



KICK STARTER DRIVE GEAR AND IDLE GEAR

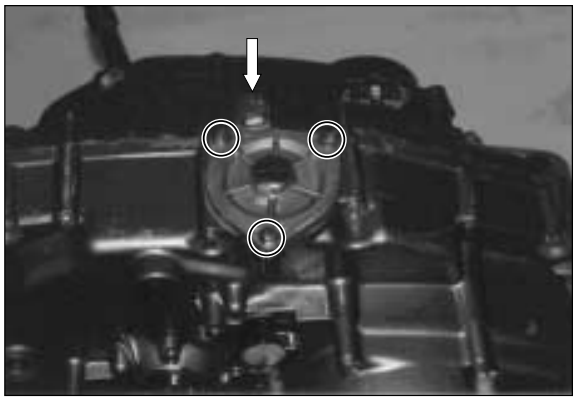
● Remove the kick starter drive gear and kick starter idle gear.

TOOL **Snap ring pliers : 09900-06107**

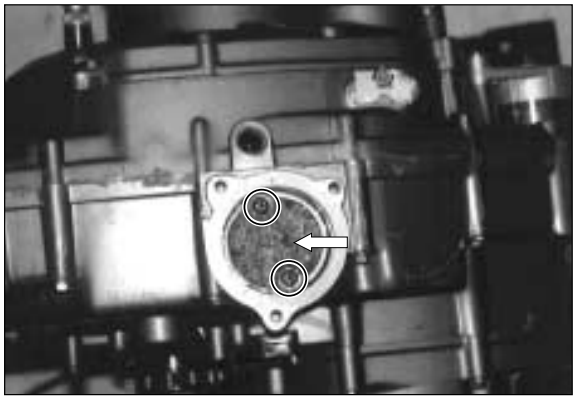
LOW END COMPONENTS DISASSEMBLY

CRANK CASE

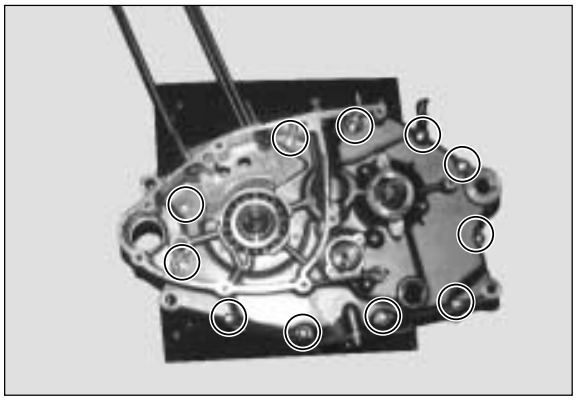
● Remove the sump filter cap and plug cam stopper.
● Pull out the spring, neutral stopper.



● Remove the sump filter.



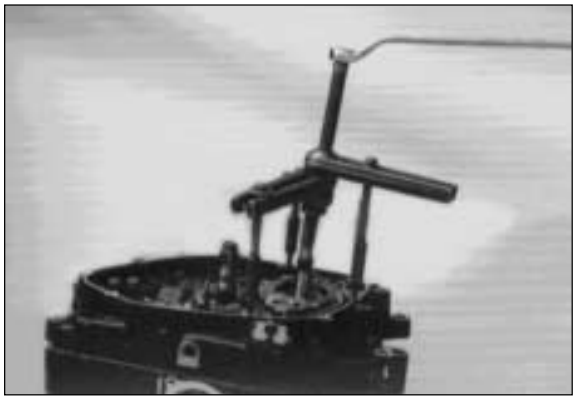
● Remove the crankcase securing bolts.



● Separate the crankcase into 2 part, right and left with the crankcase separater.

TOOL **Crankcase separater : 09920-13120**

● Fit the crankcase separater so that the tool plate is parallel with the end face of the crankcase.

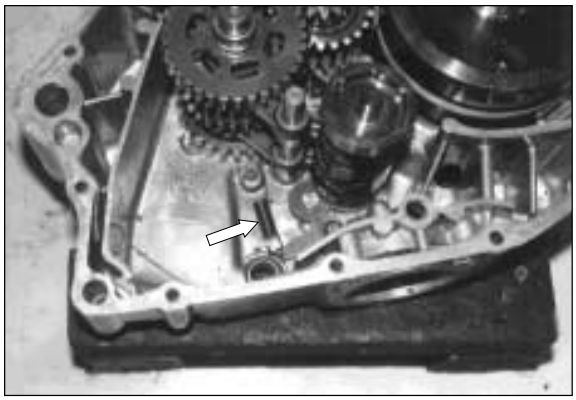


⚠ CAUTION

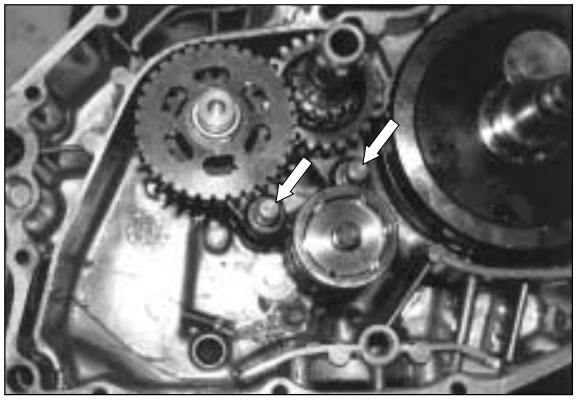
The crankshaft and transmission components must remain in the left crankcase half. This is necessary because the gear shifting cam stopper is mounted on the left crankcase half and will be damaged if the transmission components remain in the right half.

TRANSMISSION

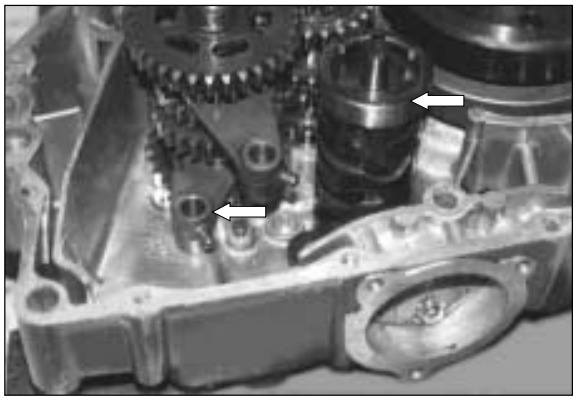
● Remove the gear shifting cam stopper spring.



● Draw out the gear shifting fork shafts and take off the forks.



● Remove the clusters of gears and the gear shifting cam.



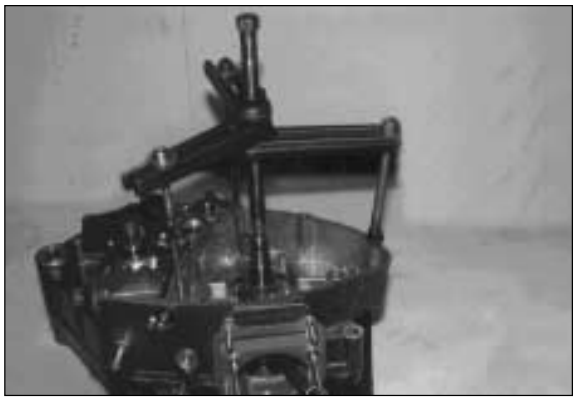
KICK STARTER SHAFT

● Remove the circlip, spring guide and return spring.
● Then, pull out the kick starter shaft from the other side.

CRANKSHAFT

● Remove the crankshaft by using the crankcase separater.

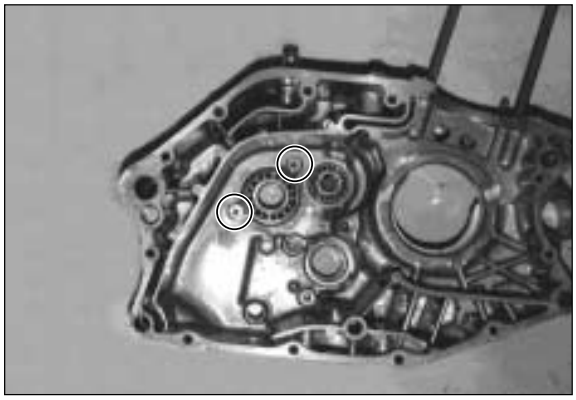
TOOL **Crankcase separater : 09920-13120**

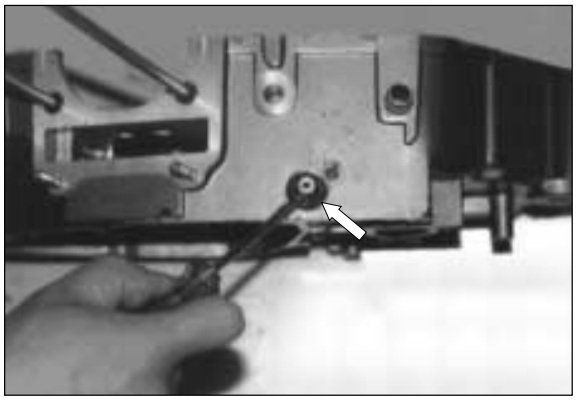


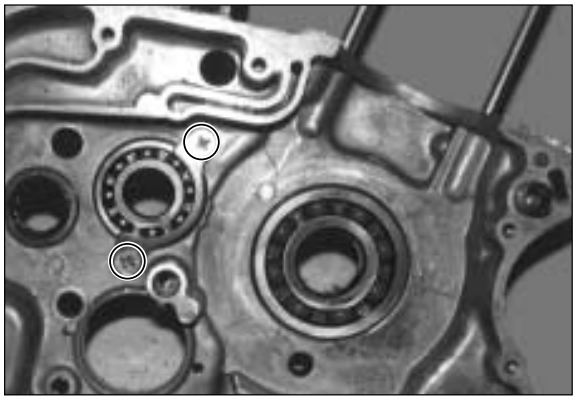
OIL SEAL AND BEARING

● Remove the retainer, oil seals and bearings.

TOOL **Oil seal remover : 09913-50121**







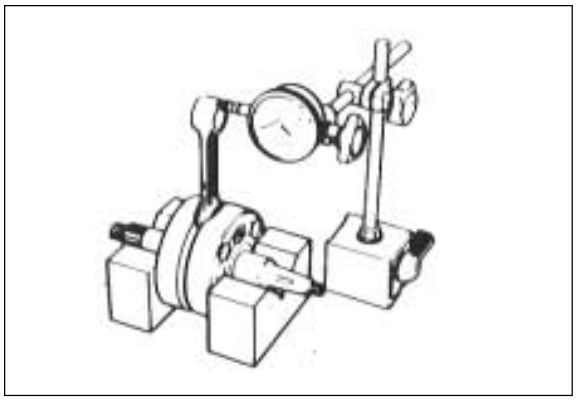
LOWER END COMPONENTS INSPECTION AND SERVICING

CONROD DEFLECTION AND CONROD BIG END SIDE CLEARANCE

Wear on the big end of the conrod can be estimat-ed by checking the movement of the samll end of the rod. This method can also check the extent of wear on the parts of the conrod's big end.

Wear limit on the big end of conrod	Service limit 3.0 mm

TOOL **Magnetic stand : 09900-20701**
Dial gauge (1/100 mm) : 09900-20606
V-block : 09900-21304

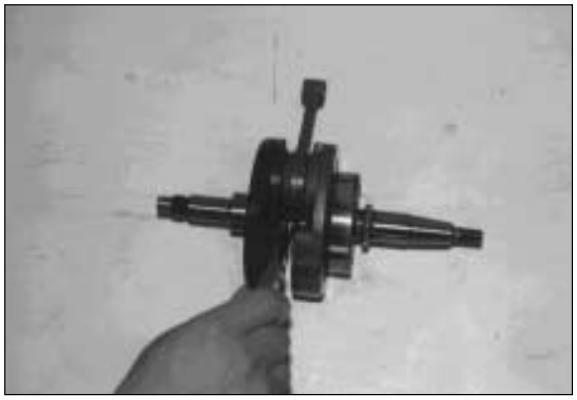


Push the big end of the conrod to one side and measure its side clearance with a thickness gauge.

Clearance standard on big end of conrod	Service limit on big end of conrod
0.10~0.45 mm	1.00 mm

Thickness gauge : 09900-20803

When the limit is exceeded, replace crankshaft assembly or reduce the deflection and the side clearance to within the limit by replacing the worn parts—conrod, big end bearing, crankpin and thrust washers, etc.



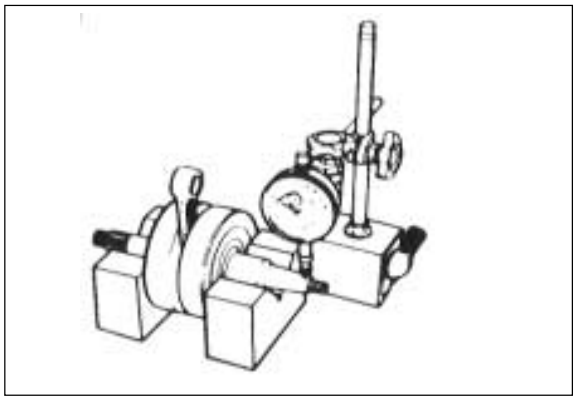
CRANKSHAFT RUNOUT

Support the crankshaft with "V" blocks as shown, with the two end journals resting on the blocks.

Position the dial gauge, as shown, and rotate the crankshaft slowly to read the run out.

Correct or replace the crankshaft if the runout is greater than the limit.

Crank shaft runout	Service limit 0.05 mm



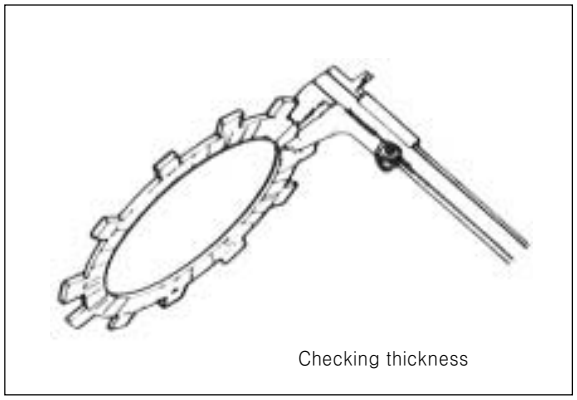
CLUTCH DRIVE PLATE

Measure the thickness and claw width of each drive plate with vernier calipers.

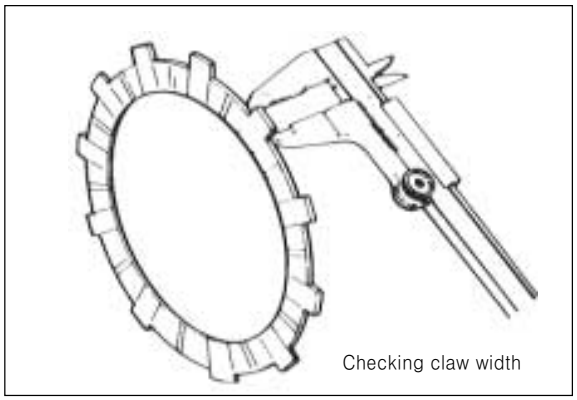
Replace the drive plates found to have worn down to the limit.

Vernier calipers : 09900-20101

	Standard	Serivice limit
Thickness of clutch drive plate	2.9~4.1 mm	2.6 mm
Claw width of clutch drive plate	11.8~12.0 mm	11.0 mm



Checking thickness



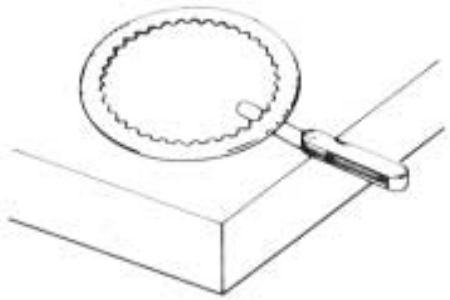
Checking claw width

CLUTCH DRIVEN PLATE

Measure each of the driven plate for distortion with a thickness gauge. Replace the driven plates which.

TOOL **Thickness gauge : 09900-20803**

Distortion of clutch driven plate	Service limit 0.1 mm



Checking distortion

CLUTCH SPRING FREE LENGTH

Measure the free length of each coil spring with a vernier calipers, and determine the elastic strength of each. If any one of springs is not within the limit, replace all the springs at a time.

TOOL **Vernier calipers : 09900-20101**

Clutch spring free length	Service limit 29.5 mm

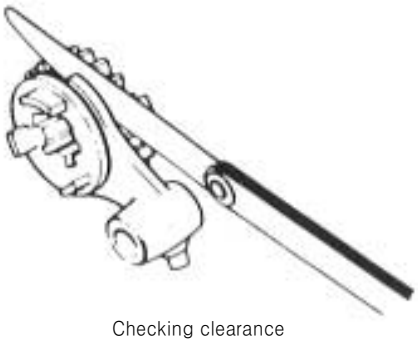
CLUTCH RELEASE BEARING

Inspect the release bearing for any abnormality, particularly cracks, to decide whether it can be reused or should be replaced.
Smooth engagement and disengagement of the clutch depends much on the condition of this bear–ing.

SHIFTING FORK AND GEAR

Using a thickness gauge, check the shifting fork clearance in the groove of its gear. If the clearance limit is exceeded by any of the three gears, deter–mine whether the gear or the gear shifting fork should be replace by measuring the thickness and groove width.

TOOL **Thickness gauge : 09900-20803**
Vernier calipers : 09900-20101

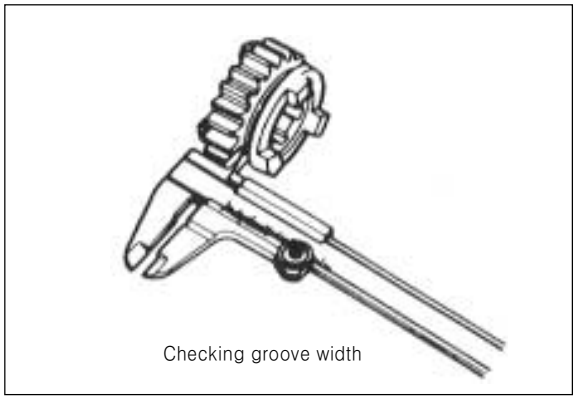


Checking clearance

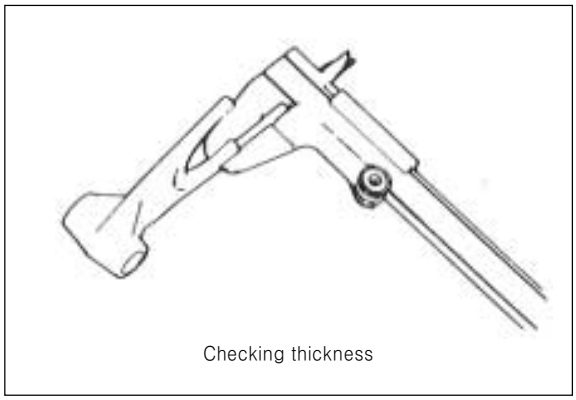
Shifting fork to groove clearance	Standard	Serivice limit
	0.10~0.30 mm	0.50 mm

Shifting fork groove width		Standard
	NO.1 & NO.2	5.0~5.1 mm
	NO.3	5.5~5.6 mm

Shifting fork thickness		Standard
	NO.1 & NO.2	4.8~4.9 mm
	NO.3	5.3~5.4 mm



Checking groove width



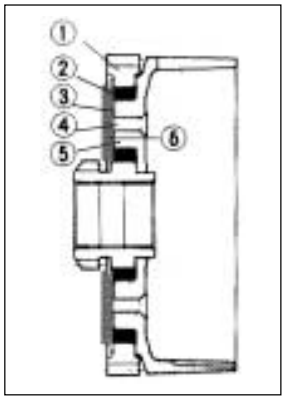
Checking thickness

PRIMARY DRIVEN GEAR

Primary driven gear is composed as shown.

① Primary driven gear
② Damper
③ Plate
④ Rivet
⑤ Clutch housing
⑥ Spring

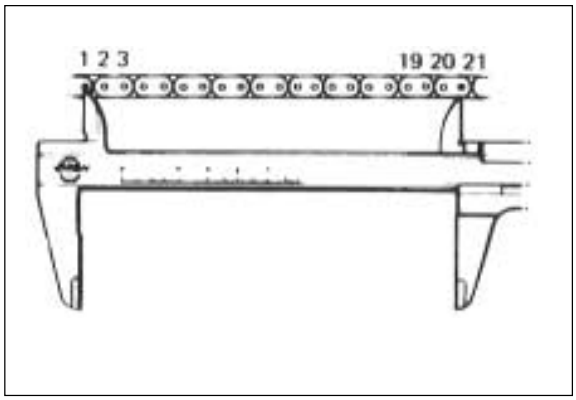
If the internal damper wears, play is generated between gear and housing, causing abnormal noise. If the play is extreme, replace the primary driven gear assembly a new one.



CAM CHAIN 20-PITCH LENGTH

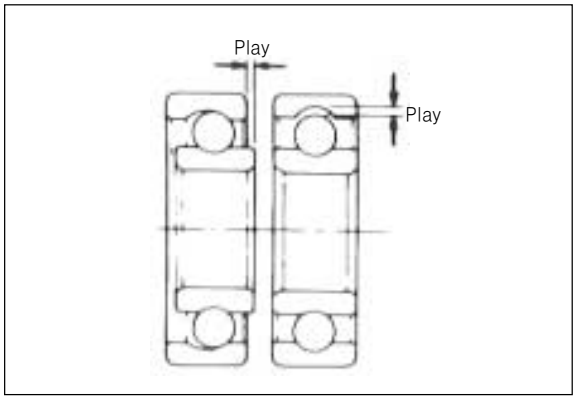
Pull the chain tight to remove any slack, then using vernier caliper, measure the 20-pitch (21 pins) length of cam chain. If it measures than the limits, replace the cam chain.

Cam chain 20-pitch length	Service limit 129.9 mm



CRANKCASE BEARING

Inspect the play of crankcase bearing inner race by hand while fixing it in the case.
Rotate the inner race by hand to inspect for an abnormal noise and a smooth rotation. Replace the bearing if there is something unusual.

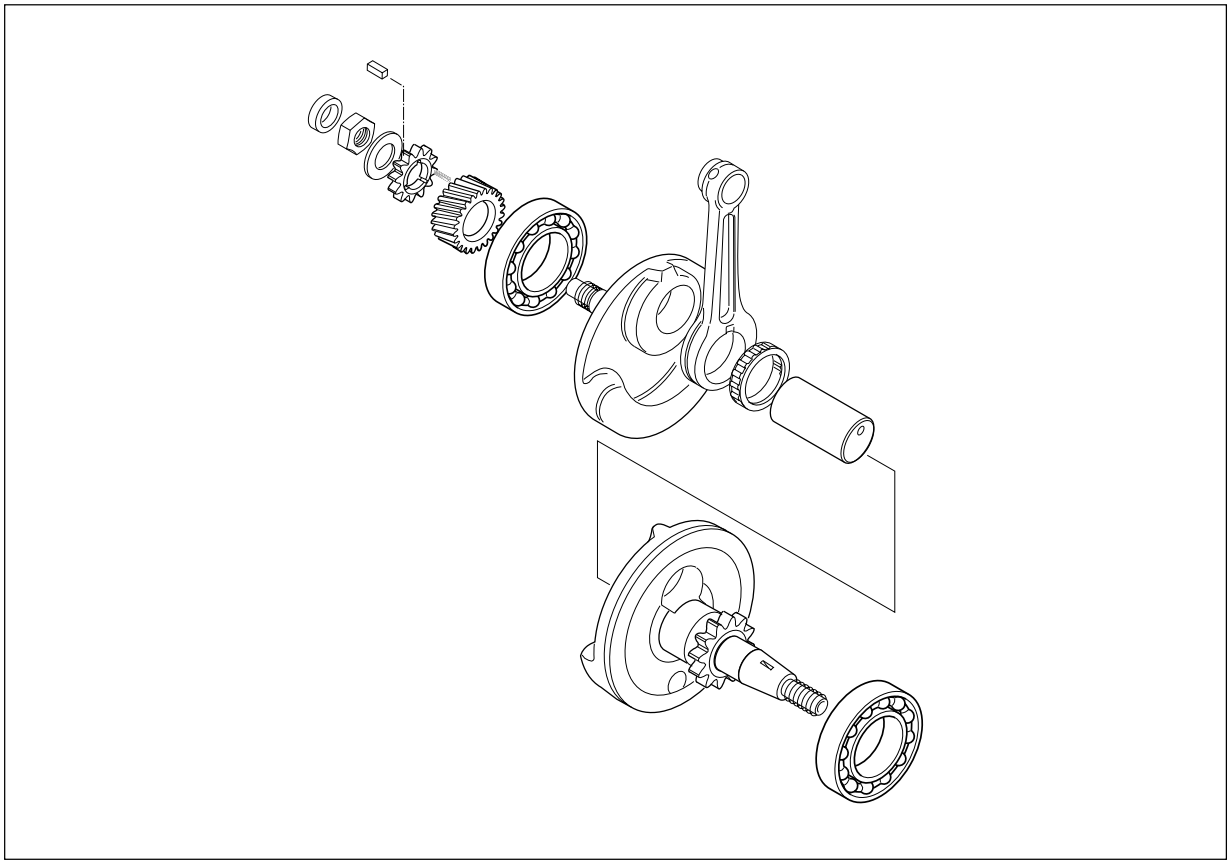


STARTER CLUTCH BEARING

Inspect the bearing for any abnormality, particularly cracks, to decide whether it can reused or should be replaced.

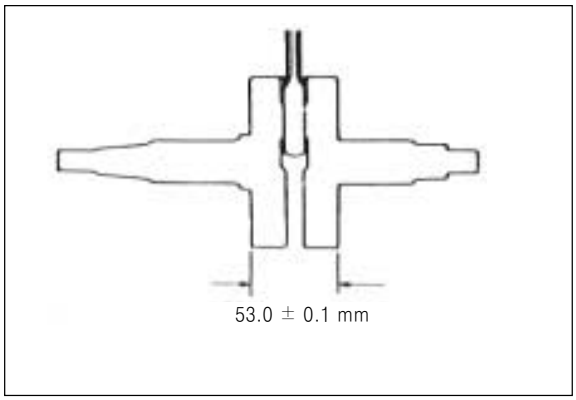
LOWER END COMPONENTS REASSEMBLY

CRANKSHAFT



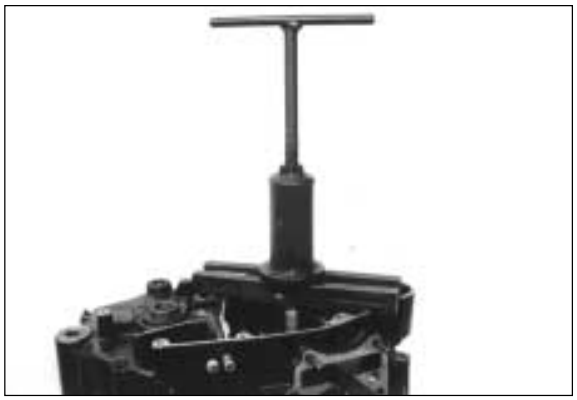
● Inspect the between the webs referring to the below figure when rebuilding the crankshaft.

Width between webs	Standard 53.0±0.1 mm



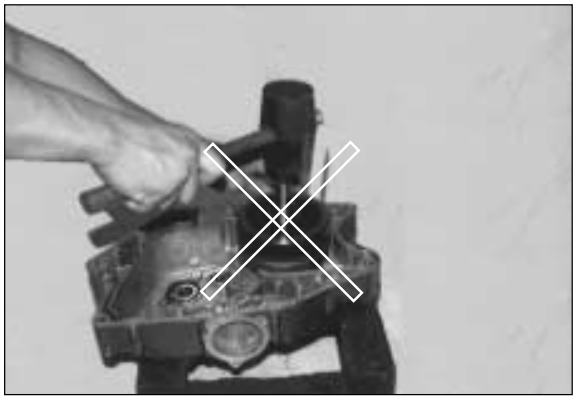
● When mounting the crankshaft in the crankcase, it is necessary to pull its left end into the crankcase.

TOOL **Crankcase installer : 09910-32812**
Conrod holder : 09910-20116

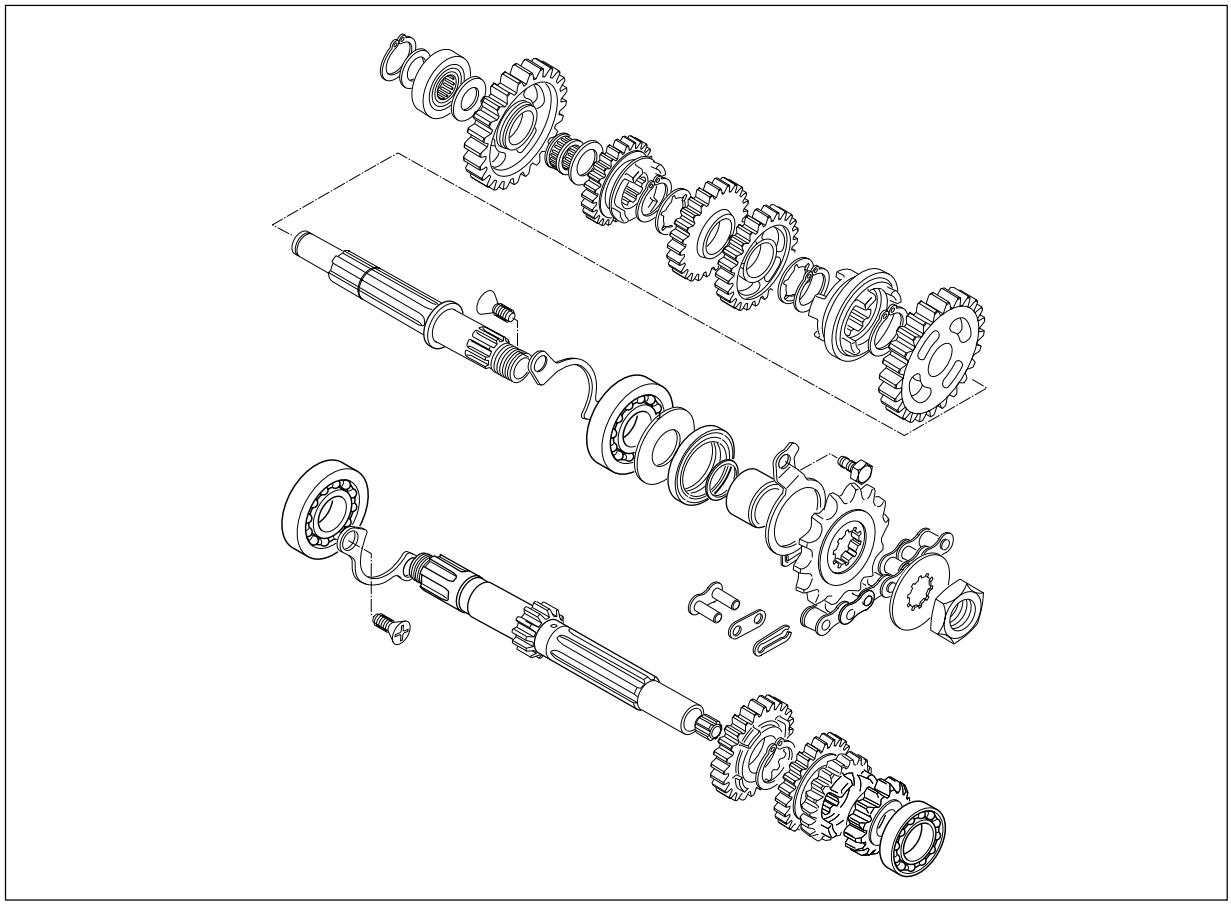


⚠ CAUTION

Never fit the crankshaft into the crankcase by striking it with a plastic hammer.
Always use the special tool, otherwise crankshaft alignment accuracy will be affected.

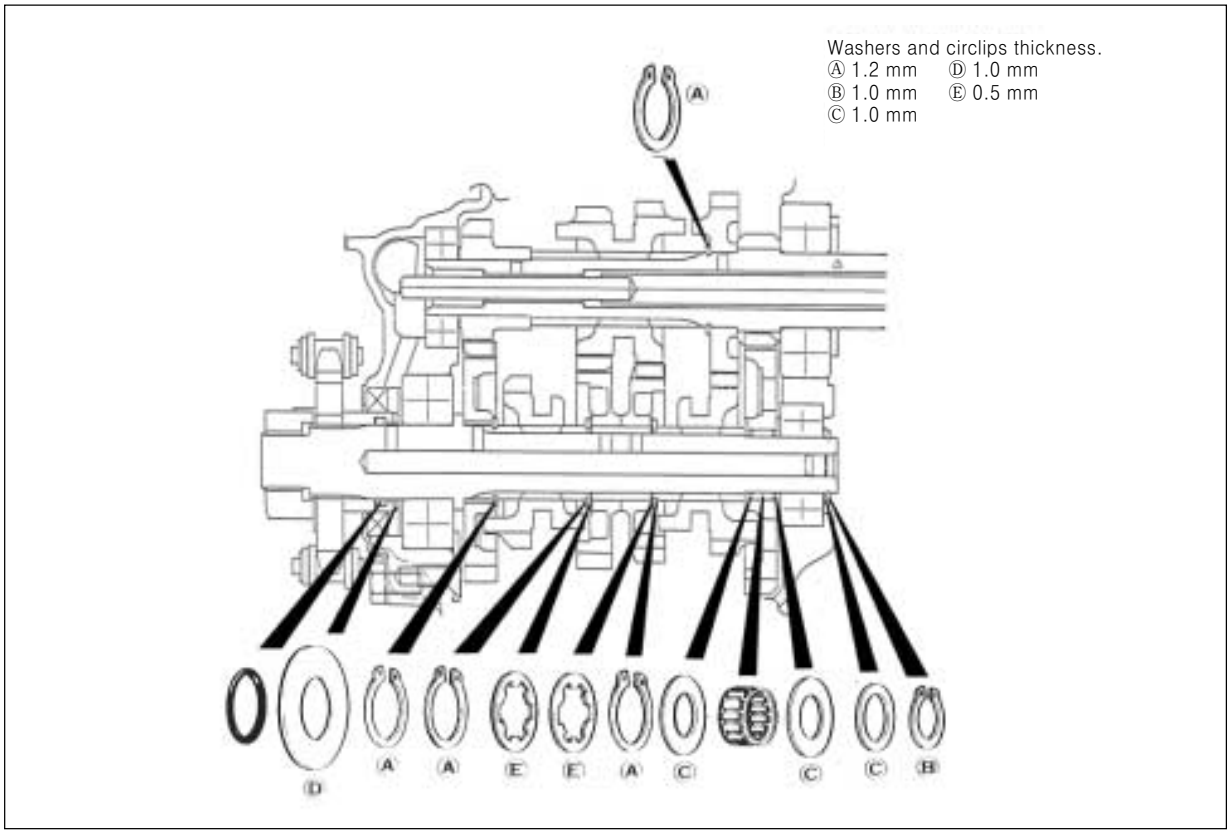


TRANSMISSION



⚠ CAUTION

- **Never reuse a circlip. After a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.**
- **When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip cover the shaft.**
- **After installing a circlip, always insure that it is completely seated in its groove and securely fitted.**



NOTE:
When reassembling the bearing retainer, apply a small quantity of THREAD LOCK "1324" to the threaded parts of the bearing retainer screws.
In reassembling the transmission, attention must be given to the locations and positions of washers and circlips. The cross sectional view given here will serve as a referance for correctly mounting the gears, washers and circlips.

COUNTERSHAFT

Mounting 2nd drive gear

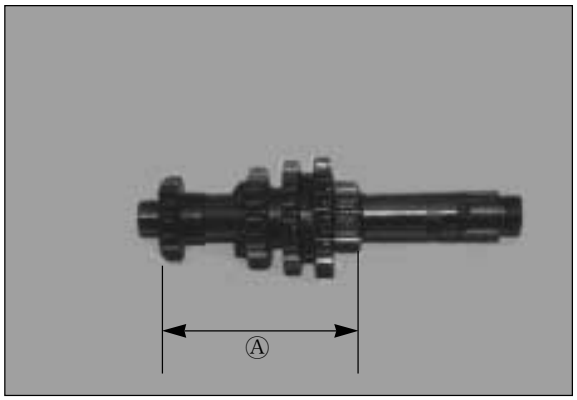
● Press-fit 2nd drive gear into the countershaft. Before reassembling, coat the internal face of the 2nd drive gear with THREAD LOCK "1324" and install it so that the length Ⓐ is as shown in Fig.

1324 Thread Lock "1324"

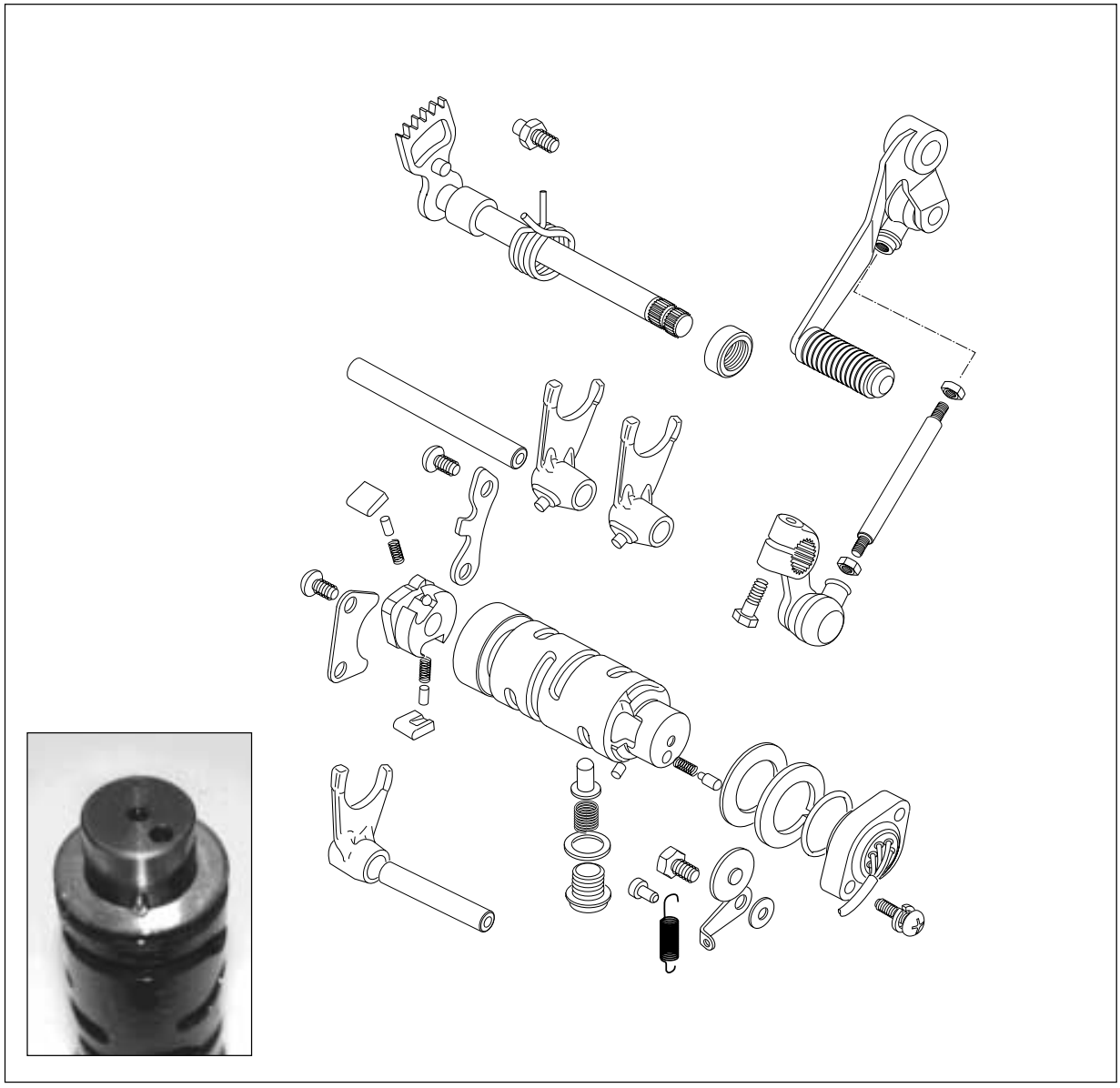
Countshaft length Ⓐ (Low to 2nd)	$88.0^{+0.1}_{-0.2}$ mm

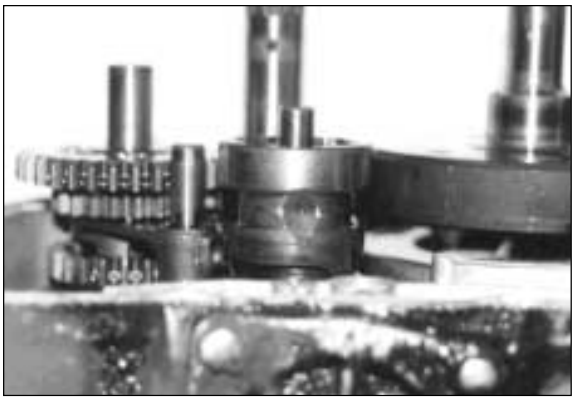
⚠ CAUTION

This procedure may be performed only twice before shaft replacement is required.



