

# PREFACE

Thank you for choosing the motorcycle. May you enjoy riding all time.

The manual contains the necessary instructions and guidance with respect to the operation and maintenance of the motorcycle, and BE SURE TO READ IT CAREFULLY BEFORE YOU RIDE THE MOTORCYCLE. Proper operation and maintenance can guarantee a safe riding to minimize troubles of the motorcycle and keep it in a sound condition which can extend the engine service life.

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## IMPORTANT NOTICES

- **Operator and Passenger**


250-D is designed to carry the operator and one passenger. The maximum load weight of the motorcycle must not exceed 150kg.

- **On-road**

250-D motorcycle is designed for on-road use.

Pay special attention to statements preceded by the following words:

 **WARNING:** Indicates a strong possibility of severe personal injury or death if instructions are not followed.

 **CAUTION:** Indicates a possibility of equipment damage if instructions are not followed.

**NOTE:** Give helpful information.

**Environmental Protection (EP):** Indicates special precautions that must be taken to meet environment protection laws and regulations. Improper use of a motorcycle may cause environment pollution.

If the operator fails to follow the safe operating and maintenance practices, the Co. will not take any responsibility to any injury or damage occurred.

This manual should be considered as a permanent part for the motorcycle and should remain with the motorcycle when resold.

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# MOTORCYCLE SAFE RIDING

## SAFE RIDING RULES

**⚠ WARNING** Carefully read the instructions in the “PRE-RIDE INSPECTION” before riding and take notice of the traffic safety when driving to guarantee the safety of drivers, passengers and motorcycles.

- Always make a pre-ride inspection before you start the engine and check the fasteners, connectors and adjusters, confirm the working condition to avoid the accidents and parts damage.
- Most countries requires a special motorcycle riding test or license. Make sure you are qualified before you ride. NEVER lend your motorcycle to an inexperienced rider.
- Make yourself conspicuous to help avoid the accident that wasn't your fault.

## ⚠ WARNING

- Wear bright or reflective clothing.
- Don't excessive close to other vehicles and proper use lights and horns.
- Don't speedily cross another's way.
- Obey all national and local laws and regulations.
- Obey the speed limits, and NEVER travel faster than conditions warrant.
- Signal before you make a turn or lane change to draw other motorists' attention.
- Use extra caution at intersections, parking lot entrances and exits.
- Always remember to ride with both hands and keep both feet on the rider footrest while the passenger grasps the handrail with both feet on the rear footrest.

## PROTECTIVE CLOTHS

- For the safety sake, always wear a helmet, a face shield, dust glasses and protective gloves.
- The exhaust system becomes hot during operation, and it remains hot for a while after stopping the engine. Take care not to touch the exhaust system while it is hot. Wear clothing that fully covers your legs.
- Do not wear loose clothing that could catch on the control levers, wheels, etc.

## REFITTING

**⚠ WARNING** Arbitrarily refitting the motorcycle or removing the parts

may make unsafe riding and is illegal also. The user must obey all national and local laws and regulations in relation to vehicle and traffic. If you have a good proposal concerning refitting of the motorcycle, please write us. The refitment can be done with permission of the Co. Otherwise, the user will take the consequences.

## LOADING

**⚠ WARNING** The motorcycle has definite distribution requirements on load bearing, improper loading will affect the performance, stability and safe operating speed.

- Keep cargo and accessory weight lower and close to the center of the motorcycle. Load weight equally on both sides to minimize imbalance. As weight is located further from the motorcycles's center of gravity, handling is proportionally affected.
- Adjust tyre pressure and rear suspension to suit load weight and riding conditions.
- Make sure that cargo is fastened on the vehicle.
- Do not attach items to the handlebars, fork or fender. Otherwise, unstable handling or slow steering response may occur.
- The maximum load weight of the motorcycle is 150kg. Please do not overload.

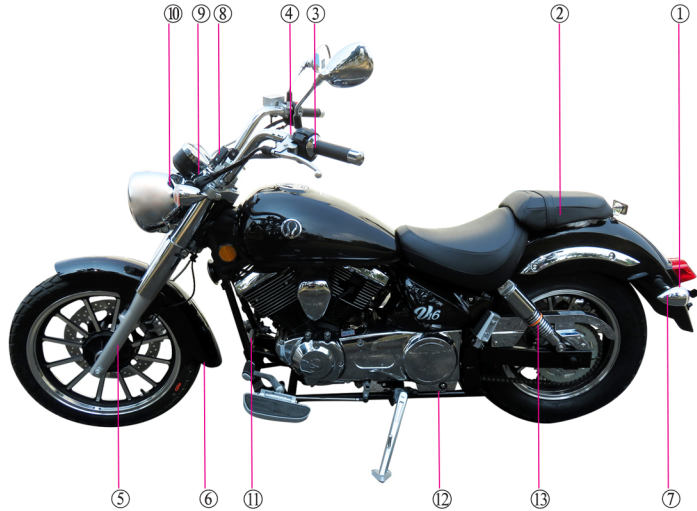
## ACCESSORIES

- Genuine accessories of Motors have been specifically designed and tested on the motorcycle. Because the factory cannot test all other accessories, you are personally responsible for selection, installation and use of accessories not produced by the Co. Always follow Safe Riding Rules as below:
- Carefully inspect the accessory to make sure that it does not obscure any lights, reduce ground clearance or banking angle, or limit suspension travel, steering travel or control operation.
- Do not install other cooling equipment for the engine.
- Do not add electric equipment that will exceed the motorcycle's electrical system capacity and blow fuse to cause the danger of lights not bright in night driving.

# GENERAL INFORMATION

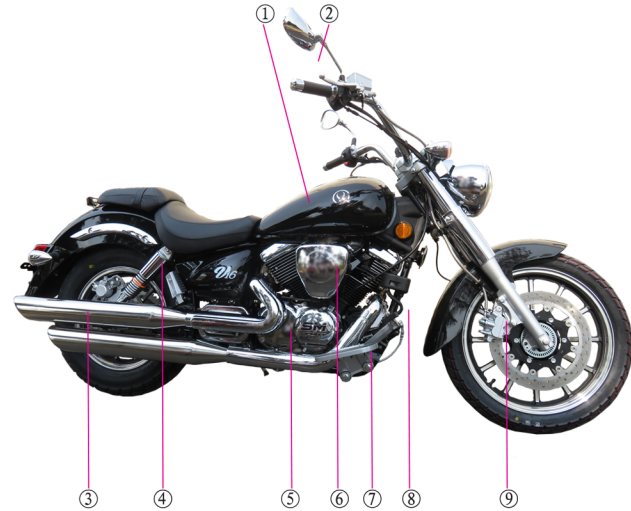
## PARTS LOCATION (Fig. 1-2)

Fig. 1 (Left-view)



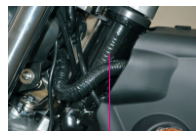
- ① Taillight ② Rear seat ③ Clutch lever ④ Steering bar ⑤ Front shock absorber  
⑥ Front fender ⑦ Rear winker ⑧ Meter ⑨ Front winker ⑩ Headlight  
⑪ Gearshift pedal ⑫ Side stand ⑬ Rear shock absorber

Fig. 2 (Right-view)



- ① Fuel tank ② Rear-view mirror ③ Exhaust muffler ④ Pillion footrest  
⑤ Engine ⑥ Air cleaner ⑦ Front footrest ⑧ Rear brake pedal  
⑨ Front brake

## MOTORCYCLE IDENTIFICATION (Fig. 3-5)



① VIN Fig.3



② Engine Code Fig.4



③ Nameplate Fig.5

### 〔VIN RECORD〕

VIN: ☆                ☆

Engine Code: ☆       ☆

Please fill the VIN and engine code of your motorcycle in the blank above. They will help order spare parts and find out the vehicle when stolen.

