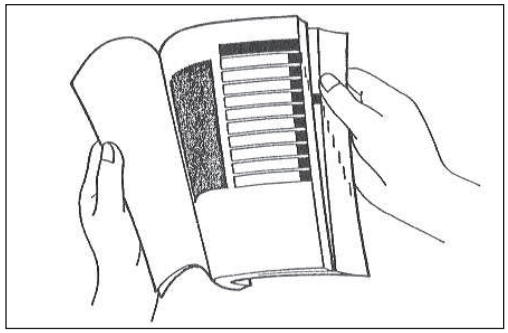
HOW TO USE THIS MANUAL

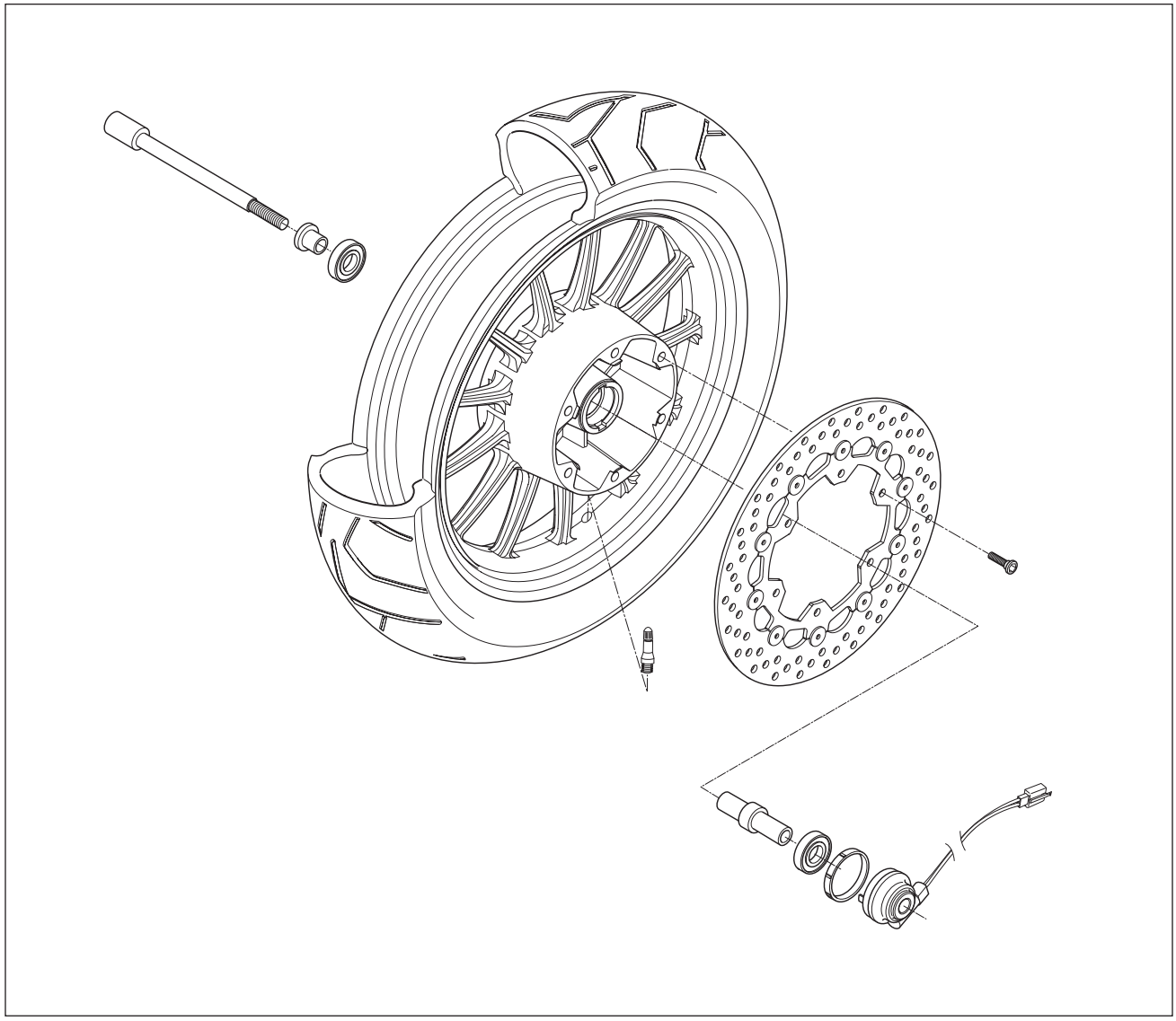
TO LOCATE WHAT YOU ARE LOOKING FOR :

1. The text of this manual is divided into sections.
2. As the title of these sections is 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. The meaning of each symbol is also included in the table.

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.		Measure in diode test range.
	Apply BOND “1215”.		Measure in continuity test range.
	Use fork oil.		Use special tool.
	Use engine coolant.		

외 관 사 진

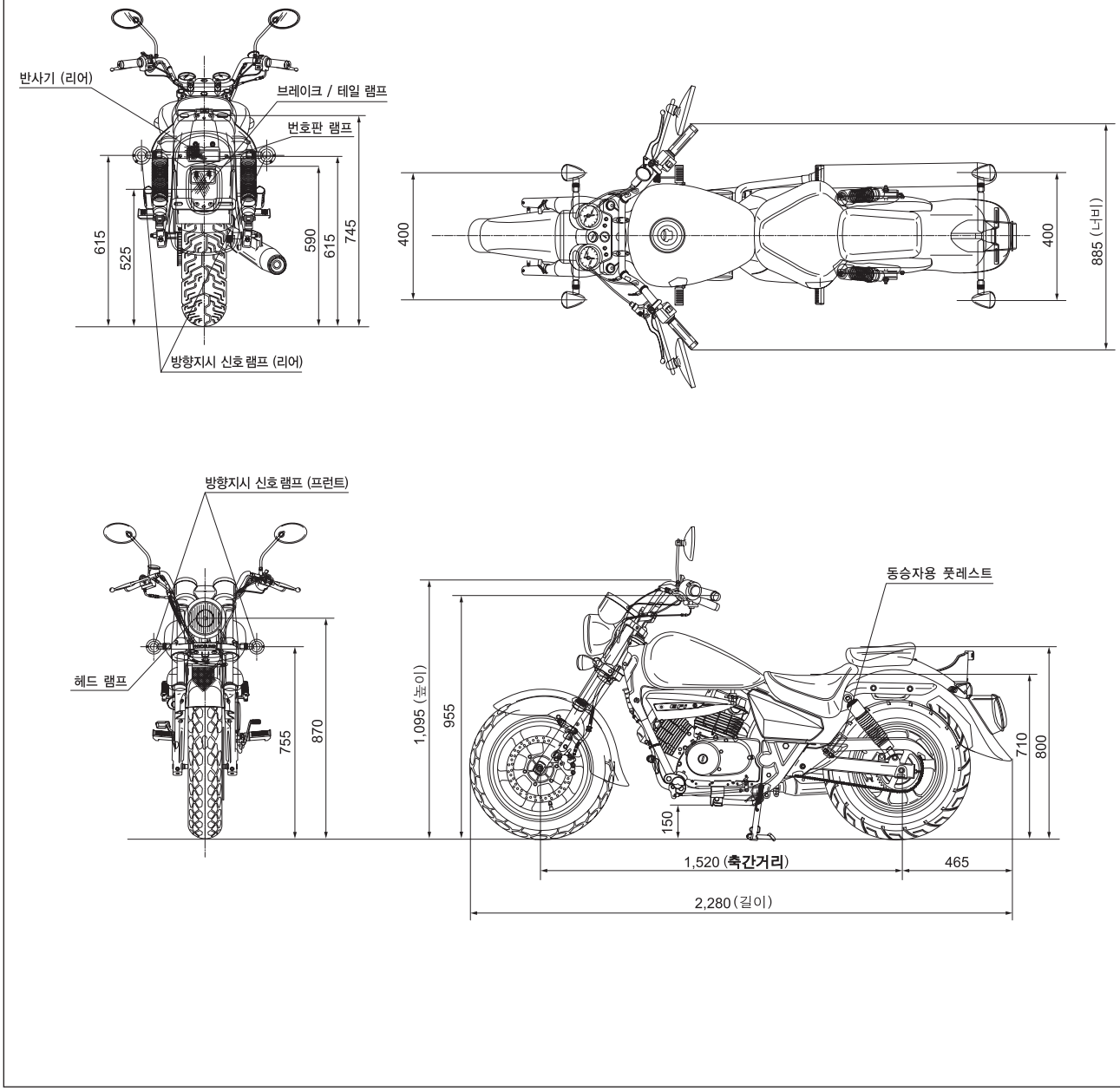
Mirage 250 EJ D spec

외 관 사 진

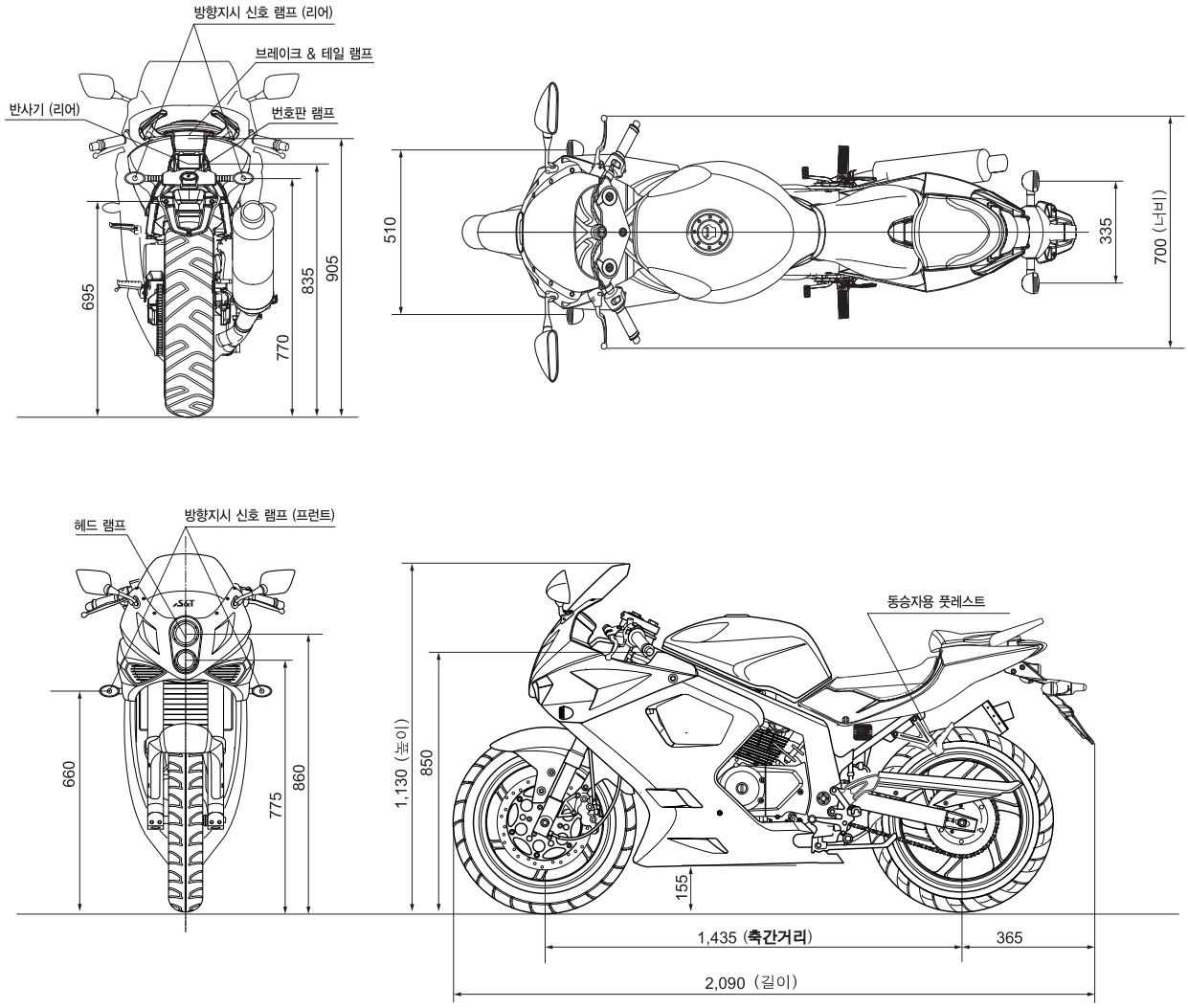
Comet 250R EJ D spec

Comet 250P EJ D spec

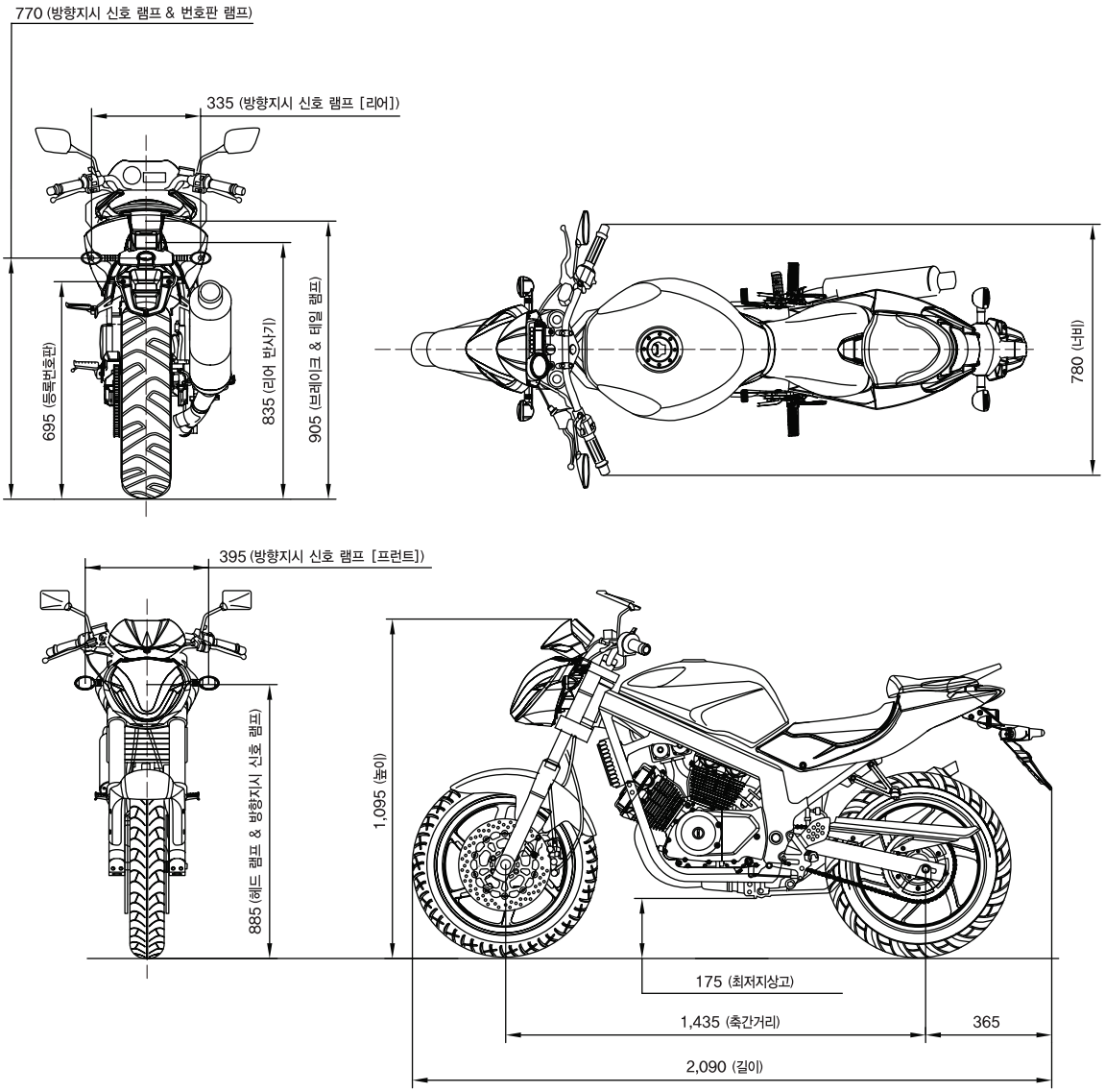
외관사면도 [*Mirage 250 EJ* D spec]



외관사면도 [Comet 250R EFi D spec]



외관사면도 [Comet 250 P EJ D spec]



ABBREVIATIONS USED IN THIS MANUAL

A

ABDC	: After Bottom Dead Center
AC	: Alternating Current
API	: American Petroleum Institute
ATDC	: After Top Dead Center

B

BBDC	: Before Bottom Dead Center
BDC	: Bettom Dead Center
BTDC	: Before Top Dead Center

D

DC	: Direct Current
DOHC	: Double Over Head Camshaft

E

ECU	: Engine Control Unit, EI Control Unit
EI	: Electric fuel Injection, Electric fuel Injector

F

FP	: Fuel Pump

G

GP Switch	: Gear Position Switch

I

IAP Sensor	: Intake Air Pressure Sensor (IAPS)
IAT Sensor	: Intake Air Temperature Sensor (IATS)
IG	: Ignition
ISC Solenoid	: Idle Speed Control Solenoid

L

LCD	: Liquid Crystal Display
LED	: Light Emitting Diode
LH	: Left Hand

M

Max	: Maximum
Min	: Minimum

O

O_2 Sensor	: Oxygen Sensor (O_2S)

P

PV	: Purge control Valve

R

RH	: Right Hand
RO Switch	: Roll Over Switch

S

SAE	: Society of Automotive Engineers
SAV Solenoid	: Secondary Air Valve Solenoid

T

TDC	: Top Dead Center
TP Sensor	: Throttle Position Sensor (TPS)

W

WT Sensor	: Water Temperature Sensor (WTS)

WIRE COLOR

B	: Black	Gr	: Gray	Sb	: Light blue
L	: Blue	Lg	: Light green	W	: White
Br	: Brown	O	: Orange	Y	: Yellow
G	: Green	R	: Red		

BL	: Black with Blue tracer	BBr	: Black with Brown tracer
BG	: Black with Green tracer	BO	: Black with Orange tracer
BR	: Black with Red tracer	BW	: Black with White tracer
BY	: Black with Yellow tracer	LB	: Blue with Black tracer
LG	: Blue with Green tracer	LR	: Blue with Red tracer
LW	: Blue with White tracer	LY	: Blue with Yellow tracer
BrB	: Brown with Black tracer	BrW	: Brown with White tracer
GB	: Green with Black tracer	GR	: Green with Red tracer
GY	: Green with Yellow tracer	GrB	: Gray with Black tracer
GrR	: Gray with Red tracer	GrW	: Gray with White tracer
OB	: Orange with Black tracer	OL	: Orange with Blue tracer
OG	: Orange with Green tracer	OR	: Orange with Red tracer
OW	: Orange with White tracer	OY	: Orange with Yellow tracer
RB	: Red with Black tracer	RW	: Red with White tracer
WB	: White with Black tracer	WL	: White with Blue tracer
WR	: White with Red tracer	YB	: Yellow with Black tracer
YL	: Yellow with Blue tracer	YG	: Yellow with Green tracer
YR	: Yellow with Red tracer		

EI SYSTEM DIAGNOSIS

CONTENTS

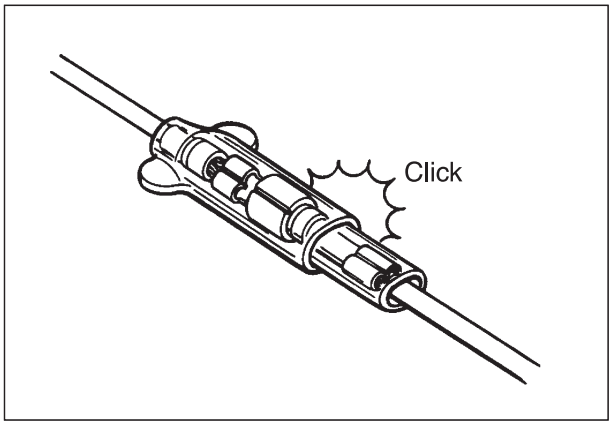
PRECAUTIONS IN SERVICING

When handling the component parts or servicing the EI system, observe the following points for the safety of the system.

