HYOSUNG MOTORS & MACHINERY INC.

SERVICE MANUAL

99000-94810

HYOSUNG

Comet650

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SERVICE MANUAL

FOREWORD

This manual contains an introductory description on HYOSUNG 『Comet650』 and procedures for its inspection/service and overhaul of its main components. Other information considered as generally known is not included.
Read GENERAL INFORMATION section to familiarize yourself with outline of the vehicle and MAINTENANCE 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 publication. 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.**

⚠ WARNING

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.

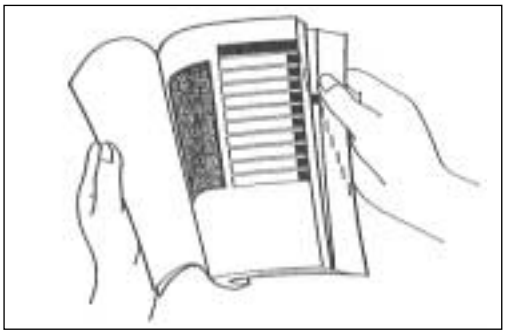
GROUP INDEX

HYOSUNG MOTORS & MACHINERY INC.

HOW TO USE THIS MANUAL

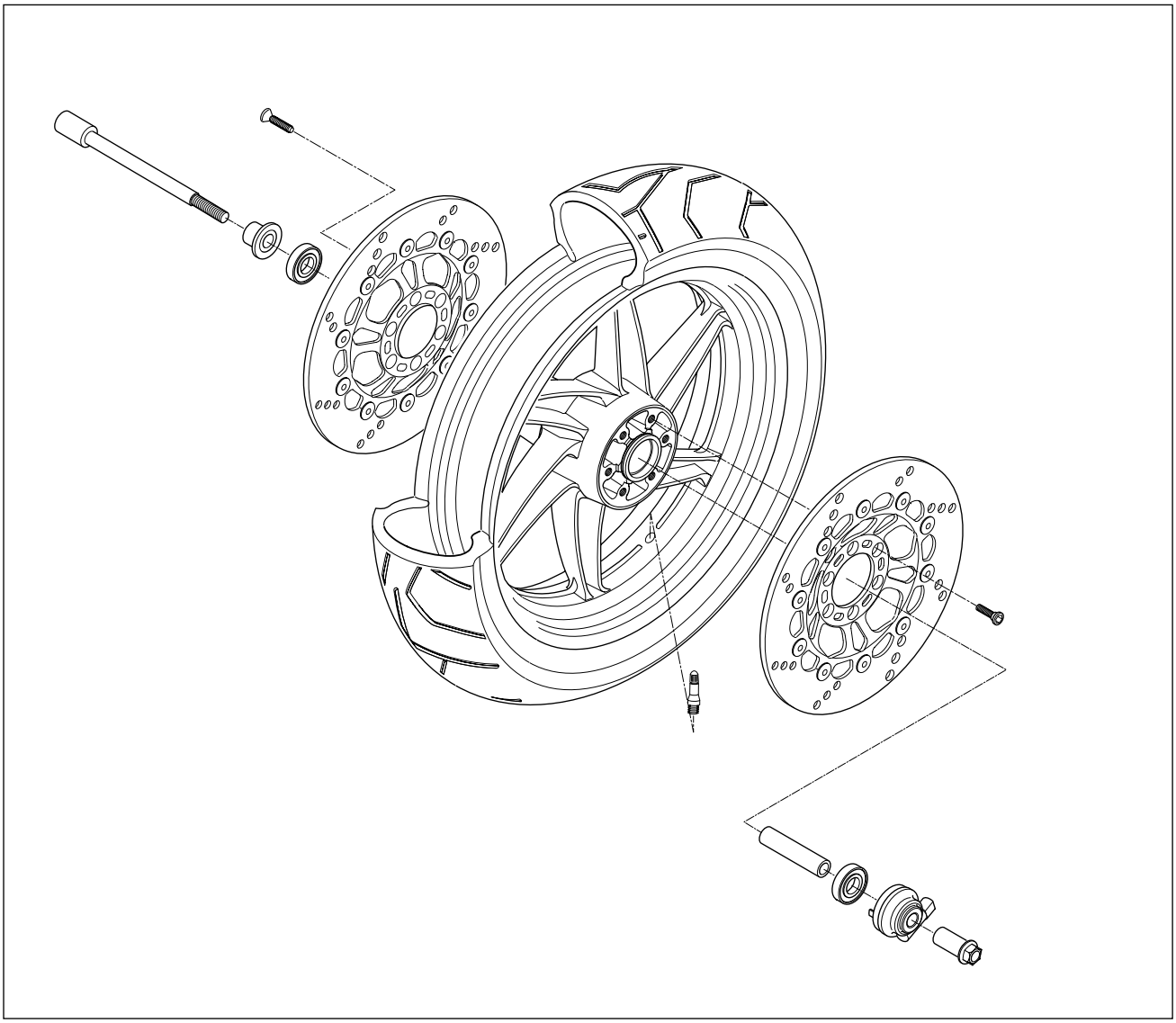
TO LOCATE WHAT YOU ARE LOOKING FOR:

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 you are looking for.
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: Front wheel



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”.		Use engine coolant.
	Use fork oil.		

NOTE

Difference between photographs and actual motorcycles depends on the markets.

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 well-ventilated 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.**

⚠ WARNING

- ❖ 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 power, diconnect 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.

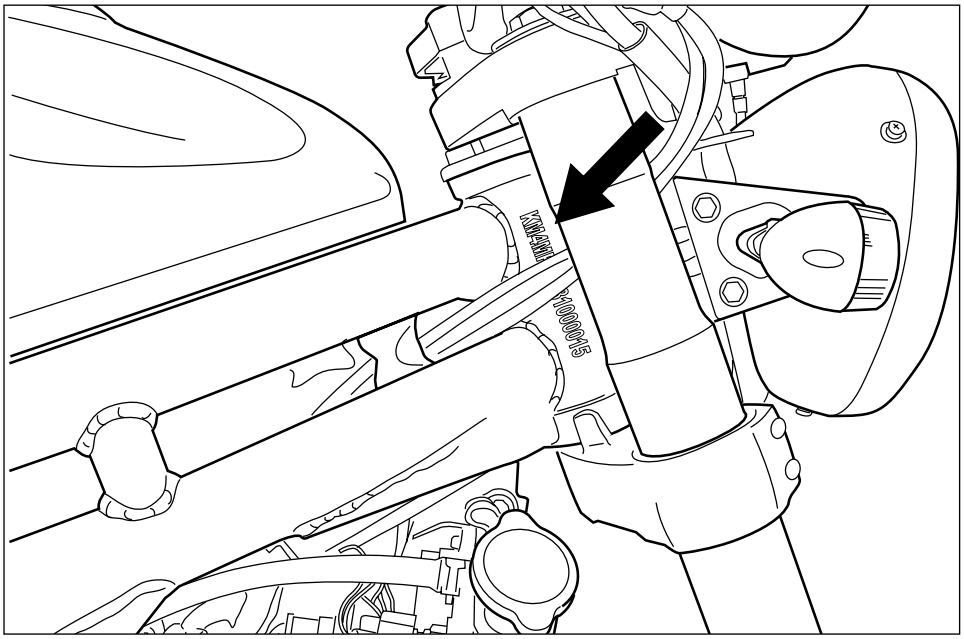
⚠ WARNING

- ❖ 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.

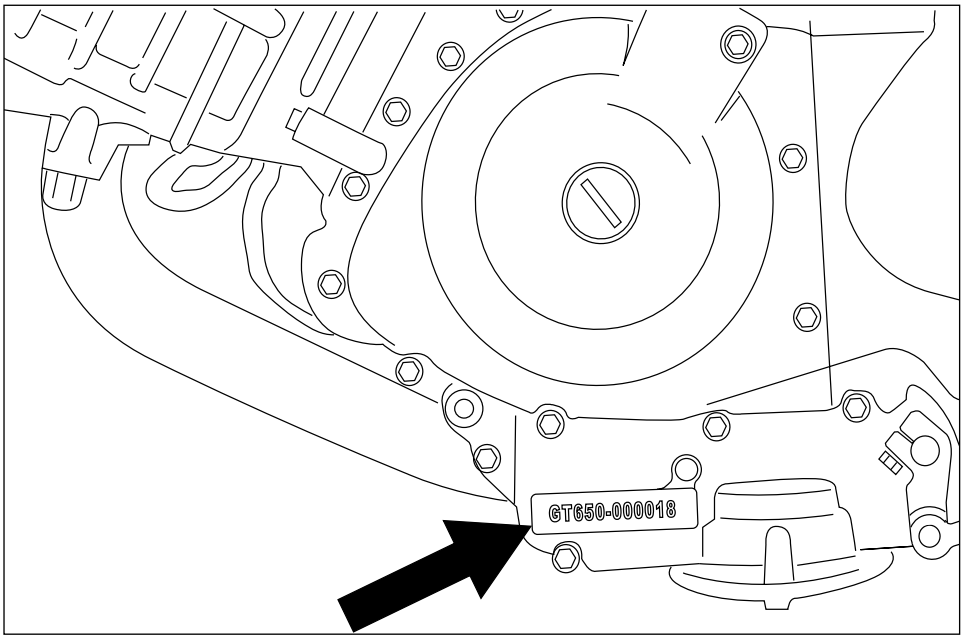
SERIAL NUMBER LOCATION

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

⊙ FRAME SERIAL NUMBER



⊙ ENGINE SERIAL NUMBER



FUEL, OIL AND ENGINE COOLANT RECOMMENDATIONS

⊙ FUEL

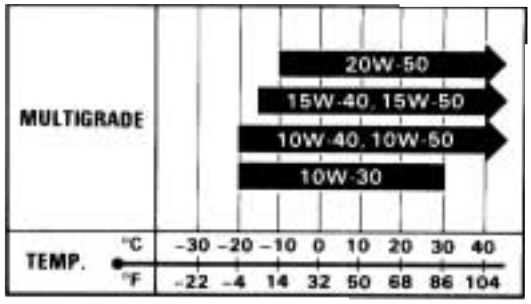
Gasoline used should be graded 91 octane (Research Method) or higher. An unleaded gasoline type is recommended.

