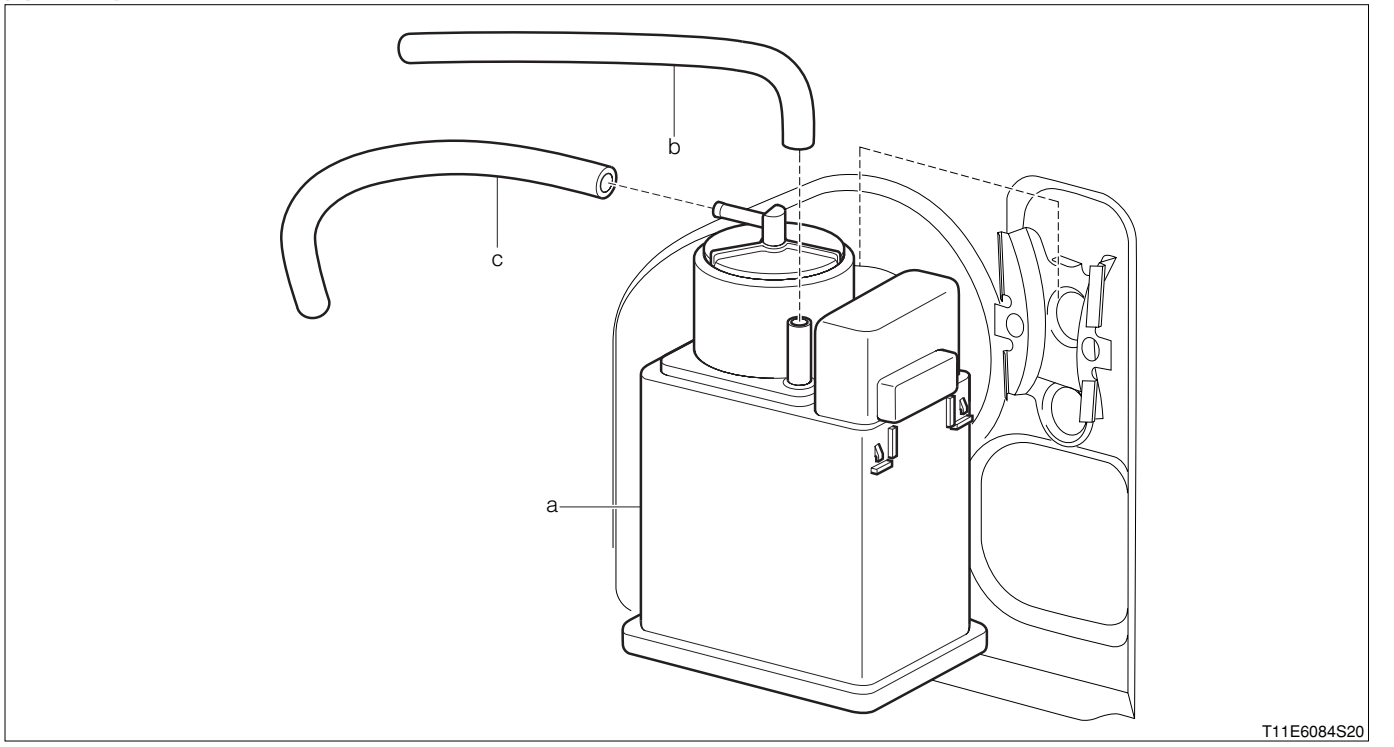
B9 EMISSION CONTROL SYSTEM

■ 1KR
1 CHARCOAL CANISTER
1-1 REMOVAL AND INSTALLATION(RHD VEHICLES)
1-1-1 OPERATION BEFORE REMOVAL
1.Remove the charcoal canister outlet hose No.1 (vacuum switching valve Ay side).
2.Remove the evaporative emission hose (body side).
1-1-2 REMOVAL AND INSTALLATION PROCEDURES
(1) Components



(2) Removal and installation procedures

Electrical Tester

1-1-3 OPERATION AFTER INSTALLATION
1.Install the charcoal canister outlet hose No.1 (vacuum switching valve Ay side).
2.Install the evaporative emission hose (body side).

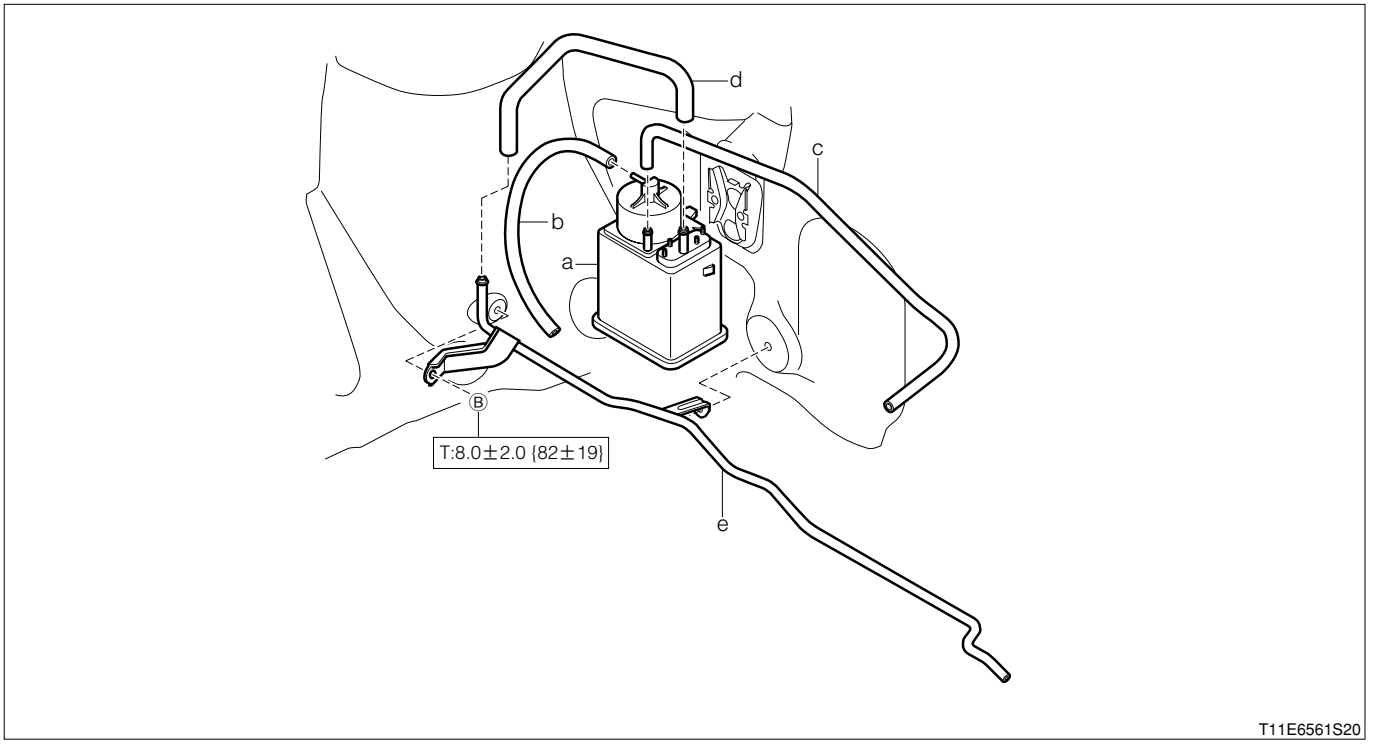
1-2 REMOVAL AND INSTALLATION(LHD VEHICLES)