GEAR SHIFTING CAM AND FORK

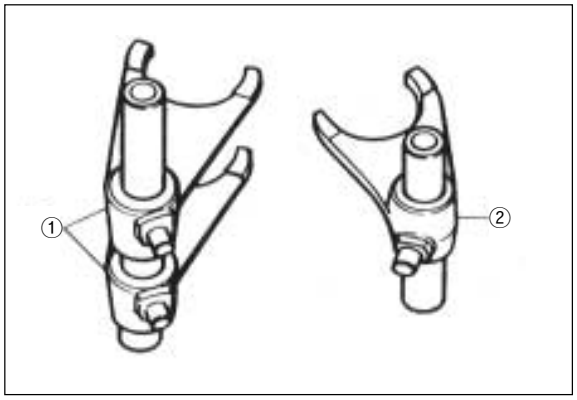




● Fit the gear shifting cam on the crankcase. Position the cam as shown in Fig. So that the gear shifting fork can be installed easily.

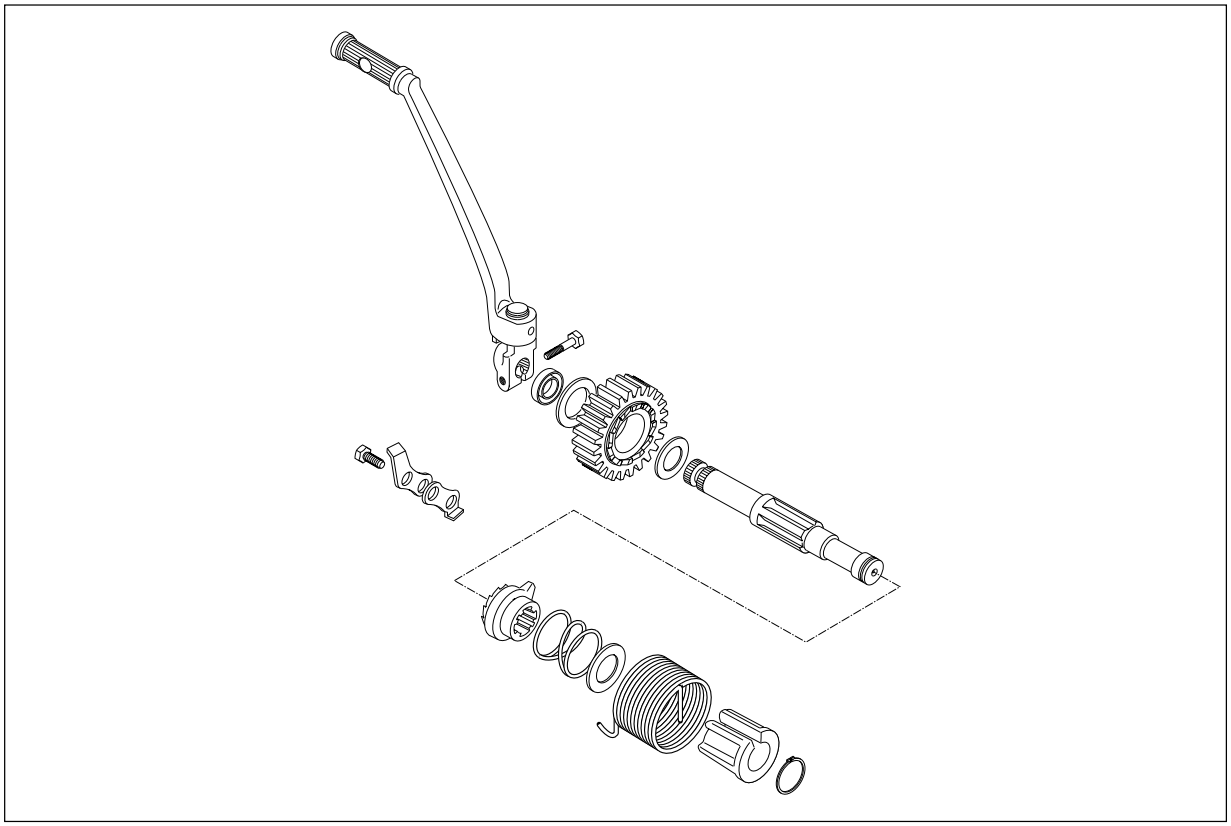
⚠ CAUTION

Two kinds of the gear shifting forks, ① and ②, are used. They resembles each other very closely in external appearance and configuration.
Carefully examine the illustration for correct installing positions and directions.

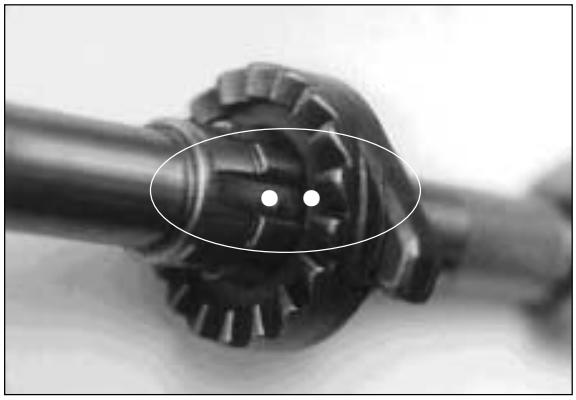


● After the cam stopper and gear shifting forks have been fitted, hook the cam stopper spring into the crankcase.

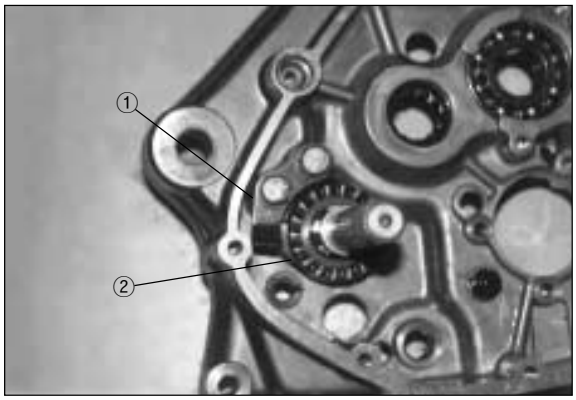
KICK STARTER



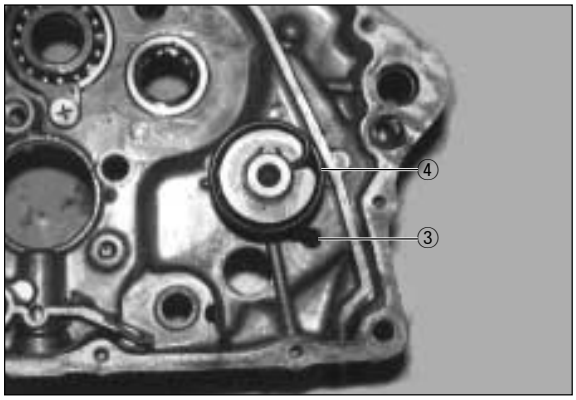
● When fitting the kick starter to the shaft, be sure to align the punched marks..



● Fit the spring and washer on the shaft. Then, insert the kick starter shaft into the crankcase. Engage the pawl ② of kick starter guide ①.



● When fitting the kick return spring, hook the part ③ of return spring into the crankcase, turn it 1/2 a turn clockwise with the pliers and fit the part ④ of return spring into hole of the kick shaft. Then, fit the spring guide and circlip.



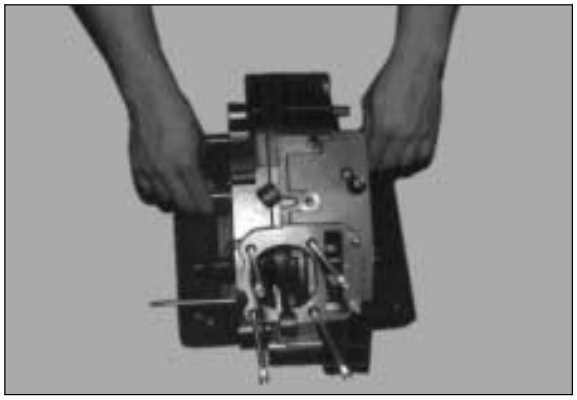
CRANKCASE

When reassembling the crankcase pay attention to the following.

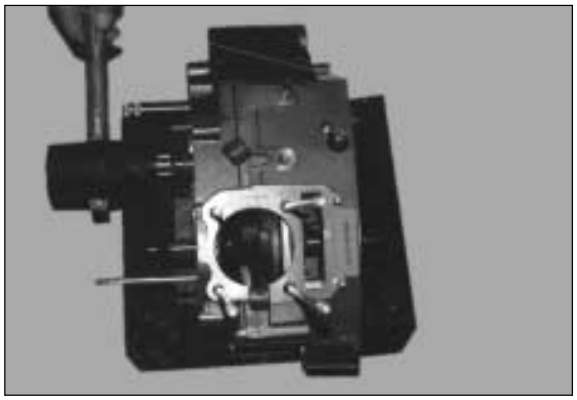
● Coat SUPER GREASE "A" to the lip of oil seals.
● Remove sealant material on the fitting surface of right and left halves of the crankcase and thoroughly remove oil stains.
● Fit the dowel pins on the half.
● Apply engine oil to the big end of the crankshaft conrod and all parts of the transmission gears.
● Apply BOND "1215" uniformly to the fitting surface of the left half of the crankcase, and after waiting a few minutes, fit the right half on the left half.

1215 **BOND "1215"**

● After the crankcase bolts have been tightened, check if the driveshaft and countershaft rotate smoothly.



● If a large resistance is felt to rotation, try to free the shafts by tapping the driveshaft or counter–shaft with a plastic hammer as shown in Fig.



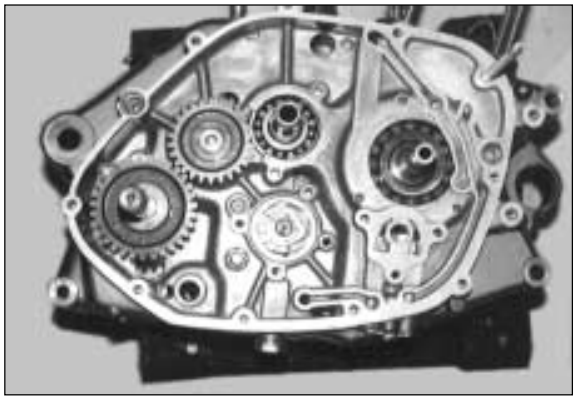
RIGHT ENGINE REASSEMBLY

CLUTCH

KICK START DRIVE GEAR AND IDLE GEAR

● Install the kick starter idle gear and drive gear.

TOOL **Snap ring pliers : 09900-06107**

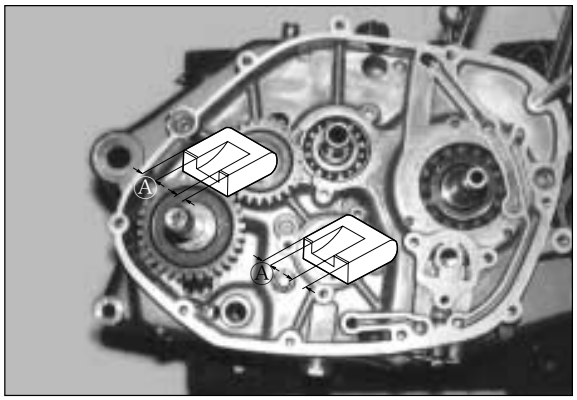


GEAR SHIFTING CAM DRIVEN GEAR

When installing the gear shifting pawls into the cam driven gear. The large shoulder Ⓐ must face to the outside as shown.

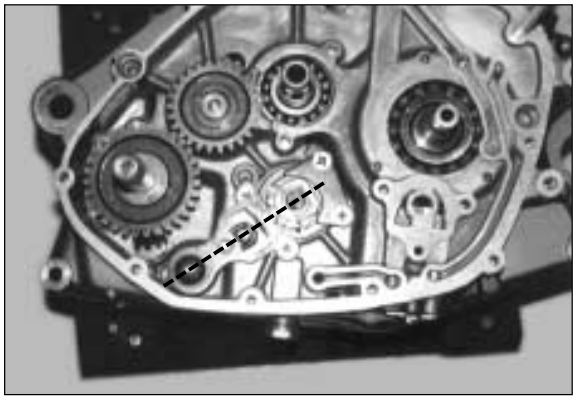
● Next, install cam guide and pawl lifter. Apply a samll quantity of THREAD LOCK “1324” to the threaded parts of the securing screws.

1324 **Thread Lock “1324”**



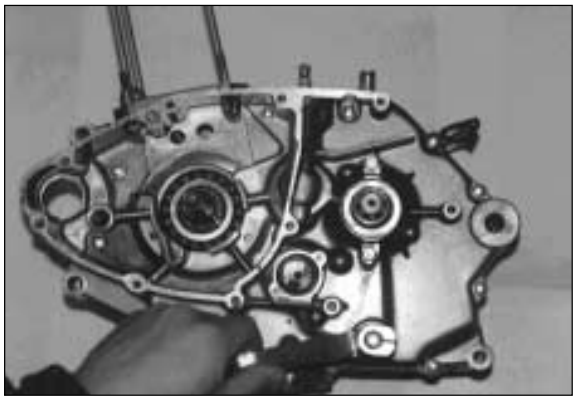
GAER SHIFTING SHAFT

Install the gear shifting shaft. Match the center teeth of the gear on the shifting shaft with the center teeth on the shifting driven gear as shown.



⚠ CAUTION

After the cam driven gear, cam guide, gear shifting shaft and neutral cam stopper have been fitted, confirm that gear change is normal while turning, the countshaft and driveshaft. If gear change is not obtained, it means that assembly of gears or installation of gear shifting fork is incorrect. If this is the case, disassemble and trace the mistake.



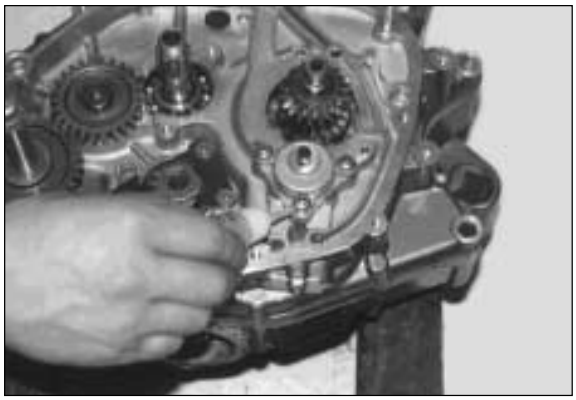
PRIMARY DRIVE GEAR AND OIL PUMP

- Fit the key in the slot on the crankshaft, and install the primary drive gear.

- Before mounting the oil pump, apply engine oil to the sliding surfaces of the case, outer rotor, inner rotor and shaft.
- Apply a small quantity of THREAD LOCK "1324" to the threaded parts of oil pump mounting screws.

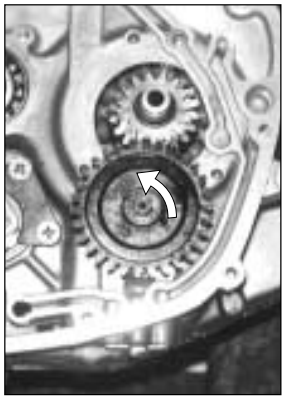
1324 Thread Lock "1324"

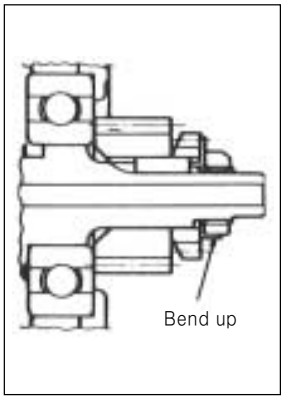
- Tightening the oil pump mounting screws.



⚠ CAUTION

After mounting the oil pump in the crankcase, rotate the pump gear by hand to see if it turns smoothy.





● After checking the oil pump, install the oil pump drive gear, lock washer and nut, tighten it with a torque wrench to the specified torque and bend up to the washer.

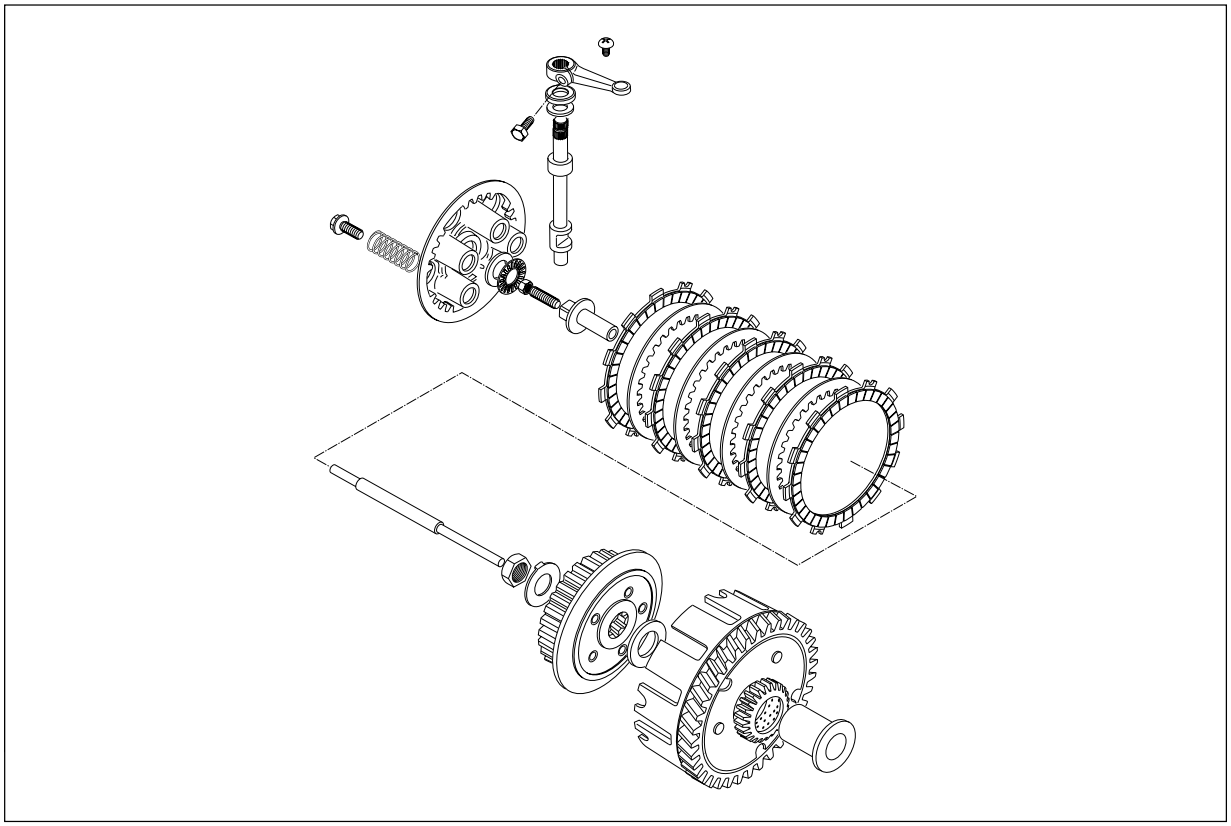
TOOL Conrod holder : 09910-20116

⚠ CAUTION

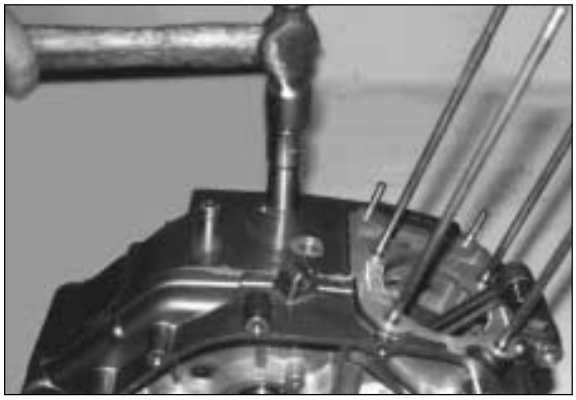
This is a left-hand thread nut.

Oil pump nut : 40~60 N · m (4.0~6.0 kg · m)

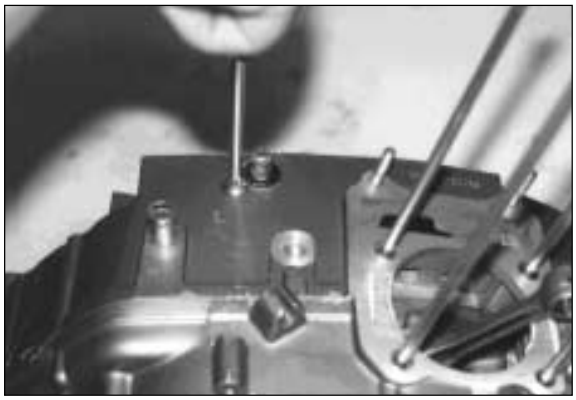
CLUTCH



● Install the clutch camshaft by positioning the face to right side.
● Install the oill seal by using the 17 mm socket.



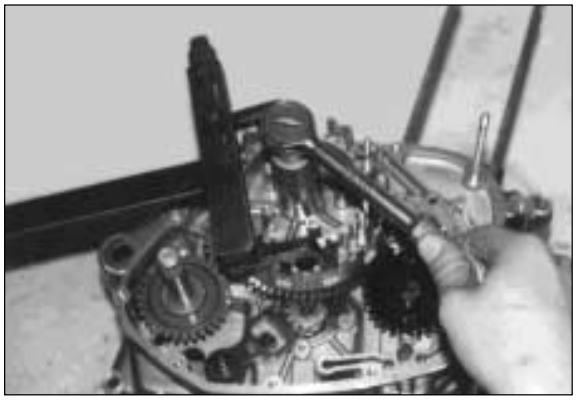
● Tighten the oil seal retainer screw.



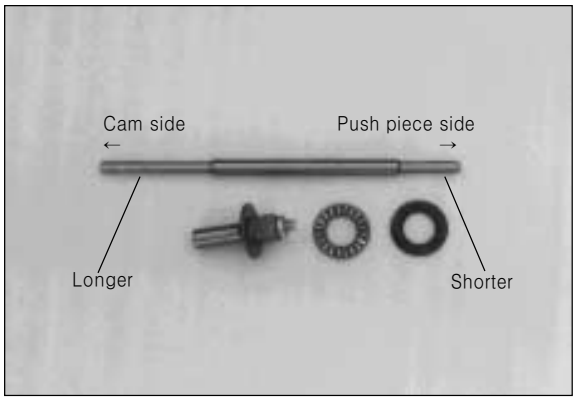
Assemble the clutch, in the reverse order of disas–sembly. Pay attention to the following points.
● When inserting the spacer on the countershaft, apply a small quantity of engine oil to both inside and outside of the spacer.
● Tighten clutch sleeve hub nut using the special tool to the specified torque.

TOOL Clutch sleeve hub holder : 09920-53710

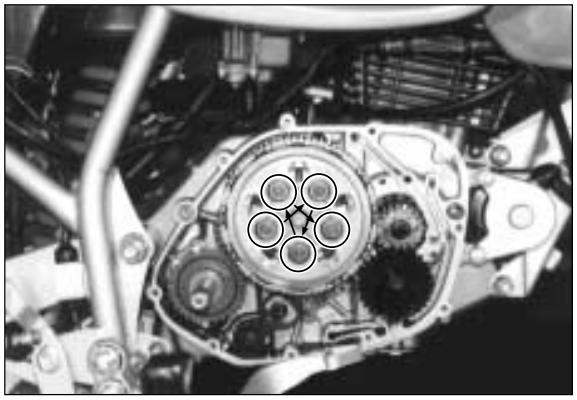
Clutch sleeve hub nut : 30~50 N · m (3.0~5.0 kg · m)



● Be sure to lock the nut by firmly bending the tongue of the washer.
● Install the drive plates and driven plates to the sleeve hub.
● Insert push rod in the countshaft.

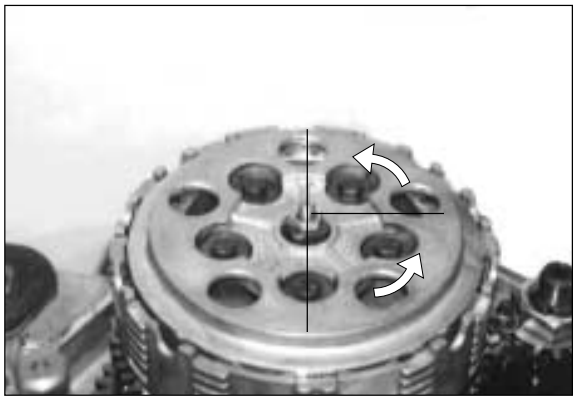


● Tighten the clutch spring bolts diagonally.



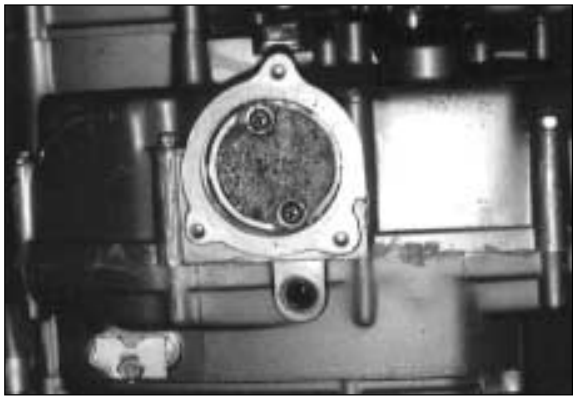
Clutch release screw adjustment

● Loosen the lock nut, and turn in the release screw to feel high resistance.
● From that position, turn out the release screw 1/4−1/2 turn, and tighten the lock nut.



OIL SUMP FILTER

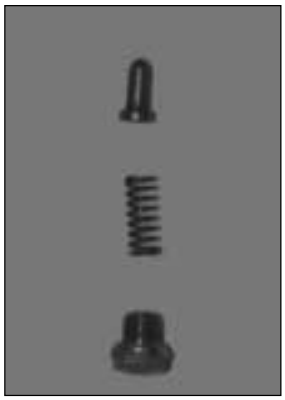
● Wash the sump filter with cleaning solvent, and then bolw compressed air through it to dry off solvent.
● After mounting the sump filter, fit the cap and tighten it.

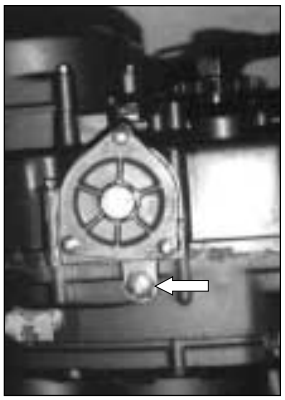


LEFT ENGINE REASSEMBLY

NEUTRAL CAM STOPPER

● Put in the neutral stopper and spring.
● Tighten the cam stopper plug.

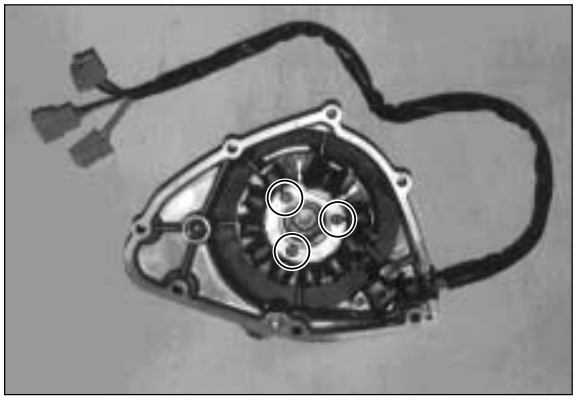




STATOR

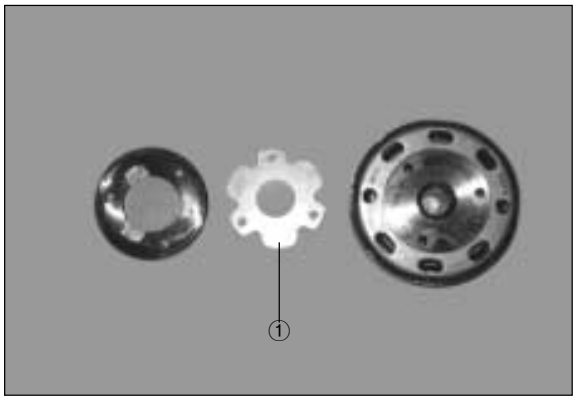
Apply a small quantity of THREAD LOCK "1324" to the threaded parts of screws.

Thread Lock "1324"



STARTER CLUTCH

Locate the shim ① to the proper position

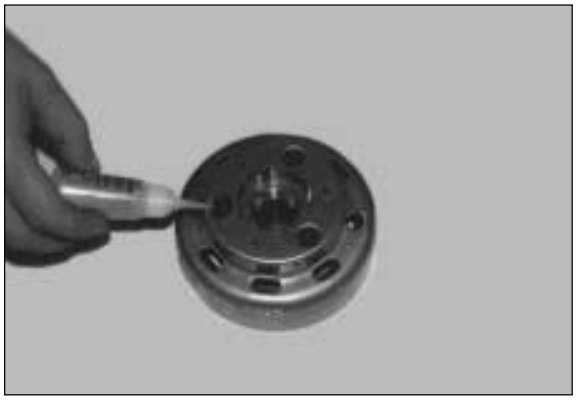


- Apply THREAD LOCK "1324" to the bolts and tighten with the specified torque.

Thread Lock "1324"

"T" type hexagon wrench : 09911-73730

Starter clutch : 15~20 N · m (1.5~2.0 kg · m)



MAGNETO ROTOR

- Fit the key in the key slot on the crankshaft.
- Install the magneto rotor.
- Apply a small quantity of THREAD LOCK "1324" to the threaded parts of crankshaft.

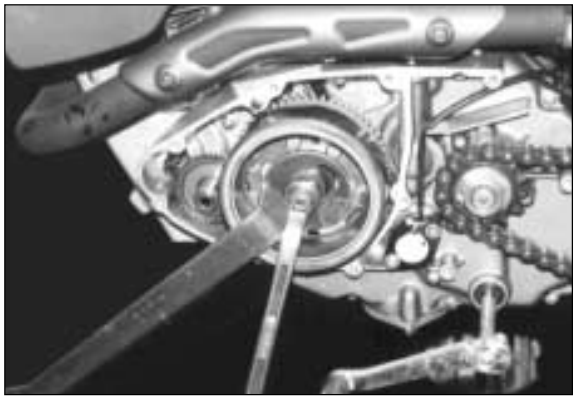
Thread Lock "1324"

● Tighten the magneto rotor nut to the specified torque.

Thread Lock "1324"

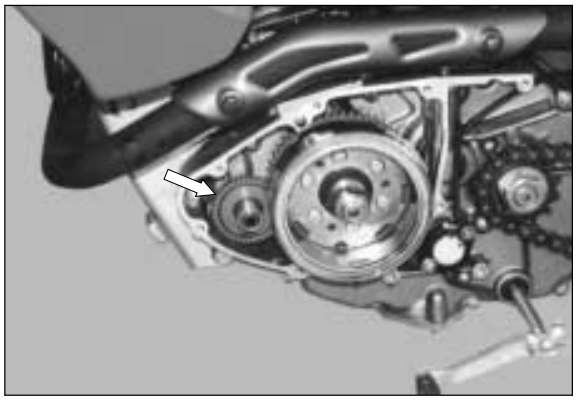
Rotor holder : 09930-40113
Rotor holder : 09930-44511

Magneto rotor nut : 56~60 N · m (5.6~6.0 kg · m)

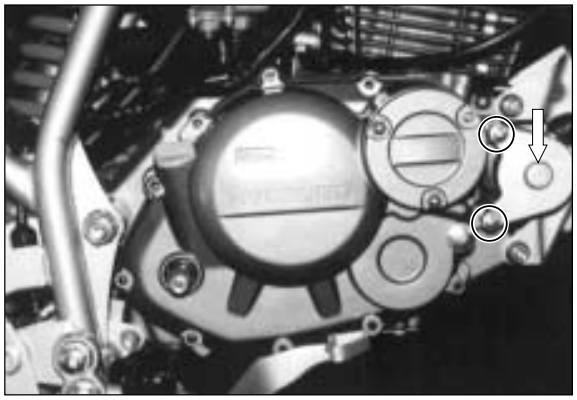


STARTER IDLE GEAR AND MOTOR

● Install the starter idle gear.



● Install the starter motor.



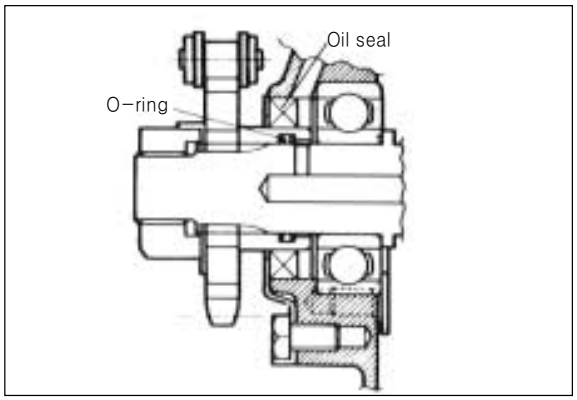
DRIVESHAFT OIL SEAL AND ENGINE SPROCKET

⚠ CAUTION

◇ Always replace the driveshaft oil seal with a new one every disassembly to prevent oil leakage. Also grease the oil seal lip.
On installation, refer to Fig, for correct position and direction.
◇ Replace "O" ring with a new one every disassembly.

⚠ CAUTION

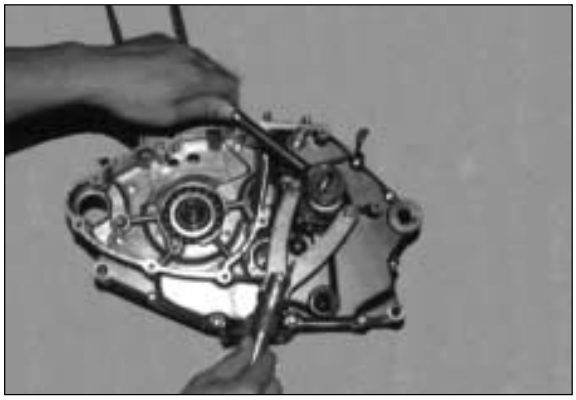
After reassembling the LOWER END COMPONENTS, install the O-ring and spacer.



● Tighten the engine sprocket nut to the specified torque and bend up the washer.

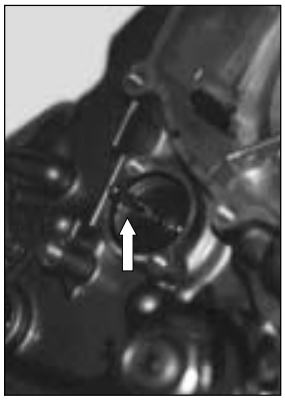
TOOL **Rotor holder : 09930-40113**

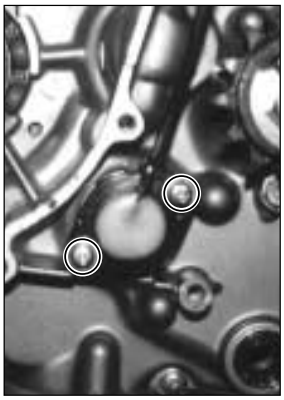
Engine sprocket nut : 80~100 N · m (8.0~10.0 kg · m)



GEAR POSITION SWITCH

● Install the gear position switch.



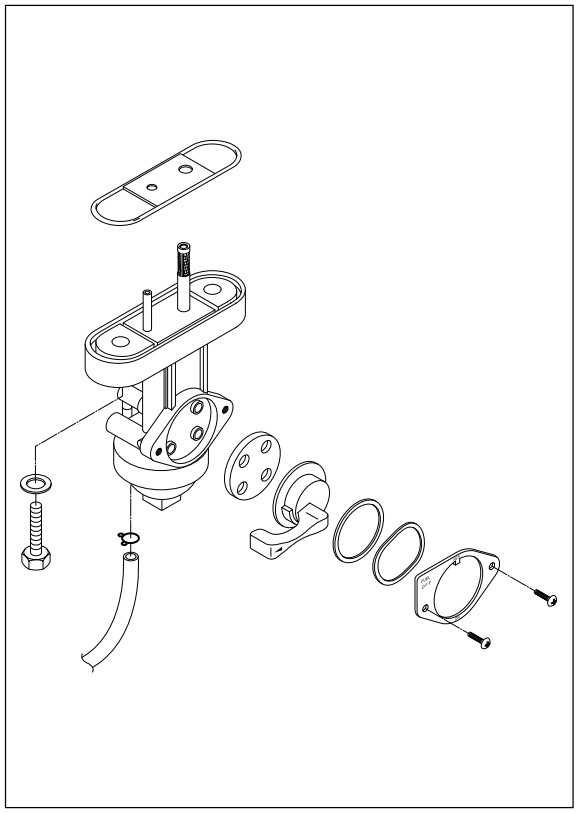


FUEL SYSTEM

CONTENTS

4

FUEL COCK



DISASSEMBLY

- Turn the fuel cock to "OFF" position and dis connect the fuel hose from the fuel cock.

- Place a clean oil pan under the fuel cock assembly, turn the fuel cock to "ON" position and drain the fuel.
- Unscrew the fuel cock securing bolts, and take off the fuel cock assembly.

