

HYOSUNG MOTORS & MACHINERY INC.

SERVICE MANUAL

Aquila

HYOSUNG

HYOSUNG

Aquila

SERVICE MANUAL

FOREWORD

This manual contains an introductory description on *Aquila* HYOSUNG 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.
- ❖ 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.

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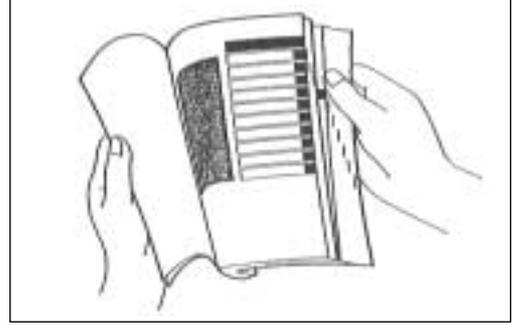
HYOSUNG MOTORS & MACHINERY INC.

Overseas Technical Department

HOW TO USE THIS MANUAL

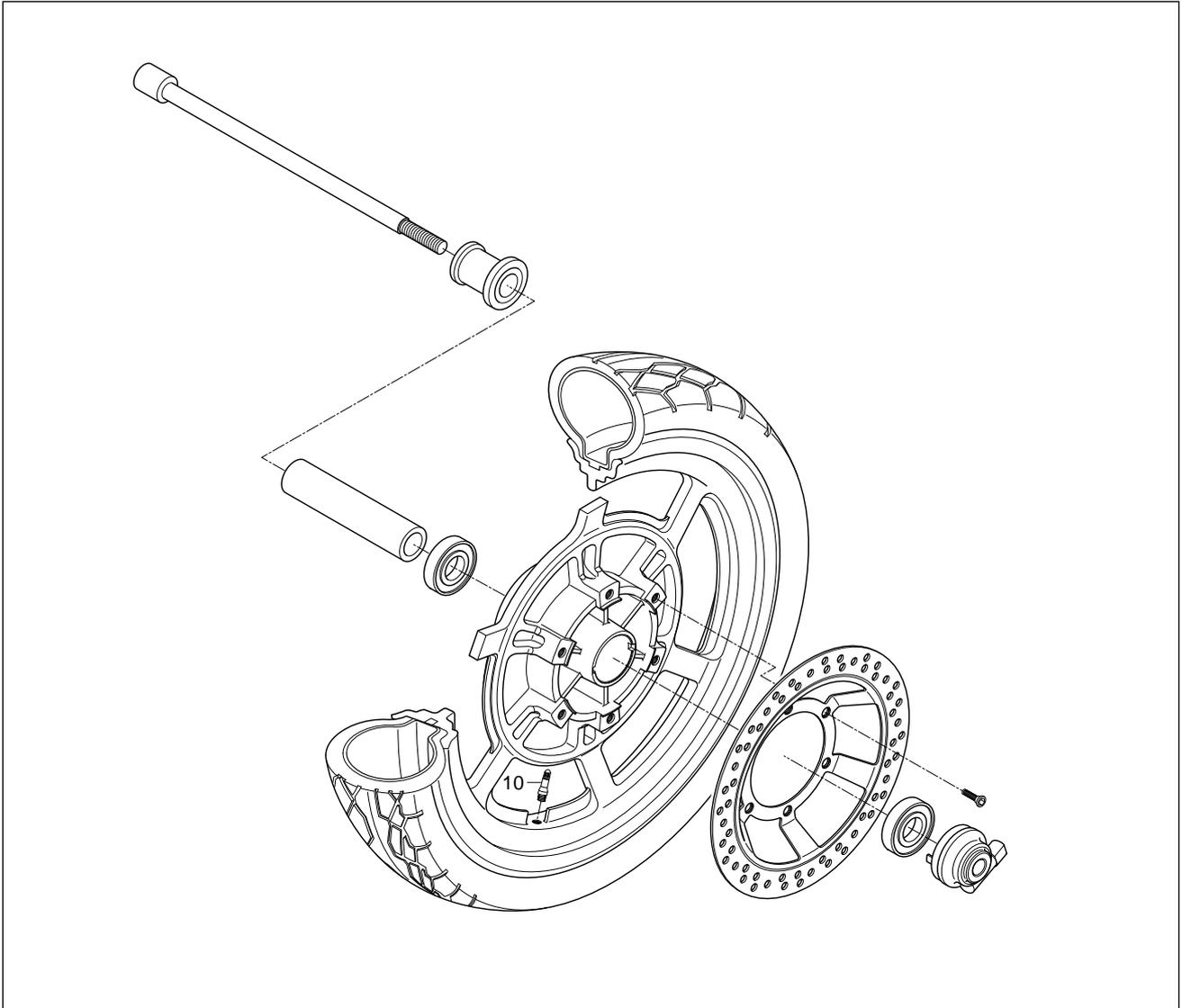
TO LOCATE WHAT YOU ARE LOOKING FOR:

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".		

GENERAL INFORMATION

1

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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.

⚠ 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 power, 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 resources, properly dispose of used vehicles and parts.

1-3 GENERAL INFORMATION

HYOSUNG *Aquila*

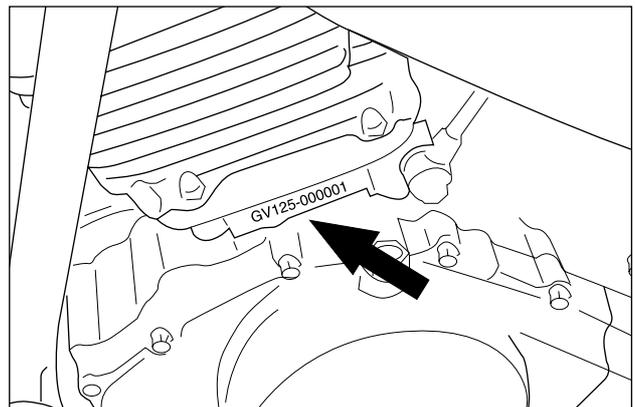
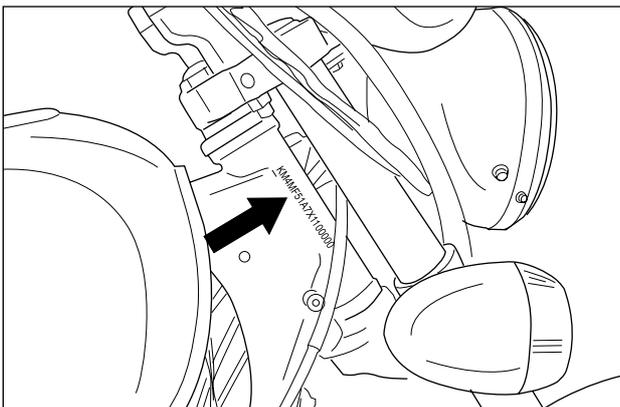


* Difference between photographs and actual motorcycles depends on the markets.

SERIAL NUMBER LOCATION

The frame serial number or V.I.N. (Vehicle Identification Number) is stamped on the steering head tube. The engine serial number is located on the left upside of crankcase assembly.