1-2-1 OPERATION BEFORE REMOVAL

1.Remove the charcoal canister outlet hose No.1 (vacuum switching valve Ay side).
2.Remove the evaporative emission hose (body side).

1-2-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



(2) Removal and installation procedures

1 a Charcoal canister Ay
2 b Evaporative emission hose
3 c Charcoal canister outlet hose No.1
4 d Charcoal canister hose
5 e Tube,charcoal canister outlet

1-2-3 OPERATION AFTER INSTALLATION

1.Install the charcoal canister outlet hose No.1 (vacuum switching valve Ay side).
2.Install the evaporative emission hose (body side).

2 STEPPER MOTOR TYPE EGR VALVE

2-1 REMOVAL AND INSTALLATION

Refer to Page B3-5.

3 EXHAUST EMISSION PURIFICATION SYSTEM

3-1 LIST OF EMISSION CONTOROL DEVICES

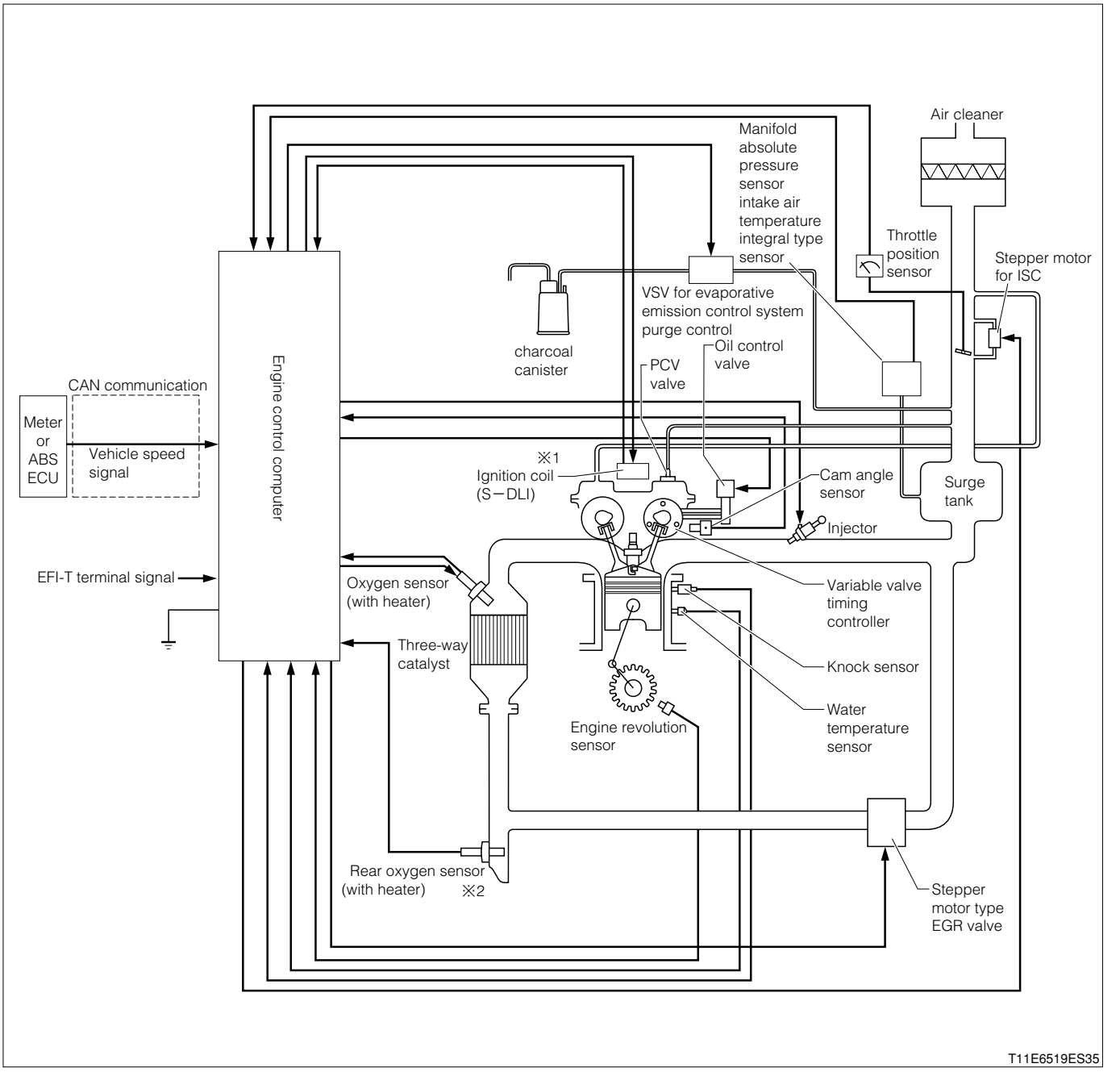
Name of device	System of device	COMPONENTS	Purpose/function
Catalyst device	Three-way catalyst system	(1)Monolithic catalyst 0.849ℓ	·Reduction of CO, HC and NO_x
Air-fuel ratio control device	Electronic controlled fuel injection system	(1)Injector (2) Oxygen sensor (with heater) (3)Rear oxygen sensor (with heater)※1 (4)Computer for control (5)Operation control device Throttle position sensor, intake pipe pressure/intake air temperature integrated sensor, water temperature sensor, engine revolution sensor, atmospheric pressure sensor※1, stepper motor for ISC	·Reduction of CO, HC and NO_x (The air-fuel ratio of the mixture taken in the combustion chamber will be controlled approximately to the stoichiometric air-fuel ratio, thus enabling the three-way catalyst to fully exercise the purification performance.)
Ignition timing control device (For EU specifications)	Electronic controlled system	(1)Ignition coil (Ion current detection device built-in) (2)Computer for control (3)Operation control device Intake pipe pressure/intake air temperature integrated sensor, water temperature sensor, throttle position sensor, engine revolution sensor, cam angle sensor, knock sensor, injector	·Reduction of HC ·Reduction of NO_x (An appropriate ignition timing control is performed according to the operating conditions.)
Ignition timing control device (For General specifications)	Electronic controlled system	(1)Ignition coil (2)Computer for control (3)Operation control device Intake pipe pressure/intake air temperature integrated sensor, water temperature sensor, throttle position sensor, engine revolution sensor, cam angle sensor, knock sensor, injector	·Reduction of NO_x (An appropriate ignition timing control is performed according to the operating conditions.)
Deceleration control device		(1)Injector (2)Computer for control (3)Operation control device Throttle position sensor	·Reduction of CO and HC during deceleration ·Improvement of fuel consumption ·Prevention of catalyst heating (Fuel cut is carried out during deceleration by the control device.)
Evaporative emission control device	Canister type	(1)Charcoal canister 0.36 ℓ (2)VSV for evaporative emission control system purge control (3)Computer for control	·Emission control of fuel evaporative emission
Blow-by gas recirculation device	Closed type	(1)Ventilation hose (2)PCV valve	·Reduction of CO and HC (The blow-by gas will be burned again to prevent emission of CO and HC.)