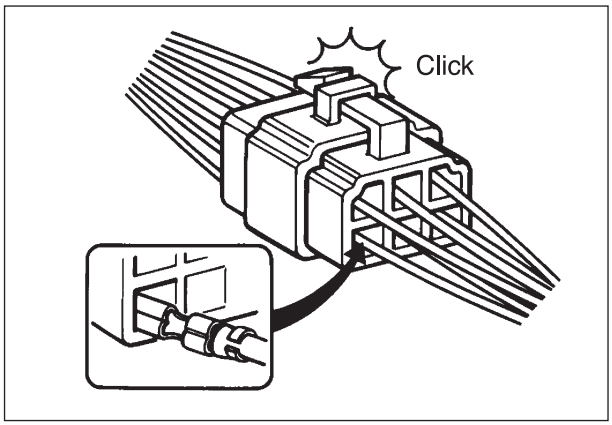
⊙ ELECTRICAL PARTS

▣ CONNECTOR / COUPLER

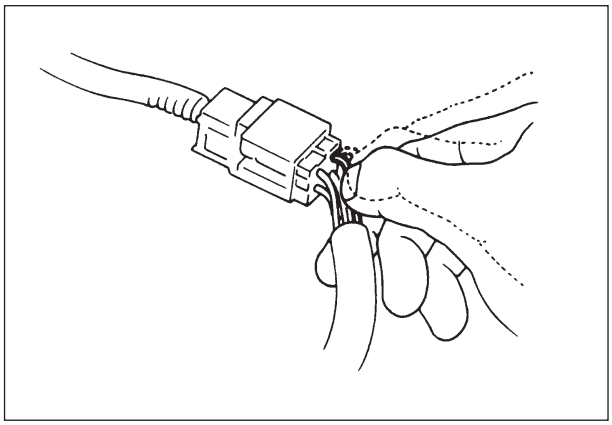
- When connecting a connector, be sure to push it in until a click is felt.
- With a lock type coupler, be sure to release the lock when disconnecting, and push it in fully till the works when connecting it.
- When disconnecting the coupler, be sure to hold the coupler body and do not pull the lead wires.
- Inspect each terminal on the connector / coupler for looseness or bending.



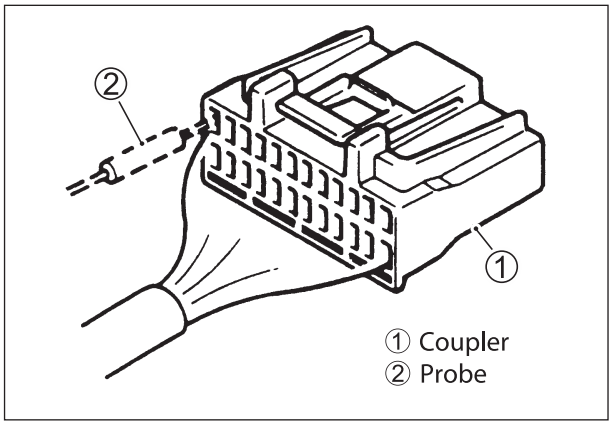
- Inspect each terminal for corrosion and contamination.
  The terminals must be clean and free of any foreign material which could impede proper terminal contact.



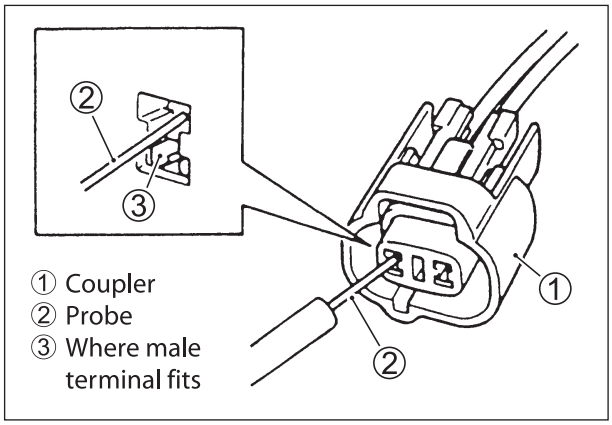
- Inspect each lead wire circuit for poor connection by shaking it by hand lightly. If any abnormal condition is found, repair or replace.



- When taking measurements at electrical connectors using a tester probe, be sure to insert the probe from the wire harness side (backside) of the connector / coupler.

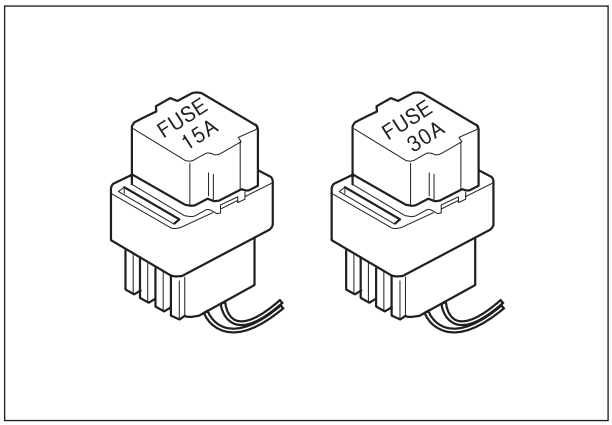


- When connecting meter probe from the terminal side of the coupler (connection from harness side not being possible), use extra care not to force and cause the male terminal to bend or the female terminal to open.
  Connect the probe as shown to avoid opening of female terminal.
  Never push in the probe where male terminal is supposed to fit.
- Check the male connector for bend and female connector for excessive opening. Also check the coupler for locking (looseness), corrosion, dust, etc.



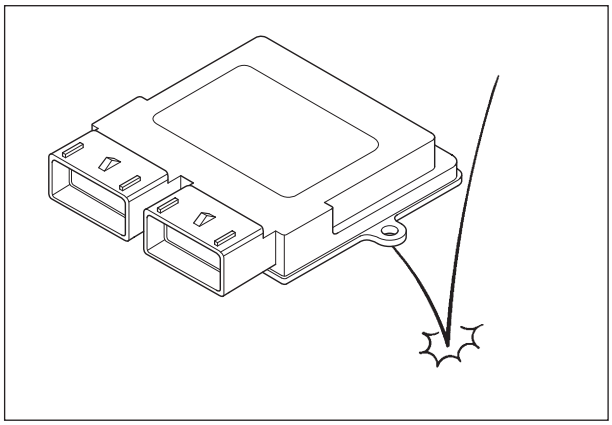
⊙ FUSE

- When a fuse blows, always investigate the cause to correct it and then replace the fuse.
- Do not use a fuse of a different capacity.
- Do not use wire or any other substitute for the fuse.

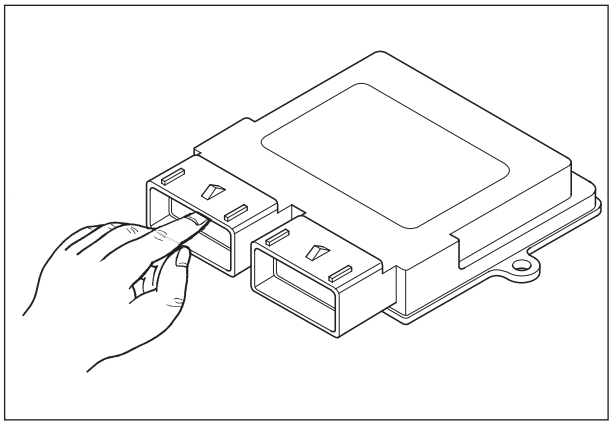


⊙ ECU / VARIOUS SENSORS

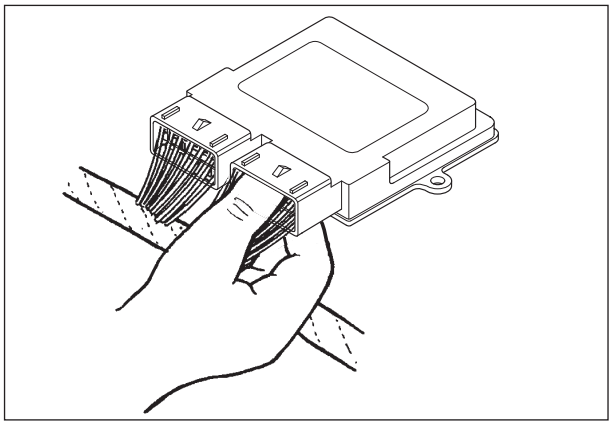
- Since each component is a high-precision part, great care should be taken not to apply any sharp impacts during removal and installation.



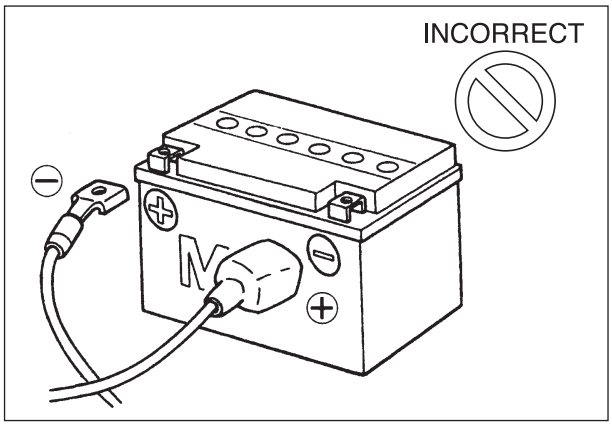
- Be careful not to touch the electrical terminals of the ECU.
  The static electricity from your body may damage this part.



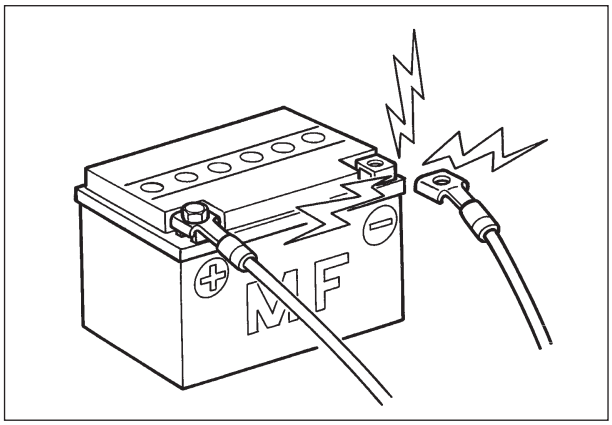
● When disconnecting and connecting the ECU, make sure to turn “OFF” the ignition switch, or electronic parts may get damaged.



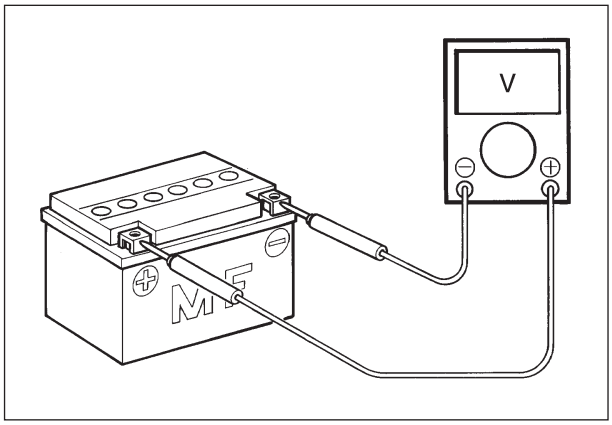
● Battery connection in reverse polarity is strictly prohibited.
Such a wrong connection will damage the components of the EI system instantly when reverse power is applied.



● Removing any battery terminal of a running engine is strictly prohibited.
The moment such removal is made, damaging counter electromotive force will be applied to the ECU which may result in serious damage.



● Before measuring voltage at each terminal, check to make sure that battery voltage is 11 V or higher. Terminal voltage check at low battery voltage will lead to erroneous diagnosis.



- Never connect an ohmmeter to the ECU with its coupler connected. If attempted, damage to the ECU or sensors may result.
- Be sure to use a specified voltmeter / ohmmeter. Otherwise, accurate measurements may not be obtained and personal injury may result.

⊙ USING TESTERS

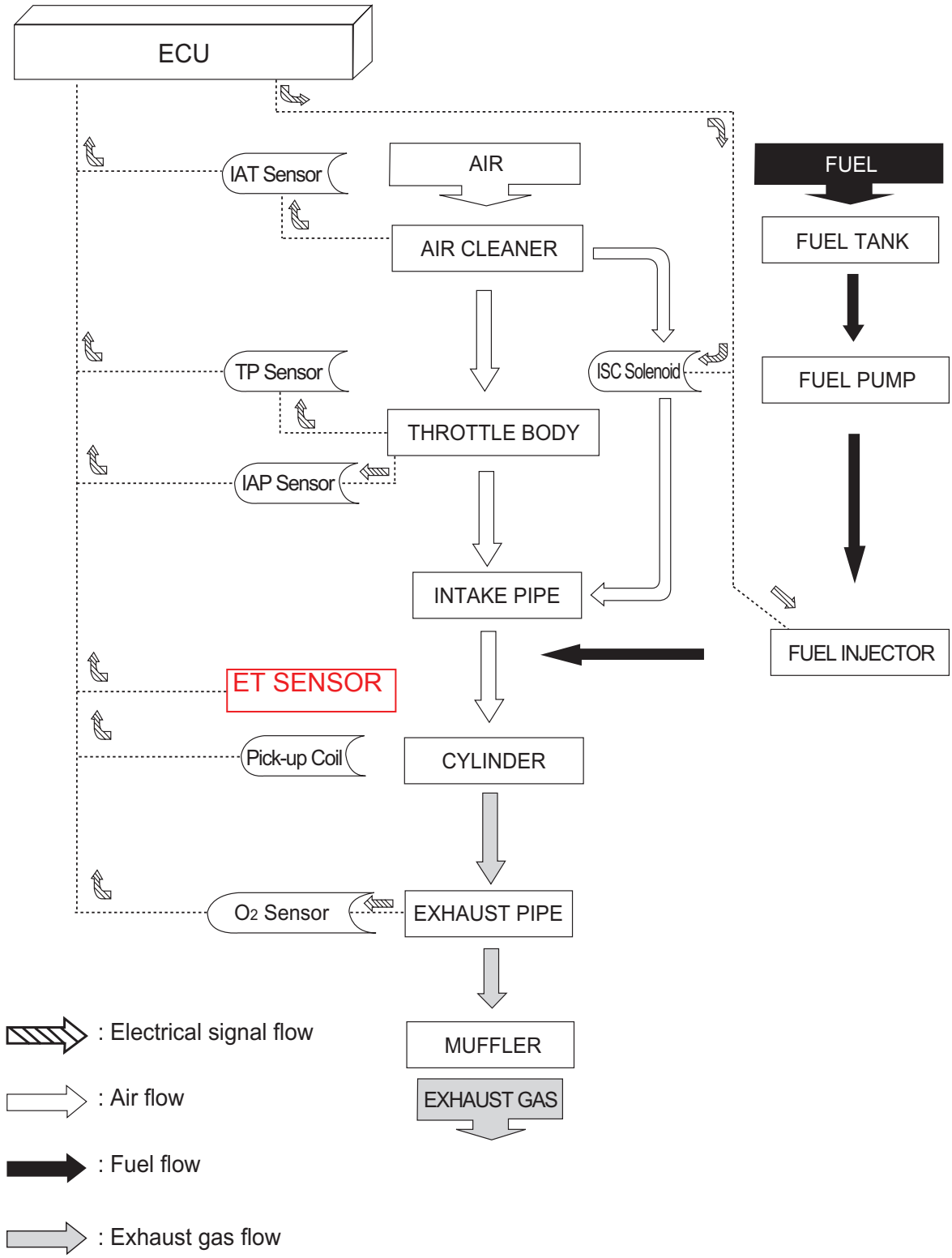
- Use well-charged batteries in the tester.
- Be sure to set the tester to the correct testing range.

▣ USING THE TESTER

- Incorrectly connecting the ⊕ and ⊖ probes may cause the inside of the tester to burnout.
- If the voltage and current are not known, make measurements using the highest range.
- After using the tester, turn the power off.

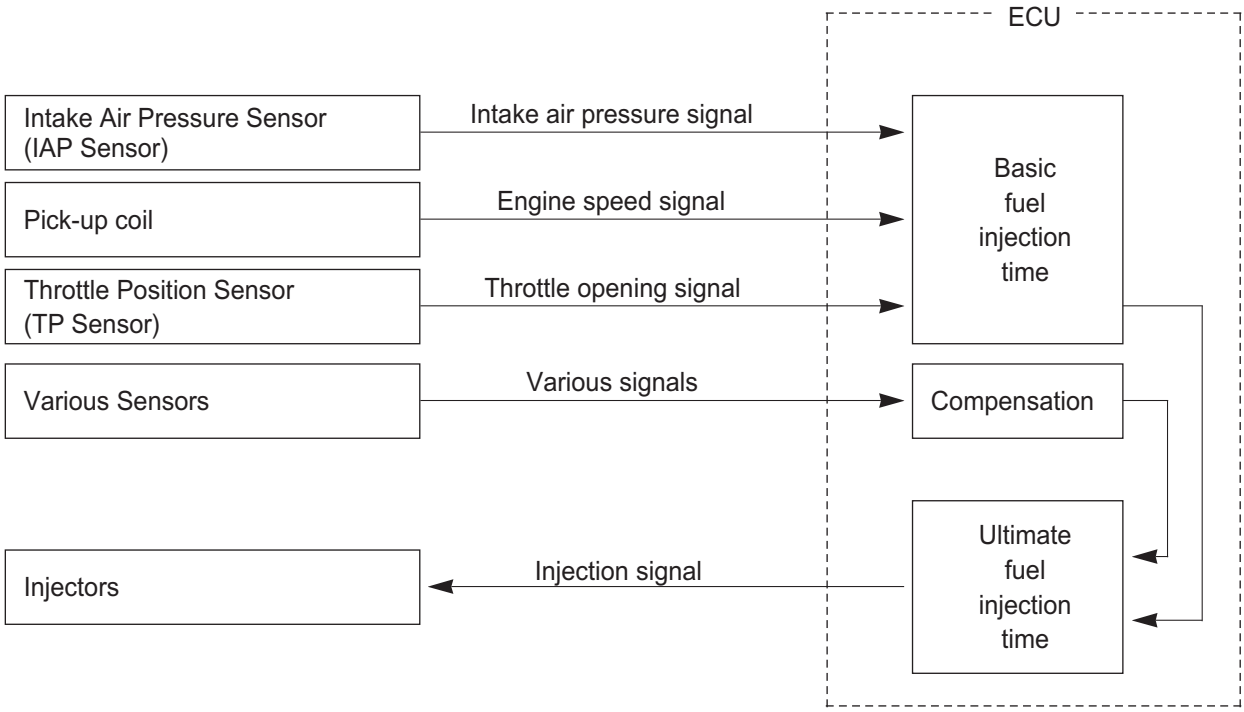
EI SYSTEM TECHNICAL FEATURES

⊙ EI SYSTEM'S CONTROL DIAGRAM



⊙ INJECTION TIME (INJECTION VOLUME)

The factors to determine the injection time include the basic fuel injection time, which is calculated on the basis of intake air pressure, engine speed and throttle opening angle, and various compensations.
These compensations are determined according to the signals from various sensors that detect the engine and driving conditions.



⊙ COMPENSATION OF INJECTION TIME (VOLUME)

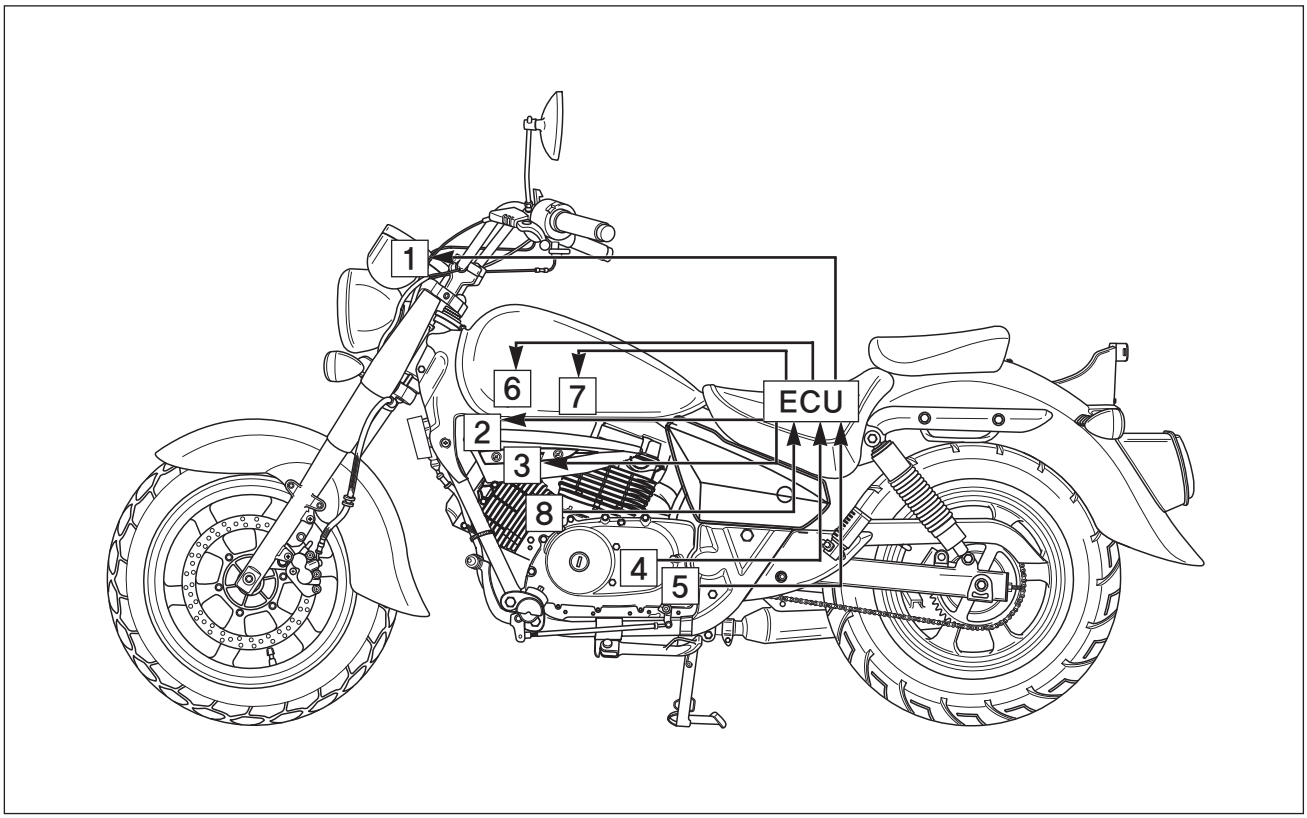
The following different signals are output from the respective sensors for compensation of the fuel injection time (volume).

