

Emission Control Devices

Precautions

Precautions for Emission Control Devices

B705H2120001

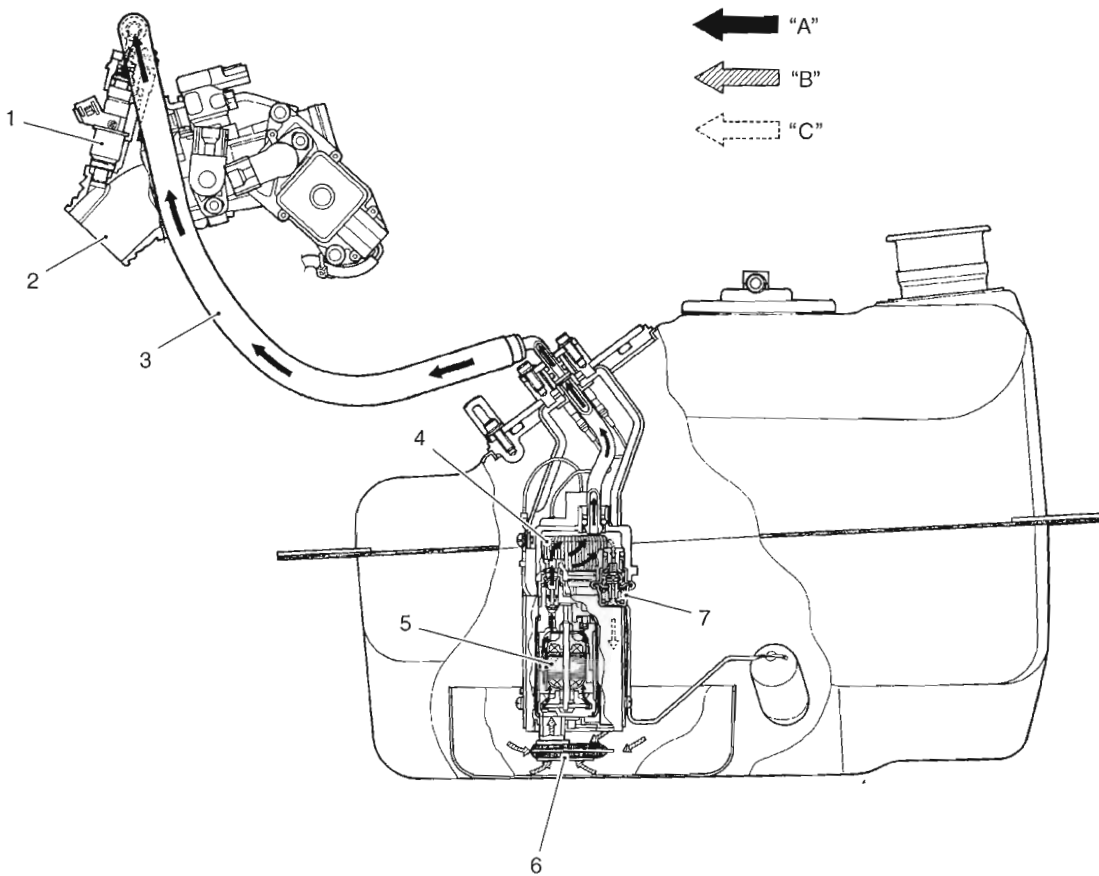
Refer to "General Precautions in Section 00 (Page00-1)".

General Description

Fuel Injection System Description

B705H21201001

AN400 motorcycles are equipped with a fuel injection system for emission level control. This fuel injection system is precision designed, manufactured and adjusted to comply with the applicable emission limits. With a view to reducing CO, NOX and HC, all of the fuel injection volumes are stringently controlled with the programmed injection maps in the ECM by varying engine conditions. Adjusting, interfering with, improper replacement, or resetting of any of the fuel injection components may adversely affect injection performance and cause the motorcycle to exceed the exhaust emission level limits. If unable to effect repairs, contact the distributor's representative for further technical information and assistance.