※1: For only EU specifications

Name of device	System of device	COMPONENTS	Purpose/function
Variable valve timing device		(1)Oil control valve Variable valve timing controller (3)Computer for control (4)Operation control device Engine revolution sensor, cam angle sensor, intake pipe pressure/intake air temperature integrated sensor, water temperature sensor, injector	·Reduction of NO_x (The NO_x is reduced by controlling the opening and closing of the intake valve to the appropriate timing according to the operating conditions.)
Exhaust gas recirculation device	Electronic controlled system	(1)Stepper motor type EGR valve (2)Computer for control (3)Operation control device Engine revolution sensor, water temperature sensor, intake pipe pressure/intake air temperature integrated sensor, throttle position sensor	·Reduction of NO_x (The NO_x in the exhaust gas is reduced by the external EGR effect.) ·Improvement of fuel consumption
On-board diagnosis device		Engine control computer, throttle position sensor, intake pipe pressure/intake air temperature integrated sensor, water temperature sensor, engine revolution sensor, cam angle sensor, oxygen sensor, oxygen sensor heater circuit, rear oxygen sensor※1, rear oxygen sensor heater circuit※1, oil control valve, atmospheric pressure sensor※1, ignition coil (ion current detection device built-in※1), fuel supply system, exhaust gas recirculation system, warning lamp	·Detection of failure of the emission control device