CLEANING

Rust from the fuel tank tends to build up the filter, which, when the filter has been neglected for a long period, inhibits the flow of fuel.
Remove the rust from the filter using compressed air.

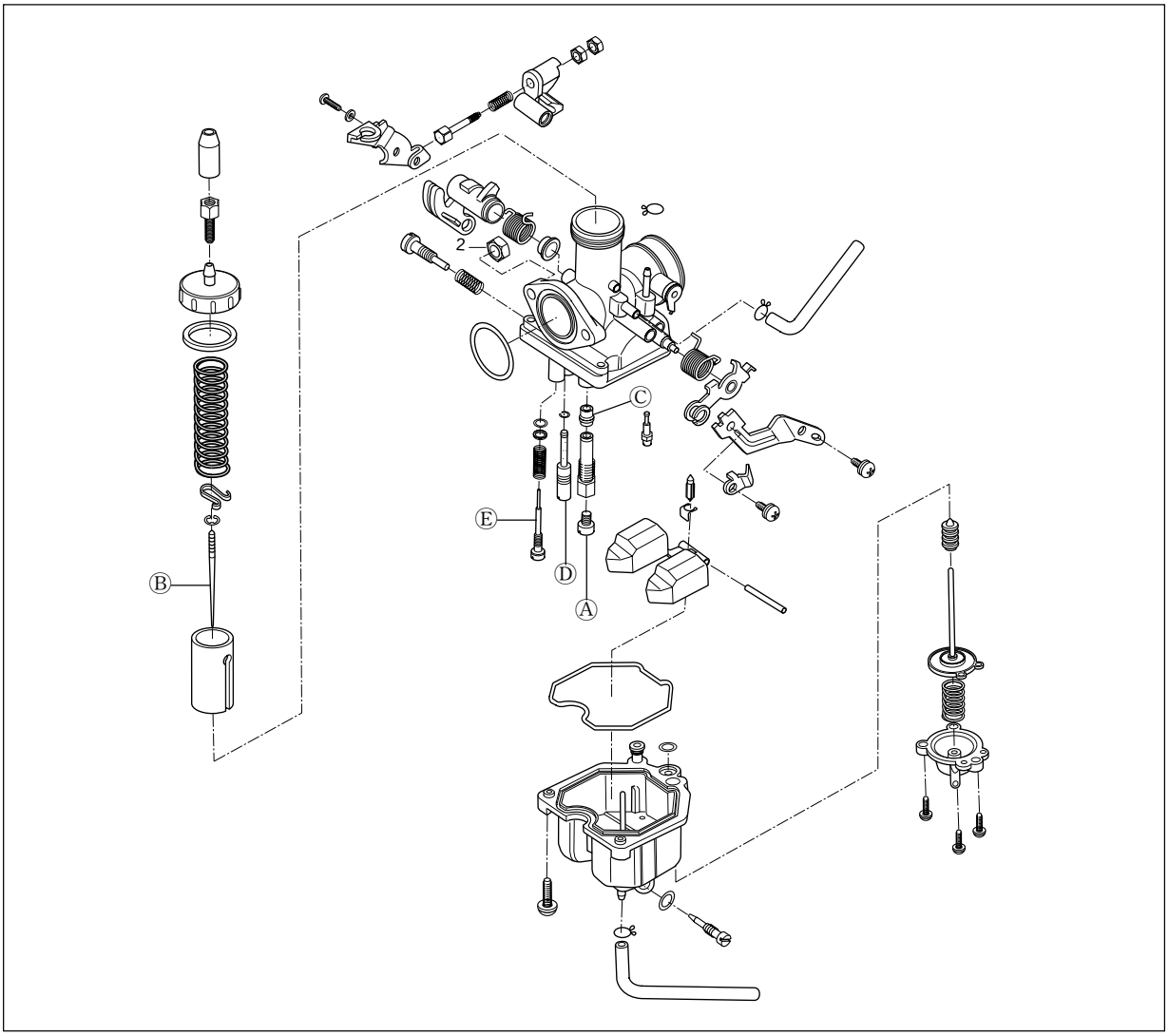
⚠ WARNING

Gasoline is highly explosive.
Extreme care must be taken.

⚠ WARNING

Gasket must be replaced with a new one to prevent leakage.

CARBURETOR

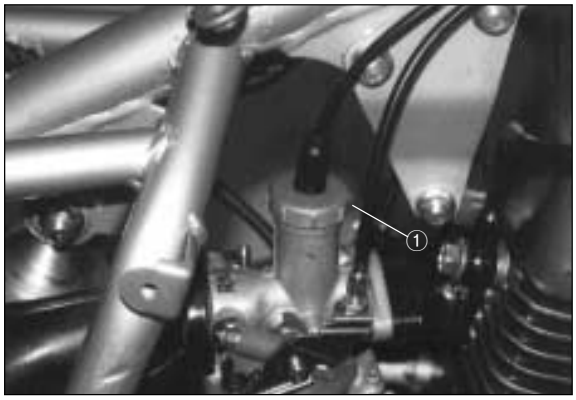


ITEM	SPECIFICATION	ITEM	SPECIFICATION
Carburetor type	PD 18 F	Needle jet(N.J) Ⓒ	AIFC−2nd
Bore size	ϕ 24	Pilot jet(P.J) Ⓓ	# 38
I.D. NO.	HG58	By pass(B.P.)	2.9, ϕ 1.0, ϕ 0.9
Idel rpm	1,450±100 rpm	Pilot air jet(P.A.J)	# 150
Jet needle(J.N.) Ⓑ	J 29 B	Valve seat(V.S.)	ϕ 2.0
Float height	12.5 mm	Starter jet	MAX # 500
Main jet(M.J.) Ⓐ	# 98	Pilot screw(P.S.) Ⓔ	(2½)
Main air jet(M.A.J.)	# 90		

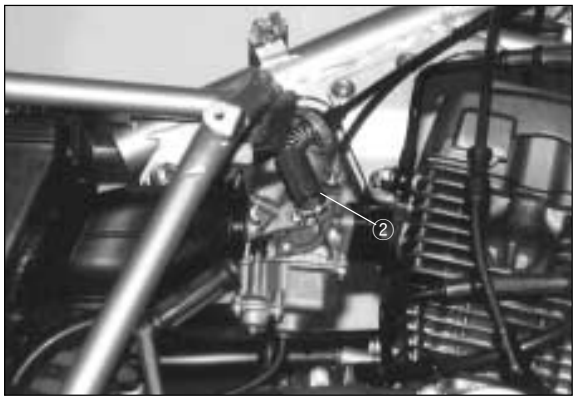
THROTTLE VALVE

DISASSEMBLY

- Disconnect the seat and fuel tank. (See page 3-2)
- Looen the carburetor top ① and disconnect the throttle valve.

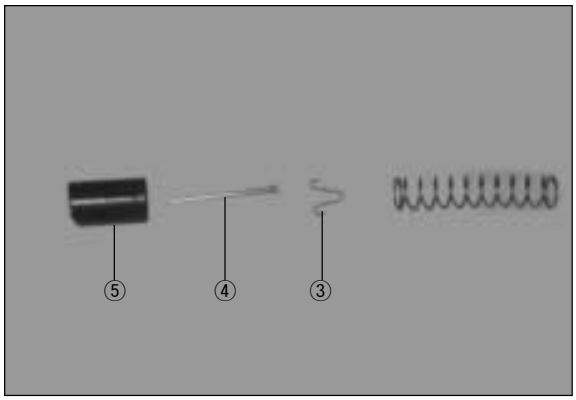


- Remove the throttle cable from the throttle valve ② and disconnect the throttle cable.

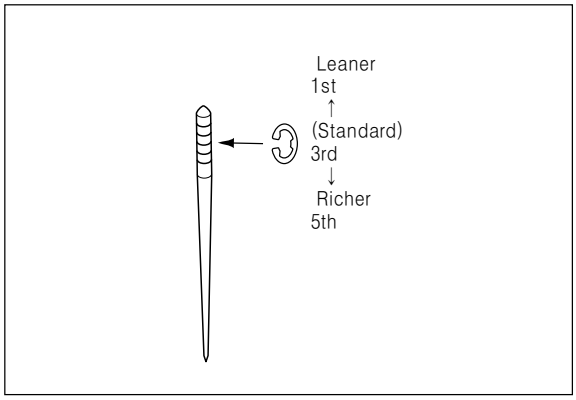


- Disconnect the throttle valve spring and carburetor top from the throttle cable.

- Draw out the retainer clip ③ and disconnect the jet needle ④.
- Inspect the jet needle and wear, damage of the throttle valve ⑤.

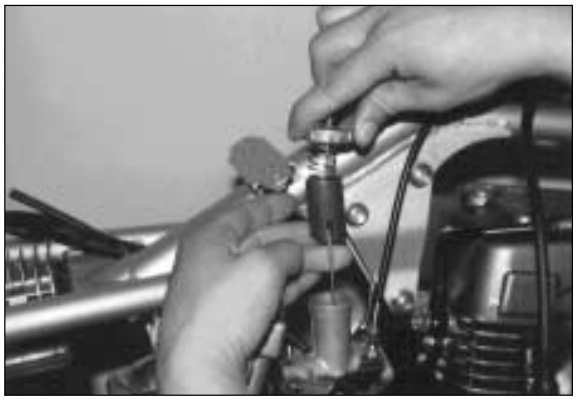


● Install the jet needle and retainer clip into the throttle valve.
※ Needle clip standard position : 3rd groove
● Install the carburetor top and spring into the throttle cable.
● Install the throttle cable into the throttle valve.



REASSEMBLY

Following adjustments and inspection are necessary after installing the throttle valve.
● Throttle cable play. (Refer to page 2-9)
● Idling adjustment. (Refer to page 2-9)



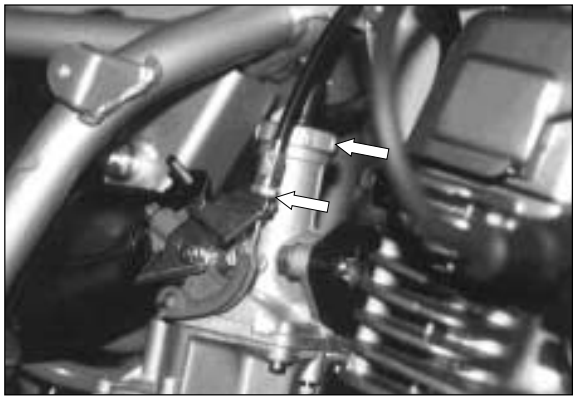
CARBURETOR

DISASSEMBLY

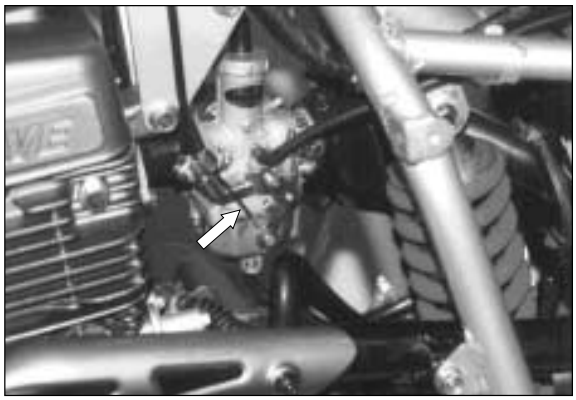
● Remove the seat and fuel tank. (Refer to page 3-2)
● Remove the carburetor top. (Refer to page 4-3)
● Remove the throttle cable.
● Remove the carburetor drain screw and draw out in the carburetor.

⚠ WARNING

Gasoline is highly explosive.
Extreme care must be taken.



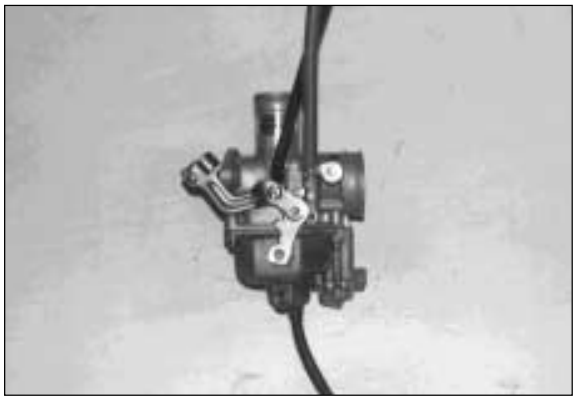
● Remove the choke cable.



● Loosen the carburetor nut and clamp screw.
● Remove the carburetor.

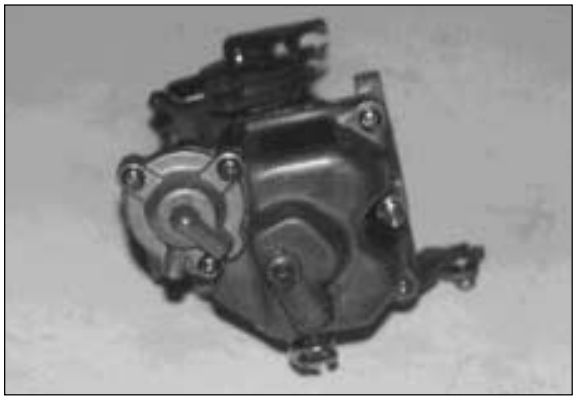
DISASSEMBLY

● Disconnect the fuel tube and drain tube.

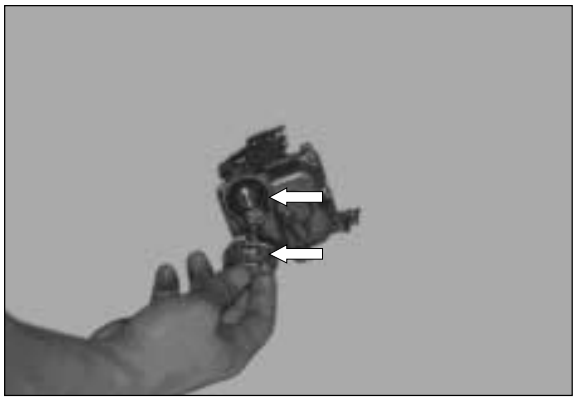


ACCELERATOR PUMP

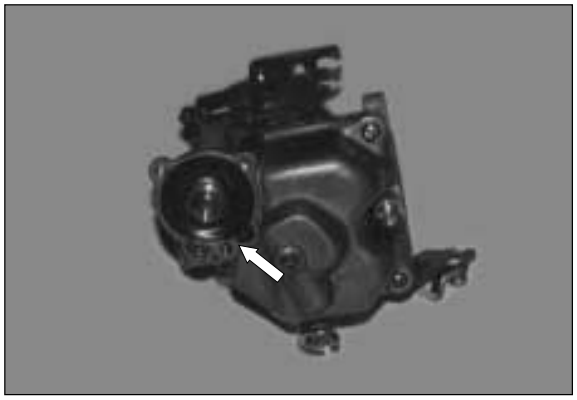
● Loosen the screws and disconnect the pump cover.



● Disconnect the spring.
● Inspect the accelerator pump load damage of the diaphragm.
● Clean the diaphragm.

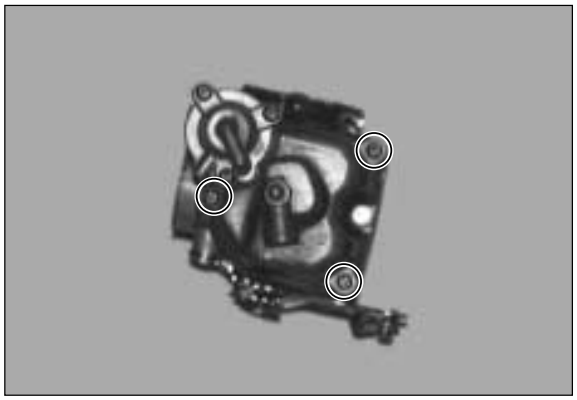


● Set up the diaphragm and the float chamber.
● Install the spring in the diaphragm and install the cover in the float chamber.
● Adjust the accelerator pump.

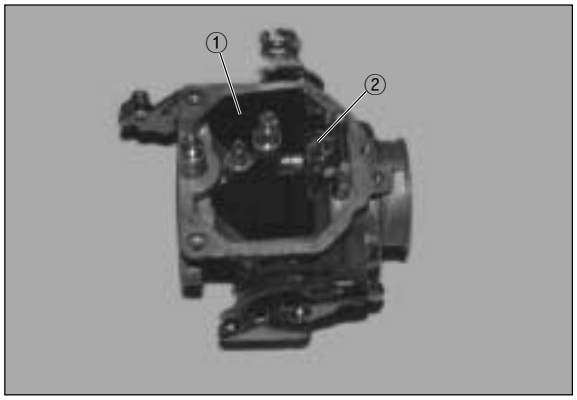


FLOAT AND NEEDLE VALVE

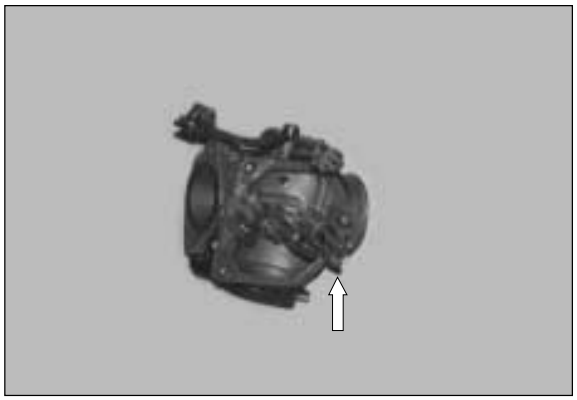
● Loosen the screws and remove the float chamber.



● Pull out the float arm pin.
● Remove the float ① and needle valve ②.

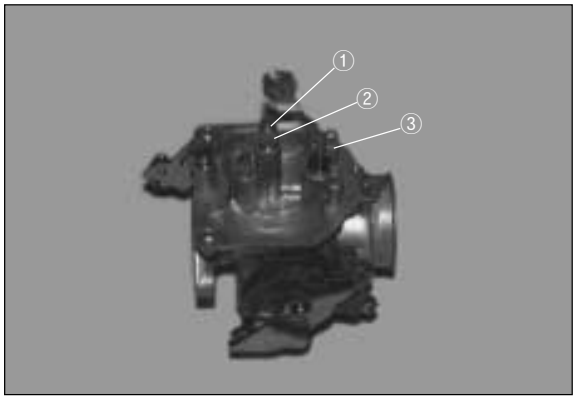


● Inspect the valve and valve seat for wear.
● Inspect the float for transformation.



JETS

- Disconnect the main jet ①, needle jet holder ② and needle jet.
- Disconnect the slow jet ③.
- Disconnect the pilot screw after record the revolutions until tighten completely.



⚠ CAUTION

Do not tighten the pilot screw by force, otherwise can be damaged of the seat.

- Disconnect the throttle stop screw ④.
- Clean the jets with non-flammable cleaning solvent.
- Inspect the pilot screw ⑤ and pilot jets.

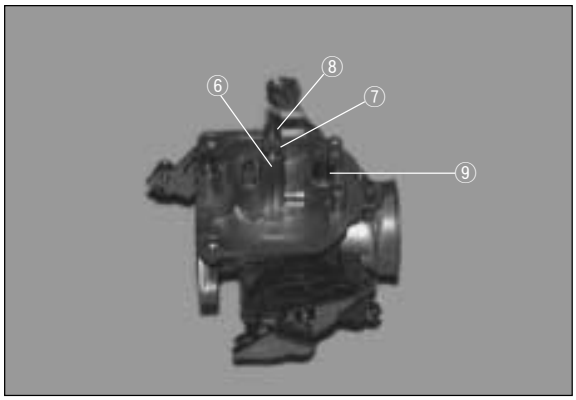
- Clean the jets and body passage with compressed air.

- Install the needle jet ⑥, needle jet holder ⑦, main jet ⑧ and slow jet ⑨.
- Install throttle stop screw and pilot screw.

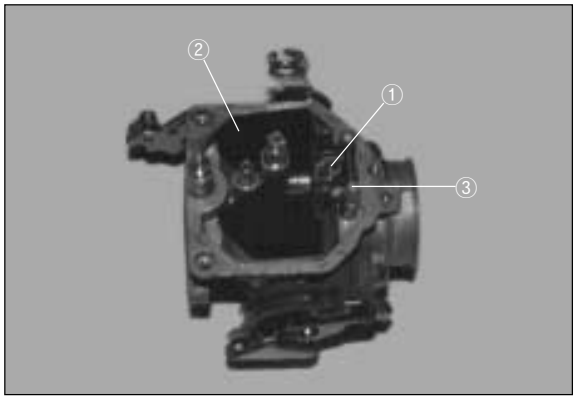
⚠ CAUTION

Install the pilot screw as revolutions to a case of disassemble.

- Adjust the pilot screw, when use a new pilot screw.



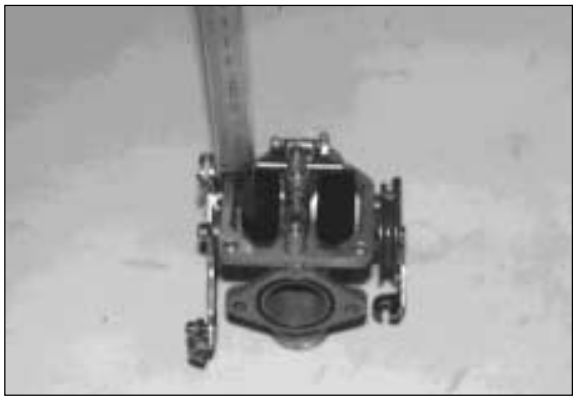
● Install the needle valve ①, float ② float arm pin ③.



FLOAT ADJUSTMENT

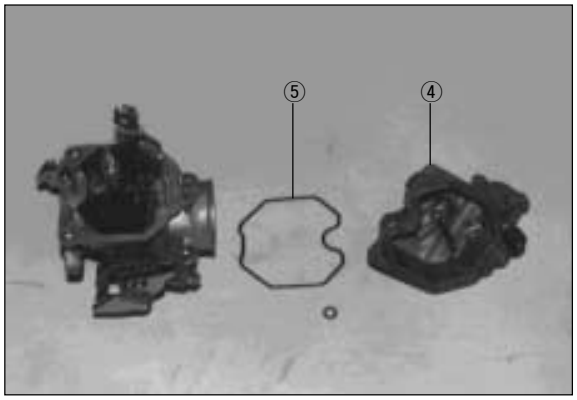
● To check the float height, invert the carburetor body, holding the float arm pin so that the pin will not slip off.

Float height	12.5 mm



● Check to be sure that the float moves freely.

● Install the new O-ring ⑤ and float chamber groove ④.
● Install the float chamber and screw.



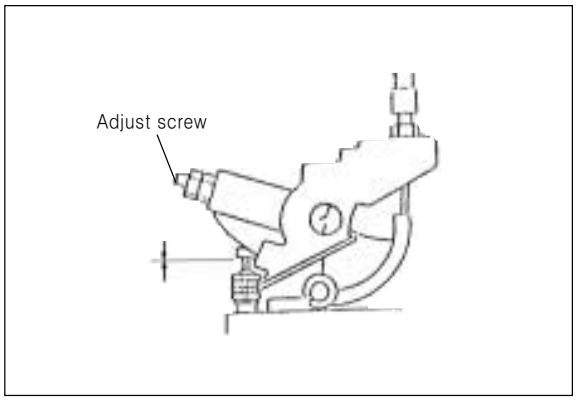
ACCELERATOR PUMP ADJUSTMENT

⚠ CAUTION

Do not adjust except for exchange the adjust screw.

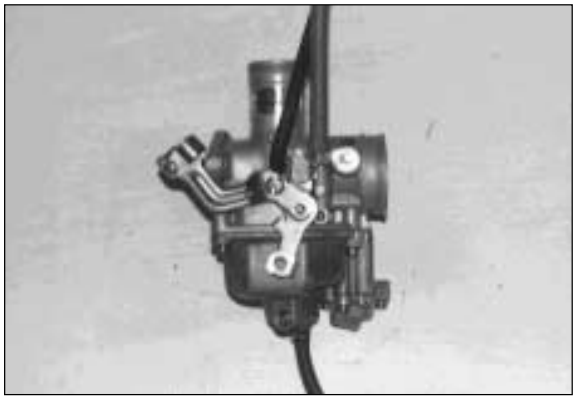
● Adjust idling. (Refer to page 2-9)
● Adjust throttle grip. (Refer to page 2-9)
● Adjust clearance of the accelerator pump rod after loosen the lock nut and turn the adjust screw.
● Tighten the lock nut.

Lock nut clearance	0 mm



REASSEMBLY

● Install the fuel tube and drain tube.



● Replace a new O−ring at the carburetor outlet side. Install the carburetor between the intake pipe and air cleaner outlet tube, tighten the carburetor lock nut and clamp screw.
● Connect the choke cable and throttle cable.

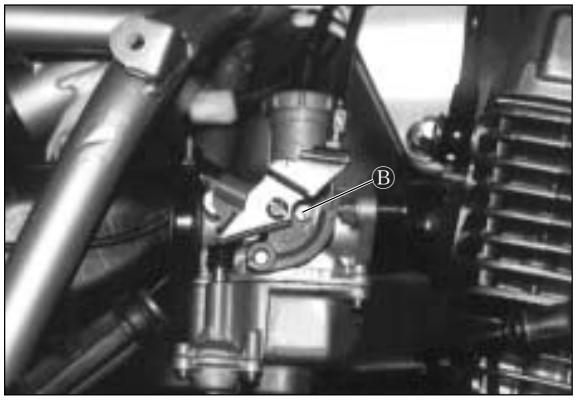
● Adjust the choke cable.
● Install the throttle valve. (Refer to page 4−4)

● Adjust play of the throttle grip. (Refer to page 2−9)

PILOT SCREW ADJUSTMENT

① Loosen as standard turn back revolutions after lock the pilot screw suitable.

Standard turn back revolution of pilot screw	2½ Circle



⚠ CAUTION

Do not tighten the pilot screw by force, otherwise can be damaged of the seat.

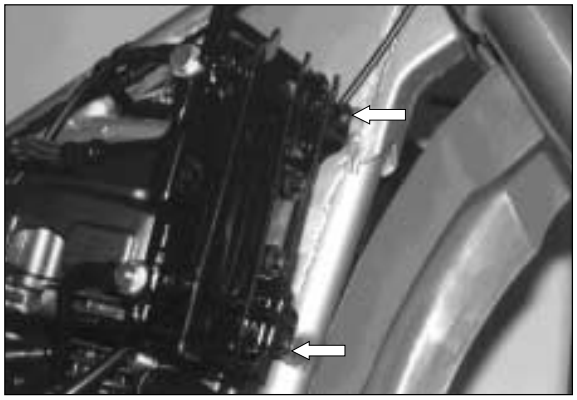
② Start up the engine and set its speed at any where between 1,450±100 rpm by turning the throttle screw Ⓑ.
③ Adjust the engine speed at hight position as the pilot screw left−right turning.
④ Repeat again ② − ③.
⑤ Adjust the standard engine idle speed by the throttle stop screw.
⑥ Look into the change idling revolution with snap light of continuously. If the idling revolution is change, repeat the ② − ⑤.

OIL COOLER

DISASSEMBLY

● Remove the oil cooler cover.

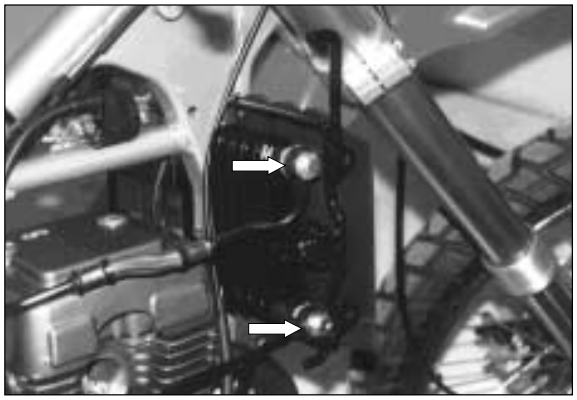
NOTE:
Draw out and push for face of the spring seat.



● Remove the screws.

● Remove the union bolts and detach the oil cooler.

NOTE:
When reassemble after remove the union bolt, do not remove except special case that fold of the hose, the others, are affected according to assemble angle.

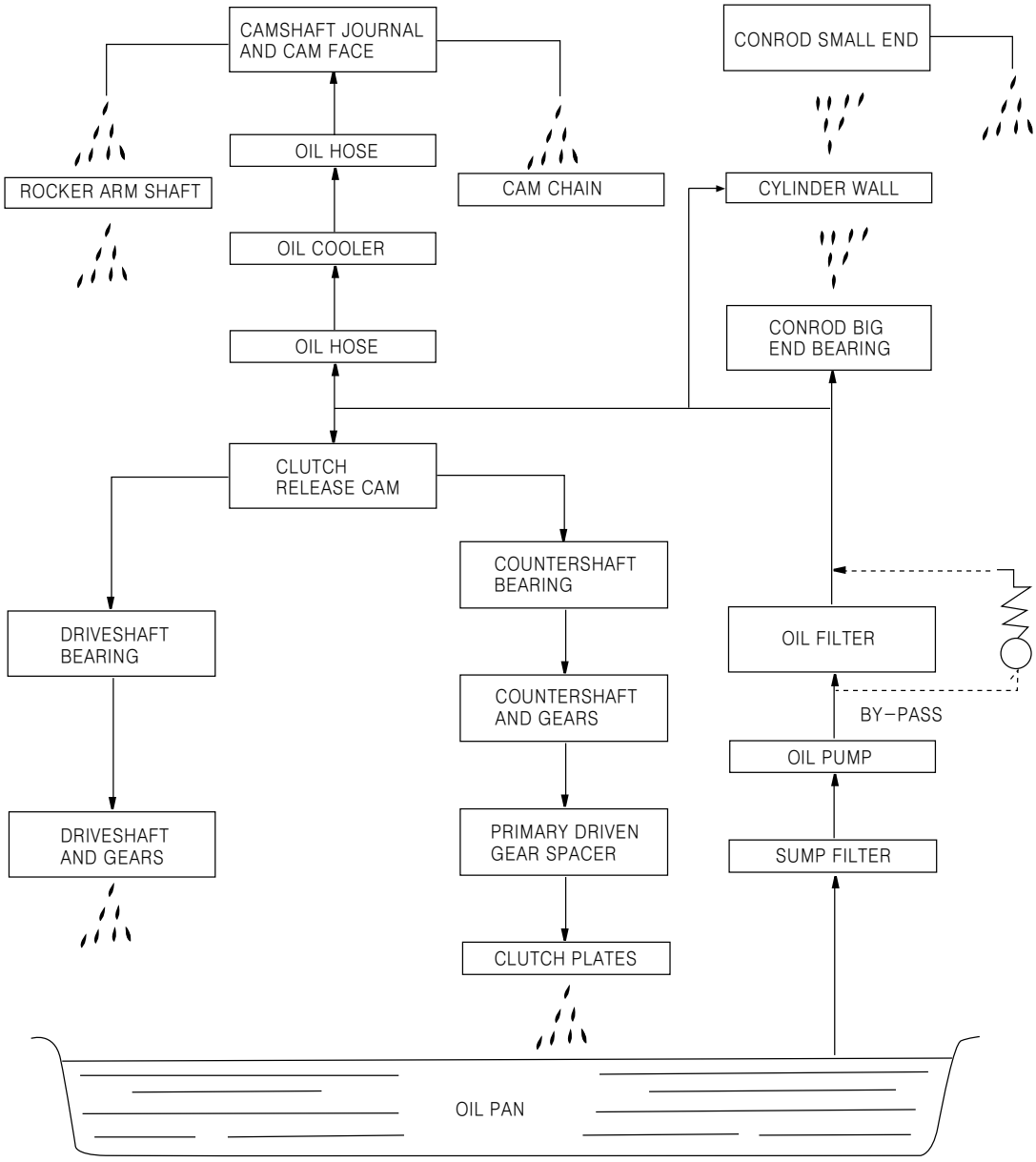


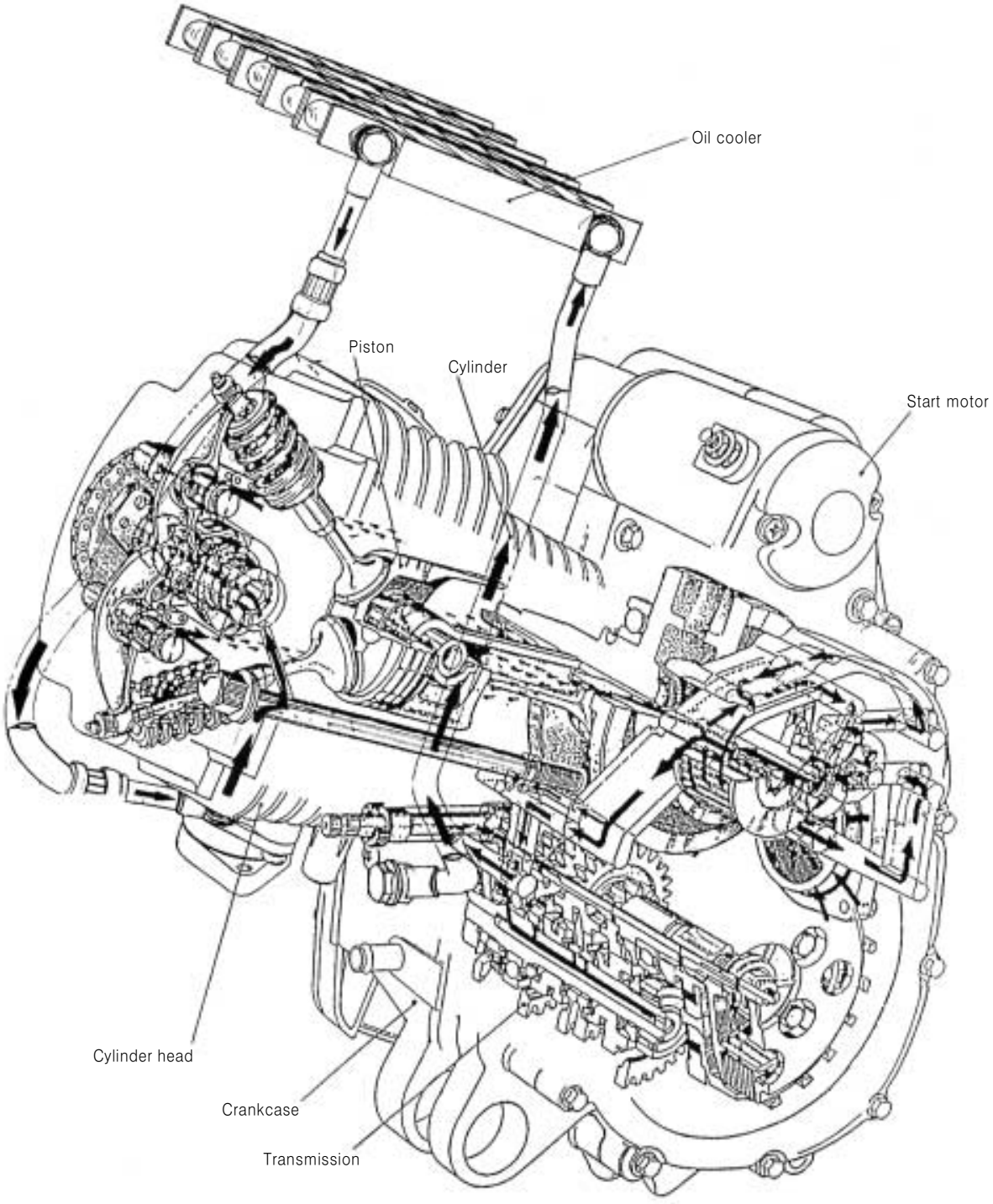
REMOUNTING

● Remounting the oil cooler by reversing the sequence of disassembling steps.
● Loosen the union bolt ① of the cylinder head, and inspect the air bleeding and oil.

Union bolt : 20~25 N · m (2.0~2.5 kg · m)

LUBRICATION SYSTEM





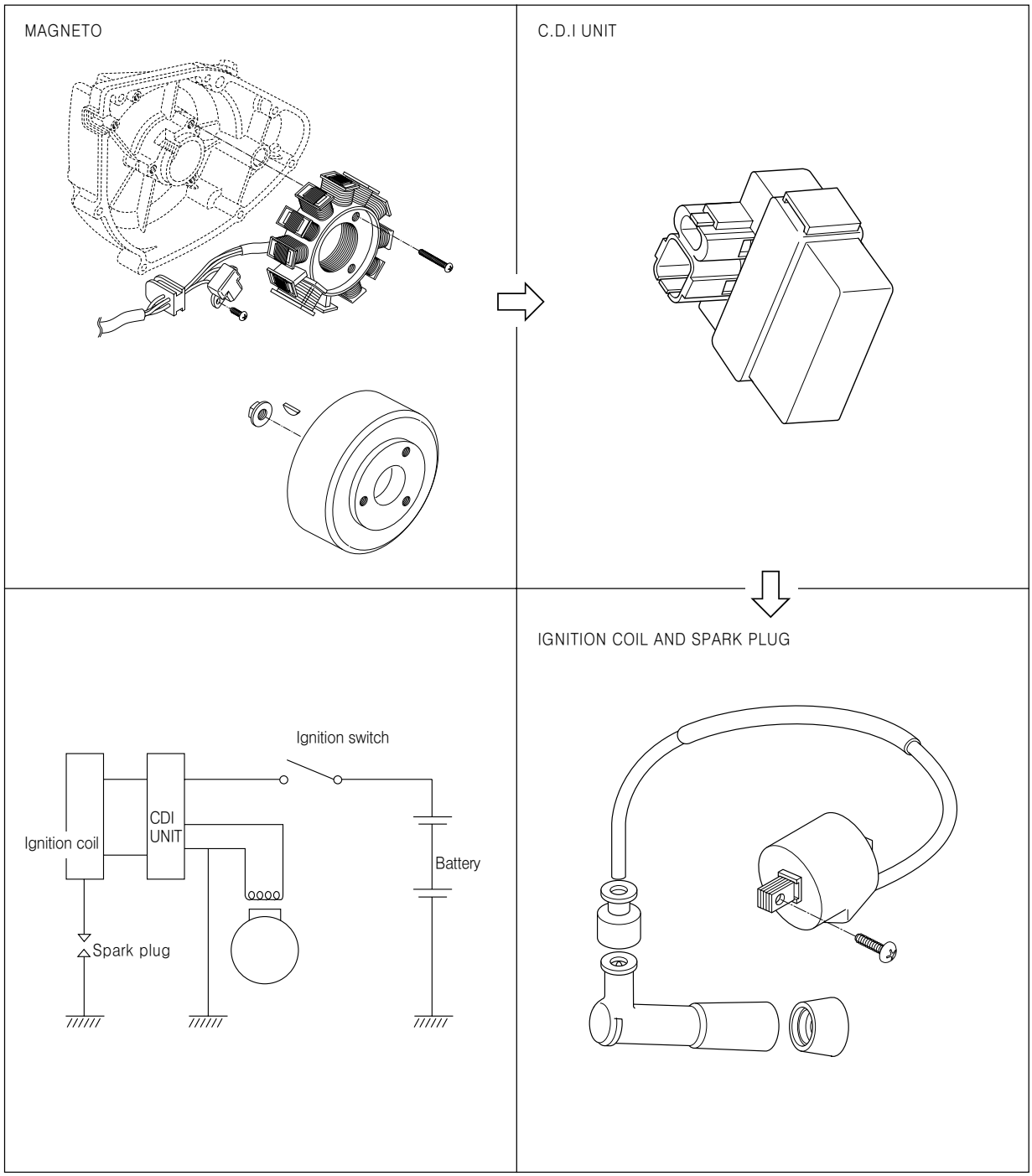
ELECTRICAL SYSTEM

CONTENTS

5

IGNITION SYSTEM

RX 125 is started as the battery discharged ignition system without a contact point.
The battery ignition system is composed a rotor tip, the D.C CDI, the igniton coil and battery.
Ignite after permit signal at ignition timing of pick-up as electric energy of this battery, occur the 1st electric current.
Therefore a high voltage current is induced in the secondary winding of the ignition coil resultion in strong spark between the spark plug gap.