SIGNAL	DESCRIPTION
WATER COOLANT TEMPERATURE SENSOR SIGNAL	When engine coolant temperature is low, injection time (volume) is increased.
INTAKE AIR TEMPERATURE SENSOR SIGNAL	When intake air temperature is low, injection time (volume) is increased.
BATTERY VOLTAGE SIGNAL	ECU operates on the battery voltage and at the same time, it monitors the voltage signal for compensation of the fuel injection time (volume). A longer injection time is needed to adjust injection volume in the case of low voltage.
ENGINE RPM SIGNAL	At high speed, the injection time (volume) is increased.
STARTING SIGNAL	When starting engine, additional fuel is injected during cranking engine.
ACCELERATION SIGNAL / DECELERATION SIGNAL	During acceleration, the fuel injection time (volume) is increased in accordance with the throttle opening speed and engine rpm. During deceleration, the fuel injection time (volume) is decreased.

⊙ INJECTION STOP CONTROL

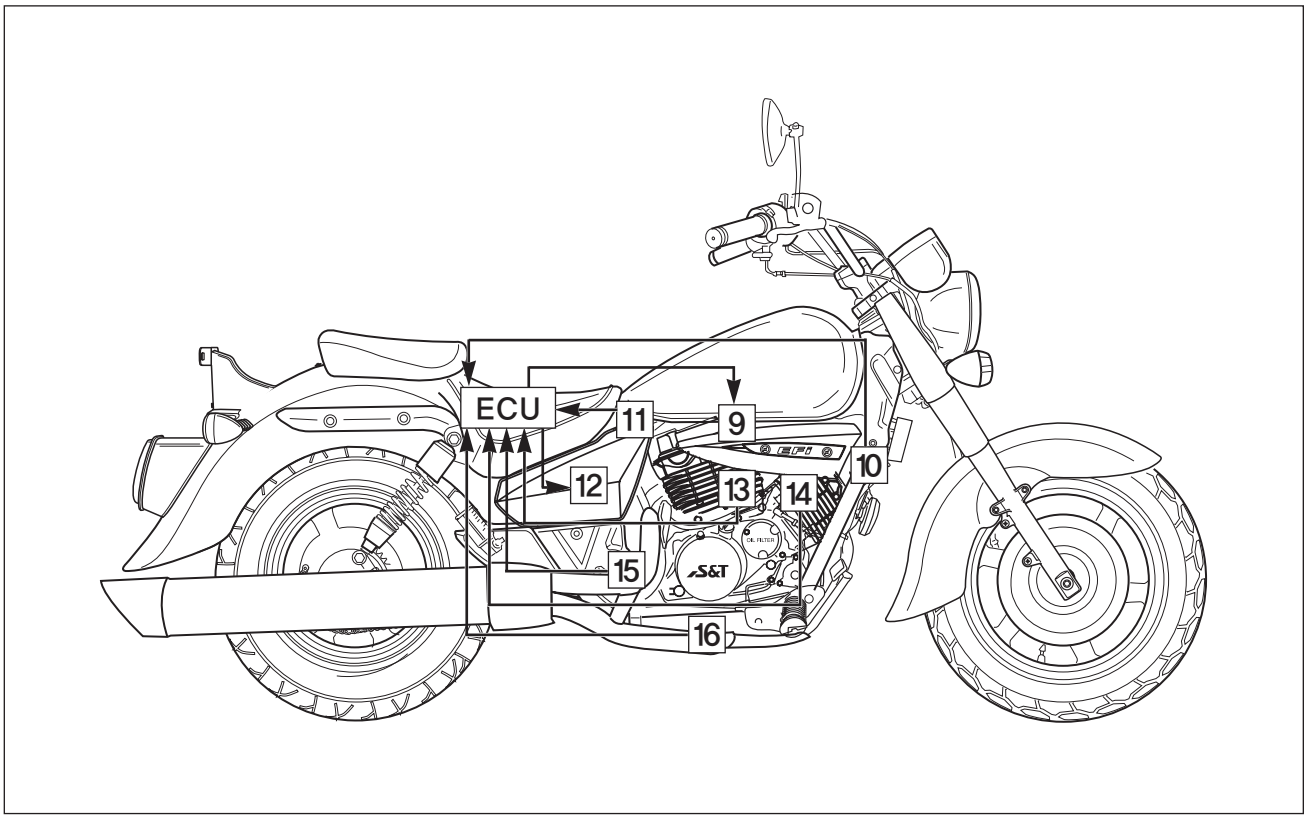
SIGNAL	DESCRIPTION
ROLL OVER SWITCH SIGNAL (FUEL CUT-OFF)	When the motorcycle rolls over, the roll over switch sends a signal to the ECU. Then, this signal cuts OFF current supplied to the fuel pump, fuel injector and ignition coil.
OVER-REV. LIMITER SIGNAL	The fuel injectors stop operation when engine rpm reaches rev. limit rpm.

EI SYSTEM PARTS LOCATION [Mirage 250 EJi D spec]



① Speedometer
② Front Ignition coil
③ Rear Ignition coil
④ Pickup Coil

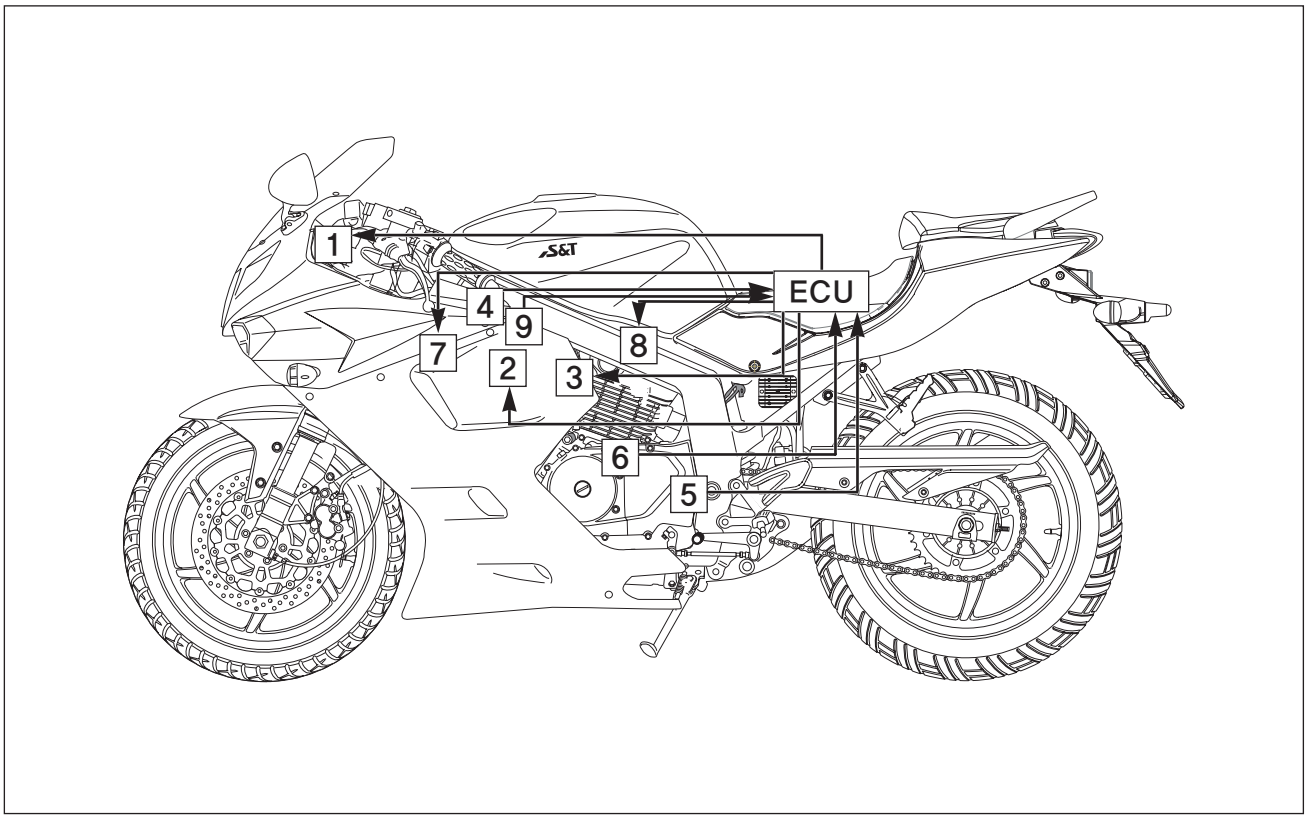
⑤ Gear position sensor
⑥ Front Fuel Injector
⑦ Rear Fuel Injector
⑧ Throttle Position sensor



⑨ ISC (Idle Speed Control Solenoid)
⑩ IAT Sensor(Intake Temp)
⑪ RO Switch
⑫ Fuel Pump Relay

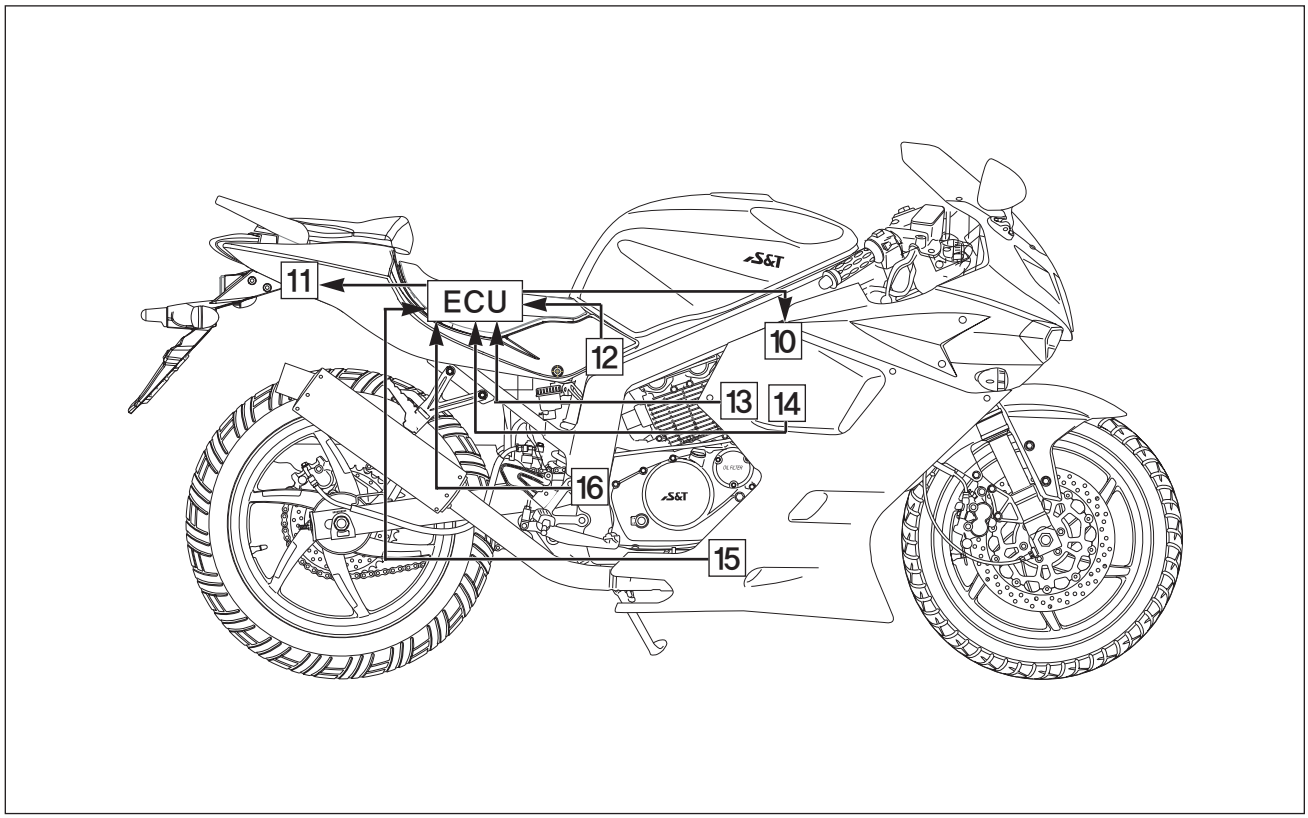
⑬ Rear Map Sensor
⑭ ET Sensor(Engine Temp)
⑮ Rear O2 Sensor
⑯ Front O2 Sensor

EI SYSTEM PARTS LOCATION [Comet 250 P/R EI D spec]



① Speedometer
② Front Fuel Injector
③ Rear Fuel Injector
④ IAT Sensor(Inlet Temp)
⑤ GP Sensor(Gear Position Sensor)

⑥ Pickup Coil
⑦ Front Ignition Coil
⑧ Rear Ignition Coil
⑨ Throttle Position sensor



⑩ ISC (Idle Speed Control Solenoid)
⑪ Fuel pump Relay
⑫ RO Switch(Roll over Switch)

⑬ Rear Map Sensor
⑭ ET Sensor(Engine Temp)
⑮ Front O2 Sensor
⑯ Rear O2 Sensor

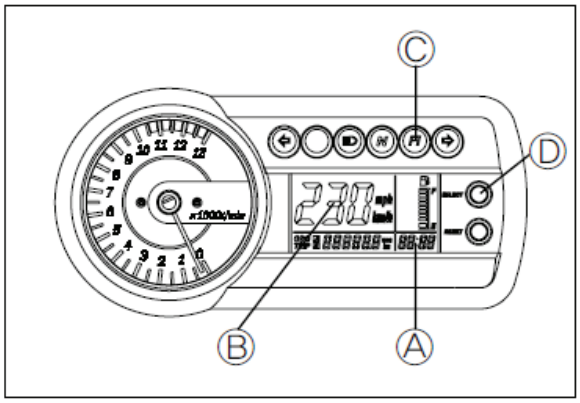
SELF-DIAGNOSIS FUNCTION [Comet 250 P/R EI D spec]

The self-diagnosis function is incorporated in the ECU.
The function has two modes, “USER MODE” and “DEALER MODE”.
The user can only be notified by the “FI” check lamp “ (FI) ” Ⓒ and LCD digital Speedomete Ⓑ
To check the function of the individual EI system devices, the dealer mode is prepared.
In this check, the special tool or additional movement is necessary to read the code of the malfunction items.

⦿ USER MODE 「Comet 250 P/R EI D spec」

The “FI” check lamp “ (FI) ” Ⓒ comes on when the ignition switch is set to “ON” position with the engine stopped as a test of injection system operation. and LCD digital Speedomete Ⓑ comes on
As soon as the engine starts, this lamp should go out.

If the fuel injection system fails, the red “FI” check lamp “ (FI) ” Ⓒ does not come on when the ignition switch is set to “ON” position with the engine stopped or fail to go out after the engine start.



In case
A key on :
The “FI” check lamp “ (FI) ” Ⓒ is not working and the digital speed Ⓑ is not displayed or

B after the engine start
The “FI” check lamp “ (FI) ” Ⓒ is on and the digital speed Ⓑ is working alternatively.

That means the fuel injection system is not working well.

If above problem happen, you have to refer " Dealer Mode " and check the device of Fuel injection system.

⊙ DEALER MODE

The defective function is memorized in the ECU.
The memorized malfunction code is displayed on the LCD (DISPLAY) panel Ⓐ or with blinks signal of the "FI" check lamp " (FI) "Ⓒ.
Malfunction means that the ECU does not receive signal from the devices or fault signal received.
These affected devices are indicated in the code form on the LCD (DISPLAY) panel Ⓐ or displayed with blinks signal of the "FI" check lamp " (FI) "Ⓒ.

▣ A. LCD (DISPLAY) PANEL

To confirm the memorized malfunction code :

1. Remove the front seat.
2. Connect the special tool to the dealer mode coupler at the wiring harness, and the ignition switch is set to "ON" position.

TOOL Mode select switch : 09900-27000

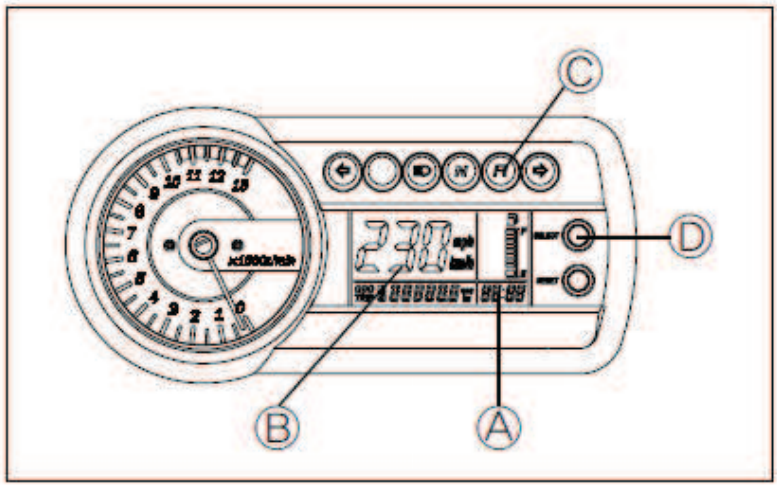
3. Turn the special tool's switch "ON" position.
4. Push the select switch Ⓓ (in the normal mode) 2 r 5 seconds.

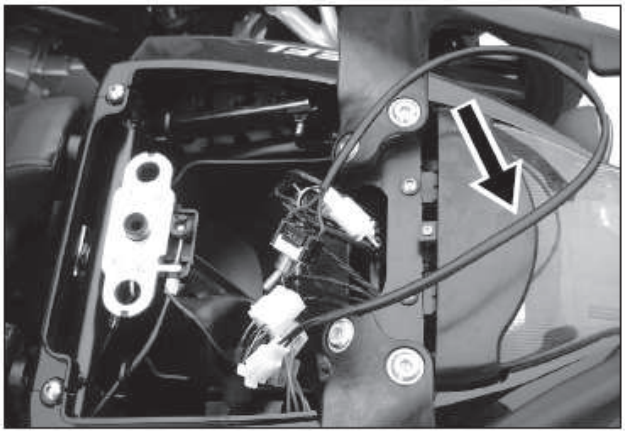
NOTE
This time, if not connect the special tool, the clock indicates the "cHE" letters then disappear.

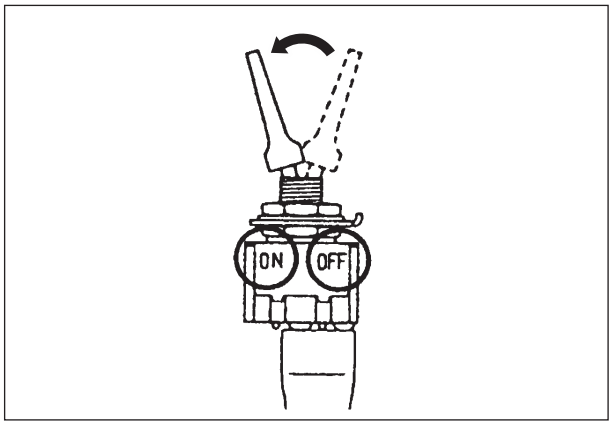
if press Ⓓ for 0.6~1 sec

5. The memorized malfunction code is displayed on the LCD (DISPLAY) panel Ⓐ.
   The malfunction code is indicated in the code form.
6. Start the engine and repeat the above procedure.
7. Check the malfunction code to determine the malfunction part.
8. Push the select switch Ⓓ (in the malfunction code mode) for 0.6 ~ 1 seconds, then the LCD (DISPLAY) panel Ⓐ is displayed the CLOCK.

NOTE
The malfunction code of the LCD (DISPLAY) panel Ⓐ is displayed the current code(s).







⚠ CAUTION

- **Confirm the malfunction code after turn the ignition switch "ON" position and after starting the engine in twice.**
- **The dealer mode coupler is located under the rear seat.**

CLASSIFICATION	MALFUNCTION	LCD (DISPLAY) INDICATION Ⓐ	"FI" CHECK LAMP INDICATION Ⓒ	INDICATION MODE
IGNITION SWITCH "ON" POSTION	"NO"	noEr	"FI" check lamp comes on continually.	
	"YES"	**** code is indicated in chronological order.	"FI" check lamp goes off.	For each 2 sec., code is indicated.
ENGINE RUNNING	"NO"	noEr	"FI" check lamp goes off.	
	"YES"	**** code is indicated in chronological order.	"FI" check lamp comes on continually.	For each 2 sec., code is indicated.