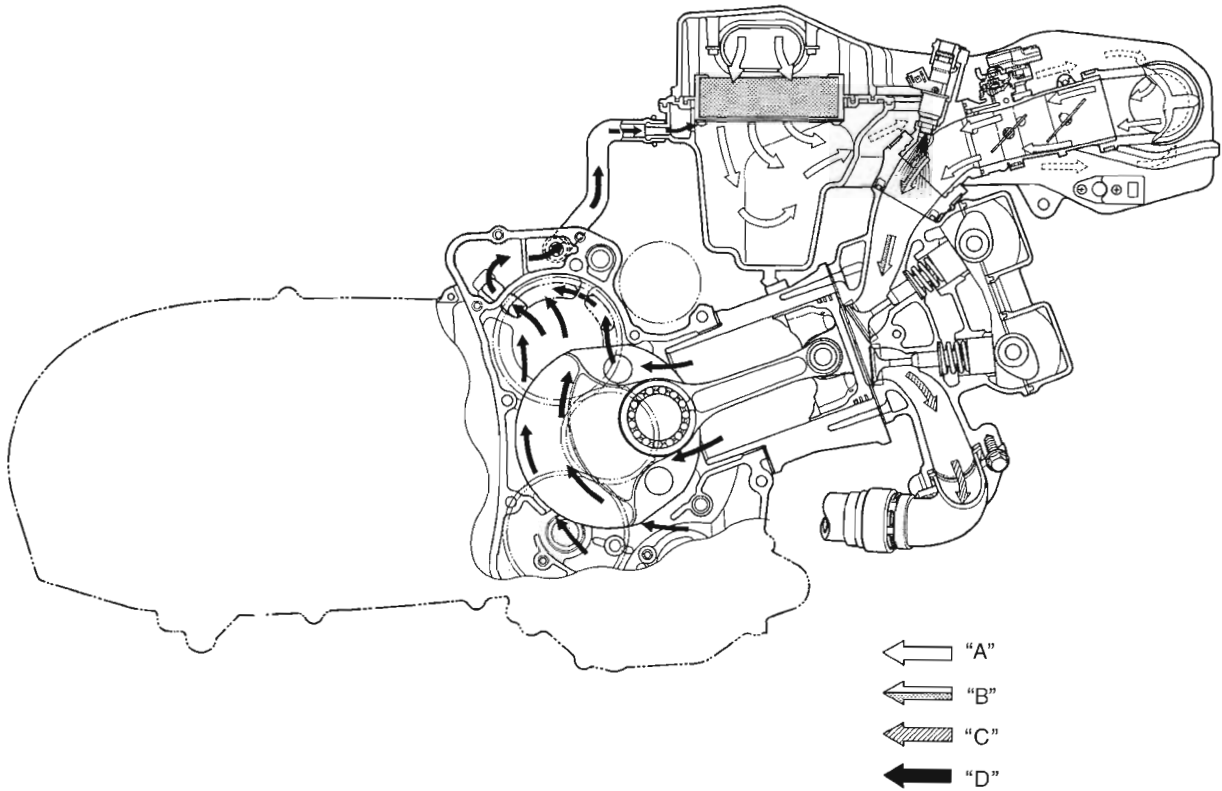
I705H1120004-01

1. Fuel injector	5. Fuel pump	"B": Before-pressurized fuel
2. Throttle body	6. Fuel mesh filter (For low pressure)	"C": Relived fuel
3. Fuel feed hose	7. Fuel pressure regulator	
4. Fuel filter (For high pressure)	"A": Pressurized fuel	

Crankcase Emission Control System Description

B705H21201002

The engine is equipped with a PCV system. Blow-by gas in the engine is constantly drawn into the crankcase, which is returned to the combustion chamber through the PCV (breather) hose, air cleaner and throttle body.



- ← "A"
- ← "B"
- ← "C"
- ← "D"

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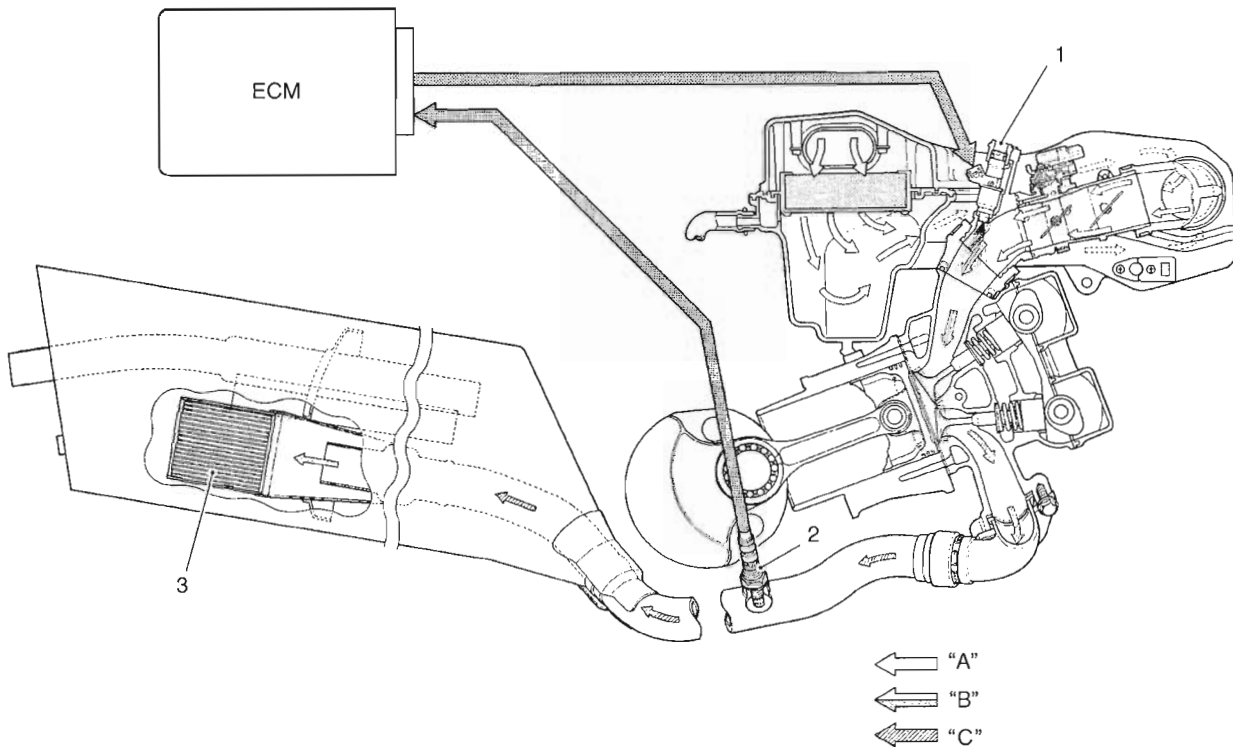
"A": Fresh air	"B": Fuel/Air mixture	"C": Exhaust gas	"D": Blow-by gas
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1B-3 Emission Control Devices:

Exhaust Emission Control System Description

B705H21201003

The exhaust emission control system is composed of the three-way catalyst system.



1. Fuel injector	3. Three-way catalyst	"B": Fuel/Air mixture
2. HO2 sensor	"A": Fresh air	"C": Exhaust gas

I705H1120006-02

Noise Emission Control System Description

B705H21201004

TAMPERING WITH THE NOISE CONTROL SYSTEM PROHIBITED: Local law or federal law prohibits the following acts or the causing thereof:

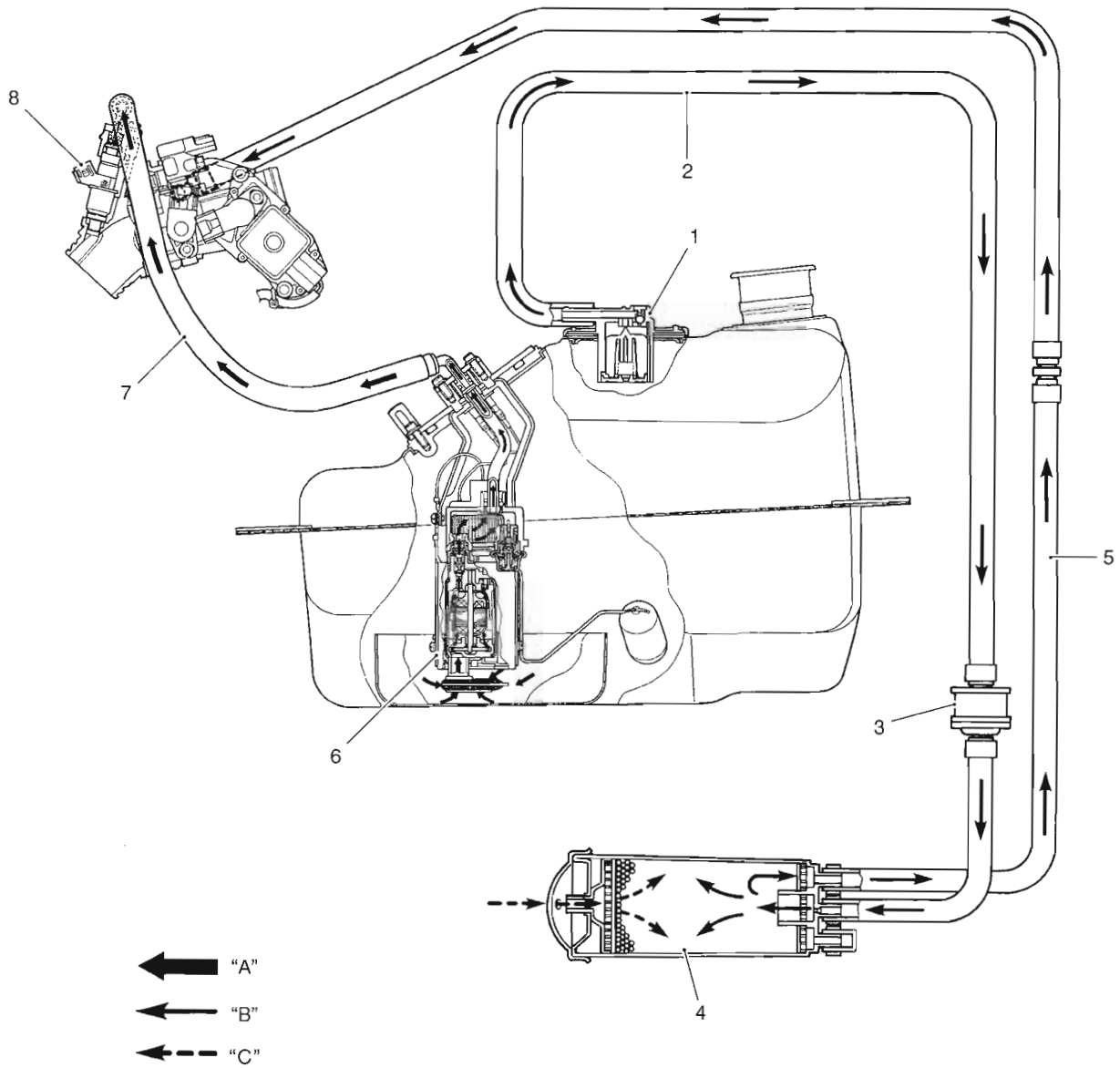
- The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use.
- The use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among Those Acts Presumed to Constitute Tampering Are the Acts Listed Below:

- Removing or puncturing the muffler, baffles, header pipes, screen type spark arrester (if equipped) or any other component which conducts exhaust gases.
- Removing or puncturing the air cleaner case, air cleaner cover, baffles or any other component which conducts intake air.
- Replacing the exhaust system or muffler with a system or muffler not marked with the same model specific code as the code listed on the Motorcycle Noise Emission Control Information label.

Evaporative Emission Control System Diagram (Only for E-33)

B705H21201005



I705H2120001-01

1. Fuel cut valve	4. EVAP canister	7. Fuel feed hose	"B": HC vapor
2. Surge hose	5. Purge hose	8. Fuel injector	"C": Fresh air
3. FTPC valve	6. Fuel pump	"A": Fuel	

Repair Instructions

Heated Oxygen Sensor (HO2S) Removal and Installation

B705H21206001

Removal

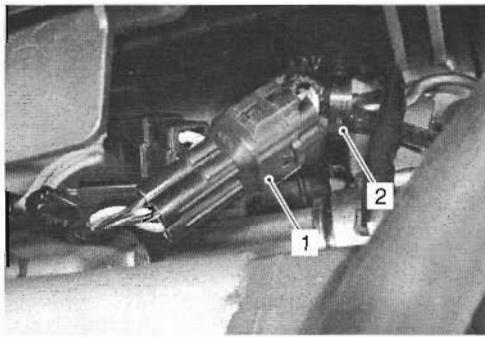
⚠ WARNING

Do not remove the HO2 sensor while it is hot.

⚠ CAUTION

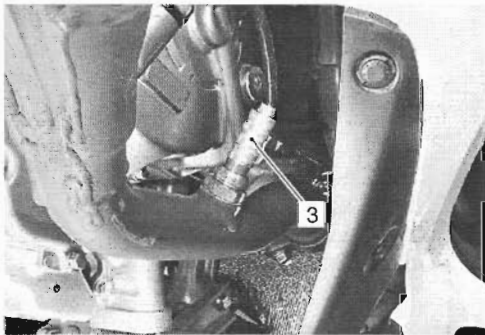
- Be careful not to expose the HO2 sensor to excessive shock.
- Do not use an impact wrench when removing or installing the HO2 sensor.
- Be careful not to twist or damage the sensor lead wires.

- 1) Disconnect the HO2 sensor coupler (1) and remove the clamp (2).



I705H1120007-01

- 2) Remove the HO2 sensor (3).



I705H1120001-02

Installation

⚠ CAUTION

Do not apply oil or other materials to the sensor air holes.

Install the HO2 sensor in the reverse order of removal. Pay attention to the following point:

- Tighten the HO2 sensor to the specified torque.

Tightening torque

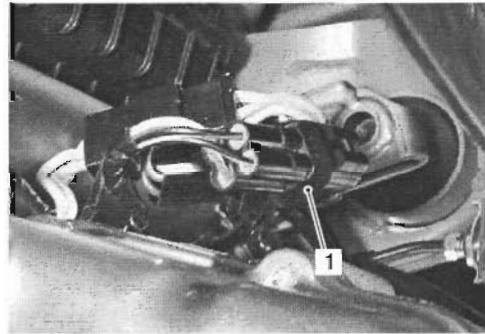
HO2 sensor: 48 N·m (4.8 kgf-m, 34.5 lb-ft)

Heated Oxygen Sensor (HO2S) Inspection

B705H21206002

Inspect the HO2 sensor in the following procedures:

- 1) Inspect the HO2 sensor and its circuit referring to flow table of the malfunction code (C44). Refer to "DTC "C44" (P0130, P0135): HO2 Sensor (HO2S) Circuit Malfunction in Section 1A (Page1A-64)".
- 2) Disconnect the HO2 sensor coupler (1).