### 〔VIN LOCATION〕

- ① The VIN is stamped on the left of steering stem.(Fig. 3)
- ② The engine code/type is stamped on the mid-left of crankcase.(Fig. 4)
- ③ The vehicle nameplate is fixed in the right of steering stem.(Fig. 5)

## FUEL AND ENGINE OIL (EP)

### Fuel Selection

Fuel is a key factor in deciding the exhaust emission from the engine, so selection of fuel must follow the rules below. Selected fuel must be unleaded gasoline with octane No. RQ-92 or higher.

### Engine Oil Selection (Fig. 6)

The quality of engine oil plays a vital role in deciding the engine performance and service. Engine oil must be selected in accordance with rules below. Other oils such as ordinary engine oil, gear oil and vegetable oil are forbidden to be used.

The vehicle has been filled with engine oil SAE 15W/40-SJ before being

delivered. The lubricant is only suitable at a temperature range within  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$ . If other motor oil is to be used instead, the alternative must be respect to the Grade SJ in the API Classification. Viscosity varies with regions and temperatures, so the lubricant has to be selected according to our recommendation in Fig. 6. Before replacement, drain off the engine oil in crankcase and wash it clean with kerosene catharsis, then refill the new oil. If there is no gasoline engine oil SAE15W/40-SJ, the engine oil 15W/40-SF can be used instead.

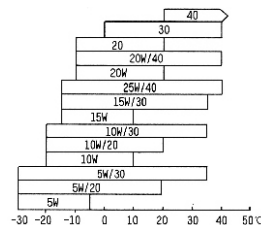


Fig.6

## CONTROLLING PARTS

### METER AND INDICATORS (Fig. 7)

① Turn left signal indicator “←”

② ABS alarm ③ Voltmeter

④ Odometer

ODO: max. reading is 999,999 km. The number remains unchanged if excess;  
TRIP: max. reading is 999.9km. The number will return to zero automatically if excess.

⑤ High beam indicator “H”

⑥ Clock ⑦ Fuel gauge

⑧ Turn right signal indicator “→”

⑨ Tachometer (Pointer) ⑩ Red zone: Limit of engine rotation. As driving in the speed, the service life of engine may be shorten. ⑪ Fault indicator

⑫ Speedometer ⑬ Tachometer (LCD) ⑭ Neutral indicator “N”

⑮ Gear display ⑯ Fuel alarm

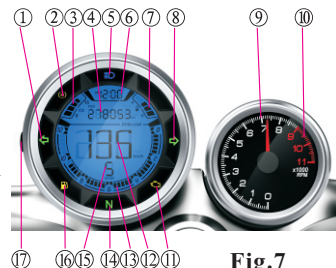


Fig.7

⑰ Button, the button has four functions as follows:

1. Metric/British System: long press the button and turn on the ignition switch, the metric/british system can be changed over. In metric shown as “Km/h”, in british system shown as “mph”.

2. TRIP/TOT Mode: turn on the ignition switch, short press the button (less than 1S) in non-clock setting mode, TRIP/TOT mode can be changed over.

3. Clock Setting: long press the button (more than 2S) in the TOT mode to enter the clock setting mode:

(a) HOUR section winks; sequentially click on the button until desired number appears. AM and PM will shift automatically.

(b) Long press the button (more than 2S), MINUTE section winks; sequentially click on the button until desired number appears. It will read 0 again when the number beyond 59.

(c) Long press the button (more than 2S) to quite the setting.

**NOTE:** After entering time set state for 10 seconds without any operation, the system will automatically quit the state.

4. Trip Reset: In the TRIP mode, press the button (more than 2S) to reset.

## IGNITION SWITCH AND STEERING LOCK (Fig.8)

### Ignition Switch

The ignition switch is equipped with 2 keys including a spare one.

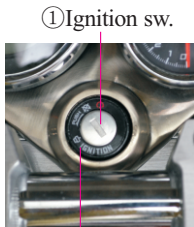
“☒” OFF: Engine and lights cannot be operated and the key can be removed.

“☑” ON: Engine and lights can be operated, neutral light “N” is lit and the key cannot be removed.

**NOTE:** when the motorcycle is unattended, turn the switch to OFF position and remove the key.

### Steering Lock

To lock the steering head, depress the key when in “☒” position and then release, turn counterclockwise to “☐” position. To unlock the steering head, turn the key clockwise.



② Steering lock

Fig.8

## RIGHT HANDLEBAR CONTROLS (Fig.9)

### Electric Starter Button

The motorcycle is equipped with a electrical starter button ②, depress the button to start up the engine. when start the engine in gears, grip the clutch lever and fold the side stand. Don't use the electrical starter for more than 10S at a time.

### Lighting Switch

The 3-position switch functions as follows:

☀: The headlight, front position light, taillight, number plate light and meter lights are bright.

☞☞: The license plate light, taillight, daytime running light (DRL) and meter lights are bright.

●: Only DRL is bright. Other lights are off.

### Emergency Switch

In an emergency, setting the switch to “☒” will stall the engine at once.

In normal cases, always set it at “☑”.

### Emergency Flasher Switch

Depress the switch, the four winkers flash simultaneously.

### Throttle Grip

The grip is used to control the engine power. Turning toward in the grip will increase fuel supply, while turning toward out it will decrease fuel supply.

## LEFT HANDLEBAR CONTROLS (Fig.10)

### Dimmer Switch

Push the switch to “☐” to turn on the high beam;

push the switch to “☑” to turn on the low beam.

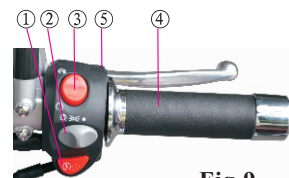


Fig.9

① Electric starter button

② Lighting sw.

③ Emergency sw.

④ Throttle grip

⑤ Emergency flasher sw.



Fig.10

① Dimmer sw.

② Turn signal sw.

③ Horn button

④ Overtaking light sw.

### Turn Signal Switch

Move the switch to “←” to signal a left turn; and to “→” to signal a right turn.  
Depress the switch to turn off.

### Horn Button

Press the button to sound the horn.

### Overtaking Light Switch

Repeatedly press and release the switch “” several times to wink the hi-beam of headlight when overtaking.

## REFUELING AND FUEL FILLER CAP

### Opening of Cap (Fig.11)

- The fuel filler cap is located on the front of fuel tank. Open the lock cover and insert the ignition key.
- Turn the key clockwise by 90°.
- Remove the cap.

To reinstall the cap, depress it into the tank inlet in position. The tank capacity is 14L.

**NOTE** For the sake of service life of fuel pump, fuel remained in the tank should be  $\geq 4L$ .

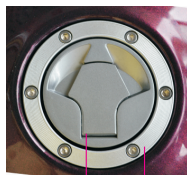
### ⚠WARNING

- Do not overfill the tank (there should be no fuel in the filler neck). After refueling, make sure the fuel filler cap is closed securely.
- Gasoline is extremely flammable and is explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the fuel tank is refueled.
- Before refueling, make sure to filter fuel first.

