# Keihin EFI Components Brief-Check Manual

RV/Joymax/GTS 250i

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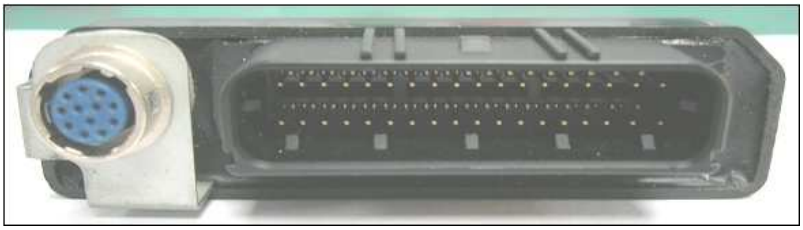
## 1.ECU (Engine Control Unit):

**1). Illustration:**



| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 3 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | | 24 | 25 | | | | | | 31 | 32 | | | 35 | 36 |

Fig. 1 : ECU Pin Assignment

**2). Check procedure:**

a). Connect the diagnostic to the vehicle through the connector onboard.

b). Key-on but don't start the engine.

c). Check if the connection between ECU and Diagnostic is good.

d). We can check the ECU ID number by the following figure 2.

e). Check if the model number and the software version of ECU are both correct.

f). Check if there is any trouble code in the Diagnostic. If yes, please erase it.

g). Start the engine.

h). Check for the parameters in the Diagnostic to see if they are all in normal range.

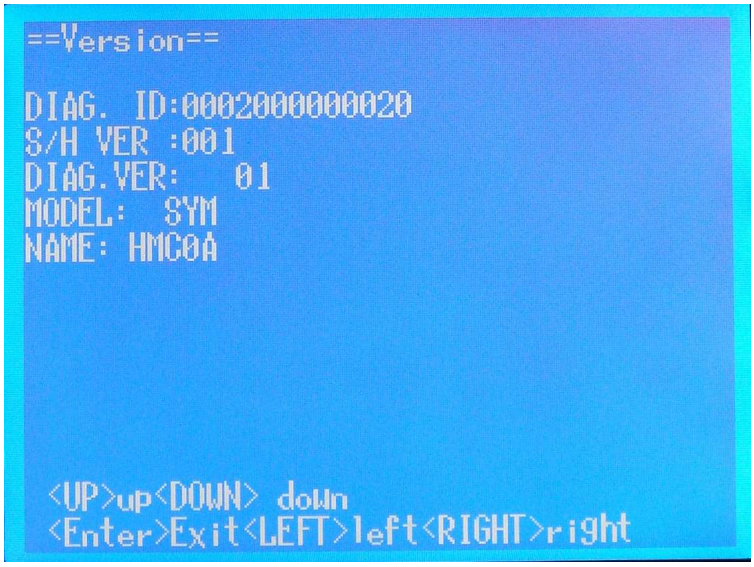



Figure 2

**3). Malfunction determination:**

a). ECU ID correct

b). Trouble code can be erased and won't show up again after re-start.

**4). Abnormal phenomenon and treatment:**

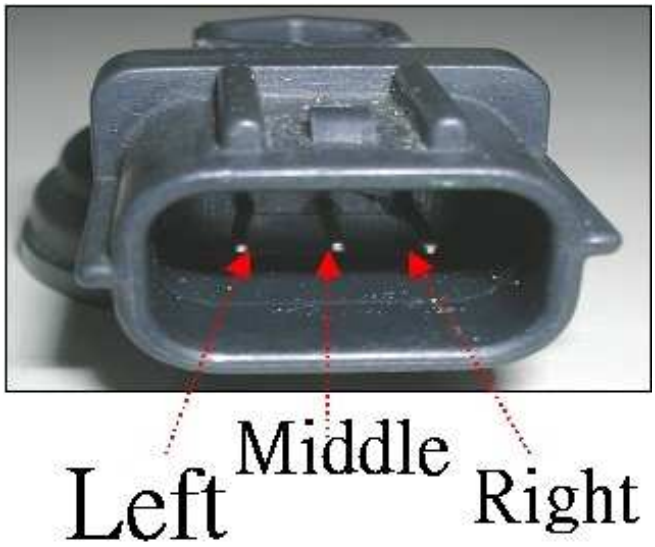
a). Unable to connect→ Check the Diagnostic if any error, then check the ECU by replacing another new one.

b). Unable to start→ Check the perimeter parts and ECU for error.

c). Trouble code appears→ Check the perimeter parts and ECU for error. Check the malfunction reason and re-confirm.

## 2. PM Sensor (Manifold Pressure Sensor)

**1). Illustration:**




| PIN | Wire color | Function |
|---|---|---|
| **Left (pin1)** | Yellow/Black | 5V Voltage input |
| **Middle (pin2)** | Black / Red | Signal output |
| **Right (pin3)** | Green / Red | Ground wire |

**2). Power Source:**

By ECU.

**3). Check procedure:**

a). PM Sensor connection (Use the detection pin)

b). Key-On, but don't start the engine.

c). Use the electric meter DCV function to check the PM sensor voltage

d). Check the working voltage: (Like the following figure 3)

- Electric meter negative pole— Connect the third pin (Green / Red).
- Electric meter positive pole— Connect the first pin on the left ( Yellow / Black )

e). Check the signal voltage value for sea-level air pressure: (Like the following figure 4)

- Electric meter negative pole— Connect to the third pin (Green / Red)
- Electric meter positive pole— Connect the middle pin (Black / Red)

☆Note that the detection pin must penetrate the skin of the electric wires to get the correct readings.

**4). Malfunction determination:**

a). Working voltage = 5.0 ± 0.1V

b). Signal voltage value for sea-level air pressure =2.87 V ± 0.03 V (Under 101.3kpa)

c). The higher altitude will reduce the voltage output.

☆ Sea-level air pressure = 1Atm = 101.3kpa = 760mmHg = 1013mbar

**5). Abnormal phenomenon and treatment:**

a). Sensor malfunction or bad coupler contact.

b). Check Wire harness.

c). PM sensor abnormal, replace with a new one and measure the voltage again.