I705H1110104-04

NOTE

- Temperature of the sensor affects resistance value largely.
- Make sure that the sensor heater is at correct temperature.

- 3) Check the resistance between the terminals (W – W) of the HO2 sensor. If the resistance is not within the standard range, replace the HO2 sensor with a new one.

Resistance

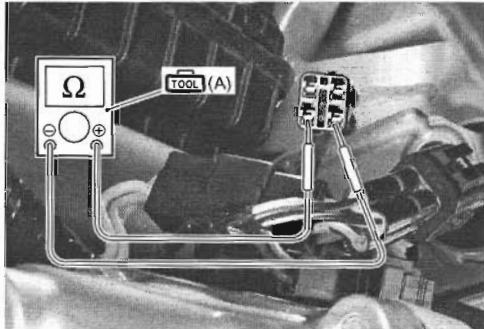
Approx. 11.5 – 14.5 Ω (at 23 °C)

Special tool

TOOL (A): 09900–25008 (Multi-circuit tester set)

Tester knob indication

Resistance (Ω)



I705H1120008-01

- 4) Connect the HO2 sensor coupler securely.

⚠ CAUTION

Do not apply oil or other materials to the sensor air hole.

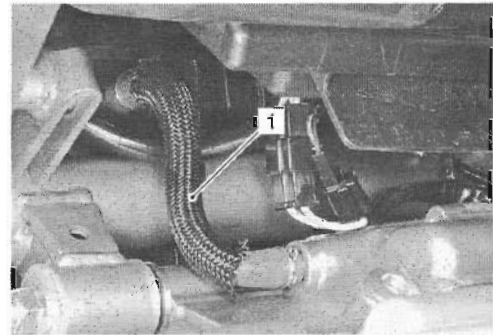
PCV Hose Inspection

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Inspect the PCV hose (1) for wear and damage.

If it is worn or damaged, replace the PCV hose with a new one.

Check that the PCV hose (1) is securely connected.



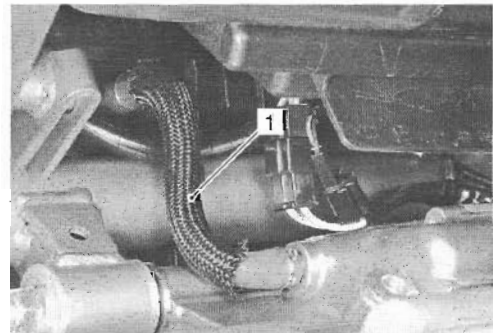
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PCV Hose Removal and Installation

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Removal

- 1) Remove the PCV hose (1).



I705H1120002-01

Installation

Install the PCV hose in the reverse order of removal.

Evaporative Emission Control System Removal and Installation (Only for E-33)

B705H21206005

Hoses**Removal**

- 1) Remove the front box. Refer to "Front Box Removal and Installation in Section 9D (Page9D-18)".
- 2) Remove the right footboard. Refer to "Footboard Removal and Installation in Section 9D (Page9D-21)".
- 3) Remove the fuel drain tray. Refer to "Fuel Drain Tray and FTPC Valve Removal and Installation in Section 1G (Page1G-7)".
- 4) Remove the required hose. Refer to "EVAP Canister Hose Routing Diagram (Only for E-33) (Page1B-8)".

Installation

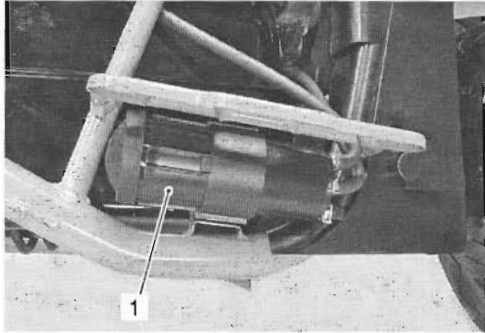
Installation is in the reverse order of removal.

1B-7 Emission Control Devices:

EVAP Canister

Removal

- 1) Remove the front box. Refer to "Front Box Removal and Installation in Section 9D (Page9D-18)".
- 2) Remove the right footboard. Refer to "Footboard Removal and Installation in Section 9D (Page9D-21)".
- 3) Disconnect the hoses and remove the EVAP canister (1).



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Installation

Installation is in the reverse order of removal.

Fuel Cut Valve

Removal

Refer to "Fuel Drain Tray and FTPC Valve Removal and Installation in Section 1G (Page1G-7)".

Installation

Refer to "Fuel Drain Tray and FTPC Valve Removal and Installation in Section 1G (Page1G-7)".

FTPC valve

Removal

Refer to "Fuel Drain Tray and FTPC Valve Removal and Installation in Section 1G (Page1G-7)".

Installation

Refer to "Fuel Drain Tray and FTPC Valve Removal and Installation in Section 1G (Page1G-7)".

Evaporative Emission Control System Inspection (Only for E-33)

B705H21206006

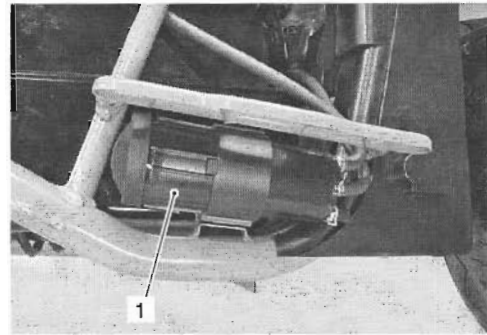
Perform the following inspection in the following procedures:

Hoses

- 1) Remove the front box. Refer to "Front Box Removal and Installation in Section 9D (Page9D-18)".
- 2) Remove the right footboard. Refer to "Footboard Removal and Installation in Section 9D (Page9D-21)".
- 3) Remove the fuel drain tray. Refer to "Fuel Drain Tray and FTPC Valve Removal and Installation in Section 1G (Page1G-7)".
- 4) Inspect the hose for wear or damage. If any defects are found, replace the hose with a new one.
- 5) Rout the hoses properly. Refer to "EVAP Canister Hose Routing Diagram (Only for E-33) (Page1B-8)".
- 6) Install the removed parts.