⊙ ENGINE OIL

■ ENGINE OIL SPECIFICATION

Classification system	Grade
API	Over SG
SAE	10W/40

✳ ***If an SAE 10W/40 motor oil is not available, select an alternative according to the following chart.***



Use a premium quality 4-stroke motor oil to ensure longer service life of your motorcycle.

⚠ WARNING

- **Don't mix the unrecommended oil. It could damage the engine.**
- **When refilling the oil tank, don't allow the dust to get inside.**
- **Mop the oil spilt.**
- **Don't put the patch on the cap. It could disturb the oil to be provided and damage the engine.**

⊙ BRAKE FLUID

Specification and classification (Front brake) : DOT4

(Rear brake) : 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 : TELLUS #32

⊙ ENGINE COOLANT

Use an anti-freeze/engine coolant compatible with an aluminum radiator, mixed with distilled water only.

■ WATER FOR MIXING

Use distilled water only. Water other than distilled water can corrode and clog the aluminum radiator.

■ ANTI-FREEZE/ENGINE COOLANT

The engine coolant perform as a corrosion and rust inhibitor as well as anti-freeze. Therefore, the engine coolant should be used at all times even though the atmospheric temperature in your area does not go down to freezing point. Hyosung recommends the use of HYOSUNG COOLANT anti-freeze/engine coolant. If this is not available, use an equivalent which is compatible with an aluminum radiator.

■ LIQUID AMOUNT OF WATER/ENGINE COOLANT

For engine coolant mixture information, refer to cooling system section, page 5-1

⚠ CAUTION

Mixing of anti-freeze/engine coolant should be limited to 60%. Mixing beyond it would reduce its efficiency. If the anti-freeze/engine coolant mixing ratio is below 50%, rust inhabiting performance is greatly reduced. Be sure to mix it above 50% even though the atmospheric temperature does not go down to the freezing point.

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:

● Keep to these break-in procedures:

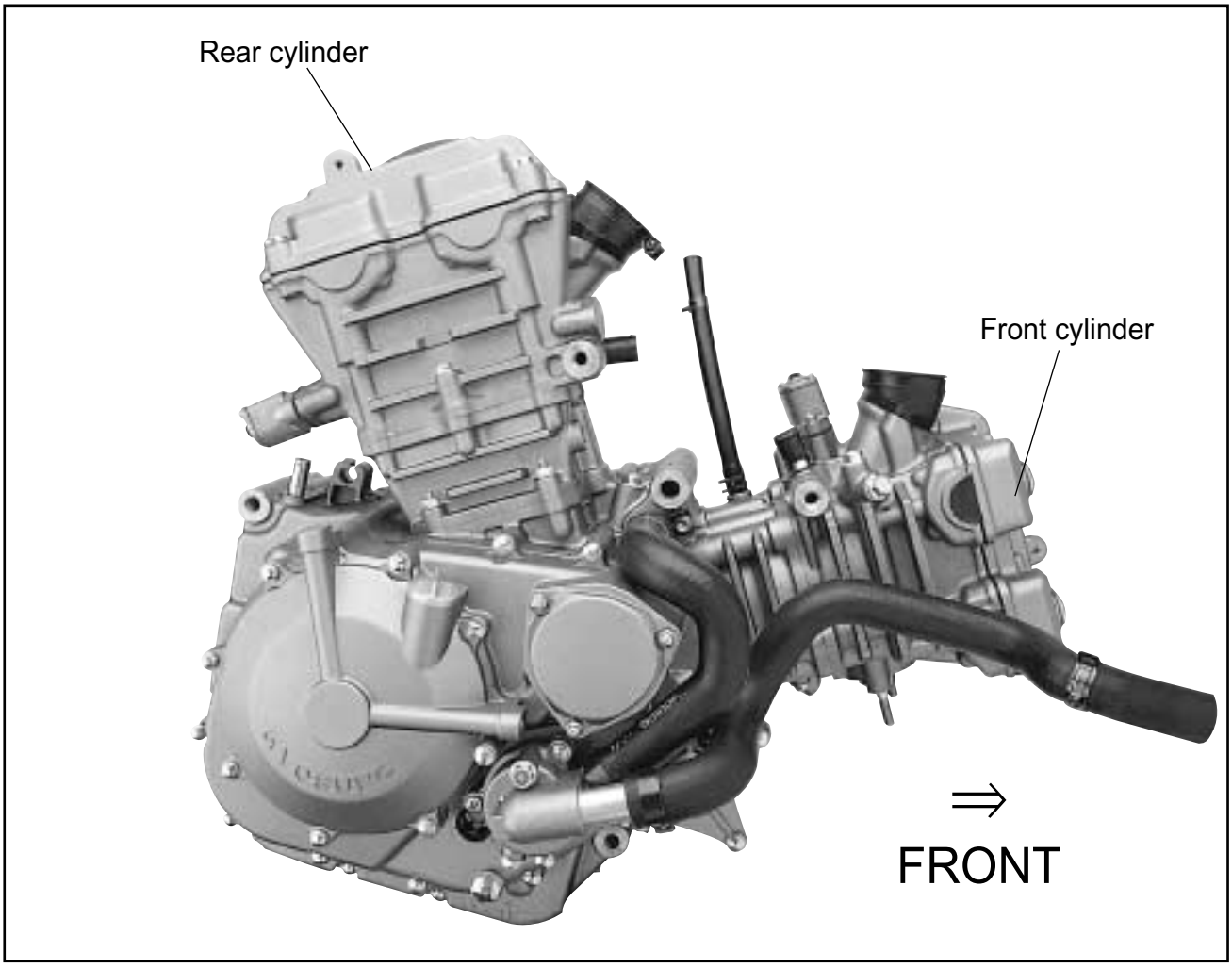
Initial 800km	**Less than 1/2 throttle**
Up to 1,600km	**Less than 3/4 throttle**

● Upon reaching an odometer reading of 1,600 km you can subject the motorcycle to full throttle operation.

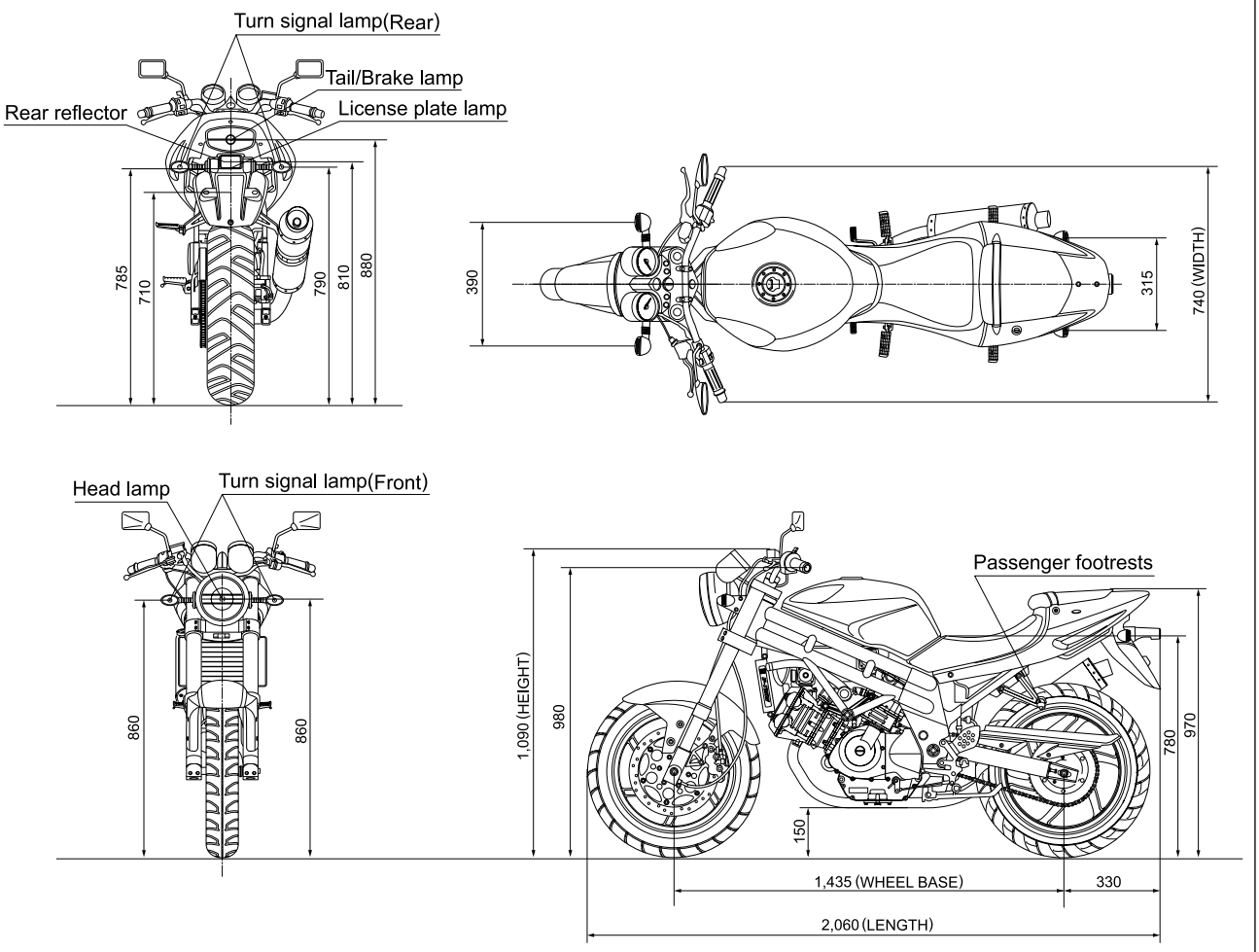
● Do not maintain constant engine speed for an extended period during any portion of the break-in. Try to vary the throttle position.