These numbers are required especially for registering the machine and ordering spare parts.



FUEL AND OIL RECOMMENDATION

⦿ FUEL

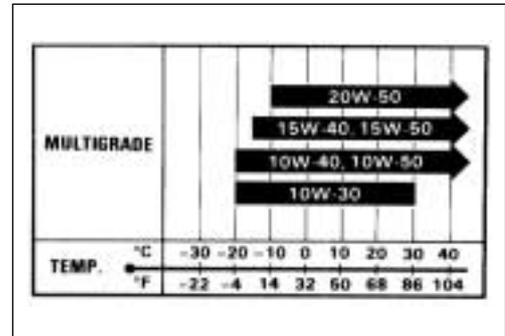
Gasoline used should be graded 91 octane (Research Method) or higher. An unleaded gasoline type is recommended.

⦿ ENGINE OIL

■ ENGINE OIL SPECIFICATION

Classification system	Grade
API	SF or 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 spill.
- ❖ 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: 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 : TELLUS #22

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:

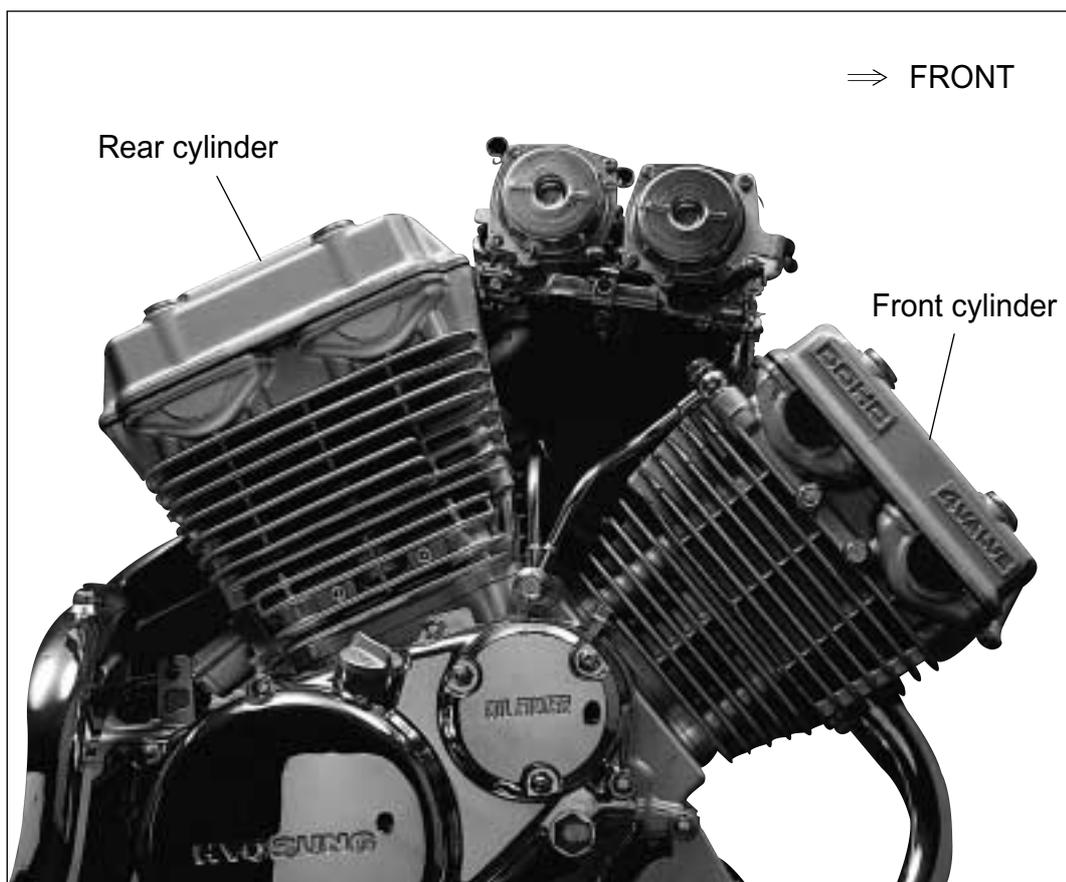
Initial 800km	Less than 1/2 throttle
Up to 1,600km	Less than 3/4 throttle

1-5 GENERAL INFORMATION

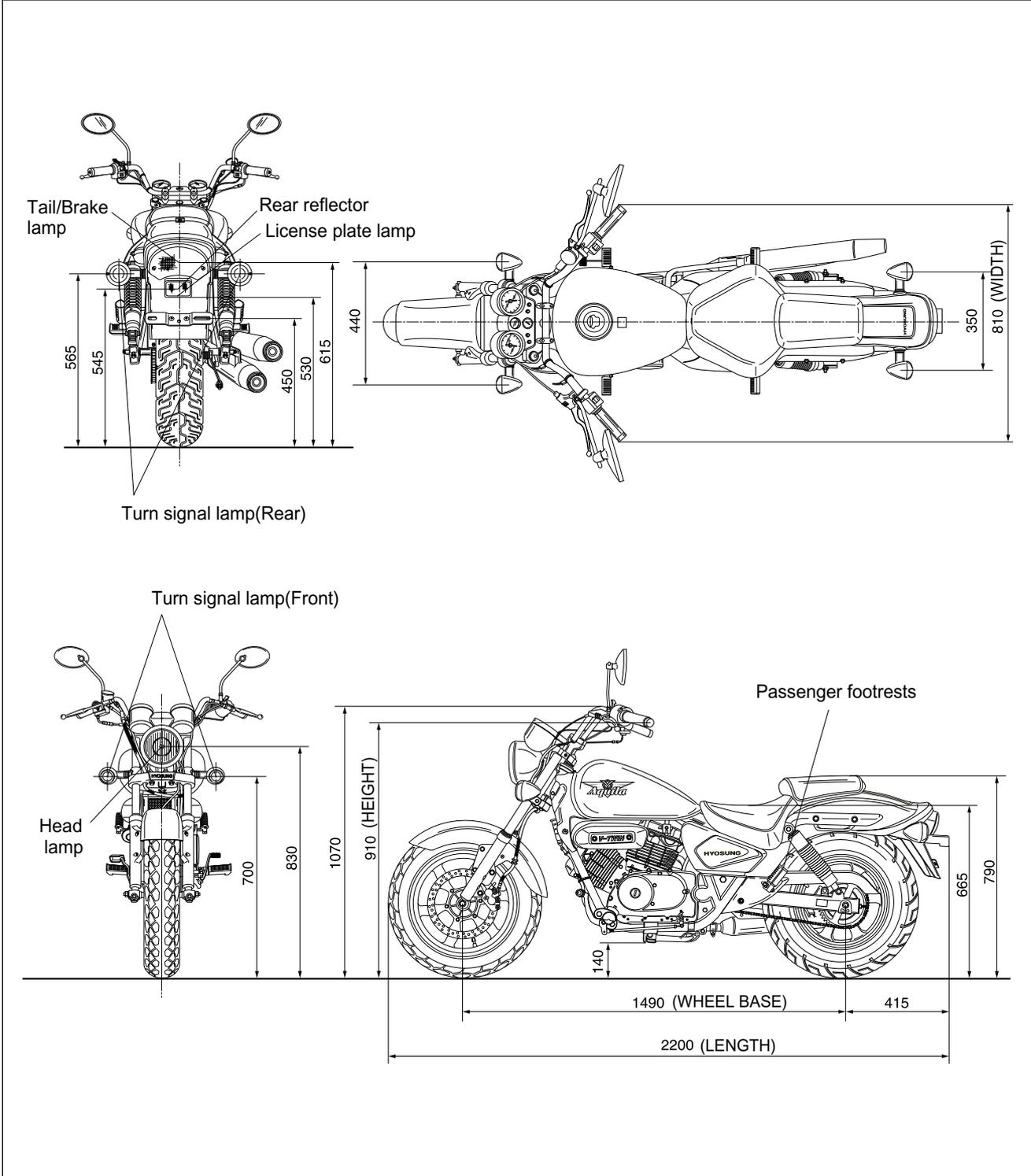
- Upon reaching an odometer reading of 1,600 km you can subject the motorcycle to full throttle operation.
- Do not maintain constant engine speed for an extended period during any portion of the break-in. Try to vary the throttle position.