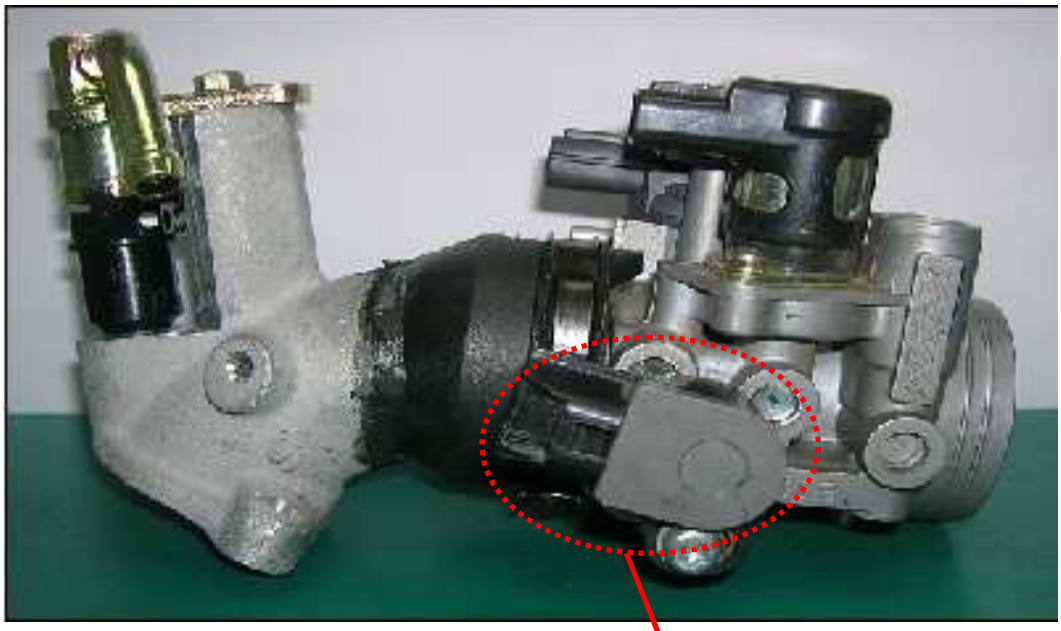
d). ECU abnormal, replace with a new one and measure the voltage again.

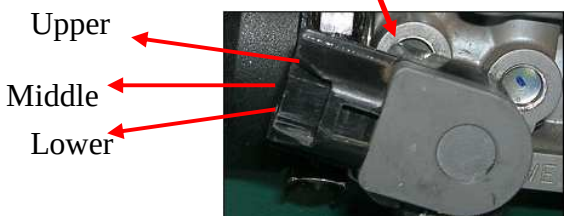

Fig.3 PM Sensor working Voltage measurement


Fig.4 PM Sensor voltage signal output at sea level

## 3.TPS (Throttle Position Sensor):

**1). Illustration:**






Throttle Position Sensor

| PIN | Wire Color | Function |
|---|---|---|
| **Upper (pin 1)** | White / Brown | Ground Wire |
| **Middle (pin 2)** | Yellow / Black | 5V Voltage input |
| **Lower (pin 3)** | Green / Red | Signal Output |

**2). Power Source:**

By ECU

**3). Check procedure:**

1. Working Voltage Check

a). Use detection pin under TPS Sensor coupler connected; or disconnect the coupler to measure the voltage readings directly from the ECU side.

b). Key-On, but don't start the engine.

c). Use the electric meter DCV function to check the TPS sensor voltage.

d). Check the working voltage: (Like the following Figure 5)

- Electric meter negative pole— connect the upper pin of the Sensor (White / Brown)
- Electric meter positive pole— connect the middle pin of the Sensor ( Yellow / Black )


Fig. 5 TPS working voltage measurement from ECU side

2. TPS signal output confirms.

a). Connect the TPS Sensor (Use detection pin)

b). Key-On, but don't start the engine.

c). Use the electric meter DCV function to check the TPS sensor output voltage.

d). Check the output voltage: (Like the following figure 6)

- Electric meter negative pole— connect to the first pin of sensor coupler (White / Brown)
- Electric meter positive pole— connect to the third pin of sensor coupler (Green / Red)

e). Measure the voltage readings of full-open throttle and full-closed throttle separately.


(A) Full-closed Throttle


(B) Full-open Throttle

Figure. 6 Voltage readings of full-open throttle and full-closed throttle

@ If a Diagnostic is available; we can check the TPS voltage output on the function menu.

a). Connect the Diagnostic; Key-On, but don't start the engine

b). Use the Data Stream mode to view the readings of TPS sensor.

c). Twist the throttle grip to view the voltage value, as the following figure 7 shows.

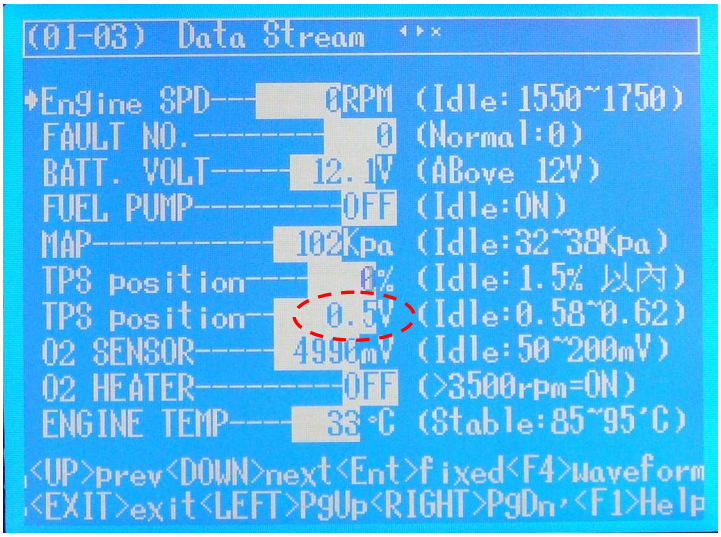



Figure 7. TPS sensor voltage value readings on Diagnostic screen

**4). Malfunction determination:**

a). Working voltage value = 5.0 V ± 0.1 V

b). Full-closed throttle voltage = 0.6V ± 0.02V

c). Full-open throttle voltage = 3.77V ± 0.1V

5). **Abnormal phenomenon and treatment:**

a). Sensor error or coupler bad contact.

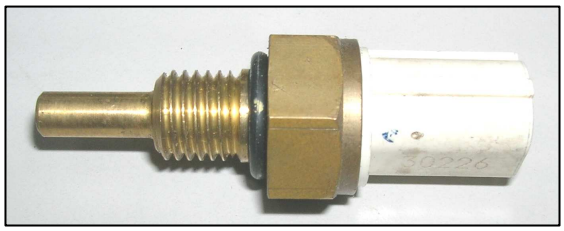
b). Check Wire harness for twisted or bad contact wires.

c). TPS may be abnormal; replace with a new throttle body and measure again.

********Disassembly of TPS sensor from Throttle body is strictly forbidden. ********

## 4. TW Sensor (Water Temp. Sensor):

**1). Illustration:**



**2). Check procedure:**

1. Electrical Resistance measurement.

a). Disassemble the TW sensor.

b). Use the Resistance mode on the electric meter to check the OHM value of TW sensor (Like the following Figure 8)


Fig. 8 Measuring the electrical resistance of TW

**3). Malfunction determination:**

a). The following figure is the relation between electrical resistance and temperature.

| Temp(℃) | Electrical Resistance(KΩ) |
|---|---|
| **-20** | 18.8 ± 2.4 |
| **40** | 1.136 ± 0.1 |
| **100** | 0.1553 ± 0.007 |