⚠ CAUTION

- If you push switch Ⓓ with "noEr" status, it display Clock mode.

▣ B. "FI" CHECK LAMP

To confirm the memorized malfunction code :

1. Turn the ignition switch alternately, "ON" and "OFF" position, for 2 seconds by three times.

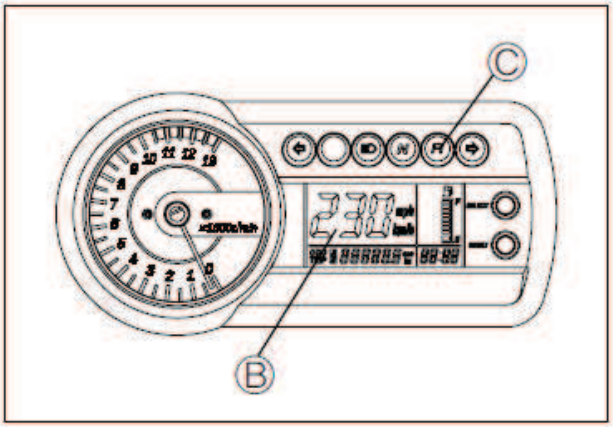
⚠ CAUTION

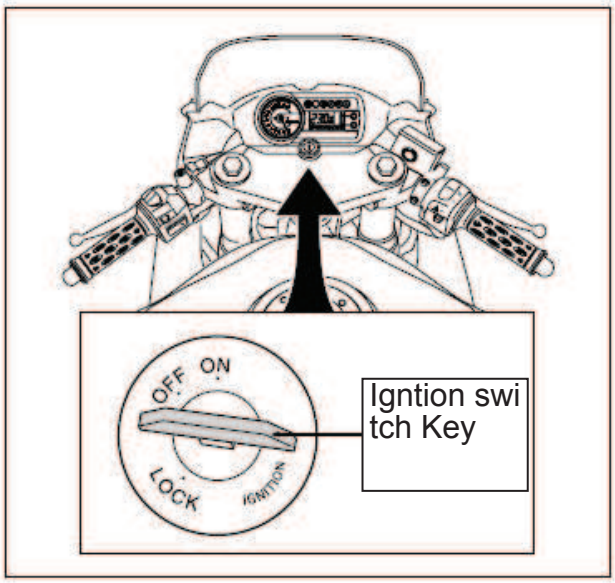
Take special care when operating above procedure.
If the ignition switch is turned alternately, "ON" and "OFF" position, for 2 seconds by five times, the ECU is initialized.

2. The memorized malfunction code is displayed with blinks signal of the "FI" check lamp " Ⓕ Ⓘ Ⓒ ".
3. Check the malfunction code to determine the malfunction part.

NOTE

The malfunction code of the "FI" check lamp is displayed both the current code(s) and history code(s).





MALFUNCTION	LCD Digital Panel Ⓑ	"FI" CHECK LAMP INDICATION Ⓑ
"NO"	Display "FI" letter and Speed panel aternatively.	"FI" check lamp goes off.
"YES"		Malfunction code is blinked in chronological order.

▣ B. "FI" CHECK LAMP

To confirm the memorized malfunction code :

1. Turn the ignition switch alternately, "ON" and "OFF" position, for 2 seconds by three times.

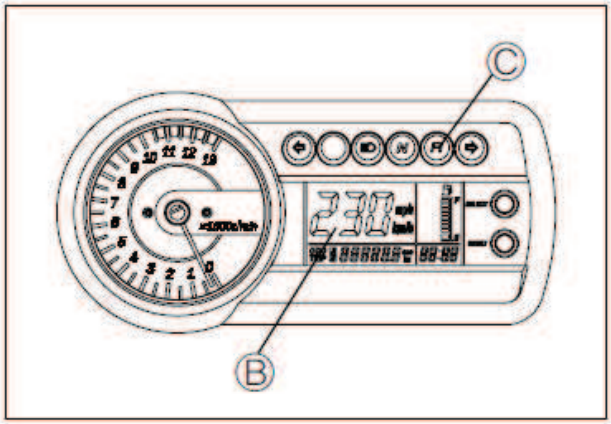
⚠ CAUTION

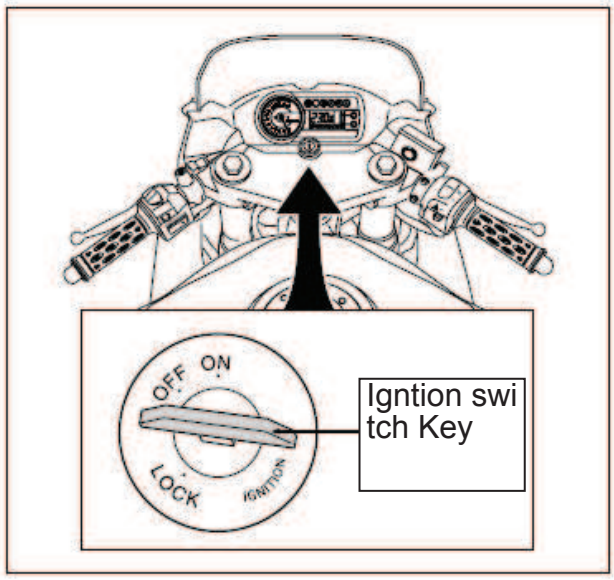
Take special care when operating above procedure.
If the ignition switch is turned alternately, "ON" and "OFF" position, for 2 seconds by five times, the ECU is initialized.

2. The memorized malfunction code is displayed with blinks signal of the "FI" check lamp " Ⓕ ' Ⓒ).
3. Check the malfunction code to determine the malfunction part.

NOTE

The malfunction code of the "FI" check lamp is displayed both the current code(s) and history code(s).





MALFUNCTION	LCD Digital Panel Ⓑ	"FI" CHECK LAMP INDICATION Ⓑ
"NO"	Display "FI" letter and Speed panel aternatively.	"FI" check lamp goes off.
"YES"		Malfunction code is blinked in chronological order.

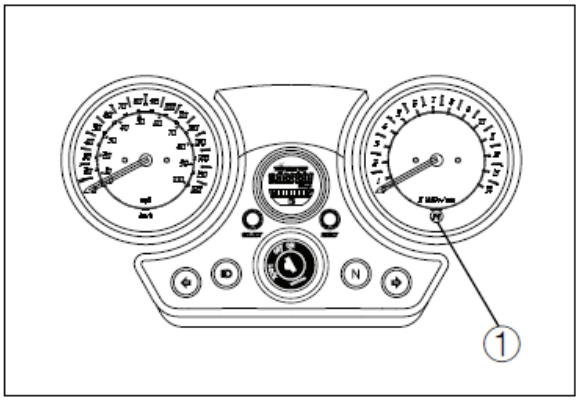
SELF-DIAGNOSIS FUNCTION [Mirage 250 EJi D spec]

The self-diagnosis function is incorporated in the ECU.
The function has two modes, “USER MODE” and “DEALER MODE”.
The user can only be notified by the “FI” check lamp “ (FI) ” ①.
To check the function of the individual EI system devices, the dealer mode is prepared.
In this check, the special tool or additional movement is necessary to read the code of the malfunction items.

⦿ USER MODE

The “FI” check lamp “ (FI) ” ① comes on when the ignition switch is set to “ON” position with the engine stopped as a test of injection system operation.
As soon as the engine starts, this lamp should go out.

If the fuel injection system fails, the red “FI” check lamp “ (FI) ” ① does not come on when the ignition switch is set to “ON” position with the engine stopped or fail to go out after the engine start.



▣ B. "FI" CHECK LAMP

To confirm the memorized malfunction code :

1. Turn the ignition switch alternately, "ON" and "OFF" position, for 2 seconds by three times.

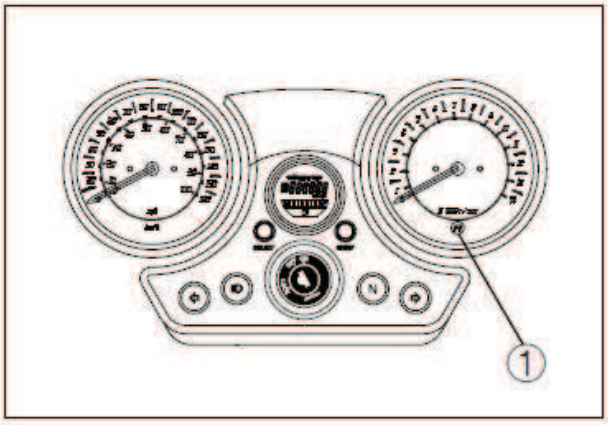
⚠ CAUTION

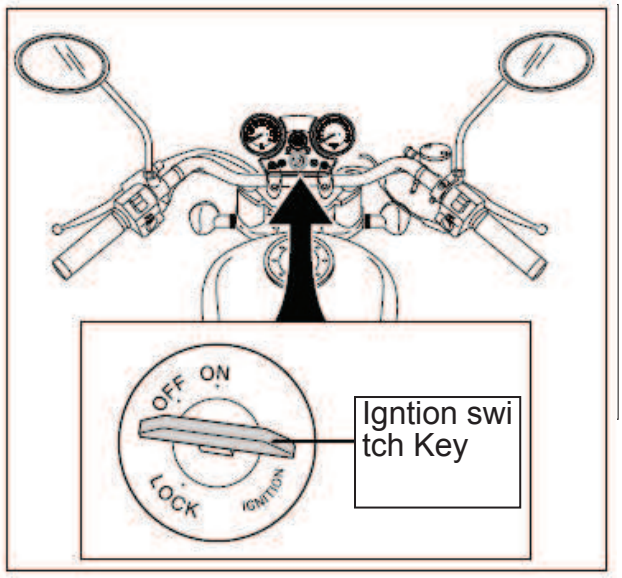
Take special care when operating above procedure.
If the ignition switch is turned alternately, "ON" and "OFF" position, for 2 seconds by five times, the ECU is initialized.

2. The memorized malfunction code is displayed with blinks signal of the "FI" check lamp " (FI) '①'.
3. Check the malfunction code to determine the malfunction part.

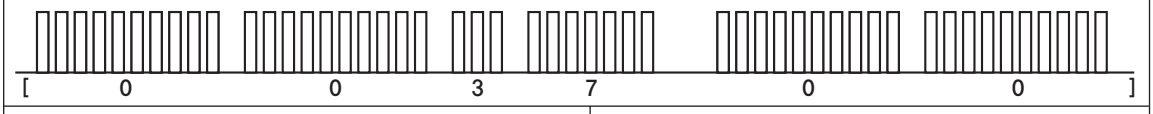
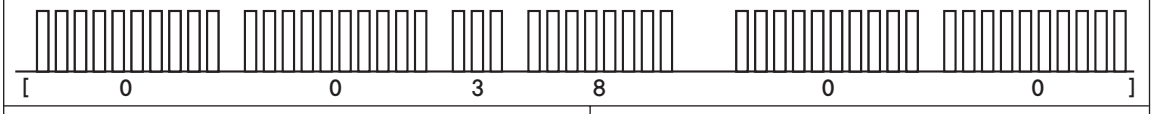
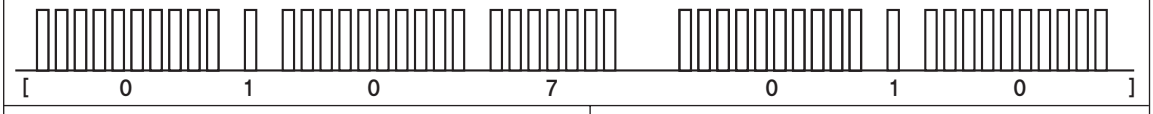
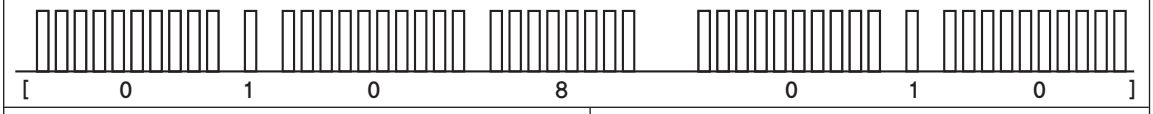
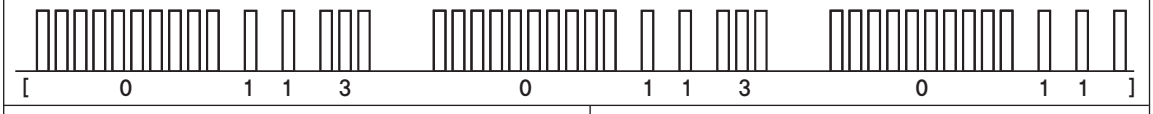
NOTE

The malfunction code of the "FI" check lamp is displayed both the current code(s) and history code(s).



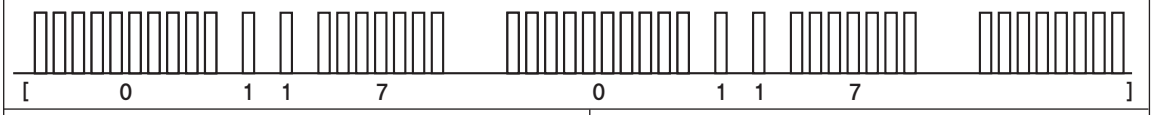


MALFUNCTION	"FI" CHECK LAMP INDICATION①
"NO"	"FI" check lamp goes off.
"YES"	Malfunction code is blinked in chronological order.

A CODE	B CODE	
	MALFUNCTION PART	REMARKS
0031		
	NO.1 O_2S heater Circuit Low Voltage	For NO.1 cylinder
0032		
	NO.1 O_2S heater Circuit High Voltage	For NO.1 cylinder
0037		
	NO.2 O_2S heater Circuit Low Voltage	For NO.2 cylinder
0038		
	NO.2 O_2S heater Circuit High Voltage	For NO.2 cylinder
0107		
	IAPS Circuit Low Voltage or Open	
0108		
	IAPS Circuit High Voltage	
0112		
	IATS Circuit Low Voltage	
0113		
	IATS Circuit High Voltage or Open	

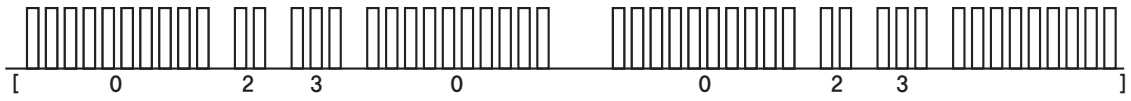
※ A CODE : For LCD (DISPLAY) indication

B CODE : For “FI” check lamp indication

A CODE	B CODE	
	MALFUNCTION PART	REMARKS
0117		
	WTS Circuit Low Voltage	
0118		
	WTS Circuit High Voltage or Open	
0122		
	TPS Circuit Low Voltage or Open	
0123		
	TPS Circuit High Voltage	
0131		
	NO.1 O_2S Circuit Low Voltage	For NO.1 cylinder
0132		
	NO.1 O_2S Circuit High Voltage	For NO.1 cylinder
0137		
	NO.2 O_2S Circuit Low Voltage	For NO.2 cylinder
0138		
	NO.2 O_2S Circuit High Voltage	For NO.2 cylinder

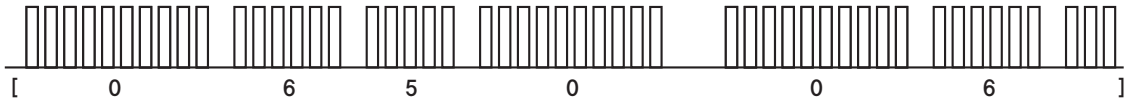
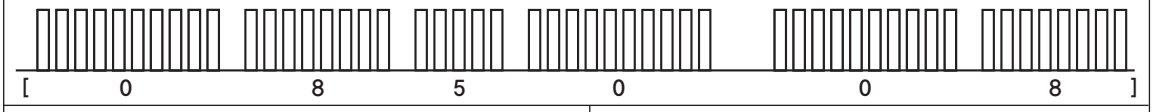
※ A CODE : For LCD (DISPLAY) indication

B CODE : For “FI” check lamp indication

A CODE	B CODE	
	MALFUNCTION PART	REMARKS
0201		
	NO.1 Fuel injector Circuit Malfunction	For NO.1 cylinder
0202		
	NO.2 Fuel injector Circuit Malfunction	For NO.2 cylinder
0230		
	Fuel pump relay Circuit Low Voltage or Open	
0232		
	Fuel pump relay Circuit High Voltage	
0336		
	Pick-up coil Noisy Signal	
0337		
	Pick-up coil No Signal	
0351		
	NO.1 IG coil Malfunction	For NO.1 cylinder
0352		
	NO.2 IG coil Malfunction	For NO.2 cylinder

※ A CODE : For LCD (DISPLAY) indication

B CODE : For “FI” check lamp indication

A CODE	B CODE	
	MALFUNCTION PART	REMARKS
0444		
	PV Circuit Open	California model only
0445		
	PV Circuit Shorted	California model only
0505		
	ISC Error	
0562		
	Battery Voltage Low	
0563		
	Battery Voltage High	
0650		
	“FI” check lamp Circuit Malfunction	
0850		
	GP or Clutch lever Switch Circuit Malfunction	

※ A CODE : For LCD (DISPLAY) indication

B CODE : For “FI” check lamp indication

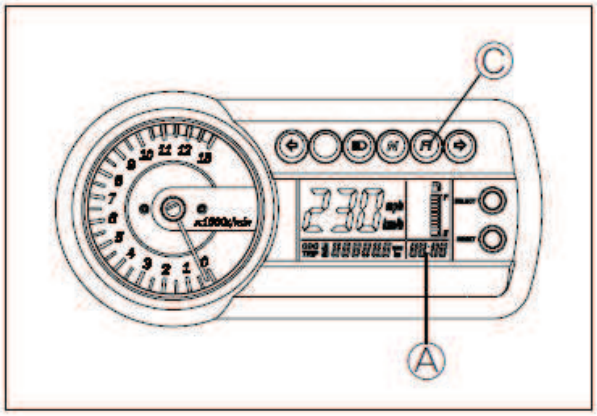
SELF-DIAGNOSTIC PROCEDURES

Don't disconnect couplers from ECU, battery cable from battery, ECU ground wire harness from engine or main fuse before confirming malfunction code (self-diagnostic trouble code) stored in memory.
The memorized malfunction code is displayed on the LCD (DISPLAY) panel Ⓐ or displayed with blinks signal of the "FI" check lamp " Ⓕ " Ⓑ. 「Comet 250 P/R EI D spec」
To check malfunction code, read SELF-DIAGNOSIS FUNCTION "DEALER MODE" (Refer to page 4-11 ~ 18) carefully to have good understanding as to what functions are available and how to use it.

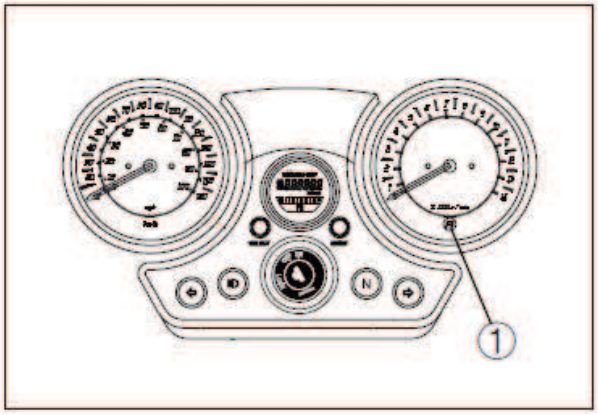
Be sure to read "PRECAUTIONS for Electrical Circuit Service" (Refer to page 4-1) before inspection and observe what is written there.

「Mirage 250 EI D spec」
The memorized malfunction code is displayed with blinks signal of the "FI" check lamp " Ⓕ " ①

Comet 250 P/R EI D spec



Mirage 250 EI D spec



▣ Comet 250 P/R EI D spec

▣ LCD (DISPLAY) INDICATION

In the LCD (DISPLAY) panel Ⓐ, the malfunction code is indicated in chronological order.

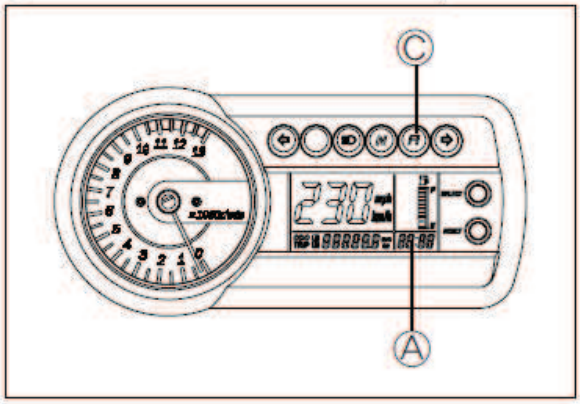
▣ "FI" CHECK LAMP INDICATION

In the "FI" check lamp " Ⓕ " Ⓒ, the malfunction code is blinked in chronological order.

