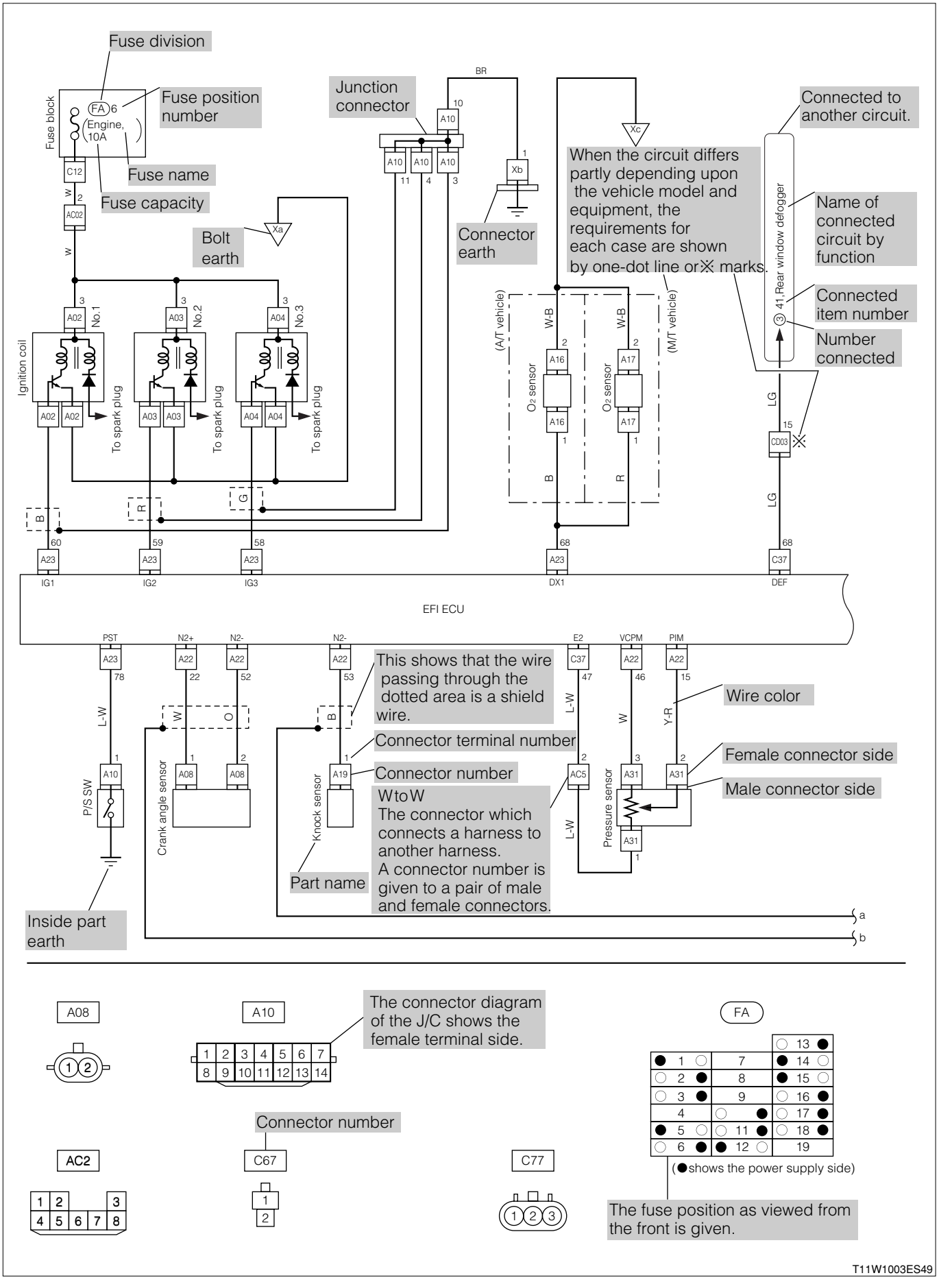


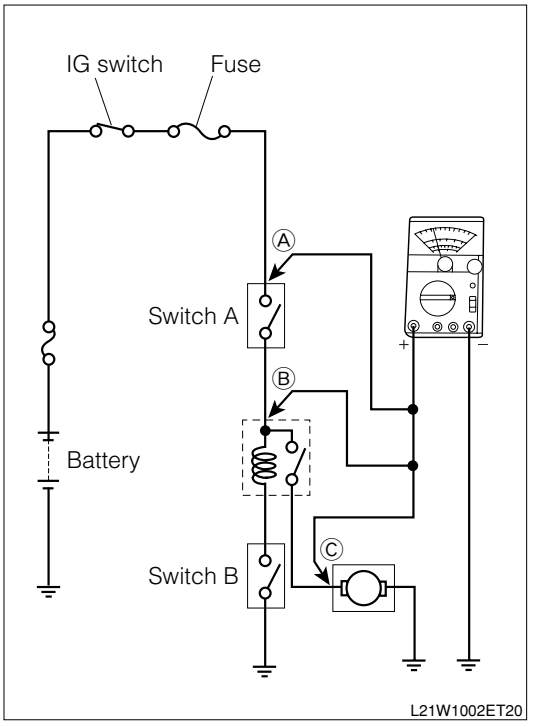
T11W1003ES49

3-3-2 VOLTAGE CHECK

1.When conducting this check, let the voltage apply to the check point.
2.Connect the (−) line of the voltmeter to the ground or (−) terminal of the battery; the (+) line to the connector terminal. This check can be performed by using a test lamp instead of a voltmeter.

Example

Check point	Connecting condition
A	Ignition switch:ON
B	Ignition switch:ON, Switch A:ON
C	Ignition switch:ON, Switch A:ON, Switch B:ON, Relay:ON

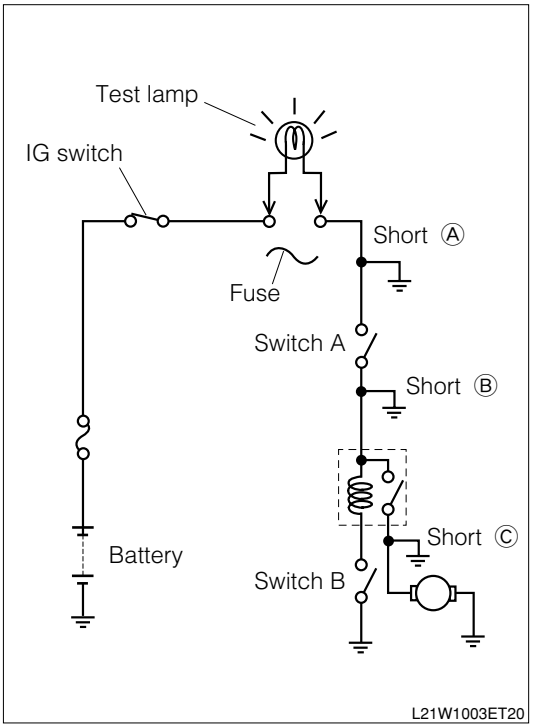


3-3-3 INSPECTION OF SHORT CIRCUIT

1.Remove a melt fuse or fusible link.
2.Disconnect all connectors for loads being applied to the melt fuse.
3.Connect a test lamp at the position where the melt fuse or fusible link was installed.
4.Search for the short circuit by providing the minimum conditions which make the test lamp glow.
5.Perform repairs or wiring harness replacement, as required.

Example

Short section	Connecting condition
A	Ignition switch:ON
B	Ignition switch:ON, Switch A:ON
C	Ignition switch:ON, Switch A:ON, Switch B:ON, Relay:ON

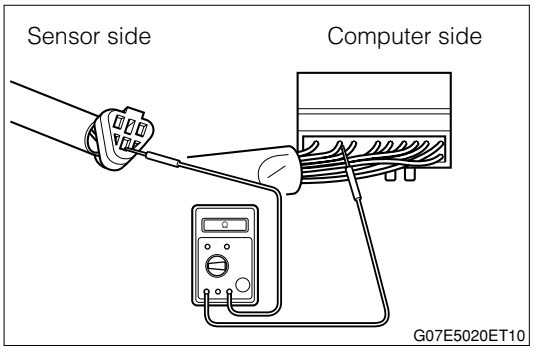


3-3-4 RESISTANCE AND CONTINUITY CHECK

1.Remove the connector of corresponding harness on both ends.
2.Measure the electrical resistance between corresponding terminals of connector on both end.