**4). Abnormal phenomenon and treatment:**

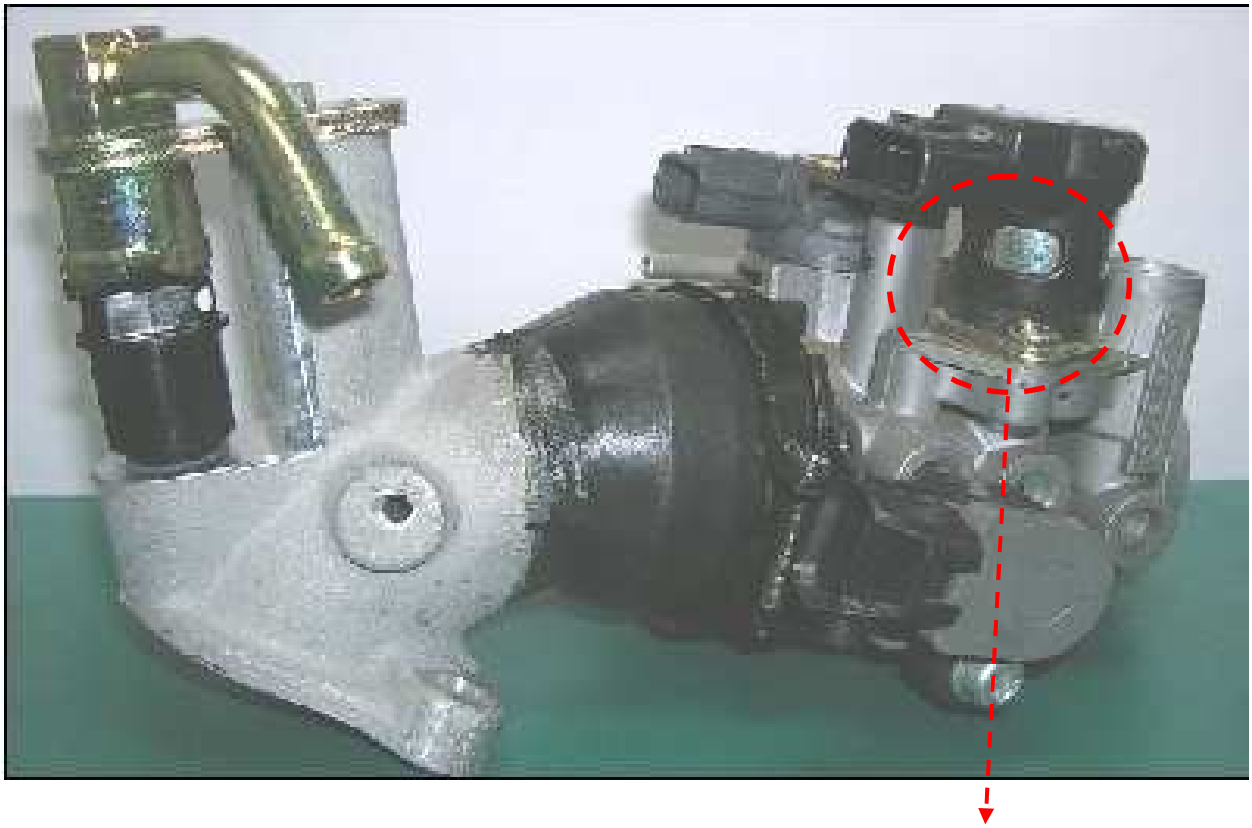
a). Sensor error or the coupler has bad contact.

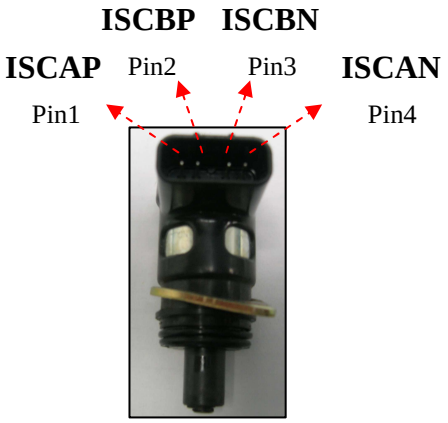
b). Check Wire harness for twisted or bad contact wires.

c). ETS abnormal, replace with a new sensor.

## 5. Idle Speed Control (stepping motor):

**1). Illustration:**






ISC coupler pin identification

Idle Speed Control Stepping Motor

**2). Power Source:**

By ECU.

**3). Check procedure:**

1. Electrical resistance examination:

a). Separate the Idle Speed Control coupler (The measurement can also been taken on the throttle body)

b). Use the resistance mode on the electric meter (as figure 9)

c). There are two phases in the ISC resistance measurement: Phase A and Phase B.

d). The two pins of ISC Phase A are ISCAP and ISCAN; on the other hand, ISC Phase B are ISCBP and ISCBN.

2. Functional Test: (This test can only done with ISC unit on the throttle body)

a). Key off.

b). Hold the ISC unit with hand

c). Open the throttle fully

d). Key on

e). Feel if the ISC unit is activated or not.


Measurement of Resistance in A phase


Measurement of Resistance in B phase

Figure 9. ISC Resistance measurement

**4). Malfunction determination:**

a). Resistance in A phase = 80 ± 10Ω (Environment temperature:15 ~ 25℃ )

Resistance in B phase = 80 ± 10Ω (Environment temperature:15 ~ 25℃ )

b). When ISC Stepping Motor is activated, it will vibrate or making some continuous ticking sound.

**5). Abnormal phenomenon and treatment:**

a). Bad contact in coupler.

b). Check Wire harness for twisted or bad contact wires.

c). ISC abnormal, replace with a new component

## 6. $O_2$ Sensor (Exhaust Gas Oxygen Sensor):

**1). Illustration:**

**2). Power Source:**

a). Heating coil: From Battery

**3). Check procedure**:

1. Working voltage confirmation

a). Separate the coupler between $O_2$ Sensor and Wire harness; the pin assignment is like figure 10.

b). Key-On, but don't start the engine.

c). Use the electric meter DCV function to check the $O_2$ Sensor heater voltage.

d). Check the working voltage (From the wire harness side):

(Like the following figure11)

Use the electric meter negative pole to connect the second pin in the coupler (Red/orange)

Use the electric meter positive pole to connect the first pin in the coupler (Red / Yellow )

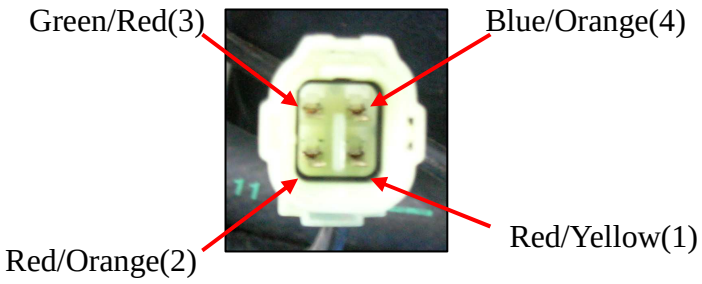



Figure 10. Wire harness side $O_2$ Sensor Coupler


Figure 11. $O_2$ Sensor heater voltage measurement

2. Electrical Resistance confirm

a). Separate the coupler between $O_2$ Sensor and Wire harness, as the figure 12 shows.

b). Use the resistance mode on the electric meter.

c). Measuring the value on the $O_2$ sensor side coupler: (as the figure 13 shows)

Use the electric meter negative pole to connect the second pin in the coupler (White)
Electric meter positive pole — connect to the first pin of coupler (White )