CYLINDER CLASSIFICATION

The engine of *Aquila* 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

Overall length	2,200 mm
Overall width	810 mm
Overall height	1,070 mm
Wheelbase	1,490 mm
Ground clearance	140 mm
Unladen mass	153 kg

ENGINE

Type	Four-stroke, DOHC, air-cooled and oil-cooled
Number of cylinder	2
Bore	44 mm
Stroke	41 mm
Piston displacement	124.7 _{cm} ³
Carburetor	BDS 26TYPE(DOUBLE)
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Final reduction	3.690
Gear ratio, 1st	3.090
2nd	1.790
3rd	1.350
4th	1.090
5th	0.910
6th	0.840
Drive chain	428HO 138 links

CHASSIS

Front suspension	Telescopic type
Rear suspension	Swingarm type
Steering angle	40 ° (right & left)
Caster	33 °
Trail	135 mm
Front brake	Disk brake
Rear brake	Drum brake
Front tire size	110/90-16 59P or 110/90-17 55P
Rear tire size	130/90-15M/C 66P
Front fork stroke	120 mm

ELECTRICAL

Ignition type	Battery Ignition (CDI)
Ignition timing	13 ° B.T.D.C.at 2,000 rpm and 30 ° B.T.D.C.at 5,000 rpm
Spark plug	CR8E
Battery	12V 12Ah
Fuse	15 A
Head lamp	HI : 35W LO : 35W
Position lamp	5W
Turn signal lamp	21 W
Brake / Tail lamp	21 / 5 W
Speedometer 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

CAPACITIES

Fuel tank	14.0 l
Engine oil, oil change	1,450 ml
with filter change	1,500 ml
overhaul	1,650 ml
Front fork oil (One side)	250 cc

* The specifications are subject to change without notice.

PERIODIC MAINTENANCE

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2-1 PERIODIC MAINTENANCE

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

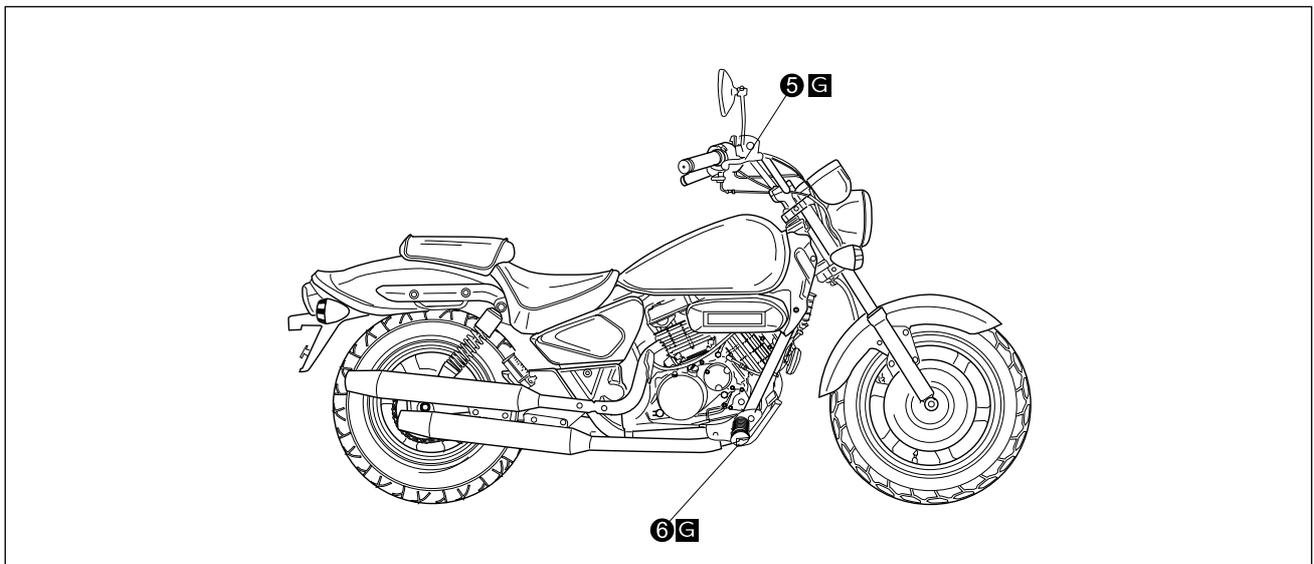
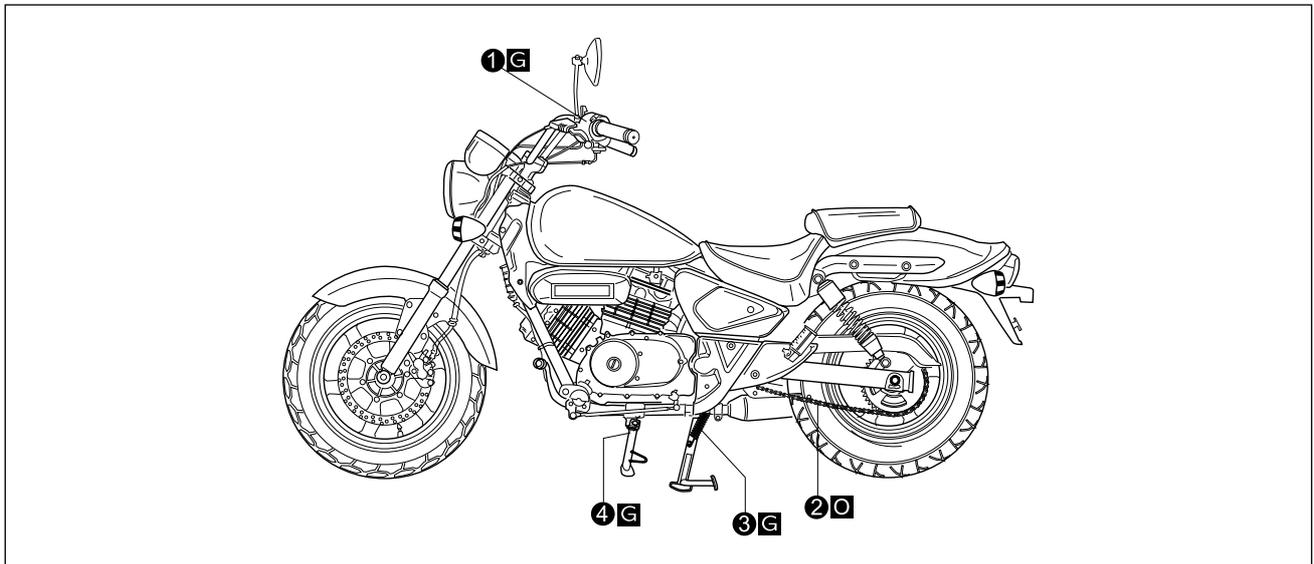
Item \ Interval	Initial 1,000 km	Every 4,000 km	Every 8,000 km	page
Air cleaner element	Clean every 3,000 km			2- 6
Exhaust pipe nuts and muffler mounting bolts	Tighten	Tighten	—	2- 6
Valve clearance adjust.	Inspect	Inspect	—	2- 3
Spark plug	Clean	Clean	Replace	2- 5
Fuel hose	Inspect	Inspect	—	2- 8
	Replace every 4 years			
Engine oil filter	Replace	Replace	—	2-10
Engine oil	Replace	Replace	—	2- 9
Throttle cable	Inspect	Inspect	—	2- 8
Idle speed	Inspect	Inspect	—	2- 7
Clutch	Inspect	Inspect	—	2- 8