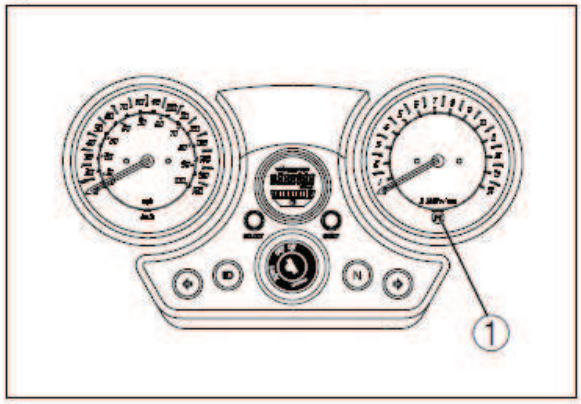
▣ Mirage 250 EI D spec

In the "FI" check lamp " Ⓕ " ①, the malfunction code is blinked in chronological order.

Comet 250 P/R EI D spec



Mirage 250 EI D spec



EI SYSTEM TROUBLESHOOTING

CUSTOMER COMPLAINT ANALYSIS

Record details of the problem (failure, complaint) and how it occurred as described by the customer.
For this purpose, use of such an inspection form will facilitate collecting information to the point required for proper analysis and diagnosis.

▣ EXAMPLE : CUSTOMER PROBLEM INSPECTION FORM

User name :	Model :	VIN :	
Date of issue :	Date Reg. :	Date of problem :	Mileage :

"FI" Check lamp	☐ Always ON ☐ Sometimes ON ☐ Always OFF ☐ Good condition
Malfunction display / code (LCD panel) or Blinks signal ("FI" check lamp)	☐ No code ☐ Malfunction code ( )

PROBLEM SYMPTOMS	
☐ **Difficult Starting** ☐ No cranking ☐ No initial combustion ☐ No combustion ☐ Poor starting at (☐ cold ☐ warm ☐ always) ☐ Other_____	☐ **Poor Driveability** ☐ Hesitation on acceleration ☐ Back fire / ☐ After fire ☐ Lack of power ☐ Surging ☐ Abnormal knocking ☐ Engine rpm jumps briefly ☐ Other_____
☐ **Poor Idling** ☐ Poor fast Idle ☐ Abnormal idling speed (☐ High ☐ Low) (rpm) ☐ Unstable ☐ Hunting (rpm. to rpm) ☐ Other_____	☐ **Engine Stall when** ☐ Immediately after start ☐ Throttle valve is opened ☐ Throttle valve is closed ☐ Load is applied ☐ Other_____
☐ OTHERS :	

MOTORCYCLE / ENVIRONMENTAL CONDITION WHEN PROBLEM OCCURS	
Environmental condition	
Weather	☐ Fair ☐ Cloudy ☐ Rain ☐ Snow ☐ Always ☐ Other
Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (°F / °C) ☐ Always
Frequency	☐ Always ☐ Sometimes (times / day, month) ☐ Only once ☐ Under certain condition
Road	☐ Urban ☐ Suburb ☐ Highway ☐ Mountainous (☐ Uphill ☐ Downhill) ☐ Tarmacadam ☐ Gravel ☐ Other
Motorcycle condition	
Engine condition	☐ Cold ☐ Warming up phase ☐ Warmed up ☐ Always ☐ Other at starting ☐ Immediately after start ☐ Racing without load ☐ Engine speed (rpm)
Motorcycle condition	During driving : ☐ Constant speed ☐ Accelerating ☐ Decelerating ☐ Right hand corner ☐ Left hand corner ☐ At stop ☐ Motorcycle speed when problem occurs (km/h, Mile/h) ☐ Other_____

NOTE

The above form is a standard sample.
If should be modified according to conditions characteristic of each market.

MALFUNCTION CODE AND DEFECTIVE CONDITION

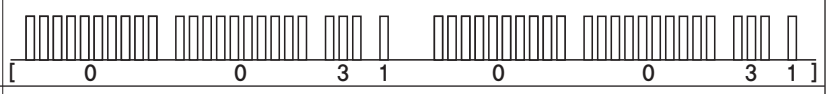
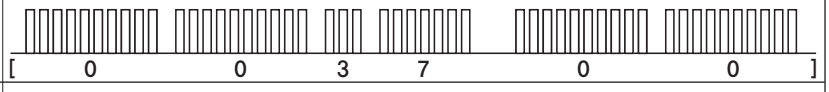
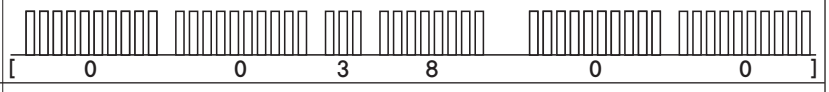
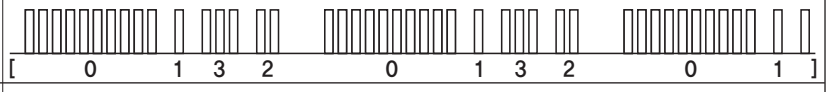
MALFUNCTION CODE	DETECTED ITEM		DETECTED FAILURE CONDITION CHECK FOR
noEr	NO FAULT		—
0031	NO.1 O_2S heater Circuit	Low Voltage	After engine running, if oxygen sensor heater signal open or is happened the ground short fault for 1 second by 10 times in 12 times test cycle, the code 0031 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0032		High Voltage	After engine running, if oxygen sensor heater signal is happened the high short fault for 1 second by 10 times in 12 times test cycle, the code 0032 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0037	NO.2 O_2S heater Circuit	Low Voltage	After engine running, if oxygen sensor heater signal open or is happened the ground short fault for 1 second by 10 times in 12 times test cycle, the code 0037 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0038		High Voltage	After engine running, if oxygen sensor heater signal is happened the high short fault for 1 second by 10 times in 12 times test cycle, the code 0038 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0107	IAPS Circuit	Low Voltage or Open	The sensor should produce following voltage. 0.15 V $\leqq$ Sensor output voltage Without the above range for 2.2 sec. and more, 0107 is indicated.
			Intake air pressure sensor, lead wire / coupler connection.
0108		High Voltage	The sensor should produce following voltage. Sensor output voltage $\leqq$ 5 V Without the above range for 10.0 sec. and more, 0108 is indicated.
			Intake air pressure sensor, lead wire / coupler connection.
0112	IATS Circuit	Low Voltage	The sensor voltage should be the following. 0.1 V $\leqq$ Sensor output voltage Without the above range for 6.25 sec. and more, 0112 is indicated.
			Intake air temperature sensor, lead wire / coupler connection.
0113		High Voltage or Open	The sensor voltage should be the following. Sensor output voltage $\leqq$ 4.9 V Without the above range for 6.25 sec. and more, 0113 is indicated.
			Intake air temperature sensor, lead wire / coupler connection.

MALFUNCTION CODE	DETECTED ITEM		DETECTED FAILURE CONDITION CHECK FOR
0117	WTS Circuit	Low Voltage	The sensor voltage should be the following. 0.1 V ≦ Sensor output voltage Without the above range for 6.25 sec. and more, 0117 is indicated.
			Water temperature sensor, lead wire / coupler connection.
0118		High Voltage or Open	The sensor voltage should be the following. Sensor output voltage ≦ 5 V Without the above range for 6.25 sec. and more, 0118 is indicated.
			Water temperature sensor, lead wire / coupler connection.
0122	TPS Circuit	Low Voltage or Open	The sensor should produce following voltage. 0.2 V ≦ Sensor output voltage Without the above range for 7.8 sec. and more, 0122 is indicated.
			Throttle position sensor, lead wire / coupler connection.
0123		High Voltage	The sensor should produce following voltage. Sensor output voltage ≦ 4.9 V Without the above range for 7.8 sec. and more, 0123 is indicated.
			Throttle position sensor, lead wire / coupler connection.
0131	NO.1 O_2S Circuit	Low Voltage	After engine running, the oxygen sensor signal is inputted in ECU since then 300 sec. In this case, the sensor voltage should be the following. 30 mV ≦ Sensor output voltage Without the above range for 28.1 sec. and more, 0131 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0132		High Voltage	After engine running, the oxygen sensor signal is inputted in ECU since then 300 sec. In this case, the sensor voltage should be the following. Sensor output voltage ≦ 1.0 V Without the above range for 29.4 sec. and more, 0132 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0137	NO.2 O_2S Circuit	Low Voltage	After engine running, the oxygen sensor signal is inputted in ECU since then 300 sec. In this case, the sensor voltage should be the following. 30 mV ≦ Sensor output voltage Without the above range for 28.1 sec. and more, 0137 is indicated.
			Oxygen sensor, lead wire / coupler connection.
0138		High Voltage	After engine running, the oxygen sensor signal is inputted in ECU since then 300 sec. In this case, the sensor voltage should be the following. Sensor output voltage ≦ 1.0 V Without the above range for 29.4 sec. and more, 0138 is indicated.
			Oxygen sensor, lead wire / coupler connection.

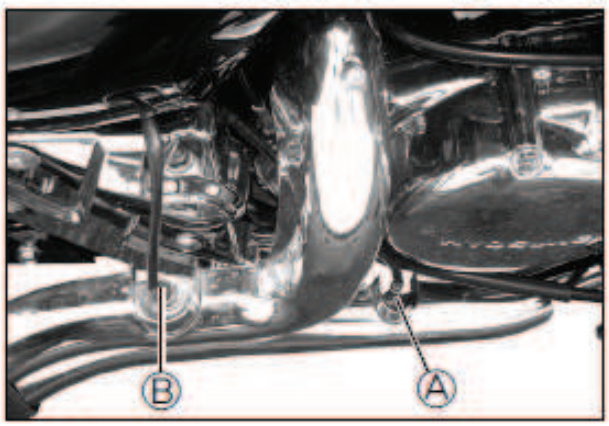
MALFUNCTION CODE	DETECTED ITEM		DETECTED FAILURE CONDITION CHECK FOR
0201	NO.1 Fuel Injector Circuit Malfunction		After engine running, if NO.1 fuel injector signal open or is happened the high / ground short fault for 1 second by 5 times in 10 times test cycle, the code 0201 is indicated.
			Injector, wiring / coupler connection, power supply to the injector.
0202	NO.2 Fuel Injector Circuit Malfunction		After engine running, if NO.2 fuel injector signal open or is happened the high / ground short fault for 1second by 5 times in 10 times test cycle, the code 0202 is indicated.
			Injector, wiring / coupler connection, power supply to the injector.
0230	Fuel pump relay Circuit	Low Voltage or Open	After engine running, if fuel pump relay signal open or is happened the ground short fault for 1 second by 10 times in 20 times test cycle, the code 0230 is indicated.
			Fuel pump relay, connecting lead wire, power source to fuel pump relay, fuel injector.
0232		High Voltage	After engine running, if fuel pump relay signal is happened the high short fault for 1 second by 10 times in 20 times test cycle, the code 0232 is indicated.
			Fuel pump relay, connecting lead wire, power source to fuel pump relay, fuel injector.
0336	Pick-up coil	Noisy Signal	After engine running, if the magneto rotor tooth's error is happened continuously by 10 times in 100 times test cycle, the code 0336 is indicated.
			Pick-up coil wiring and mechanical parts. (Pick-up coil, lead wire coupler connection)
0337		No Signal	After engine running, if the pick-up coil signal does not reach ECU for more than 0.5 sec., the code 0337 is indicated.
			Pick-up coil wiring and mechanical parts. (Pick-up coil, lead wire coupler connection)
0351	NO.1 IG coil Malfunction		After engine running, if NO.1 ignition coil signal open or is happened the high / ground short fault for 1 second by 5 times in 10 times test cycle, the code 0351 is indicated.
			Ignition coil, wiring / coupler connection, power supply from the battery.
0352	NO.2 IG coil Malfunction		After engine running, if NO.2 ignition coil signal open or is happened the high / ground short fault for 1 second by 5 times in 10 times test cycle, the code 0352 is indicated.
			Ignition coil, wiring / coupler connection, power supply from the battery.

MALFUNCTION CODE	DETECTED ITEM		DETECTED FAILURE CONDITION CHECK FOR
0444	PV Circuit (California model only)	Open	After engine running, if purge control valve signal open or is happened the ground short fault for 1 second by 10 times in 12 times test cycle, the code 0444 is indicated.
			Purge control valve, wiring / coupler connection, power supply from the battery.
0445		Shorted	After engine running, if purge control valve signal is happened the high short fault for 1 second by 10 times in 12 times test cycle, the code 0445 is indicated.
			Purge control valve, wiring / coupler connection, power supply from the battery.
0505	ISC Error		After engine running, if idle speed is different to 500 rpm from the specified range in 25 seconds test cycle, the code 0505 is indicated.
			Idle speed control solenoid, wiring / coupler connection.
0562	Battery Voltage	Low	The battery voltage should be the following. 9 V $\leqq$ Battery voltage Without the above range for 3.125 sec. and more, 0562 is indicated.
			Battery, wiring / coupler connection to ECU.
0563		High	The battery voltage should be the following. Battery voltage $\leqq$ 16 V Without the above range for 3.125 sec. and more, 0563 is indicated.
			Battery, wiring / coupler connection to ECU.
0650	"FI" check lamp Circuit Malfunction		After engine running, if "FI" check lamp signal open or is happened the high / ground short fault for 1 second by 40 times in 80 times test cycle, the code 0650 is indicated.
			"FI" check lamp, wiring / coupler connection.
0850	GP or Clutch lever Switch Circuit Malfunction		If gear position or clutch lever switch signal feedback is not active in continuous by 20 times in fully power down cycles, the code 0850 is indicated. (Fully power down cycle : Ignition switch "ON" → "OFF" position)
			Gear position or clutch lever switch, wiring / coupler connection, gearshift cam etc.

"0031", "0032", "0037" or "0038" OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION & "0131", "0132", "0137" or "0138" OXYGEN SENSOR CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0031	
0032	
0037	
0038	
0131	
0132	
0137	
0138	

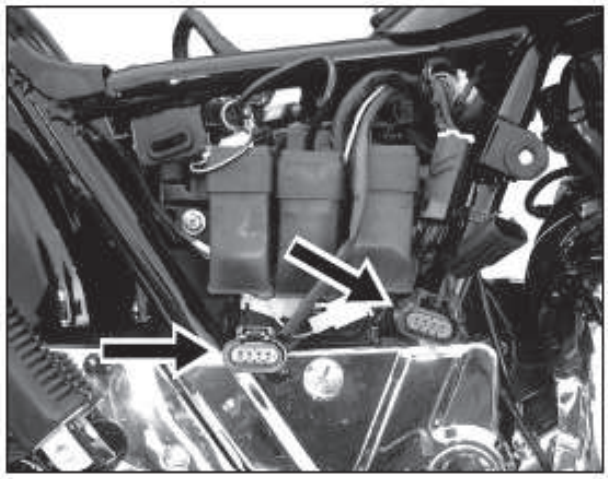
DETECTED CONDITION	POSSIBLE CAUSE
☞ Refer to page 4-23, 24	● Oxygen sensor, Oxygen sensor heater circuit open or short. ● Oxygen sensor, Oxygen sensor heater malfunction. ● ECU malfunction.

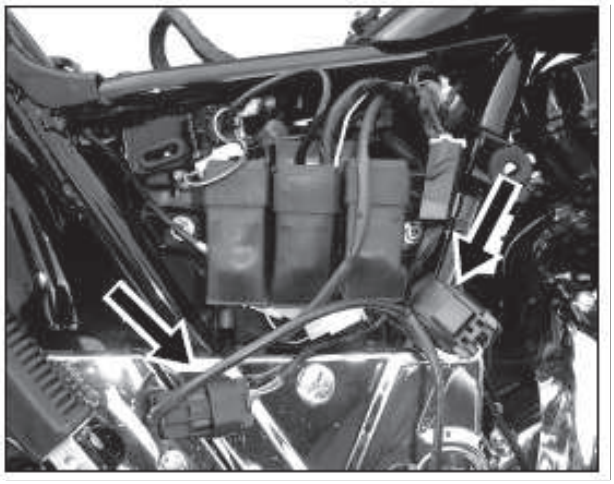


※ Ⓐ : : No.1 O2 sensor
Ⓑ : : No.2 O2 sensor

▣ INSPECTION

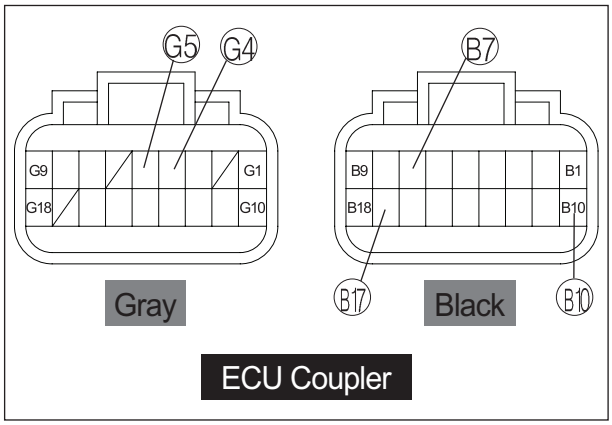
1) Remove the front seat and right side cover.
2) Turn the ignition switch “OFF” position.
3) Check the Oxygen sensor coupler for loose or poor contacts.

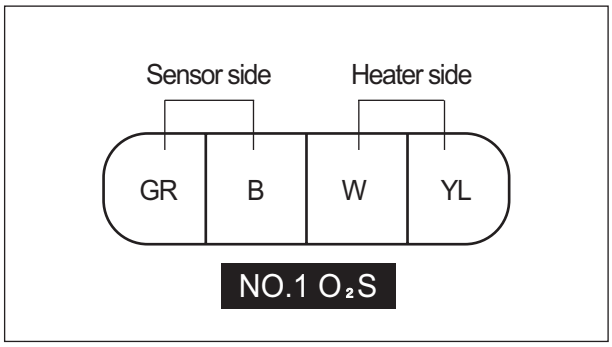


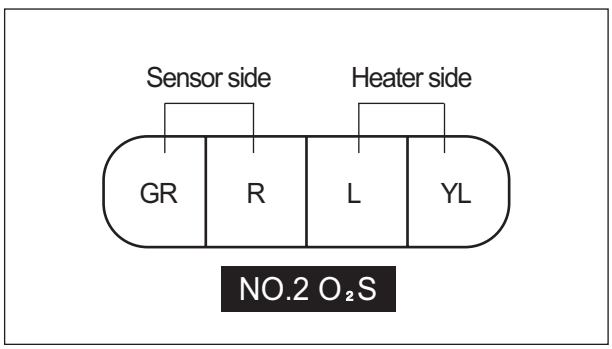


Is OK?

YES	● B or GR (NO.1 O_2S) / R or GR (NO.2 O_2S) wire open or shorted to ground, or poor Ⓑ17 or Ⓑ10 (NO.1 O_2S) / Ⓖ5 or Ⓑ10 (NO.2 O_2S) connection of ECU coupler. (Sensor side) ● YL or W (NO.1 O_2S heater) / YL or L (NO.2 O_2S heater) wire open or shorted to ground, or poor Ⓑ7 (NO.1 O_2S heater) / Ⓖ4 (NO.2 O_2S heater) connection of ECU coupler. YL coupler open or shorted to the wiring harness. (Heater side) ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the Oxygen sensor with a new one.







"0107" or "0108" IAP SENSOR CIRCUIT MALFUNCTION

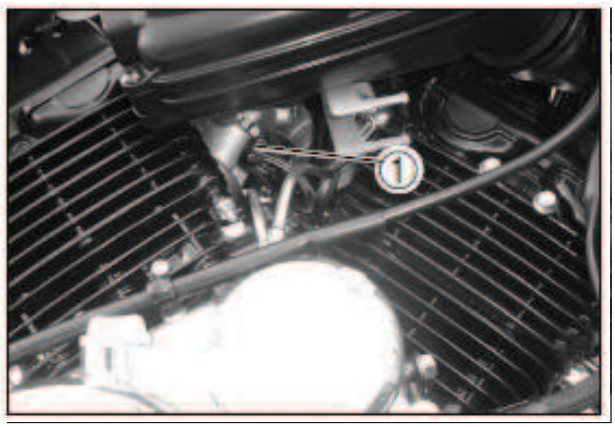
LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0107	[0 1 0 7 0 1 0]
0108	[0 1 0 8 0 1 0]

DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-23** *NOTE :* *Note that atmospheric pressure varies depending on weather conditions as well as altitude.* *Take that into consideration when inspecting voltage.*	● Clogged vacuum passage between throttle body and IAP sensor. ● Air being drawn from vacuum passage between throttle body and IAP sensor. ● IAP sensor circuit open or shorted to ground. ● IAP sensor malfunction. ● ECU malfunction.

▣ INSPECTION

◈ Step 1

1) Remove the fuel tank.
2) Turn the ignition switch "OFF" position.
3) Check the IAP sensor coupler ① for loose or poor contacts.
   If OK, then measure the IAP sensor input voltage.



4) Disconnect the IAP sensor coupler ②.
5) Turn the ignition switch "ON" position.
6) Measure the input voltage at the OB wire and ground.
   If OK, then measure the input voltage at the OB wire and GR wire.

IAP sensor input voltage	4.5 ~ 5.5 V (⊕ OB — ⊖ Ground) (⊕ OB — ⊖ GR)

Tester knob indication : Voltage (⎓)

Is the input voltage OK?