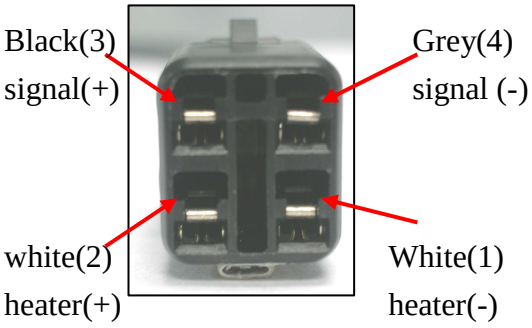



Figure 12 The Coupler of $O_2$ Sensor from sensor side view

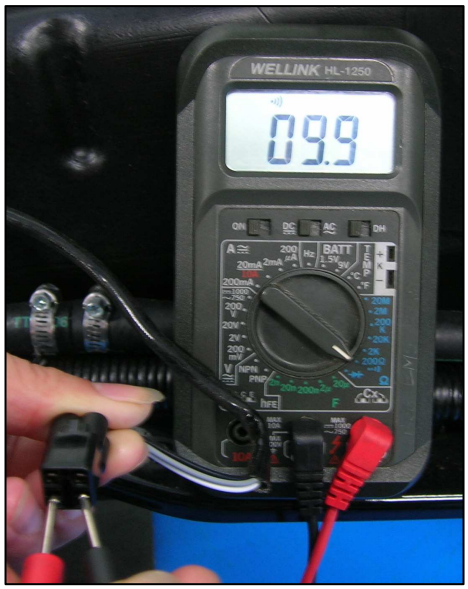



Figure 13 $O_2$ Sensor electrical resistance measurement

3. Use Diagnostic to check the working condition of $O_2$ Sensor.
   a). Connect the Diagnostic, Key-on and start the engine.
   b). Fully warm up the engine (Idle the engine at least ***5min***), use the main stand to lift off the rear wheel. Accelerate the engine around 4500rpm, and observe the $O_2$ Sensor working condition.
   c). Use the Diagnostic "Data Stream" mode, and move the cursor to "$O_2$ Sensor" and press F4 to activate the waveform analysis of the $O_2$ Sensor signal voltage. As the Figure 14 shows.
   d). Observe the $O_2$ Sensor voltage fluctuating situation.

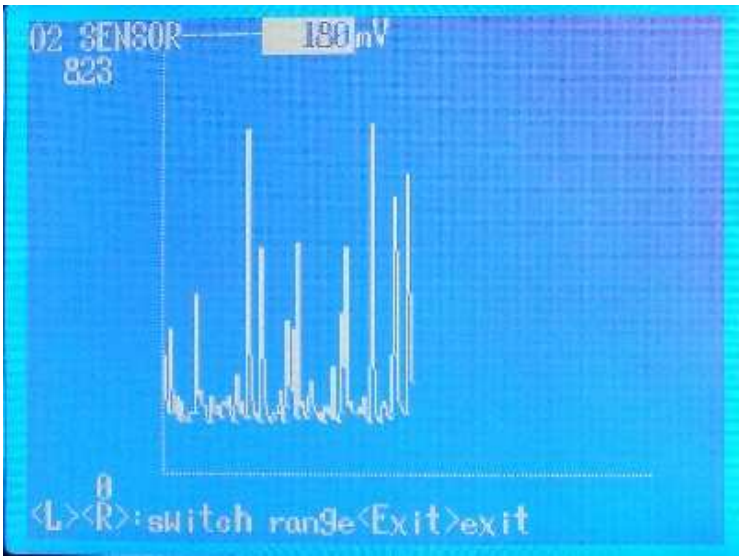



Figure 14 $0_2$ Sensor voltage signal fluctuating waveform

**4). Malfunction determination :**

a).Working Voltage = Over 10V.

b).Electrical resistance value = 6.7~~10.5Ω

a). If the $O_2$ Sensor signal fluctuates between 100 ~ 900 mV, the close-loop pollution control system is normal. If not in this range, the system is abnormal.

**5). Abnormal phenomenon and treatment:**

a). Sensor damaged, broken wire around the Heater, or bad contact of couplers.

b). $O_2$ Sensor abnormal, replace with a new sensor and test again.

## 7. Roll over Sensor:

**1). Picture Illustration:**


**2). Main Function**

When the vehicle topping off more than 65 degrees, ECU will shut down the whole system.

*You will have to key-on and off again to start the engine again.*

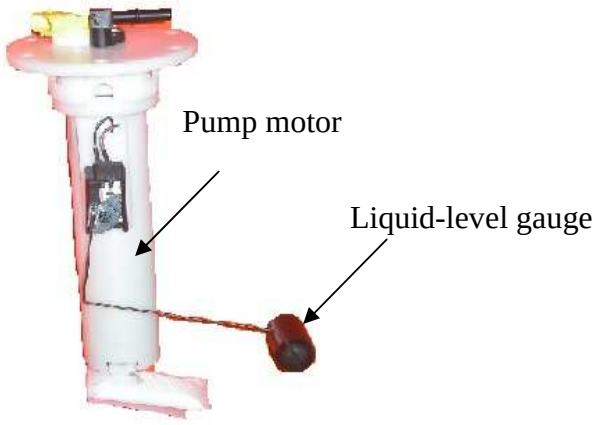
**3). Abnormal phenomenon and treatment:**

a). Sensor damaged or bad contact couplers.

b). Roll over sensor abnormal, replace with a new sensor.

## 8.Fuel Pump:

**1). Picture Illustration :**




**2). Power Source:**

a). **Power Source** →Fuel Pump is provided by battery

The fuel gauge is from ECU

**3). Check procedure :**

Fuel pump working voltage confirmation.

a). We can measure the voltage whether the coupler is connected or not. If connected, use the detection pin to penetrate the wire. The pin assign is like the following figure 15.

b). Key-On, but don't start the engine.

c). Use the electric meter DCV function to check the voltage of Fuel Pump.

d). Check the working voltage: (Shows in Figure 15)

Electric meter negative pole — connect to the second pin of coupler (Green)

Electric meter positive pole — connect to the first pin of coupler (Purple )


Figure 15a Measurement of Fuel Pump Working Voltage

Liquid level guage(-) (Green)

Fuel Pump(-) (Green)

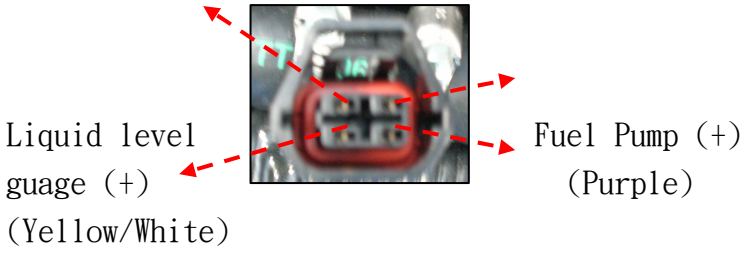



Figure 15b The coupler pin assign view

Liquid-level gauge working Voltage confirmation

a). We can measure the voltage whether the coupler is connected or not. If connected, use the detection pin to penetrate the wire. The pin assign is like the Figure 16.

b). Key-On, but don't start the engine.