EVAP Canister

- 1) Remove the front box. Refer to "Front Box Removal and Installation in Section 9D (Page9D-18)".
- 2) Remove the right footboard. Refer to "Footboard Removal and Installation in Section 9D (Page9D-21)".
- 3) Inspect the EVAP canister (1) for damage to the body. If any defects are found, replace the EVAP canister with a new one.



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- 4) Install the removed parts.

Fuel Cut Valve

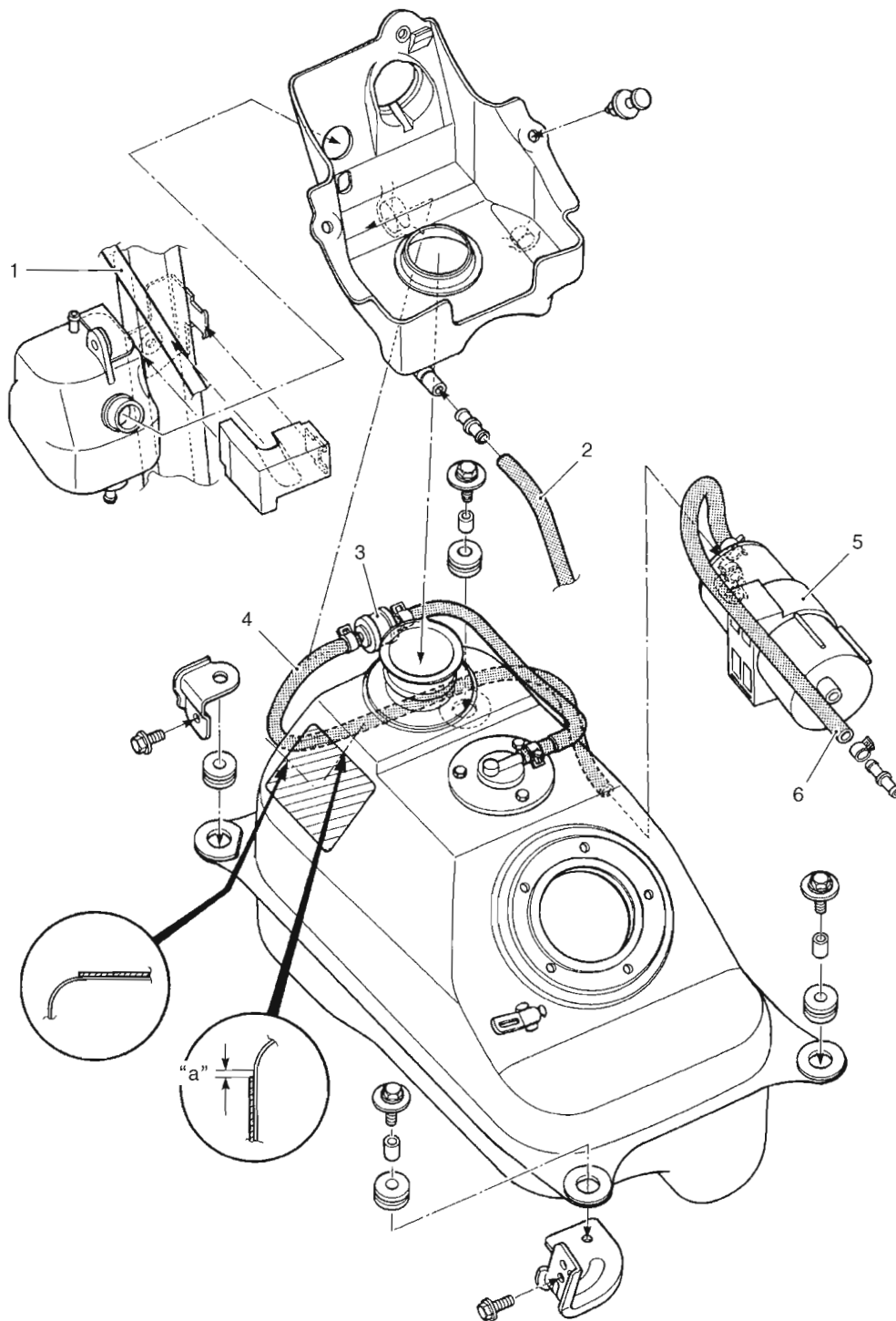
Inspect the fuel cut valve. Refer to "Fuel Cut Valve Removal and Installation in Section 1G (Page1G-5)".

FTPC Valve

Inspect the FTPC valve. Refer to "FTPC Valve Inspection in Section 1G (Page1G-9)".

EVAP Canister Hose Routing Diagram (Only for E-33)

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1705H2120003-04

1. Brake-lock cable	3. FTPC valve	5. EVAP canister	"a": 5 mm (0.2 in)
2. Water drain hose	4. Surge hose	6. Purge hose	

Specifications

Service Data

B705H21207001

FI Sensors

Item	Specification		Note
HO2 sensor resistance	11.5 – 14.5 Ω at 23 °C (73.4 °F)		
HO2 sensor output voltage	Idle speed	0.3 V and less	
	3 000 r/min	0.7 V and more	

Electrical

Unit: mm (in)

Item	Standard / specification		Note
Spark plug	Type	NGK: CR7E DENSO: U22ESR-N	
	Gap	0.7 – 0.8 (0.28 – 0.03)	

Tightening Torque Specifications

B705H21207002

Fastening part	Tightening torque			Note
	N·m	kgf·m	lb·ft	
HO2 sensor	48	4.8	34.5	☞ (Page1B-5)

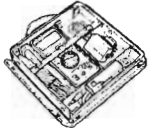
Reference:

For the tightening torque of fastener not specified in this section, refer to "Tightening Torque Specifications in Section 0C (Page0C-7)".

Special Tools and Equipment

Special Tool

B705H21208001

09900-25008 Multi-circuit tester set ☞ (Page1B-6)	
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Engine Electrical Devices

Precautions

Precautions for Engine Electrical Device

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Refer to "General Precautions in Section 00 (Page00-1)" and "Precautions for Electrical Circuit Service in Section 00 (Page00-2)".