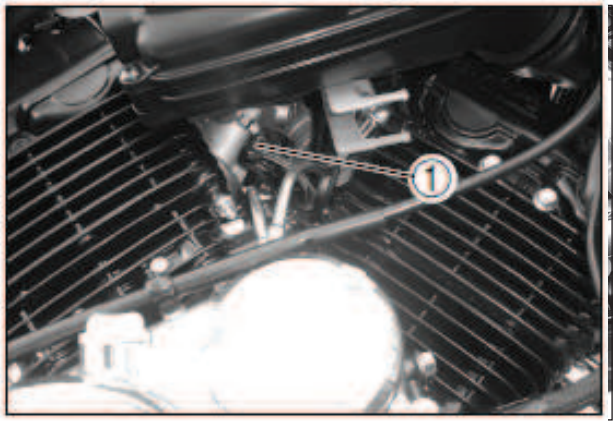
YES	Go to Step 2.
NO	● Loose or poor contacts on the ECU coupler. ● Open or short circuit in the OB wire or GR wire.

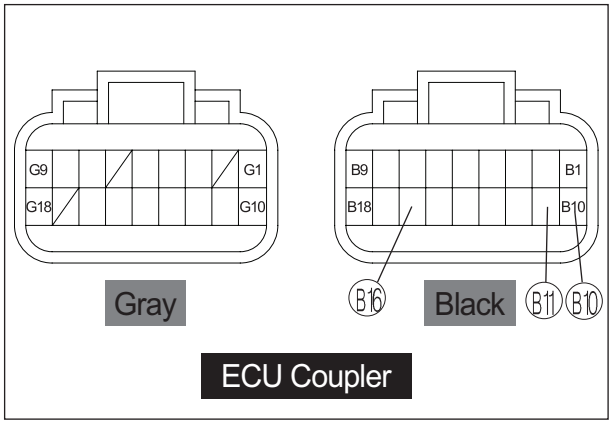
◈ Step 2

1) Connect the IAP sensor coupler ①.
2) Insert the needle pointed probes to the lead wire coupler.
3) Start the engine at idle speed.
4) Measure the IAP sensor output voltage at the wire side coupler (between BL and GR wires).

IAP sensor output voltage	3.3 ~ 4.3v Approx. ~~2.7~~ V at idle speed (⊕ BL — ⊖ GR)

Tester knob indication : Voltage (⎓)





Is the voltage OK?

YES	● OB, BL or GR wire open or shorted to ground, or poor (B16), (B11) or (B10) connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	If check result is not satisfactory, replace the IAP sensor with a new one.

Output voltage (Input voltage 5 V, ambient temp. 25 °C, 77 °F)

ALTITUDE (Reference)		ATMOSPHERIC PRESSURE		OUTPUT VOLTAGE
(ft)	(m)	(mmHg)	kPa	(V)
0 | 2 000	0 | 610	760 | 707	100 | 94	Approx. 3.7 ~ 3.9
2 001 | 5 000	611 | 1 524	707 | 634	94 | 85	Approx. 3.3 ~ 3.7
5 001 | 8 000	1 525 | 2 438	634 | 567	85 | 76	Approx. 3.0 ~ 3.3
8 001 | 10 000	2 439 | 3 048	567 | 526	76 | 70	Approx. 2.7 ~ 3.0

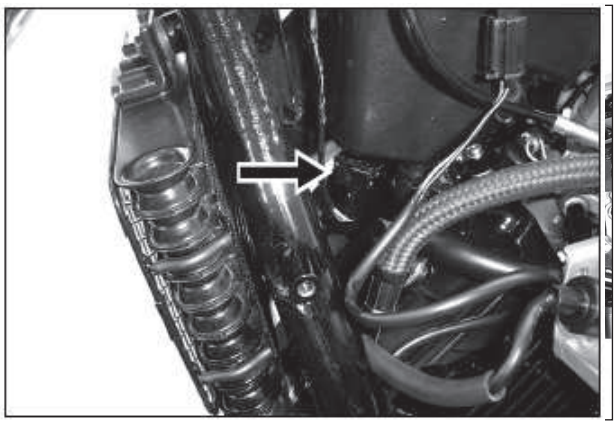
"0112" or "0113" IAT SENSOR CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0112	[0 1 1 2 0 1 1 2 0 1 1 2]
0113	[0 1 1 3 0 1 1 3 0 1 1]

DETECTED CONDITION	POSSIBLE CAUSE
Refer to page 4-23	IAT sensor circuit open or short. IAT sensor malfunction. ECU malfunction.

▣ INSPECTION

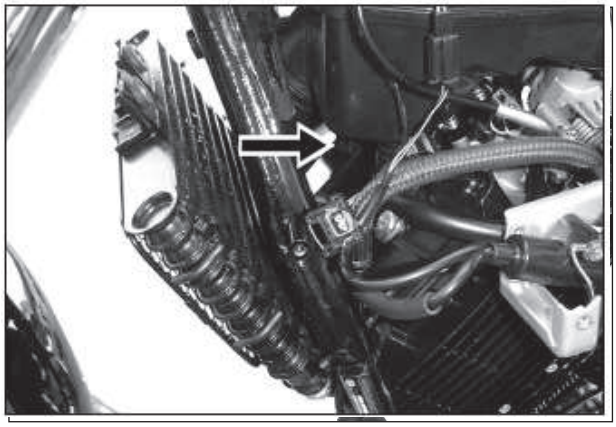
1) Remove the fuel tank.
2) Turn the ignition switch "OFF" position.
3) Check the IAT sensor coupler for loose or poor contacts.
   If OK, then measure the IAT sensor resistance.
4) Disconnect the IAT sensor coupler.



5) Measure the resistance between the terminals and .

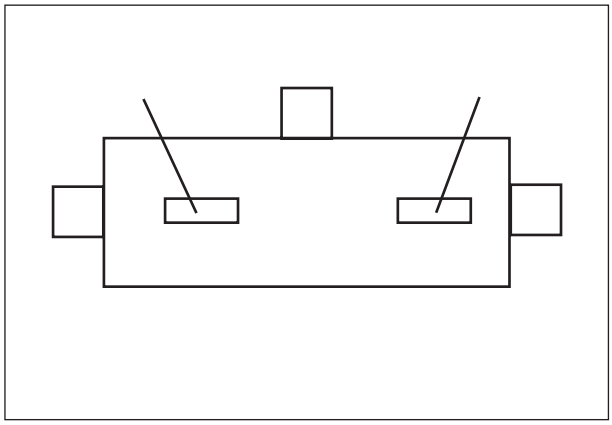
IAT sensor resistance	0.081 ~ 48.352 GIWhen Intake air temperature is –40 ~ 130 (–40 ~ 266) GJ

Tester knob indication : Resistance ( )

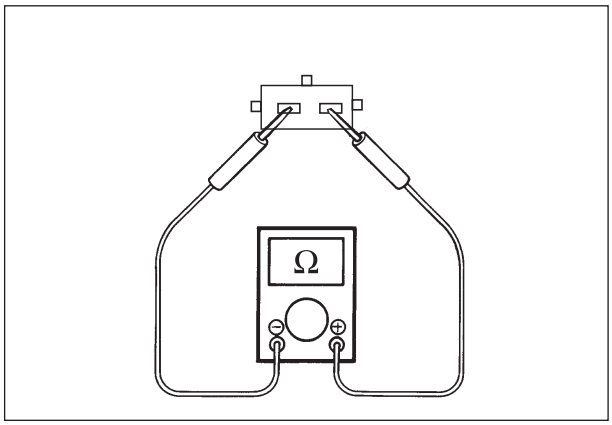


NOTE

IAT sensor resistance measurement method is the same way as that of the WT sensor.
Refer to page 6-8 for details.



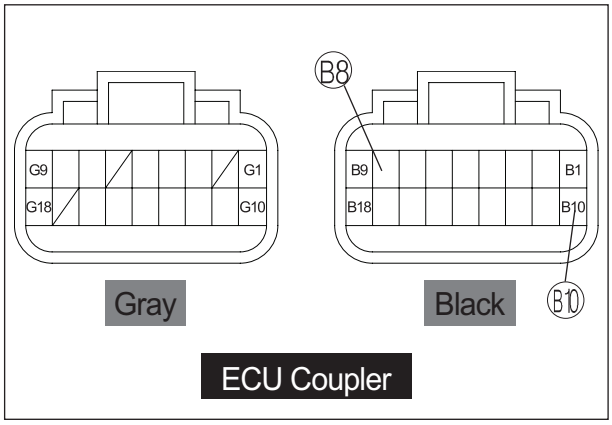
IAT sensor resistance	
Intake Air Temp.	**Resistance**
–40 ℃ (–40 ℉)	44.642 KΩ ± 5%
–20 ℃ (–4 ℉)	14.958 KΩ ± 5%
0 ℃ (32 ℉)	5.734 KΩ ± 5%
20 ℃ (68 ℉)	2.438 KΩ ± 5%
40 ℃ (104 ℉)	1.141 KΩ ± 5%
60 ℃ (140 ℉)	0.579 KΩ ± 5%
80 ℃ (176 ℉)	0.315 KΩ ± 5%
100 ℃ (212 ℉)	0.182 KΩ ± 5%
120 ℃ (248 ℉)	0.111 KΩ ± 5%
130 ℃ (266 ℉)	0.088 KΩ ± 5%



Tester knob indication : Resistance (KΩ)

Is the resistance OK?

YES	● Lg or GR wire open or shorted to ground, or poor B8 or B10 connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the IAT sensor with a new one.



"0117" or "0118" ET SENSOR CIRCUIT MALFUNCTION

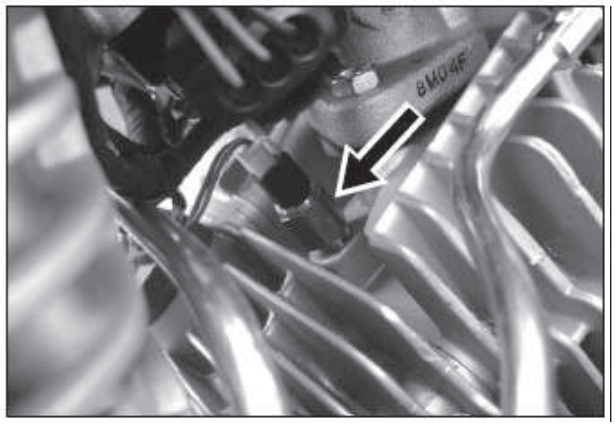
LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0117	[0 1 1 7 0 1 1 7]
0118	[0 1 1 8 0 1 1 8]

DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-24**	● WT sensor circuit open or short. ● WT sensor malfunction. ● ECU malfunction.

▣ INSPECTION

1) Turn the ignition switch "OFF" position.
2) Check the WT sensor coupler for loose or poor contacts.
   If OK, then measure the WT sensor resistance.
   (Refer to page 6-8 for details.)

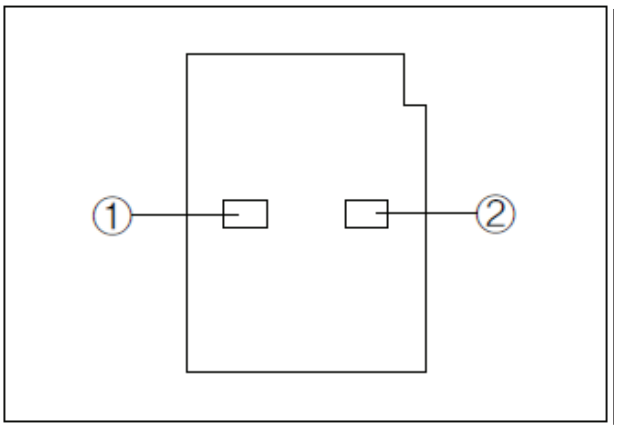
WT -> ET



3) Disconnect the WT sensor coupler.
4) Measure the resistance between the terminals ① and ③.

WT sensor resistance	0.102 ~ 81.000 0 KΩ [When Water temperature is -20℃ ~ 180℃ -4 ~356 3℉)]

Tester knob indication : Resistance (KΩ)

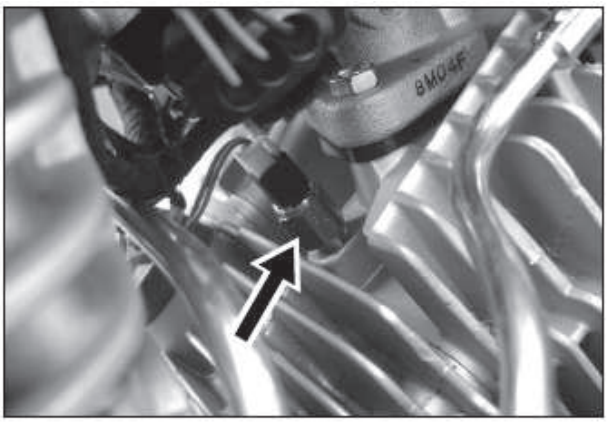


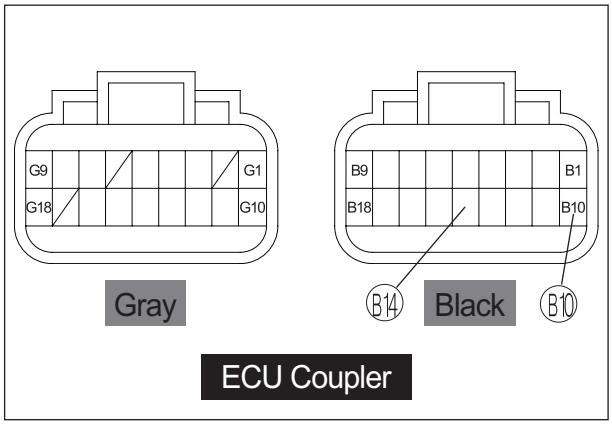
WT sensor resistance	
Engine Coolant Temp.	Resistance (To ECU)
−20 ℃	Approx. 75.5 KΩ
0 ℃	Approx. 28.7 KΩ
20 ℃	Approx. 12.2 KΩ
40 ℃	Approx. 5.6 KΩ
60 ℃	Approx. 2.8 KΩ
80 ℃	Approx. 1.5 KΩ
120 ℃	Approx. 0.5 KΩ
140 ℃	Approx. 0.3 KΩ
160 ℃	Approx. 0.2 KΩ
180 ℃	Approx. 0.13 KΩ

Tester knob indication : Resistance (KΩ)

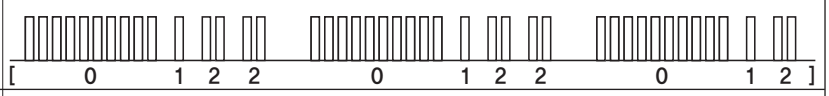
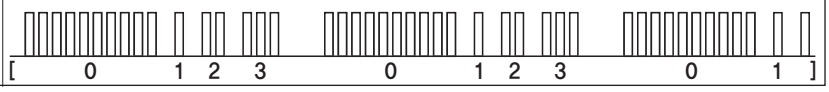
Is the resistance OK?

YES	● G or GR wire open or shorted to ground, or poor B14 or B10 connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the WT sensor with a new one.





"0122" or "0123" TP SENSOR CIRCUIT MALFUNCTION

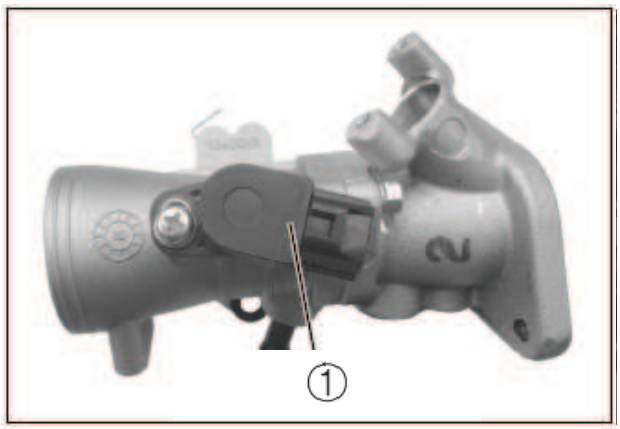
LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0122	
0123	

DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-24**	● TP sensor circuit open or short. ● TP sensor malfunction. ● ECU malfunction.

▣ INSPECTION

◈ Step 1

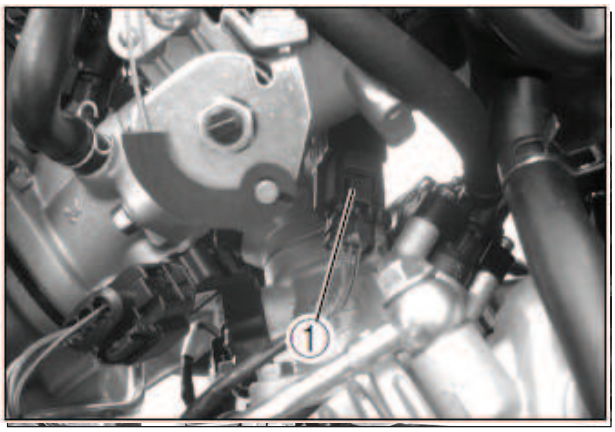
1) Turn the ignition switch "OFF" position.
2) Check the TP sensor coupler for loose or poor contacts.
   If OK, then measure the TP sensor input voltage.
3) Disconnect the TP sensor coupler ①.



4) Turn the ignition switch "ON" position.
5) Measure the voltage at the OB wire and ground.
6) If OK, then measure the voltage at the OB wire and GR wire.

TP sensor input voltage	4.9 ~ 5.1 V (⊕ OB — ⊖ Ground) (⊕ OB — ⊖ GR)

Tester knob indication : Voltage (⎓)



Is the input voltage OK?

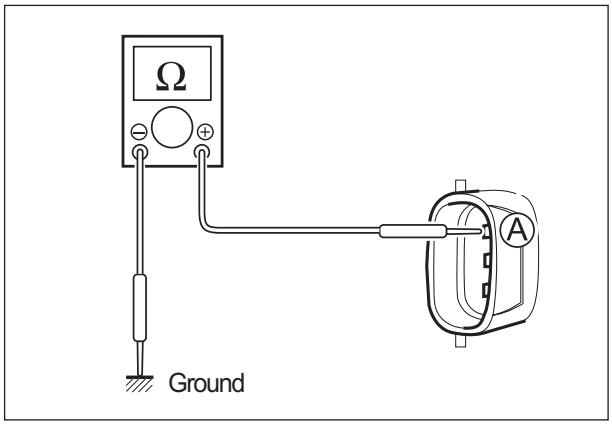
YES	Go to Step 2.
NO	● Loose or poor contacts on the ECU coupler. ● Open or short circuit in the OB wire or GR wire.

◈ Step 2

1) Remove the frame cover.
2) Turn the ignition switch “OFF” position.
3) Disconnect the TP sensor coupler.
4) Check the continuity between Ⓐ (LY) and ground.

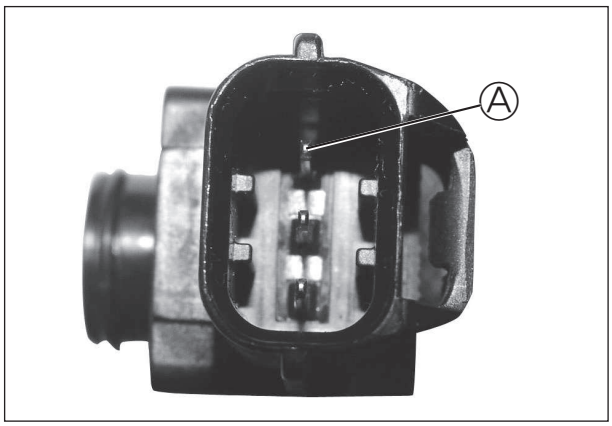
TP sensor continuity	∞ Ω (Infinity) (Ⓐ - Ground)

Tester knob indication : Resistance (Ω)



Is the continuity OK?

YES	Go to Step 3.
NO	Replace the TP sensor with a new one.

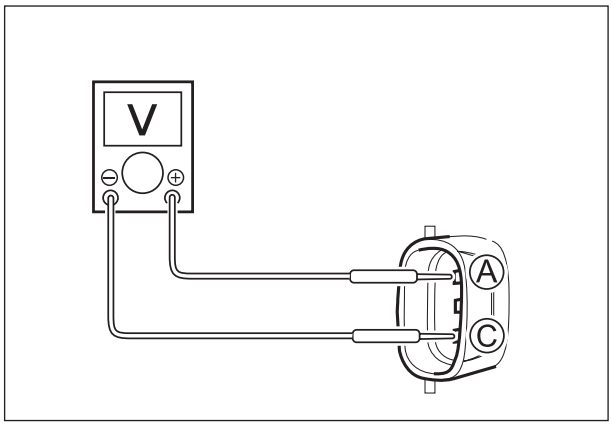


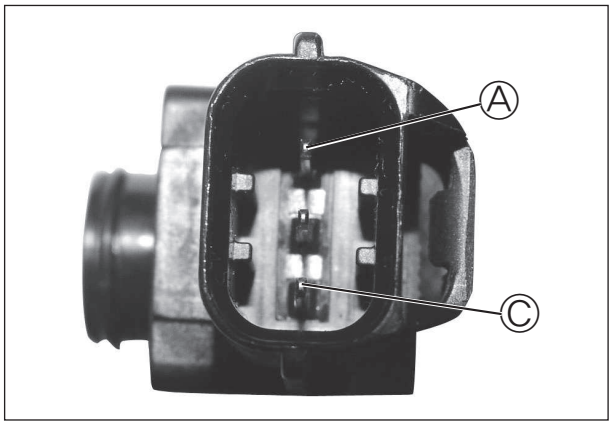
◈ Step 3

1) Connect the TP sensor coupler.
2) Insert the needle pointed probes to the lead wire coupler.
3) Turn the ignition switch “ON” position.
   Measure the TP sensor output voltage at the coupler [between ⊕ (Ⓐ : LY) and ⊖ (Ⓒ : GR)] by turning the throttle grip.