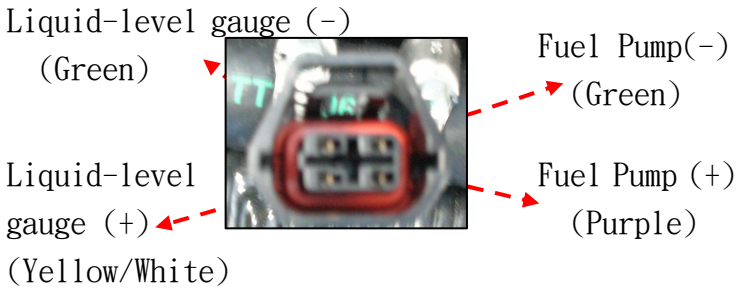
c). Use the electric meter DCV function to check the working voltage of fuel pump.

d). Check the working voltage: (Shows in Figure 16)

Electric meter negative pole — connect the second pin of coupler (Green)

Electric meter positive pole — connect the first pin of coupler (Yellow)


Working Voltage measurement




The pin assign of Coupler

Figure 16 Fuel pump working voltage measurement and coupler pin assign

If we don't start the engine after Key–on for 3 seconds duration, ECU will cut off the working voltage of fuel pump.

Liquid-level gauge electrical resistance measurement

a). Dissemble the coupler of Fuel Pump.

b). Use the Ohm function of the electrical meter to check the resistance value of liquid-level gauge. Shown in Figure 17a. (Pin assign is shown in Figure 17b)


Figure 17a. Electrical resistance

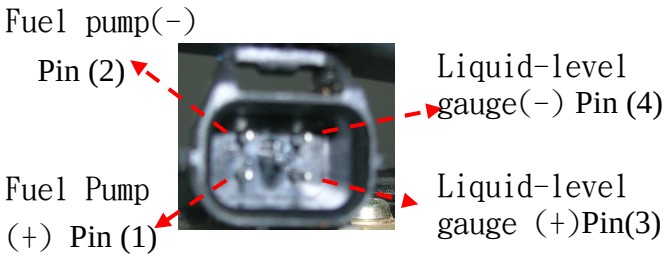


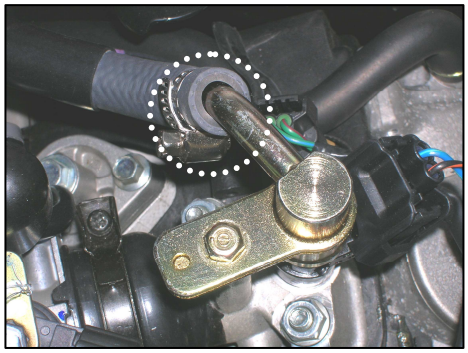

Figure 17b. The view of coupler from fuel tank side

Fuel pressure measurement

a). Use a fuel pressure gauge to connect between fuel tank and fuel injector, as shown in figure 18.

Figure 18. Fuel pressure measurement

After measuring the fuel pressure, we ***MUST*** check the following joints to see if any leakage found. For example, the injector or the fuel pump joints shown in figure 19. This must be done to ensure safety.



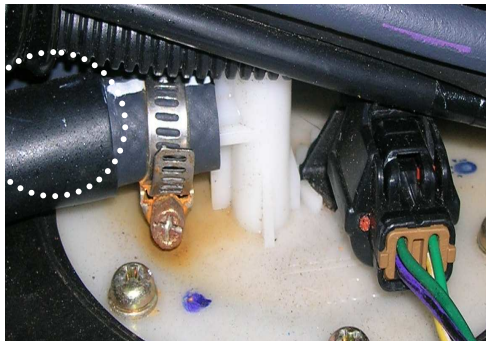


Figure 19 Possible leaking points after Fuel pressure measurement

**4). Malfunction determination:**

a). Fuel pimp working voltage= over 10V

Liquid-level working voltage= over 5V

b). Liquid-level gauge electrical resistance value = 7~95±5Ω

c). Fuel pump normal pressure = 294 ± 6 Kpa

**5). Abnormal phenomenon and treatment:**

a). Pump coil damaged or bad contact in coupler.

b). Congested filter.

c). Pump abnormal, replace with a new pump.

d). Liquid-level gauge abnormal, replace with a new component.

## 9. Fuel Injector:

**1). Picture illustration:**

**2). Power source**:

Power source → Battery

**3). Check procedure:**

Ⅰ). Electrical resistance measurement:

a). Use the Ohm function of electrical meter to check the resistance value of fuel injector. (As shown in figure 20.)


Figure 20. Measuring fuel injector electrical

**Ⅱ). Injector integrity inspection**:

a). Remove the holding bolts of injector, but keep the fuel source steady.

b). Hold the injector with hands, normally there should be no leakage found.

c). Key-on and start the engine, observe the fuel injection condition.

**4). Malfunction determination:**

Ⅰ). The electrical resistance value between two pins = 11.7 ± 0.6 (Ω)

Ⅱ). Injection status:

a). Good nebulization: Widespread fuel spray indicates normal injector integrity. (As shown in figure 21.)

Figure 21. Good nebulization- normal injector

b). Abnormal injector condition: The injection spray will be narrow, with poor nebulization (As shown in Figure 22)

Figure 22. Bad nebulization- abnormal injector

5). **Abnormal phenomenon and treatment:**

a). Electrical resistance value NG → Injector abnormal, replace with a new component.

b). Bad Injection system integrity- there are several possible causes:

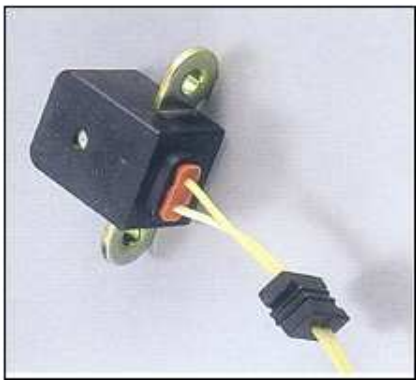
Congested injector → replace with a new injector

Insufficient fuel pressure → Check the fuel pump system and reconfirm the fuel pressure afterwards.

***When checking the fuel injector integrity, the fuel injected MUST be collected with proper container to avoid possible danger.