CYLINDER CLASSIFICATION

The engine of 『Comet650』 is composed of the two cylinder, is classified into the front cylinder and rear cylinder as basis of the motorcycle ahead.



EXTERIOR ILLUSTRATION



SPECIFICATIONS

DIMENSIONS AND DRY MASS

ITEM	Comet 650
Overall length	2,060 mm (81.1 in)
Overall width	740 mm (29.1 in)
Overall height	1,090 mm (42.9 in)
Wheelbase	1,435 mm (56.5 in)
Ground clearance	150 mm (5.9 in)
Unladen mass	185 kg (408 lbs)

ENGINE

ITEM	Comet 650
Type	Four-stroke, DOHC, Liquid-cooled
Number of cylinder	V-2 cylinder
Bore	81.5 mm (3.21 in)
Stroke	62.0 mm (2.44 in)
Piston displacement	647 cm³ (39.5 in^3)
Carburetor	BDSR39 TYPE (DOUBLE)
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

ITEM	Comet 650
Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Final reduction	2.93
Gear ratio, 1st	2.46
2nd	1.60
3rd	1.32
4th	1.13
5th	0.96
6th	0.85
Drive chain	RK525XSO 108 links

CHASSIS

ITEM	Comet650
Front suspension	Telescopic type
Rear suspension	Swingarm type
Steering angle	30 ° (right & left)
Caster	25.5 °
Trail	85 mm (3.35 in)
Front brake	Double disk brake
Rear brake	Disk brake
Front tire size	120/60 - ZR 17 55W
Rear tire size	160/60 - ZR 17 69W
Front fork stroke	120 mm (4.72 in)

ELECTRICAL

ITEM	Comet650
Ignition type	"Igniter" type
Ignition timing	5 ° B.T.D.C.at 1,500 rpm
Spark plug	CR8E
Battery	12V 12Ah
Fuse	Main : 30 A
	Head lamp : 15 A
Head lamp	HI : 60 W
	LO : 55 W
Turn signal lamp	10 W
Brake / Tail lamp	21 / 5 W
Illumination lamp	1.7 W×3
High beam indicator lamp	1.7 W
Turn signal indicator lamp(right & left)	1.7 W×2
License plate lamp	5 W
Neutral indicator lamp	1.7 W
Fuel indicator lamp	1/2 : 1.7W E : 1.7W

CAPACITIES

ITEM	Comet650
Fuel tank	17.0 ℓ
Engine oil, oil change	3,000 mℓ
with filter change	3,200 mℓ
overhaul	3,400 mℓ
Front fork oil capacity(One side)	380 cc

NOTE

The specifications are subject to change without notice.

PERIODIC MAINTENANCE

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.

⚠ CAUTION

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
Air cleaner element	Clean every 3,000 km · Replace every 12,000 km			2- 7
Exhaust pipe nuts and muffler mounting bolts	Tighten	Tighten	—	2-6
Valve clearance adjust	Inspect	Inspect	—	2- 3
Cylinder head bolt	Tighten	Tighten		3-50
Cylinder head & Cylinder	—	—	Remove carbon	3-21
Spark plug	Clean	Clean	Replace	2- 5
Fuel hose	Inspect	Inspect	—	2- 8
	Replace every 4 years			
Engine oil filter	Replace	Replace	—	2-11
Engine oil	Replace	Replace	—	2- 9
Throttle cable	Inspect	Inspect	—	2- 8
Idle speed	Inspect	Inspect	—	2- 7
Clutch	Inspect	Inspect	—	2- 9
Engine coolant	Replace every 2 years			2-20
Radiator hoses	—	Inspect	—	2-22
	Replace every 4 years			

⊙ CHASSIS

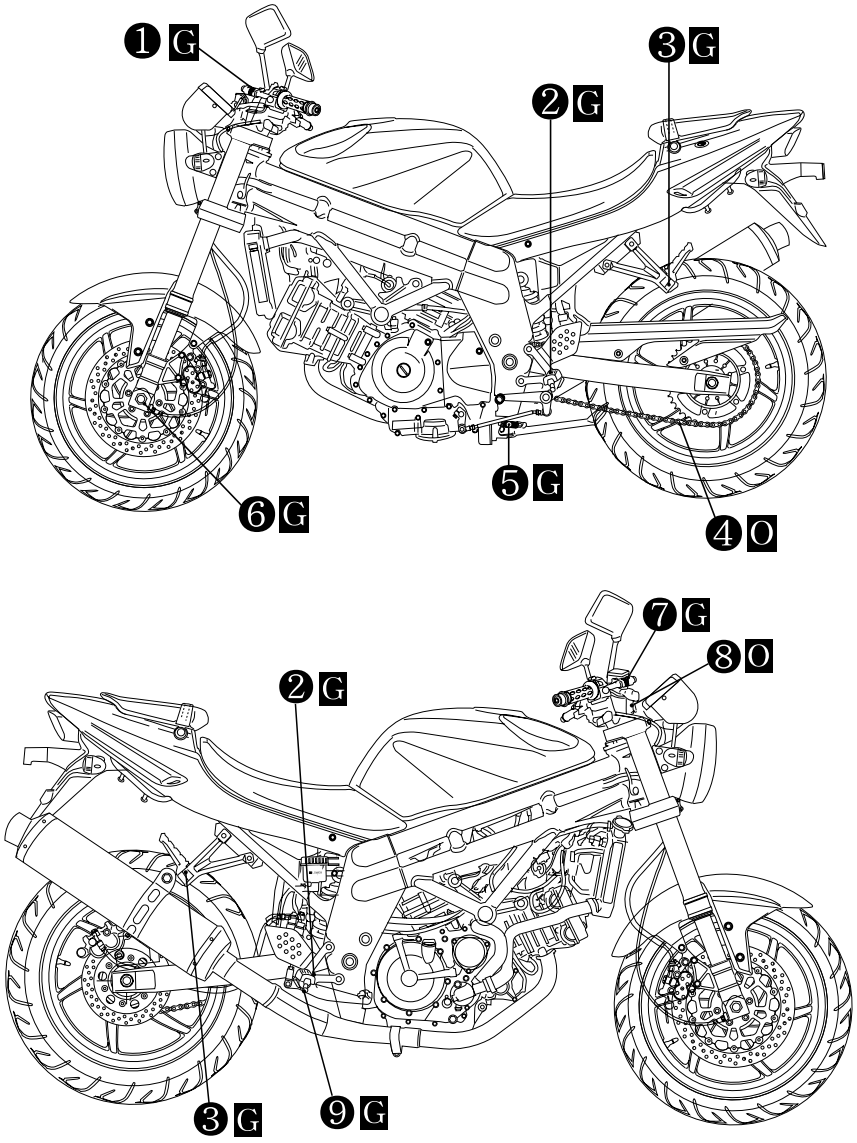
Item \ Interval	Initial 1,000 km	Every 4,000 km	Every 8,000 km	page
Drive chain	Clean and lubricate every 1,000km			2-12
Brake	Inspect	Inspect	—	2-14
Brake hose	Inspect	Inspect	—	2-14
	Replace every 4 years			
Brake fluid	Inspect	Inspect	—	2-14
	Replace every 2 years			
Tires	Inspect	Inspect	—	2-19
Steering	Inspect	Inspect	—	2-18
Front forks	—	Inspect	—	2-18
Rear suspension	—	Inspect	—	2-18
Chassis bolts and nuts	Tighten	Tighten	—	2-19

⚠ CAUTION

Using poor quality replacement parts can cause your motorcycle to wear more quickly and shorten its useful life. Use only genuine Hyoung replacement parts or their equivalent.

LUBRICATION POINT

Proper lubrication is important for smooth operation and long life of each working part of the motorcycle. Major lubrication points are indicated below.



① Clutch lever holder and clutch cable
② Footrests pivot
③ Passenger footrests pivot
④ Drive chain
⑤ Side stand pivot and spring hook
⑥ Speedometer gear box
⑦ Front brake lever holder
⑧ Throttle cable
⑨ Rear brake pedal pivot

O - Motor oil, G - Grease

NOTE

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

MAINTENANCE PROCEDURES

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

VALVE CLEARANCE

Inspect Interval

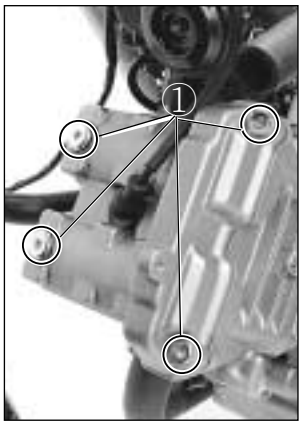
Inspect Initial 1,000 km and Every 4,000 km.