INSPECTION

MAGNETO

Using the pocket tester, measure the resistance between the lead wires in the following table.

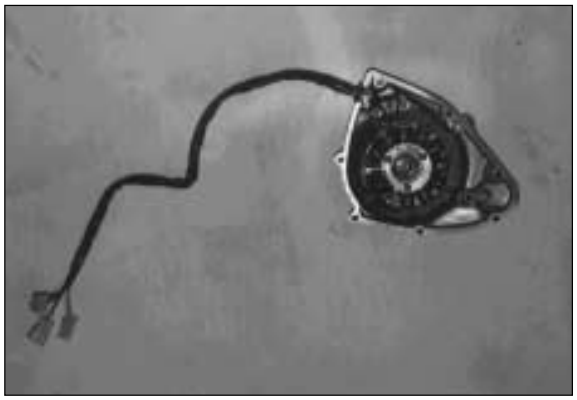
Pick-up coil	G–L Approx 90~110 Ω
Charging coil	Y–Y Approx 0.6~0.9 Ω

TOOL **Pocket Tester : 09900-25002**

⚠ CAUTION

When mounting the stator on the magneto cover, apply a small quantity of THREAD LOCK "1324" to the threaded parts of screws.

1324 **Thread Lock "1324"**



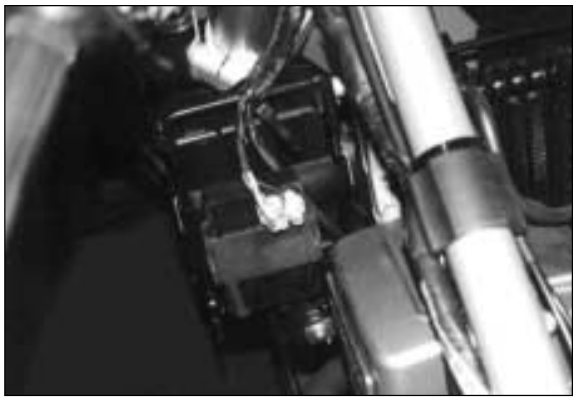
WIRE COLOR

L : Blue
G : Green
R : Red
W : White
Y : Yellow
B / R : Black with Red tracer
L / R : Blue with Red tracer
R / G : Red with Green tracer
W / G : White with Green tracer
W / R : White with Red tracer

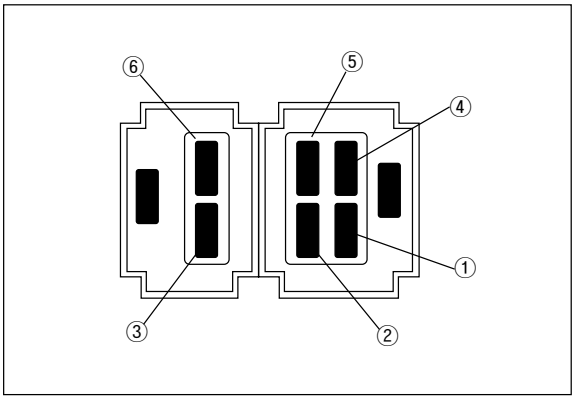
CDI UNIT

Using the pocket (R×1kΩ range), measure the resis–tance between the lead wires in the following table.

TOOL **Pocket tester : 09900-25002**



		⊕ Probe of tester					
		1	2	3	4	5	6
⊖ Probe of tester	1	–	∞	∞	5~500	10~1,000	∞
	2	5~500	–	∞	1~50	1~100	∞
	3	∞	∞	–	∞	∞	∞
	4	5~500	∞	∞	–	1~100	∞
	5	∞	∞	∞	∞	–	∞
	6	10~1,000	∞	∞	1~100	2~200	–



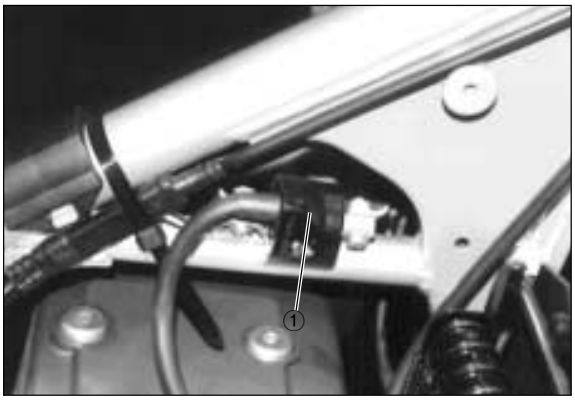
INSPECTION

IGNITION COIL (Checking with Electro Tester)

● Remove the ignition coil ①.

NOTE:
Make sure that the three-needle sparking distance of the electro tester is set at 8 mm (0.3 in).

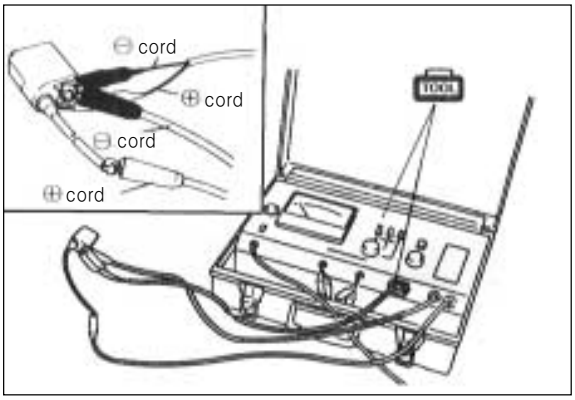
With the electro tester, test the ignition coil for sparking performance.



If no sparking or orange color sparking occures in the above conditions, it may be caused by the defective coil.

TOOL **Electro tester : 09900-28107**

Spark performance	Over 8 mm (0.3 in)

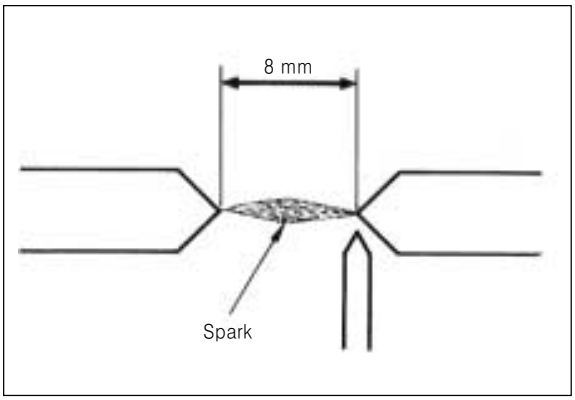


⚠ WARNING

Do not touch the wire clips to prevent an electric shock when testing.

⚠ CAUTION

When using the electro tester, follow the instruction manual.

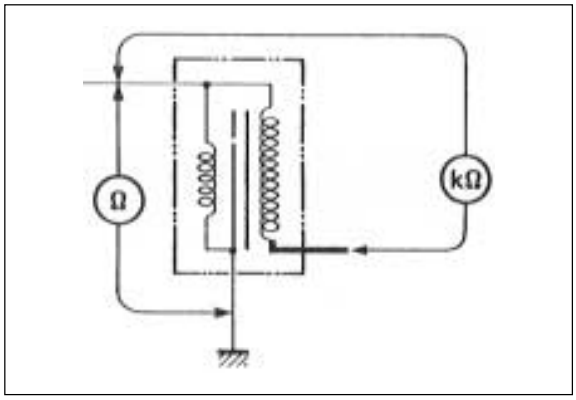


IGNITION COIL (Checking with Pocket Tester)

● A pocket tester or an ohm meter may be used, instead of the electro tester. In either case, the ignition coil is to be checked for continuity in both primary and secondary windings. Exact ohmic readings are not necessary, but, if the windings are in sound condition, their continuity will be noted with these approximate ohmic values.

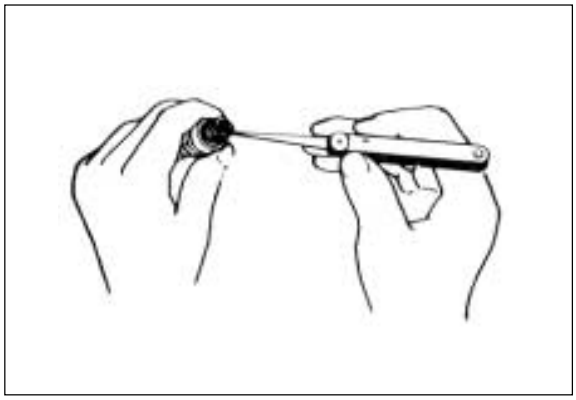
TOOL **Pocket tester : 09900-25002**

Ignition coil resistance		
Primary	0.19~0.24 Ω	Tester knob indication × 1Ω range
Secondary	5.4~6.6 Ω	Tester knob indication × 1kΩ range
Check to attached plug cap		



SPARK PLUG

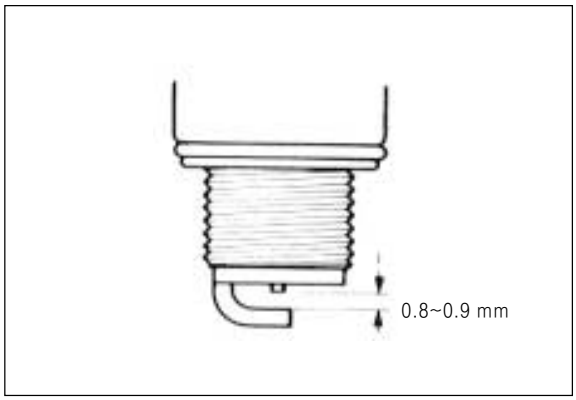
Clean the plug with a wire brush and pin. Use the pin to remove carbon, taking care not to damage the porcelain.



● Check the gap with a thickness gauge.

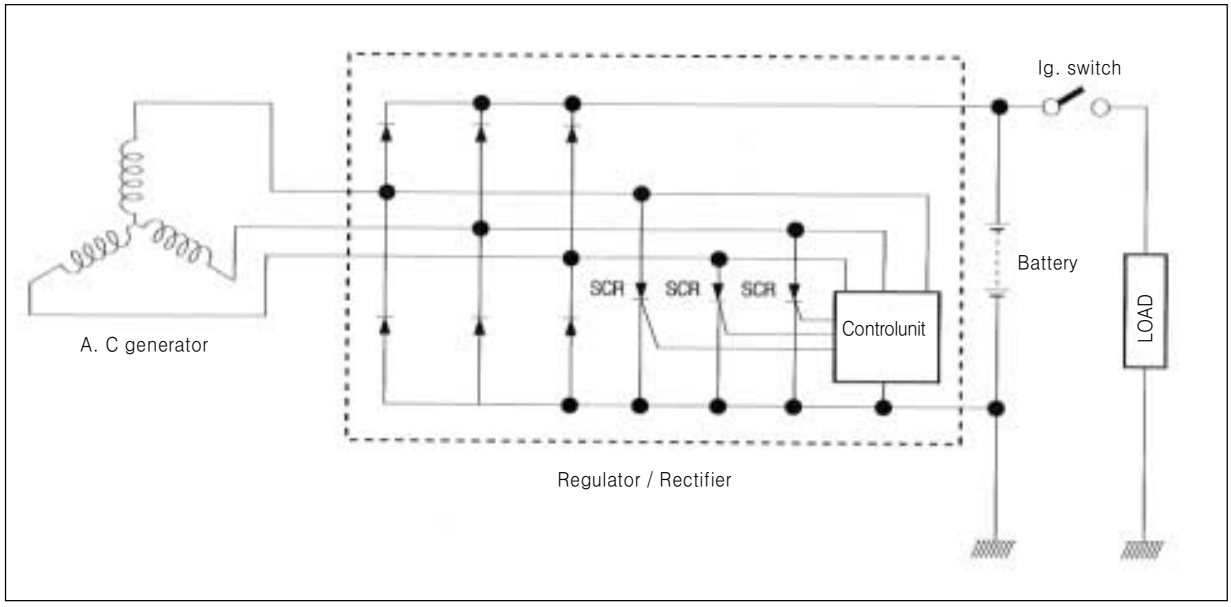
TOOL **Thickness gauge : 09900-20804**

Spark plug gap	0.8~0.9 mm



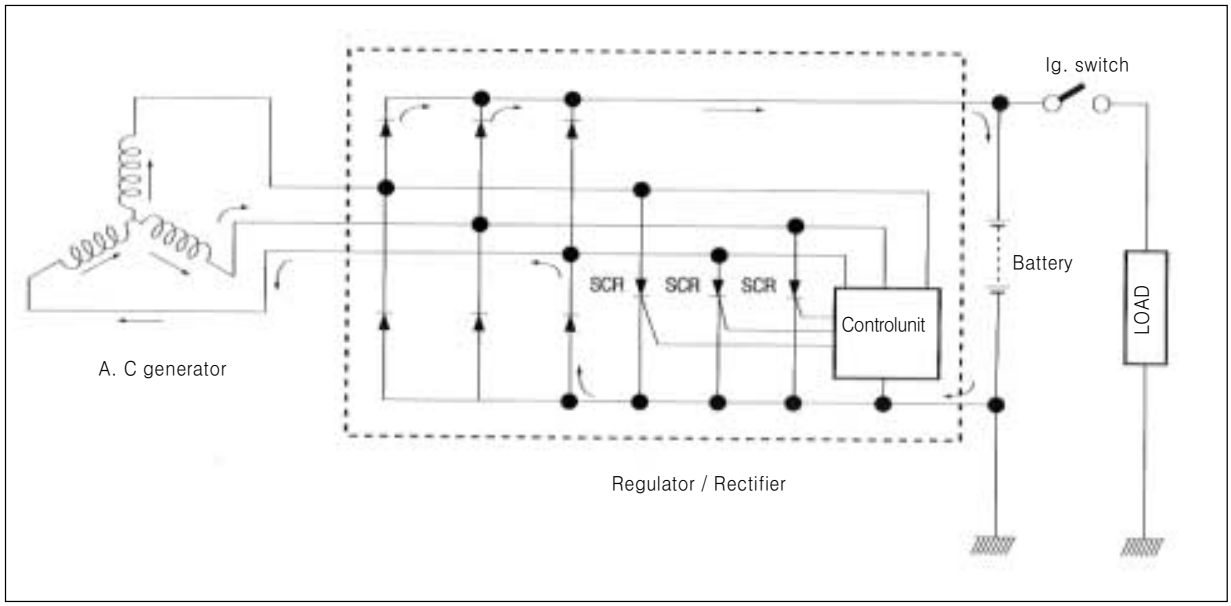
CHARGING SYSTEM

The circuit of the charging system is indicated in figure, which is composed of and the AC generator, regulator / rectifier unit and battery.
The AC current generated from the AC generator is converted by the rectifier and is turned into the DC current, then it charges the battery.

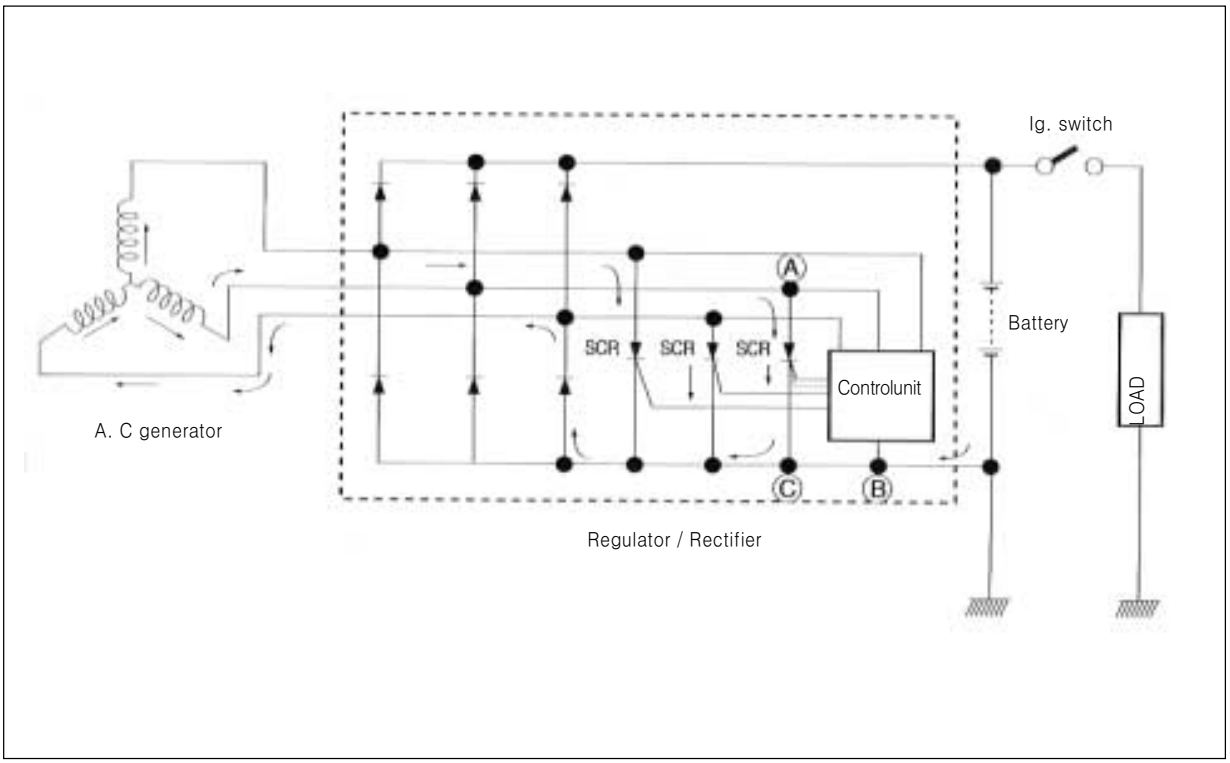


Function of Regulator

While the engine rpm is low and the generated current of the AC generator is lower than the adjusted voltage of the regulator, the regulator does not function, incidentally the generated current charges the battery directly.



When the engine rpm become higher, the generated voltage of the AC generator also becomes higher and the voltage between points Ⓐ and Ⓑ of the regulator according becomes high, and when it reaches the adjusted voltage of the control unit, consequently the control unit becomes "ON" condition. On the "ON" condition of the control unit, signal will be sent to the SCR (Thyristor) gate probe and SCR will become "ON" condition. Then the SCR becomes conductive to the direction from point Ⓐ to point Ⓑ. Namely at the state of this, the current generated from the AC generator gets through SCR without charging the battery and returns to the AC generator again. At the end of this state, since the AC current generated from the AC generator flows into the point Ⓑ, reverse current tends to flow to SCR, then the circuit of SCR turns to "OFF" mode and begins to charge the battery again. Thus these repetitions maintain charging constant voltage to the battery and protect it from overcharging.



INSPECTION

CHARGING OUTPUT CHECK

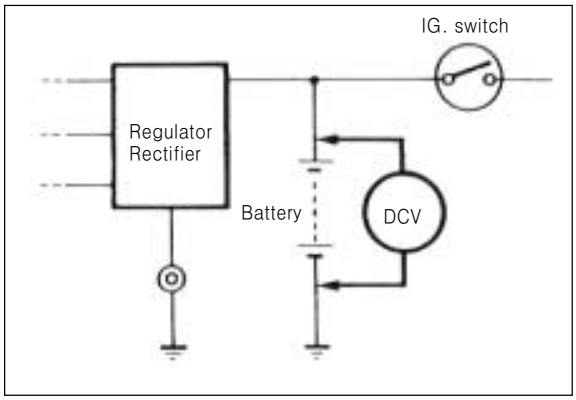
Start the engine and keep it running at 5,000 rpm.
Using the pocket tester, measure the DC voltage between the battery terminal ⊕ and ⊖.
If the tester reads under 13.5 V or over 16.0 V, check the AC generator no-load performance and regulator / rectifier.

⚠ CAUTION

When making this test, be sure that the battery is full-charged condition.

TOOL Pocket tester : 09900-25002

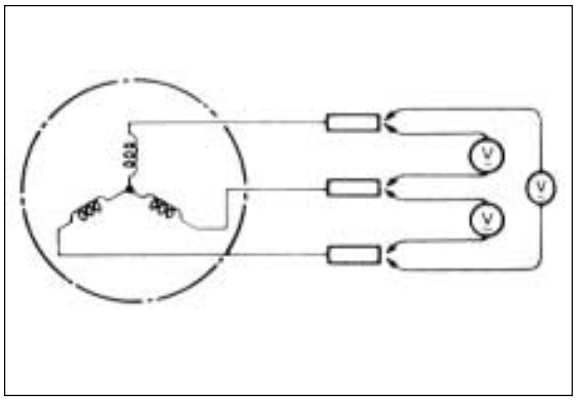
Standard charge	13.5~16.0 V at 5,000 rpm



AC GENERATOR NO-LOAD PERFORMANCE

Disconnect the three lead wires from the AC generator terminal.
Start the engine and keep it running at 5,000 rpm.
Using the pocket tester, measure the AC voltage between the three lead wires.
If the tester reads under 70 V the AC generator is faulty.

Standard NO-load performance of AC generator	72~99 V at 5,000 rpm



REGULATOR / RECTIFIER

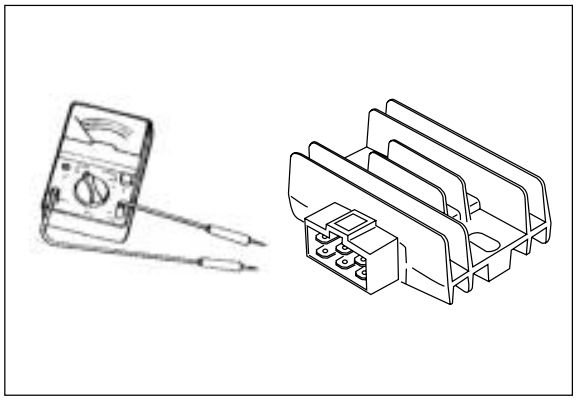
Using the pocket tester (× 1 Ω range), measure the resistance between the lead wires in the following table.

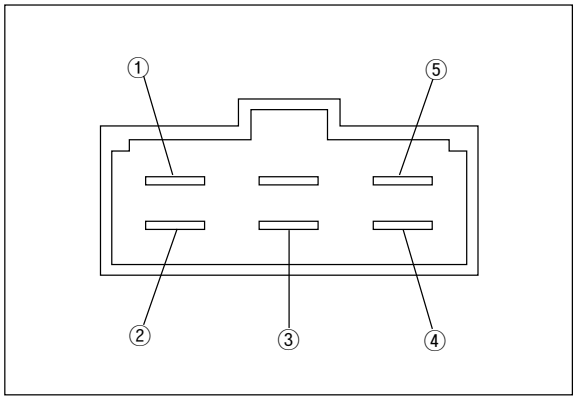
If the resistance checked is incorrect, replace the regulator / rectifier.

TOOL **Pocket tester : 09900-25002**

Unit : Ω

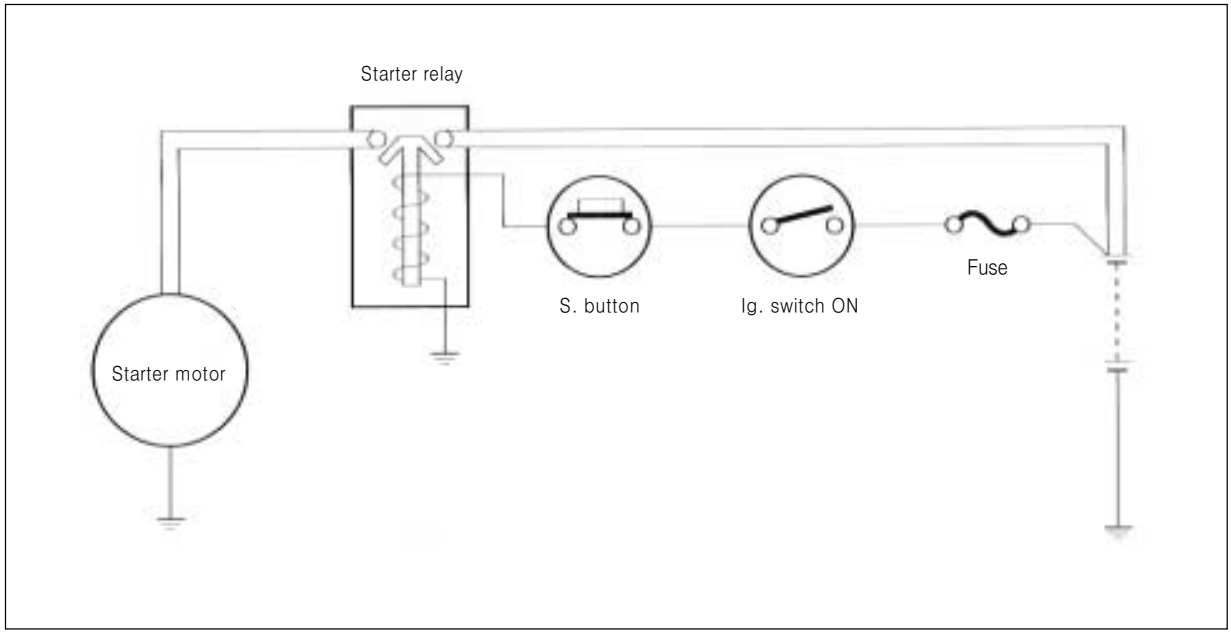
		⊕ Probe of tester				
		1	2	3	4	5
⊖ Probe of tester	1	-	OFF	OFF	OFF	OFF
	2	7~8	-	OFF	OFF	OFF
	3	7~8	OFF	-	OFF	OFF
	4	7~8	OFF	OFF	-	OFF
	5	35~55	7~8	7~8	7~8	-



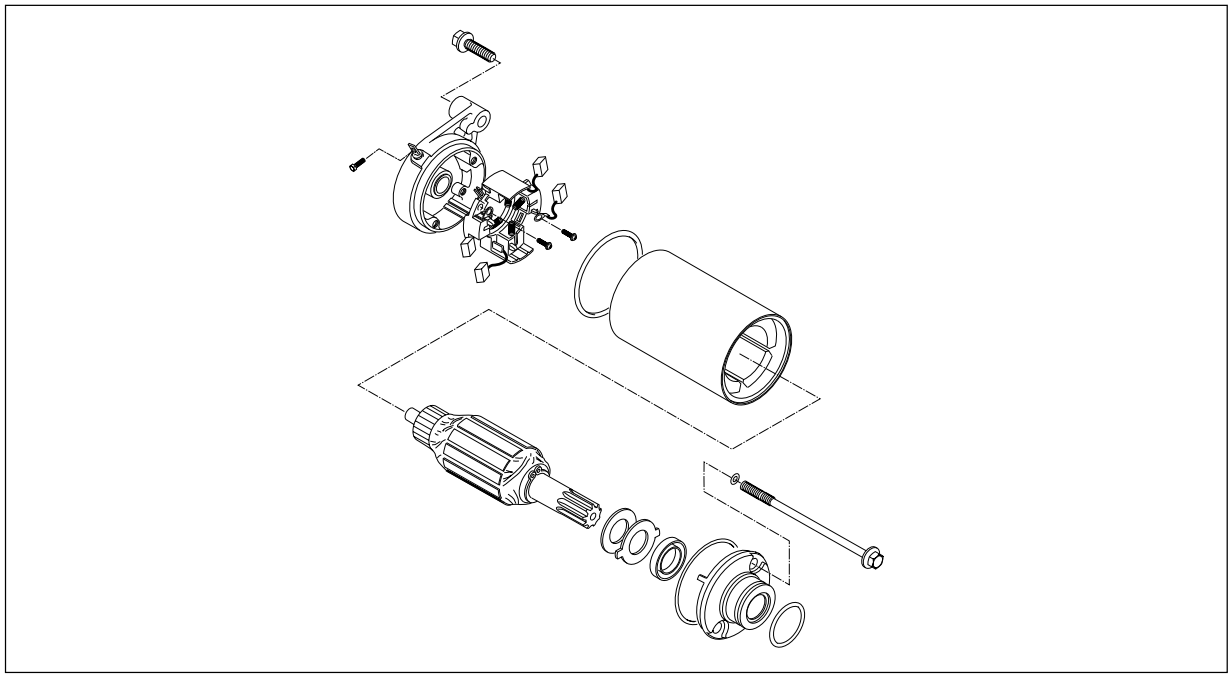


STARTER SYSTEM

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



STARTER MOTOR REMOVAL AND DISASSEMBLY.
Remove the starter motor.
Disassemble the starter motor as follows.

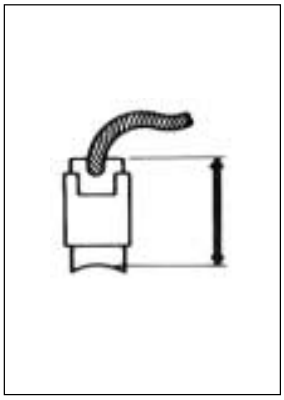


STARTER MOTOR INSPECTION

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.

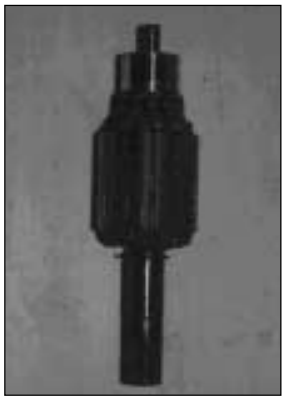
Wear of carbon brushes	Service limit 3.5 mm

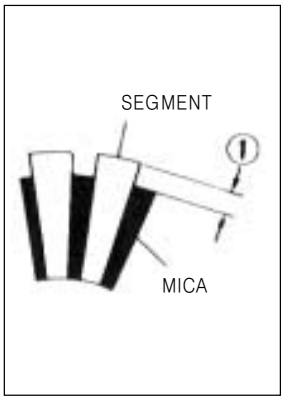


COMMUTATOR

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.

Under cut of commutator	Service limit 0.5 mm

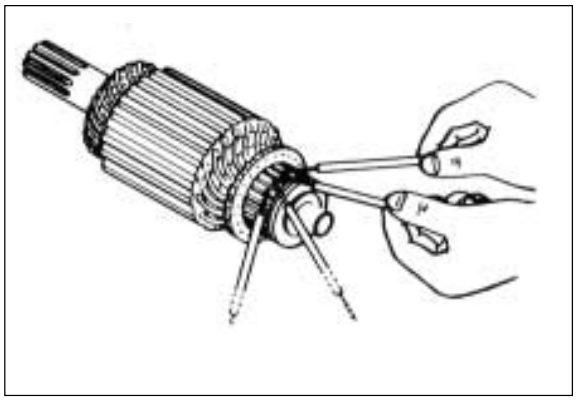




ARMATURE COIL

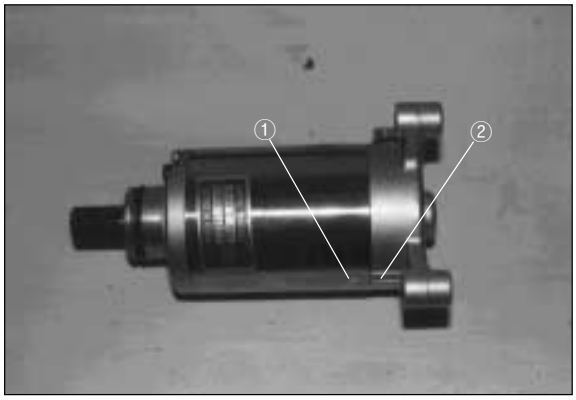
Using a pocket tester, check the coil for open and ground by placing probe pins on each commutator segment and rotor core (to test for ground) and on any two segments at various place (to test for open) of the commutator surface.
If the coil is found to be open-circuited or grounded, replace the armature,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

TOOL **Pocket tester : 09900-25002**



STATER MOTOR REASSEMBLY
BRUSH HOLDER AND HOUSING END

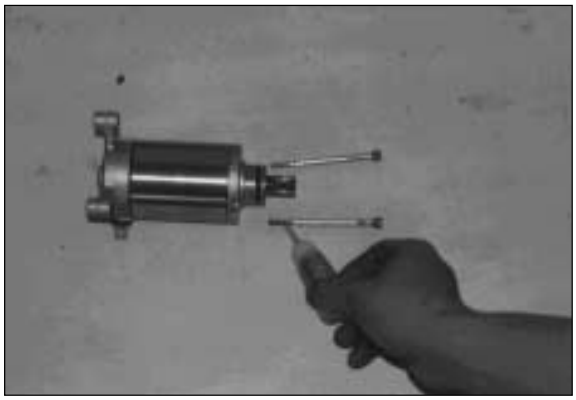
When fixing brush holder to starter motor case, align the protrusion ① of the starter motor case with the notch ② of the brush holder.



SECURING SCREWS

Apply thread lock "1324" to starter motor securing screws.

1324 Thread Lock "1324"



STARTER MOTOR RELAY INSPECTION

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

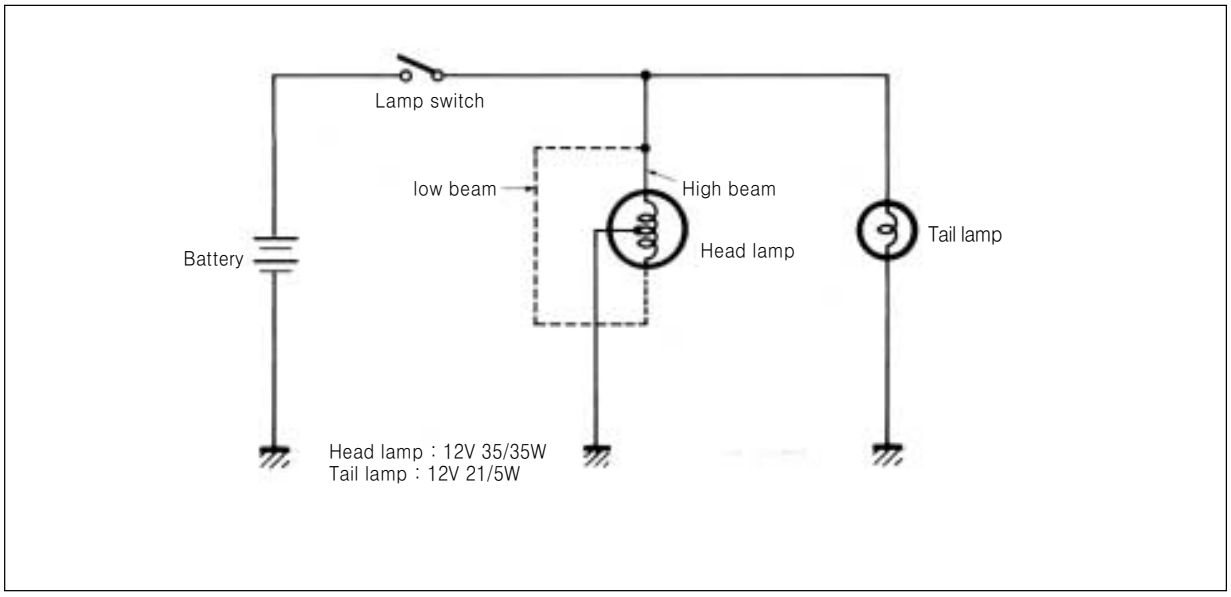
TOOL Pocket tester : 09900-25002

Check the coil for "open", "ground" and ohmic resistance. The coil is in good condition of the resistance is as follows.

TOOL Pocket tester : 09900-25002

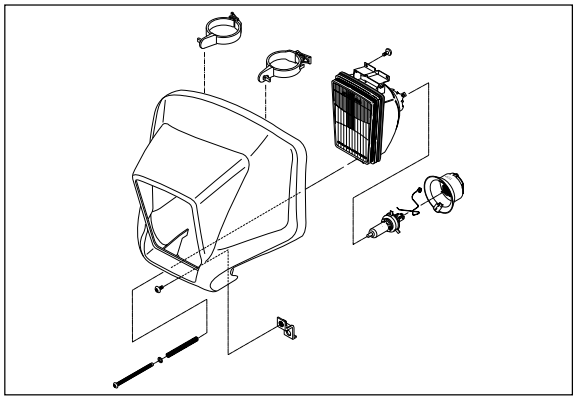
Standard resistance	Approx. 3~4Ω

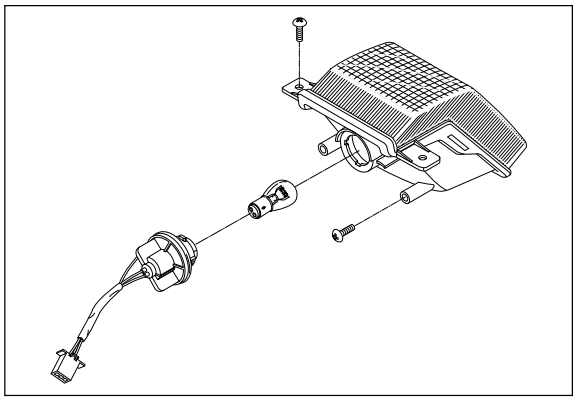
LAMP



LAMP BULB REPLACEMENT AND INSPECTION

● After installing a new bulb, check for continuity. If the bulb does not light, inspect the wiring for open or short circuit.





SWITCHES

Inspect each switch for continuity with the pocket tester referring to the chart.

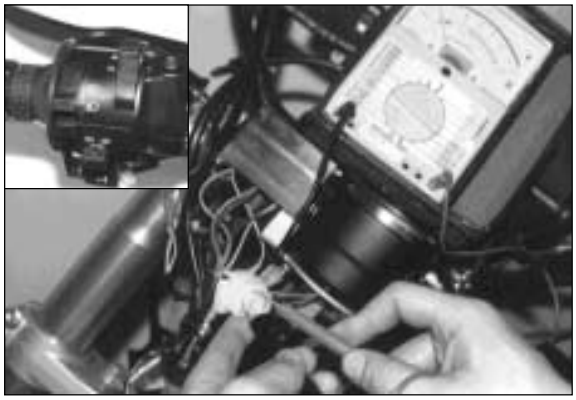
TOOL **Pocket tester : 09900-25002**

ENGINE KILL SWITCH

COLOR / POSITION	B/Y	Frame Earth
OFF	○———	———○
RUN		

LAMP SWITCH

COLOR / POSITION	Gr	O
OFF		
ON	○———	———○



WIRE COLOR

Gr ..... Gray
B / Y ..... Black with yellow tracer
O ..... Orange.

BATTERY

CAUTION OF BATTERY TREATMENT

The battery is needed attention generally as occur flammability gas.
If does not, it should be explosion and severe accident.
Pay attention to the following points.