## 10 Crank Position Sensor

**1). Picture illustration:**



**2). Check procedure:**

Measuring the electrical resistance:

a). Use the Ohm function of electric meter to check the resistance value of pulse sensor (As shown in figure 23 )


Figure 23. Measuring the resistance value of pulse sensor

**4). Malfunction determination:**

Electrical resistance value = 80~160(Ω)

**5). Abnormal phenomenon and treatment:**

a). Sensor error or the coupler has bad contact.

b). Check Wire harness for twisted or bad contact wires.

c). CPS abnormal, replace with a new sensor

## 11、AT (Air Temperature sensor)

**1). Picture illustration:**

**2). Check procedure:**

Electrical resistance measurement:

a). Use the Ohm function of electric meter to check the resistance value of AT sensor (As shown in figure 24 )


Figure 24. Measuring the resistance value of AT sensor

**3). Malfunction determination:**

a). The relationship between electrical resistance value and the environmental temperature.

| TEMP(℃) | Electrical resistance value(KΩ) |
|---|---|
| -20 | 18.8 ± 2.4 |
| 40 | 1.136 ± 0.1 |
| 100 | 0.1553 ± 0.007 |

**4). Abnormal phenomenon and treatment:**

a). Sensor error or the coupler has bad contact pins.

b). Check wire harness for twisted or bad contact wires.

c). AT sensor abnormal, replace with a new sensor

## 12、AISV (Air Injection Solenoid Valve)

**1). Picture illustration:**

**2). Check procedure:**

Electrical resistance measurement:

a). Use the Ohm function of electric meter to check the resistance value of AISV (As shown in figure 25 )


Figure 25 Measuring the resistance value of AISV

**4). Malfunction determination:**

Electrical resistance value = 26Ω± 2.6Ω(environmental temperature 20℃)

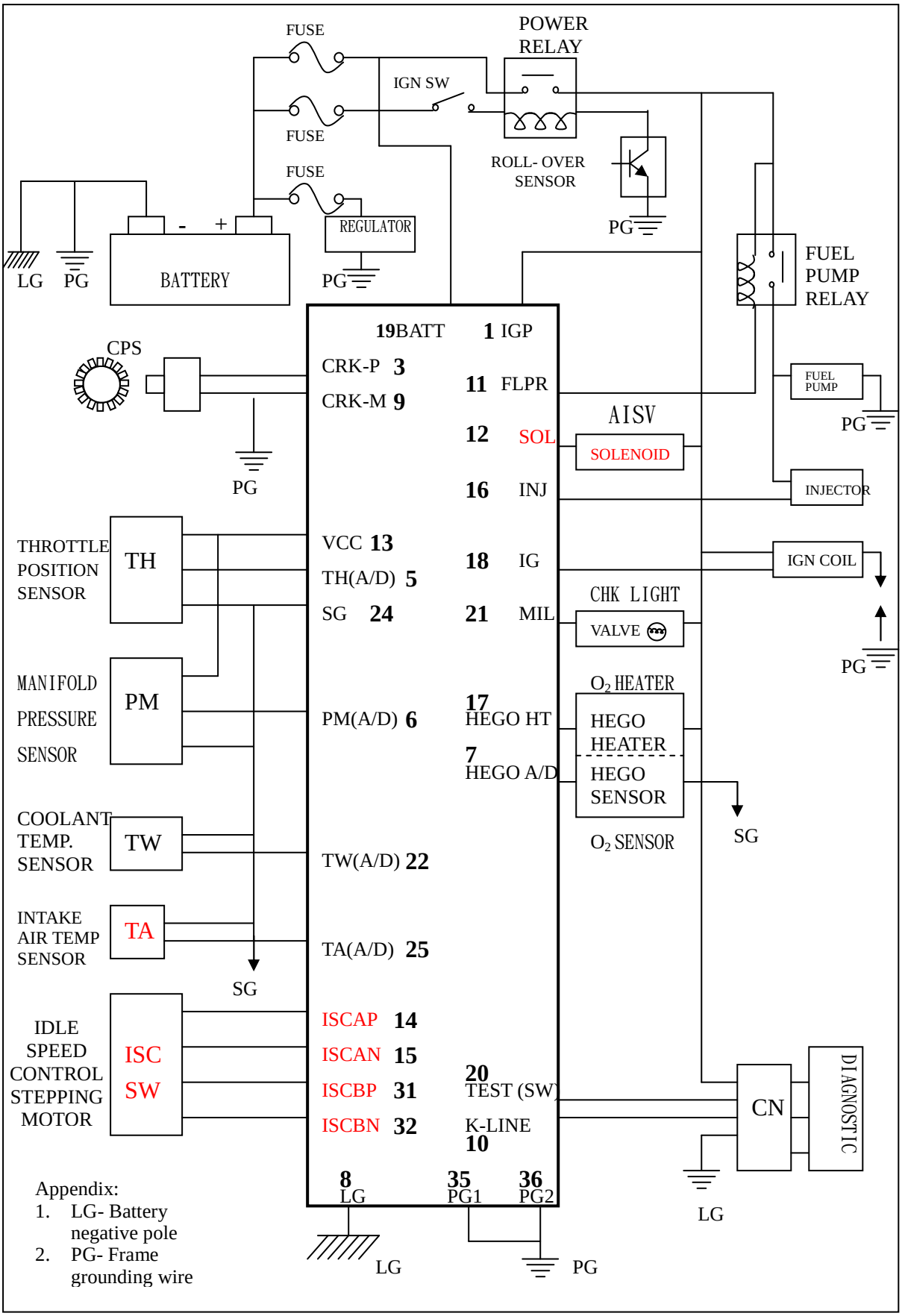
**5). Abnormal phenomenon and treatment:**

a). Sensor error or the coupler has bad contact.

b). Check wire harness for twisted or bad contact wires.

c). AISV abnormal, replace with a new component.

# RV250 EMS SYSTEM COMPONENTS DIAGRAM



| PIN | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WIRE COLOR | R/Y | - | L/Y | - | W/BR | B/R | L/O | G | G/W | W/G | O/W | O/L | Y/B | G/B | L/B | L/G | R/O | B/Y |
| PARTS | IGP | | CRK -P | | TH | PM | HEGO | LG | CRK -M | K-LINE | FLPR | SOL | VCC | ISCBP | ISCAP | INJ | HEGO HT | IG |
| PIN | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| WIRE COLOR | R | P/W | Y/G | R/GR | - | G/R | G/BR | - | - | - | - | - | BR/B | B/W | - | - | G | G |
| PARTS | BATT | | MIL | TW | | SG | TA | | | | | | ISCAN | ISCBN | | | PG1 | PG2 |

| The wire color definition | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | Y | G | W | BR | B | P | L | GR | O |
| Red | Yellow | Green | White | Brown | Black | Pink | Blue | Grey | Orange |