※1: For only EU specifications

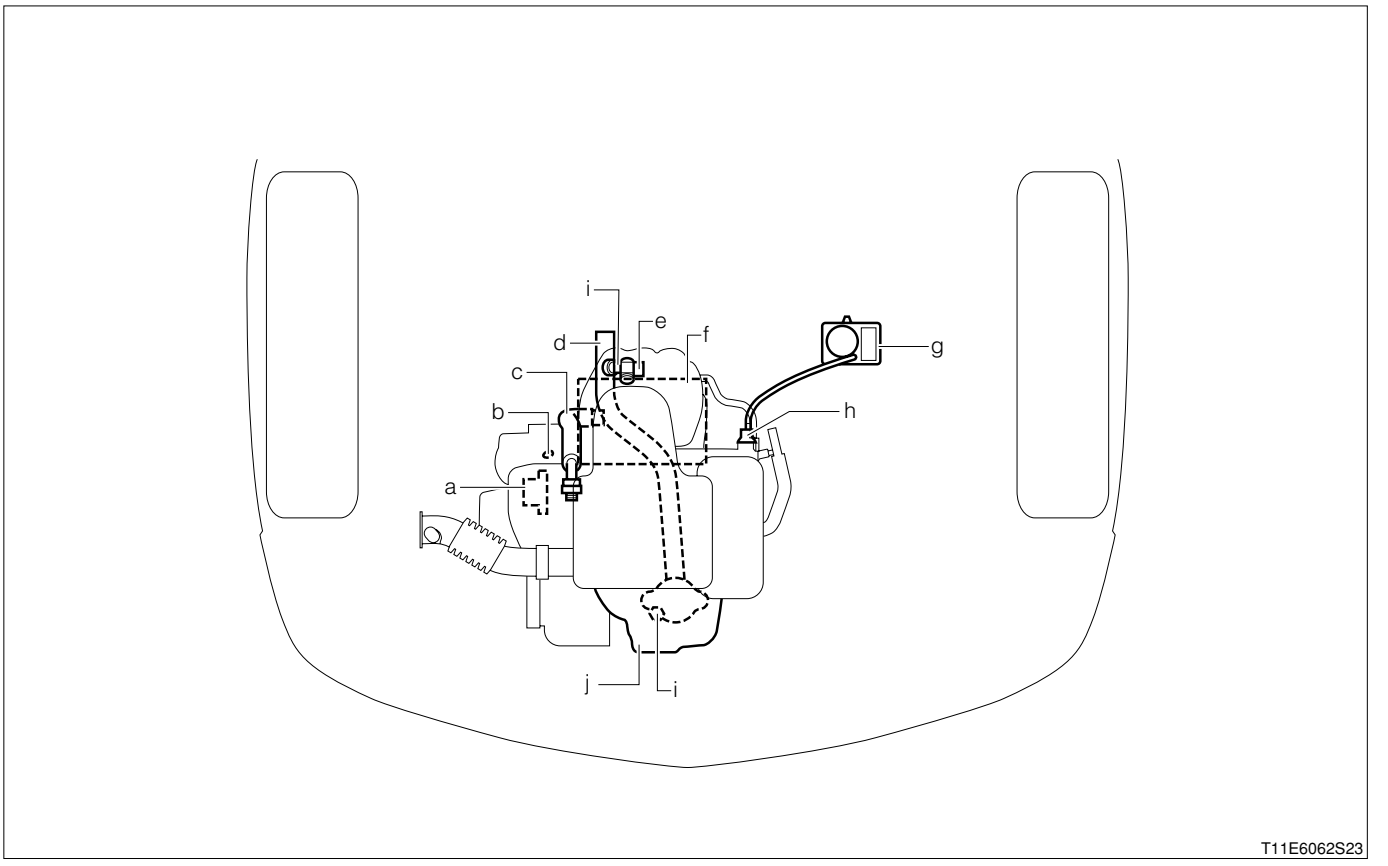
3-2 DIAGRAM OF EMISSION CONTROL SYSTEM



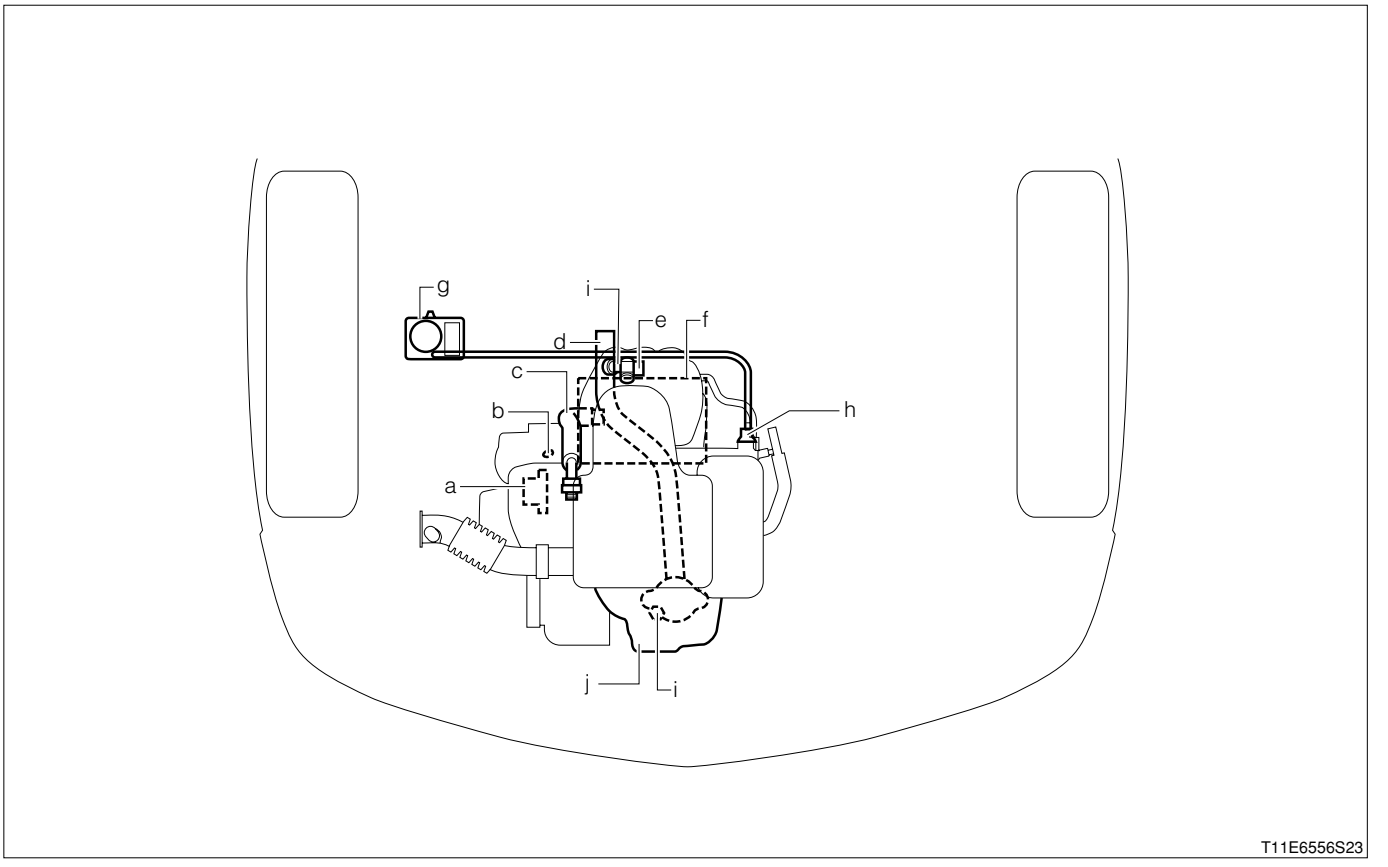
※1: Ion current detection device built-in for only EU specifications
※2: For only EU specifications

3-3 DIAGRAM SHOWING POSITION OF EMISSION CONTOROL DEVICE

RHD vehicles



LHD vehicles



	Part name
a	Variable valve timing device
b	Engine revolution sensor (Ignition timing control device)
c	Blow-by gas hose (countermeasure for blow-by gas)
d	Exhaust pipe
e	Intake pipe pressure/intake air temperature integrated sensor
f	Electronic controlled fuel injection device (air-fuel ratio control device) (deceleration control device)
g	Charcoal canister (countermeasure for fuel evaporative gas)
h	VSV for evaporative emission control system purge control
i	Oxygen sensor (with front oxygen sensor heater, rear oxygen sensor heater※1)
j	Exhaust manifold (three-way catalyst)

※1: For only EU specifications

3-4 AIR-FUEL RATIO CONTROL DEVICE

3-4-1 FUNCTION CHECK

1.Refer to "CO/HC concentration check" of the engine tune-up.
Refer to Page B1-11.