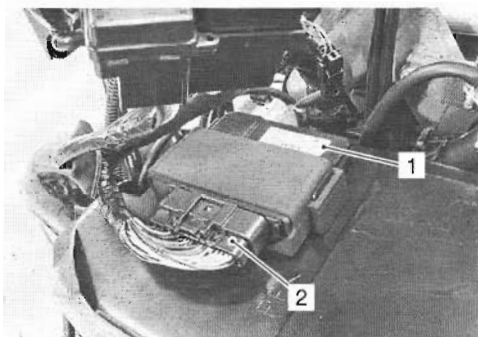
Repair Instructions

ECM Removal and Installation

B705H21306001

Removal

- 1) Remove the battery (-) lead wire. Refer to "Battery Removal and Installation in Section 1J (Page1J-10)".
- 2) Remove the meter panel. Refer to "Meter Panel Removal and Installation in Section 9D (Page9D-14)".
- 3) Pull out the ECM (1) from the front box and disconnect the ECM coupler (2).



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Installation

Install the ECM in the reverse order of removal.

CKP Sensor Inspection

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Refer to "DTC "C12" (P0335): CKP Sensor Circuit Malfunction in Section 1A (Page1A-22)".

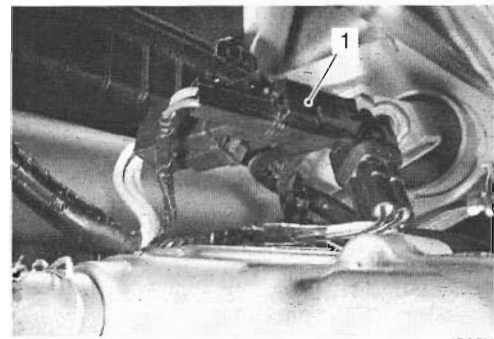
CKP Sensor Removal and Installation

B705H21306003

Removal

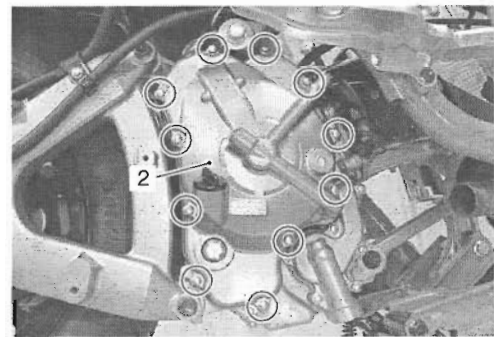
- 1) Drain engine oil. Refer to "Engine Oil and Filter Change in Section 0B (Page0B-9)".
- 2) Remove the muffler. Refer to "Exhaust Pipe / Muffler Removal and Installation in Section 1K (Page1K-2)".

- 3) Disconnect the CKP sensor coupler (1).



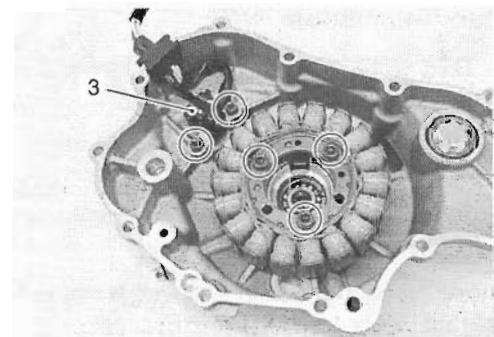
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- 4) Remove the generator cover (2).



I705H1130022-01

- 5) Remove the CKP sensor (3).



I705H1130002-02

1C-2 Engine Electrical Devices:

Installation

Install the CKP sensor in the reverse order of removal. Pay attention to the following points:

- Install the CKP sensor to the generator cover. Refer to "Generator Removal and Installation in Section 1J (Page1J-6)".
- Install the muffler. Refer to "Exhaust Pipe / Muffler Removal and Installation in Section 1K (Page1K-2)".
- Pour engine oil. Refer to "Engine Oil and Filter Change in Section 0B (Page0B-9)".

IAP Sensor Inspection

B705H21306004

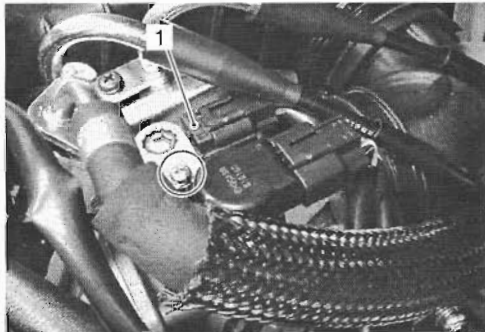
Refer to "DTC "C13" (P0105-H/L): IAP Sensor Circuit Malfunction in Section 1A (Page1A-25)".

IAP Sensor Removal and Installation

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Removal

- 1) Remove the helmet box front cover. Refer to "Helmet Box Front Cover Removal and Installation in Section 9D (Page9D-16)".
- 2) Disconnect the coupler and screw.
- 3) Remove the IAP sensor (1).



I705H1130006-03

Installation

Install the IAP sensor in the reverse order of removal.

TP Sensor Inspection

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Refer to "DTC "C14" (P0120/H/L): TP Sensor Circuit Malfunction in Section 1A (Page1A-30)".

TP Sensor Adjustment


B705H21306007

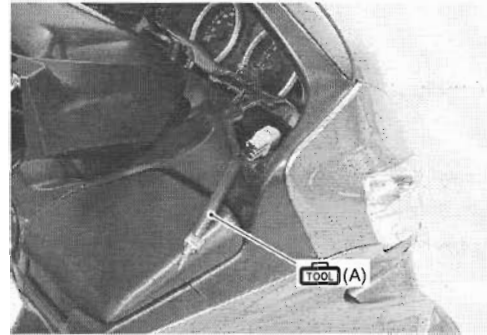
Adjust the TP sensor in the following procedures:

- 1) Warm up the engine.
- 2) Remove the helmet box front cover. Refer to "Helmet Box Front Cover Removal and Installation in Section 9D (Page9D-16)".

- 3) Remove the upper meter panel. Refer to "Upper Meter Panel Removal and Installation in Section 9D (Page9D-13)".
- 4) Connect the special tool to the dealer mode coupler. Refer to "Self-Diagnostic Procedures in Section 1A (Page1A-13)".