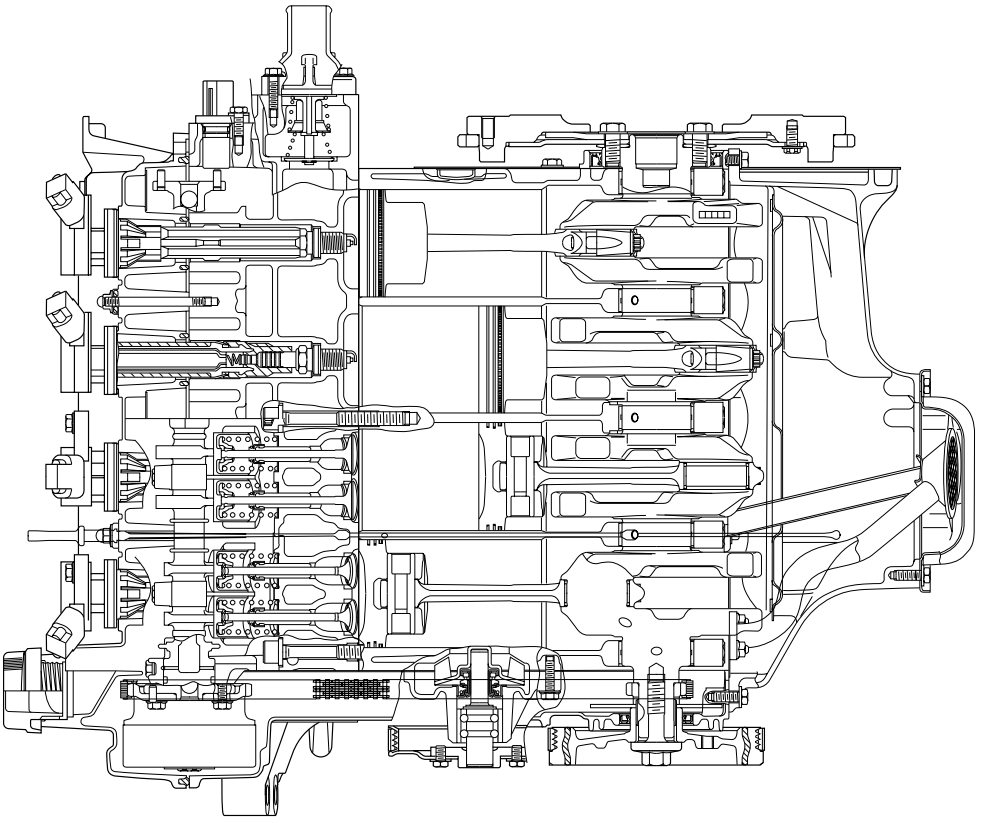
CAUTION

- Measure the electrical resistance while shaking wire harness in top and down and right and left lightly.

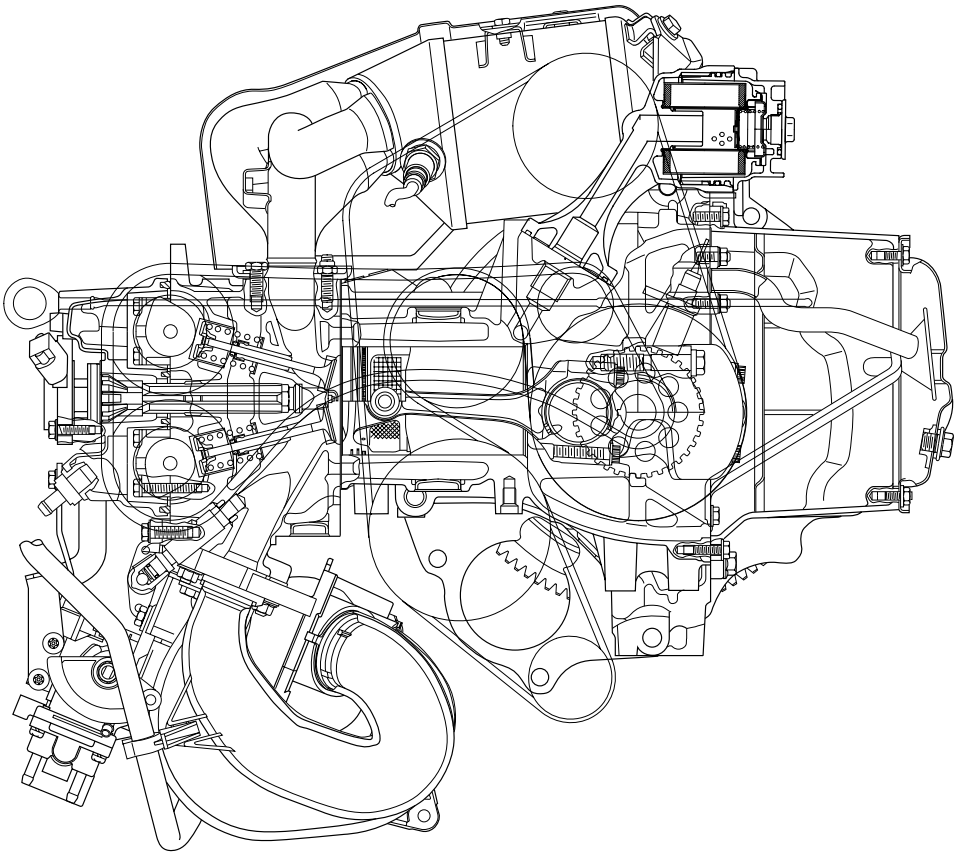


3 SECTIONAL VIEW

Engine cross-section view



<Longitudinal cross-section>



<Transverse cross-section>

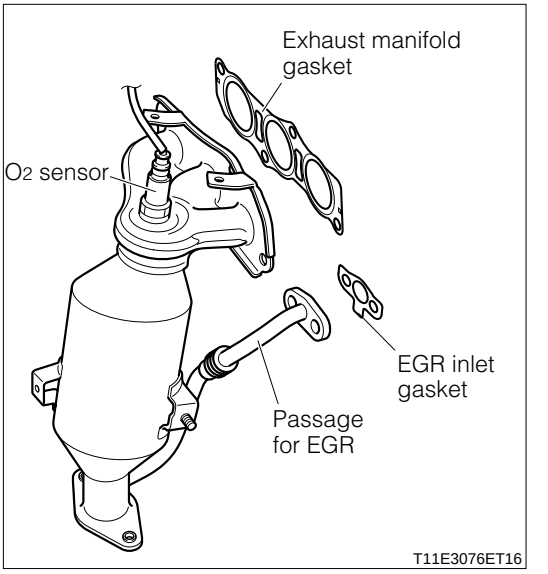
T11E2005ES48

1KR
1 CONSTRUCTION AND OPERATION
1-1 EXHAUST MANIFOLD AND EXHAUST MANIFOLD GASKET

As for the exhaust manifold, thanks to the employment of the stainless steel pipe thin wall structure integrated with the catalyst, the heat capacity has been reduced, thus improving the warm-up performance to correspond to the exhaust emission standard.

A gas takeoff pipe for EGR is provided to circulate the exhaust gas to the intake side.

The exhaust manifold gasket is made of stainless steel.



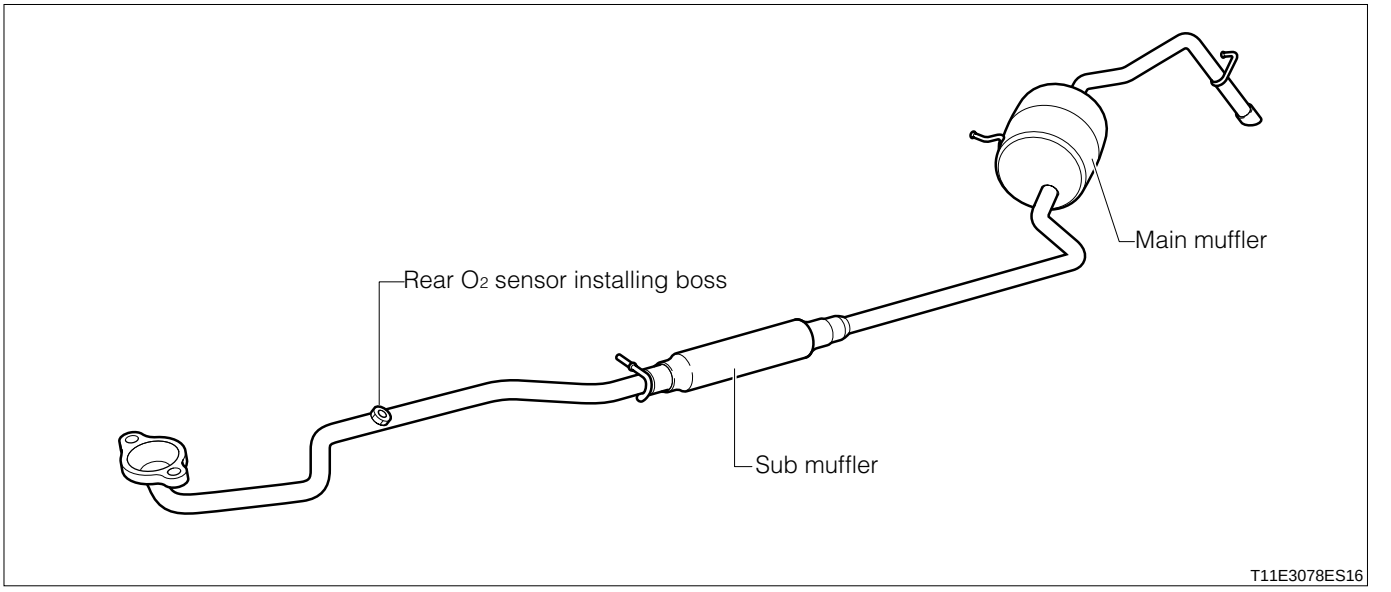
1-2 EXHAUST PIPE

1.EU spec.