2.Refer to "Unit check" of the engine control system.
Refer to Page B8-219.

3-5 IGNITION TIMING CONTROL DEVICE

3-5-1 FUNCTION CHECK

1.Refer to "Ignition timing check" of the engine tune-up.
Refer to Page B1-8.

2.Perform the "unit check" of the engine control system.
Refer to Page B8-219.

3-6 DECELERATION CONTOROL DEVICE

3-6-1 FUNCTION CHECK

1.Refer to "Function check of deceleration control device" of the engine tune-up.
Refer to Page B14-14.

3-7 EXHAUST GAS RECICULATION DEVICE

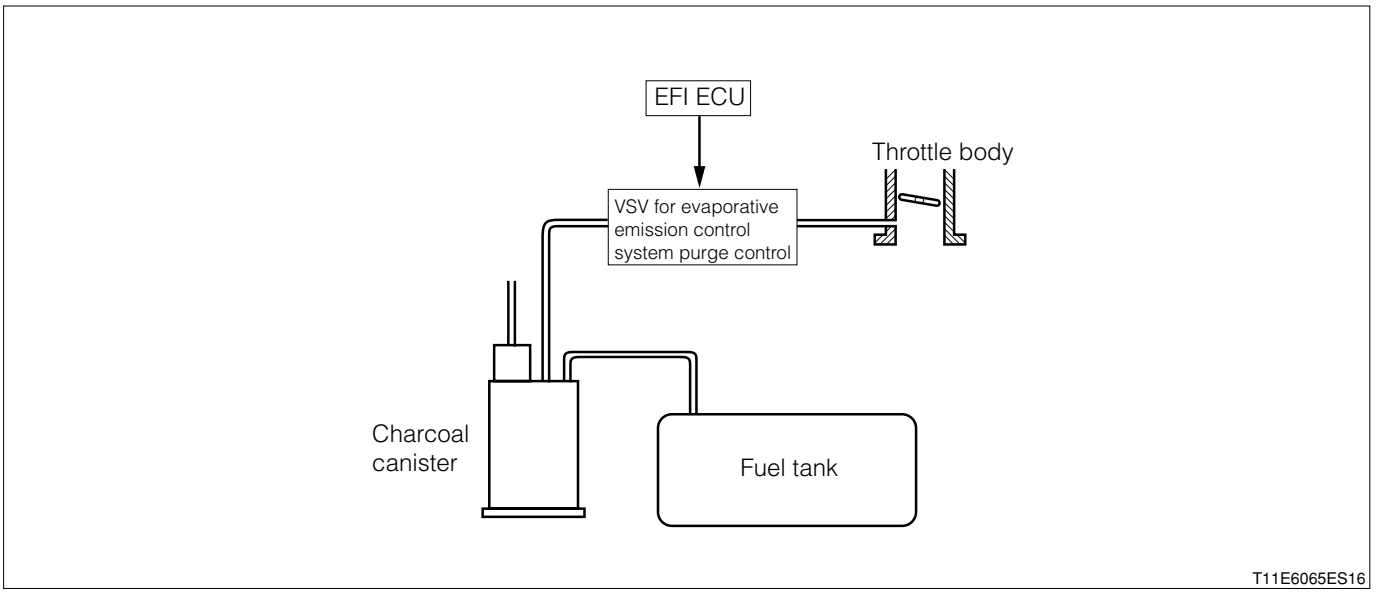
3-7-1 FUNCTION CHECK

Refer to "Exhaust gas recirculation device check" of the engine tune-up.
Refer to Page B1-15.

3-8 EVAPORATIVE EMISSION CONTROL DEVICE

＜canister type＞

3-8-1 SYSTEM DIAGRAM



3-8-2 UNIT CHECK

(1) VSV for evaporative emission control system purge control

1.Refer to "Unit check" of the engine control system.
Refer to Page B8-225.

(2) Charcoal canister

1.Refer to "Charcoal canister check" of the engine tune-up.
Refer to Page B1-13.

3-9 BLOW-BY RECICULATION DEVICE

3-9-1 UNIT CHECK

(1) PCV valve (metering valve)

1.Refer to "Check of piping of blow-by recirculation device for damage" of the engine tune-up.
Refer to Page B1-14.

■ K3
1 CHARCOAL CANISTER
1-1 REMOVAL AND INSTALLATION
Refer to Page B9-1.

Refer to Page B9-2.