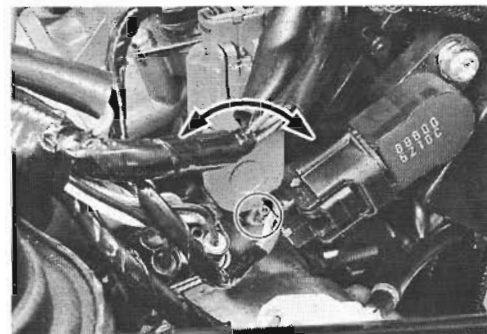
Special tool

 (A): 09930-82720 (Mode select switch)

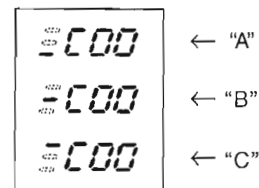


I705H1130023-03

- 5) Turn the special tool's switch ON.
- 6) If the TP sensor adjustment is necessary, loosen the TP sensor mounting screw.
- 7) Slide the TP sensor and bring the line to the middle.
- 8) Tighten the TP sensor mounting screw.



I705H1130007-01



I705H1130025-01

"A": Incorrect	"B": Correct position	"C": Incorrect
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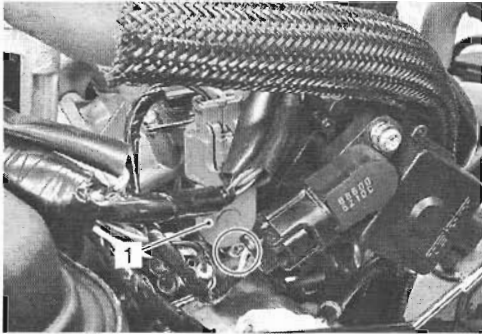
- 9) Remove the special tool.
- 10) Install the removed parts.

TP Sensor Removal and Installation

B705H21306008

Removal

- 1) Remove the helmet box front cover. Refer to "Helmet Box Front Cover Removal and Installation in Section 9D (Page9D-16)".
- 2) Disconnect the coupler and remove the TP sensor (1).



I705H1130003-03

Installation

Install the TP sensor in the reverse order of removal. Pay attention to the following point:

- Adjust the position of the TP sensor. Refer to "TP Sensor Adjustment (Page1C-2)".


ECT Sensor Inspection

B705H21306009

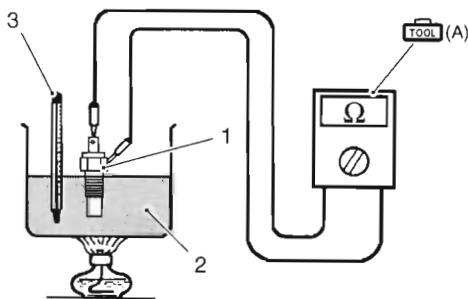
ECT sensor is installed on the cylinder head. Inspect the ECT sensor in the following procedures:

- 1) Remove the ECT sensor. Refer to "ECT Sensor Removal and Installation (Page1C-3)".
- 2) Connect the ECT sensor (1) to a circuit tester and place it in the oil (2) contained in a pan, which is placed on a stove.

Special tool

 (A): 09900-25008 (Multi-circuit tester set)

- 3) Heat the oil to raise its temperature slowly and read the column thermometer (3) and the ohmmeter. If the ECT sensor ohmic value does not change in the proportion indicated, replace it with a new one.



I705H1130004-01

Temperature sensor specification

Temperature	Standard resistance
20 °C (68 °F)	Approx. 2.58 kΩ
50 °C (122 °F)	Approx. 0.77 kΩ
80 °C (176 °F)	Approx. 0.28 kΩ
110 °C (230 °F)	Approx. 0.12 kΩ

⚠ CAUTION

- Take special care when handling the ECT sensor. It may cause damage if it gets a sharp impact.
- Do not contact the ECT sensor and the column thermometer with a pan.

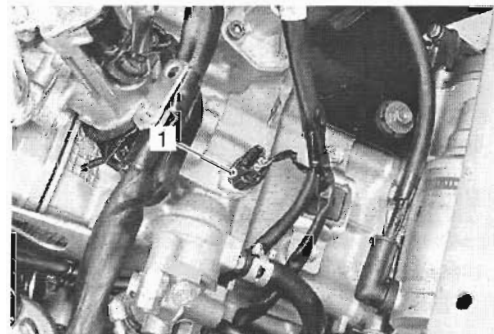
- 4) Install the ECT sensor. Refer to "ECT Sensor Removal and Installation (Page1C-3)".

ECT Sensor Removal and Installation

B705H21306010

Removal

- 1) Remove the air cleaner box. Refer to "Air Cleaner Box Removal and Installation in Section 1D (Page1D-9)".
- 2) Disconnect the coupler and remove the ECT sensor (1).



I705H1130005-01

Installation

Install the ECT sensor in the reverse order of removal. Pay attention to the following point:

- Tighten the ECT sensor to the specified torque.

Tightening torque

ECT sensor: 12 N·m (1.2 kgf-m, 8.5 lb-ft)

Speed Sensor Inspection

B705H21306011

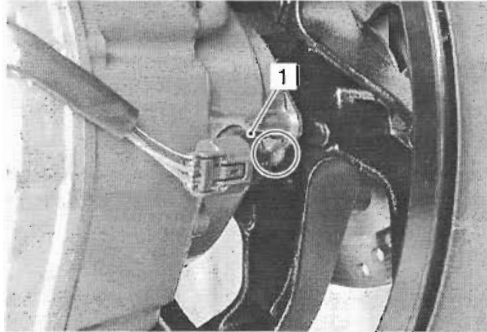
Inspect the speed sensor. Refer to "DTC "C16" (P0500): Speed Sensor in Section 1A (Page1A-36)".

Speed Sensor Removal and Installation

B705H21306012

Removal

- 1) Remove the outer clutch cover. Refer to "V-belt Type Continuously Variable Automatic Transmission Removal and Installation in Section 5A (Page5A-3)".
- 2) Disconnect the coupler and remove the speed sensor (1).



I705H1130008-02

Installation

Install the speed sensor in the reverse order of removal.

IAT Sensor Inspection

B705H21306013

Inspect the IAT sensor in the following procedures:

- 1) Remove the IAT sensor. Refer to "IAT Sensor Removal and Installation (Page1C-4)".
- 2) Inspect the IAT sensor resistance. If the value does not change in the proportion indicated, replace the IAT sensor with a new one.

NOTE

IAT sensor resistance measurement method is the same way as that of ECT sensor. Refer to "ECT Sensor Inspection (Page1C-3)".