> **⚠ CAUTION**
>
> **The clearance specification is for COLD state.**

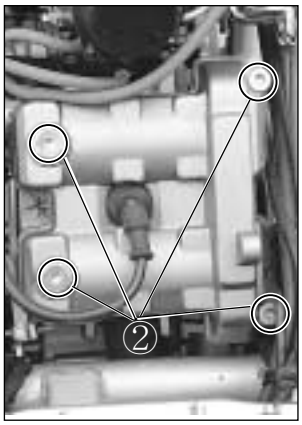
The valve clearance specification is different for intake and exhaust valves.
Valve clearance adjustment must be checked and adjusted,

1) at the time of periodic inspection,
2) when the valve mechanism is serviced, and
3) when the camshaft is disturbed by removing it for servicing.

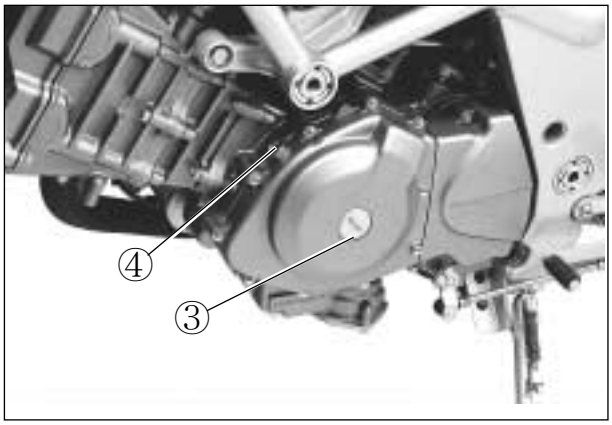
- Remove the spark plug. (Refer to page 2-5)
- Remove the fuel tank. (Refer to page 4-1)
- Remove the radiator. (Refer to page 5-2)
- Remove the cylinder head cover bolt ① and ②.
- Remove the magneto cover plug ③ and the timing inspection plug ④.



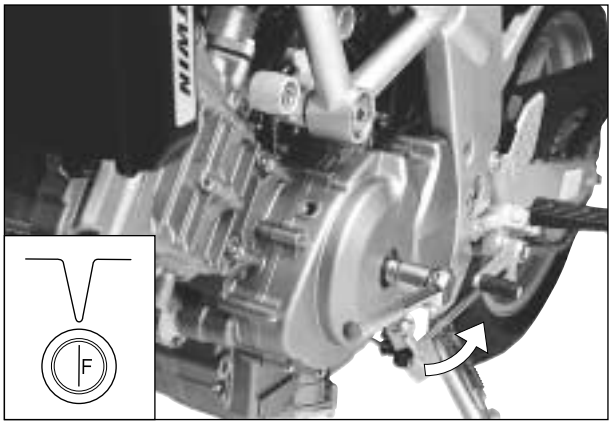
[FRONT CYLINDER]



[REAR CYLINDER]



- Rotate the magneto rotor counter-clockwise to set the front cylinder's piston at TDC (Top Dead Center) of the compression stroke.
  (Rotate the rotor until "|F" line on the rotor is aligned with the center of hole on the crankcase.)

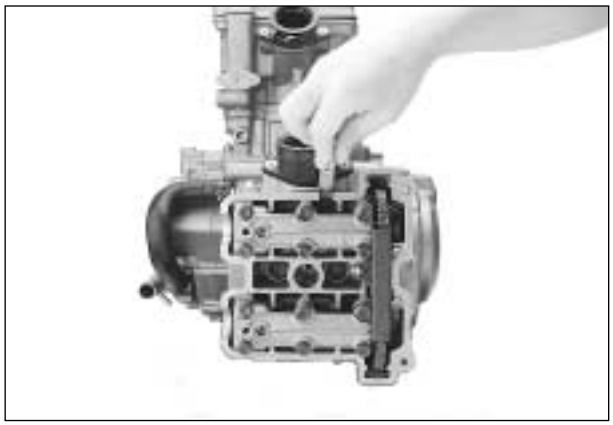


- To inspect the front cylinder's valve clearance, insert the thickness gauge to the clearance between the camshaft and the tappet.

Valve clearance	Standard (When cold)
IN.	0.1 ~ 0.2 mm (0.004 ~ 0.008 in)
EX.	0.2 ~ 0.3 mm (0.008 ~ 0.012 in)

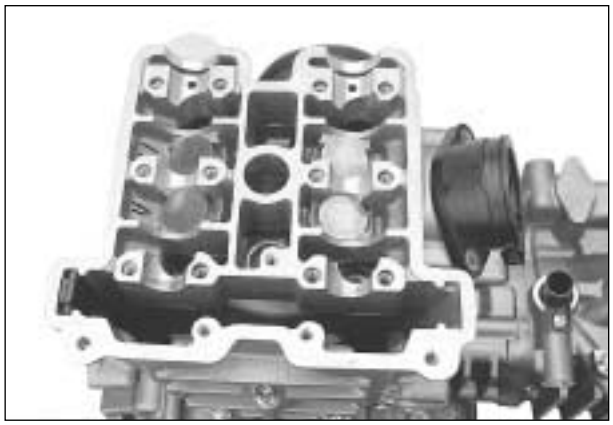
TOOL **Thickness gauge : 09900-20806**

● If the clearance is out of specification, first remove the cam chain tensioner, camshaft housing, camshaft.
To install the tappet shim at original position, record the shim NO. and clearance to present by "A", "B", "C", "D" mark on the cylinder head.

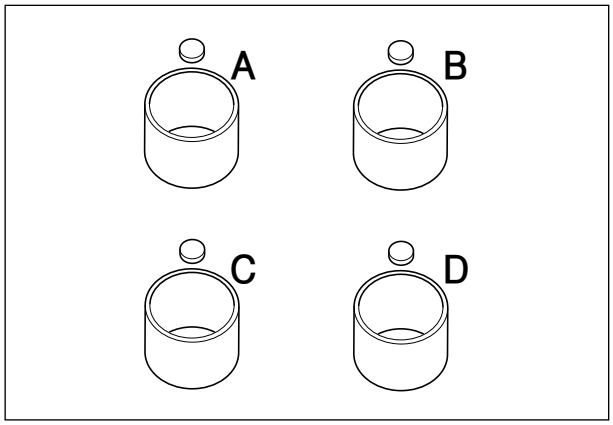


Select the tappet that agree with tappet clearance (vertical line) and shim NO.(horizontal line) as refer to the tappet shim selection chart. (Refer to page 8-29 · 30)

Adjust valve timing, install the camshaft housing and the tensioner.
After the crankshaft rotate about 10 times, measure the valve clearance.
If the clearance be not agree, adjust the standard clearance as the same manner above.



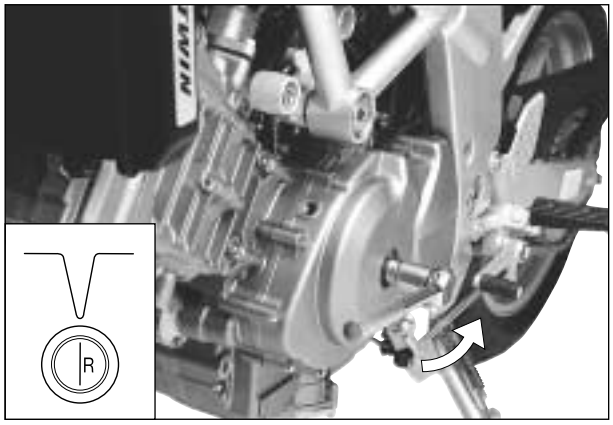
● In case that valve adjustment which there is no the tappet shim selection chart, please follow instructions of example in the below.
For example, the intake clearance is 0.4 and the shim is 170 (1.70 mm), select 195 (1.95 mm) of the shim which 170 (1.70 mm) of the shim add up the excess clearance 0.25 mm when adjust with the standard 0.15 as the intake standard clearance 0.1～0.2 mm.



⚠ CAUTION

- **Valve clearance should be checked when the engine is cold.**
- **If you don't rotate the crankshaft about 10 times before measuring the valve clearance, there is no meaning of valve clearance.**

● Rotate the magneto rotor to set the rear cylinder's piston at TDC(Top Dead Center) of the compression stroke.
(Rotate the rotor 285° counter-clockwise from the "|F" line, and until the "|R" line on the rotor is aligned with the center of hole on the crankcase.)

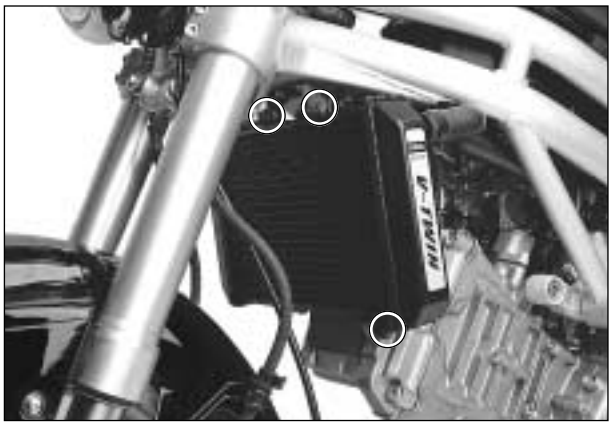


● Inspect the rear cylinder's valve clearance with the same manner of the front cylinder.

SPARK PLUG

Inspect Interval

Clean Initial 1,000 km and Every 4,000 km,
Replace Every 8,000 km.



● Remove the three radiator mounting bolts.