2 EXHAUST EMISSION PURIFICATION SYSTEM
2-1 LIST OF EMISSION CONTOROL DEVICES

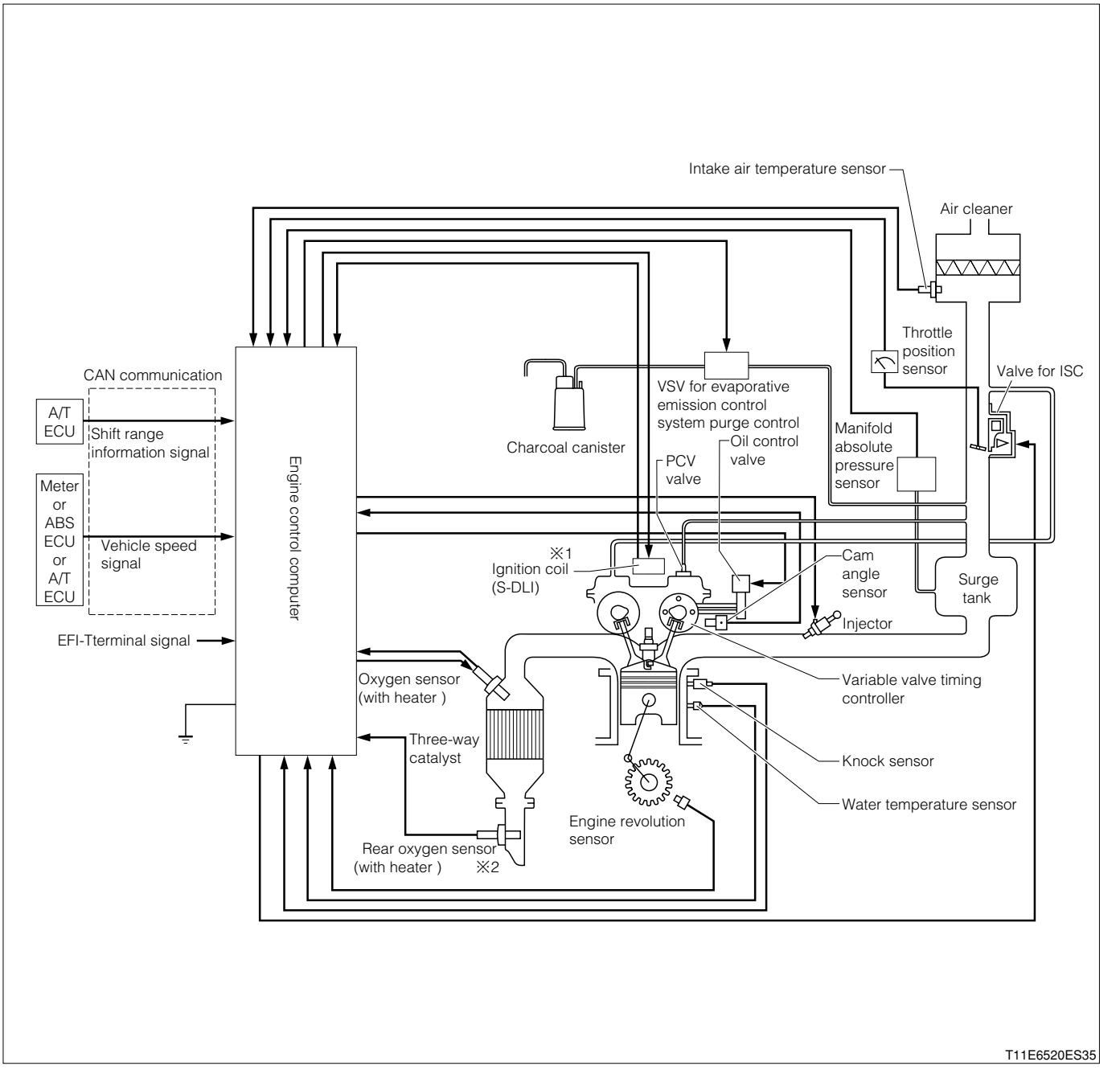
Name of device	System of device	COMPONENTS	Purpose/function
Catalyst device	Three-way catalyst system	(1)Monolithic catalyst 1.152ℓ	·Reduction of CO, HC and NO_x
Air-fuel ratio control device	Electronic controlled fuel injection system	(1)Injector (2)Oxygen sensor (with heater※1) (3)Rear oxygen sensor (with heater)※1 (4)Computer for control (5)Operation control device Throttle position sensor, intake pipe pressure sensor, water temperature sensor, intake air temperature sensor, engine revolution sensor, atmospheric pressure sensor※1	·Reduction of CO, HC and NO_x (The air-fuel ratio of the mixture taken in the combustion chamber will be controlled approximately to the stoichiometric air-fuel ratio, thus enabling the three-way catalyst to fully exercise the purification performance.)
Ignition timing control device (For EU specifications)	Electronic controlled system	(1)Ignition coil (Ion current detection device built-in) (2)Computer for control (3)Operation control device Intake pipe pressure sensor, water temperature sensor, throttle position sensor, engine revolution sensor, cam angle sensor knock sensor	·Reduction of HC ·Reduction of NO_x (An appropriate ignition timing control is performed according to the operating conditions.)
Ignition timing control device (For General specifications)	Electronic controlled system	(1)Ignition coil (2)Computer for control (3)Operation control device Intake pipe pressure sensor, water temperature sensor, throttle position sensor, engine revolution sensor, cam angle sensor knock sensor	·Reduction of NO_x (An appropriate ignition timing control is performed according to the operating conditions.)
Deceleration control device		(1)Injector (2)Computer for control (3)Operation control device Throttle position sensor, engine revolution sensor	·Reduction of CO and HC during deceleration ·Improvement of fuel consumption ·Prevention of catalyst heating (Fuel cut is carried out during deceleration by the control device.)
Evaporative emission control device	Canister type	(1)Charcoal canister 0.36 ℓ (2)VSV for evaporative emission control system purge control (3)Computer for control	·Emission control of fuel evaporative emission

※1: For only EU specifications

Name of device	System of device	COMPONENTS	Purpose/function
Blow-by gas recirculation device	Closed type	(1)Ventilation hose (2)PCV valve	·Reduction of CO and HC (The blow-by gas will be burned again to prevent emission of CO and HC.)
Variable valve timing device		(1)Oil control valve Variable valve timing controller (3)Computer for control (4)Operation control device Engine revolution sensor, cam angle sensor, intake pipe pressure, water temperature sensor	·Reduction of NO_x (The NO_x is reduced by controlling the opening and closing of the intake valve to the appropriate timing according to the operating conditions.)
On-board diagnosis device		Engine control computer, throttle position sensor, intake pipe pressure sensor, intake air temperature sensor, water temperature sensor, engine revolution sensor, cam angle sensor, oxygen sensor, oxygen sensor heater circuit※1, rear oxygen sensor※1, rear oxygen sensor heater circuit※1, oil control valve, , atmospheric pressure sensor※1, ignition coil (Ion current detection device built-in※), fuel supplying system, water pump	·Detection of failure of the emission control device