The sub muffler and main muffler are integrated. The two-piece type laser welding muffler is adopted to the main muffler. The muffler capacity has been lessened by optimizing the muffler structure to realize weight saving. The rear O_2 sensor mounting boss is provided to the front of the sub muffler.

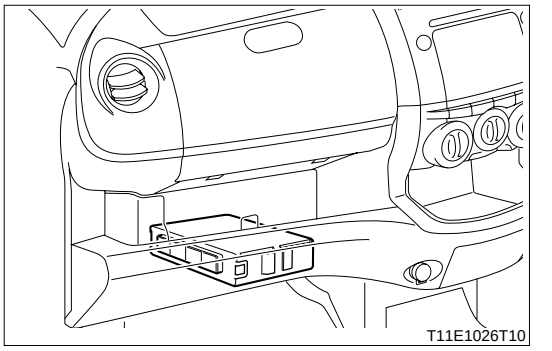
Muffler specifications

	Sub muffler	Main muffler
capacity (ℓ)	0.9	6.0



3 COMPONENTS

3-1 ENGINE CONTROL COMPUTER



The engine control computer is mounted under the glove box on the front passenger seat side, providing fuel injection control, electronic spark advance control, variable valve timing control, idol speed control, evaporator purge control, etc. The engine control computer communicates with other ECU's, outputs the operation status of the engine through EFI ECU, and inputs the signal from ECU's, providing various controls such as idle-up, fuel cut, and ignition stop.

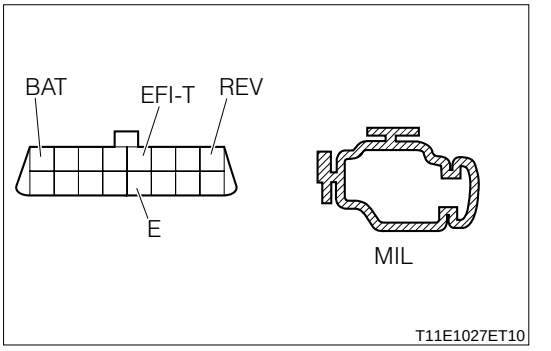
3-2 DLC

3-2-1 DESCRIPTION

The DLC is installed in front of the driver's seat (at the lower end of the instrument panel, on the driver's door side), providing the following checks.

(1) Indication of diagnosis

(2) Indication of O_2 sensor state



3-2-2 INDICATION OF DIAGNOSIS

When the terminal EFI T and E are shorted while the IG switch is ON, the engine check lamp inside the combination meter flashes to indicate the error code, starting with a smaller code. The error code is identified by the number of flashing, displayed repeatedly.

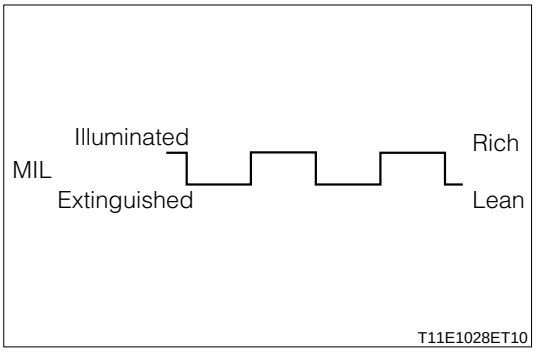
3-2-3 INDICATION OF O_2 SENSOR STATE

Short-circuit the terminal EFI T and E with the IG switch turned ON, maintain the engine speed above 2000rpm, and keep the brake pedal depressed. In this way, the output status of the O_2 sensor and feedback control can be checked by ON/OFF operations of the engine check lamp.

(No indication of the rear O_2 sensor state)

(1) Rich side: Lamp ON

(2) Lean side: Lamp OFF



2 CONSTRUCTION AND OPERATION

2-1 CATALYST DEVICE

2-1-1 DESCRIPTION

The catalyst, made of ceramic, has gas passages called monolith which has grid cross-section with its surface covered with noble metal. This catalyst is mounted in the exhaust manifold so that harmful components of the exhaust gas can be removed as the exhaust gas passes through the passages.

The O_2 sensor is mounted downstream of the catalyst for EU specification vehicles to monitor degradation of the O_2 sensor mounted upstream of the catalyst, to prevent exhaust gas from deterioration.

2-2 AIR-TO-FUEL RATIO CONTROL DEVICE

2-2-1 DESCRIPTION

The air-to-fuel ratio is controlled by the electronically controlled fuel injection system so that the air to fuel ratio which is fit to the engine's operating conditions can be obtained and that high purification performance can be obtained in the catalyst device.

2-3 IGNITION TIMING CONTROL DEVICE

2-3-1 DESCRIPTION

The ignition timing is controlled by the electronic spark advance system so that the ignition timing may become fit to the engine operating conditions and that harmful emissions in the exhaust gas can be reduced.

2-4 CONTROL DEVICE DURING DECELERATION

2-4-1 DESCRIPTION

Deceleration fuel cut occurs when the throttle valve opening degree and engine speed fall into the fuel cut range in order to reduce unburnt components discharged when the throttle valve is closed during deceleration.