● CHASSIS

Item \ Interval	Initial 1,000 km	Every 4,000 km	Every 8,000 km	page
Drive chain	Clean and lubricate every 1,000km			2-11
Brake	Inspect	Inspect	—	2-13
Brake hose	Inspect	Inspect	—	2-13
	Replace every 4 years			
Brake fluid	Inspect	Inspect	—	2-13
	Replace every 2 years			
Tires	Inspect	Inspect	—	2-17
Steering	Inspect	Inspect	—	2-17
Front forks	—	Inspect	—	2-17
Rear suspension	—	Inspect	—	2-17
Chassis bolts and nuts	Tighten	Tighten	—	2-18

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 | ④ Side stand pivot and spring hook |
| ② Drive chain | ⑤ Brake lever holder |
| ③ Center stand pivot and spring hook | ⑥ Brake pedal pivot |

○ - 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 PROCEDURE

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

VALVE CLEARANCE

NOTE:

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

⚠ CAUTION

The clearance specification is for COLD state.

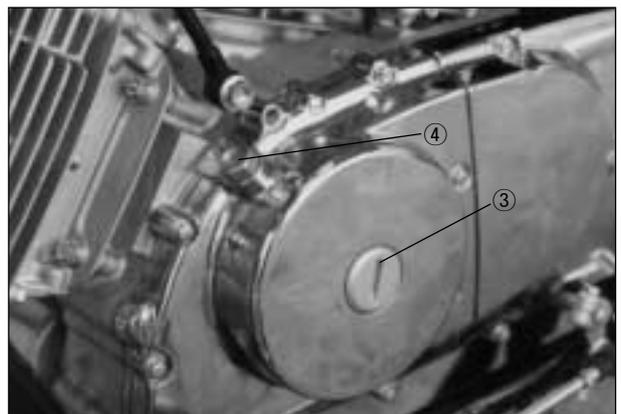
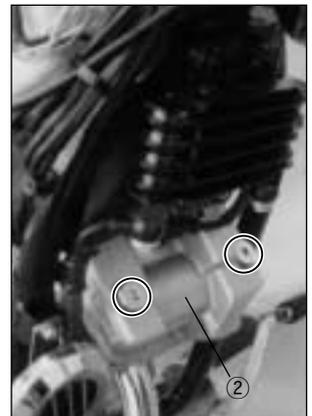
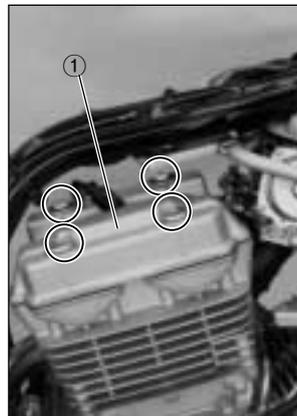
The valve clearance specification is different for intake and exhaust valves.

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 right air cleaner box.
- Remove the fuel tank. (Refer to page 4-1)

- Remove the cylinder head cover ① and ②.

- Remove the magneto cover plug ③ and the timing inspection plug ④.



- Rotate the magneto rotor 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.

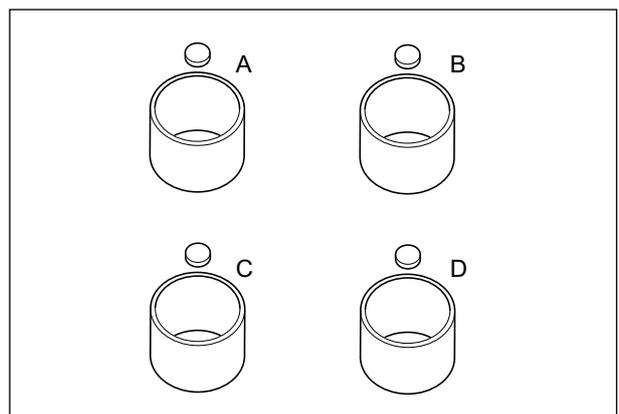
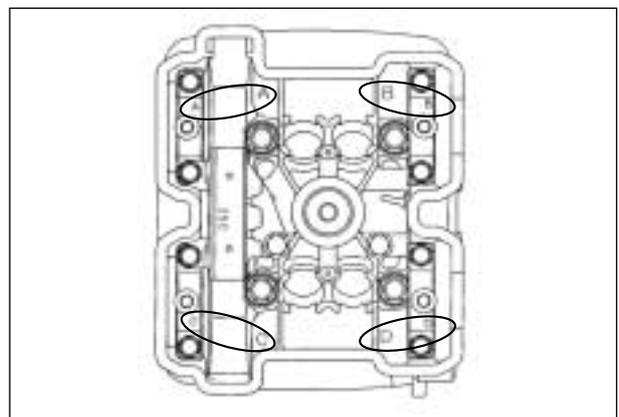
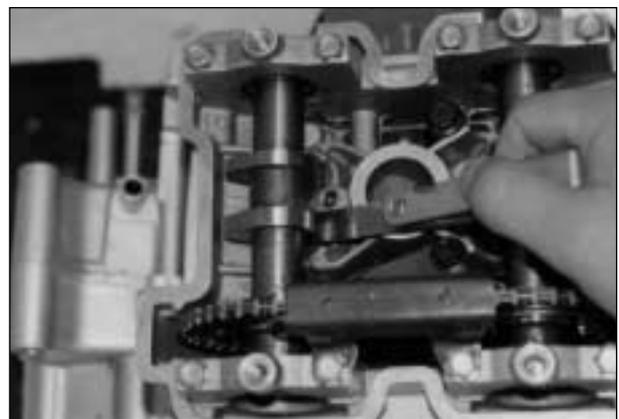
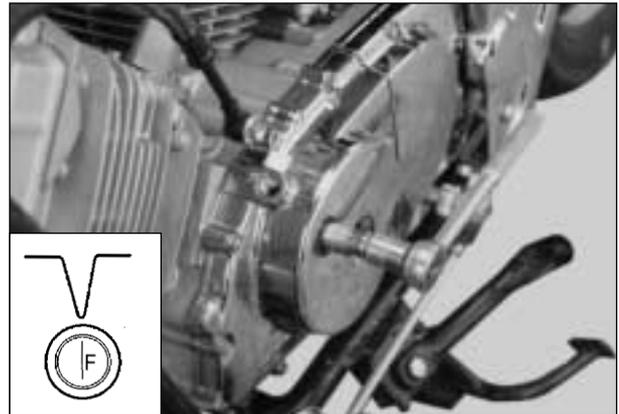
Valve clearance (when cold)	
IN.	0.1 ~ 0.2 mm
EX.	0.2 ~ 0.3 mm