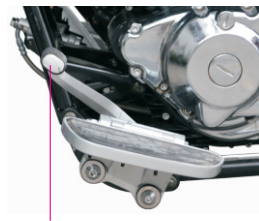
### GEARSHIFT PEDAL (Fig.12 & Fig.13)

This motorcycle is equipped with a 5-speed mesh transmission. Step the pedal the gear indicator will be bright when in neutral position and off when in other gears.

Fig.11



- ① Fuel filler lock
- ② Fuel filler cap



Gearshift pedal Fig.12

Engine 250 is equipped with a 5-speed mesh transmission. Its shifting patterns are shown in Fig.13.

### REAR BRAKE PEDAL (Fig.14)

The rear brake will function and the rear stop light will glow when applying the pedal.



Fig.14

### REAR SHOCK ABSORBER (Fig.15)

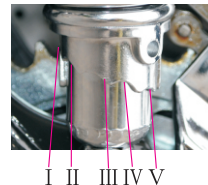
The shock absorber has 5 adjustment positions for different roads, load and riding conditions. To adjust it, pull upwards the shock absorber spring ① and turn the adjuster ②. The position I is used for light loads and smooth road conditions; turn the rear shock absorber to position II-V to increase spring preload for heavily loads and rugged roads.

**NOTE** Adjust the left and right absorber to the same level.



- ① Shock absorber spring
- ② Shock absorber adjuster

Fig.15



### International 5-speed pattern

It is forbidden to shift without disengaging the clutch and releasing the throttle

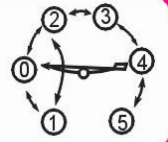


Fig.13

## STANDS

### Side Stand (Fig.16)

When parking the vehicle, turn the side stand clockwise along the frame to position. Before driving the vehicle, turn the side stand to the initial position.

A power switch is equipped in the side stand.

**⚠CAUTION** Be sure to set the side stand to position before driving the motorcycle. Otherwise, it may fall over.

## BASIC WORKING PRINCIPLE OF EFI (EP)

EFI system transforms parameters such as inlet air quantity, inlet temperature, engine temperature, air pressure and engine working conditions (such as engine RPM, load, acceleration/deceleration), etc. obtained by various sensors into electric signals and inputs them to electronic chips. Then the chips process and output signals to control the open timing and duration of fuel injector. That will greatly reduce the fuel consumption (about 15%) and exhaust pollution (above 60%), also improve the power performance (increasing 5%~10%) and starting performance.

### EFI PRINCIPLE DRAWING (Fig.17)

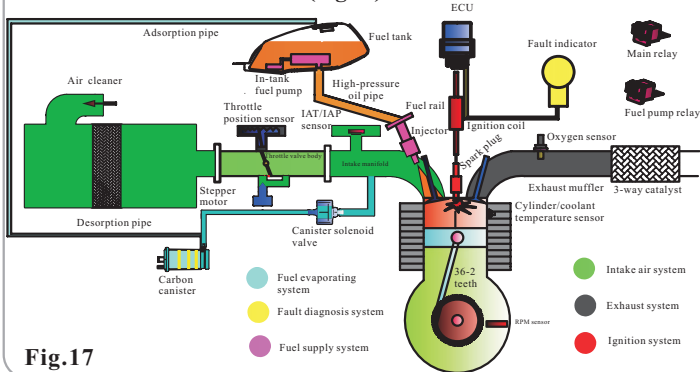


Fig.17

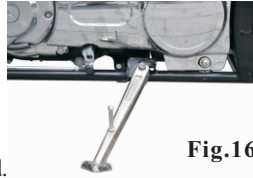


Fig.16

## Components of EFI System

### ECU (Fig.18)

The working voltage of ECU is 6.3V~16V. ECU is used to collect and process input signals from various sensors (crankshaft position sensor, IAT/IAP sensor unit, throttle position sensor, oxygen sensor). The working principle is firstly to analyze and calculate the engine working conditions as it's required, then according to preset mathematic model in the ECU to precisely control the fuel, ignition, air and related mechanism of engine by actuators installed in engine and motorcycle.

### Oxygen Sensor (Fig.19)

The oxygen sensor, installed on the exhaust muffler, is a iconic parts of the closed loop fuel control system to adjust and maintain a perfect air-fuel ratio to achieve the best conversion ratio of 3-way catalyst. When the air-fuel ratio decreases, the oxygen content in the exhaust increases, thus the output voltage of oxygen sensor decreases, otherwise, it increases. In this way, the air-fuel ratio status will be exported to ECU.

### Cylinder Temperature Sensor (Fig.20)

The engine temperature sensor, mounted on the cylinder head, is designed to measure the temperature of cylinder head and transmits the temperature signal to ECU in the form of resistance.



Fig.18



Fig.19



Fig.20

### Fuel Pump Assy. (Fig.21)

The fuel pump assy. consists of a fuel pump, a housing and a fuel pressure regulator. It is a built-in pump, installed in the fuel tank. Mainly it supplies fuel to injector with sufficient pressure and makes extra fuel flow back to the fuel tank.

The fuel pressure in this pump is  $250 \pm 10$ kpa. For the sake of service life of fuel pump, fuel remained in the tank should be  $\geq 4$ L.

### Fuel Injector (Fig.22)

Fuel injector is an actuating element connected to the inlet pipe. The proper amount of fuel is timely and precisely injected to the intake manifold through the core control element of engine management system-ECU, then sucked into the cylinder for combustion. The fuel injector operating temperature range is  $-4^{\circ}\text{C} \sim 130^{\circ}\text{C}$ .

### IAP/IAT Sensor Unit (Fig.23)

For easy installation and use, this unit combines the IAP sensor and IAT sensor together. The IAP/IAT sensor unit is designed to detect and sense the actual inlet status when engine running. The electronic control module quickly works out the instantaneous air intake amount according to data collected by IAP/IAT sensor unit and other sensors of the engine management system. This unit can be connected in the inlet pipe or mounted on the throttle valve body.

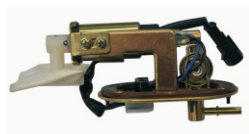


Fig.21



Fig.22



Fig.23

### Throttle Valve Body (Fig.24)

Throttle valve body, also known as air flow control valve, is one of important parts in air-fuel subsystem under engine management system. It is a mechanical adjusting device to control the inlet airflow and consequently control the RPM and output power of engine. Throttle valve body is equipped with a position sensor, which is driven by throttle valve shaft. The position sensor is designed to measure the opening position of throttle valve and response to the load conditions of engine, then export the sensed information to ECU to control the oil supply. An idle air control valve is installed on the throttle valve body to control the idle bypass air amount for more precisely controlling the idle speed.



Fig.24

# OPERATION GUIDE


## PRED-RIDE INSPECTION

Inspect your motorcycle every time before you ride it. The items listed here will only take a few minutes to inspect, and in long run they can save time, expense and possibly your life.

1. Engine oil level - Add engine oil as required and check for leaks.
2. Fuel level- Refuel when necessary and check for leaks.
3. Front and rear brakes-Check operation and adjust free play if necessary.
4. Tyres- Check wear conditions and pressure.
5. Battery electrolyte- Check the electrolyte for suitable level.
6. Throttle- Check for smooth opening and full closing in all steering position. Adjust or replace it if necessary.
7. Lights and horn-Check the headlight, tail/stop light, wipers, parking light, indicators and horn for proper function.
8. Drive chain-Check the condition and slack. Adjust and lubricate it if necessary.
9. Fasteners- Check all nuts, screws and bolts are mounted securely.
10. Steering system - Check for smooth and reliable operation.