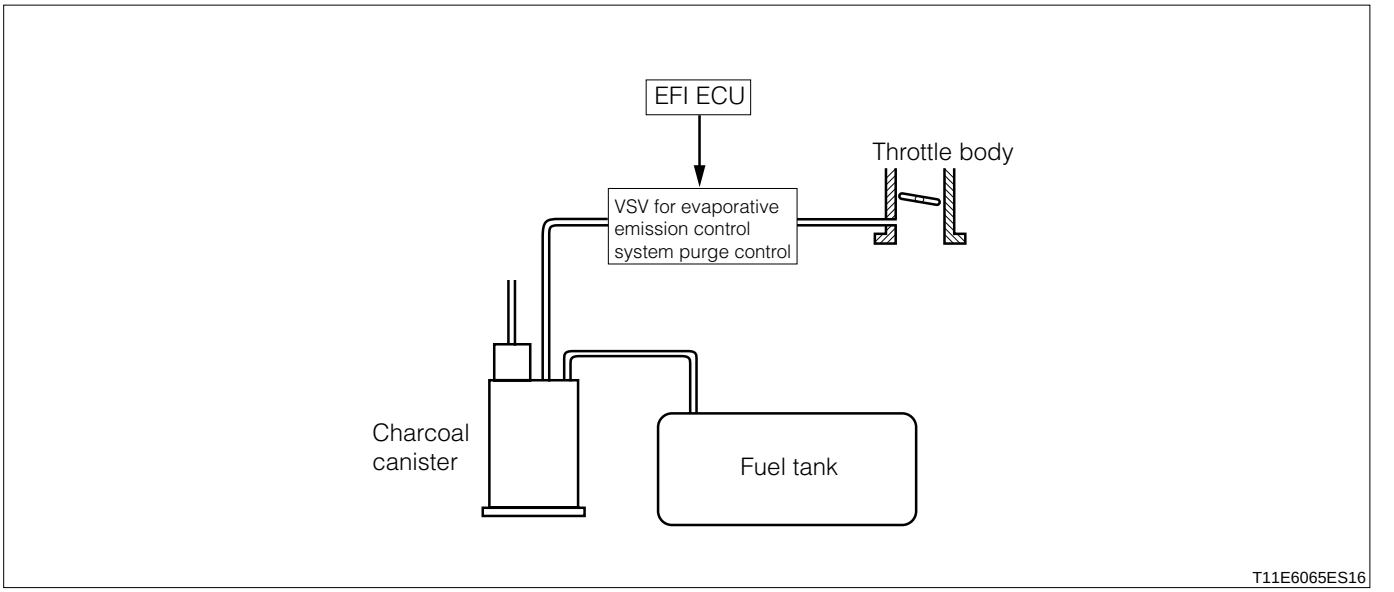
2-5 FUEL EVAPORATIVE EMISSION CONTROL DEVICE

2-5-1 CANISTER METHOD

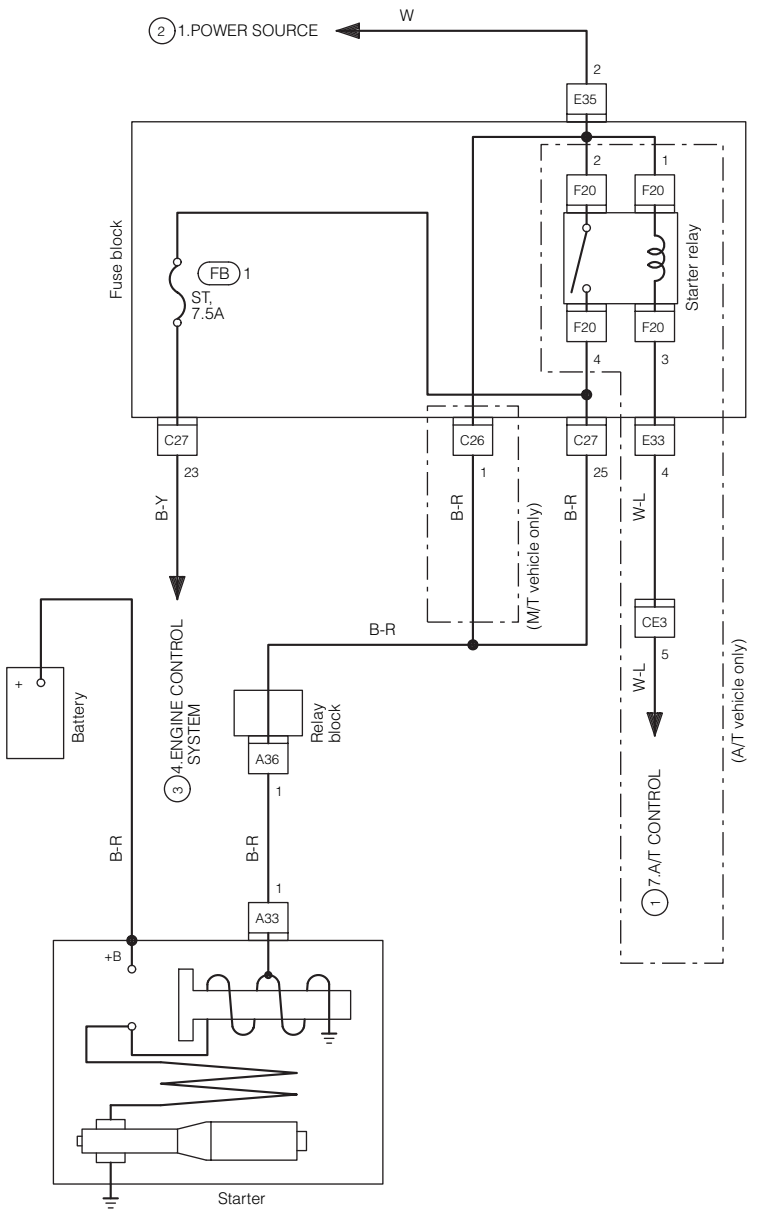
(1) Description

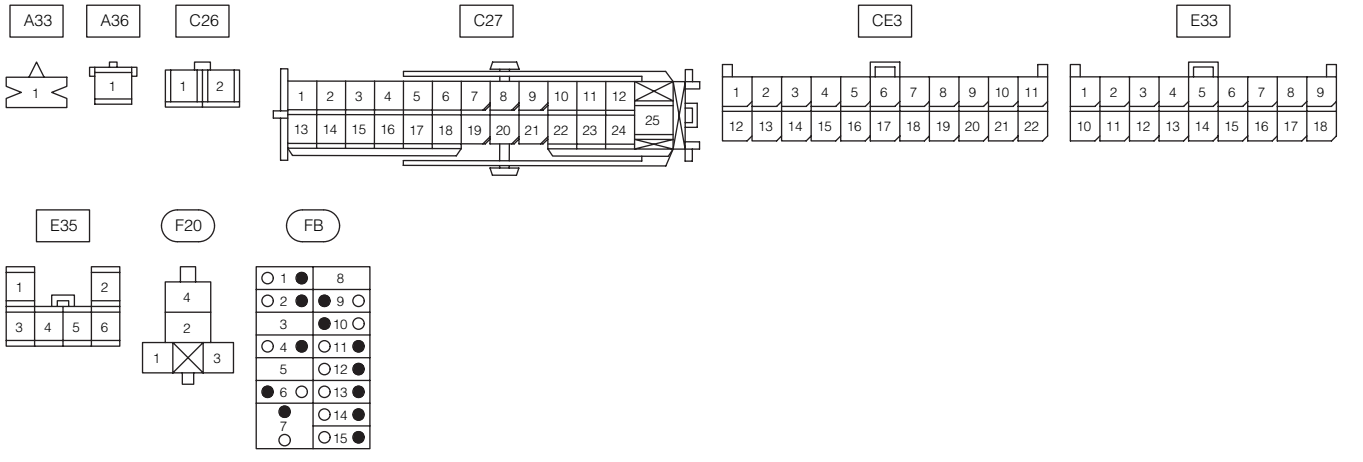
Fuel evaporative emissions generated inside the fuel tank are absorbed in the charcoal canister.

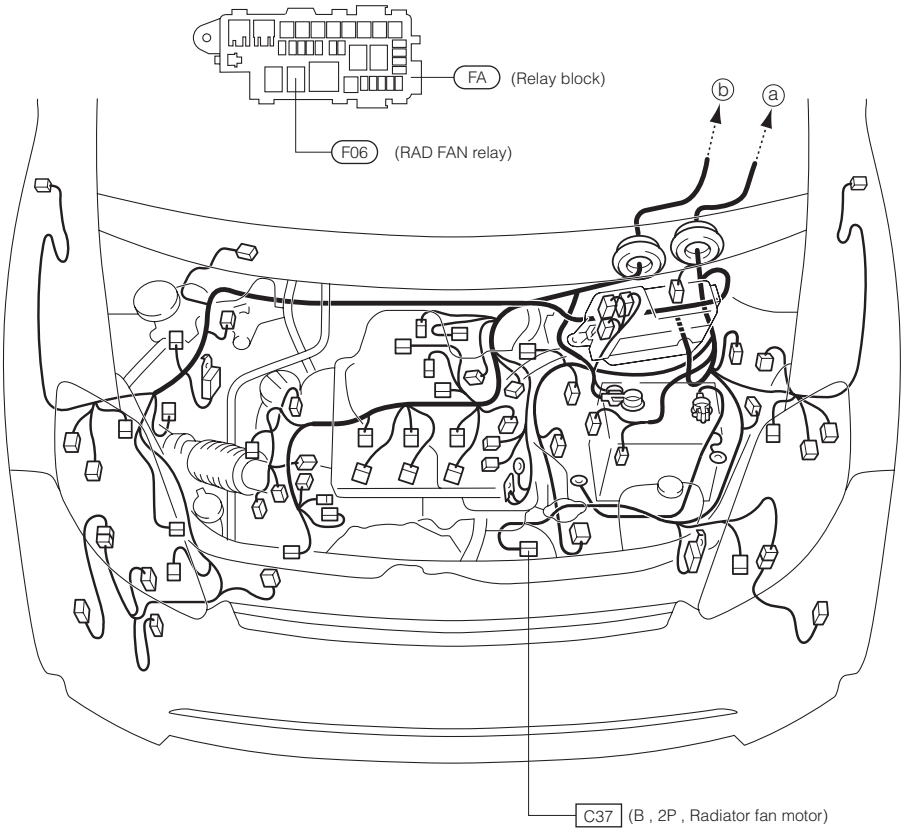
The adsorbed fuel evaporative emissions are sucked into the intake manifold and burned during engine operation.