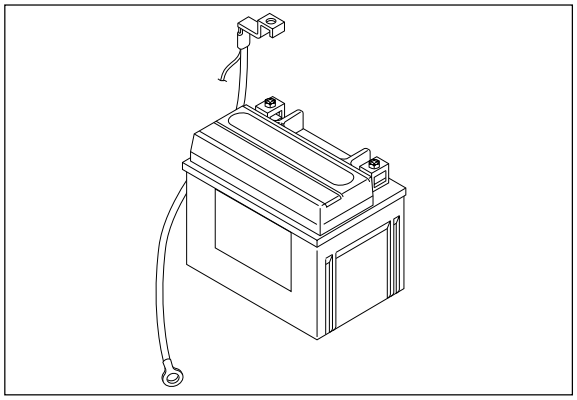
- Prohibit positively that come in contact with short, spark or firearms.
- The battery recharge where be well-ventilated wide place.
  Prohibit positively at the shut tight room.

CAUTION OF BATERY ELECTROLYTE TREATMENT

- Pay attention that the battery electrolyte not be stain the chasis or the humanbody.
- If be stain the chasis or the humanbody, at once wash a vast quantity of water.
  When it be stained, clothes should come into being a hole or painting should take off.
  Be cured from a doctor.
- When the battery electrolyte was droped the surface of land, wash a vast quantity of water.
  Neutralize by hudroxide, bicarbonate of soda and so on.

CAUTION OF MAINTENANCE FREE BATTERY TREATMENT

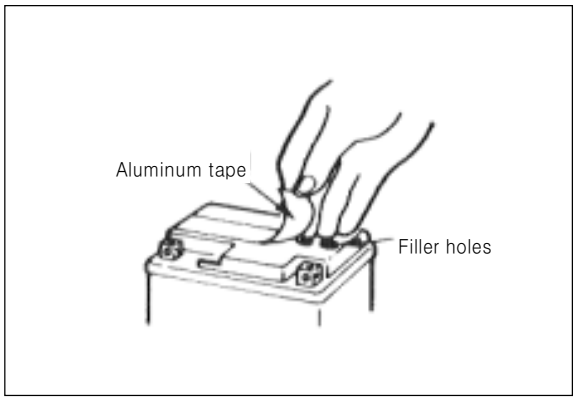
- Do not remove the aluminum tape what sealing the battery electrolyte filler hole untill use as battery of completely seal type.
- Do not use with the exception exclusive the bat-tery electrolye.
- When pour into the battery electrolyte, neces-sarily use the electrolyte of the rules capacity.
- Do not open the sealing cap after recharge the battery eletrolyte.



- Filling electrolyte.

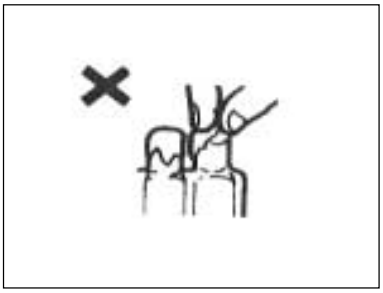
① The battery is puted on even land, remove the aluminum tape sealing

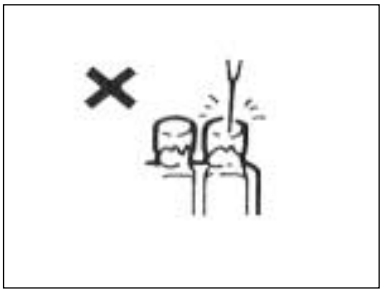
② Remove the cap at the electrolyte container.

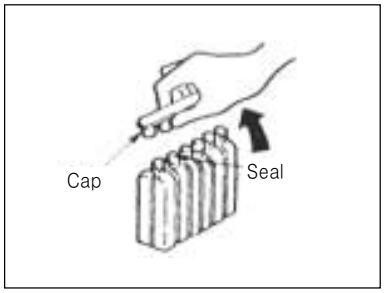


⚠ CAUTION

Do not remove the seal, not prick with sharp thing.



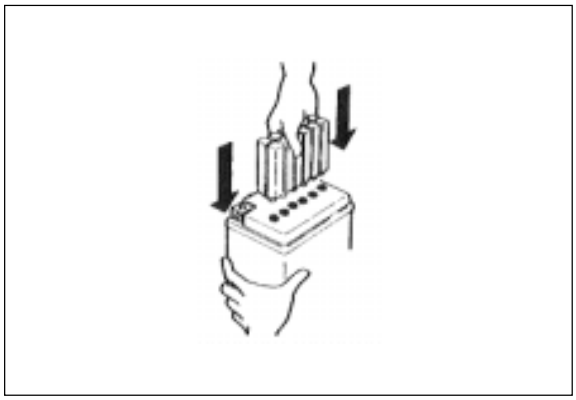


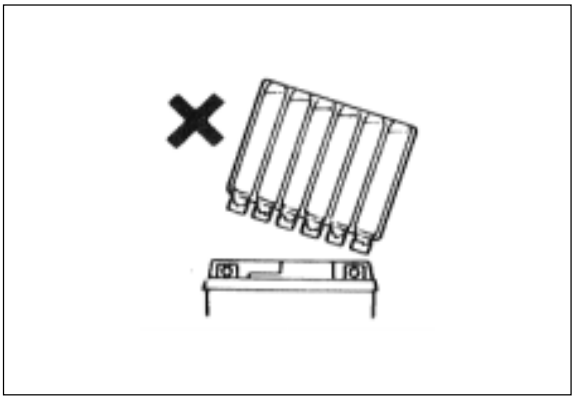


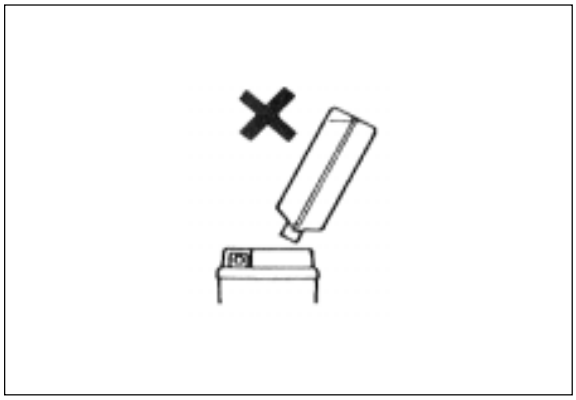
③ Pouring in battery electrolyte
When insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it cloes not fall.
Take precaution not to allow any of the fluid to spill.

⚠ CAUTION

In no case pouring into if put in slopely the electrolyte container.



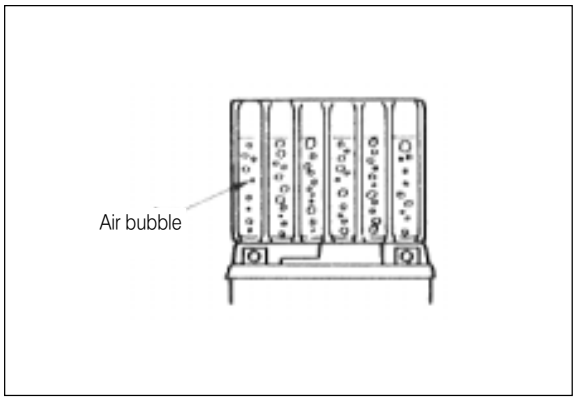




④ Confirm of pour
Make sure that air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.

⚠ CAUTION

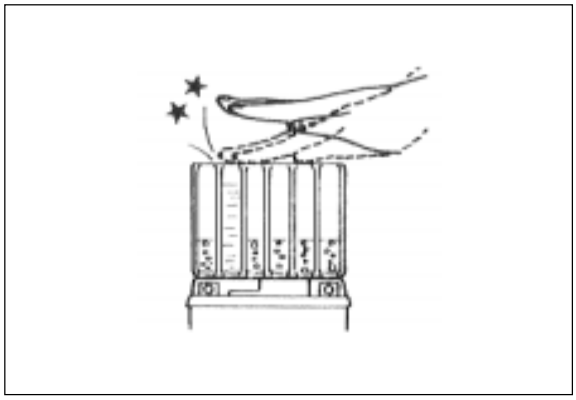
If no air bubbles are coming up from afiller port, tap the botton of the two or three times.



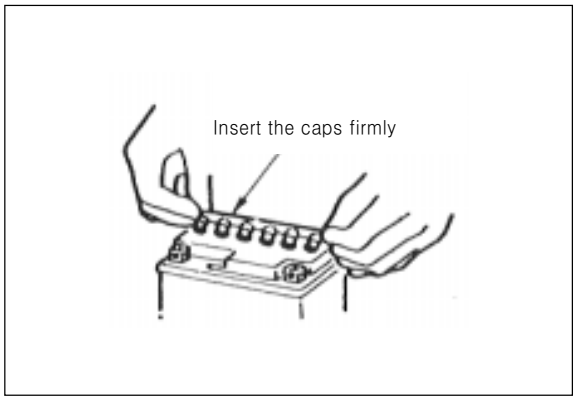
⑤ Separation of electrolyte container.
After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery.

⚠ CAUTION

Draw out slowly otherwise in case of remain electrolyte vaporize.



⑥ Insert of the caps
Insert the cap into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.



ASSISTANCE RECHARGING

Use the battery that is maded after 2 years as the maintenance free battery.
Use the battery at condition of the high temperature.
Assistance recharging to the following points.

- The main principle of assistance recharging. Assistence recharging from rule of electric current or voltage, when the battery discharged.
- Do not assistance recharge except the right side table.
- Do not remove, when assistance recharge.

Assistance Recharging	
Standard	0.7 A ×5~10 hours
Fast	3A × 30 minutes.

⚠ WARNING

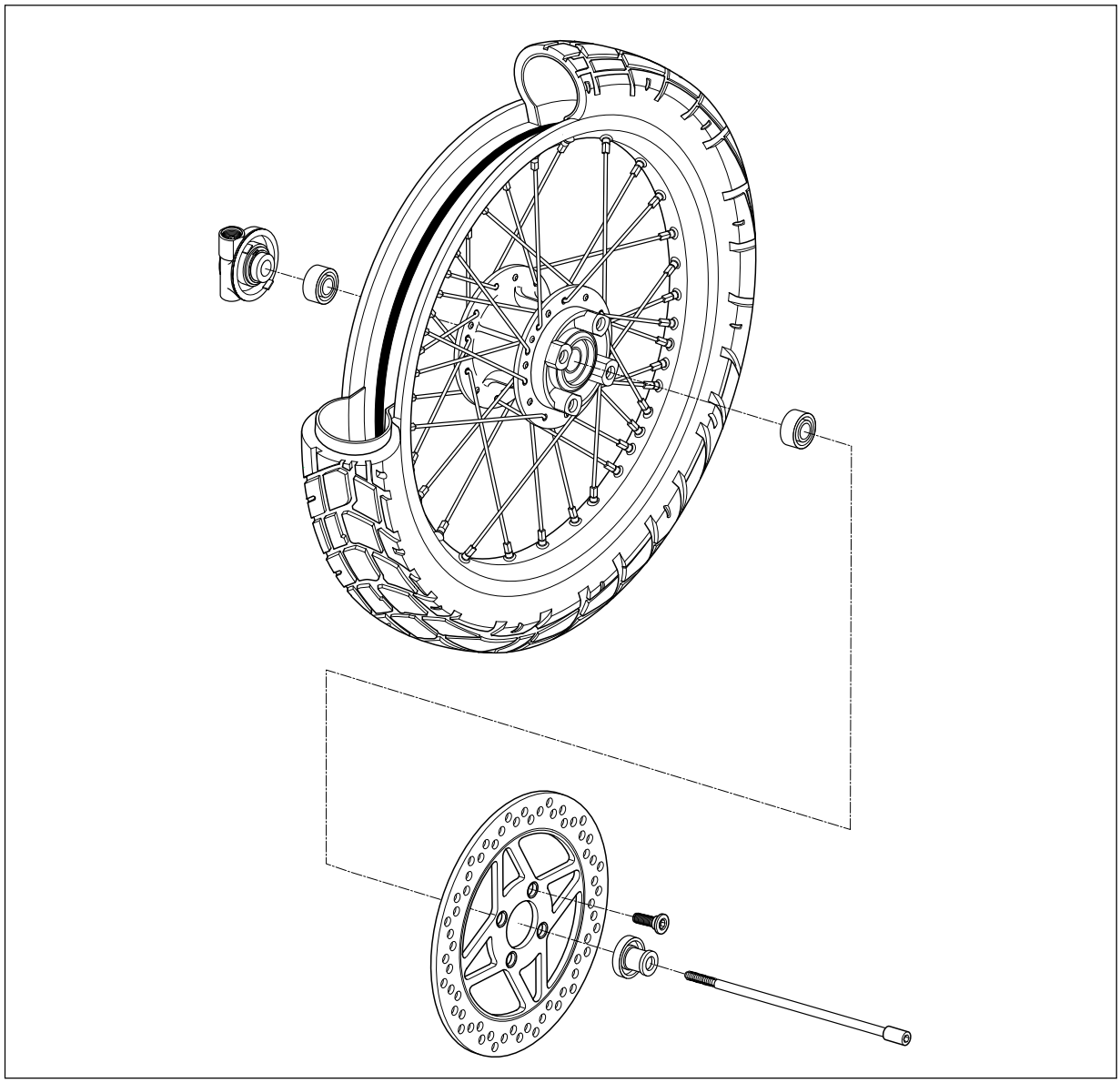
The firearm is strictly prohibited.

CHASSIS

CONTENTS

6

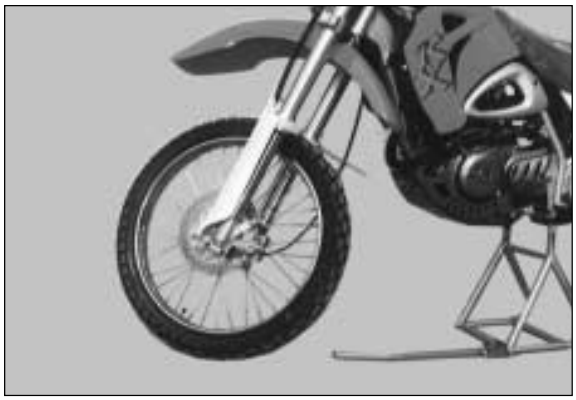
FRONT WHEEL



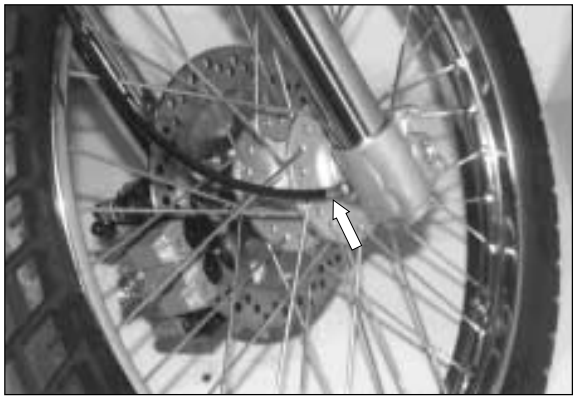
REMOVAL

● Support the machine by jack, block or service stand.

TOOL **Service stand : 99000-99094**

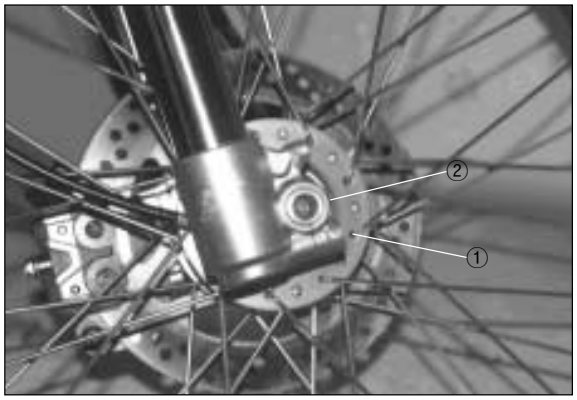


● Disconnect the speedo meter cable.
● Disconnect the left side of the protector.

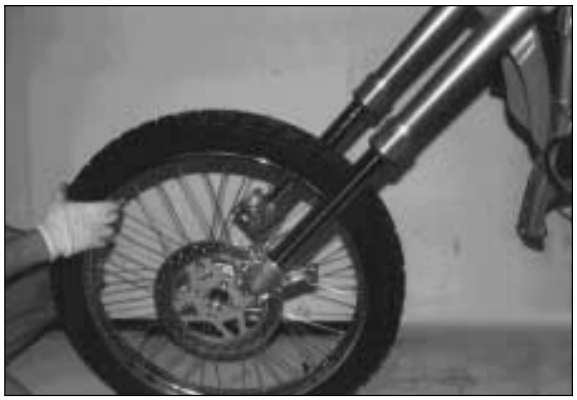


● Disconnect the clamp.
● Remove the brake hose.

● Pull out the fixing bolt ① and remove the axle ②.



● Draw out the front axle and take off the front wheel.



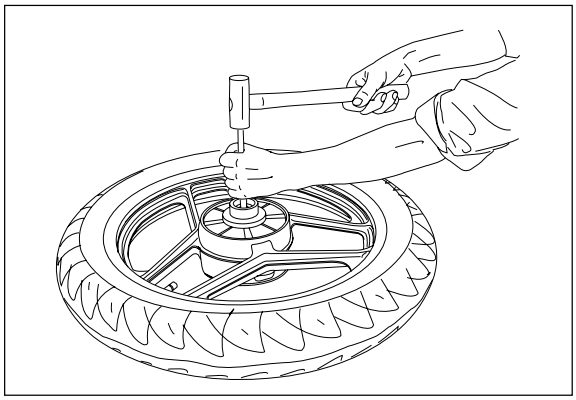
DISASSEMBLY

FRONT WHEEL

● Remove the front brake disk.

● Using the special tool, drive out the wheel bearings.

TOOL **Wheel bearing remover : 09941-50110**

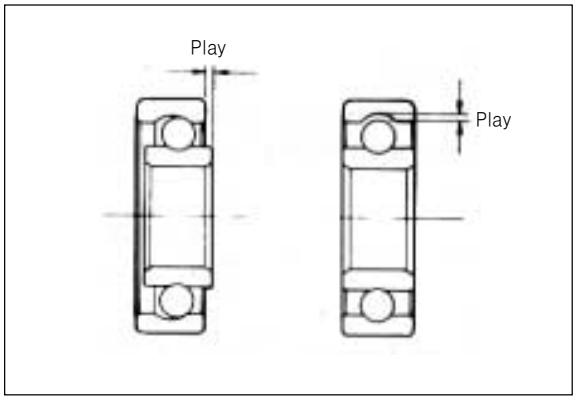


INSPECTION

WHEEL BEARING

● Inspect the play of the wheel bearings inner race by hand while fixing it in the wheel hub.

Rotate the inner race by hand to inspect whether abnormal noise occurs or rotating smoothly.
Replace the bearing if there is something unusual.

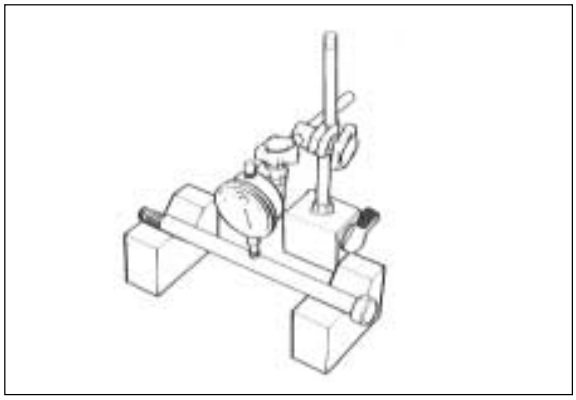


AXLE SHAFT

Using the special tools, check the axle shaft for runout and replace it if the runout exceeds the limit.

TOOL **Dial gauge : 09900-20606**

Runout of axle shaft	Service limit 0.25 mm



WHEEL RIM

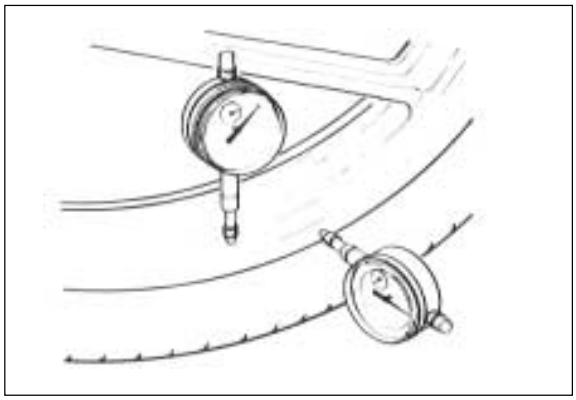
Make sure that the wheel rim runout does not exceed the service limit when checked as shown.

⚠ CAUTION

Worn or loose wheel bearing must be replaced before attempting to true a wheel rim.

TOOL **Dial gauge(1/100) : 09900-20606**
Magnetic stand : 09900-20701

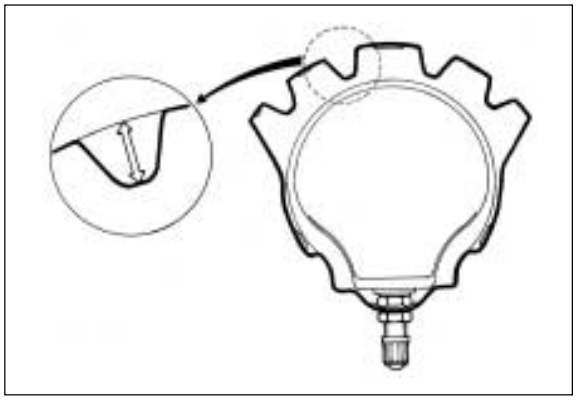
Runout of wheel rim (Axial and Radial)	Service limit 2.0 mm



TIRE

Inspect the tires for wear and damage. Check the tire tread depth as shown. Replace a badly worn or damaged tire.
A tire with its tread worn down to the limit(in terms of tread depth) must be replaced.

Tread depth service limit	Front	1.6 mm
	Rear	1.6 mm



REASSEMBLY

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

WHEEL BEARING

- Apply grease to the bearing before installing.

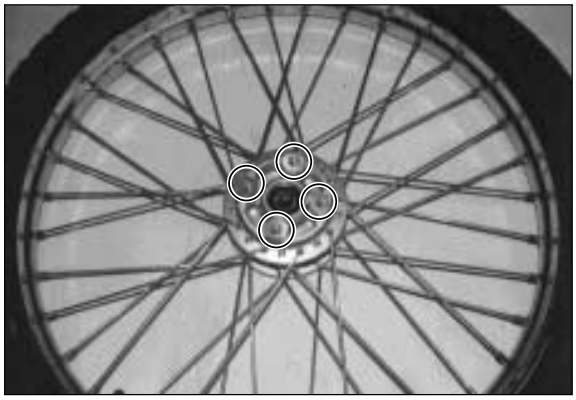
A : Super grease "A"

- Install the wheel bearings by using the special tool.

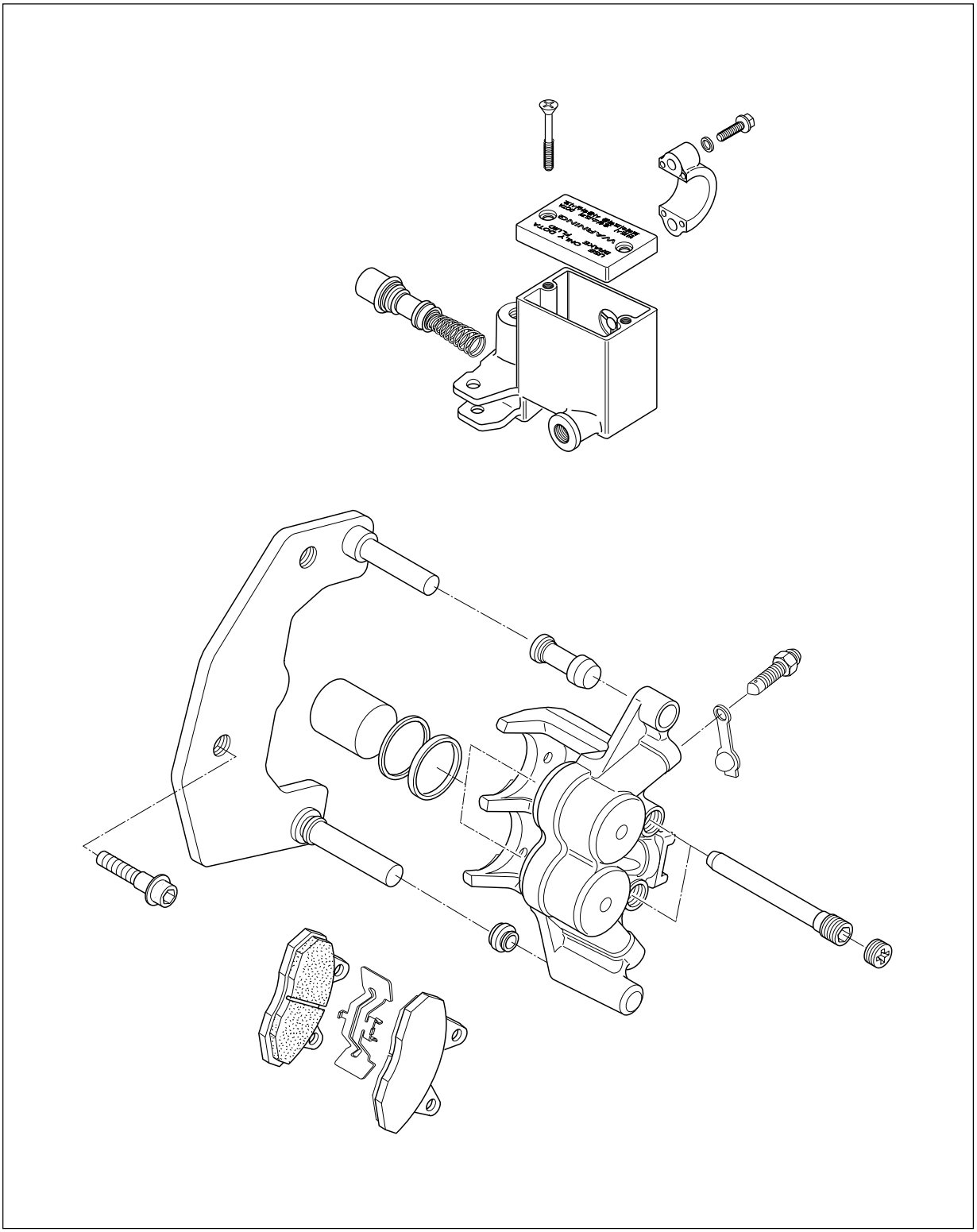
TOOL **Bearing installer : 09913-75820**

● Install the disk with four bolts as shown in photo.

TOOL **Disk bolt : 18~28 N · m (1.8~2.8 kg · m)**



FRONT BRAKE

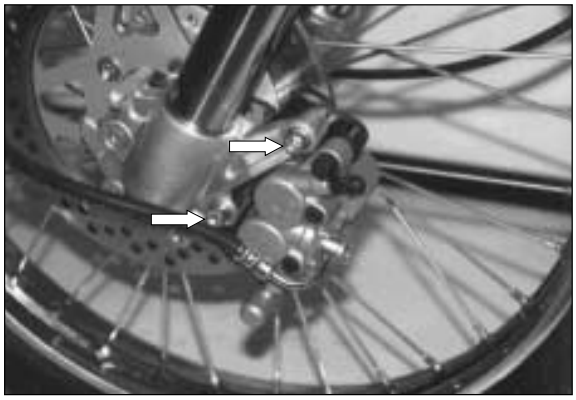


BRAKE PAD REPLACEMENT

● Remove the caliper mounting bolts and take off the caliper.

⚠ CAUTION

Do not operate the brake lever while dismounting the caliper.

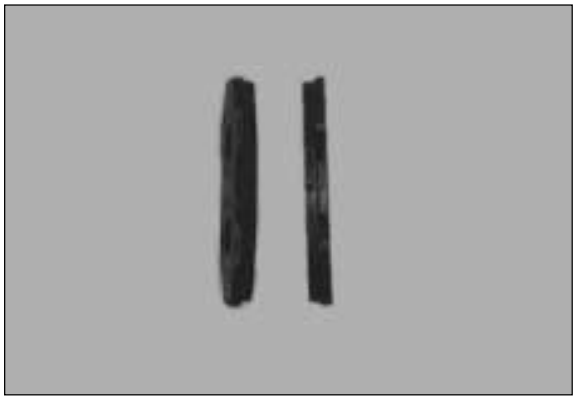


● Push the piston and caliper holder all the way to the caliper when removing the pad.
● Loosen the screw and take off the housing cover.

● Remove the pad.

⚠ CAUTION

Replace the brake pad with a set, otherwise braking performance will be adversely affected.

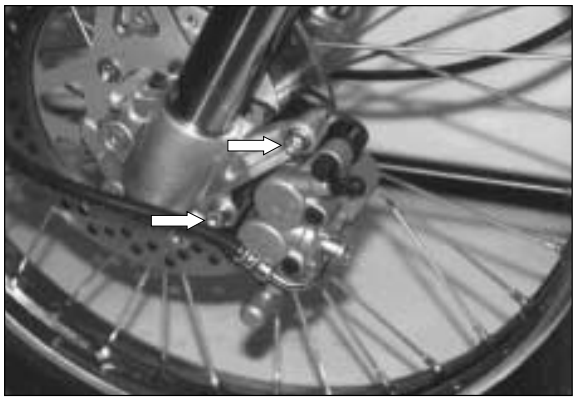


● Apply the silicone grease to the caliper holder.

Silicone gerase.

● Push in the piston and piston holder all the way to the caliper when remounting the caliper.
● Tighten the caliper mounting bolts with specified torque.

Caliper mounting bolts : 18~28 N · m (1.8~2.8 kg · m)

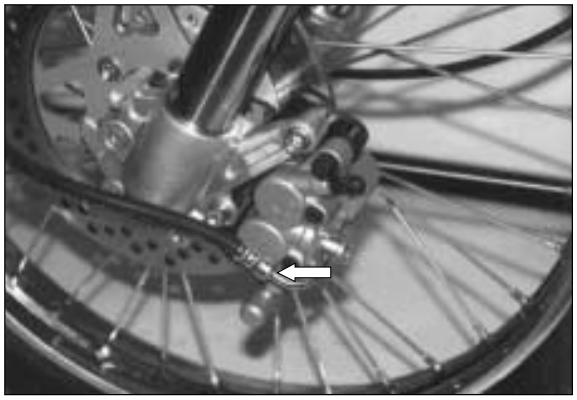


CALIPER REMOVAL AND DISASSEMBLY

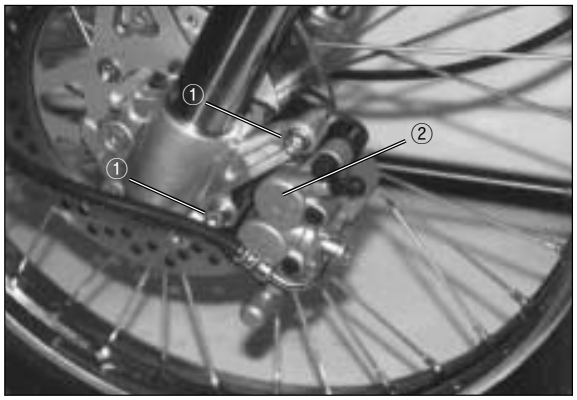
● Disconnect the brake hose from the caliper and catch the brake fluid in a suitable receptacle.

⚠ CAUTION

Never re-use the brake fluid left over from the last servicing and stored for long periods.



● Remove the caliper mounting bolts and take off the caliper.
● Loosen the screw ① and take off the carrier ②.



● Take off the caliper carrier.

● Remove the caliper holder from the caliper.

● Place a rag over piston to prevent popping up. Force out the piston by using air gun.

⚠ CAUTION

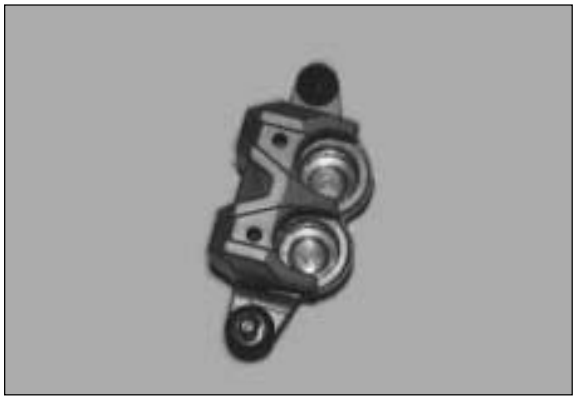
Do not use high pressure air to prevent piston damage.

● Remove the piston, piston boot and piston seal.

INSPECTION

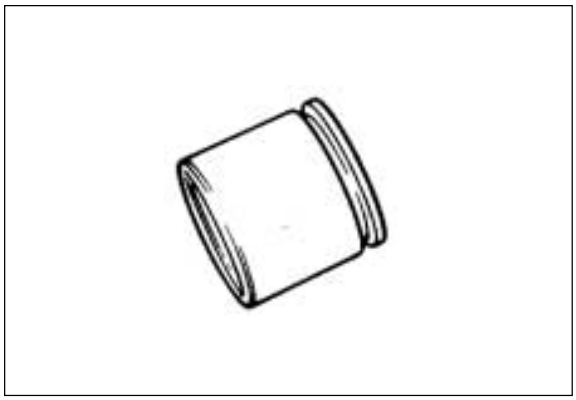
CALIPER CYLINDER

Inspect the cylinder bore wall for nick, scratches or other damage.



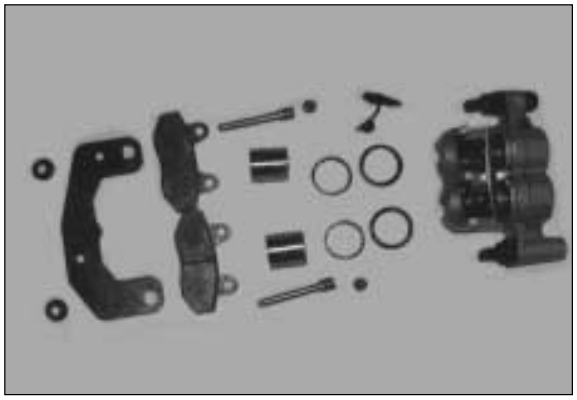
PISTON

Inspect the piston surface for any scratches or other damage.



RUBBER PARTS

Inspect the each rubber part for damage and wear.

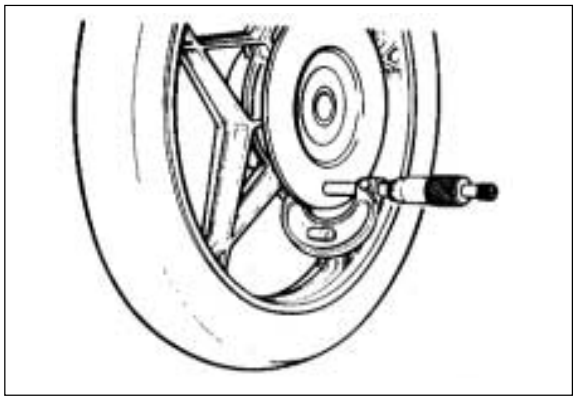


DISC

● Measure the disc thickness by using the micrometer.

Micrometer (0~25 mm) : 09900-20205

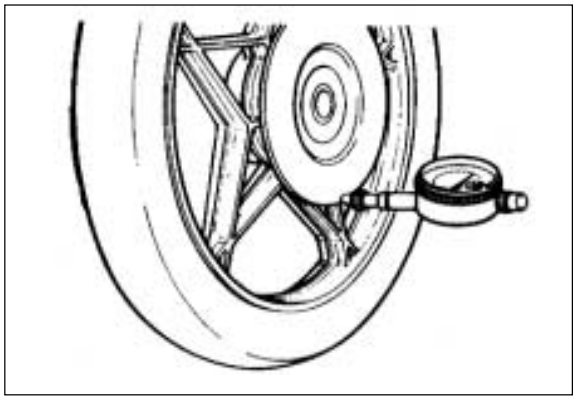
Disc thickness	Service limit 3.0 mm



● With the disc mounted on the wheel check the disc for face runout with a dial gauge, as shown.

Dial gauge (1/100) : 09900-20606

Disc runout	Service limit 0.3 mm

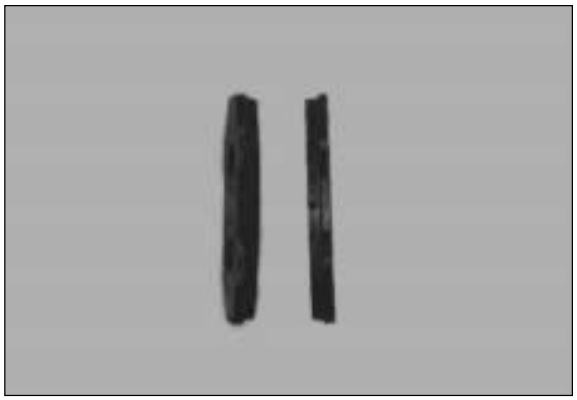


BRAKE PADS

Wear condition of brake pads can be checked by observing the red limit line marked on the pad When the wear exceeds the limit line, replace the pad with new ones.

⚠ CAUTION

Replace the brake pad with a set, otherwise braking performance will be adversely affected.

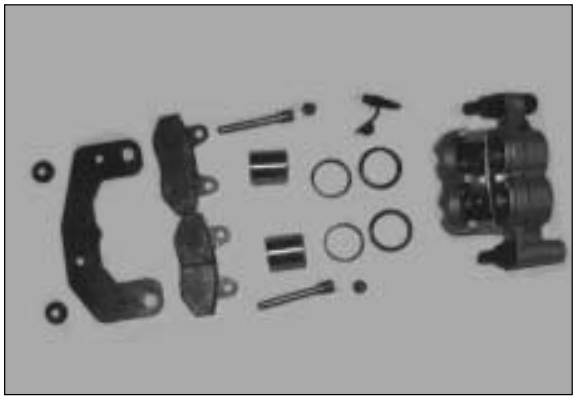


CALIPER REASSEMBLY

Reassemble and remount the caliper in the reverse orders of disassembly and removal, and also carry out the following steps.

⚠ CAUTION

Wash the caliper components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them. Apply brake fluid to the caliper bore and all internal parts before inserting into the bore.

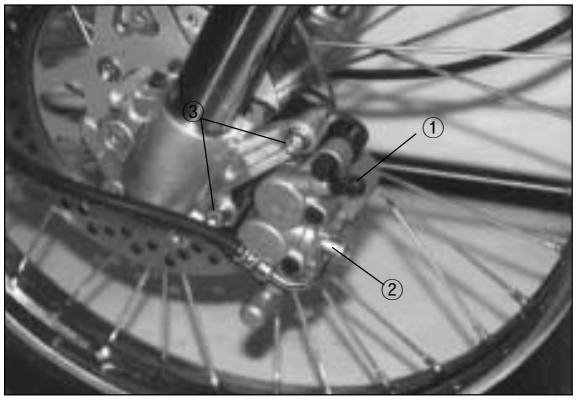


● Apply the silicone grease to the caliper holder.

Silicone grease.