## STARTING THE ENGINE

**⚠CAUTION** Do not start the engine in a narrow area to prevent accidents. Attempting to start engine with the transmission in gear may result in damage to equipment. Before starting, operate as follows:

- Insert the ignition switch and turn it to “” position.
- Move the gearshift pedal into the NEUTRAL to light up the indicator “N” (in green).

## BREAKING-IN

Help assure your motorcycle's future reliability and performance by paying extra attention to how you ride the first 1000km. During this period avoid full throttle riding and changing speed continually, be sure to drive at a speed no

more than 80% of each gear. After the breaking-in period, be sure to conduct maintenance so as to make compensation for initial wear. The service life will be extended obviously through such maintenance.



## RIDING

- Start the engine and warm up.
- While the engine in idling, pull in the clutch lever and push down the gearshift pedal to shift into low (1st) gear.
- Slowly release the clutch lever and at the same time gradually increase the engine speed by opening the throttle.
- When the motorcycle attains a steady speed, close the throttle, disengage the clutch and shift to 2nd by treading the gearshift pedal This sequence is repeated to progressively shift to higher gears (shown in Fig.13 of page 5).
- Coordinate the throttle with brakes for smooth deceleration.
- Both front and rear brakes should be used at the same time and should not be applied strongly to lock the wheel, or breaking effectiveness will be reduced and control of the motorcycle be difficult.

**⚠CAUTION** It is forbidden to gearshift up or down when the throttle is still not decrease and the clutch is in. Otherwise, damage to the engine, chain and other parts may occur.

## BRAKING AND PARKING

To stop the motorcycle, close the throttle and disengage the clutch by pulling in the clutch lever, then smoothly operate the front and rear brakes until stopping the motorcycle.

Shift the transmission into neutral, turn the emergency switch to “” position. Then support the motorcycle with side stand. After parking, turn the ignition switch to “” position, followed by removing the key. Lock the steering head and remove the key.

# MAINTENANCE

## TOOL KIT (Fig.25)

Some roadside repairs, minor adjustments and parts replacement can be performed with the tools available in the kit.

- ①Screw driver grip
- ②Double-ended screw driver
- ③Spark plug wrench
- ④Open-ended spanner, 8mm×10mm
- ⑤Open-ended spanner, 13mm×15mm



Fig.25

## MAINTENANCE SCHEDULE

Maintenance work should be performed in light of Maintenance Schedule.

Letters in the table indicate as follows:

**I:** inspection and clean, adjust, lubrication or replace if necessary.

**C:** clean    **R:** replace    **A:** adjust    **L:** lubricate

\* The item should be serviced by your dealer, unless the owner has the proper tools and is mechanically qualified. Refer to the manual.

\*\* In the interest of safety, we recommend these items should be serviced only by your dealer.

### NOTE

①Clean more frequently when riding in unusual wet or dusty areas.

②At higher odometer readings, still follow the frequency intervals established in this manual.

Item	Frequency	ODOMETER READING, Km (Note ②)				
	Period	1,000 Km	4,000 Km	8,000 Km	12,000 Km	Remarks
* Fuel line system			I	I	I	
* Fuel filter		C	C	C	C	
* Throttle operation		I	I	I	I	
Throttle valve body			I	I	I	
Air cleaner element	Note①		C	C	C	
Spark plug		I	I	I	I	
* Valve gap		I	I	I	I	
Engine oil	Yearly	Every 2,000Km-R				
Engine oil strainer	Yearly-R			C		
Tension of cam chain		A	A	A	A	
Fuel pump		I	I	I	I	
Drive chain		I、L	I、L	I、L	I、L	
Battery	Monthly	I	I	I	I	
Brake shoes/pad wear			I	I	I	
Brake system		I	I	I	I	
* Brake light switch		I	I	I	I	
* Headlight adjustment		I	I	I	I	
Clutch		I	I	I	I	
Side stand			I	I	I	
* Suspension		I	I	I	I	
* Nuts,bolts,fasteners		I	I	I	I	
* * Wheel/spokes		I	I	I	I	
* * Steering bearings		I			I	

## ENGINE OIL (EP)

### Check of Engine Oil (Fig.26)

a. Place the motorcycle vertically on a level ground. Warm up the engine for a few minutes.

b. The oil level must be maintained between the H mark and L mark. If the level is under L mark, refill engine oil timely to the required level.

**NOTE** Place the motorcycle vertically before check the engine oil. Tilted position will affect the result.

c. Stop the engine, then check the oil level through the sight glass at the bottom of right crankcase.

**NOTE** Check the level when the oil is still.

**CAUTION** Running the engine with insufficient oil can cause serious damage to the engine.

### Change of Engine Oil (Fig.27)

It is better to drain the oil off when the engine is still warm.

● Place an empty container under the engine, unscrew the drain plug.

● Tread the kick-starter pedal several times so as help to empty the oil thoroughly.

● Reinstall the drain plug, and tightening up.

※ Pour approximate 1.7L of SAE 15W/40-SJ into the engine. Restart the engine, keep it idle for a few minutes, and then stall it. Recheck the oil level, and add oil if necessary.

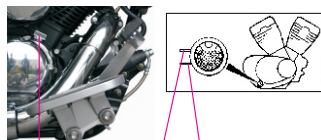


Fig.26  
① Oil filler cap  
② H mark  
③ L mark



Drain plug  
Fig.27

**CAUTION** When running in very dusty conditions, oil changes should be performed more frequently than specified in the maintenance schedule. Please dispose of used engine oil in a manner that is reclaimed by the qualified department in local. with the environment. DO not throw it at will.

## CLEAR AWAY CARBON DEPOSIT (EP)

Clear away carbon deposit around the spark plug and piston ring, on the piston top, in the piston slot and combustion chamber regularly.

### SPARK PLUG (EP) (Fig.28)

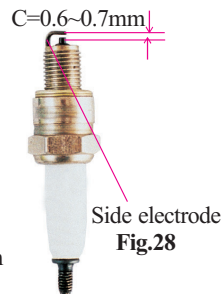
Spark Plug Type : As stated in “SPECIFICATIONS”

#### Check and Replace

● Spark plug is located on the upper right of cylinder head, disconnect the spark plug cap and clean any dirt around. Remove the spark plug by the special wrench.

● Inspect the electrodes and center porcelain for ablations and deposits. Replace the spark plug when too much ablations and deposits on or the insulator with cracks or drops. Clean the deposits and dirt with wire brush.

● Check the spark plug gap which should be 0.6~0.7mm, and adjust it by bending the side electrode if necessary.



### AIR CLEANER (EP) (Fig.29)

The air cleaner must be cleaned and then soaked in clean oil at least once every 4000km's drive. Riding in a very dusty area, the job should be done more often. See your dealer for correct maintenance schedule according to your driving condition.



Fig.29 Air cleaner

- Remove the connecting screw, open the air cleaner cover and remove the element.
- Wash the element in cleansing solvent and dry it.
- Soak the element in gasoline engine oil 15W/40-SJ until saturated, then squeeze out the excess oil.
- Reinstall the air cleaner element and cover in the reverse order of removal.