TP sensor output voltage	
Throttle valve is closed	Approx. 1.07 ~ 1.17 V
Throttle valve is opened	Approx. 4.30 ~ 4.70 V

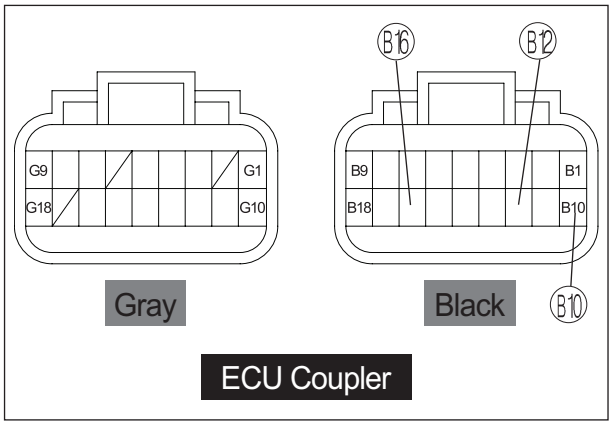
Tester knob indication : Voltage (⎓)





Is the output voltage OK?

YES	● OB, LY or GR wire open or shorted to ground, or poor (B16), (B12), or (B10) connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	If check result is not satisfactory, replace the TP sensor with a new one.



"0201" or "0202" FUEL INJECTOR CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0201	[0 2 0 1 0 2 0 1]
0202	[0 2 0 2 0 2 0 2]

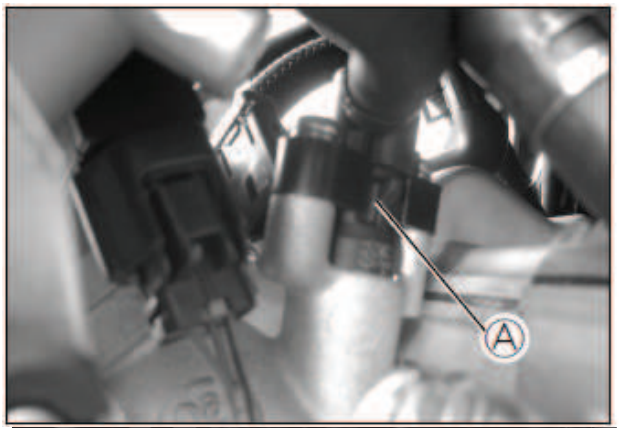
DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-25**	● Injector circuit open or short. ● Injector malfunction. ● ECU malfunction.

▣ INSPECTION

◈ Step 1

1) Remove the fuel tank and frame cover.
2) Turn the ignition switch "OFF" position.
3) Check the injector couplers NO.1 ① and NO.2 ② for loose or poor contacts.
   If OK, then measure the injector resistance.

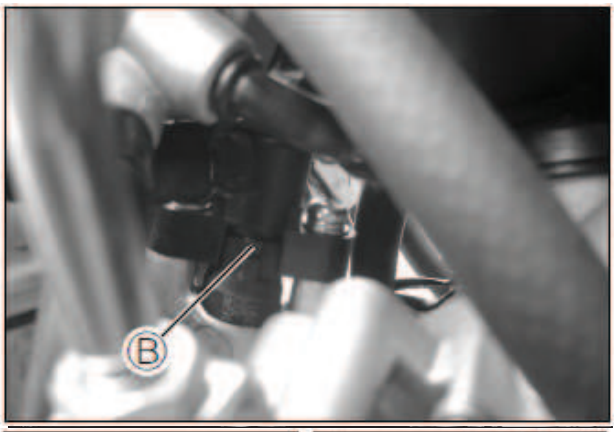
※ Ⓐ : NO. 1 FRONT INJECTOR
Ⓑ : NO. 2 REAR INJECTOR



4) Disconnect the injector couplers NO.1 ① and NO.2 ② and measure the resistance between terminals.

Injector resistance	11.4 ~ 12.6 Ω at 20℃ (68℉)

Tester knob indication : Resistance (Ω)



5) If OK, then check the continuity between injector terminals and ground.

Injector continuity	∞ Ω (Infinity)

Tester knob indication : Resistance (Ω)

Are the resistance and continuity OK?

YES	Go to Step 2
NO	Replace the Injector with a new one.

◈ Step 2

1) Turn the ignition switch “ON” position.
2) Measure the injector voltage between YR(NO.1) or RB(NO.2) wire and ground.

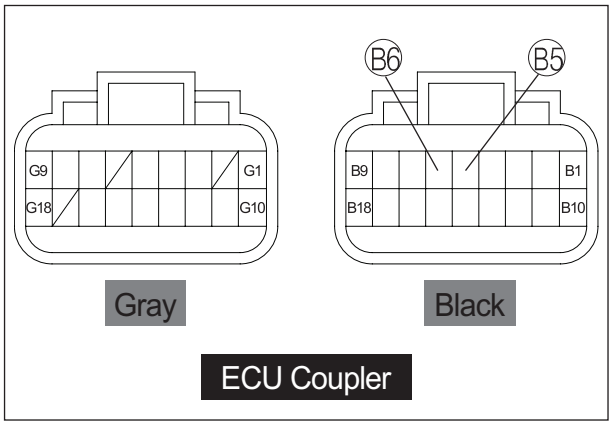
Injector voltage	Battery voltage ([NO.1] ⊕ YR – ⊖ Ground, [NO.2] ⊕ RB – ⊖ Ground)

Tester knob indication : Voltage (⎓)

NOTE
Injector voltage can be detected only 3 seconds after ignition switch is turned “ON” position.

Is the voltage OK?

YES	● YR(NO.1), RB(NO.2) wire open or shorted to ground, or poor Ⓑ5 (NO.1), Ⓑ6 (NO.2) connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Inspect the fuel pump or fuel pump relay. (Refer to page 5-4)



"0230" or "0232" FUEL PUMP RELAY CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0230	
	

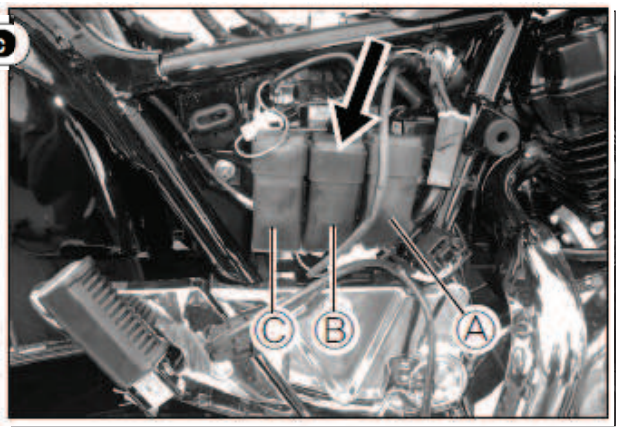
DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-25**	● Fuel pump relay circuit open or short. ● Fuel pump relay malfunction. ● ECU malfunction.

▣ INSPECTION

Mirage 250 EFI D spec

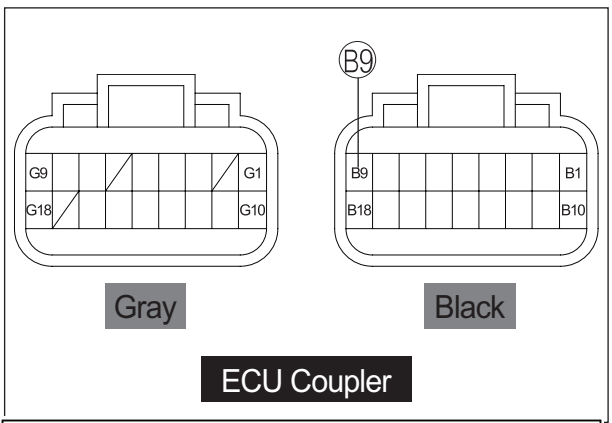
1) Remove the frame cover.
2) Turn the ignition switch "OFF" position.
3) Check the fuel pump relay coupler for loose or poor contacts.
   If OK, then check the insulation and continuity. Refer to page 5-4 for details.

※ Ⓐ : Head lamp relay
Ⓑ : Fuel pump relay
Ⓒ : Main relay
Ⓓ : Turn signal relay

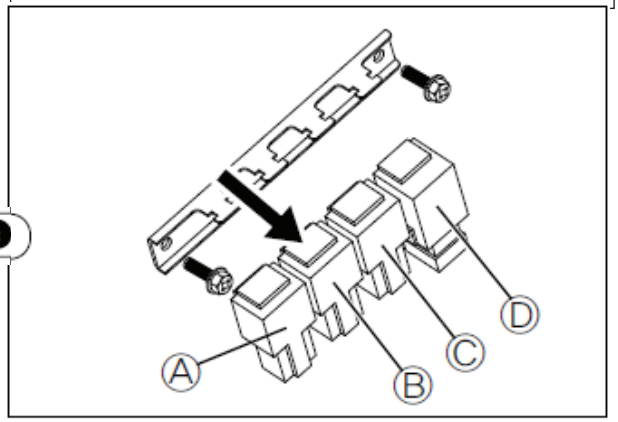


Is the Fuel pump relay OK?

YES	● GW wire open or shorted to ground, or poor Ⓑ9 connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection. ● Inspect the fuel injectors. (Refer to page 4-38)
NO	Replace the fuel pump relay with a new one.



Comet 250 P/R EFI D spec



"0336" or "0337" PICK-UP COIL CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0336	[0 3 3 6 0 3 3 6]
0337	[0 3 3 7 0 3 3 7]

DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-25**	● Metal particles or foreign materiel being attached on the pick-up coil and rotor tip. ● Pick-up coil circuit open or short. ● Pick-up coil malfunction. ● ECU malfunction.

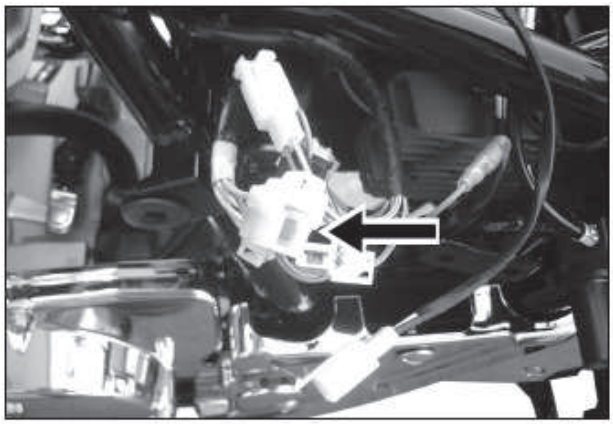
▣ INSPECTION

1) Remove the frame cover.
2) Turn the ignition switch "OFF" position.
3) Check the pick-up coil coupler ① for loose or poor contacts.

4) Disconnect the pick-up coil coupler ① and measure the resistance.

Pick-up coil resistance	85~10 Ω (G – L)

Tester knob indication : Resistance (Ω)



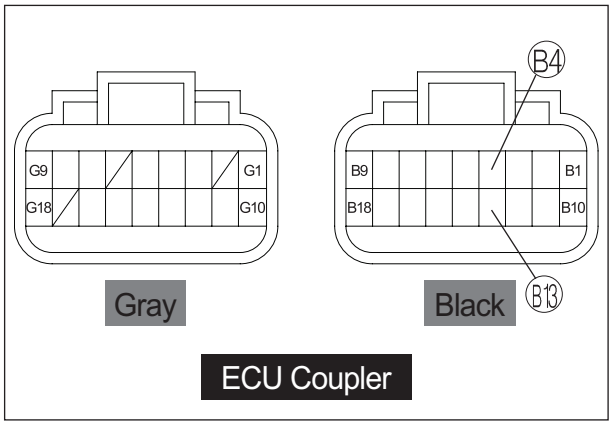
5) If OK, then check the continuity between each terminal and ground.

Pick-up coil continuity	∞ Ω (Infinity) (G – Ground) (L – Ground)

Tester knob indication : Resistance (Ω)

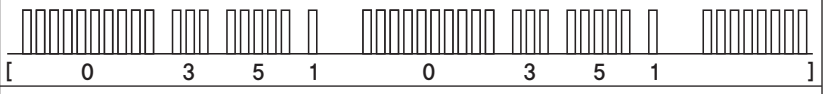
Are the resistance and continuity OK?

YES	● L or G wire open or shorted to ground, or poor (B13) or (B4) connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	● Loose or poor contacts on the pick-up coil coupler or ECU coupler. ● Replace the pick-up coil with a new one.



“0351” or “0352” IGNITION COIL MALFUNCTION

☞ Refer to the IGNITION COIL for details.
(See page 7-5)

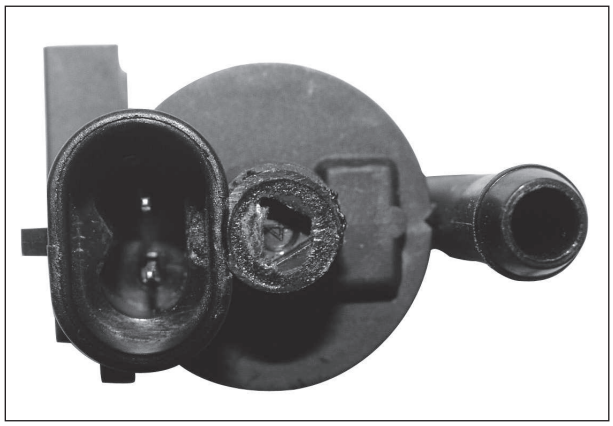
LCD (DISPLAY) INDICATION	“FI” CHECK LAMP INDICATION
0351	
0352	

"0444" or "0445" PURGE CONTROL VALVE CIRCUIT MALFUNCTION (California model only)

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0444	[0 4 4 4 0 4 4 4]
0445	[0 4 4 5 0 4 4 5]

DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-26**	● PV circuit open and short. ● PV malfunction. ● ECU malfunction.

▣ INSPECTION



1) Remove the frame cover.
2) Turn the ignition switch "OFF" position.
3) Check the PV coupler for loose or poor contacts.

4) Disconnect the PV coupler and measure the resistance.

Purge control valve resistance	19 ~ 22 Ω [at 20℃ (68℉)]

Tester knob indication : Resistance (Ω)

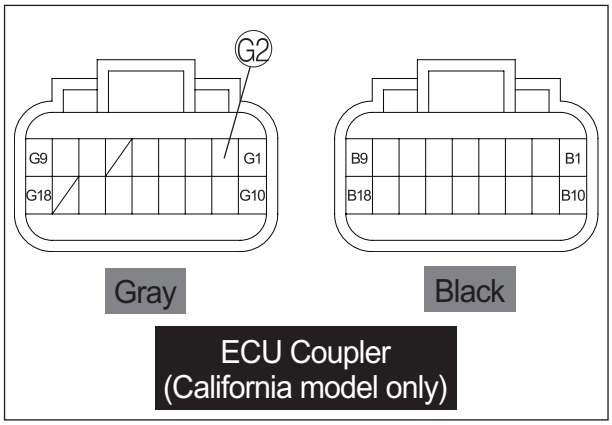
5) If OK, then check the continuity between each terminal and ground.

Purge control valve continuity	∞ Ω (Infinity)

Tester knob indication : Resistance (Ω)

Are the resistance and continuity OK?

YES	● GW wire open or shorted to ground, or poor Ⓖ2 connection of ECU coupler. ● YL coupler open or shorted to the wiring harness. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the purge control valve with a new one.



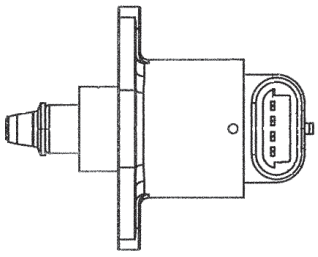
"0505" ISC SOLENOID RANGE ABNORMAL

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0505	[0 5 0 5 0 5]

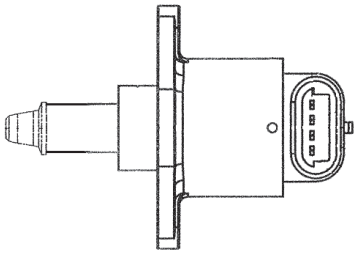
DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-26**	● ISC solenoid malfunction. ● ISC solenoid's step is out of the specified range. ● ECU malfunction.

▣ INSPECTION

1) Remove the front seat.
2) Turn the ignition switch "OFF" position.
3) Check the ISC solenoid coupler for loose or poor contacts.
4) Turn the ignition switch "ON" position to check the ISC solenoid operation.



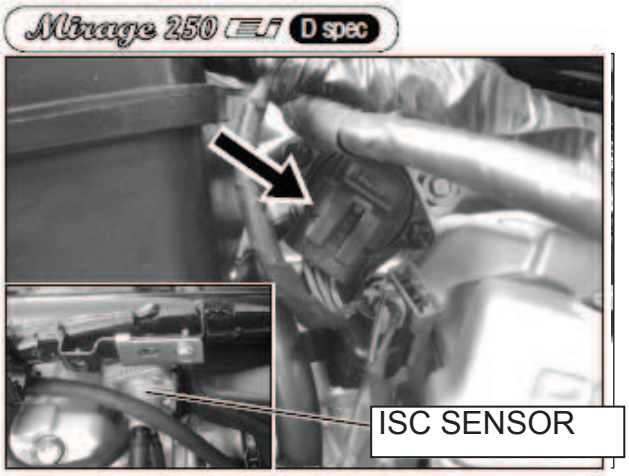
[When Ignition switch "OFF"]

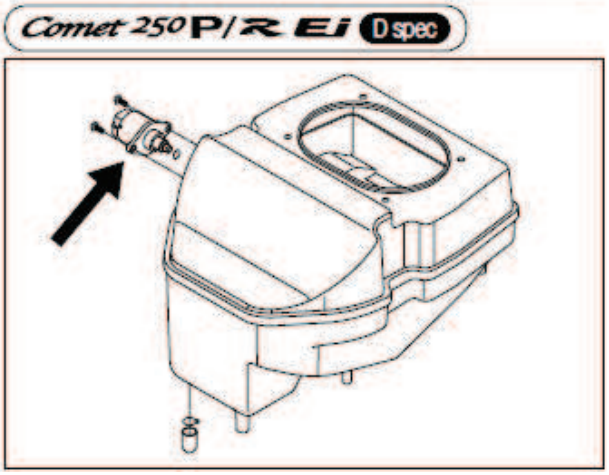


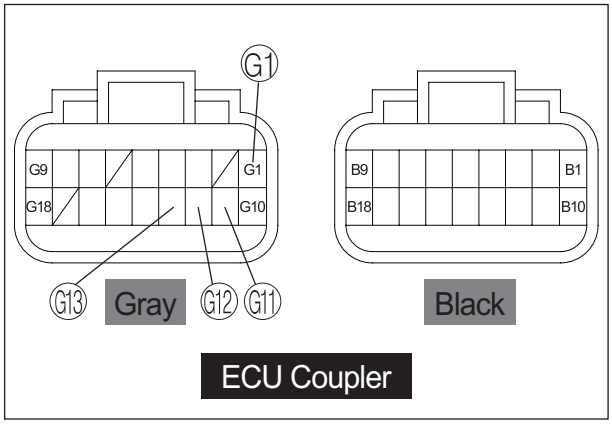
[When Ignition switch "ON"]

Is OK?

YES	● LY, G, BBr or YL wire loose or poor contacts on the ISC solenoid coupler, or poor G13, G12, G11 or G1 connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the ISC solenoid with a new one.







"0562" or "0563" BATTERY VOLTAGE MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0562	[0 5 6 2 0 5 6 2]
0563	[0 5 6 3 0 5 6 3]

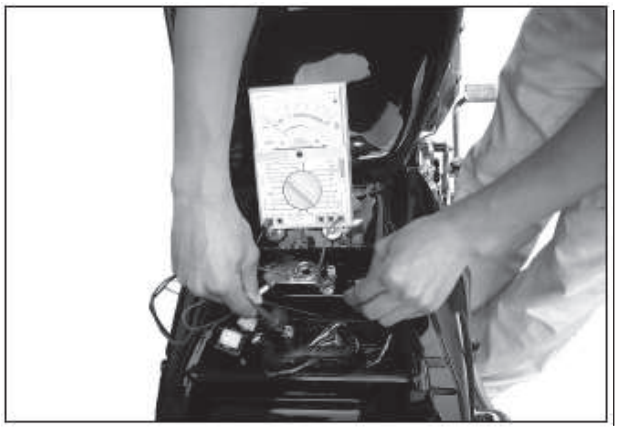
DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-26**	● Battery voltage circuit open and short. ● Battery malfunction. ● ECU malfunction.