⚠ WARNING

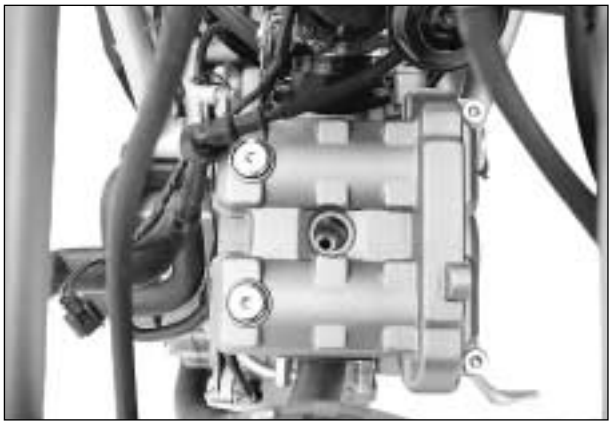
The hot radiator and the hot engine can burn you. Wait until the radiator and the engine are cool enough to touch.

⚠ CAUTION

- **Be careful not to damage the radiator fins.**
- **Do not extract the radiator hose.**

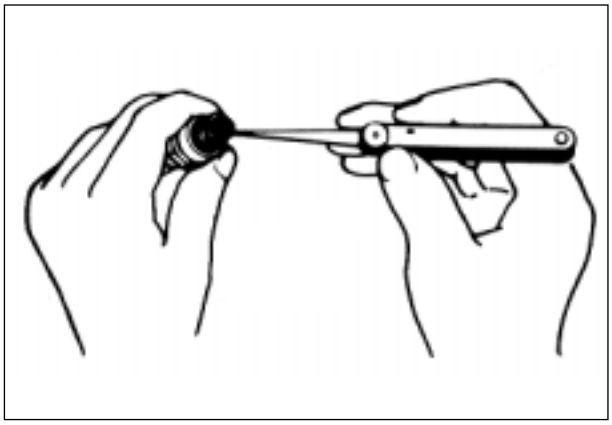
● Remove the fuel tank.

● Disconnect the spark plug caps.
● Remove the spark plugs.



TYPE	SPARK PLUG SPECIFICATION
Hot type	CR7E
Standard type	CR8E
Cold type	CR9E

Remove the carbon deposit with wire or pin and adjust the spark plug gap to 0.7～0.8 mm(0.028~0.032 in), measuring with a thickness gauge.



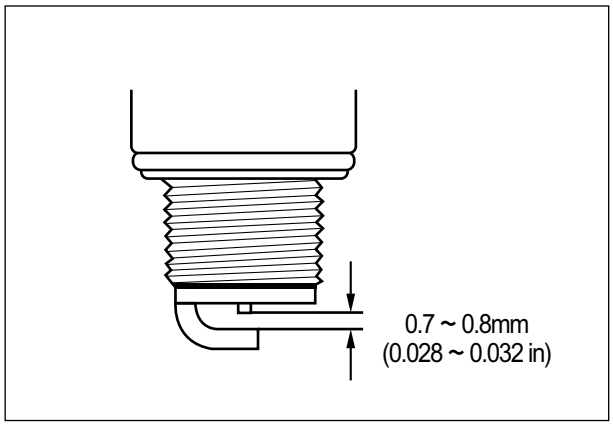
Spark plug gap	0.7～0.8 mm (0.028~0.032 in)

TOOL **Thickness gauge : 09900-20806**

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

● Install the spark plug, and then tighten it to specified torque.

Spark plug : 11 N · m (1.1 kg · m)



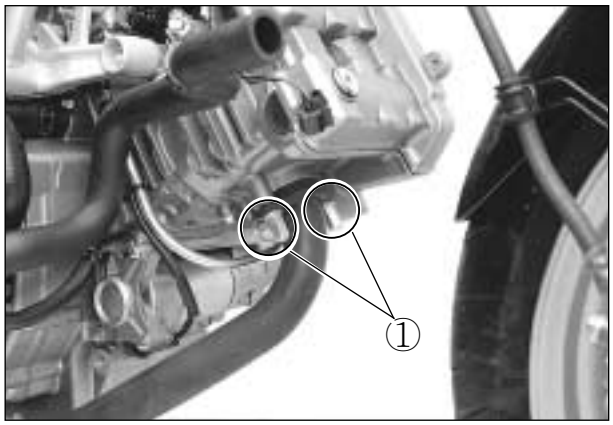
EXHAUST PIPE NUTS AND MUFFLER MOUNTING BOLTS

Inspect Interval

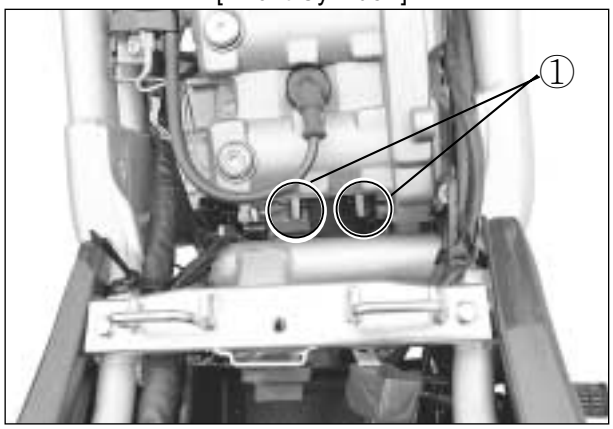
Tighten Initial 1,000 km and Every 4,000 km.

● Tighten the exhaust pipe nuts ①, and muffler mounting bolts ② to the specified torque.

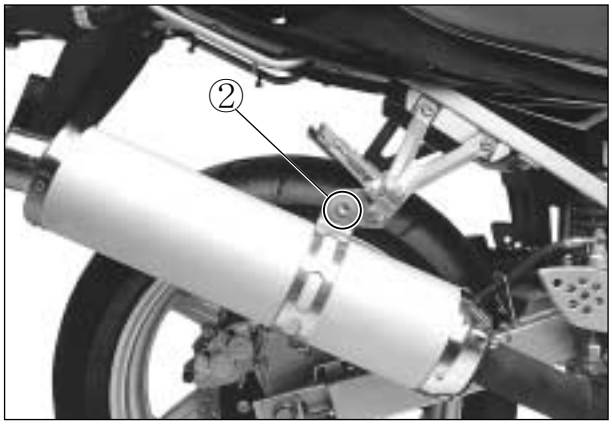
Exhaust pipe nut : 23 N · m (2.3 kg · m)
Muffler mounting bolt
: 23 N · m (2.3 kg · m)

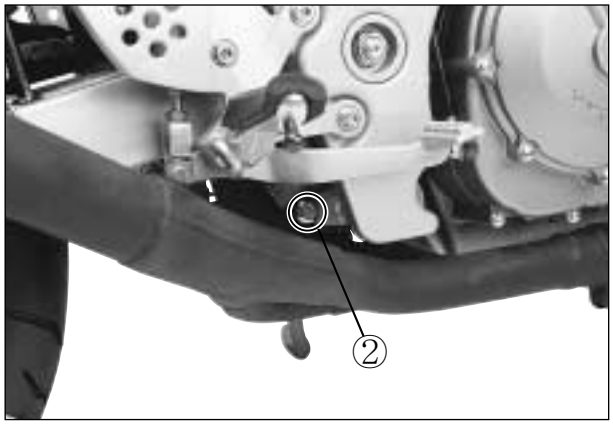


[Front Cylinder]



[Rear Cylinder]



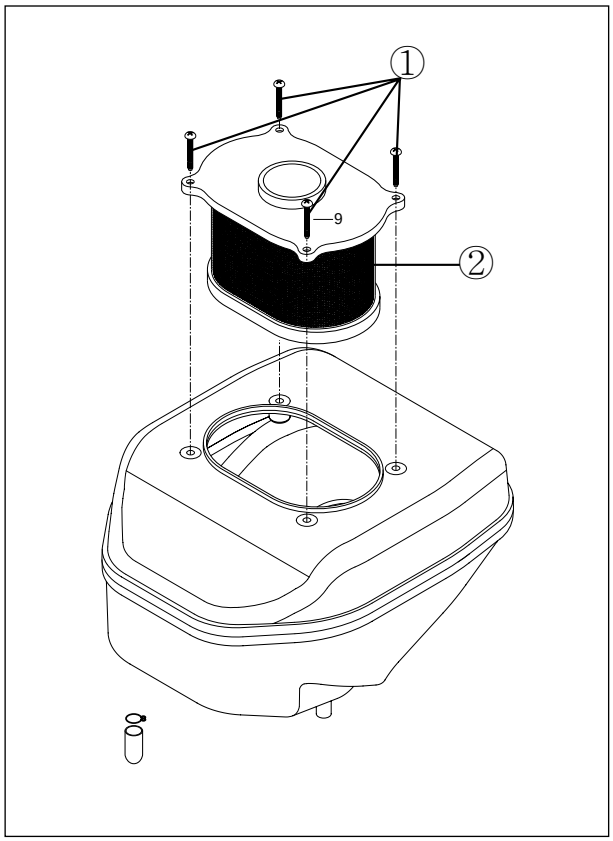


AIR CLEANER

Inspect Interval

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

- Remove the front and rear seat.
- The air cleaner is located under the fuel tank. Remove the fuel tank.
- Remove the four screw ①.
- Pull up the air cleaner cover and the air cleaner element ②.



Clean the air cleaner element for the following:

- When the air cleaner element clean with the air gun, necessarily blow at the inside by compressed air.
- Carefully examine the air cleaner element for tears during cleaning. Replace it with a new one if it is torn.
- Assemble the element completely or damage severely the engine.
- Be careful not to allow water to go inside the air cleaner element.

⚠ CAUTION

More frequent servicing may be performed on motorcycles that are used under severe conditions, also clean the air cleaner element when replacing the oil to prevent damage of the engine.