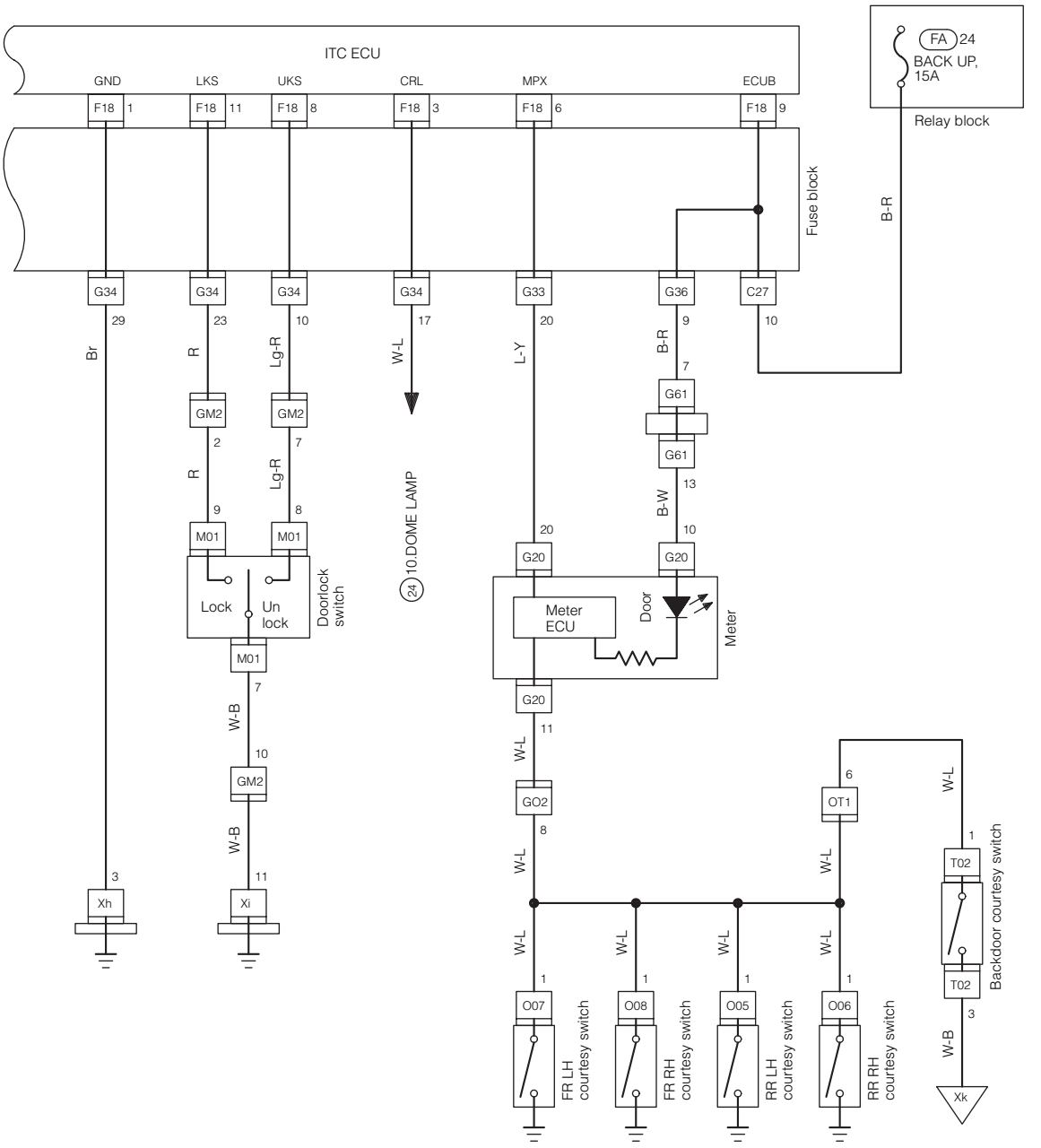


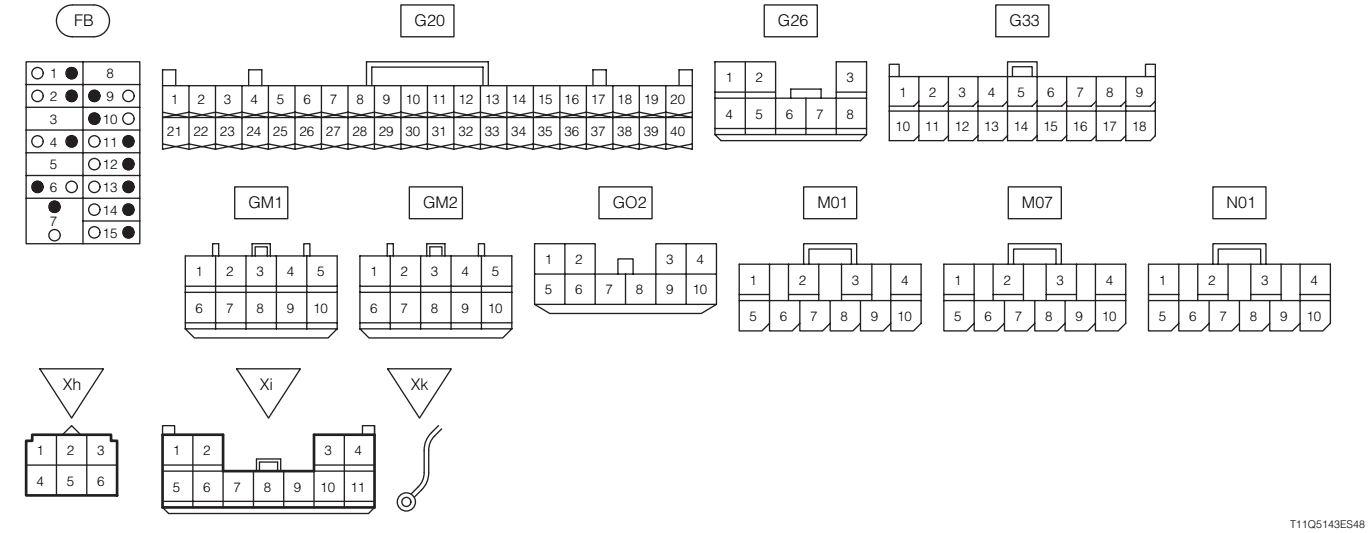
2 STARTING SYSTEM
2-1 RHD VEHICLE






FA (Relay block)
F06 (RAD FAN relay)
b
a
C37 (B , 2P , Radiator fan motor)