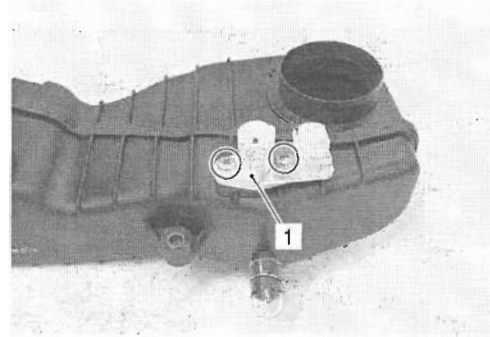
- 3) Install the IAT sensor. Refer to "IAT Sensor Removal and Installation (Page1C-4)".

IAT Sensor Removal and Installation

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Removal

- 1) Remove the air cleaner box. Refer to "Air Cleaner Box Removal and Installation in Section 1D (Page1D-9)".
- 2) Remove the IAT sensor (1).



I705H1130024-03

Installation

Install the IAT sensor in the reverse order of removal. Pay attention to the following point:

- Tighten the IAT sensor mounting screw to the specified torque.

Tightening torque

IAT sensor mounting screw: 3.5 N·m (0.35 kgf-m, 2.5 lb-ft)

TO Sensor Inspection

B705H21306015

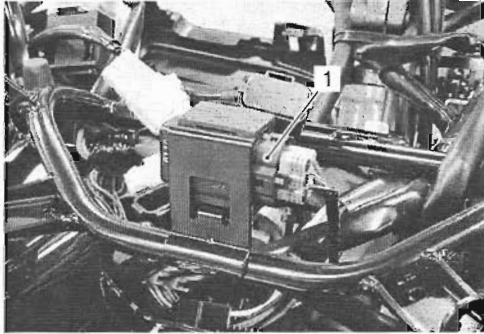
Inspect the TO sensor. Refer to "DTC "C23" (P1651-H/L): TO Sensor Circuit Malfunction in Section 1A (Page1A-42)".

TO Sensor Removal and Installation

B705H21306016

Removal

- 1) Remove the meter panel. Refer to "Meter Panel Removal and Installation in Section 9D (Page9D-14)".
- 2) Disconnect the coupler and remove the TO sensor (1).

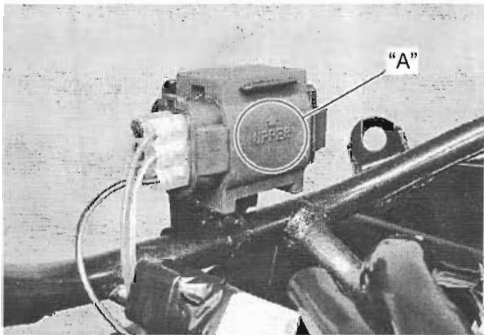


1705H1130009-03

Installation

Install the TO sensor in the reverse order of removal. Pay attention to the following point:

- When installing the TO sensor, bring the "UPPER" letters and arrow mark "A" upward.



1705H1130010-02

STP Sensor Inspection

B705H21306017

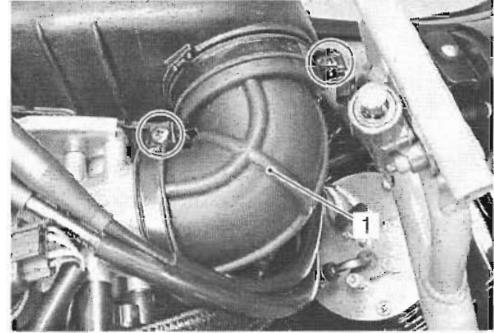
Inspect the STP sensor. Refer to "DTC "C29" (P1654-H/L): Secondary Throttle Position Sensor (STPS) in Section 1A (Page1A-49)".

STP Sensor Adjustment

B705H21306018

Adjust the STP sensor in the following procedures:

- 1) Remove the helmet box front cover. Refer to "Helmet Box Front Cover Removal and Installation in Section 9D (Page9D-16)".
- 2) Remove the air cleaner box outlet tube (1).



1705H1130011-01

- 3) Disconnect the STVA lead wire coupler (2).
- 4) Turn the ignition switch ON.
- 5) Insert the needle pointed probes to the STP sensor coupler.

STP sensor output voltage

ST valve is fully closed: 0.5 V

ST valve is fully open: 3.9 V

(Positive terminal: Y/G – Negative terminal: B/Br)

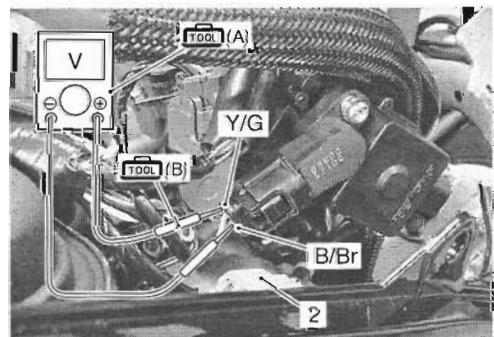
Special tool

TOOL (A): 09900-25008 (Multi-circuit tester set)

TOOL (B): 09900-25009 (Needle pointed probe set)

Tester knob indication

Voltage (---)



1705H1130012-01

Specifications

Service Data

B705H21307001

FI Sensors

Item	Specification	Note
ECT sensor resistance	Approx. 2.58 kΩ at 20 °C (68 °F)	
IAT sensor resistance	Approx. 2.58 kΩ at 20 °C (68 °F)	

Tightening Torque Specifications

B705H21307002

Fastening part	Tightening torque			Note
	N·m	kgf-m	lb-ft	
ECT sensor	12	1.2	8.5	☞(Page1C-3)
IAT sensor mounting screw	3.5	0.35	2.5	☞(Page1C-4)

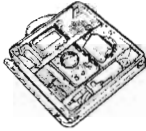

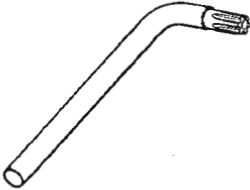
Reference:

For the tightening torque of fastener not specified in this section, refer to "Tightening Torque Specifications in Section 0C (Page0C-7)".

Special Tools and Equipment

Special Tool

B705H21308001

<p>09900-25008 Multi-circuit tester set ☞(Page1C-3) / ☞(Page1C-5)</p> 	<p>09900-25009 Needle pointed probe set ☞(Page1C-5)</p> 
<p>09930-11950 Torx wrench ☞(Page1C-6)</p> 	<p>09930-82720 Mode select switch ☞(Page1C-2)</p> 