## VALVE CLEARANCE

The valve clearance is variable according to its function. Narrow valve clearance will cause improper fuel/air supply or engine noise. Adjust the valve clearance at intervals to avoid such problems. This work should be carried out by professional mechanicals from your local dealer.

## EXHAUST MUFFLER (EP)

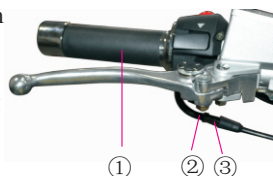
Clear away regularly carbon deposit in the exhaust pipe, check the exhaust pipe inside for crack and washer for damage, repair or replace if necessary.

## OPERATION OF THROTTLE (Fig.30)

- Check for smooth rotation of the throttle grip from the fully open to the fully closed position at both full steering position.

- Measure the throttle grip free play at the throttle grip flange.

The standard free play should be approx. 2-6mm. To adjust the free play, loosen the locknut, turn the adjusting bolt. Adjustment over, fasten the locknut.



**Fig.30**

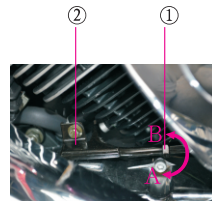
- ① Throttle grip
- ② Locknut
- ③ Adjusting bolt

## CHECK LEAKS ALONG AIR SUPPLY (EP)

Check regularly air supply line, especially such as joints between the muffler and engine, the air cleaner and throttle body, the inlet pipe and engine, etc. for leakage. Repair or replace them if necessary.

## CLUTCH (Fig.31)

- The free play should be 10-20mm and free clearance to be 3-4mm. Adjust as follows: loosen the locknut ① located at the clutch cable holder ② of crankcase and adjust it.
- Turning in direction A to decrease the free play, in direction B to increase.



**Fig.31**

- ① Locknut
- ② Clutch cable holder
- ③ Dust rubber

## DRIVE CHAIN (Fig.32)

### Check

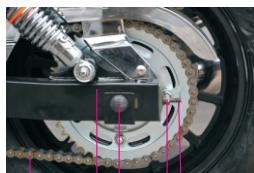
Check the drive chain for wear and slack. Lubricate the chain if it seems to be dry. Support the motorcycle with the center stand, check the slack in the lower chain run midway between the sprocket. Slack should be 10-20 mm.

### Adjustment

Loosen the rear axle locknut and drive chain adjuster locknut, turn the adjusting bolt to direction A will tighten the chain, to direction B will release it. Make sure the left and right adjusters align with the same index marks, check and tighten up the rear axle nut with a torque of 50~60N.m.

※ Check the chain for slack

※ If slack of chain is changed, recheck and readjustment to rear wheel should be conducted, because such change will influence the free play of rear brake.



① ② ③ ④ ⑤

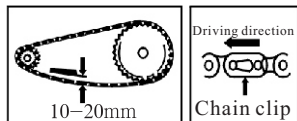


Fig. 32

①Chain ②Scale mark ③Locknut ④Adjusting bolt ⑤Rear axle

### Lubrication

Pull out the chain clip with pliers, remove the joint and chain. Wash the chain in cleansing solution and dry it in the air. Check the chain including link plates, bushing and rollers for damage, cracks, wear-out. Replace it if necessary. Lubricate the chain, then reinstall and adjust it.

**NOTE** The chain clip shall be installed as to make sure that its open end reverses to the direction of wheel rotation.

## FRONT BRAKE (Fig.33 & Fig.34)

### Check of Front Brake

The brake master cylinder is mounted on the right handlebar.

The parts on the brake caliper that connect with brake disc and conduct friction brake are called as disc brake shoes. It is necessary to replace the disc brake shoe as it wears to limit.

Place the motorcycle on the level ground. Check the brake fluid level from the sight glass. If the fluid level is below the LOWER, add brake fluid. Loosen the screw and remove the cylinder cover to add brake fluid.

**⚠ WARNING** Apply the specified brake fluid, or the braking effectiveness will be affected. Brake fluid may cause irritation. Avoid contacting with skin and eyes. In case of contact, flush thoroughly with water.

- ① Brake master cylinder
- ② Sight glass
- ③ Screw
- ④ Cylinder cover
- ⑤ Brake caliper

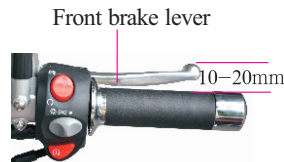
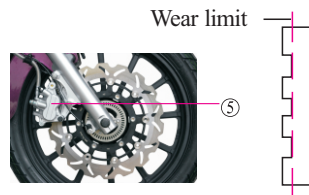


Fig.33



Fig.34



### Adjustment of Front Brake

Grasp the front brake lever until the counter force occurs, the free play should be maintained within 10~20 mm. Adjusting the free play as follows if necessary:

Apply continuously the front brake lever several times, then gently loosen the bleed valve while holding the lever. Tighten up the bleed valve as soon as the air in the oil cylinder is discharged completely. Repeat the procedure above until the required free play is reached.

Apply the brake several times and check for free wheel rotation after the brake lever is released.

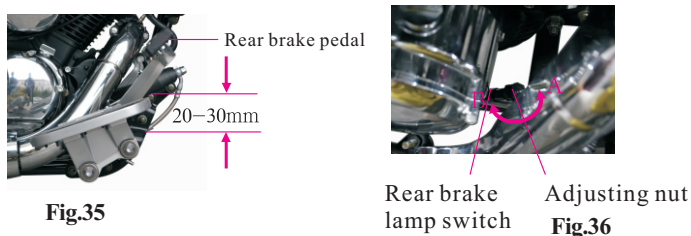
## REAR BRAKE (Fig.35)

Support the vehicle on its stand. Measure the distance from the rear brake pedal to the brake starts to engage. The free play should be 20–30 mm. Apply the rear brake pedal several times and check for free wheel rotation after the brake pedal is released.

**NOTE** See your dealer for help if the rear brake need to be adjusted.

## ADJUSTMENT OF REAR BRAKE LAMP SW. (Fig.36)

The rear brake lamp switch is located on the right-front of frame. Adjusting method: Turn the adjusting nut ② to direction B if the lamp lights too late, and to direction A if it lights too early.



## HOW TO USE BRAKE WEAR INDICATOR

(Fig.37 & 38)

Replace the front/rear break shoes if they are wear out.

## FRONT/REAR SHOCK ABSORBER AND SUSPENSION

Support the motorcycle on the center stand, pull in the front brake lever to lock the front wheel, pump the front/rear shock absorber up and down several times to see if functions well without noise or leakage, also the front suspension should be stable. Check the rear fork bushing for proper play by pressing the side of rear wheel. Make sure that all of the fasteners are tightened securely.

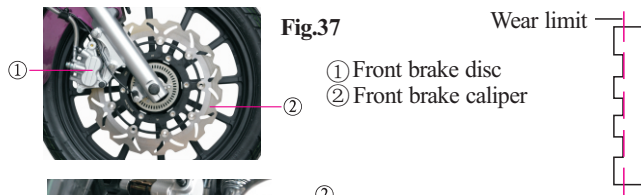


Fig.37

- ① Front brake disc
- ② Front brake caliper

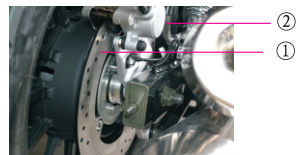


Fig.38

- ① Rear brake disc
- ② Rear brake caliper

## TYRE

Proper air pressure will provide optimum stability, comfortable riding and prolong the tyre life.