※1: For only EU specifications

2-2 DIAGRAM OF EMISSION CONTROL SYSTEM



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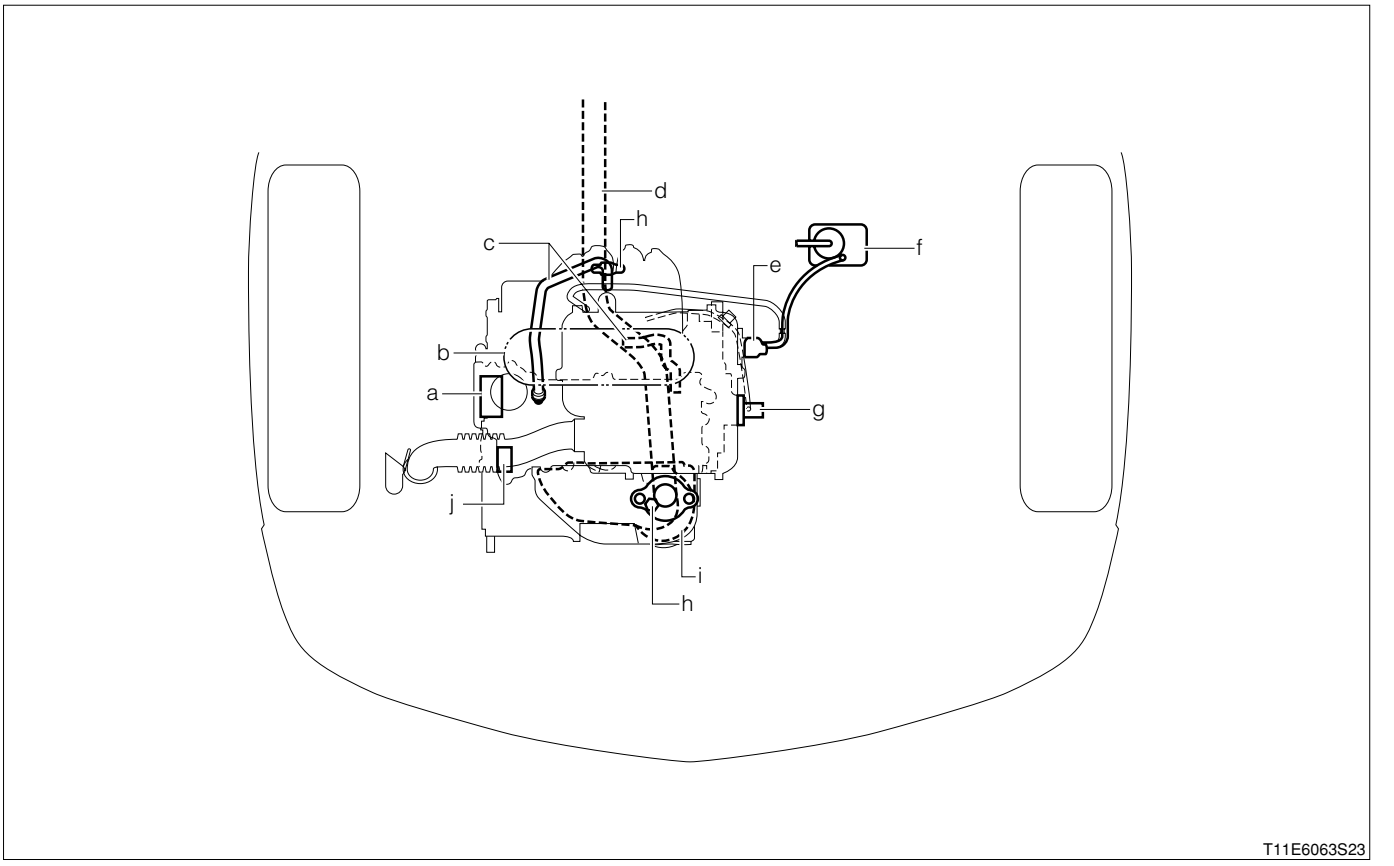
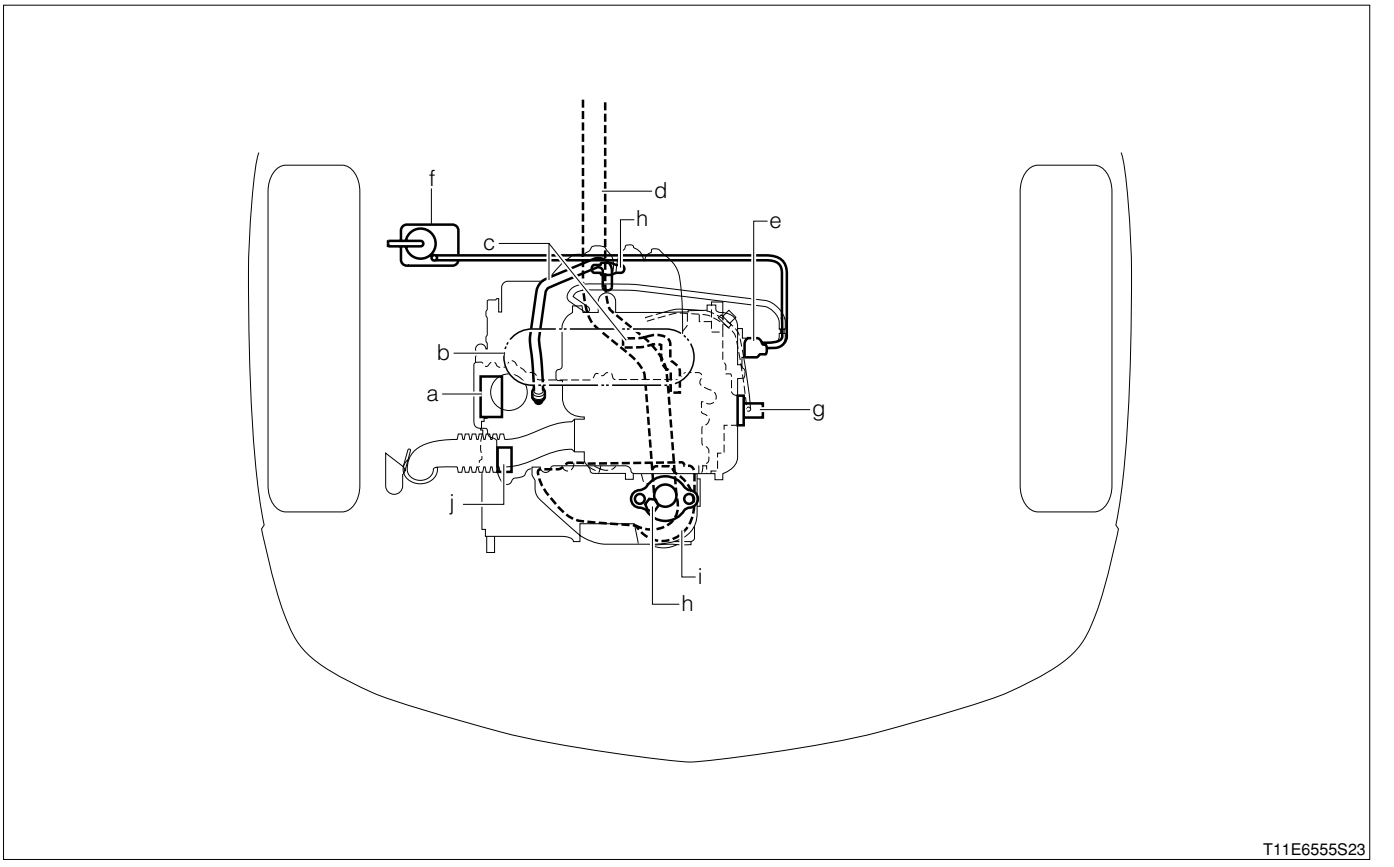
※1: Ion current detection device built-in for only EU specifications
※2: For only EU specifications