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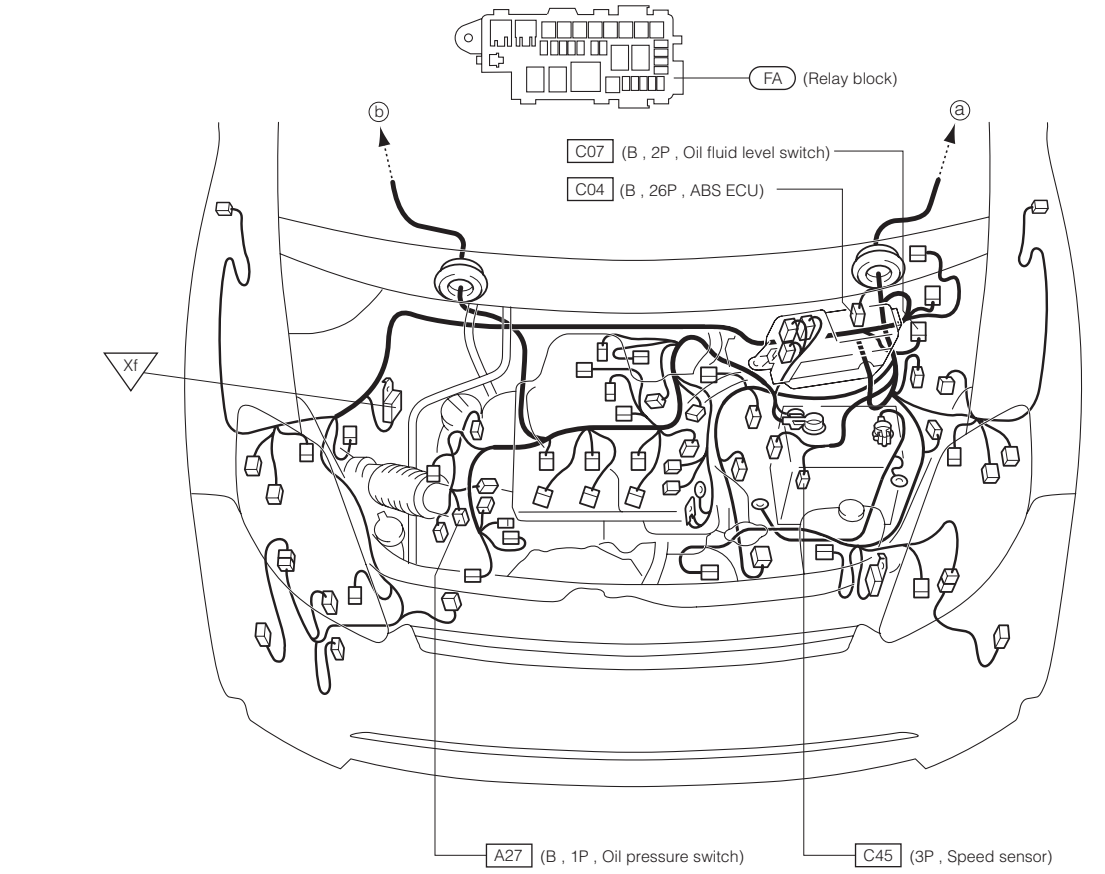
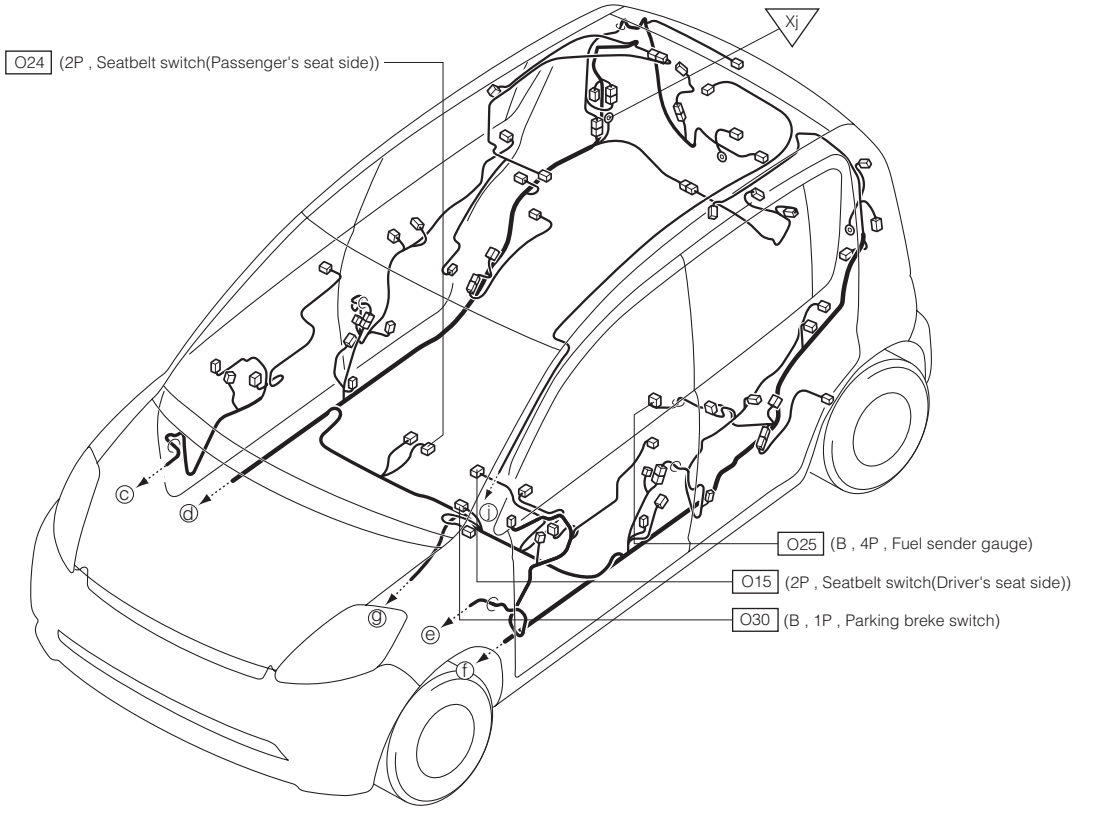
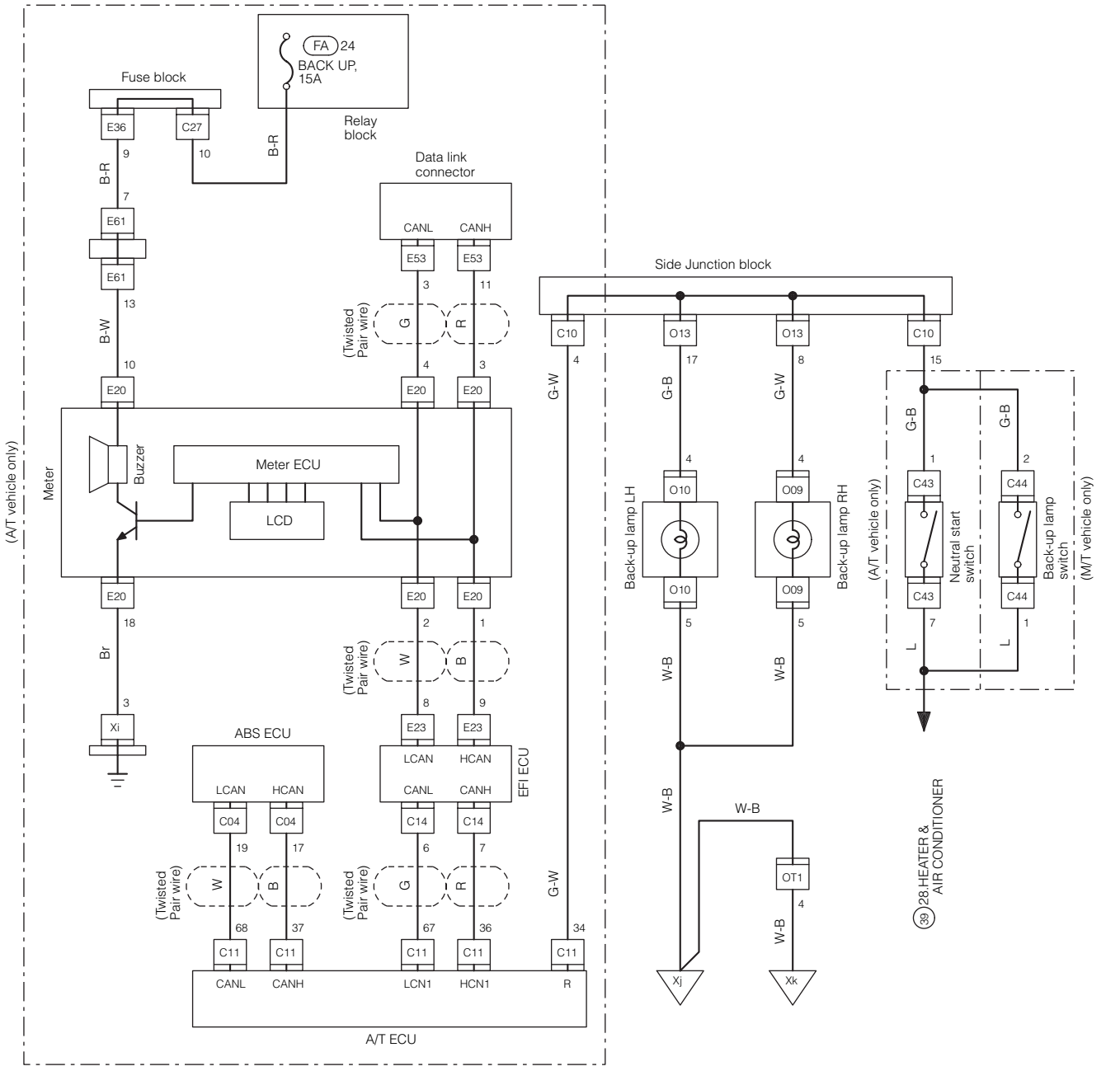
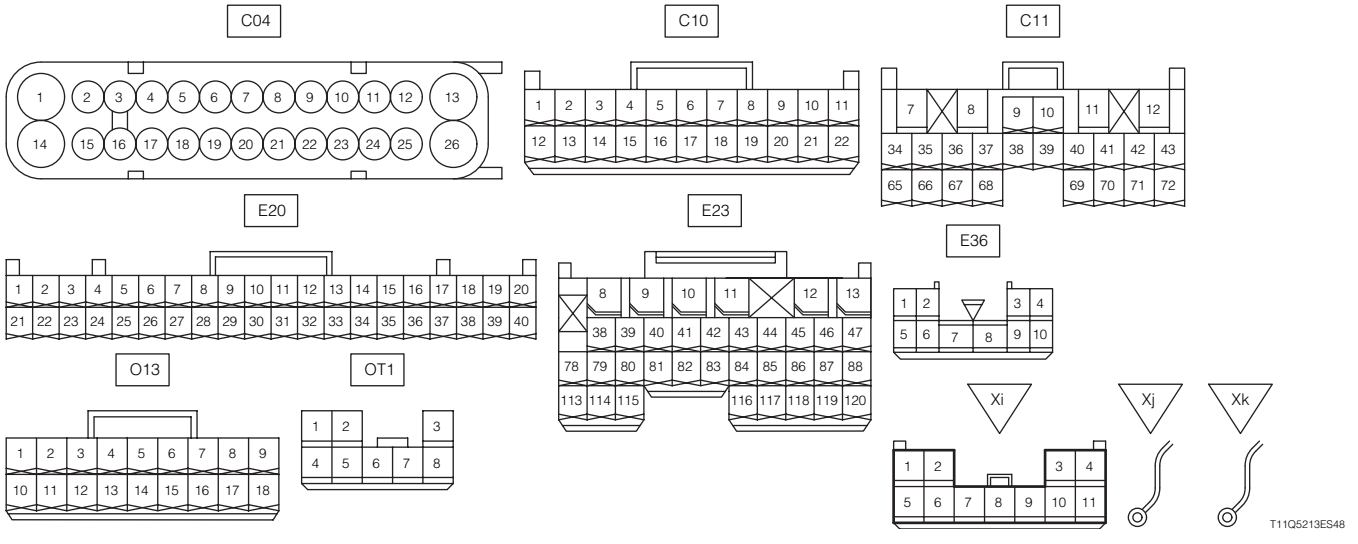

FA (Relay block)
ⓑ
ⓐ
C07 (B , 2P , Oil fluid level switch)
C04 (B , 26P , ABS ECU)
Xf
A27 (B , 1P , Oil pressure switch)
C45 (3P , Speed sensor)