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 with "A", "B", "C", "D" mark on the cylinder head as the illustration.
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 7-25, 26)
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.

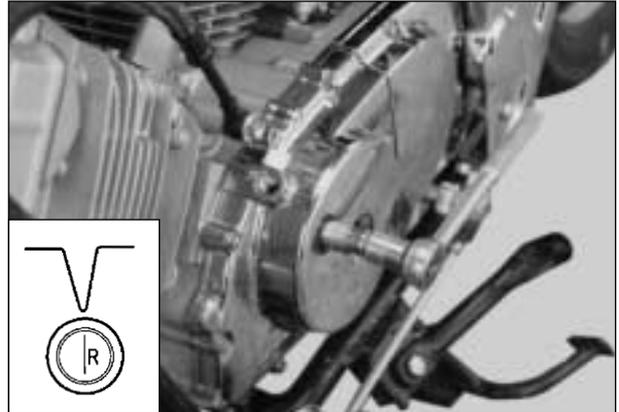
CAUTION

- ❖ 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.



2-5 PERIODIC MAINTENANCE

- 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

NOTE:

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

- 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 deposite with wire or pin and adjust the spark plug gap to 0.7~0.8 mm, measuring with a thickness gauge.

Spark plug gap	0.7~0.8 mm
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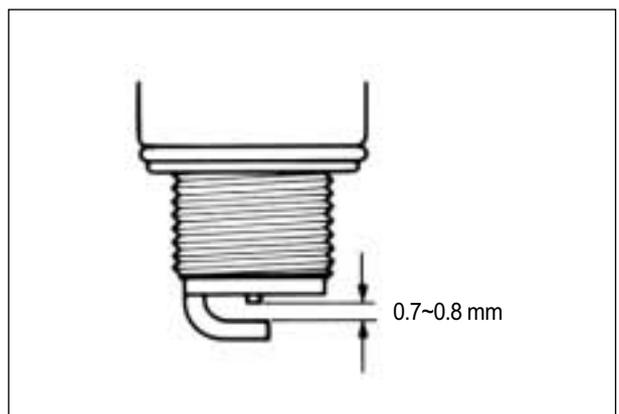
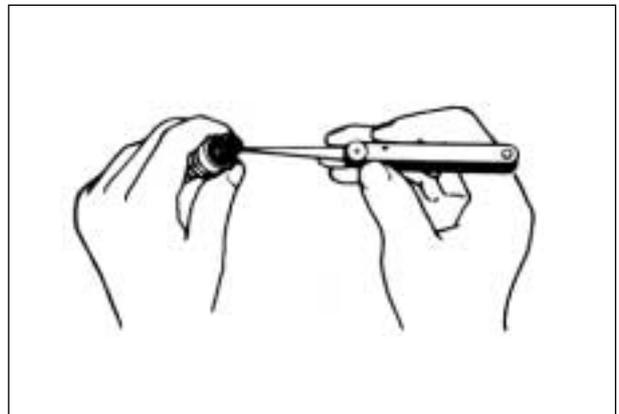
TOOL Thickness gauge : 09900-20806

Check to see the worn or burnt condition of the electrodes.

If it is extremely 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.

T Spark plug : 20~25 N · m (2.0~2.5 kg · m)



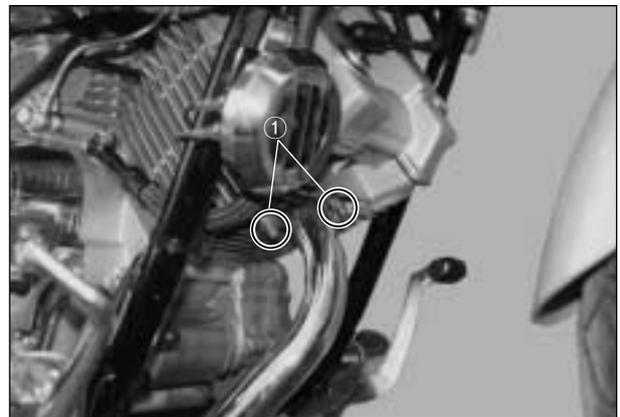
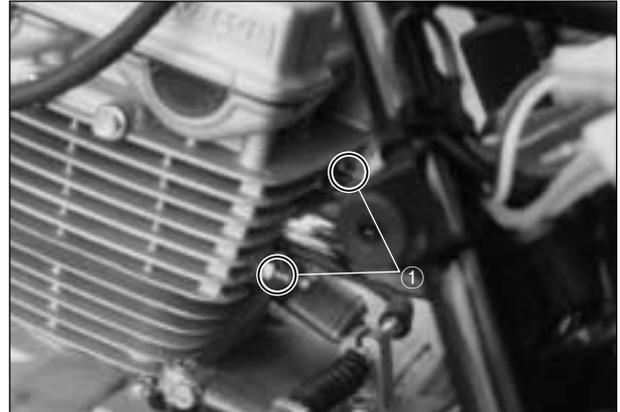
EXHAUSE PIPE NUT AND MUFFLER MOUNTING BOLT

NOTE:

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
: 18~28 N · m (1.8~2.8 kg · m)
- Muffler mounting bolt
: 20~30 N · m (2.0~3.0 kg · m)

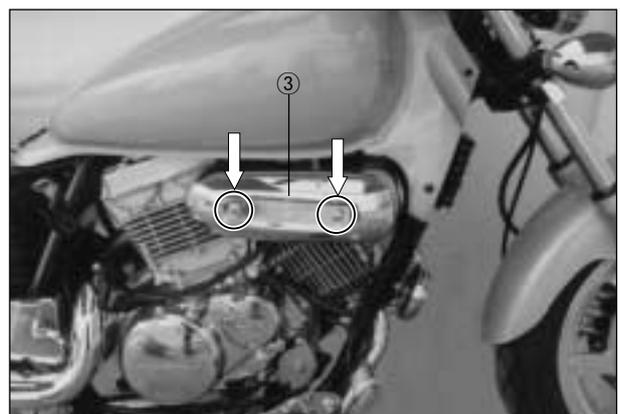


AIR CLEANER

NOTE:

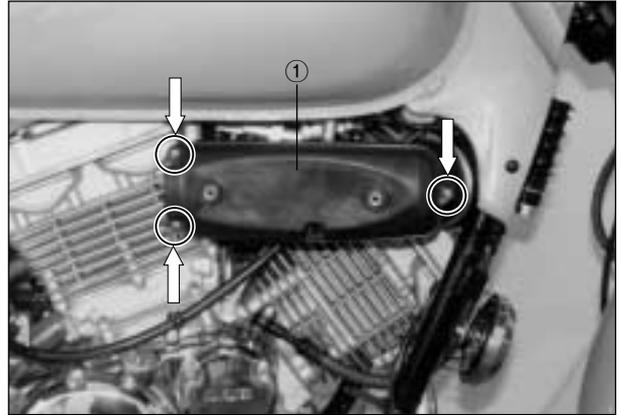
Clean Every 3,000 km.

- Remove the air cleaner box cover ③.

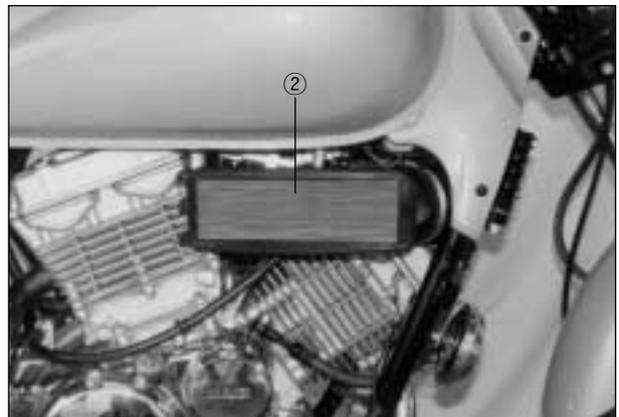


2-7 PERIODIC MAINTENANCE

- With the three of air cleaner cap mounting bolts removed, remove the air cleaner cap ①.



- Remove the air cleaner element ②.



- Clean the air cleaner element with the air gun.

⚠ CAUTION

- ❖ Always apply air pressure to the inside of the air cleaner element only.
- ❖ A torn air cleaner element will allow dirt to enter the engine and can damage the engine. Carefully examine the air cleaner element for tears during cleaning. Replace it with a new one if it is torn.
- ❖ Failure to position the air cleaner element properly can allow dirt to bypass the air cleaner element. This will cause engine damage. Be sure to properly install the air cleaner element.

CARBURETOR

NOTE:

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

⊙ IDLE SPEED

⚠ CAUTION

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 1,450 and 1,550 rpm by turning throttle stop screw ①.

Engine idle speed	1,450 ~ 1,550 rpm
--------------------------	-------------------

 **Engine tachometer : 09900-26006**

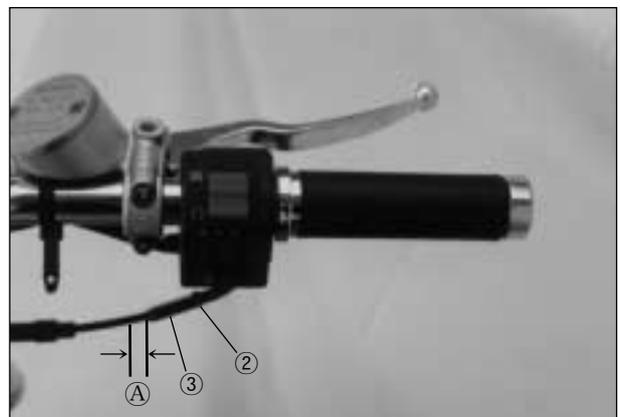


⊙ THROTTLE CABLE PLAY

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 ①	0.5 ~ 1.0 mm
------------------------------	--------------



FUEL HOSE

NOTE:

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

- Remove the left frame cover. (Refer to page 6-2) Inspect the fuel hoses for damage and fuel leakage. If any defects are found, the fuel hoses must be replaced.



CLUTCH

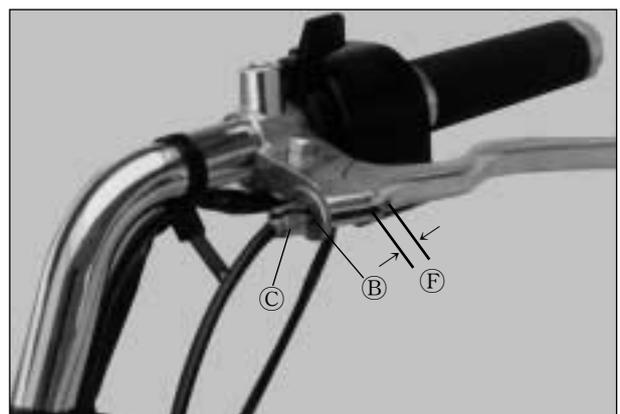
NOTE:

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

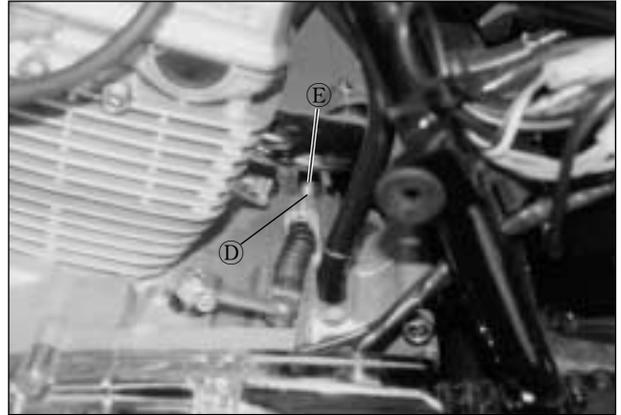
Clutch play should be 4 mm as measured at the clutch lever holder before the clutch begins to disengage. If the play in the clutch is incorrect, adjust it in the following way :

- Loosen the lock nut ⑥ and screw the adjuster ③ on the clutch lever holder all the way in.
- Loosen clutch cable adjuster lock nut ①.
- 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.

Clutch cable play ②	4 mm
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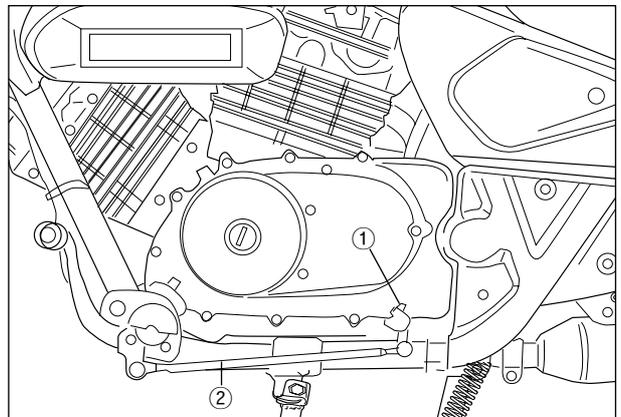


2-9 PERIODIC MAINTENANCE



⦿ GEARSHIFT LEVER HEIGHT ADJUSTMENT

- Loosen the lock nut ①.
- With the link rod ② turned, adjust the gearshift lever height.