CARBURETOR

Inspect Interval

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

⊙ IDLE SPEED

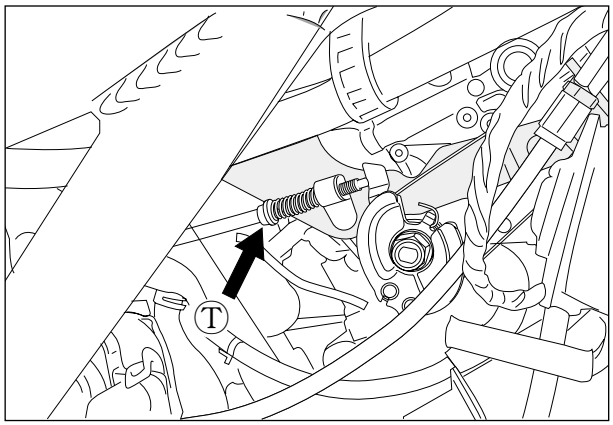
NOTE

Make this inspection when the engine is hot.

● Connect an engine tachometer to the high tension cord.
Start up the engine and set its speed at anywhere 1,300 and 1,500 rpm by turning throttle stop screw Ⓣ.

Engine idle speed	1,300～1,500 rpm

TOOL **Engine tachometer : 09900-26006**



⊙ THROTTLE CABLE PLAY

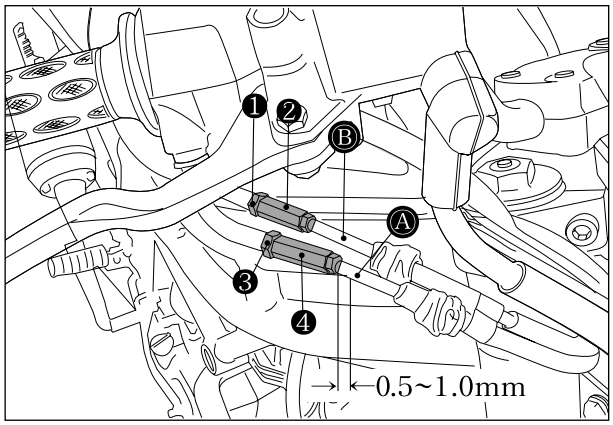
This motorcycle has a twin throttle cable system. Cable Ⓐ is for throttle cable and cable Ⓑ is for returning cable. There should be 0.5~1.0mm play on the throttle cable.
To adjust the throttle cable play.

● Loosen the lock nut ① of the returning cable Ⓑ and fully turn in the adjuster ②.
● Loosen the lock nut ③ of the throttle cable Ⓐ.
● Turn the adjuster ④ in or out until the throttle cable play is between 0.5 ~ 1.0mm(0.02 ~ 0.04 in).
● Tighten the lock nut ③ while holding the adjuster ④.
● While holding the throttle grip at the fully closed position, slowly turn out the adjuster ② of the returning cable Ⓑ until resistance is felt.
● Tighten the lock nut ① while holding the adjuster ②.

Throttle cable play	0.5～1.0 mm (0.02 ~ 0.04 in)

⚠ CAUTION

After the adjustment is completed, check that throttle grip movement does not raise the engine idle speed and that the throttle grip returns smoothly and automatically.



⚠ CAUTION

Inadequate throttle cable play can cause engine speed to rise suddenly when you turn the throttle grip. This can lead to loss of rider control.

FUEL HOSE

Inspect Interval

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

● Remove the front and rear seat. (Refer to page 7-1)
● Remove the fuel tank.
Inspect the fuel hoses for damage and fuel leakage. If any defects are found, the fuel hoses must be replaced.

CLUTCH

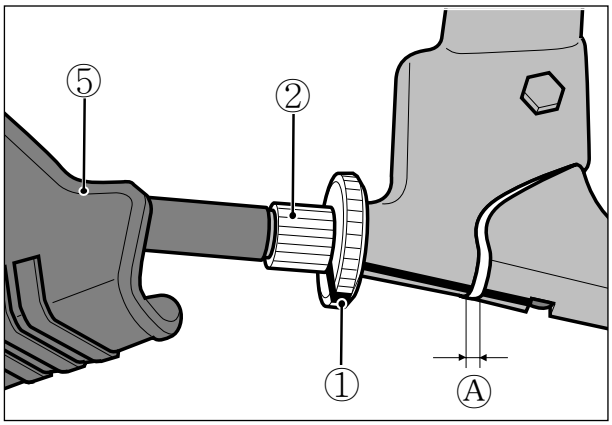
Inspect Interval

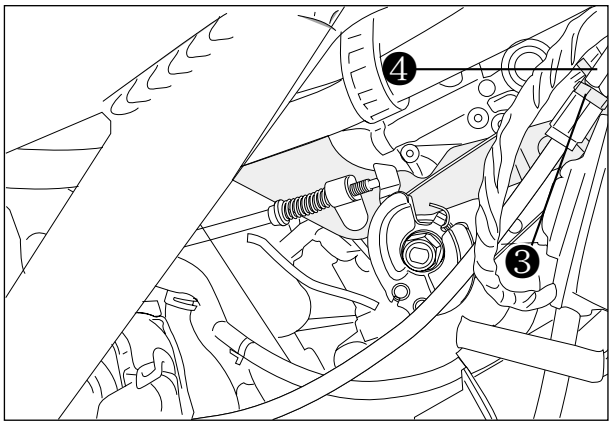
Inspect Initial 1,000 km and Every 4,000 km.

Clutch play should be 2 mm(0.08 in) 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 :

- A basis adjustment be allowed by the clutch lever adjuster ②.
- Loosen the clutch lever adjuster ②.
- Screw the lock nut ① clockwise fully, after finishing adjustment.
- After end of adjustment, tighten the lock nut ① and cover the rubber boot ⑤.
- If not adjust by the adjuster ②, loosen the clutch cable adjuster lock nut ③.
- Turn the clutch cable adjuster ④ in or out to acquire the specified play.
- After end of adjustment, tighten the lock nut ③.
- The clutch cable should be lubricated with a light weight oil whenever it is adjusted.

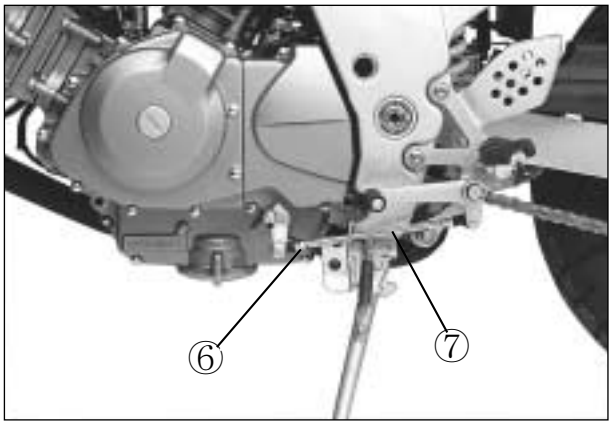
Clutch cable play Ⓐ	2 mm (0.08 in)





⊙ GEARSHIFT LEVER HEIGHT ADJUSTMENT

- Loosen the lock nut ⑥.
- With the link rod ⑦ turned, adjust the gearshift lever height.
- Tighten the lock nut ⑥.



ENGINE OIL

Inspect Interval

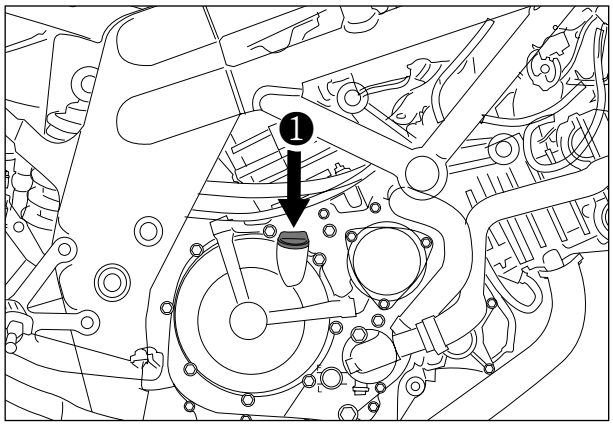
Replace Initial 1,000 km and Every 4,000 km.

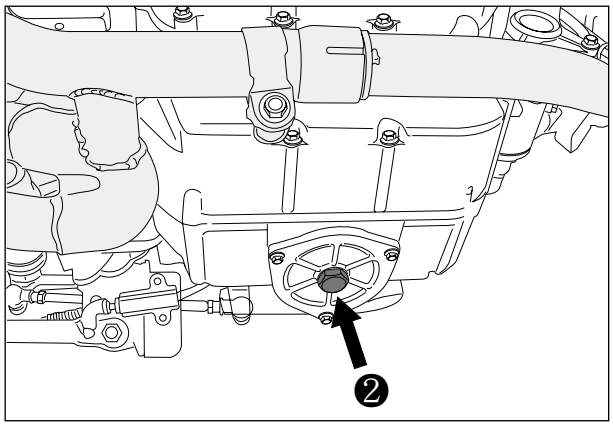
Necessary amount of engine oil	
Oil change	3,000 ㎖
Filter change	3,200 ㎖
Overhaul engine	3,400 ㎖
Engine oil type	SAE 10W/40 API Over SG

Oil should be changed while the engine is warm. Oil filter replacement at the above intervals, should be together with the engine oil change.

- Keep the motorcycle upright.
- Place an oil pan below the engine, and drain the oil by removing the filler cap ① and drain plug ②.
- Tighten the drain plug ② to the specified torque, and pour fresh oil through the oil filler. Use an API classification of Over SG oil with SAE 10W/40 viscosity.