Xj
O24 (2P , Seatbelt switch(Passenger's seat side))
ⓒ
ⓓ
ⓘ
O25 (B , 4P , Fuel sender gauge)
O15 (2P , Seatbelt switch(Driver's seat side))
O30 (B , 1P , Parking breke switch)
ⓖ
ⓔ
ⓕ

22 BACK UP LAMP

22-1 RHD VEHICLE





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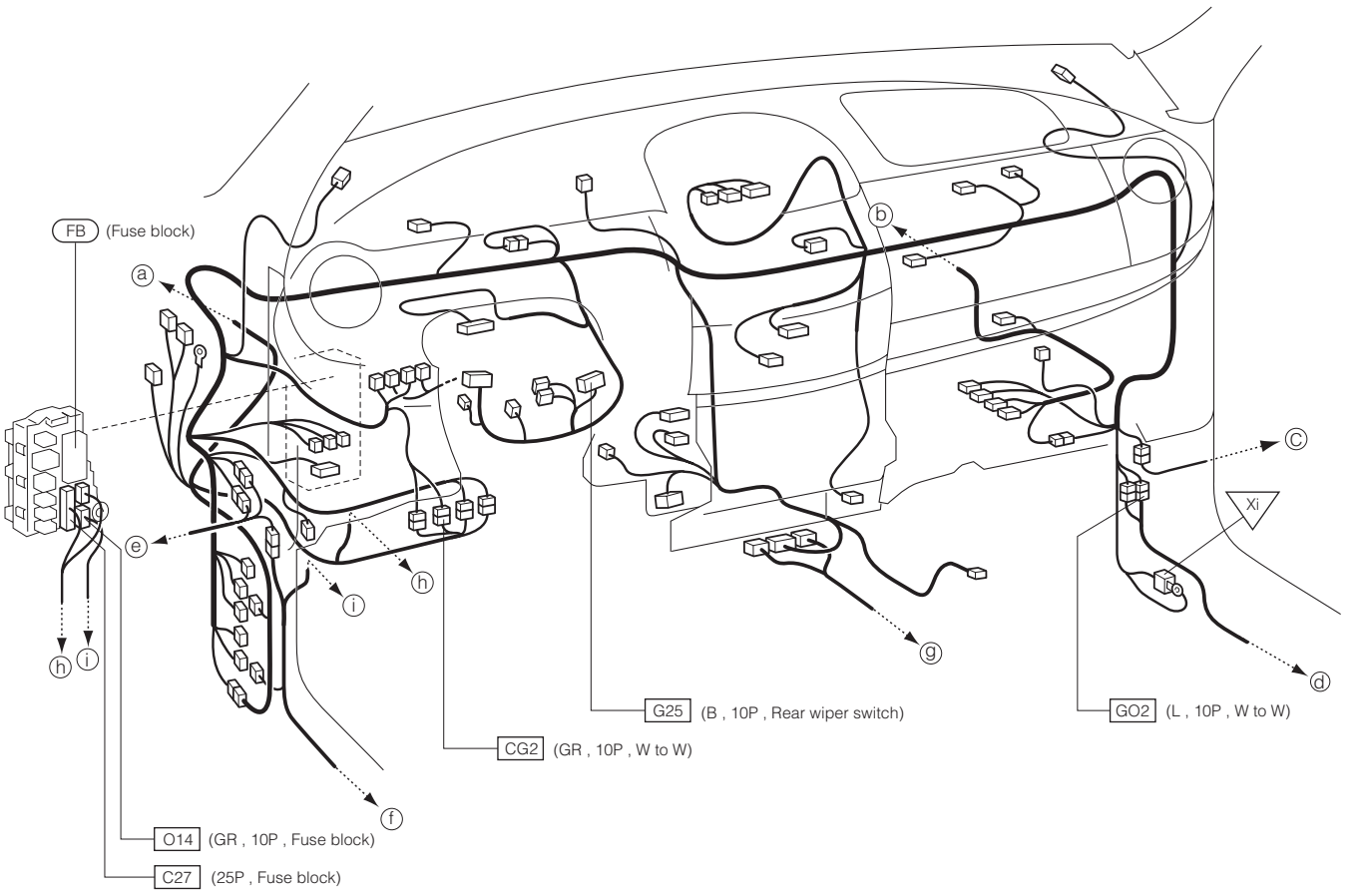
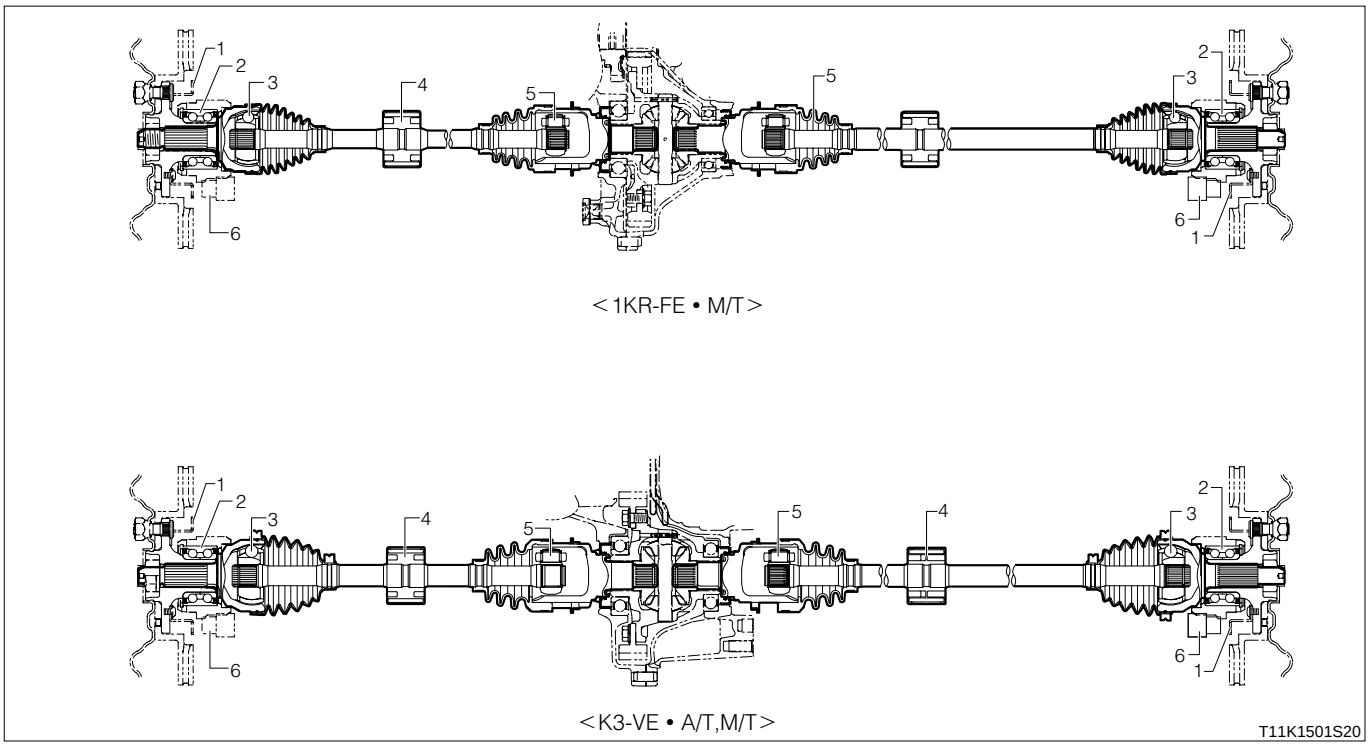

FB (Fuse block)
a
b
c
d
e
f
g
h
i
Xi
G25 (B , 10P , Rear wiper switch)
CG2 (GR , 10P , W to W)
GO2 (L , 10P , W to W)
O14 (GR , 10P , Fuse block)
C27 (25P , Fuse block)