ENGINE OIL

NOTE:

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

Necessary amount of engine oil	
Oil change	1,450 ml
Filter change	1,500 ml
Overhaul engine	1,650 ml
Engine oil type	SAE 10W40 API SF or 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 filter cap ③ and drain plug ④.
- Tighten the drain plug ④ to the specified torque, and pour fresh oil through the oil filter. Use an API classification of SF or SG oil with SAE 10W40 viscosity.

 Oil drain plug : 18~20 N · m (1.8~2.0 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 "F", add oil to "F" level. If the level is above mark "F", drain oil to "F" level.

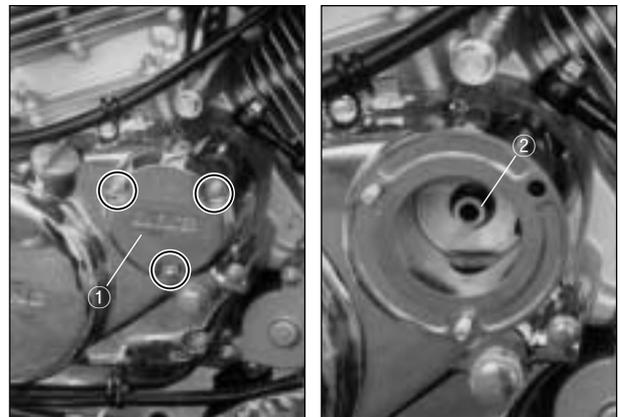


ENGINE OIL FILTER

NOTE:

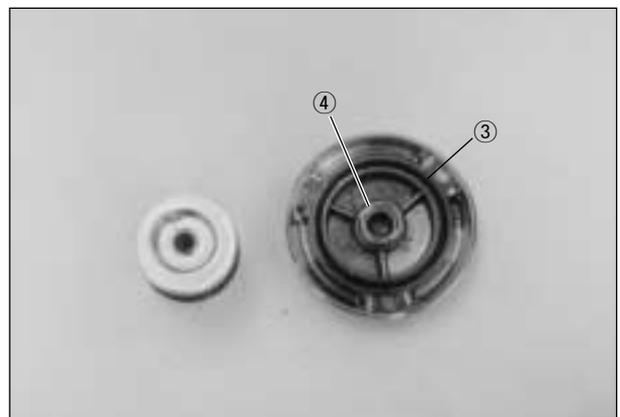
Replace Initial 1,000 km and Every 4,000 km.

- 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.



NOTE:

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



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

⚠ CAUTION

Use HYOSUNG MOTORCYCLE 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 motorcycles.



DRIVE CHAIN

NOTE:

Clean and Lubricate Every 1,000 km.

Visually check the drive chain for the possible defects listed below. (Support the motorcycle by the center stand, turn the rear wheel slowly by hand with the transmission shifted to Neutral.)

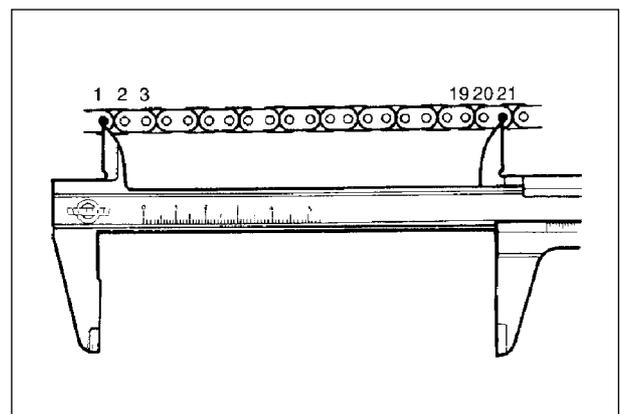
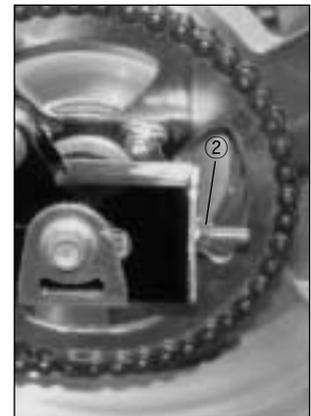
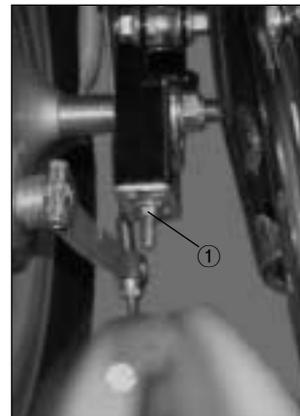
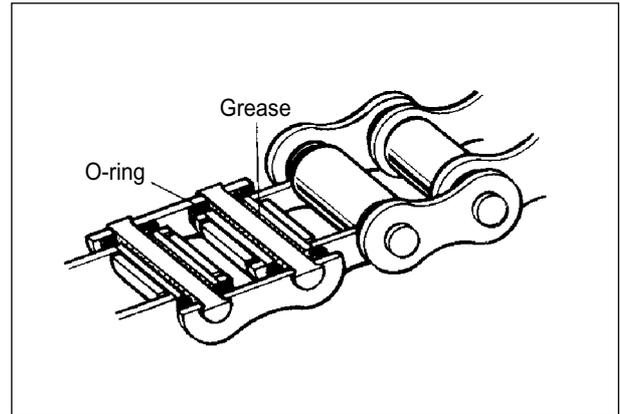
- Loose pins
- Excessive wear
- Damaged rollers
- Improper chain adjustment
- Dry or rusted links
- Kinked or binding links

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

NOTE:

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

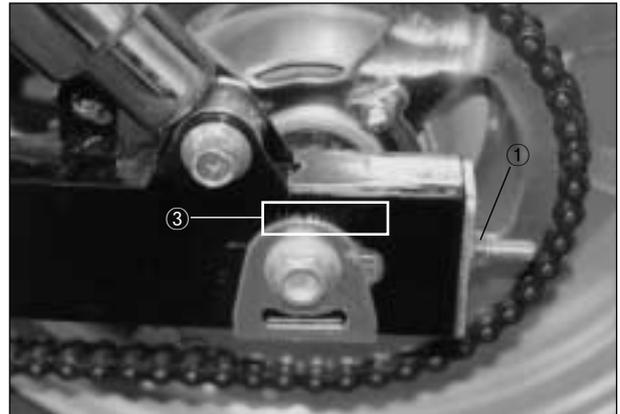
- Loose the axle nut.
- Loose the rear torque link nuts.
- Tense the drive chain fully by turning both chain adjusters ①, ②.
- Count out 21 pins (20 pitches) on the chain and measure the distance between the two points. If the distance exceeds the service limit, the chain must be replaced.