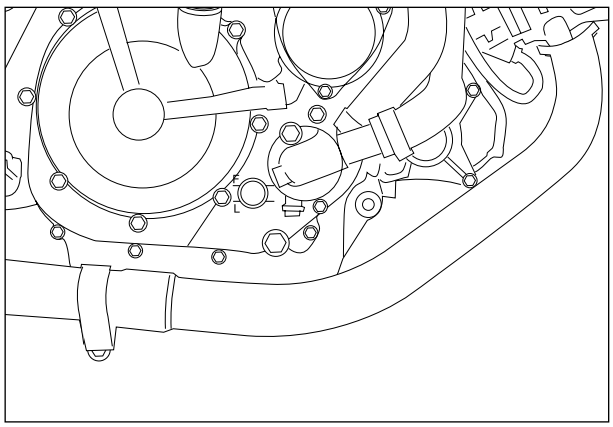
Oil drain plug : 21 N · m (2.1 kg · m)





- Start up the engine and allow it to run for several minutes at idling speed.

- Turn off the engine and wait about three minutes, then check the oil level through the inspection window. If the level is below mark "L", add oil to "F" level. If the level is above mark "F", drain oil to "F" level.

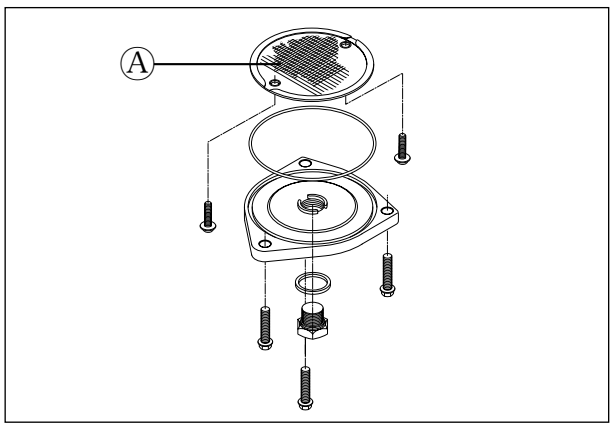


⚠ CAUTION

Never operate the motorcycle if the engine oil level is below the "Lower line mark(L)" in the inspection window. Never fill the engine oil above the "Upper line mark(F)".
Engine oil level being most suitable about 1mm under the "Upper line mark(F)" of the engine oil lens. In case of the engine oil pouring in excessively, the engine output being made insufficient.
Be careful not to pour the oil excessively into engine.

⚠ CAUTION

Necessarily, confirm and clean the oil strainer Ⓐ when replace the engine oil (specially, when first replacement).



⚠ CAUTION

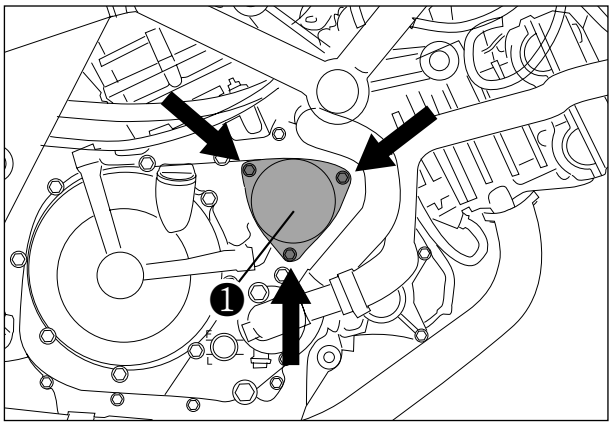
More frequent servicing may be performed on motorcycles that are used under severe conditions.

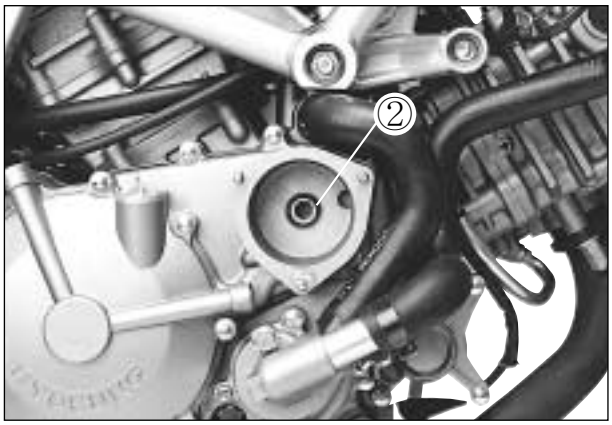
ENGINE OIL FILTER

Inspect Interval

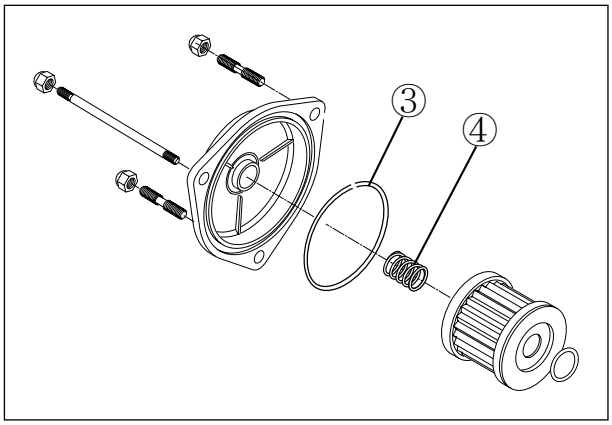
Replace Initial 1,000 km and Every 4,000 km.

- Drain the engine oil as described in the engine oil replacement procedure.
- Remove the oil filter cap ①.
- Remove the oil filter.
- Install the new O-ring ②.





- Install the new oil filter.
- Install the new O-ring ③ and spring ④ to the oil filter cap.
- Install the oil filter cap.



⚠ CAUTION

Before installing the oil filter cap, apply engine oil lightly to the new O-ring ③.

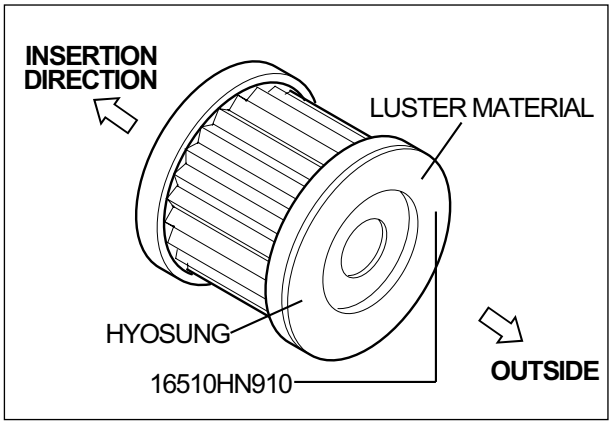
⊙ OIL FILTER INSTALLATION

⚠ CAUTION

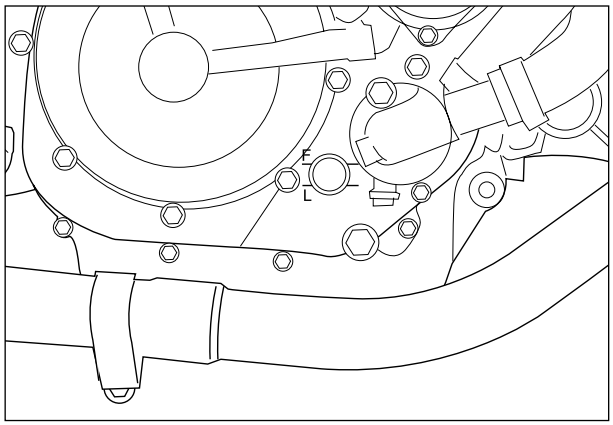
When install the oil filter, necessarily, "HYOSUNG" character and "16510HN910" part' s NO. install toward the outside, otherwise can damage the engine.

⚠ WARNING

Engine oil and exhaust pipes can be hot enough to burn you.
Wait until the oil drain plug and exhaust pipes are cool enough to touch with bare hands before draining oil.



● Add new engine oil and check the oil level as described in the engine oil replacement procedure.



⚠ CAUTION

Use HYOSUNG MOTORS GENUINE OIL FILTER only, since the other make's genuine filters and after-market parts may differ filtering performance and durability, which could cause engine damage or oil leaks. Hyosung motors genuine oil filter is also not usable for the motocycles.

DRIVE CHAIN

Inspect Interval

Clean and Lubricate Every 1,000 km.

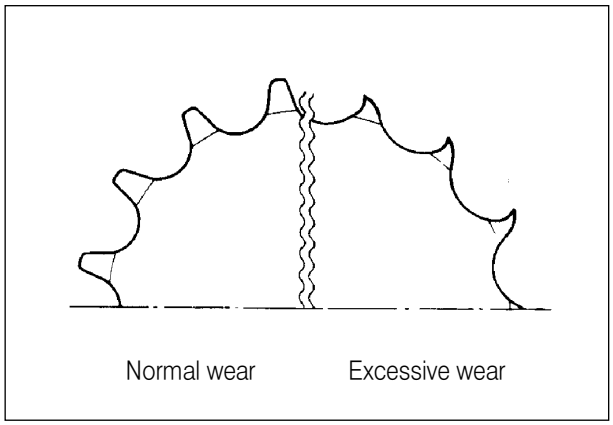
Visually check the drive chain for the possible defects listed below. (Support the motorcycle by the jack or block, turn the rear wheel slowly by hand with the trans-mission shifted to Neutral.)