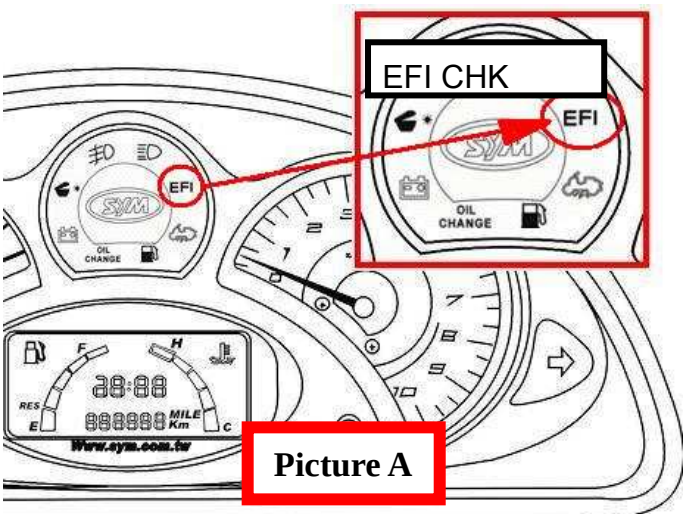
| Pin No. | Parts | FUNCTION | Detailed description |
|---|---|---|---|
| 1 | IGP | Ignition Power | ECU power source |
| 2 | ------ | ------ | |
| 3 | CRK-P | Crank Pulse Sensor | |
| 4 | ------ | ------ | |
| 5 | TH | Throttle Position Sensor | |
| 6 | PM | Manifold Pressure Sensor | |
| 7 | HEGO | Hego Sensor | $O_2$ Sensor |
| 8 | LG | Logic Ground | Battery Grounding |
| 9 | CRK-M | Crank Pulse Sensor Ground | |
| 10 | K-LINE | Diagnostic Tool | |
| 11 | FLPR | Fuel Pump Relay | |
| 12 | SOL | SOLENOID OUTPUT | AISV |
| 13 | VCC | Sensor Power Output (+5V) | ECU supplies 5V power |
| 14 | ISC BP | IDLE SPEED CONTROL B | (+ pole of ISC step motor reverse) |
| 15 | ISC AP | IDLE SPEED CONTROL A | (+ pole of ISC step motor advance) |
| 16 | INJ | Fuel Injection | Fuel Injection signal |
| 17 | HEGO HT | Hego Sensor Heater | $O_2$ Sensor heater |
| 18 | IG | Ignition Coil | |
| 19 | BATT | BATTERY | The positive pole of Battery |
| 20 | TEST | TEST SW | |
| 21 | MIL | Multi Indicator Lamp | CHK lamp |
| 22 | TW | WATER Temp. Sensor | Coolant temp. sensor |
| 23 | ------ | ------ | |

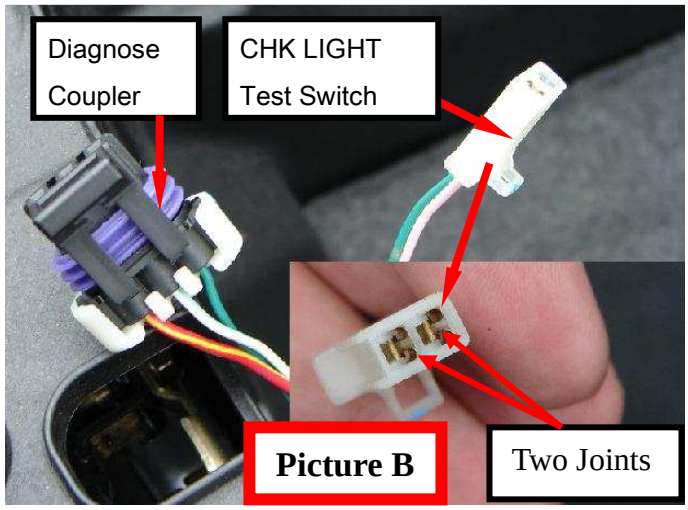
| | | | |
|---|---|---|---|
| 24 | SG | Sensor Ground | |
| 25 | TA | AIR TEMP. SENSOR | |
| 26 | ------ | ------ | |
| 27 | ------ | ------ | |
| 28 | ------ | ------ | |
| 29 | ------ | ------ | |
| 30 | ------ | ------ | |
| 31 | ISCAN | IDLE SPEED CONTROL/A | (- pole of ISC step motor reverse) |
| 32 | ISCBN | IDLE SPEED CONTROL/B | (- pole of ISC step motor advance) |
| 33 | ------ | ------ | |
| 34 | ------ | ------ | |
| 35 | PG1 | Power Ground 1 | Engine Grounding 1 |
| 36 | PG2 | Power Ground 2 | Engine Grounding 2 |

# SYM Keihin EFI System CHK light Diagnose (LM25W1-T / JOYMAX 250)

## CHK light error message chart and Counter Measure

If anything go wrong within the EFI system and causes engine rough running or stopped, the check light in the speedometer **(Picture A)** will illuminate to alarm the driver to perform system check.




**Step 1.** Confirm SYSTEM error message: After key on, the EFI CHK LIGHT will illuminate as normal, and then the light goes off. **If any things go wrong in the system the light will illuminate again and keep bright.** If this situation is found, perform checks to diagnose.

**Step 2.** **Keep Key on**, and then use a **clip** or **wire** to **connect two joints in the CHK LIGHT Test Switch (Picture B).** After the joints connected, the EFI CHK LIGHT will start to blink. This is the error message. Read the error message to diagnose.

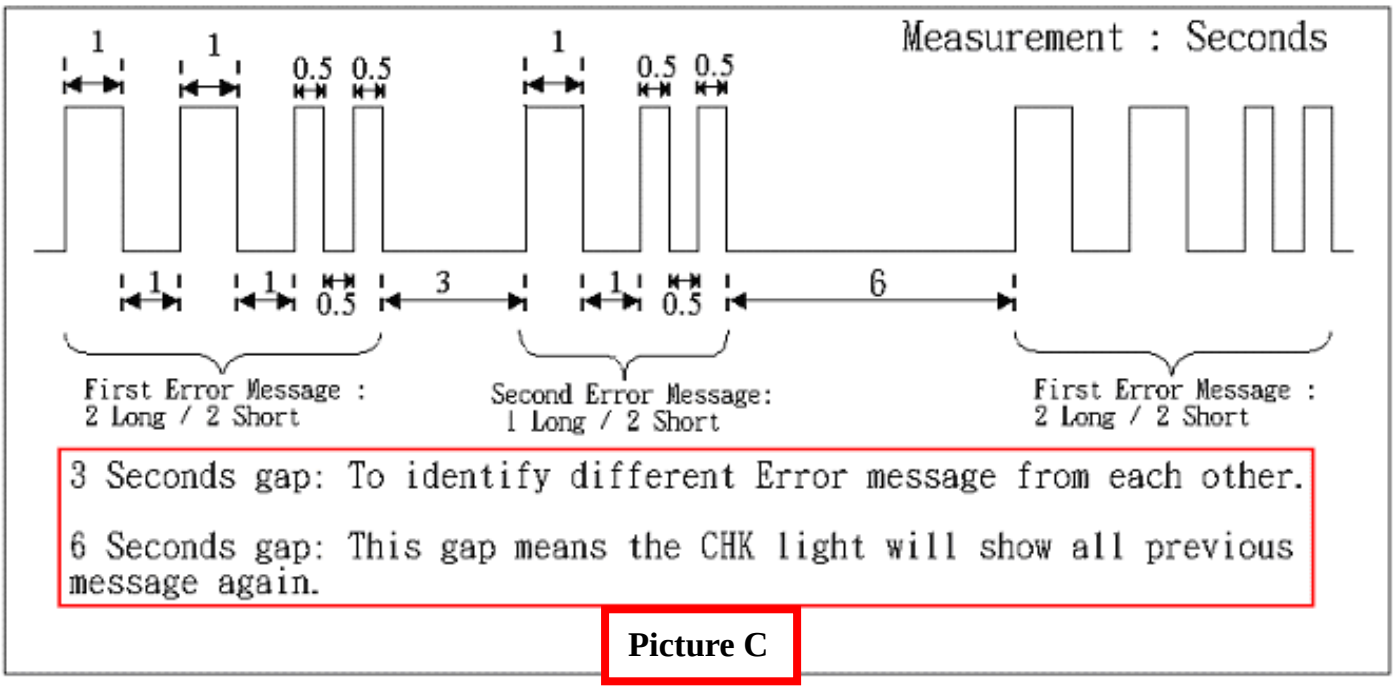
## WARINING!