Tyre Pressure (KPa)		
Rider	Front tyre:200	Rear tyre:225
Rider & passenger	Front tyre:225	Rear tyre:250
Tyre size	Front tyre:90/90-18-4PR	Rear tyre:130/90-15-6PR

**⚠ WARNING** Operation with excessively worn tyres is hazardous and will adversely affect traction and handling.

**NOTE** Tyre pressure should be checked before you ride while the tyres are cold. Check the tyres for cuts, embedded nails, or other sharp objects. Check the rims for bent or deformation. See your dealer for repair or change if any damages occurred.

**⚠ CAUTION** Improper tyre inflation will cause abnormal tread wear or cause safety hazard. Tyre pressure less than the rated value may result in slipping wheel on the ground or coming off from the rim.

When the tread depth in the middle section of tyres reached limits below, please replace them.

Tread Depth Limits			
Front tyre	1.6mm	Rear tyre	2.0mm

## FRONT WHEEL (Fig.39)

Prop up the motorcycle with supports when remove the front wheel. Extract the front axle and remove the front wheel.

**⚠ CAUTION** To avoid falling over, the supports should be high and strong enough to stable the motorcycle.

## REAR WHEEL (Fig.40)

Support the motorcycle with its stands. Unscrew the rear brake caliper bolt and remove the rear brake caliper. Loosen both the lock-nuts of chain adjuster and the rear axle nut. Take out the drive chain clip and rear axle nut, extract the rear axle. Finally remove the rear wheel.

**NOTE** Installation shall be done in the reverse order of removal. Tightening torque of rear axle nut : 50~60N.m. Adjusting rear brake and chain according to the related items in the manual.

**⚠ CAUTION** To avoid falling over, the supports should be high and strong enough to stable the motorcycle.

## FUSE (Fig.41)

The fuse is positioned under the front seat. It will blow to protect the circuit



Front axle

Fig.39

automatically in the case of troubles such as a short circuit or an overload. After the troubleshooting, fit a new fuse available in the fuse box.

## BATTERY (EP) (Fig.42)

The battery is located under the front seat. The battery stores the electric power yielded by generator as well as supplying power to starting, lighting and signal system. The function of battery will affect power storage and power supplying to electrical appliance directly. A fault occurred in the battery may cause poor illumination, disable signal system and weak starting, etc..

Maintain the battery in accordance with the MAINTENANCE SCHEDULE and PRE-RIDE INSPECTION in the manual.

The motorcycle is equipped with a maintenance-free battery, for the new battery need to add electrolyte at the first time, please do as follows (Fig.43-1 & 43-2):

- (1)Take out the battery and electrolyte container from the package box.
- (2)Remove the plastic cover from the electrolyte container and set aside.
- (3)Place the battery on a flat, level surface and turn over the electrolyte container, align inlets of the battery to outlets of container, push the container down strongly enough to break the aluminum foil seals, let electrolyte flows into battery.
- (4)This done, put the cover of container onto inlets of battery, and gently tap the caps with a rubber hammer.
- (5)Install the battery in the motorcycle after standing more than 30 minutes.

Adjusting nut

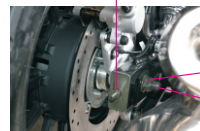
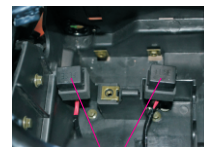


Fig.40

Rear axle nut

Rear axle



Fuse Fig.41



Fig.42



Fig.43-1 Battery Cover 6-Container



Electrolyte filling process:

1. Aligning with the inlets
2. Filling
3. Covering

Fig.43-2

#### ⚠ CAUTION

1. The battery contains sulfuric acid (the main component of electrolyte) which is strong corrosive. Be careful when filling the electrolyte. Contacting with skin may cause severe burns. If such case occurs, flush with water immediately and see a doctor if necessary.
2. When the filling of electrolyte is finished, do not take off the cover in any case.
3. Maintain the battery according to the OPERATION INSTRUCTIONS OF BATTERY.

4. Hand in the used battery to your local qualified recycling organization or dealer to collect.

#### ⚠ WARNING

If the battery is to be removed, disconnect the negative lead “-” from the battery terminal first, and then the position lead “+”. Connection should be done in the reverse order of removal. Do not contact the positive lead with the vehicle body to prevent short-circuiting. The leads should be tightened securely, or spark may occur to cause a fire. Keep out of reach of children. Do not use a new battery until taking a 30-minute waiting after adding electrolyte. Charge the battery at a rate less than 1A for 10-15 hours if necessary. For prolonging the battery service life, refer to OPERATION INSTRUCTION OF BATTERY.


# TROUBLESHOOTING, STORAGE AND OPTIONAL PARTS

## TROUBLESHOOTING

If the engine fails to start, do checks as follows:

1. Is there enough fuel in the tank?
2. Does the fuel pump work properly?
3. Disconnect the fuel injector from the intake pipe, operate the starter button to see if fuel inject out ?
4. If OK, check the ignition system.

**⚠ CAUTION** Do not allow fuel to flow at will. Fuel should be collected in the retainer. Do not close the fuel to high-temperature engine and exhaust pipe. Do not smoke or allow flames or sparks in the area where the engine is subjected to check.

1. Remove the spark plug from the cylinder head, and connect it with the spark plug cap.
2. Fix the spark plug on the vehicle body. Turn the ignition switch on, set the emergency switch to “” position. Press the starter button. If the ignition system is normal, the sparks at the electrode gap will be in blue. If there are no sparks, see your dealer for help.

### Engine Stalls When Decelerating (Gliding, Gearshift)

1. Make sure the power supply of ECU does not cut by turning off the ignition switch, especially for the vehicles which installed anti-theft alarm by users themselves.
2. Washing throttle valve body and idle air control valve.
3. Check the valve train and ignition system of engine.

### Difficult to Cold Start

1. Check the battery voltage: the voltage should be higher than 9V when starting. The fuel pressure should be 250Kpa.
2. Check the high voltage wire, replace the spark plug, and wash the fuel injector and throttle valve body.

3. After a long time storage, fuel colloid and dried lubricant make it's hard to cold start. Please change the fuel.

4. Because of a low fuel RVP, amount of carbon deposit caused by inefficient burning will cause the engine knocking. Also carbon deposit will change the air-fuel ratio and compression ratio, which make the engine difficult to cold start.

5. Clean the valves and clear away carbon deposits around the piston. Replace the piston if damages occurred. Adjusting the valve clearance.

6. Because of inefficient burning or low fuel quality, the aged or blocked 3-way catalytic converter will make the engine difficult to cold start. Please replace the muffler at this case.

7. Poor connection of ground wire-Check the ground wire of EFI system carefully, and make sure that it connect to the engine as required.

### Weak Acceleration

1. Check the fuel level and fuel filter.
  2. Check the exhaust system for clog. For instance, the 3-way catalytic converter may be clogged by engine oil burning or broken.
- At the normal idle speed, the pressure of intake manifold is higher than 60Kpa.

3. Check the fuel pressure for 250Kpa and wash the fuel outlet port.
4. Check other mechanical resistance in the vehicle body.

**NOTE** See your local dealer for help if the problems listed above can not be solved by yourself.

## CLEANING AND STORAGE

### Cleaning

1. Check the spark plug and fuel inlets for proper installation before cleaning the vehicle.
2. Hose dirt and oil stains on the motorcycle.