TIGHTENING TORQUE

Item	N · m	kg · m
①	6–9	0.6–0.9
②	20–25	2.0–2.5
③	18–28	1.8–2.8

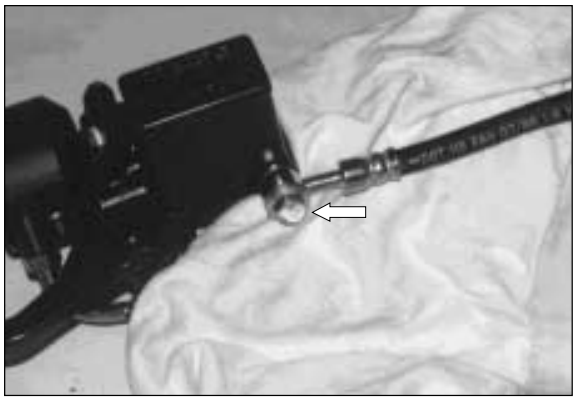


⚠ WARNING

Bleed the air from brake fluid circuit after reassembling the caliper. (See page 2-12)

MASTER CYLINDER REMOVAL AND DISASSEMBLY

● Please a cloth underneath the union bolt on the master cylinder to prevent, spilled drops of the brake fluid. Unscrew the union bolts and disconnect the brake hose from the master cylinder joint.



⚠ CAUTION

Immediately and completely wipe off any brake fluid contacting any part of the motorcycle. The fluid reacts chemically with paint, plastics, rubber materials, etc., and will damage them severely.

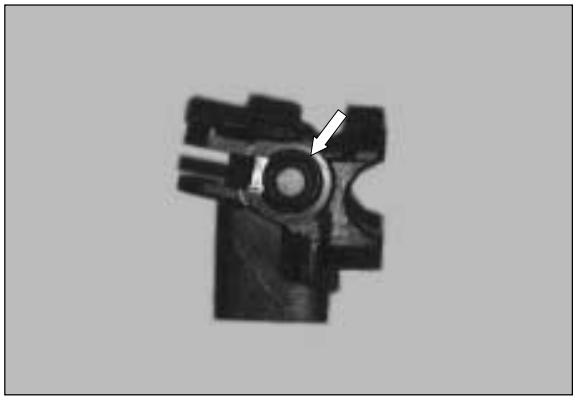
● Remove the two clamp bolts and take off the master cylinder.

● Remove the two fitting screws and separate the cap and diaphragm.
● Drain brake fluid.

● Remove the dust seal boot.
● Remove the circlip by using the special tool.

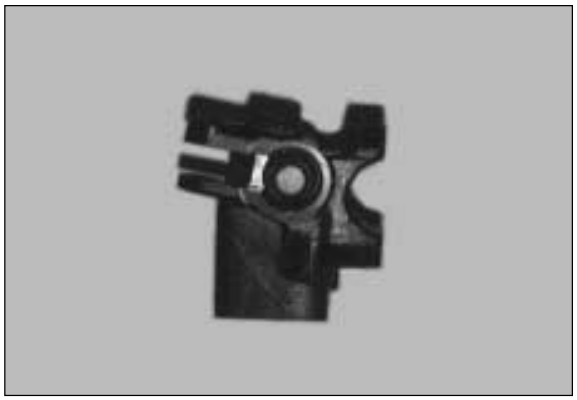
TOOL **Snap ring pliers : 09900-06108**

● Remove the piston, primary cup and spring.



INSPECTION

● Inspect the master cylinder bore for any scratches or other damage.



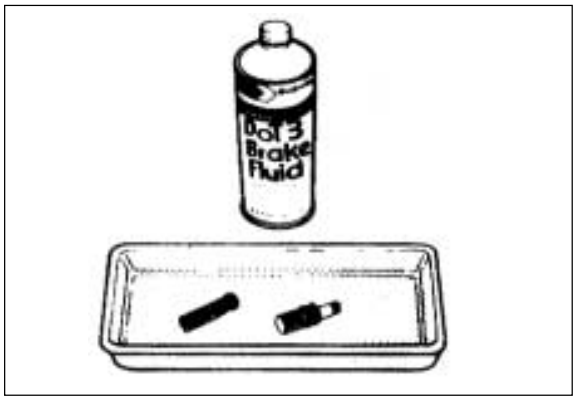
● Inspect the piston and cup surface for any scratches or other damage.
● Inspect the dust seal boot for wear for damage.

REASSEMBLY

Reassemble and remount the master cylinder in the reverse orders of disassembly and removal, and also carry out the following steps :

⚠ CAUTION

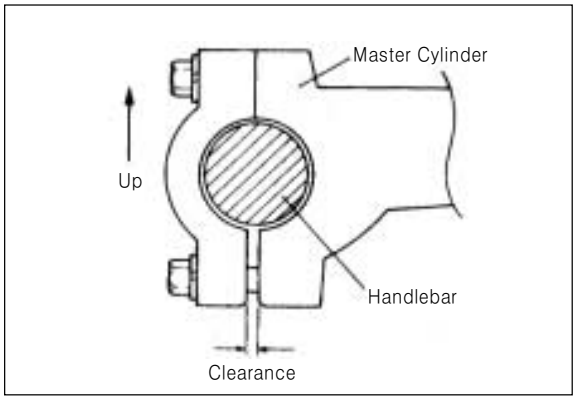
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
Apply brake fluid to the cylinder bore and all internal parts before inserting into the bore.



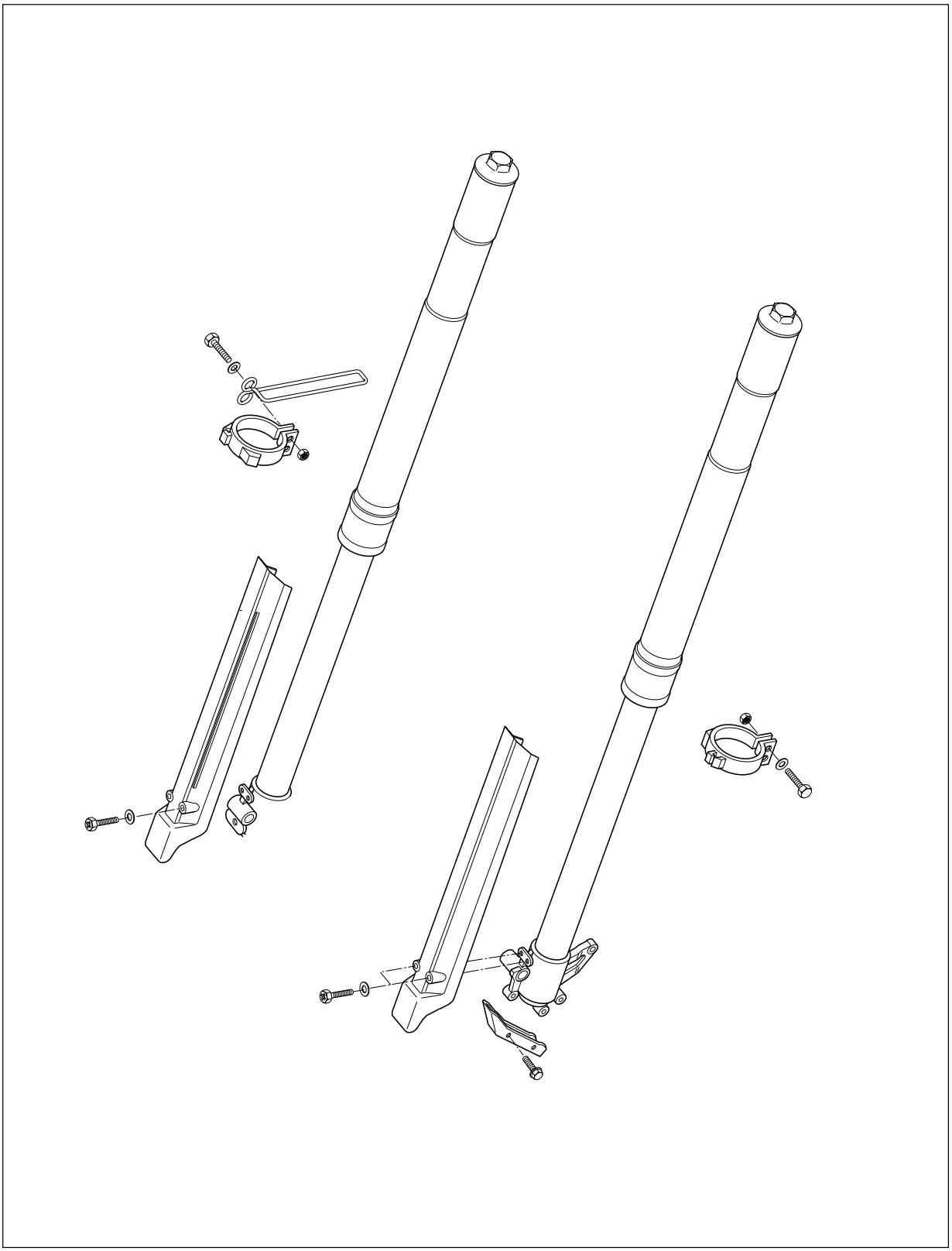
● When remounting the master cylinder to the handlebars, first tighten the clamp bolts for upside as shown.

⚠ WARNING

Bleed air from the brake fluid circuit after reassembling master cylinder. (See page 2-12)



FRONT FORK



REMOVAL AND DISASSEMBLY

● Take off the front wheel. (See page 6-1)
● Loosen the front fork upper and lower clamp bolts.

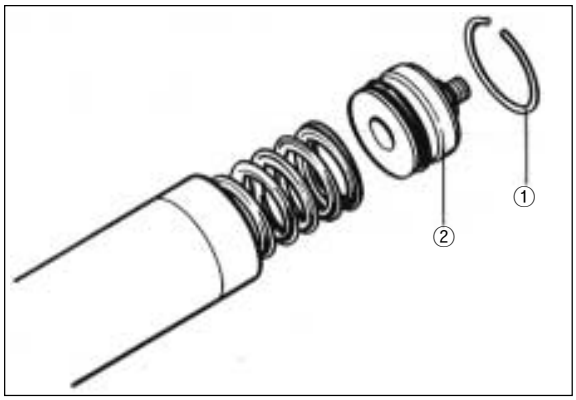
● Remove the front brake hose clamp.

● Pull down right and left front forks.

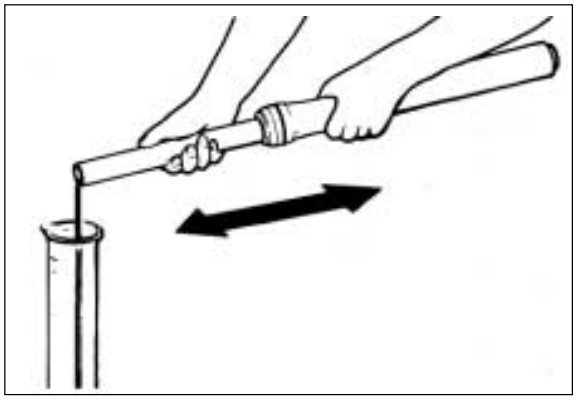
● Remove the front fork cap, O-ring ①, and seat lever.

⚠ CAUTION

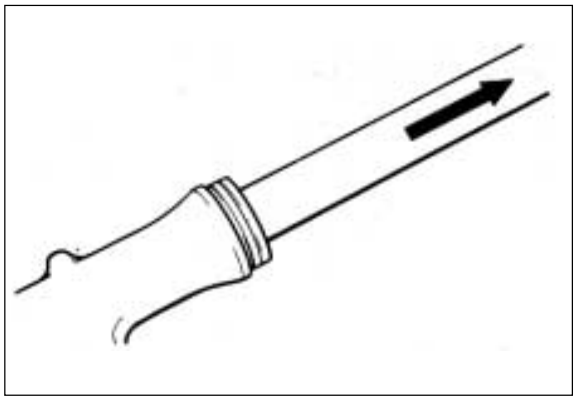
· To remove the O-ring ①, it will be necessary to push the seat lever ② inwards, to remove spring pressure from the O-ring.
· The removed O-ring ① should be replaced with a new one.



● Straighten the fork and stroke it several times to remove the oil.
● Hold the fork inverted for a few minutes.

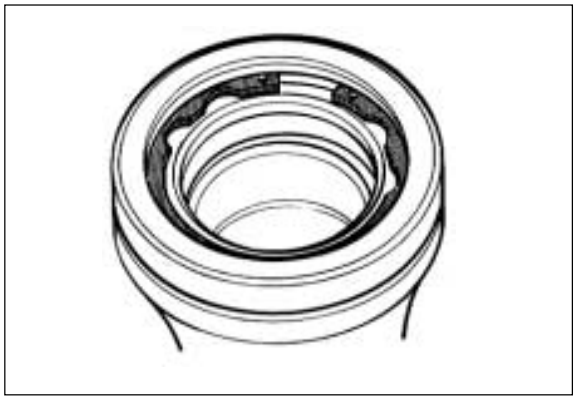


● Remove the damper rod bolt by using the 19 mm socket.
● Separate the inner tube from outer tube.
● Remove oil lock piece and damper rod with rebound spring.



● Remove the snap ring by using the special tool.

TOOL **Snap ring pliers : 09900-06108**

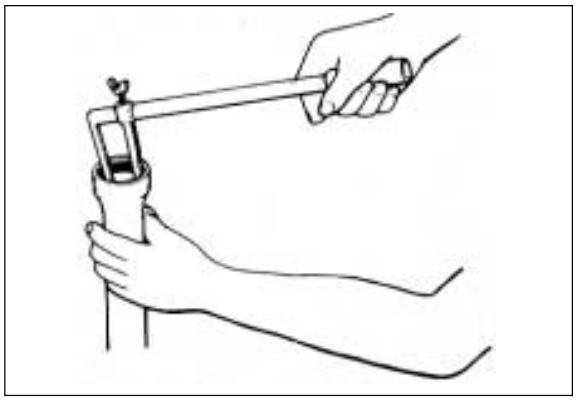


● Remove the oil seal by using the special tool.

TOOL **Oil seal remover : 09913-50121**

⚠ CAUTION

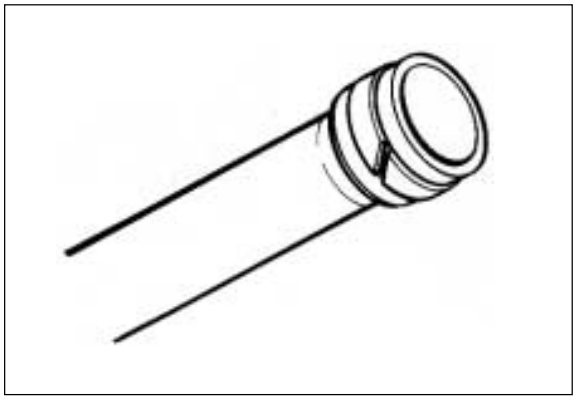
The oil seal removed should be replaced with a new oil seal.



INSPECTION

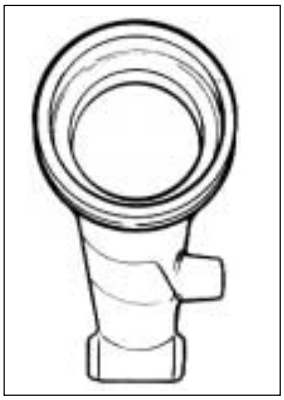
DAMPER ROD RING

Inspect the damper rod ring for wear and damage.



INNER TUBE AND OUTER TUBE

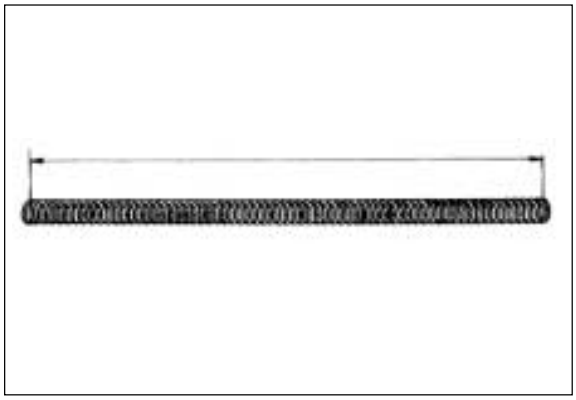
Inspect the inner tube and outer tube sliding surfaces for any scuffing or flaws.



FORK SPRING

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

Fork spring free length	Service limit 555 mm



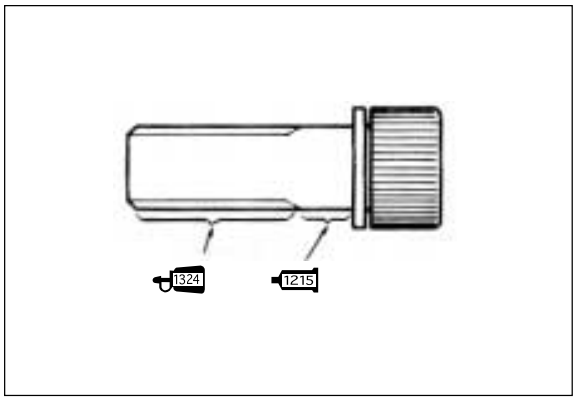
REASSEMBLY

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

DAMPER ROD BOLT

- Apply Bond "1215" and Thread Lock "1324" to the damper rod bolt and tighten the bolt with specified torque by the 19 mm socket.

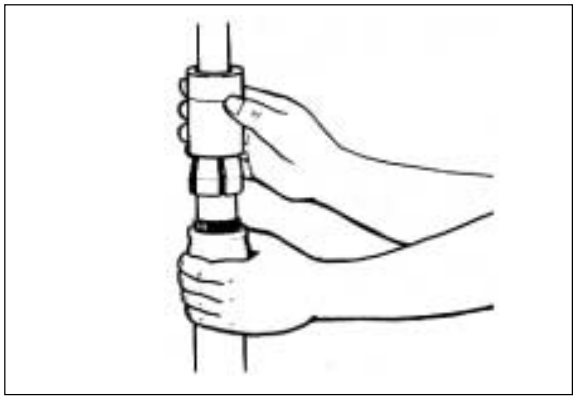
1215 Bond "1215"
1324 Thread Lock "1324"



OIL SEAL

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

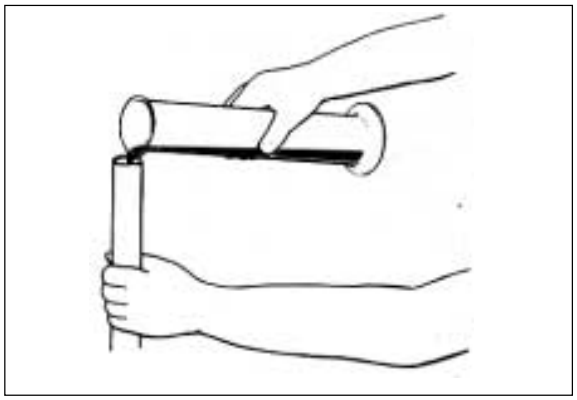
TOOL **Fork oil seal installer : 09940-50112**



FORK OIL

● For the fork oil, be sure to use a front fork oil whose viscosity rating meets specifications below.

Fork oil type	SS8 Oil
Fork oil capacity	Each leg 443±2.5 cc



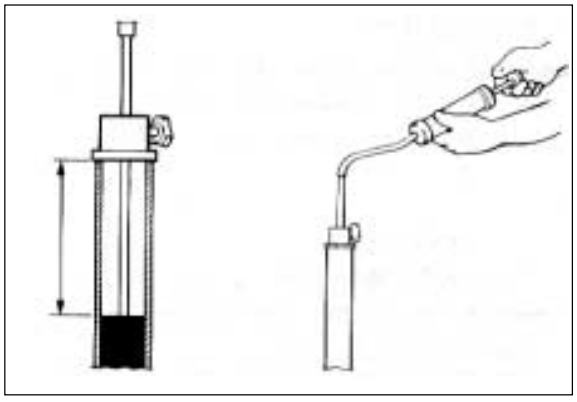
● Hold the front fork vertical and adjust the fork oil level with the special too.

⚠ CAUTION

When adjusting oil level, remove the fork spring and compress the inner tube fully.

TOOL **Front fork level gauge : 09943-74111**

Front fork oil level	At outer tube 146 mm (Without Spring)

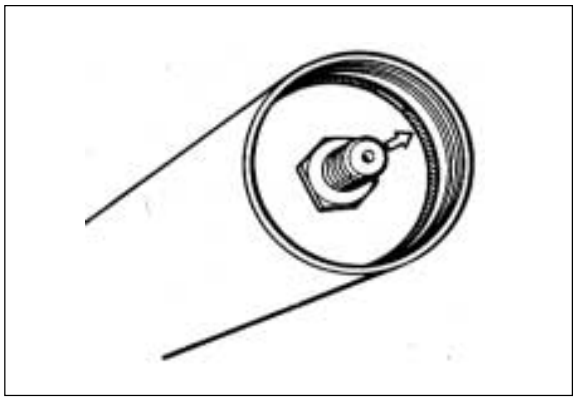


STOPPER RING

● To install a new stopper ring, it will be necessary to push the spring seat inward.

⚠ CAUTION

- **Always use a new stopper ring.**
- **After installing a stopper ring, always insure that it is completely seated in its groove and securely fitted.**

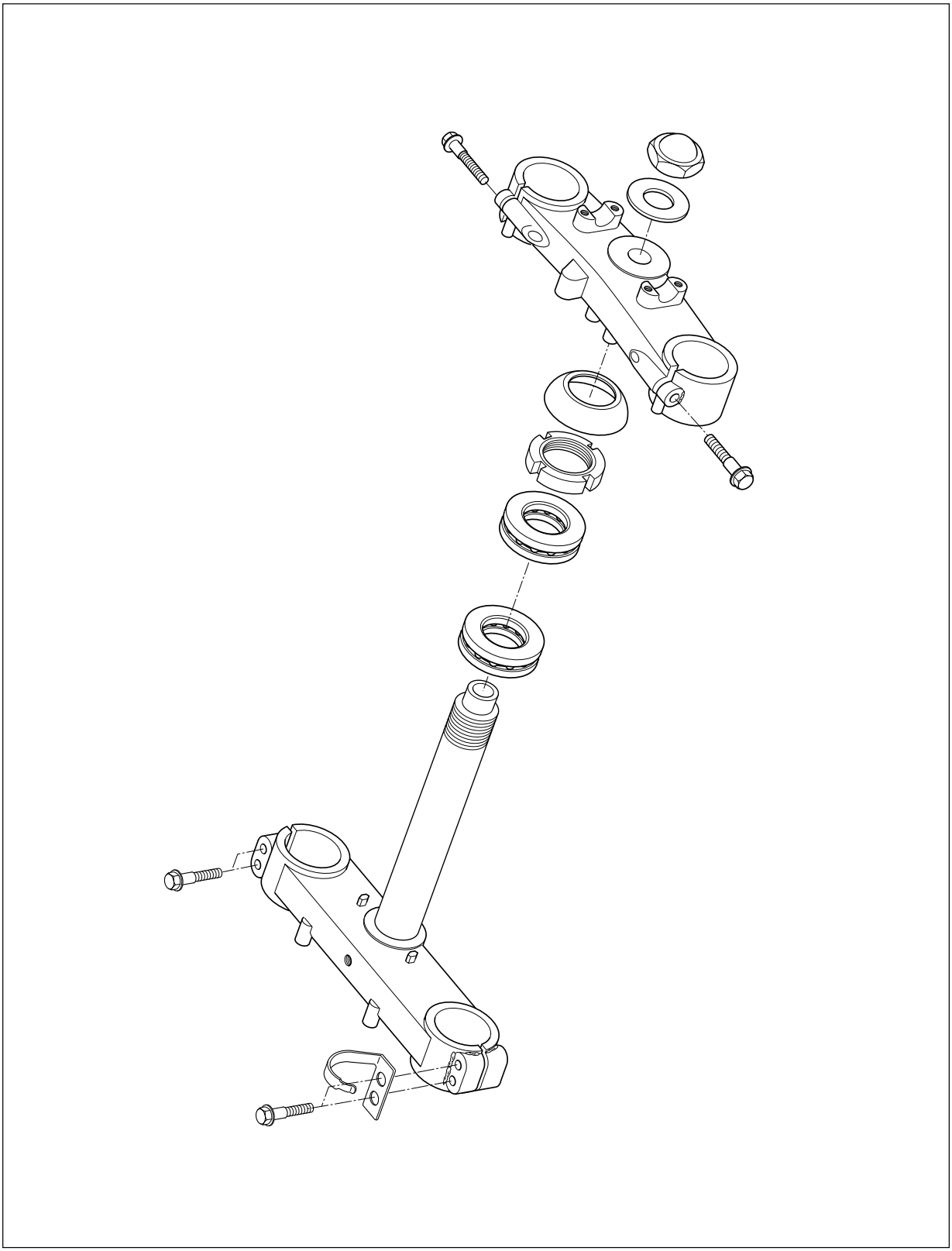


REMOUNTING

- Maintain equally right and level height. (Standard for upside surface of the upper bracket : 7 mm±1 mm)
- Tighten the upper and lower clamp bolts.

TOOL **Upper clamp bolts : 22~35 N · m (2.2~3.5 kg · m)**
Lower clamp bolts : 20~30 N · m (2.0~3.0 kg · m)

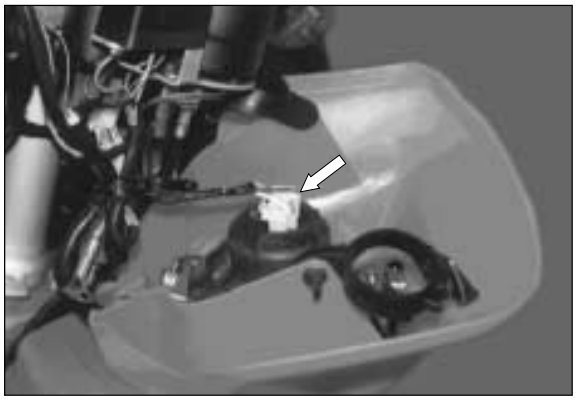
STEERING STEM



REMOVAL AND DISASSEMBLY

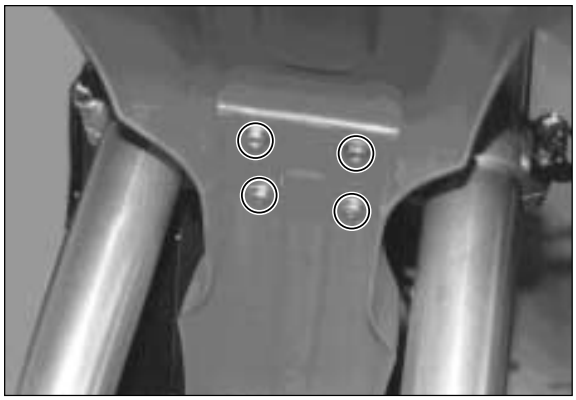
- Take off the front wheel. (See page 6-1)
- Take off the front fork. (See page 6-15)
- Remove the screws ② and the two headlight housing rubber packing ①.

- Disconnect the lead wires.

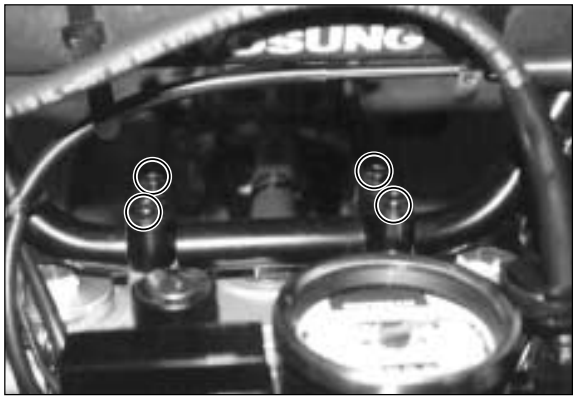


- Remove the two screws of the headlight housing.

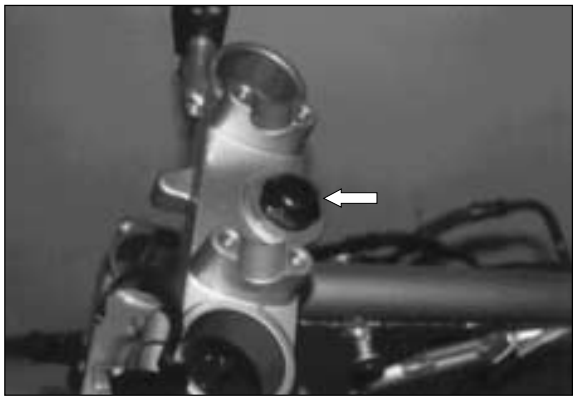
- Remove the four bolts and front fender.



● Remove the handlebars clamp bolts.



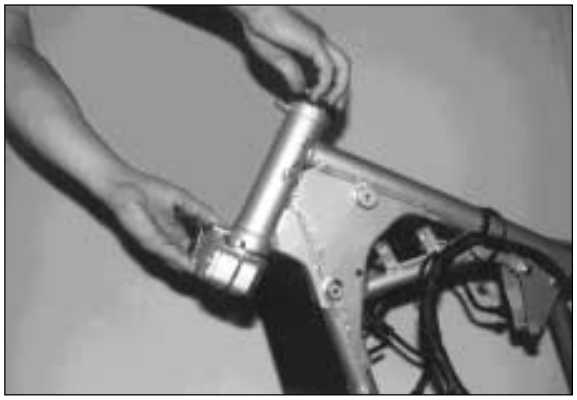
● Remove the steering stem head bolt and take off the steering stem upper nut.



● Remove the steering stem nut and draw out the steering stem.

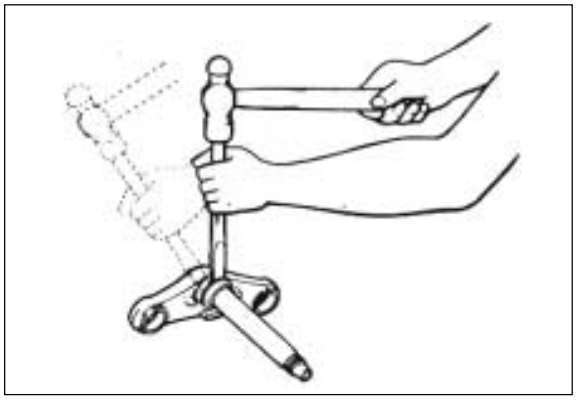
⚠ CAUTION

Hold the steering stem lower bracket by hand to prevent from falling.

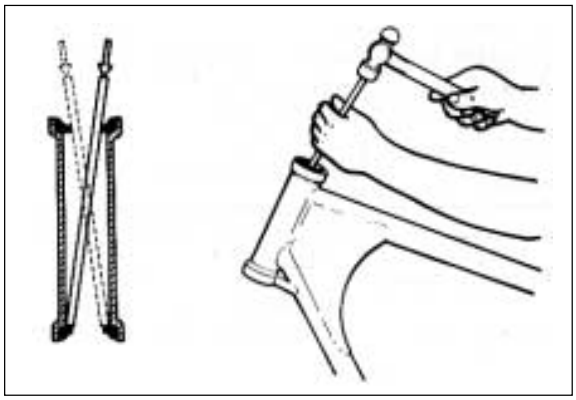


● Remove the upper and lower bearing.

● Remove the outer race fitted on the steering stem. This can be done with a chisel.



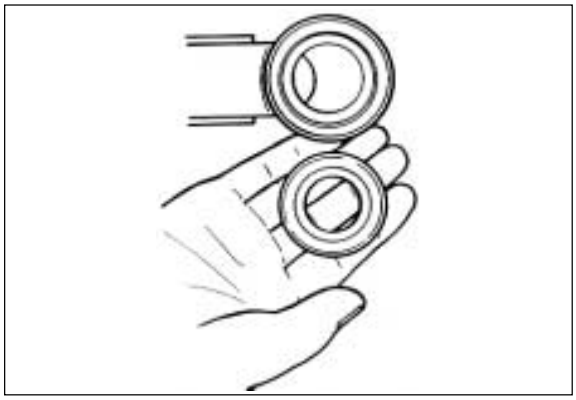
● Draw out the two inner races fitted to the top and bottem ends of the head pipe.



INSPECTION

Inspect and check the removed parts for the fol–lowing abnormalities.

· Handlebars distortion.
· Handlebars clamp wear.
· Abnormality operation of bearing.
· Worn or damaged steel balls.
· Distortion of steering stem.



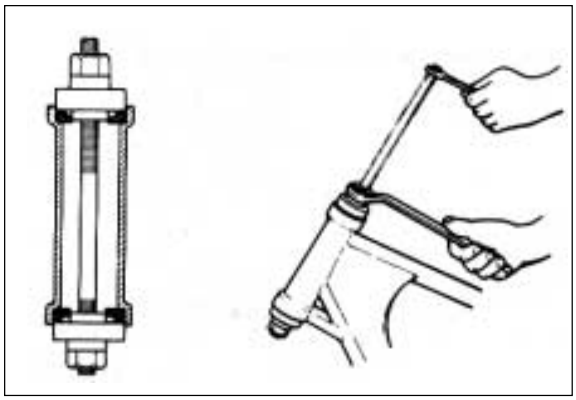
REASSEMBLY

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

INNER RACES

Press in the upper and lower inner races using the special tool.

TOOL **Steering race installer : 09941-34511**



BEARING

● When press the bearing, use the special tool.

STEERING STEM NUT

● Tighten the steering stem nut with the special tool.

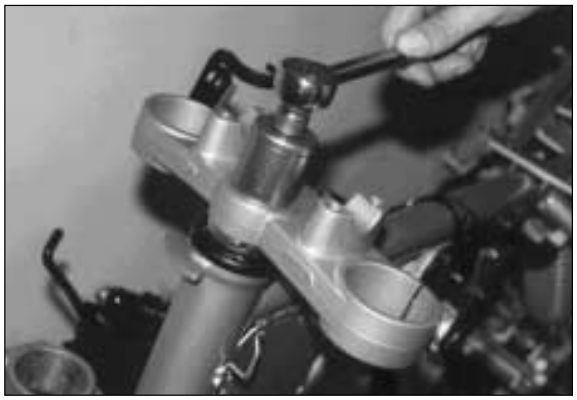
TOOL **Clamp wrench : 09940-10122**

steering stem nut : 40~50 N · m (4.0~5.0kg · m)

● Turn the steering stem right and left, lock-to-lock, five or six times.

● Tighten the steering stem head bolt to the specified torque.

Steering stem head bolt : 80~100 N · m (8.0~10.0 kg · m)

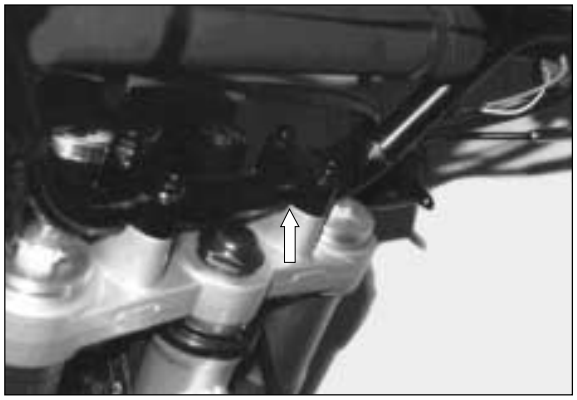


⚠ CAUTION

After performing the adjustment and installing the steering stem upper bracket, "rock" the front wheel assembly forward and backward to ensure that there is no play and that the procedure was accomplished correctly. If play is noticeable, re-adjust the steering stem nut.

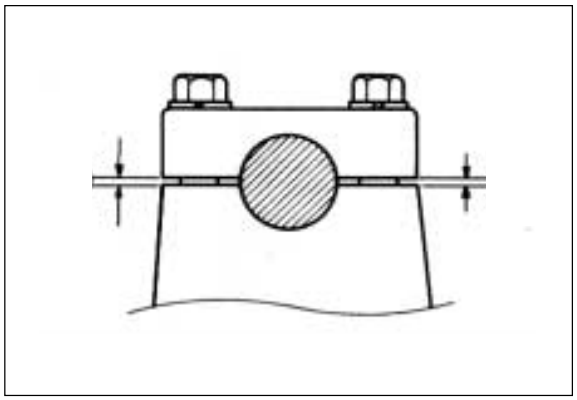
HANDLEBARS

● Set the handlebars to match its punched mark to the mating face of the holder.

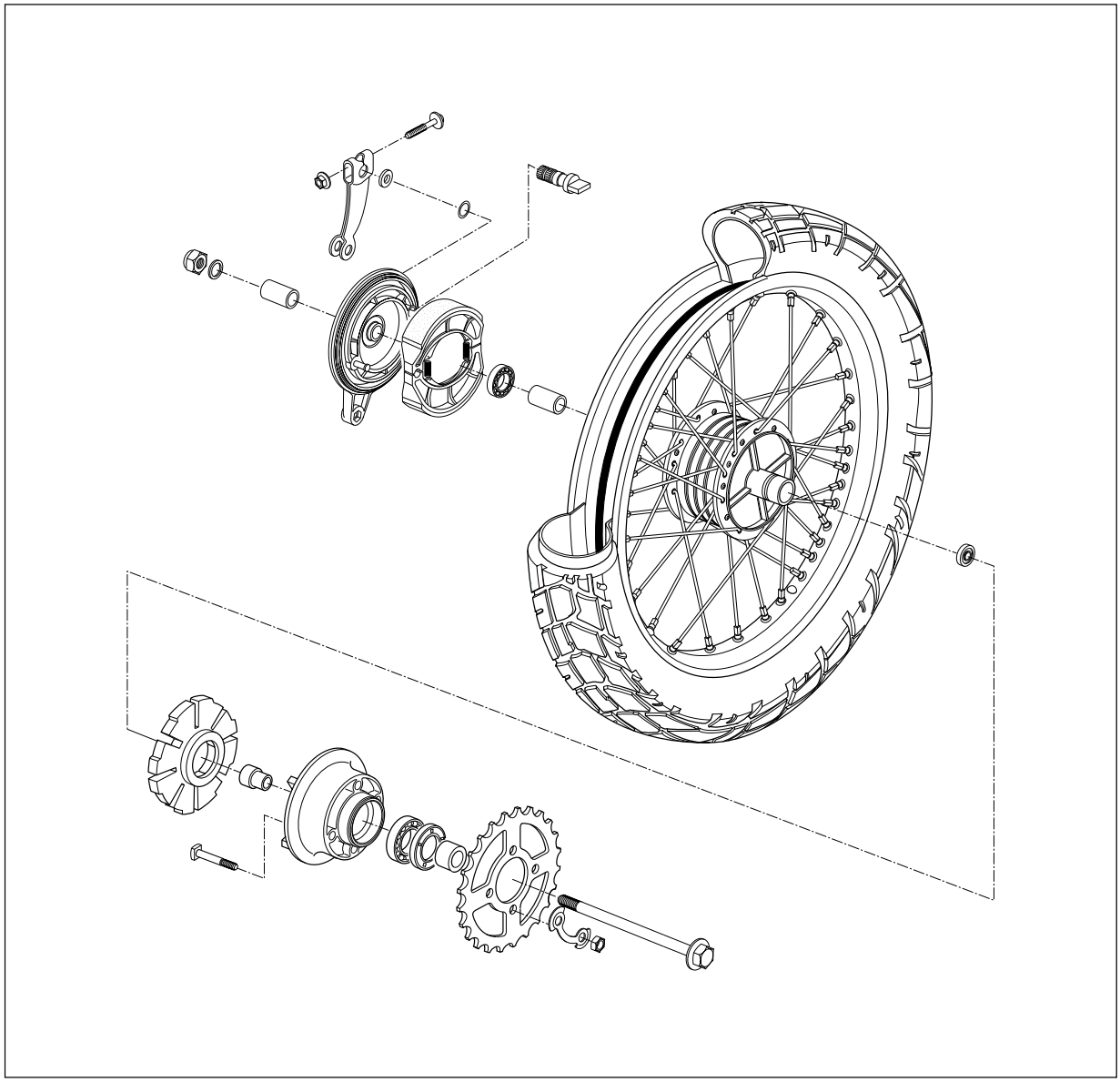


● Secure the each handlebar clamp in such a way that the clearances ahead of and behind the handlebars should be equalized.