The CHK LIGHT blinking error message is for reference only! Please use SYM Diagnostic tool for problem confirmation.

It is very easy to MISREAD the error message by the blinking check lights, thus causing wrong diagnostic and repair treatment.

**PLEASE USE SYM OFFICIAL DIAGNOSTIC TOOL.**

**Step 3.** Please read time gap chart below **(Picture C)** to learn how to read the error message correctly.




**Picture C**

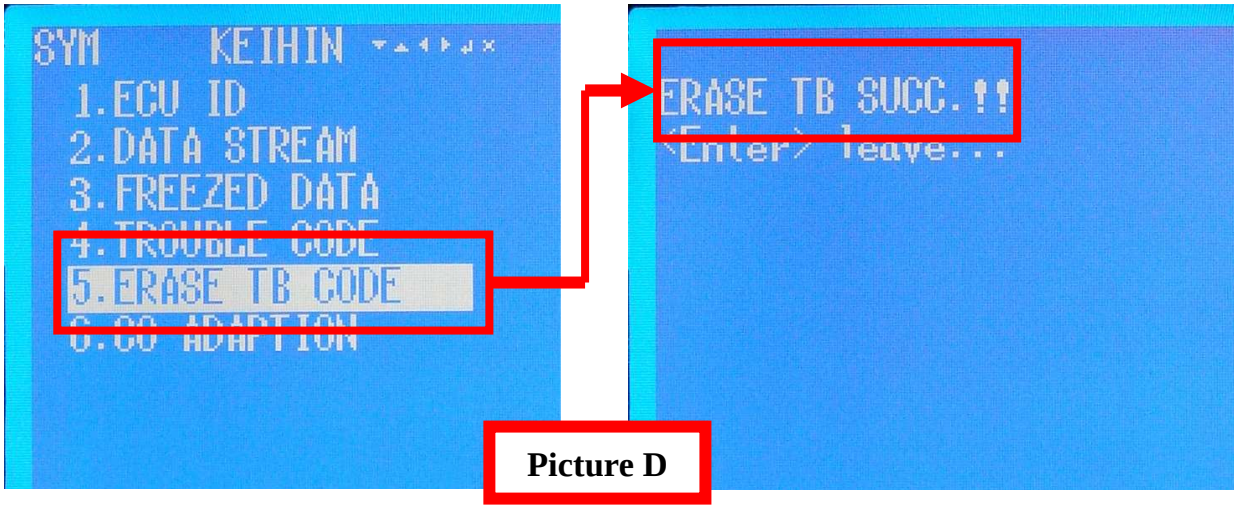
The error messages are combined with two different blinking, **long or short**. Please read the error message very carefully. In order to identify each error message from each other,

There are two kinds of time gaps in Keihin blinking error message.

1. **3 Seconds gap:** To identify different Error message from each other.
2. **6 Seconds gap:** This gap means the CHK light will show all previous message again after this 6-second gap.

**Step 4.** The check light will stop blinking after problem fixed, however there would be a trouble code record in the ECU. The trouble code record can be removed by either manually or by Diagnostic tool.

1. **Removed TB code by Diagnostic Tool**: Connect the Diagnostic tool with the scooter. Choose “Erase TB Code” **(Picture D)**. Please erase the TB code after repair every time.




**Picture D**

2. **Removed TB code manually**:
   A. Key Off.
   B. Use a clip or wire to connect two joints in the CHK LIGHT Test Switch **(Picture B)**. The connection must be solid without any loosen, the electrical conduction must be good.
   C. Keep throttle full opened.
   D. Key On (Throttle is still full opened.)
   E. After Key turned ON, keep throttle full opened for at least 5 seconds.
   F. The Check Light will blink twice, which means the TB codes are removed.
   G. Release throttle, Key off, remove the connected clip / wire on the CHK LIGHT Test Switch. Operation completed.

## CHK Light Error Message Definition and countermeasure Chart

| Item | TB Code | Trouble Description | CHK Light Status | Error Message | Counter Measure |
|---|---|---|---|---|---|
| 1 | 0120 | **Throttle position sensor** | Blinking | Long **0** Short **6** | Check **Throttle position sensor** and wiring. |
| | | | | | |
| 2 | 0105 | **Map Manifold absolute sensor** | Blinking | Long **0** Short **9** | Check **Map Manifold absolute sensor** and wiring. |
| | | | | | |
| 3 | 0115 | **Engine Temp sensor (Water Temp. Sensor)** | Blinking | Long **1** Short **2** | Check **Engine Temp sensor (Water Temp Sensor)** and wiring. |
| | | . | | | |
| 4 | 0110 | **Air Temperature Sensor** | Blinking | Long **1** Short **3** | Check **Air Temperature Sensor** and wiring. |
| | | | | | |
| 5 | 1630 | **Roll over Sensor** | Blinking | Long **1** Short **5** | Check **Roll over Sensor** and wiring. |
| | | | | | |
| 6 | 0130 | **$O^2$ Sensor (Oxygen Sensor)** | Blinking | Long **1** Short **7** | Check **$O^2$ Sensor (Oxygen Sensor)** and wiring. |
| | | | | | |
| 7 | 0201 | **Fuel Injector** | Blinking | Long **3** Short **3** | Check **Fuel Injector** and wiring. |
| | | | | | |
| 8 | 0351 | **Ignition Coil** | Blinking | Long **3** Short **7** | Check **Ignition Coil** and wiring. |
| | | Please diagnose by traditional way. | | | |
| 9 | 0230 | **Fuel Pump** | Blinking | Long **4** Short **1** | Check **Fuel Pump** and wiring. |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **10** | **0135** | **O2 sensor heater** | Blinking | Long **4** Short **5** | Check **O2 sensor heater** and wiring. |
| | | | | | |
| **11** | **1505** | **ISC motor** | Blinking | Long **4** Short **9** | Check **ISC motor** and wiring. |
| | | | | | |
| **12** | **1410** | **Air Injection solenoid** | Blinking | Long **5** Short **4** | Check **Air Injection solenoid** and wiring. |
| | | | | | |
| **13** | **0335** | **Crank sensor** | Blinking | Long **6** Short **6** | Check **Crank sensor** and wiring. |
| | | | | | |
| **14** | **1205** | **Manifold Air Pressure Wiring** | Blinking | Long **6** Short **8** | Check **Manifold Air Pressure Wiring.** |
| | | | | | |
| **15** | **0603** | **EEPROM** | **No Blinking** | Long **0** Short **0** | **EEPROM Error.** |
| | | **Please recheck by Diagnostic tool. If EEPROM error confirmed, replace ECU.** | | | |

# WARINING!

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It is very easy to MISREAD the error message by the blinking check lights, thus causing wrong diagnostic and repair treatment.

**PLEASE USE SYM OFFICIAL DIAGNOSTIC TOOL.**