3. Dry the motorcycle with a clean towel or a soft sponge cloth.
4. Lubricate the drive chain immediately after drying it.
5. Start the engine, and keep it running at idle speed for several minutes.

**NOTE** High-pressure water may damage certain parts such as wheel bearings, front fork, brakes, seal of transmission, electric equipment, etc. Prevent the muffler from getting in water, the spark plug from being wetted down when washing the vehicle.

#### **Storage**

Take some measures as following if the vehicle will be stored for 60 days or more.

1. Empty the fuel tank, carburetor and other pipes.
2. Drive off the spark plug, pour a bit of engine oil SAE15W/40-SJ into the engine, then fit the spark plug again. Turn off the emergency switch and run the engine several times by pressing the starter button to scatter evenly the oil inside the cylinder.

**NOTE** Remove the spark plug cap and connect it to earth to prevent spark.

3. Remove the drive chain, clean and oil it.
4. Lubricate all of the controlling cables.
5. Rise the vehicle frame so that the whole vehicle including both wheels is higher than the ground.
6. Seal the muffler outlet with a plastic bag to prevent the former against moisture.
7. Coat all surfaces of bare metal with a thin layer of rust-resisting oil if the motorcycle is stored in moist and salty regions.
8. Dismantle the battery and store in a dry, cool and well-ventilated place. Charge the battery monthly in course of storage.

#### **REMOVE FROM STORAGE**

After long-term storing the motorcycle, check, adjust and service it according to requirements stated in the manual to make sure the motorcycle

functions properly. Try the vehicle. Make sure the motorcycle fulfill the requirements before riding.

#### **MOTORCYCLE ALARM (Optional)**

1. Before using the remote-controller, be sure that the vehicle is in neutral and the ignition switch is turned off.
2. Electric starting by the remote-controller only warms up the engine, and the engine will stop automatically in 2.5 minutes.
3. Don't apply both the front and rear brakes after starting the engine by the remote-controller and before turning on the ignition switch, otherwise, the starting motor will run once more.
4. Don't ride without the key to insure that the function of anti-theft is reliable enough.

**NOTE** The anti-theft alarm is an optional part, please select it as required.

# TROUBLESHOOTING

	TROUBLE		POSSIBLE CAUSES		REMEDY		
Engine is hard to start or shuts down	Fuel pump fails to function		System to run out of electricity or no electricity at the pump outlet		Check the battery, fuse, pump relay, wiring harness for connection or replace the ECU		
			There is power in fuel pump plug	Fuel pump damaged	Replace the pump		
				Voltage below level	Check the battery, relay and wire connection		
	Fuel pump functions		No fuel pressure		Wires connected incorrectly	Reconnected	
					Voltage below level	Charge or replace the battery	
					Lack of fuel	Add fuel and the amount should be not less than 4L in fuel tank	
					Fuel line blocked seriously	Check the fuel pump screen	
					Fuel pressure regulator failure	Replace the fuel pressure regulator	
			Abnormal fuel pressure		Fuel leakage through line		Replace the failure part
					Fuel line blocked		Check the fuel pump screen
					Fuel pump or pressure regulator failure		Replace the fuel pump or pressure regulator
					Voltage below level		Check the battery, rectifier, magneto
			Normal fuel pressure	With ignition high voltage	Spark plug wet		Remove and dry the spark plug, rotate for several times
					Electric leakage through insulation of spark plug		Replace the spark plug
					Loosen spark plug		Tighten up
					Small spark plug gap		Adjust to standard value

				Spark plug cap connected poorly or electric leakage	Adjust or replace
				Wires failure or connectors poorly	Check the wiring harness, throttle position sensor for connecting properly
				Engine temperature sensor damaged	Replace
				Engine failure	Check the throttle, piston ring, etc.
			No ignition high voltage or cutoff	Ignition circuit connected poorly	Check and repair
				Gap of magneto exciter coil is too big	Adjust the cap
				Ignition coil damaged	Replace
				Electric leakage of ignition coil	Replace the boot or ignition coil
				ECU or wiring harness connectors in poor connection	Check and connect reliably
				Clogged injector	Replace
			Unstable idle speed	Lack of voltage	Check the battery or charging system
				ECU or injector connectors connected improperly	Check and connect reliably
				Air leakage from throttle	Check the pad, O-ring or throttle body for installing properly
				Deposits in throttle body or air cleaner clogged	Clean
				Fuel flow restricted	Check the fuel in fuel tank and fuel filter, fuel line for clogs
				Poor quality fuel	Replace the fuel to unleaded gasoline with RQ-92 or higher
				Loosen spark plug	Tighten up
				Small spark plug gap	Adjust to the standard value
				Spark plug cap connected poorly or electric leakage	Adjust or replace
				Electric leakage through the insulation of spark plug	Replace the spark plug

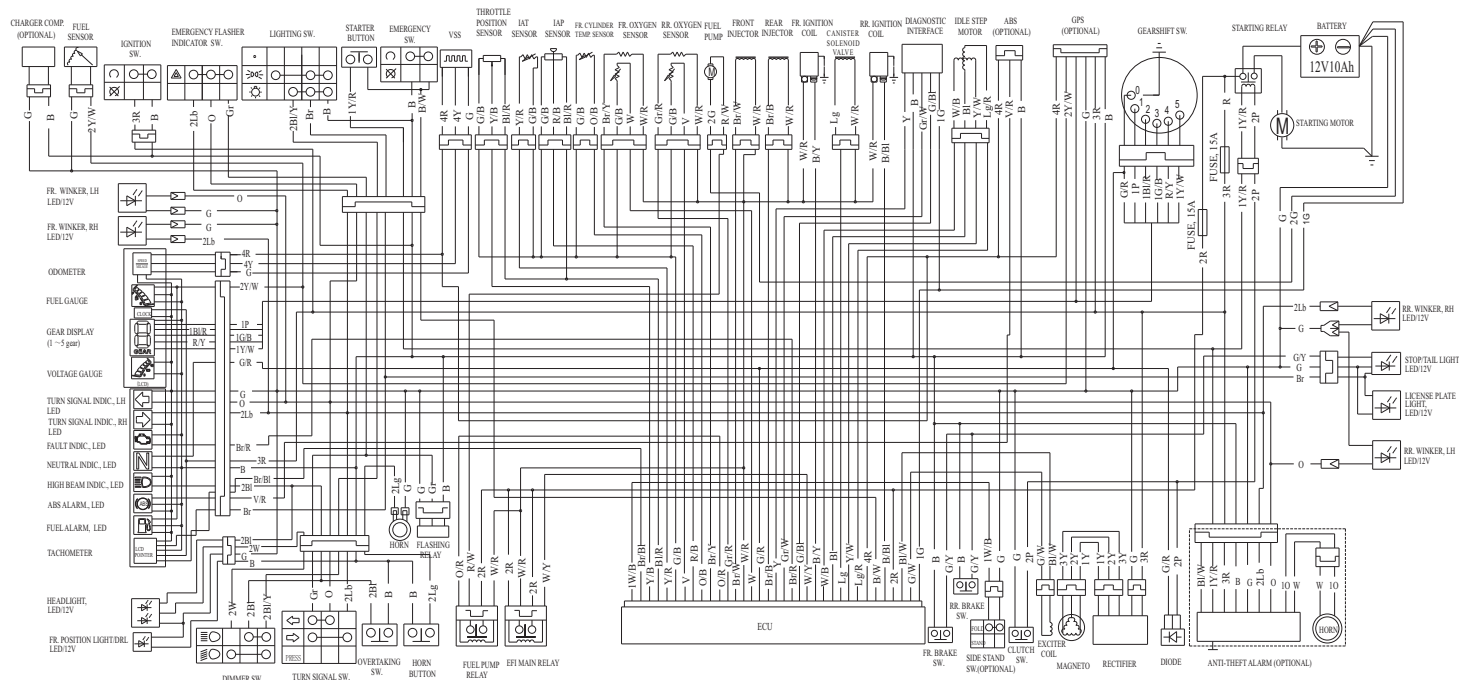
	Faulty engine such as the valve gap is too small	Adjust the valve gap and check the engine
	Leakage from joints between muffler and oxygen sensor	Check the muffler pad
	Air flow restricted or leakage of idle control valve	Check or replace
Abnormal noise or pinging from engine	Over-heat of engine	Cool down, avoid driving at a high speed for a long time
	Poor spark plug	Replace
	Carbon deposited on the cylinder heavily	Remove and clean away
	Engine connecting rod worn heavily	Replace
	Piston rod worn seriously	Replace
	Crank worn	Replace
	Crankcase worn	Replace
	Foreign matters get in the engine	Check and clean away
	Heavily carbon deposits on the exhaust pipe	Clean away
	Others	Clean off
Lack of power	Clogged air cleaner	Clean off
	Heavily carbon deposits on the combustion chamber and exhaust pipe	Clean away
	Piston and cylinder worn, the gap is too big	Replace the cylinder or piston
	Clutch slipping	Adjust or repair