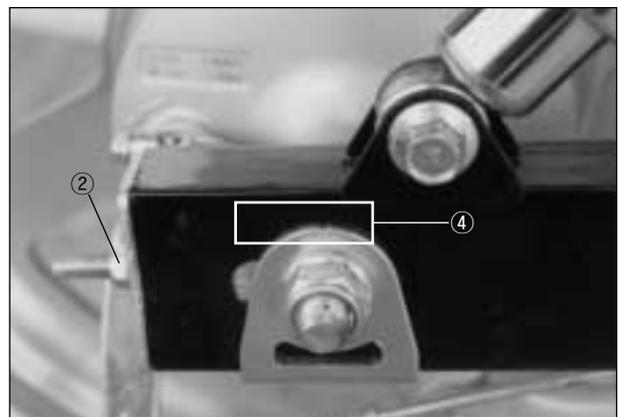
Drive chain 20-pitch length	Service limit
	256.5 mm

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

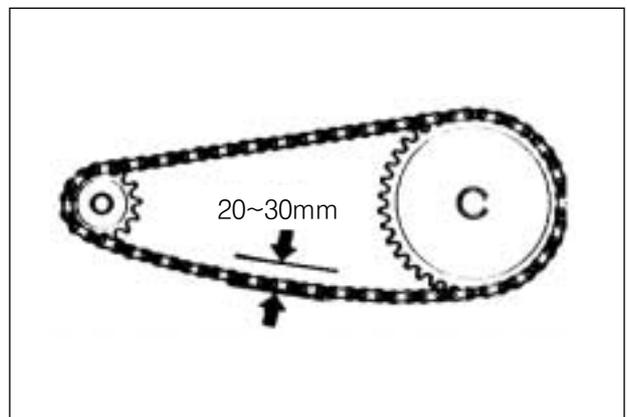
Drive chain slack	20 ~ 30 mm
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- Place the motorcycle on its center stand for accurate adjustment.
 - After adjusting the drive chain, tighten the axle nut and the torque link nuts to the specified torque.
 - Tighten both chain adjusters ①, ② securely.
- ⓘ Rear axle nut : 50~80 N · m (5.0~8.0 kg · m)**
Torque link nut (Rear) : 10~15 N · m (1.0~1.5 kg · m)



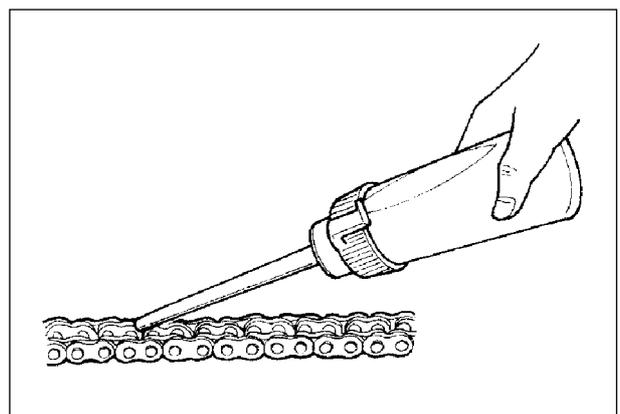
- Recheck the drive chain slack after tightening the axle nut.



- Wash the drive chain with kerosine. If the drive chain tends to rust quickly, the intervals must be shortened.
- After washing and drying the chain, oil it with a engine oil.

⚠ CAUTION

❖ The standard drive chain is a 428HO Hyosung recommends that this standard drive chain should be used for the replacement.



BRAKE SYSTEM

NOTE:

[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 handle-bars 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.



Specification and Classification : DOT 3 or DOT 4

⚠ CAUTION

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 or petroleum-based. Do not use any brake fluid taken from old, used or unsealed containers. Never re-use brake fluid left over from the last servicing or stored for a long period.

⚠ CAUTION

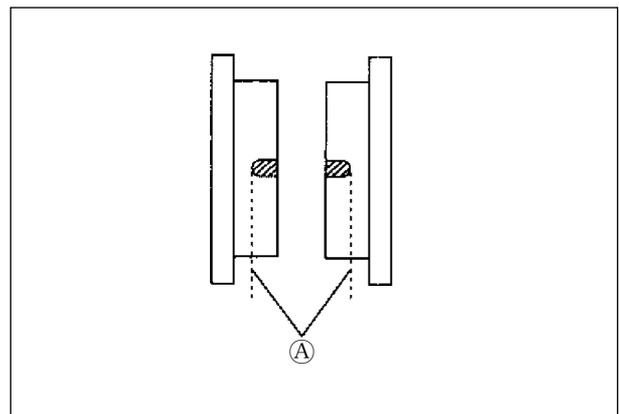
Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.

⦿ BRAKE PAD WEAR

The extend of brake pad wear can be checked by observing the grooved limit (A) on the pad. When the wear exceeds the grooved limit, replace the pads with new ones.

⚠ CAUTION

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



⊙ **FRONT BRAKE PAD REPLACEMENT**

- Remove the brake caliper.
- Remove the brake pads.
- To reassemble, reverse the above sequence.

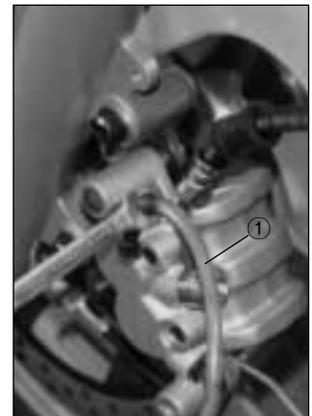
 **Brake caliper mounting bolt**
: 18~28 N · m (1.8~2.8 kg · m)



⊙ **FRONT BRAKE FLUID REPLACEMENT**

- Place the motorcycle on a level surface and keep the handlebars straight.
- Remove the master cylinder reservoir cap and diaphragm.
- Suck up the old brake fluid as much as possible.
- Fill the reservoir with new brake fluid.

 **Specification and Classification**
: DOT 3 or DOT 4



- Connect a clear hose ① to the air bleeder valve and insert the other end of the hose into a receptacle.
- Loosen the air bleeder valve and pump the brake lever until the old brake fluid is completely out of the brake system.



- Close the air bleeder valve and disconnect the clear hose. Fill the reservoir with new brake fluid to the upper line.

 **Front brake caliper air bleeder valve**
: 6~9 N · m (0.6~0.9 kg · m)

⊙ AIR BLEEDING OF THE BRAKE FLUID CIRCUIT

Air trapped in the brake 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 brake caliper. 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 be purged of air in the following manner :

- Fill the master cylinder reservoir to top of the inspection window. Replace the reservoir cap to prevent dirt from entering it.
- Attach a hose to the air bleeder valve, and insert the free end of the hose into a receptacle.
- Bleed air from the brake system.
- 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 it a quarter of a turn 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 air bleeder valve, pump and squeeze the brake lever, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.

NOTE:

While bleeding the brake system, replenish the brake fluid in the reservoir as necessary. Make sure that there is always some fluid visible in the reservoir.

- Close the air bleeder valve, and disconnect the hose. Fill the reservoir with brake fluid to the upper line.

 **Front brake caliper air bleeder valve**
: 6~9 N · m (0.6~0.9 kg · m)

CAUTION

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