▣ INSPECTION

1) Remove the front seat.
2) Turn the ignition switch "OFF" position.
3) Using the pocket tester, measure the DC voltage between the battery (+) and (−) terminal.

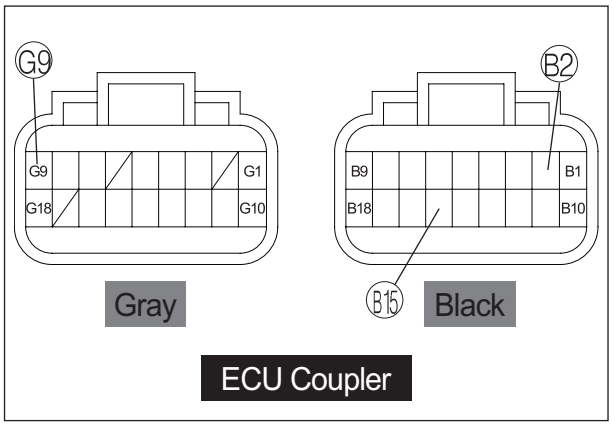
Battery voltage	11 ~ 16 V

Tester knob indication : Voltage (⎓)



Is the battery voltage OK?

YES	● OB, BW or BW wire open or shorted to ground, or poor Ⓑ15, Ⓖ9 or Ⓑ2 connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the battery with a new one.



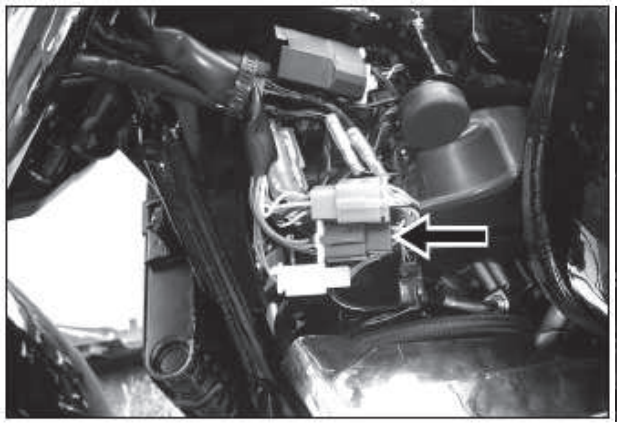
"0650" "FI" CHECK LAMP CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0650	[0 6 5 0 0 6]

DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-26**	● "FI" check lamp circuit open and short. ● "FI" check lamp malfunction. ● ECU malfunction.

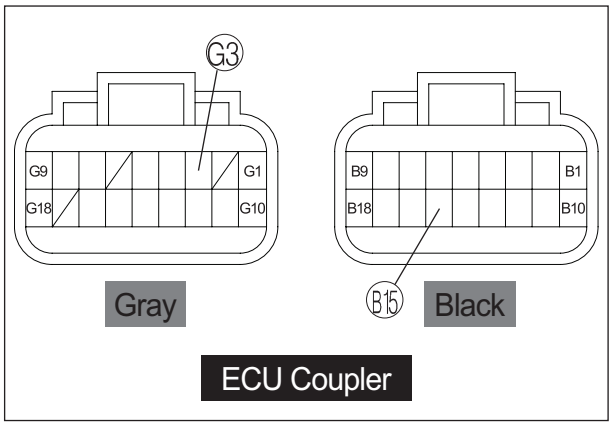
▣ INSPECTION

1) Remove the frame cover.
2) Turn the ignition switch "OFF" position.
3) Disconnect the combination meter lead wires.
4) Connect the battery ⊕ terminal to the O wire of the combination meter and the battery ⊖ terminal to the LY wire of the combination meter directly.



Is the "FI" check lamp come on?

YES	● LY or OB wire open or shorted to ground, or poor G3 or B15 connection of ECU coupler. ● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the combination meter with a new one.



4-1) Kitango 150 EFI Dspec

a. Connect Battery (+) terminal with red(2 pin coupler) from Speedometer and Orange(9 pi n coupler) lead wire
b. Connect Battery (-) terminal with Black/White(9pin coupler) lead wire from Speedometer
c. Connect Battery (-) terminal with Blue/Yellow(2pin coupler) lead wire from Speedometer

4-2) Comet-150 R EFI Dspec

a. Connect Battery (+) terminal with red(1 pin coupler) from Speedometer and Orange(9 pi n coupler) lead wire
b. Connect Battery (-) terminal with Black/White(3pin coupler) lead wire from Speedometer
c. Connect Battery (-) terminal with Blue/Yellow(9pin coupler) lead wire from Speedometer

4-3) Comet-150 P EFI Dspec

a. Connect Battery (+) terminal with red(3 pin coupler) from Speedometer and Orange(9 pi n coupler) lead wire
b. Connect Battery (-) terminal with Black/White(9pin coupler) lead wire from Speedometer
c. Connect Battery (-) terminal with Blue/Yellow(3pin coupler) lead wire from Speedometer

"0850" GP or CLUTCH LEVER SWITCH CIRCUIT MALFUNCTION

LCD (DISPLAY) INDICATION	"FI" CHECK LAMP INDICATION
0850	[0 8 5 0 0 8]

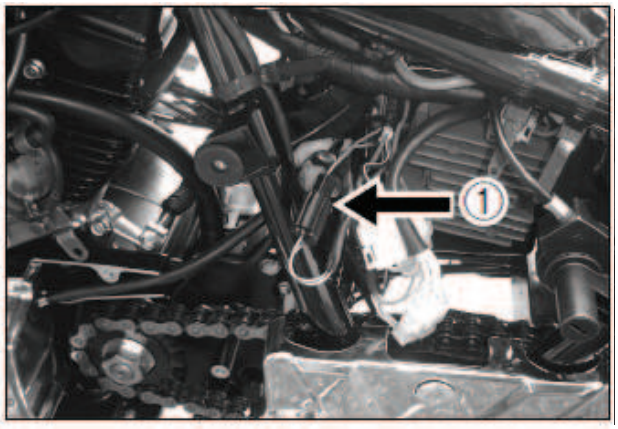
DETECTED CONDITION	POSSIBLE CAUSE
☞ **Refer to page 4-26**	● GP switch circuit open or short. ● GP switch malfunction. ● Clutch lever switch circuit open or short. ● Clutch lever switch malfunction. ● ECU malfunction.

▣ INSPECTION

1) Remove the frame cover.
2) Turn the ignition switch "OFF" position.
3) Check the GP switch and clutch lever switch coupler for loose or poor contacts.
   If OK, then measure the GP switch and the clutch lever switch resistance.
4) Park the motorcycle on a firm, flat surface vertically.
5) Disconnect the GP switch coupler ① and then check the continuity between L wire and ground when gearshift lever is shifted to the neutral state.

GP switch continuity	0 Ω (L - Ground)

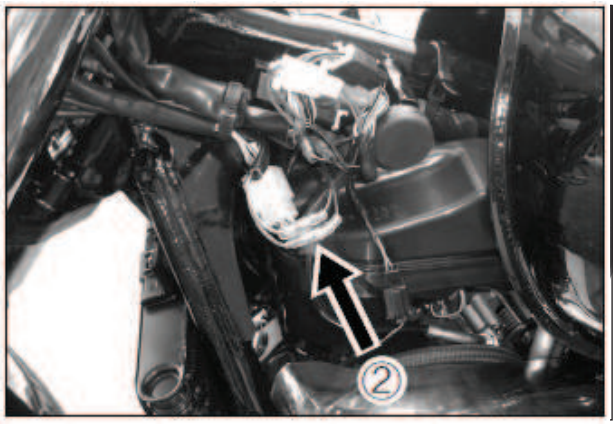
Tester knob indication : Resistance (Ω)



6) Disconnect the clutch lever switch coupler ② and then check the continuity between GR wire and Br wire when the squeezing the clutch lever.

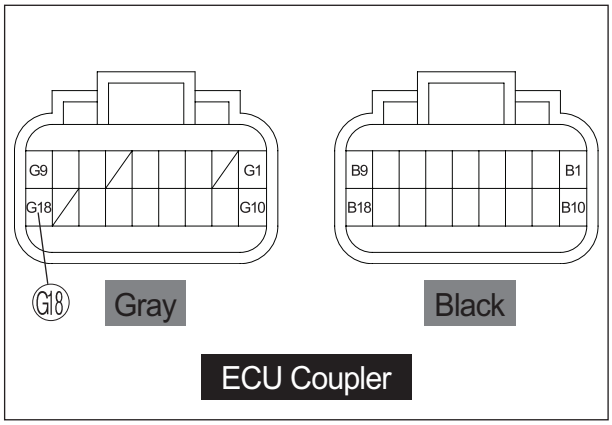
Clutch lever switch continuity	0 Ω (GR - Br)

Tester knob indication : Resistance (Ω)



7) Measure the voltage between ⑱ of the ECU and the LY wire of the wiring harness's GP switch coupler, and measure the voltage between ⑱ of the ECU and the GR wire of the wiring harness's clutch lever switch coupler.
If the measurement is out of 0.4 ~ 0.7 V, replacce the DIODE #3 with a new one

Tester knob indication : Diode test (⊣◀)



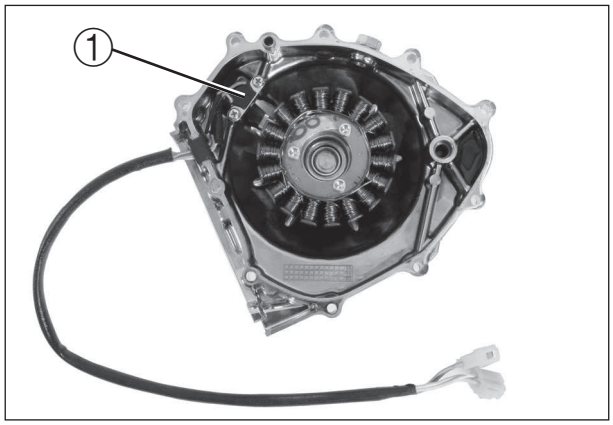
Is OK?

YES	● If wire and connection are OK, intermittent trouble or faulty ECU. ● Recheck each terminal and wire harness for open circuit and poor connection.
NO	Replace the GP switch or Clutch lever switch with a new one.

SENSORS

⊙ PICK-UP COIL INSPECTION

The pick-up coil ① is installed in the magneto cover. (Refer to page 4-41)

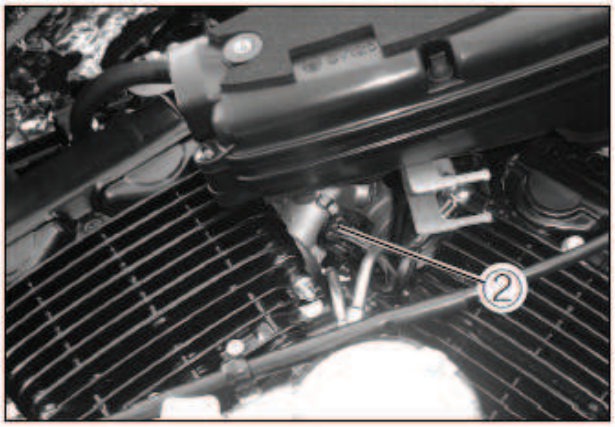


⊙ PICK-UP COIL REMOVAL AND INSTALLATION

- Remove the magneto cover.
- Install the magneto cover in the reverse order of removal.

⊙ IAP SENSOR INSPECTION

The intake air pressure (IAP) sensor ② is installed at the left side of the throttle body. (Refer to page 4-29)

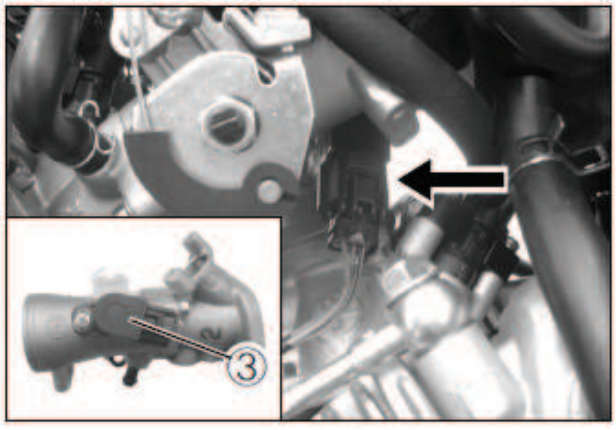


⊙ IAP SENSOR REMOVAL AND INSTALLATION

- Remove the fuel tank.
- Remove the IAP sensor from the left side of the throttle body.
- Install the IAP sensor in the reverse order of removal.

⊙ TP SENSOR INSPECTION

The throttle position (TP) sensor ③ is installed at the left side of the throttle body. (Refer to page 4-35)



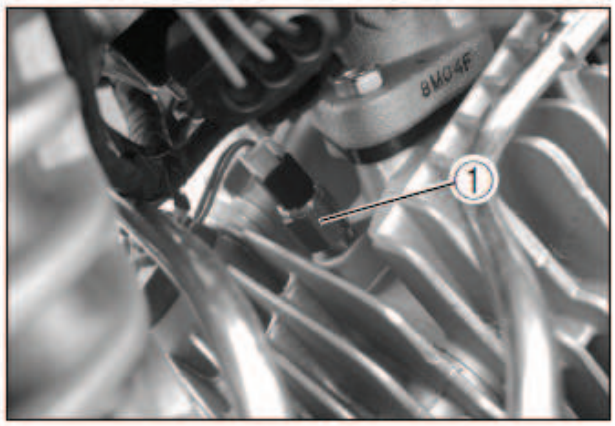
⊙ TP SENSOR REMOVAL AND INSTALLATION

⚠ CAUTION

Never remove or adjust the TP sensor.

⊙ WT SENSOR INSPECTION

The water temperature (WT) sensor ① is installed at the rear side of the thermostat case.
(Refer to page 4-33)



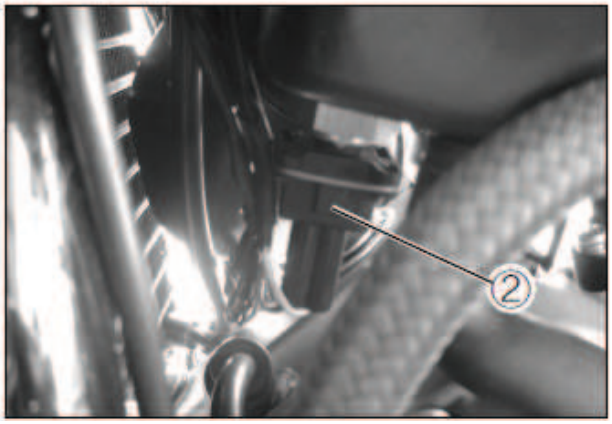
⊙ WT SENSOR REMOVAL AND INSTALLATION

- Remove the WT sensor.
- Install the WT sensor in the reverse order of removal.

WT sensor : 5 ~ 8 N · m (0.5 ~ 0.8 kgf · m)

⊙ IAT SENSOR INSPECTION

The intake air temperature (IAT) sensor ② is installed at the downside of the air cleaner case.
(Refer to page 4-31)



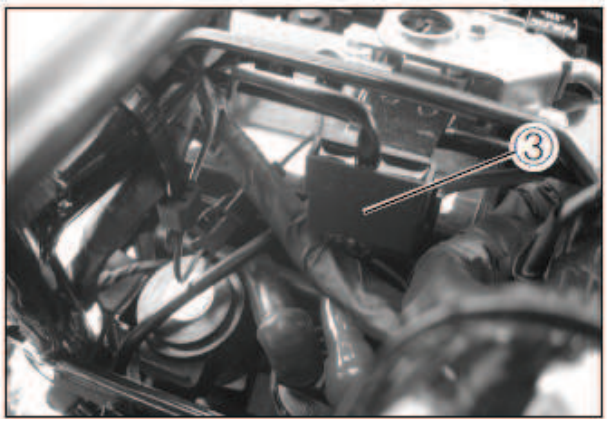
⊙ IAT SENSOR REMOVAL AND INSTALLATION

- Remove the fuel tank.
- Remove the IAT sensor from the air cleaner case.
- Install the IAT sensor in the reverse order of removal.

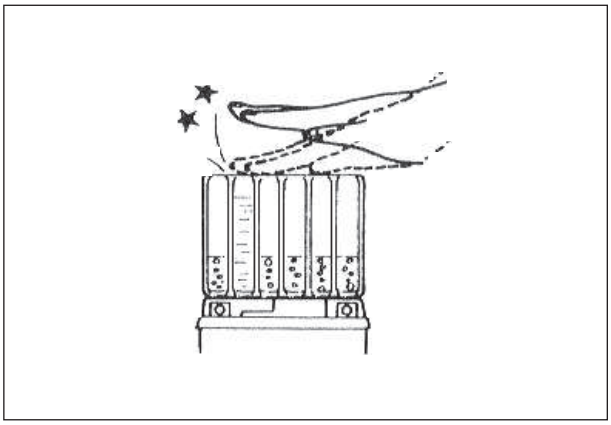
⊙ RO SWITCH INSPECTION, REMOVAL AND INSTALLATION

The roll over (RO) switch ③ is located in the downside of the fuel tank mounting bolts.

- Romove the front seat.
- Remove the RO switch from the frame.
- Install the RO switch in the reverse order of removal.



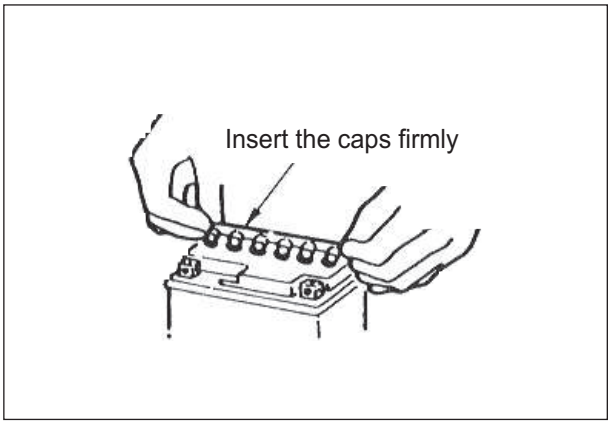
⑤ Separation of electrolyte container
After confirming that you entered the electrolyte into battery completely, remove the electrolyte containers from the battery.



⚠ CAUTION

Draw the empty receptacle out slowly because there may be a chance remaining electrolyte vaporize.

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

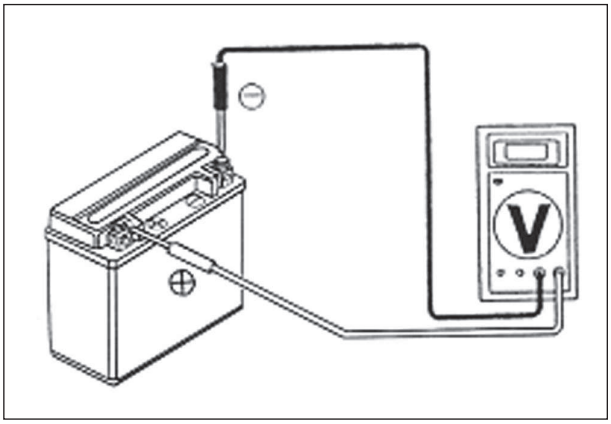


⊙ SERVICING

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one. If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

⊙ RECHARGING OPERATION

- Using the pocket tester, check the battery voltage. If the voltage reading is less than the 12.0 V (DC), recharge the battery with a battery charger.



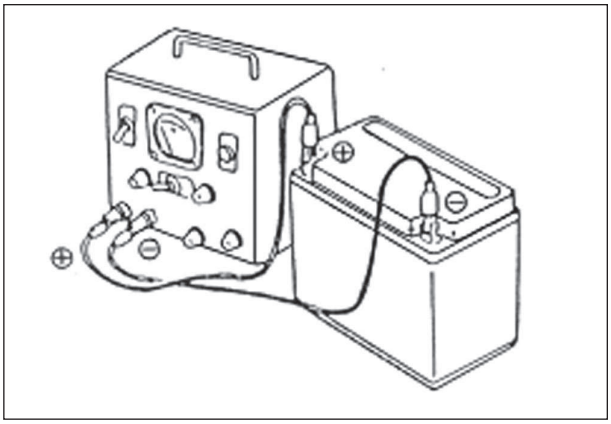
How to charge	
Standard	1.2 A × 5~10 hours
Fast	6 A × 30 minutes

⚠ CAUTION

When recharging the battery, remove the battery from the vehicle.

NOTE

Do not remove the caps on the battery top while recharging.



⚠ CAUTION

Be careful not to permit the charging current to exceed 4A at any time.

- After recharging, wait for more than 30 minutes and check the battery voltage with a pocket tester.
- If the battery voltage is less than the 12.5V, recharge the battery again.
- If battery voltage is still less than 12.5V, after recharging, replace the battery with a new one.
- When the vehicle is not used for a long period, check the battery every 1 month to prevent the battery discharge.