2-3 DIAGRAM SHOWING POSITION OF EMISSION CONTOROL DEVICE

RHD vehicles



LHD vehicles



	Part name
a	Variable valve timing device
b	Electronic controlled fuel device (air-fuel ratio control device) (deceleration control device)
c	Blow-by gas hose (countermeasure for blow-by gas)
d	Exhaust pipe
e	VSV for evaporative emission control system purge control
f	Charcoal canister (countermeasure for fuel evaporative gas)
g	Manifold absolute pressure sensor
h	Oxygen sensor (with front oxygen sensor heater※1)
i	Exhaust manifold (three-way catalyst)
j	Engine revolution sensor (Ignition timing control device)

※1: For only EU specifications

2-4 AIR-FUEL RATIO CONTROL DEVICE

2-4-1 FUNCTION CHECK

1.Refer to "CO/HC concentration check" of the engine tune-up.
Refer to Page B1-27.

2.Refer to "Unit check" of the engine control system.
Refer to Page B8-467.

2-5 IGNITION TIMING CONTROL DEVICE

2-5-1 FUNCTION CHECK

1.Refer to "Ignition timing check" of the engine tune-up.
Refer to Page B1-24.

2.Perform the "Unit check" of the engine control system.
Refer to Page B8-467.

2-6 DECELERATION CONTOROL DEVICE

2-6-1 FUNCTION CHECK

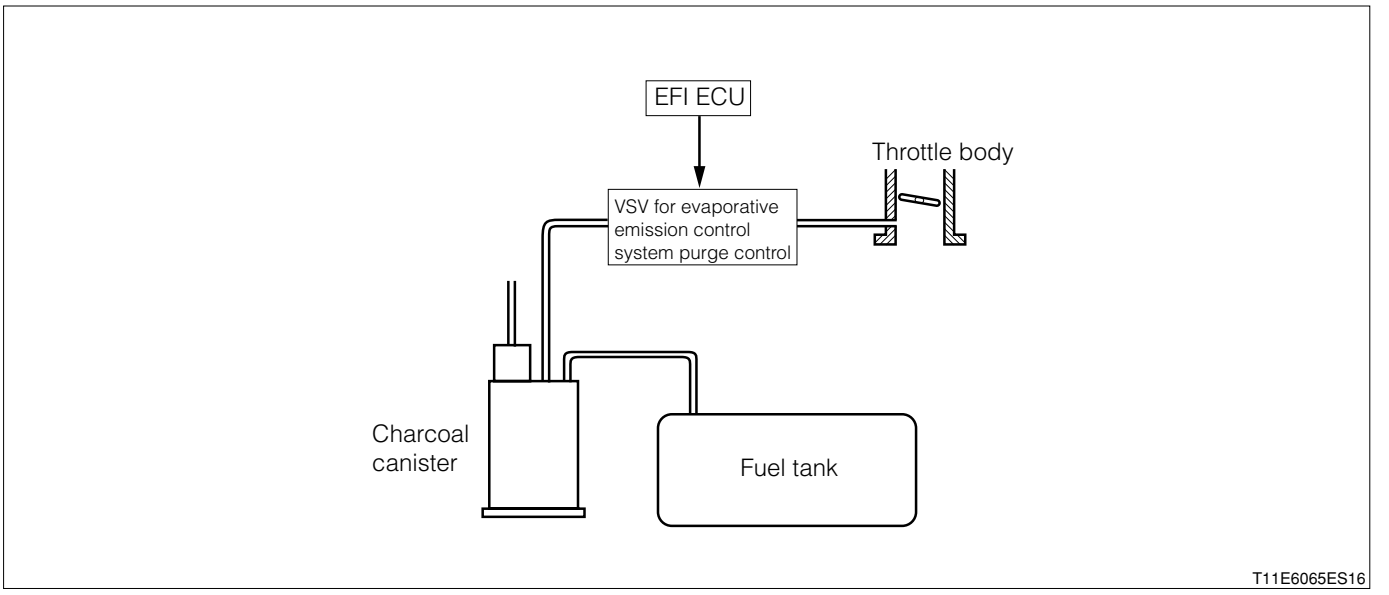
1.Refer to "Function check of deceleration control device" of the engine tune-up.
Refer to Page B1-30.

2.Refer to "Unit check" of the engine control system.
Refer to Page B8-467.

2-7 EVAPORATIVE EMISSION CONTROL DEVICE

＜canister type＞

2-7-1 SYSTEM DIAGRAM



2-7-2 UNIT CHECK

(1) VSV for evaporative emission control system purge control

1.Refer to "Unit check" of the engine control system.
Refer to Page B8-473.

(2) Charcoal canister

1.Refer to "Charcoal canister check" of the engine tune-up.
Refer to Page B1-29.

2-8 BLOW-BY RECICULATION DEVICE

2-8-1 UNIT CHECK

1.Refer to "Check of piping of blow-by recirculation control device for damage" of the engine tune-up.
Refer to Page B1-30.