1-3 SECTIONAL VIEW

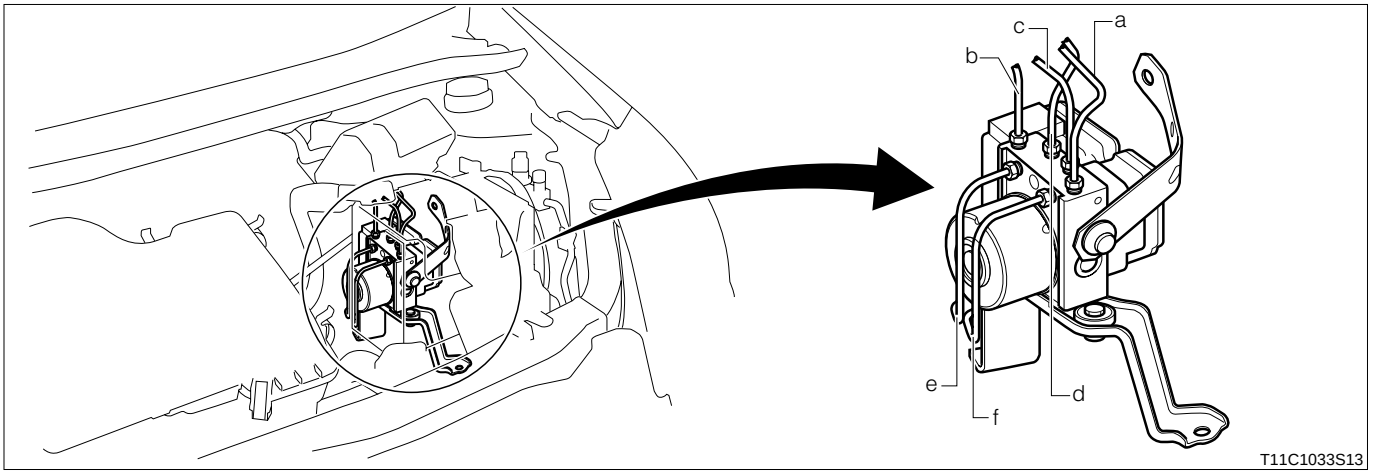


1	Sensor rotor(vehicles equipped with ABS)	4	Dynamic damper
2	Angular ball bealing	5	Tripod type constant-velocity joint
3	Undercut free type constant-velocity joint	6	Wheel speed sensor(vehicles equipped with ABS)

3-2 ABS ACTUATOR

ABS actuator, which consists of the ABS ECU, solenoid valve, pump, a motor, etc., controls fluid pressure that is applied to the wheel brakes during ABS control.

It is installed at the back of the battery in the engine compartment.

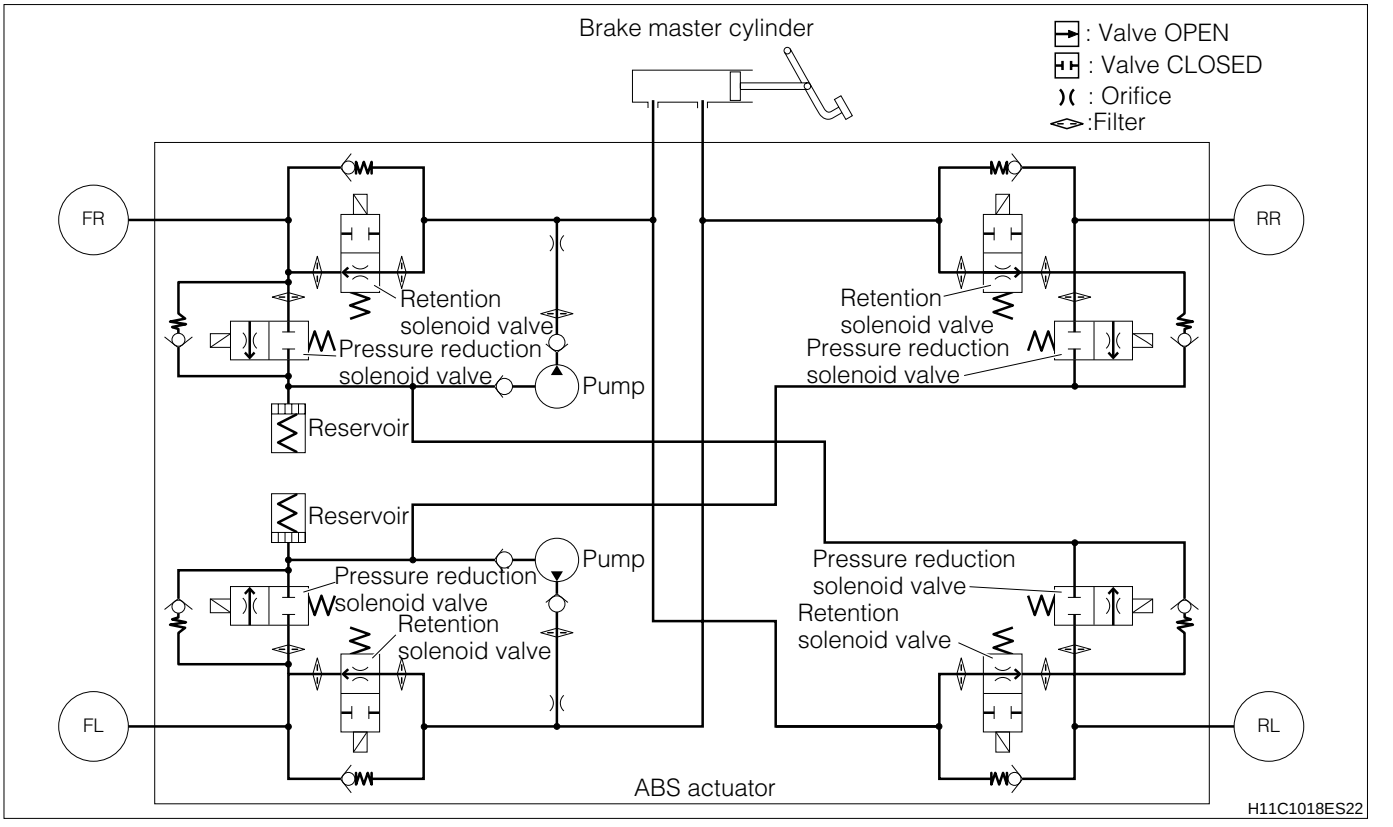


The illustration shows the RHD vehicle.

Brake pipe is connected to:

a	Master cylinder (primary side)
b	Master cylinder (secondary side)
c	Front brake RH
d	Front brake LH
e	Rear brake RH
f	Rear brake LH

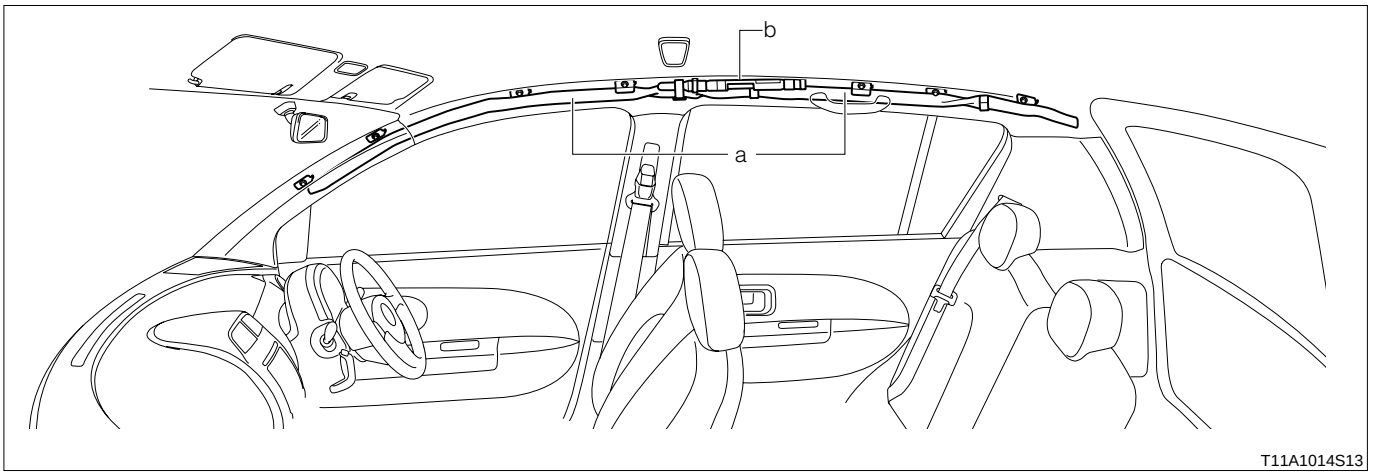
3-2-1 ABS ACTUATOR FLUID PRESSURE CIRCUIT



3-5 CURTAIN SHIELD AIRBAG

3-5-1 DESCRIPTION

Consists of a bag, an inflator, etc. All of these main components are located in the area between the front pillar and the central section of the roof side.



a	BAG
b	Inflator

3-5-2 BAG

The gas filled in the bag instantly breaks the front pillar garnish and the roof head lining to deploy the airbag. The airbag absorbs the impact on the occupant's head and reduces the impact to the occupant by discharging gas from the seams of the bag.

3-5-3 INFLATOR

The inflator consists of an ignition equipment, heating agent, and the pressure container that holds compression gas, etc. The inflator has a tightly-sealed structure.

When the squib device is energized by the deceleration in the event of a collision, the squib device is ignited. As a result, the heating agent is burnt, thus generating gas. Because of this gas, the pressure of the compressed gas inside the pressure container rises. Consequently, the bulkhead is broken by this pressure, thus discharging gas into the bag.

3-5-4 CAUTION PLATE

A caution plate is placed at the location shown in the figure.