	Clogged fuel line or lower fuel pressure	Check, clean or replace the fuel prefilter, fuel precision filter, pressure regulator , fuel pump or injector nozzle
Large fuel consumption	Leakage through fuel line	Repair
	Faulty engine	Repair or replace
	Engine temperature sensor damaged	Replace
	Fuel pump damaged	Replace
	Clogged air cleaner	Clean off
	Poor quality fuel	Use unleaded gasoline with RQ-90 or RQ-92
Lower fuel pressure or clogged line	Clogged fuel prefilter	Clean or replace. Don't contaminate the outlet port
	Clogged fuel precision filter	Clean or replace. Don't contaminate the outlet port
	Fuel pressure regulator fails to function	Replace
	Fuel pump fails to function	Replace
Lower voltage in the system	Circuit connected improperly	Check
	Rectifier is not charged	Check or replace
	Magneto functions improperly	Check it for short-circuit
	Battery is aged	Service or replace
	Electricity consumption is too large	Avoid driving at a lower speed for a long time
Leakage through the engine inlet manifold	Leakage between the inlet manifold and cylinder head	Check the pad and O-ring, fit them properly
	Leakage between the inlet manifold and injector	Check the O-ring
	Sand holes in the inlet manifold	Replace

# FAULT FEEDBACK OF EFI MOTORCYCLE

Customer Name		Purchase Time		VIN	
Address		ECU Number		Engine Code	
Telephone		Vehicle Type		Mileage	
Fault Frequency		<input type="checkbox"/> Often <input type="checkbox"/> Sometimes <input type="checkbox"/> Only once <input type="checkbox"/> Other			
Fault Occurrence Condition	Climate	<input type="checkbox"/> Winter <input type="checkbox"/> Summer <input type="checkbox"/> Sunny <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy <input type="checkbox"/> Snow <input type="checkbox"/> Other			
	Driving Terrain	<input type="checkbox"/> Highway <input type="checkbox"/> Ordinary road <input type="checkbox"/> Rough road <input type="checkbox"/> Plain <input type="checkbox"/> Highland <input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Other			
	Engine Temperature	<input type="checkbox"/> Cold <input type="checkbox"/> Warm up <input type="checkbox"/> Warm <input type="checkbox"/> Any <input type="checkbox"/> Other			
	Engine working condition	<input type="checkbox"/> In starting <input type="checkbox"/> After starting <input type="checkbox"/> Idling&no-load <input type="checkbox"/> In driving    ( <input type="checkbox"/> Constant speed <input type="checkbox"/> Acceleration <input type="checkbox"/> Deceleration) <input type="checkbox"/> Other			
Fault Phenomenon	<input type="checkbox"/> Fail to start	<input type="checkbox"/> Unable to start <input type="checkbox"/> Without starting sign <input type="checkbox"/> With starting sign			
	<input type="checkbox"/> Hard to start	<input type="checkbox"/> Low rotate speed <input type="checkbox"/> Other			
	<input type="checkbox"/> Improper idle speed	<input type="checkbox"/> Unsatable <input type="checkbox"/> High <input type="checkbox"/> Low <input type="checkbox"/> Rough <input type="checkbox"/> Other			
	<input type="checkbox"/> Lack of power	<input type="checkbox"/> Hesitating acceleration <input type="checkbox"/> Tempering <input type="checkbox"/> Blowout <input type="checkbox"/> Futter <input type="checkbox"/> Knocking <input type="checkbox"/> Other			
	<input type="checkbox"/> Fire off	<input type="checkbox"/> At once <input type="checkbox"/> Acceleration <input type="checkbox"/> Oil return <input type="checkbox"/> Engage <input type="checkbox"/> Other			
	<input type="checkbox"/> Other				
Suggestions					

# ELECTRIC DIAGRAM



# SPECIFICATIONS

Vehicle type	250-D
1.Dimensions	
Overall dim.(L×B×H),mm	2300×1000×1100
Steering bar angle, <sup>o</sup>	43
Ground clearance, mm	160
Turning circle dia.,mm	4800
Wheelbase, mm	1520
Kerb weight, kg	175
Max. load capacity, kg	150
Max. design speed, km/h	≥120
Economical fuel cons.,L/100Km	≤2.9
Grade ability, <sup>o</sup>	≥20
Front tyre size/pressure	90/90-18-4PR/225KPa
Rear tyre size/pressure	130/90-15-6PR/250KPa
Front shock absorber	Hydraulic damping type
Rear shock absorber	Spring hydraulic type
Front brake	Disc
Rear brake	Disc
Fuel filler capacity, L	14
2. Engine	
Model	2V49FMM-P
Type	Double cylinder, 4-stroke, air-cooled
Bore×Stroke,mm	49×66
Displacement, mL	249
Compression ratio	10.0:1
Starting mode	Electric starter

Ignition mode	Digital ignition
Max. net power, KW/r/min	13.0/8000
Max. torque, N. m/ r/min	19.0/6000
Engine oil	SAE15W/40-SJ
Engine oil capacity, L	1.7
Lubrication	Press/splash
Fuel	Unleaded gasoline with RQ-92 or higher
Clutch type	Wet multi-plate
Transmission type	5-speed , constant mesh
Primary gear ratio	3.130
Gear ratio, 1st(I1)	2.642
Gear ratio, 2nd(I2)	1.684
Gear ratio , 3rd(I3)	1.260
Gear ratio, 4th(I4)	1.000
Gear ratio,5th(I5)	0.821
Final gear ratio,(If)	2.8125
3. Electric equipment	
Battery	12V10Ah
Spark plug	CR6HSA
Headlight	12V, LED
Winker	12V, LED
Tail/Stop light	12V, LED
Horn	Electric, 12V
Odometer light	12V, LED
Fuse, A	15