● Loose pins
● Excessive wear
● Damaged rollers
● Improper chain adjustment
● Missing X-Oring seals
● Dry or rusted links
● Kinked or binding links

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

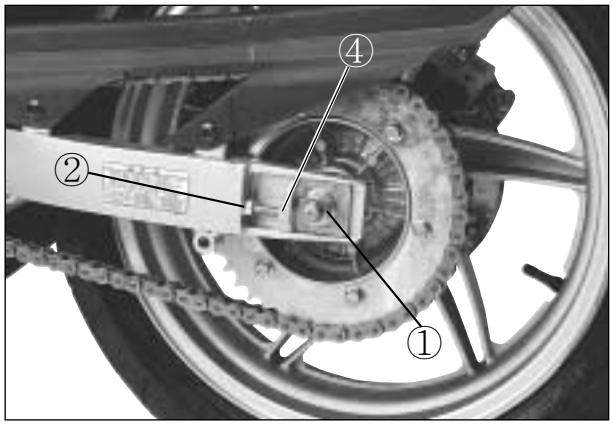
Damage to the drive chain means that the sprocket may also be damaged.

If any defects are found, the sprocket must be replaced.



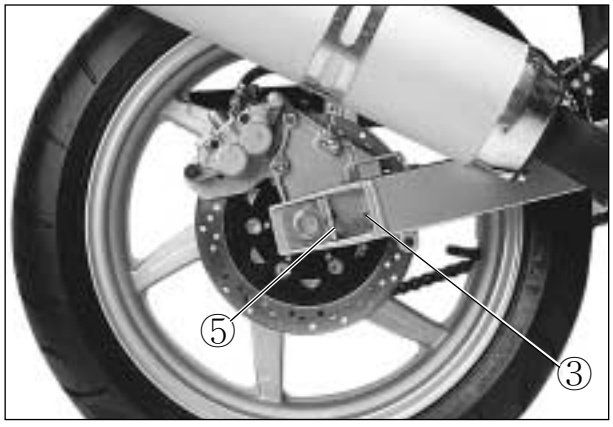
NOTE

When replacing the drive chain, replace the drive chain and sprocket as a set.



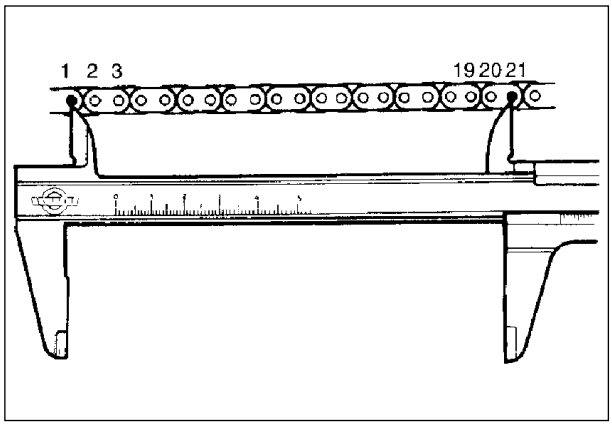
⊙ INSPECTION OF DRIVE CHAIN LENGTH

● Loosen the axle nut ①.
● Loosen the lock nuts ②, ③.
● Tense the drive chain fully by turning both chain adjusters ④, ⑤.



● Count out 21 pins (20 pitches) on the chain and measure the distance between the two points. If the distance exceeds the service limit, the chain must be replaced.

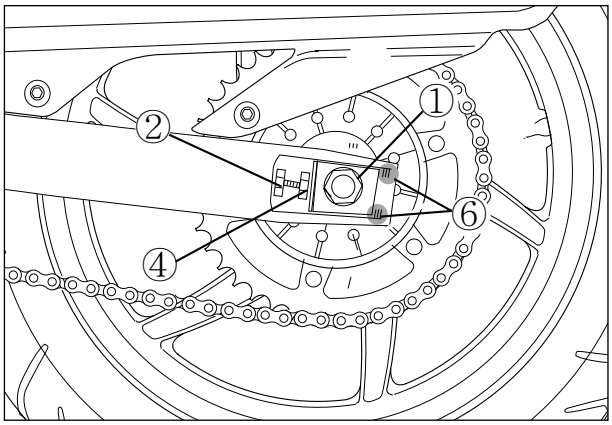
Drive chain 20pitch length	Service limit
	319.4 mm (12.58 in)



⊙ ADJUSTMENT OF DRIVE CHAIN SLACK

● Loosen the axle nut ①.
● Loosen the lock nuts ②, ③.
● Loosen or tighten both chain adjusters ④, ⑤ until the chain has 20 ~ 30 mm of slack in the middle between the engine and rear sprockets. The marks ⑥, ⑦ on both chain adjusters must be at the same position on the scale to ensure that the front and rear wheels are correctly aligned.

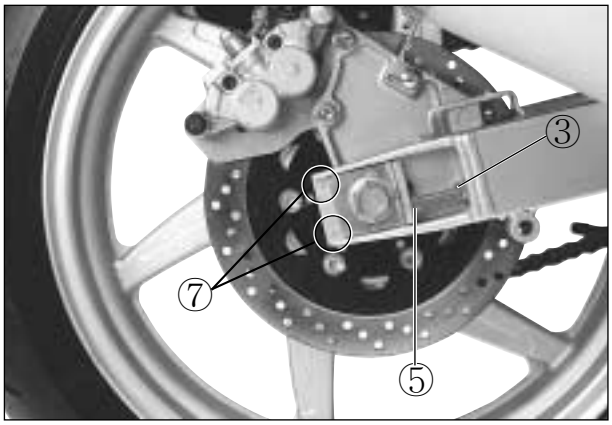
Drive chain slack	20 ~ 30 mm (0.79 ~ 1.18 in)



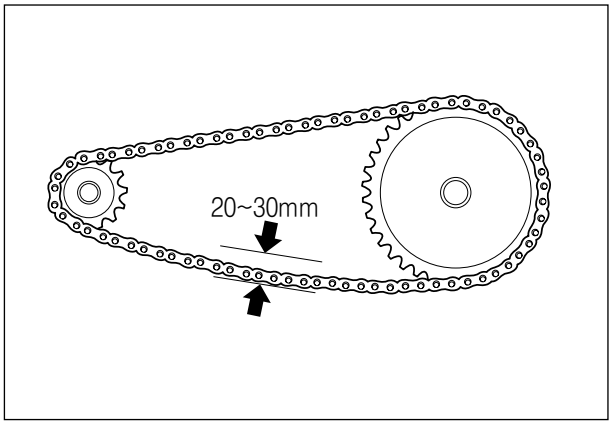
● Place the motorcycle on jack or block for accurate adjustment.
● After adjusting the drive chain, tighten the axle nut to the specified torque.

Rear axle nut : 90~130 N · m (9.0~13.0 kg · m)

● Tighten both chain adjuster lock nuts ②, ③ securely.

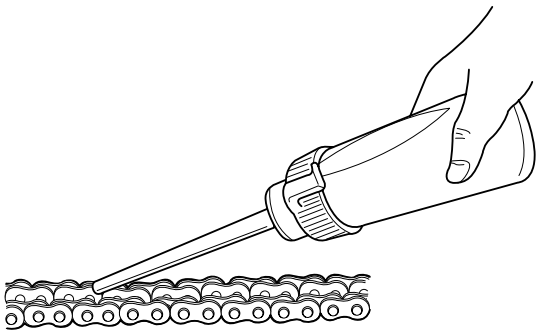


● Recheck the drive chain slack after tightening the rear axle nut.



⊙ CLEANING AND LUBRICATING

- Wash the drive chain with kerosine. If the drive chain tends to rust quickly, the intervals must be shortened. Kerosene is a petroleum product and will provide some lubrication as well as cleaning action.
- After washing and drying the chain, oil it with a engine oil or chain lubricating oil.



⚠ CAUTION

The drive chain for this motorcycle is made of the special material.
The chain should be replaced with a RK525XSO for 『Comet650』.
Use of another chain may lead to premature chain failure.

⚠ CAUTION

Some drive chain lubricants contain solvents and additives which could damage the X-Orings in your chain.

Use Hyosung chain lube or an equivalent that is specifically intended for use with X-Oring chains.

⚠ CAUTION

Cleaning the chain with gasoline or commercial cleaning solvents can damage X-Orings and ruin the chain.

Clean the drive chain with kerosene only.

BRAKE SYSTEM

Inspect Interval

[BRAKE]
Inspect Initial 1,000 km and Every 4,000 km.

[BRAKE HOSE & BRAKE FLUID]
Inspect Initial 1,000 km and Every 4,000 km.
Replace the brake hoses Every 4 years,
Replace the brake fluid Every 2 years.

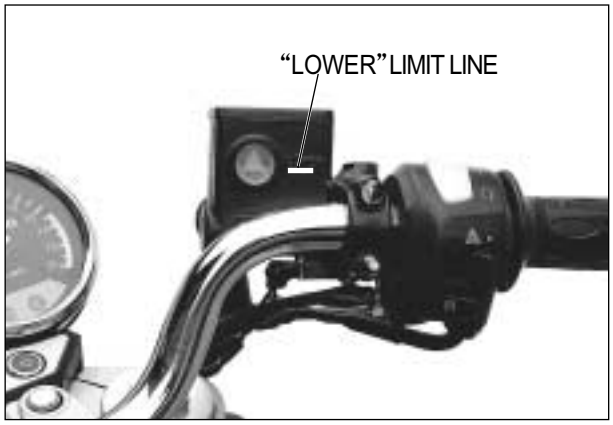
⊙ BRAKE FLUID LEVEL CHECK

- Keep the motorcycle upright and place the handlebars straight.
- Check the brake fluid level by observing the lower limit line (LOWER) on the front brake fluid reservoir.
- When the level is below the lower limit line (LOWER), replenish with brake fluid that meets the following specification.

BF **Specification and Classification**
(Front brake) : DOT 4
(Rear brake) : DOT 4

⚠ CAUTION

Do not spill any brake fluid on the brake pad of disk.



[Front Brake]