Handlebars : 18~28 N · m (1.8~2.8 kg · m)



REAR WHEEL AND REAR BRAKE

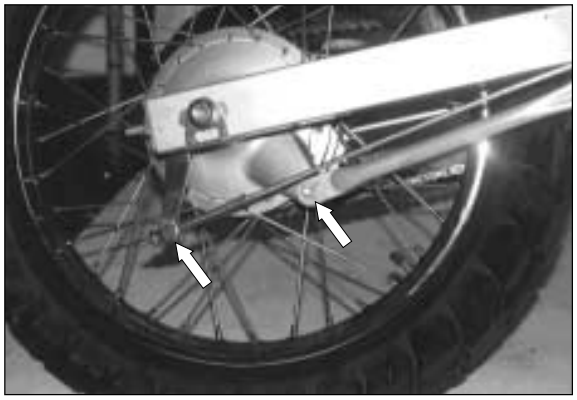


REMOVAL

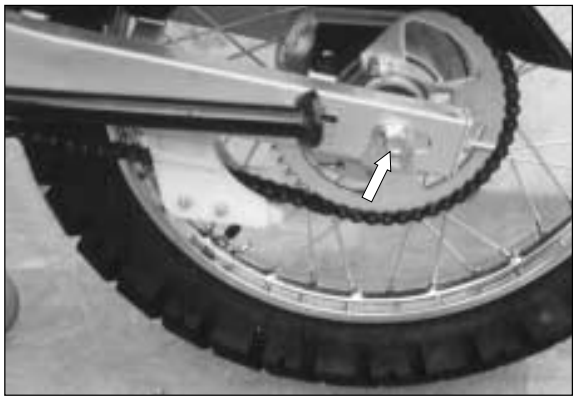
● Support the machine by jack or block or service stand.

TOOL **Service stand : 99000-99094**

- Pull out the cotter pin and remove the torque link nut and bolt.
- Remove the rear brake adjuster nut.



- Remove the rear axle nut.

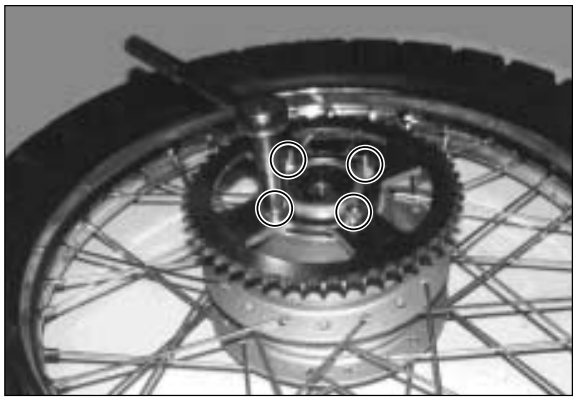


- Draw out the axle shaft and take off the rear wheel.
- Separate the rear wheel from rear brake panel.

DISASSEMBLY

REAR WHEEL

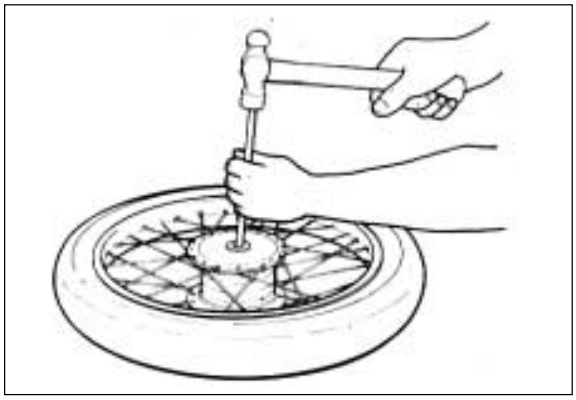
- Flatten the washers and loosen the four nuts.
- Separate the rear sprocket from the rear wheel.



● Remove the right and left side wheel bearings.

⚠ CAUTION

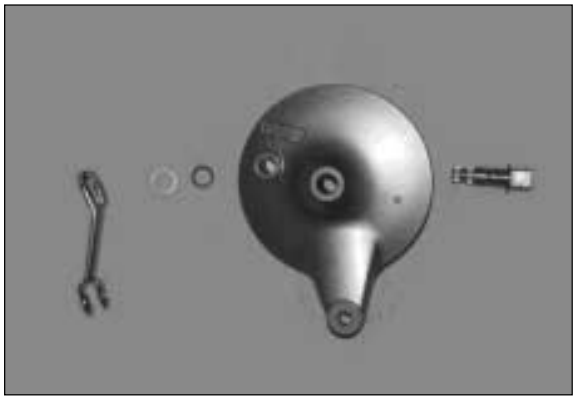
Removing the left side bearing first makes the job easier.



REAR BRAKE

● Take off the brake shoes.

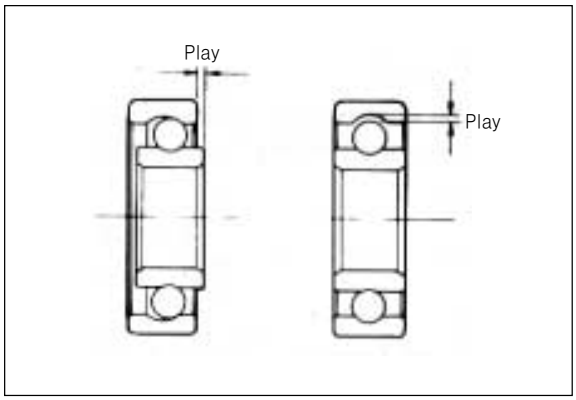
● Loosen the cam lever nut.
● Pull off the brake cam, washer, O-ring and cam lever.



INSPECTION

WHEEL BEARINGS

Inspect the wheel bearings for play by hand. Rotate the inner race by hand to inspect whether abnormal noise occurs and it rotates smoothly. Replace the bearing if there are any defects.

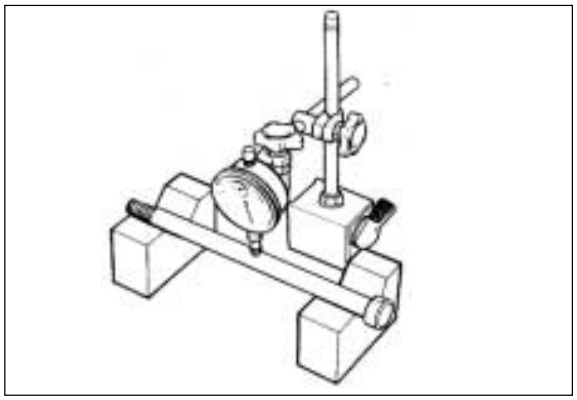


AXLE SHAFT

Using a dial gauge, check the axle shaft for runout and replace it if the runout exceeds the limit.

TOOL **Dial gauge(1/100) : 09900-26006**
Magnetic stand : 09900-20701
"V" Block : 09900-21304

Axle shaft runout	Service limit 0.25 mm



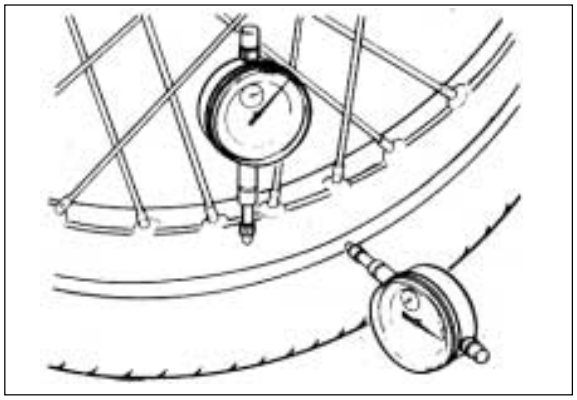
WHEEL RIM

Make sure that the wheel rim runout does not exceed the service limit when checked as shown.
An excessive amount of runout is usually due to loosen spokes or a bent wheel rim.
If properly tightening the spokes will not correct the runout, replace the wheel rim.

⚠ CAUTION

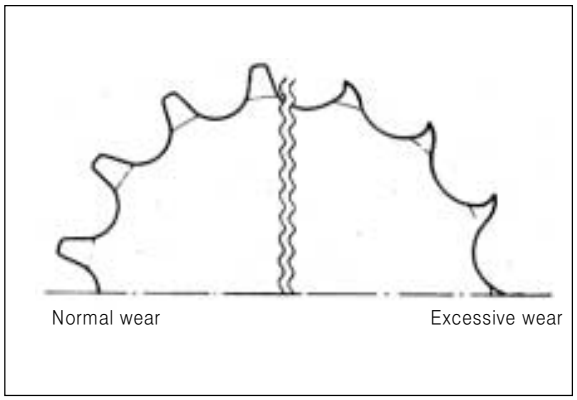
Worn or loose wheel bearings must be replaced before attempting to true wheel rim.

Wheel rim runout (Axial and Radial)	Service limit 2.0 mm



SPROCKET

Inspect the sprocket teeth for wear. If they are worn as illustrated, replace the sprocket and drive chain.



REAR BRAKE DRUM

Measure the brake drum I. D. to determine the extent of wear and, if the limit is exceeded by the wear noted, replace the drum. The value of this limit is indicated inside the drum.

Rear brake drum I. D.	Service limit 130.7 mm

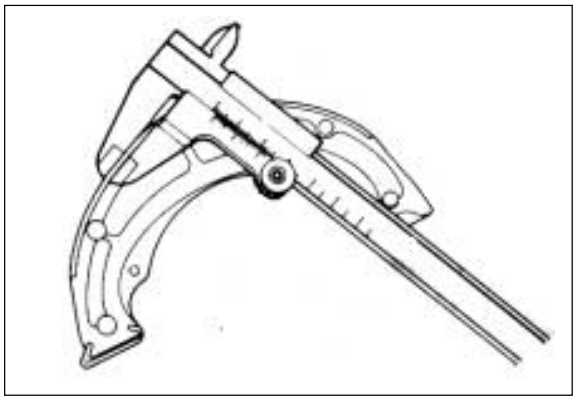
BRAKE SHOE

Check the brake shoes and decide whether it should be replaced or not from the thickness of the brake shoe linings.

⚠ CAUTION

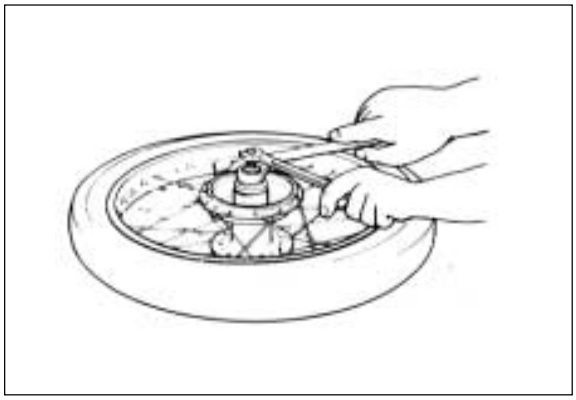
Replace the brake shoes as a set, otherwise braking performance will be adversely affected.

Thickness of brake shoe linings	Service limit 2.5 mm



REASSEMBLY

Reassemble and remount the rear wheel and rear brake in the reverse order of disassembly and removal, and also carry out the following steps :



WHEEL BEARING

- Apply grease to the bearings before installling

A Super grease "A"

- Install the wheel bearings by using the special tool.

⚠ CAUTION

First install the wheel bearing for right side.

TOOL Bearing installer set : 09924-84510

SPROCKET

- After tightening the four nuts to specification, bend the washers to lock nuts.

Sprocket nut : 20~30 N · m (2.0~3.0 kg · m)

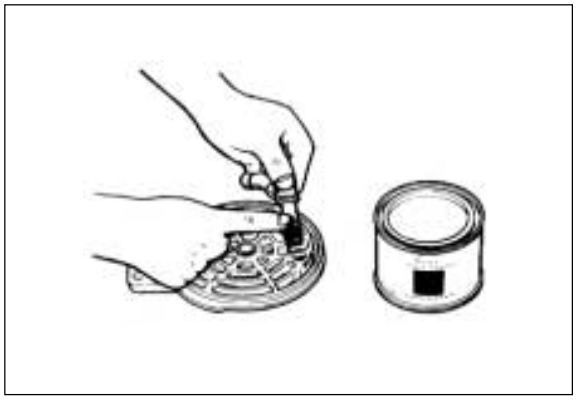
BRAKE CAM

Apply grease to the brake cam.

Super grease "A"

⚠ CAUTION

Be careful not to apply too much grease to the brake cam shaft. If grease gets on the lining, brake slippage will result.



BRAKE CAM LEVER

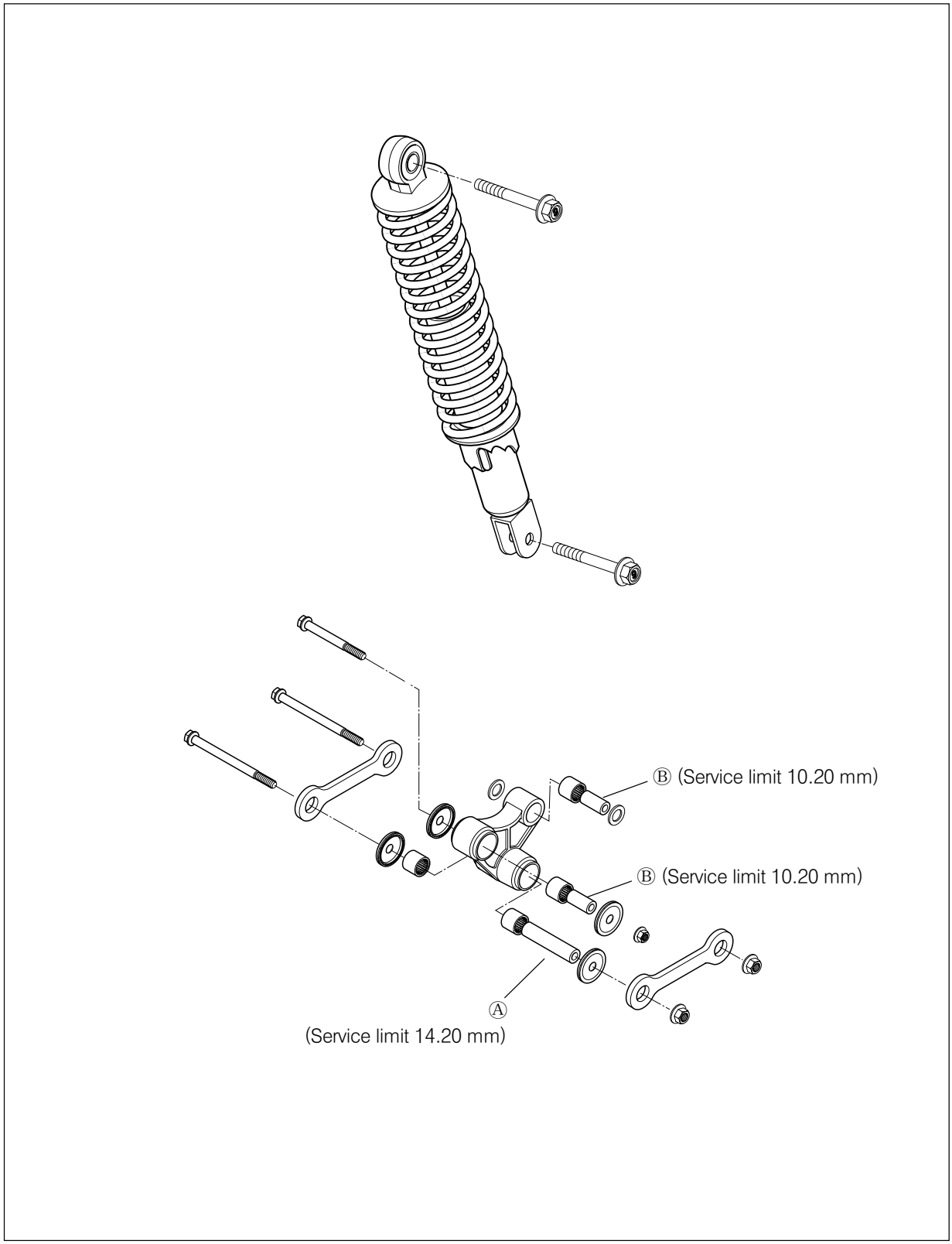
Tighten the cam lever bolt with specified torque.

Brake cam lever nut : 8~12 N · m (0.8~1.2 kg · m)

⚠ CAUTION

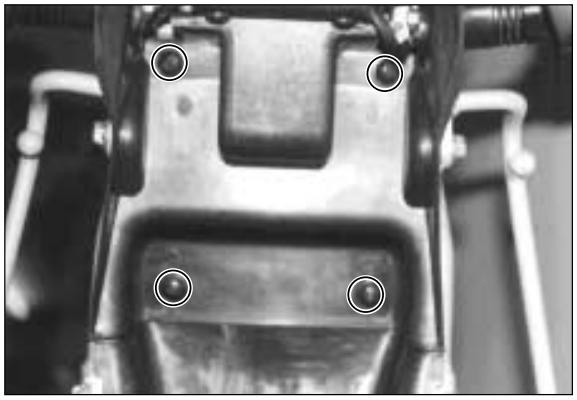
Adjust the rear brake pedal play after installation of the rear wheel.

SUSPENSION

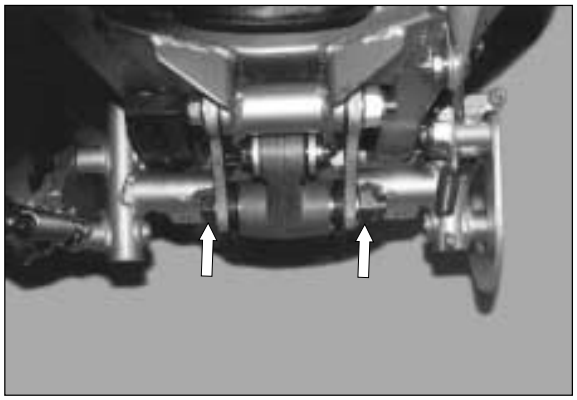


REMOVAL AND DISASSEMBLY

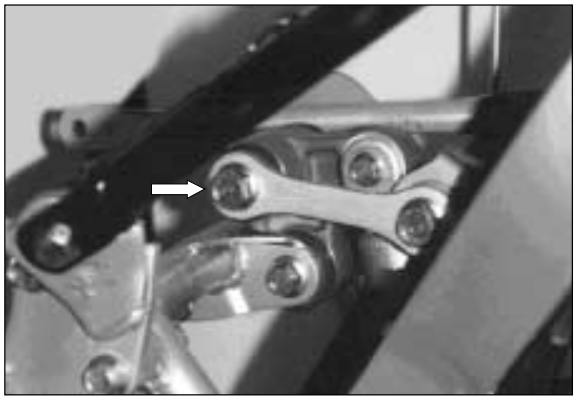
- Remove the seat and frame covers.
- Remove the rear wheel. (See page 6–26)
- Loosen the four screws and remove the mud flap.



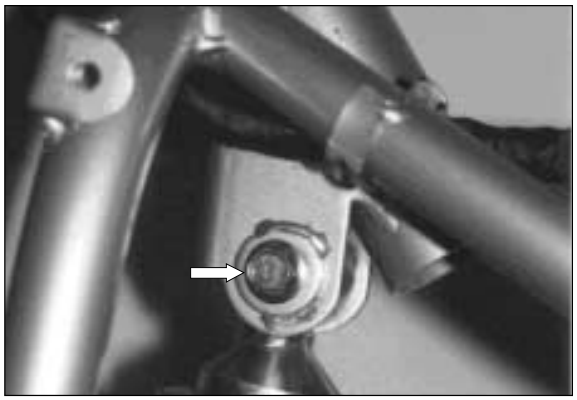
- Remove the rear cushion rod fitting nuts and bolts.



- Remove the rear cushion lever nut and bolt.

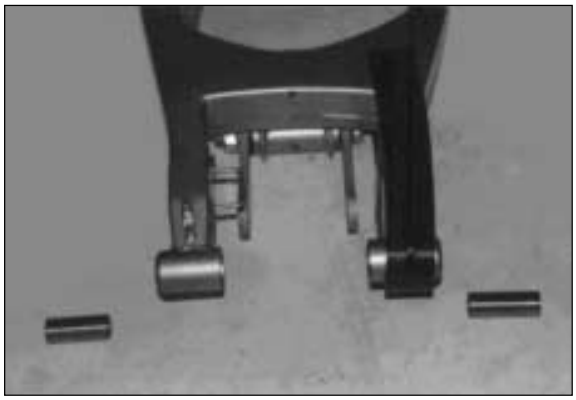


- Remove the rear shock absorber fitting bolt.
- Pull up the suspension from the chassis.



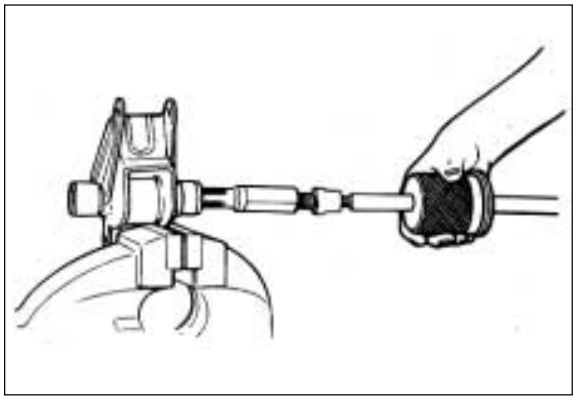
● Remove the rear cushion rod nut and bolt.

● Remove the spacers from the rear cushion rod.



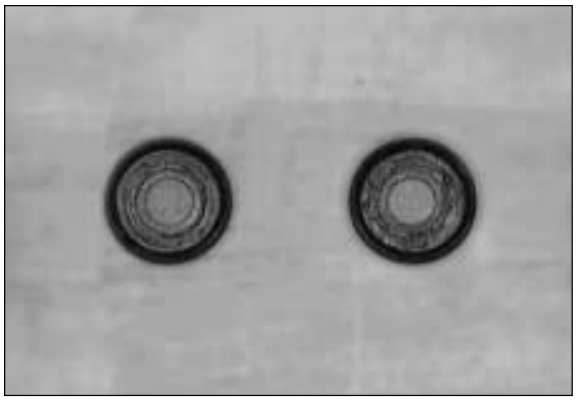
● After drawing out the spacer, remove the two bearings from the rear cushion lever by using the special tools.

TOOL **Bearing remover (17 mm) : 09923-73210**
Rotor remover sliding shaft : 09930-30102



INSPECTION

Inspect the dust seals, if they are found to be damaged, replace them with new seals.

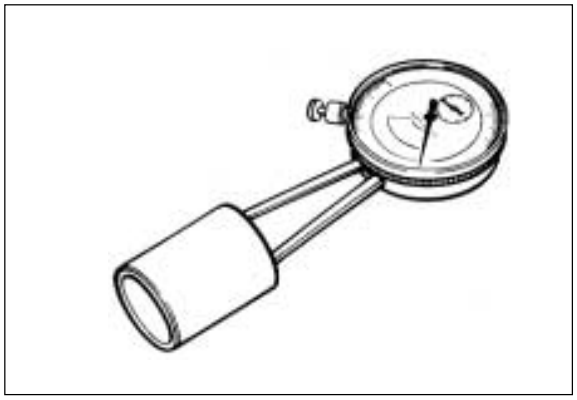


SPACER
Measure the inside diameter of the spacer with dial calipers.

Spacer	Ⓐ	Service limit 14.20 mm
	Ⓑ	Service limit 10.20 mm

(Ⓐ, Ⓑ : See page 6-31, 6-36)

If the inside diameter of the spacer exceeds the service limit or flaws are discovered, replace the spacer and O-rings.



REASSEMBLY
Reassemble the suspension, in the reverse order of disassembly and removal, and also carry out the following steps :

CUSHION LEVER BEARINGS
Install the right and left bearings by using the special tool.

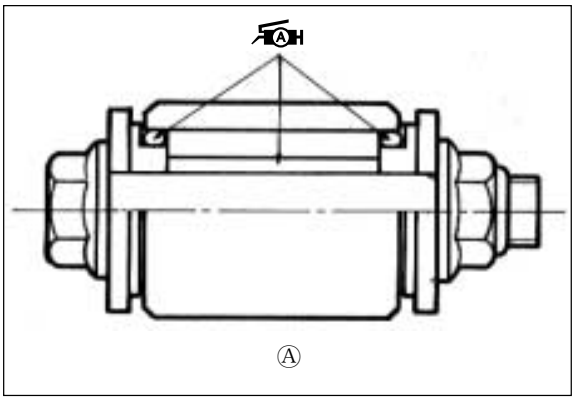
TOOL Bearing installer set : 09924-84510

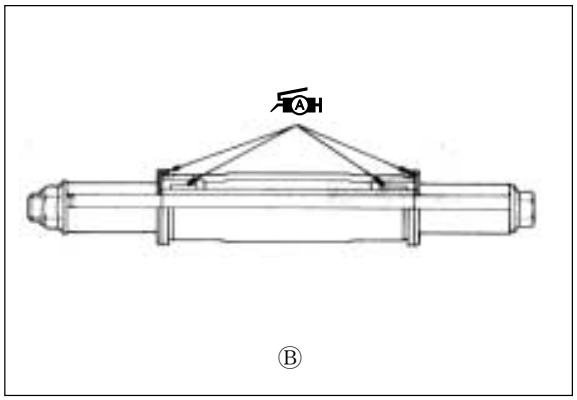
⚠ CAUTION

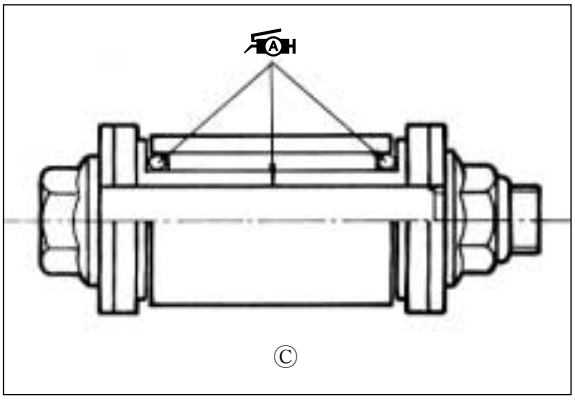
When installing two bearings, punch marked side of bearing comes on outside.

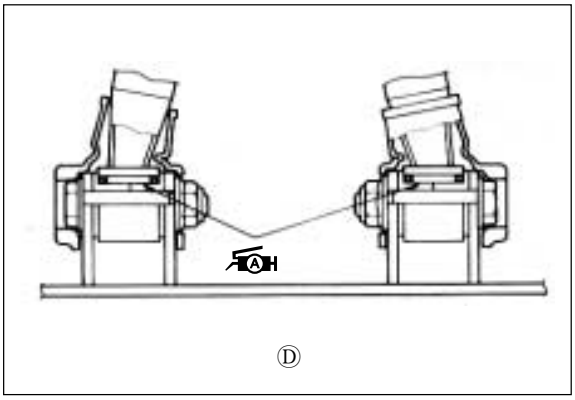
SPACER AND DUST SEAL
Apply grease to the spacer and dust seal before installing, as shown in the illustration.

A Super grease "A"

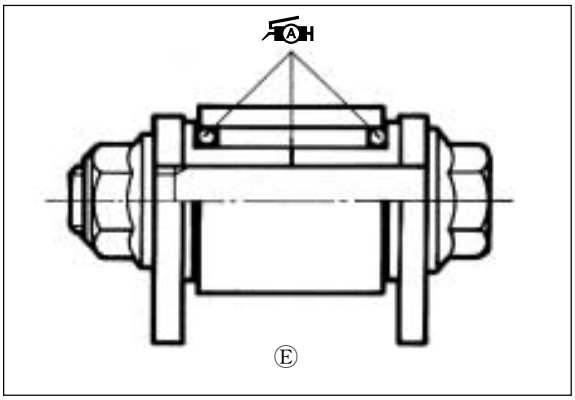








Ⓐ **Rear shock absorber nut(Upper)**
: 40~60 N · m (4.0~6.0 kg · m)
Ⓑ **Rear cushion lever center nut**
: 70~100 N · m (7.0~10.0 kg · m)
Ⓒ **Rear cushion rod nut and bolt(Lower)**
: 84~120 N · m (8.4~12.0 kg · m)
Ⓓ **Rear cushion rod nut and bolt(Upper)**
: 84~120 N · m (8.4~12.0 kg · m)
Ⓔ **Rear shock absorber nut(Lower)**
: 40~60 N · m (4.0~6.0 kg · m)



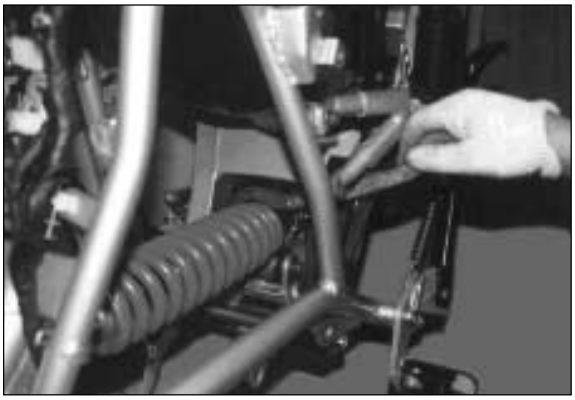
REAR SHOCK ABSORBER SPRING ADJUSTMENT PROCEDURE

The procedure for adjusting the spring pre-load is as follows.

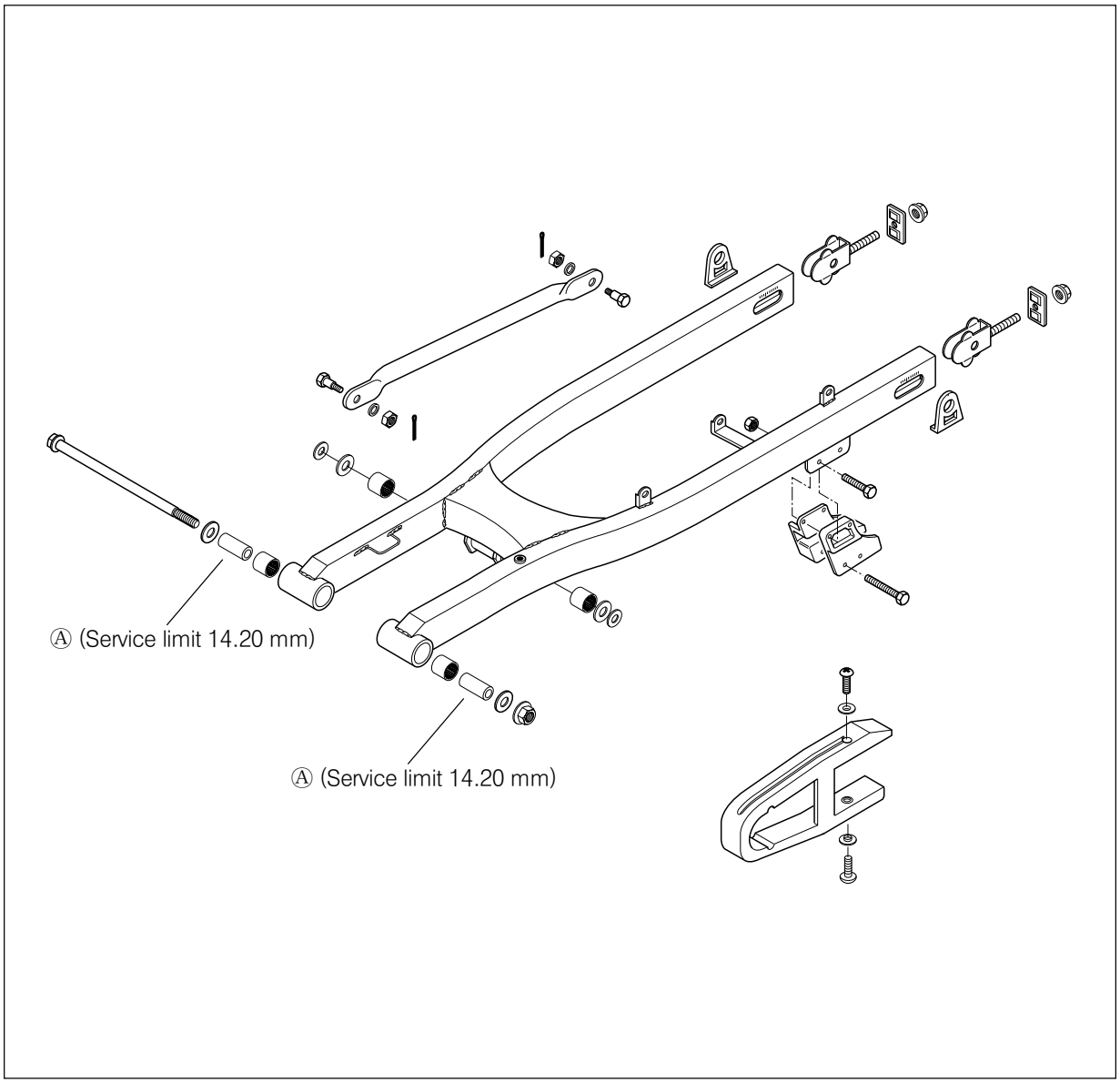
- Remove the seat and frame covers.
- Remove the carburetor.
- Remove thr air cleaner case.
- Adjust the rear shock absorber by using the special tool.

TOOL Clamp wrench : 09940-10122

- Remount the air cleaner, carburetor, seat and frame cover.



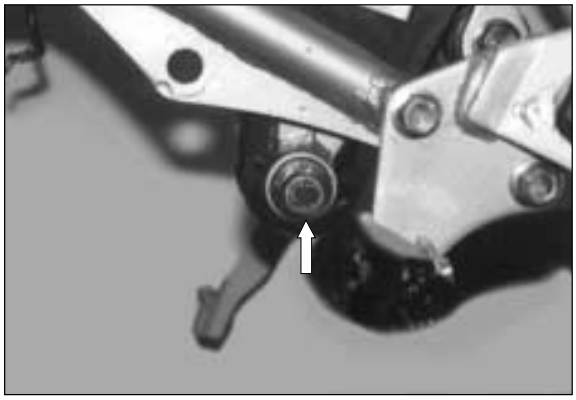
REAR SWING ARM



REMOVAL AND DISASSEMBLY

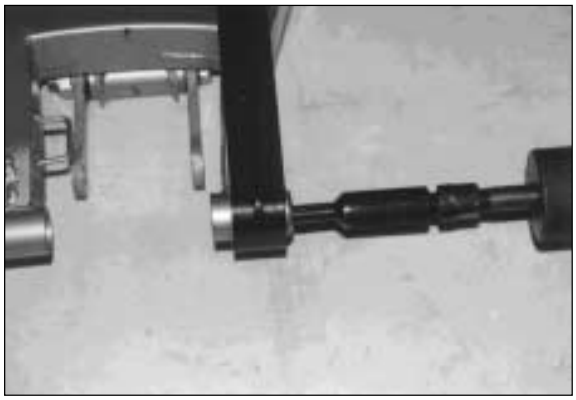
- Remove the rear wheel. (See page 6-26)
- Loosen the four screws and remove the mud flap. (See page 6-32)
- Remove the rear cushion rod fitting nuts and bolts. (See page 6-32)
- Remove the rear shock absorber fitting nut and bolt. (See page 6-32)

● Remove the swing arm pivot nut.
● Draw out the pivot shaft and take off the swing arm.



● Remove the chain case.
● Remove the two spacers.
● Remove the spacer by using the special tools.

TOOL **Bearing remover (17 mm) : 09923-73210**
Rotor remover sliding shaft : 09930-30102



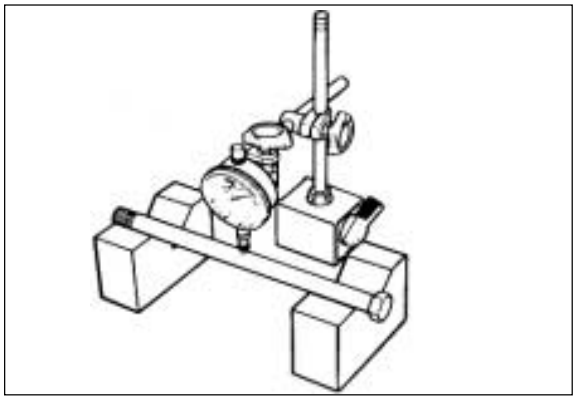
INSPECTION

SWING ARM PIVOT SHAFT

Using a dial gauge, check the pivot shaft for runout and replace it if the runout exceeds the limit.

TOOL **Dial gauge (1/100) : 09900-20606**

Swing arm pivot shaft for runout	Service limit 0.6 mm



REASSEMBLY

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

SWING ARM SPACER

Force-fit the spacers into the swing arm by using the special tool.

TOOL **Bearing installer set : 09924-84510**

SPACER

Apply grease to the spacer when installing.

Super grease "A"

SERVICING INFORMATION

CONTENTS

7

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 adjustment.	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 or rebore.
	6. Poor seating of spark plug.	Retighten.
	7. Starter motor cranks but too slowly.	Consult "electrical complaints"
	Plug not sparking	
	1. Fouled spark plug.	Clean or replace.
	2. Wet spark plug.	Clean and dry.
	3. Defective ignition coil.	Replace.
	4. Open or short circuit in high tension cord.	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 float valve.	Replace.
	4. Clogged fuel pipe.	Clean or replace.
Engine stalls easily.	1. Fouled spark plug.	Clean.
	2. Clogged fuel hose.	Clean.
	3. Clogged jets in carburetor.	Clean.
	4. Valve clearance out of adjustment.	Adjust.
Noisy engine.	**Excessive valve chatter**	
	1. Valve clearance too large.	Adjust.
	2. Weakened or broken valve springs.	Replace.
	3. Worn down rocker arm or rocker arm shaft.	Replace.
	Noise appears to come from piston	
	1. Piston or cylinder worn down.	Replace.
	2. Weakened or broken valve springs.	Replace.
	3. Worn down rocker arm or rocker arm shaft.	Replace.
	4. Piston rings or ring groove worn.	Replace.
	Noise seems to come from timing chain	
	1. Stretched chain.	Replace.
	2. Worn sprockets.	Replace.
	3. Tension adjuster not working.	Repair or replace.
	Noise seems to come from clutch	
	1. Worn splines of countershaft or hub.	Replace.
	2. Worn teeth of cluth plates.	Replace.
	3. Distorted clutch plates, driven and drive.	Replace.
	Noise seems to come from crankshaft	
	1. Worn or broken bearings.	Replace.
	2. Big-end bearings worn and broken.	Replace.
	3. Thrust clearance too large.	Replace.

Complaint	Symptom and possible causes	Remedy
Noisy engine.	**Noise seems to come from transmission**	
	1. Gears worn or rubbing.	Replace.
	2. Badly worn splines.	Replace.
	3. Primary gears worn or rubbing.	Replace.
	3. Badly worn bearings.	Replace.
Slipping clutch.	1. Clutch control out of adjustment or too much play.	Adjust.
	2. Weakened clutch springs.	Replace.
	3. Worn or distorted pressure plate.	Replace.
	4. Distorted clutch plates, driven and drive.	Replace.
Dragging clutch.	1. Clutch control out of adjustment or too much play.	Adjust.
	2. Weakened clutch springs.	Replace.
	3. Distorted clutch plates, driven and drive.	Replace.
Transmission will not shift.	1. Broken gearshift cam.	Replace.
	2. Distorted gearshift forks.	Replace.
	3. Worn gearshift pawl.	Replace.
Transmission will not shift back.	1. Broken return spring on shift shaft.	Replace.
	2. Shift shafts are rubbing or sticky.	Repair.
	3. Distorted or worn gearshift forks.	Replace.
Transmission jumps out of gear.	1. Worn shifting gears on driveshaft or countershaft.	Replace.
	2. Distorted or worn gearshift forks.	Replace.
	3. Weakened stopper pawl spring on gearshift cam.	Replace.
	4. Worn gearshift pawl.	Replace.
Engine idles poorly.	1. Valve clearance out of adjustment.	Adjust.
	2. Poor seating of valves.	Replace.
	3. Defective valve guides.	Replace.
	4. Worn rocker arm or arm shaft.	Replace.
	5. Spark plug gap too wide.	Adjust or replace.
	6. Defective ignition coil resulting in weak sparking.	Replace.
	7. Float–chamber fuel level out of adjustment in carburetor.	Adjust.
	8. Clogged jets.	Clean.
Engine runs poorly in high speed range.	1. Valve springs weakened.	Replace.
	2. Valve timing out of adjustment.	Adjust.
	3. Worn cams or rocker arms.	Replace.
	4. Spark plug gap too narrow.	Repair.
	5. Defective ignition coil.	Replace.
	6. Float–chamber fuel level too low.	Adjust .
	7. Clogged air cleaner element.	Clean.
	8. Clogged fuel pipe, resulting in inadequate fuel supply to carburetor.	Clean or replace.
Dirty or heavy exhaust smoke.	1. Too much engine oil in the engine.	Check with inspection win–dow, drain out excess oil.
	2. Worn piston rings or cylinder.	Replace.
	3. Worn valve guides.	Replace.
	4. Cylinder wall scored or scuffed.	Replace.
	5. Worn valves stems.	Replace.
	6. Defective stem seals.	Replace.
	7. Worn side rails.	Replace.

Complaint	Symptom and possible causes	Remedy
Engine lacks power.	1. Loosen of valve clearance. 2. Weakened valve springs. 3. Valve timing out of adjustment. 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. Float-chamber fuel level out of adjustment. 11. Clogged air cleaner element. 12. Too much enging oil. 13. Defective air intake pipe.	Adjust. Replace. Adjust. Replace. Repair or replace. Clean or replace. Replace. Adjust or replace. Clean. Adjust. Clean. Drain out excess oil. Retighten or replace.
Engine overheats.	1. Heavy carbon deposit on piston head. 2. Not enough oil in the engine. 3. Defective oil pump or clogged oil circuit. 4. Fuel level too low in float chamber. 5. Air leak from intake pipe. 6. Use of incrrect engine oil. 7. Defective oil cooler.	Clean. Add oil. Repair or clean. Adjust. Retighten or replace. change. Clean or replace.

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 starter body and carburetor. 4. Starter plunger is not operating properly.	Clean. Clean. Check starter 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. Starter plunger is not fully closed.	Check and clean. Check and clean. Check and clean.
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 borken. 3. Float is not working properly. 4. Foreign matter has adhered to needle valve. 5. Fuel level is too high or low.	Replace. Replace. Check and adjust. Clean. Adjust float height.

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective CDI unit.	Replace. Replace. Replace.
Spark plug soon become fouled with carbon.	1. Mixture too rich. 2. Idling speed set too high. 3. Incorrect gasoline. 4. Dirty element in air cleaner. 5. Spark plug too cold.	Adjust carburetor. Adjust carburetor. Change. Clean or replace. 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 seal.	Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1. Spark plug too hot. 2. The engine overheats. 3. Spark plug loose. 4. Mixture too lean.	Replace by cold type plug. Tune up. Retighten. Adjust carburetor.
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 stator coils of generator. 3. Defective regulator/rectifier. 4. Not enough electrolyte in the battery. 5. Defective cell plates in the battery.	Repair or retighten. Replace. Replace. Add 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 defec−tive. 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 inter−mittent shorting. 2. Generator internally shorted. 3. Defective regulator/rectifier.	Repair or replace Replace. Replace.
Starter button is not effective.	1. Battery run down. 2. Defective switch contacts. 3. Brushes not seating properly on commutator in starter motor. 4. Defective starter relay.	Recharge or replace. Replace. Repair or replace. Replace.

BATTERY

Complaint	Symptom and possible causes	Remedy
"Sulfation" acidic white powdery substance or spots on surfaces 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.)	Add distilled water, if the battery has not been damaged and "sulfation" has not advanced too far, and recharge. Replace the battery. Replace the battery or recharge. If "sulfation" has not advanced far, try to restore the battery by replacing the electrolyte, recharing it fully with the battery detached from the motorcycle and then adjusting electrolyte specific gravity.
Battery runs down quickly.	1. The charging method is not correct. 2. Cell plates have lost much of their active material as a result of over-charging. 3. A short-circuit condition exists within the battery due to excessive accumulation of sediments caused by the high electrolyte specific gravity. 4. Electrolyte specific gravity 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 specific gravity. Replace the electrolyte, recharge the battery and then adjust specific gravity. 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. Charging rate too low or too high. (When not in use, batteries should be recharged at least once a month to avoid sulfation.) 2. Battery electrolyte excessive or insufficient, or its specific gravity too high or too low. 3. The battery left unused for too long in cold climate.	Replace the battery. Keep the electrolyte up to the prescribed level, or adjust the specific gravity by consulting the battery maker's directions. Replace the battery, if badly sulfated.
Battery discharges too rapidly.	1. Dirty container top and sides. 2. Impurities in the electrolyte or electrolyte specific gravity is too high.	Clean. Change the electrolyte by consulting the battery maker's directions.

CHASSIS

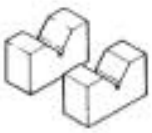
Complaint	Symptom and possible causes	Remedy
Steering feels too heavy or stiff.	1. Steering stem nut overtightened. 2. Worn bearing or race in steering stem. 3. Distorted steering stem. 4. Not enough pressure in tires.	Adjust. Replace. Replace. Adjust.
Steering oscillation.	1. Loss of balance between right and left front suspensions. 2. Distorted front fork. 3. Distorted front axle or crooked tire.	Replace. Repair or replace. Replace.
Wobbling front wheel.	1. Distorted wheel rim. 2. Worn−down wheel bearings. 3. Defective or incorrect tire. 4. Loosen nut on axle.	Replace. Replace. Replace. Retighten.
Front suspension too soft.	1. Weakened springs. 2. Not enough fork oil.	Replace. Refill.
Front suspension too stiff.	1. Fork oil too viscous. 2. Too much fork oil.	Replace. Drain excess oil.
Noisy front suspension.	1. Not enough fork oil. 2. Loosen nuts on suspension.	Refill. Retighten.
Wobbling rear wheel.	1. Distorted wheel rim. 2. Worn−down rear wheel bearing. 3. Defective or incorrect tire. 4. Loose nut on axle. 5. Worn swing arm spacers. 6. Loosen nut on the rear shock.	Replace. Replace. Replace. Retighten. Replace. Retighten.
Rear suspension too soft.	1. Weakened springs. 2. Rear suspension adjuster impromerly set.	Replace. Adjust.
Rear suspension too stiff.	1. Rear suspension adjuster improperly set. 2. Worn swing arm spacers.	Adjust. Replace.
Noisy rear suspension.	1. Loosen nuts on suspension. 2. Worn swing arm spacers.	Retighten. Replace.

BRAKES

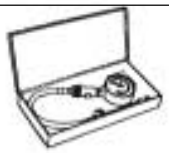
Complaint	Symptom and possible causes	Remedy
Poor braking (FRONT and REAR)	1. Not enough brake fluid in the reservoir. 2. Air trapped in brake fluid circuit. 3. Pads worn down. 4. Too much play on brake lever or pedal. 5. Shoes worn down.	Refill to level mark. Bleed air out. Replace. Adjust. Replace.
Insufficient brake power.	1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion of engaging surface of pads. 4. Worn disk. 5. Air in hydraulic system.	Repair or replace. Replace. Clean disk and pads. Replace. Bleed air.
Brake squeaking.	1. Carbon adhesion on pad surface. 2. Tilted pad. 3. Damaged wheel bearing. 4. Loosen front−wheel axle or rear−wheel axle. 5. Worn pads. 6. Foreign material in brake fluid. 7. Clogged return port of master 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. Worn brake lever cam. 3. Insufficient brake fluid. 4. Improper quality of brake fluid.	Bleed air. Replace brake lever. Replenish fluid to specified level ; bleed air. Replace with correct fluid.
Leakage of brake fluid.	1. Insufficient tightening of connection joints. 2. Cracked hose. 3. Worn piston and/or cup.	Tighten to specified torque. Replace. Replace piston and/or cup.

SPECIAL TOOLS

Special tools	Part Number · Part Name · Description
	09900-00401 "L" type hexagon wrench set
	Tighten hexagon bolt
	09900-00410 Hexagon wrench set
	Tighten hexagon bolt
	09900-05108 Snap ring pliers
	Circlip remove and remounting
	09900-06105 Snap ring pliers
	Circlip remove and remounting
	09900-06107 Snap ring pliers
	Circlip remove and remounting
	09900-09003 Impact driver set
	Remove and remounting of fixed screw
	09900-20102 Vernier calipers
	Measure thickness
	09900-20202 Micrometer (1/100mm, 25-50mm)
	Measure height of cam
	09900-20203 Micrometer (1/100mm, 50-75mm)
	Measure outside diameter of piston

Special tools	Part Number · Part Name · Description
	09900-20205 Micrometer (1/100mm, 0-25mm)
	Measure outside diameter of piston pin
	09900-20508 Cylinder gauge set (1/100mm, 40-80mm)
	Measure inside diameter of cylinder
	09900-20602 Dial gauge (1/100mm, 1mm)
	Measure inside diameter of cylinder
	09900-20605 Dial calipers (1/100mm, 10-34mm)
	Measure width of conrod big-end
	09900-20606 Dial gauge (1/100mm, 10mm)
	Measure run-out of wheel
	09900-20701 Magnetic stand
	Used with Dial gauge
	09900-20806 Thickness gauge
	Measure clearance of piston ring
	09900-21304 V-block set
	Used with Magnetic stand
	09900-22301 Plastic gauge
	Measure clearance of crankshaft thrust

Special tools	Part Number · Part Name · Description
	09900–22401 Small bore gauge (10–18mm)
	Measure inside diameter of conrod small–end
	09900–25002 Pocket tester
	Measure voltage, electric current, resistance
	09900–26006 Tachometer
	Measure rotational frequency of engine
	09900–28107 Electro tester
	Inspect ignition coil
	09910–20116 Conrod holder
	Used to lock the crankshaft
	09910–32812 Crankshaft installer
	Used to install the crankshaft in the crankcase
	09940–10122 Clamp wrench
	A hook wrench to adjust the steering head of motorcycle
	09913–14541 Fuel level gauge set
	Measure height of carburetor
	09913–50121 Oil seal remover
	Used to remove the oil seal

Special tools	Part Number · Part Name · Description
	09913–60710 Bearing remover
	Remove bearing with the rotor remove sliding shaft
	09913–75520 Bearing installer
	Used to drive bearing in
	09913–75821 Bearing installer
	Used to drive bearing in
	09913–75830 Bearing installer
	Install rear axle shaft oil seal
	09913–76010 Bearing installer
	Install crankshaft bearing
	09915–63310 Compression gauge adapter
	Used with compression gauge
	09915–64510 Compression gauge
	Measure cylinder compression
	09915–74510 Oil pressure gauge
	Measure oil pressure of 4–stroke engine
	09915–74531 Oil pressure gauge adapter
	Used with oil pressure gauge.

Special tools	Part Number · Part Name · Description
	09916-14510 Valve spring compressor
	Remove and remounting valve stem
	09916-14910 Valve spring compressor attachment
	Used with valve spring compressor
	09916-84511 Tweezers
	Remove and remounting valve cotter pin.
	09917-14910 Tappet adjuster driver
	Control to valve clearance.
	09920-13120 Crankcase separater
	Seprate to crankcase
	09921-20200 Bearing remover (10mm)
	Remove oil seal or bearing
	09921-20210 Bearing remover (12mm)
	Remove oil seal or bearing
	09922-55131 Bearing installer
	Used to drive bearing in
	09923-73210 Bearing remover (17mm)
	Remove bearing with the rotor remove sliding shaft

Special tools	Part Number · Part Name · Description
	09923-74510 Bearing remover (20~35mm)
	Remove bearing with the rotor remove sliding shaft
	09924-84521 Bearing installer
	Used to drive small bearing in
	09925-98221 Bearing installer
	Used to drive bearing in
	09930-10121 Spark plug socket wrench set
	Remove and remounting spark plug
	09930-30102 Rotor remove sliding shfat
	Used to with bearing remover or rotor remover
	09930-30162 Rotor remover
	Attached to the top of sliding shaft when removing rotor
	09930-32420 Rotor holder
	Remove and remounting rotor
	09930-40113 Rotor holder
	Widely used to lock rotary parts such as a flywheel magneto
	09940-34520 T-handle
	Remove and remounting front fork oil cylinder

Special tools	Part Number · Part Name · Description
	09940-34561 Front fork assembling tool attachment "D"
	Used with T-handle
	09940-50113 Front fork oil seal installer
	Install front fork oil seal
	09941-34513 Bearing installer
	Install steering outer race
	09941-50110 Wheel bearing remover
	Remove wheel bearing
	09943-74111 Front fork oil level gauge
	Used to drain the fork oil to the specified level
	09943-88211 Bearing remover
	Remove rear axle shaft bearing
	09951-76010 Bearing installer
	Used to drive bearnig in

TIGHTENING TORQUE

ENGINE

ITEM	N · m	kg · m
Cylinder head cover bolt	12–16	1.2–1.6
Camshaft sprocket bolt	25–30	2.5–3.0
Cylinder head nut	25–29	2.5–2.9
Cylinder base nut	6–8	0.6–0.8
Magneto rotor nut	56–60	5.6–6.0
primary drive gear/oil pump drive gear nut	40–60	4.0–6.0
Clutch sleeve hub nut	30–50	3.0–5.0
Engine oil drain plug	25–30	2.5–3.0
Engine sprocket nut	80–100	8.0–10.0
Engine mounting bolt 17 mm Diam.	48–72	4.8–7.2
Engine mounting bolt 14 mm or 12 mm Diam.	22–33	2.2–3.3
Exhaust pipe clamp nut	18–22	1.8–2.2
Muffler clamp bolt	9–16	0.9–1.6
Starter clutch bolt	15–20	1.5–2.0

CHASSIS

ITEM	N · m	kg · m
Front axle bolt	50–80	5.0–8.0
Front axle pinch bolt	15–25	1.5–2.5
Front fork damper rod bolt	30–40	3.0–4.0
Front fork lower clamp bolt	20–30	2.0–3.0
Front fork upper clamp bolt	22–35	2.2–3.5
Steering stem head bolt	80–100	8.0–10.0
Handlebars clamp bolt	18–28	1.8–2.8
Swing arm pivot nut	50–80	5.0–8.0
Rear torque link nut (Front and rear)	10–15	1.0–1.5
Rear shock absorber fitting nut (Upper and lower)	40–60	4.0–6.0
Rear cushion lever center nut	70–100	7.0–10.0
Rear cushion rod nut and bolt (Upper and lower)	84–120	8.4–12.0
Rear axle nut	50–80	5.0–8.0
Rear sprocket nut	20–30	2.0–3.0
Rear brake cam lever bolt	8–12	0.8–1.2
Front brake caliper mounting bolt	18–28	1.8–2.8
Disc bolt	18–28	1.8–2.8
Front brake mastet cylinder mounting bolt	5–8	0.5–0.8
Brake hose union bolt	20–25	2.0–2.5
Caliper bleeder bolt	6–9	0.6–0.9
Oil cooler hose union bolt (10 M)	20–25	2.0–2.5
Oil cooler hose union bolt (12 M)	20–25	2.0–2.5

TIGHTENING TORQUE CHART

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

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

SERVICE DATA

VALVE + GUIDE

Unit : mm

ITEM	STANDARD		LIMIT
Valve diam.	IN.	ϕ 22	–
	EX.	ϕ 19	–
Valve lift	IN.	7.4	–
	EX.	7.1	–
Valve clearance or tappet clearance (when cold)	IN. & EX.	0.08–0.13	–
Valve guide to valve stem clearance	IN.	0.010–0.037	0.35
	EX.	0.030–0.057	0.35
Valve guide I.D.	IN. & EX.	5.000–5.012	–
Valve stem O.D.	IN.	4.975–4.990	–
	EX.	4.955–4.970	–
Valve stem runout	IN. & EX.	–	0.05
Valve head thickness	IN. & EX.	–	0.5
Valve stem end length	IN. & EX.	3.5	3.38
Valve stem width	IN. & EX.	0.9–1.1	–
Valve head radial runout	IN. & EX.	–	0.03
Valve spring free length	IN. & EX.	41.65	–
Valve spring tension(Assembling condition)	IN. & EX.	13.6–16.6 kg at length 36.6 mm	–

CAMSHAFT + CYLINDER HEAD

Unit : mm

ITEM	STANDARD		LIMIT
Cam height	IN.	34.44-34.48	34.18
	EX.	33.81-33.85	33.55
Camshaft runout	-	-	0.10
Cam chain 20-pitch length	-	-	129.9
Rocker arm I.D.	IN. & EX.	12.000-12.018	-
Rocker arm shaft O.D.	IN. & EX.	11.977-11.995	-
Cylinder head distortion	-	-	0.05
Cylinder head cover distortion	-	-	0.05

CYLINDER + PISTON + PISTON RING

Unit : mm

ITEM	STANDARD			LIMIT
Compression pressure	15.6 kg/㎠ (500 rpm)			8.0 kg/㎠
Piston to cylinder clearance	0.050-0.060			0.120
Cylinder bore	57.000-57.015			57.080
Piston diam.	56.945-56.960 Measure at 15 mm from the skirt end			56.880
Cylinder distortion	-			0.05
Piston ring free end gap	1st	R	Approx. 7.2	5.7
	2nd	RN	Approx. 5.8	4.6
Piston ring end gap(Assembling condition)	1st		0.20-0.32	0.50
	2nd		0.20-0.32	0.50
Piston ring to groove clearance	1st		-	0.180
	2nd		-	0.150
Piston ring groove width	1st		1.01-1.03	-
	2nd		1.01-1.03	-
	Oil		2.01-2.03	-
Piston ring thickness	1st		0.970-0.990	-
	2nd		0.970-0.990	-
Piston pin bore I.D	15.002-15.008			15.030
Piston pin O.D	14.994-15.000			14.980

CONROD + CRANKSHAFT

Unit : mm

ITEM	STANDARD	LIMIT
Conrod small end I.D.	15.006–15.014	15.040
Conrod deflection	–	3.0
Conrod big end side clearance	0.10–0.45	1.00
Conrod big end width	15.95–16.00	–
Crank web to wed width	53.0±0.1	–
Crankshaft runout	–	0.05

OIL PUMP

Unit : mm

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.000(30/15)	–
Oil pressure (at 60℃, 140 °F)	0.4~0.6 kg/㎠ (at 3,000 rpm)	–

CLUTCH

Unit : mm

ITEM	STANDARD	LIMIT
Clutch cable play	4	–
Clutch release screw	1/4–1/2 turn back	–
Drive plate thickness	2.9–4.1	2.6
Driven plate thickness	1.60±0.05	–
Driven plate distortion	–	0.10
Clutch spring free length	–	29.5

TRANSMISSION+DRIVE CHAIN

Unit : mm except ratio

ITEM	STANDARD		LIMIT
Primary reduction ratio	3.500 (70/20)		–
Final reduction ratio	3.357 (47/14)		–
Gear ratios	Low	2.750 (33/12)	–
	2nd	1.785 (25/14)	–
	3rd	1.368 (26/19)	–
	4th	1.045 (23/22)	–
	Top	0.913 (21/23)	–
Shift fork to groove clearance	0.10–0.30		0.50
Shift fork groove width	No. 1, NO. 2	5.0–5.1	–
	No. 3	5.5–5.6	–
Shift fork thickness	No. 1, NO. 2	4.8–4.9	–
	No. 3	5.3–5.4	–
Countershaft length(Low to 2nd)	$88.0^{+0.1}_{-0.2}$		–
Drive chain	Type	428 H	–
	Links	132 Links	–
	20 pitch length		259.4
Drive chain slack	50–60		–

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		PD 18F
Bore size		ϕ 24
I.D. No.		HG 58
Idle rpm		1,450±100 rpm
Float height		12.5
Main jet	(M.J.)	# 98
Main air jet	(M.A.J.)	# 90
Jet needle	(J.N.)	J 29 B
Needle jet	(N.J.)	AIFC-2nd
Pilot jet	(P.J.)	# 38
Throttle valve	(T.V.)	93 C
By-pass	(B.P.)	2.9, ϕ 1.0, ϕ 0.9
Valve seat	(V.S.)	ϕ 2.0
Stater jet		MAX # 500
Pilot screw	(P.S.)	2½
Pilot air jet	(P.A.J.)	# 150

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded or low-lead type is recommended.		
Fuel tank (including reserve)	8.0 liter		
Reserve	1.0 liter		
Engine oil type	SEA 10W/40 SF		SG, SH
Engine oil capacity	change	950 ml	
	Filter change	1,050 ml	
	Overhaul	1,400 ml	
Front fork oil type	SS8 Oil		
Front fork oil capacity(each leg)	443±2.5 cc		
Brake fluid type	SAE J 1703, DOT 3 or DOT 4		

BRAKE+WHEEL

Unit : mm

ITEM	STANDARD		LIMIT
Front brake lever distance	20-30		-
Rear brake pedal free travel	10-20		-
Rear brake pedal height	2		-
Brake disc thickness	Front wheel	4.0	3.0
Brake disc runout	Front wheel	-	0.30
Master cylinder bore	Front wheel	12.700-12.743	-
Master cylinder piston diam	Front wheel	12.657-12.684	-
Brake caliper cylinder bore	Front wheel	25.4	-
Brake caliper piston diam	Front wheel	25.4	-
Brake drum I.D	Rear wheel	ϕ 130	130.7
Brake lining thickness	Rear wheel	4	2.5
Wheel rim runout	Axis direciton	-	2.0
	Circular direction	-	2.0
Wheel axle runout	Front wheel	-	0.25
	Rear wheel	-	0.25
Tire size	Front wheel	2.75-21 45P	-
	Rear wheel	4.10-18 59P	-
Tire tread depth	Front wheel	7.0	1.6
	Rear wheel	10.0	1.6

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING					
	SOLO RIDING			DUAL RIDING		
	kPa	kg/㎠	psi	kPa	kg/㎠	psi
FRONT	172	1.75	25	172	1.75	25
REAR	197	2.00	29	221	2.25	32

SUSPENSION

Unit: mm

ITEM	STANDARD	LIMIT
Front fork stroke	250	–
Front fork spring free length	–	555
Front fork oil level	146	–
Rear wheel travel	200	–
Swing arm pivot shaft runout	–	0.6

ELECTRICAL

Unit : mm

ITEM	SPECIFICATION	
Ignition timing (BTDC/rpm)	15°/2,250 and 35°/4,000	
Spark plug	Type	C8EH-9
	Gap	0.8-0.9
Spark performance	Over 8 mm	
Ignition coil resistance	Primary	0.19-0.24 Ω
	Secondary	5.4-6.6 kΩ
Magneto coil resistance	Pick-up	G-L Approx. 90-110 Ω
	Charging	Y-Y Approx. 0.6-0.9 Ω
Generator no-load voltage	72-99 V/5,000 rpm	
Regulated voltage	14-15 V	
Battery	Capacity	6Ah
	Standard electrolyte specific gravity 1.320 at 20℃ (600°F)	
Fuse size	Main	15A

WATTAGE

Unit : W

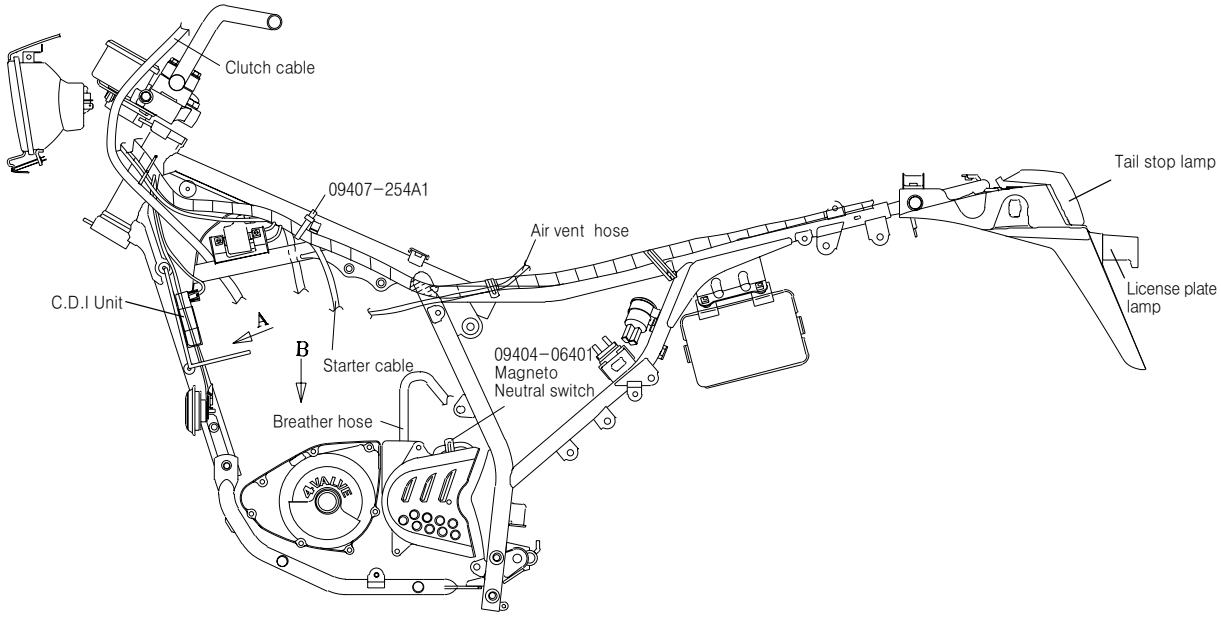
ITEM		SPECIFICATION
Head lamp bulb	HI	35
	LO	35
Neutral lamp bulb		5
Tail/stop lamp bulb		21/5
Turn signal lamp bulb		Front:10, Rear:10
Speedo meter lamp bulb		3.4
Turn signal pilot lamp bulb		1.7
Hi-beam pilot lamp bulb		1.7

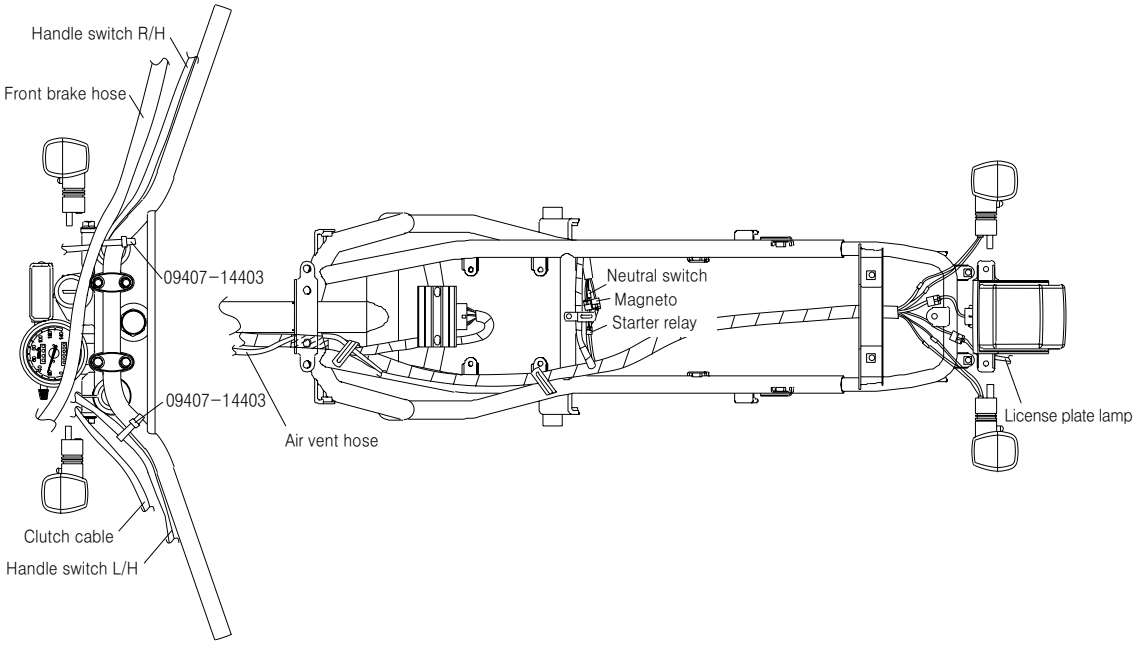
⚠ CAUTION

Do not use except the specified bulb(Wattage)

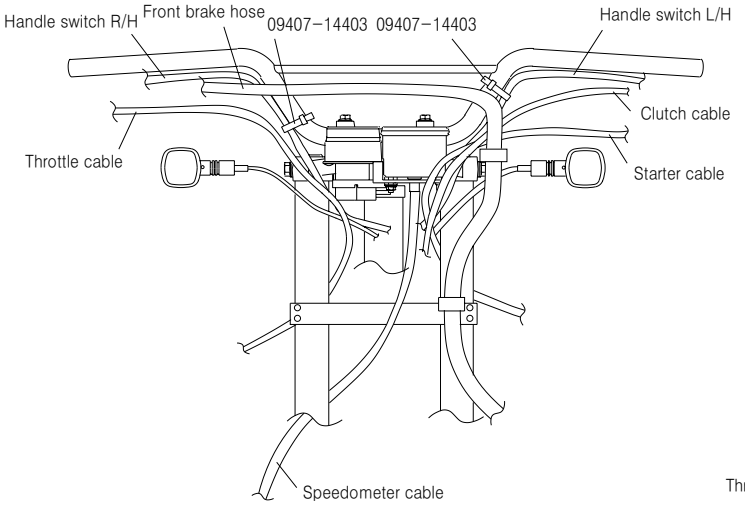
WIRE AND CABLE ROUTING

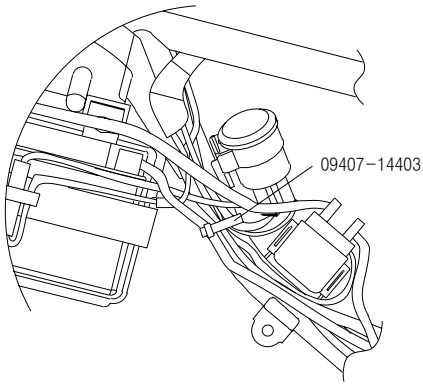
WIRING HARNESS





CABLE





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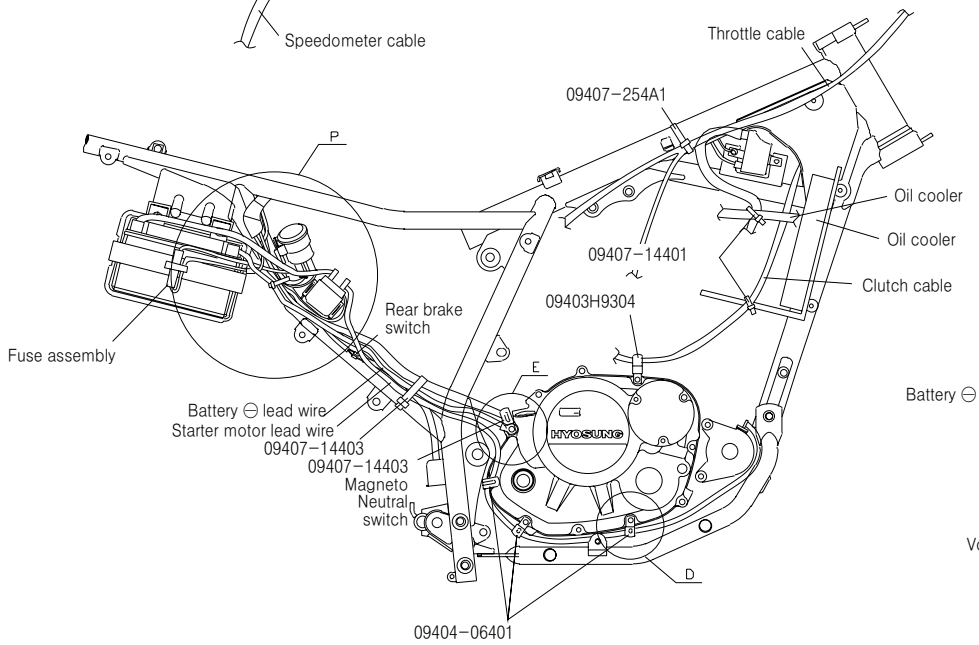

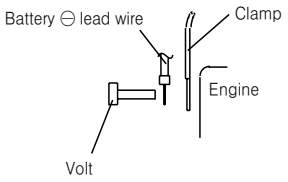

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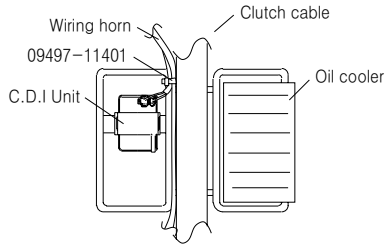

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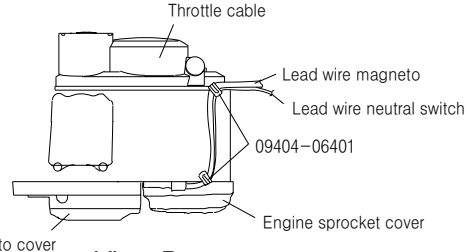

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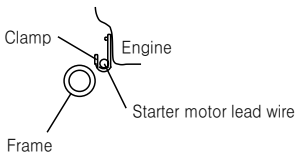

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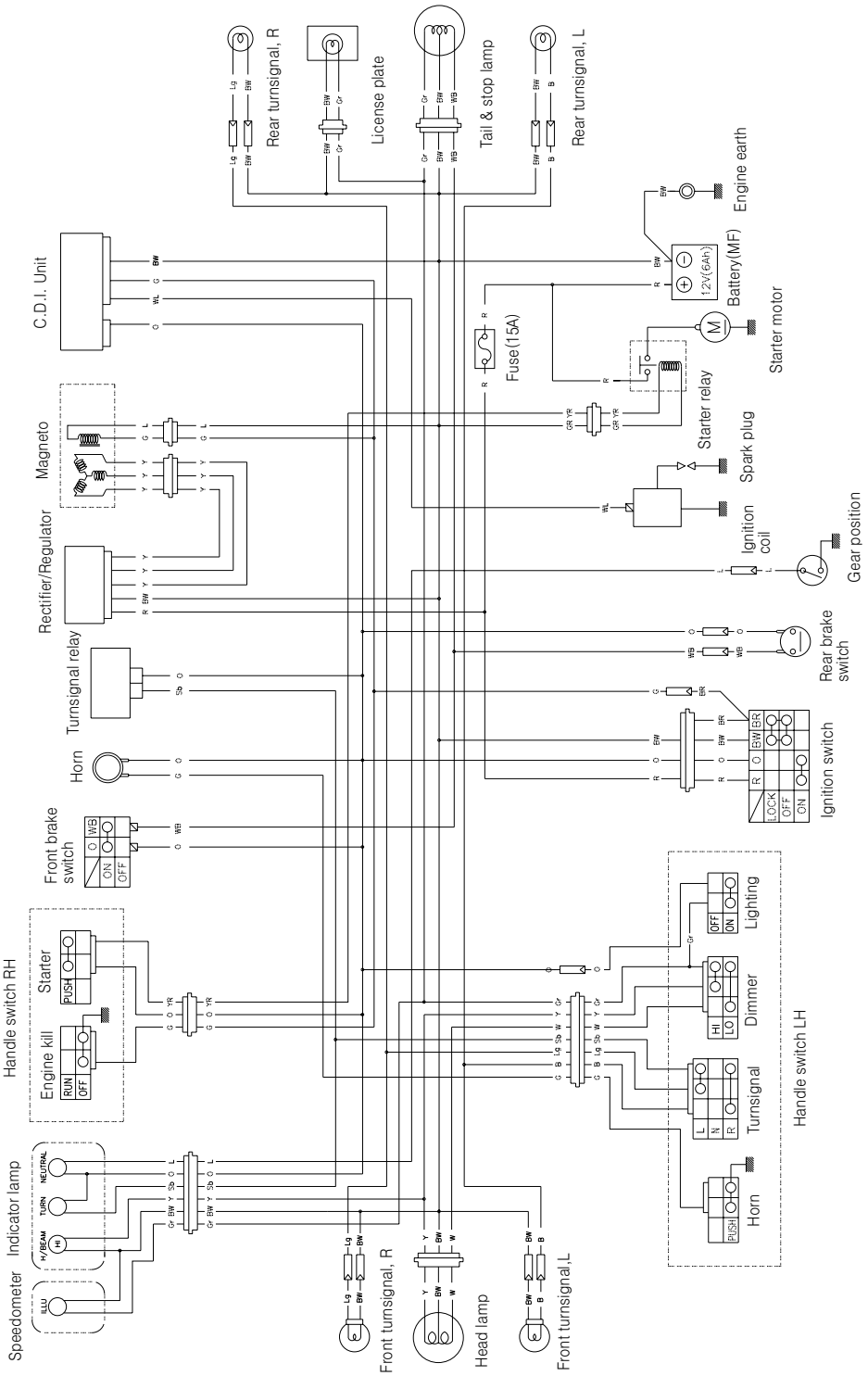
WIRING DIAGRAM



WIRE COLOR

B	: Black	Lg	: Light green	Y	: Yellow	RB	: Red with Black tracer
Br	: Brown	O	: Orange	BG	: Black with Green tracer	RW	: Red with White tracer
G	: Green	R	: Red	BW	: Black with White tracer	WB	: White with Black tracer
Gr	: Gray	Sb	: Light blue	BR	: Black with Red tracer	WR	: White with Red tracer
L	: Blue	W	: White	LW	: Blue with White tracer	YB	: Yellow with Black tracer

Prepared by

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