DAIHATSU

TERIOS

J100

EC

TO INDEX

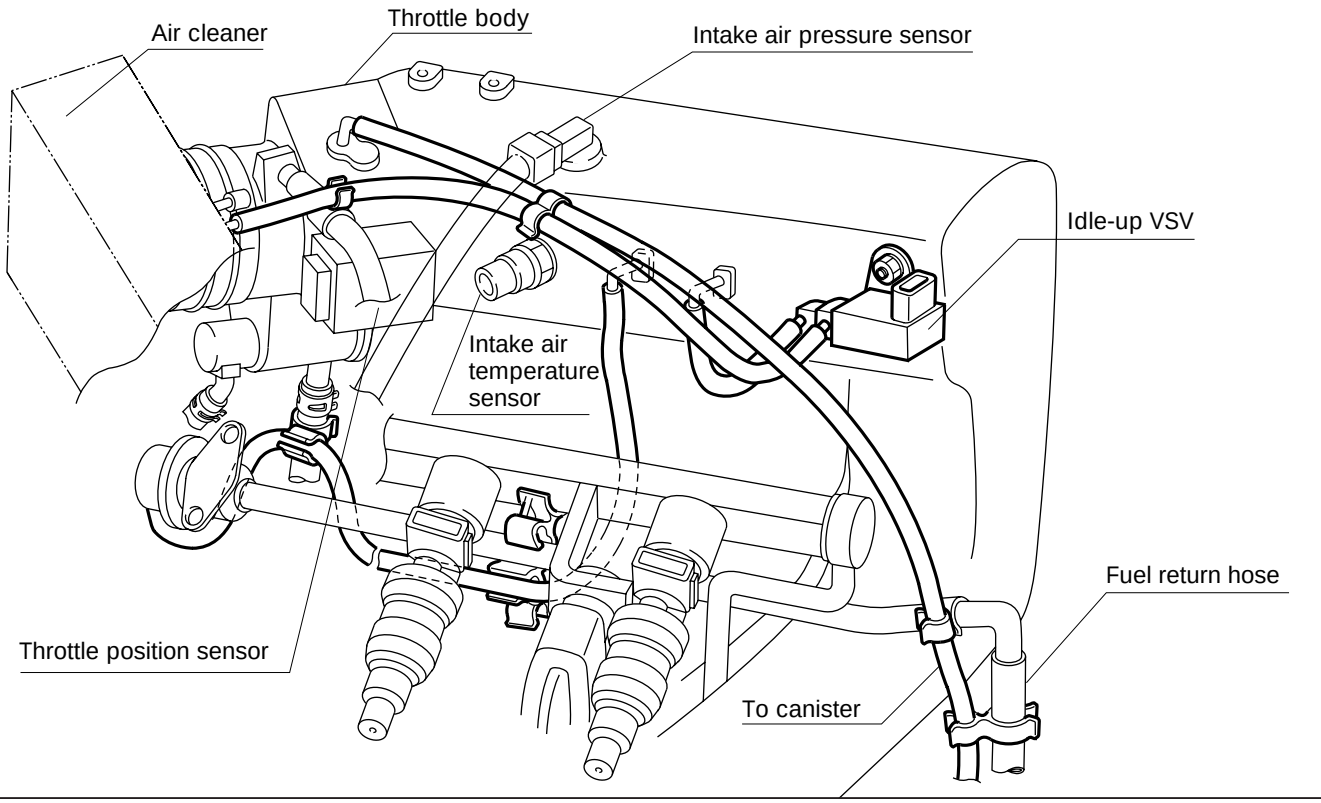
EMISSION CONTROL SYSTEMS

JEC00001-00000

NO. 9710-JE

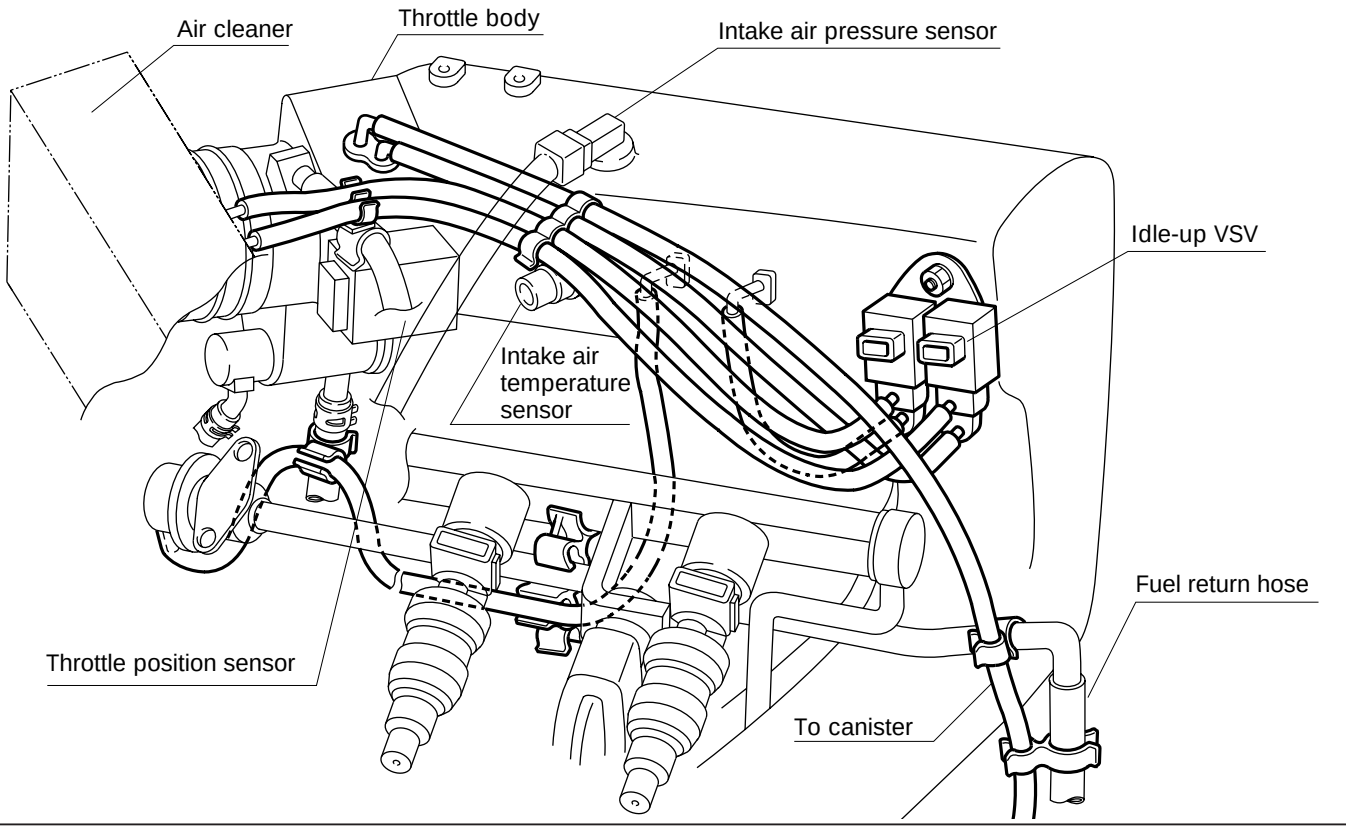
COMPONENT LAYOUT

[Manual transmission Vehicle]



JEC00002-00001

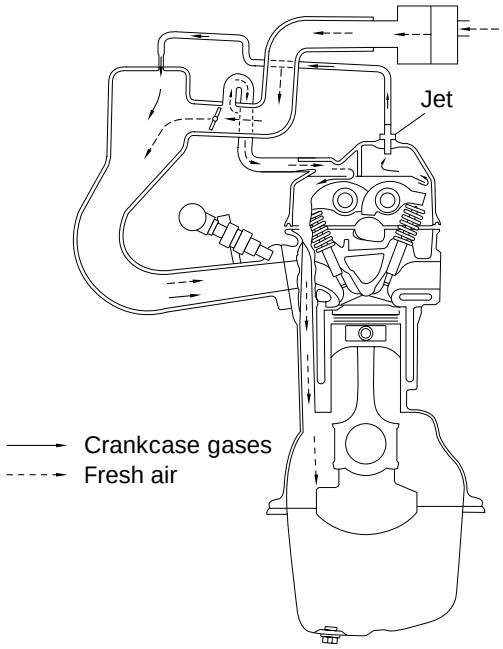
[Automatic transmission Vehicle]



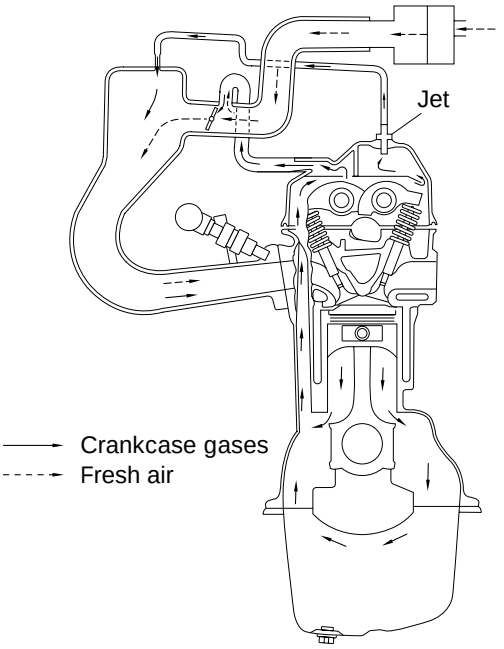
JEC00000-00002

POSITIVE CRANKCASE VENTILATION SYSTEM

The engine equipped with a sealed type blow-by gas recirculating system in order to prevent blow-by gases generated inside the crankcase from being released into atmosphere.
When the no blow-by gases is generated in the cylinder, air in the cylinder head cover are ventilated by the fresh air introduced from up stream of the throttle valve to down stream of the throttle valve through inside of the cylinder head cover.
At this time, the flow rate of air is regulated by a jet provided at the cylinder head cover, thus stabilizing the engine idle speed, if engine at the idling.
When the generating amount of the blow-by gases is small, the blow-by gases generated inside the crankcase flow into the cylinder head cover side through the gas path of the cylinder block, oil in the blow-by gases is separated by oil separator provided at the cylinder head cover.
Then, the blow-by gases in the cylinder head cover introducing to the cylinders through down stream of the throttle body to be burnt there again in the cylinders.
At this time, the air flow rate of the blow-by gases is regulated by a jet provided at the cylinder head cover, thus stabilizing the engine idle speed, if engine at the idling.
When the large amount of the blow-by gases are generated, the blow-by gases are flow into the cylinders both through the upstream path and downstream path of the throttle valve.



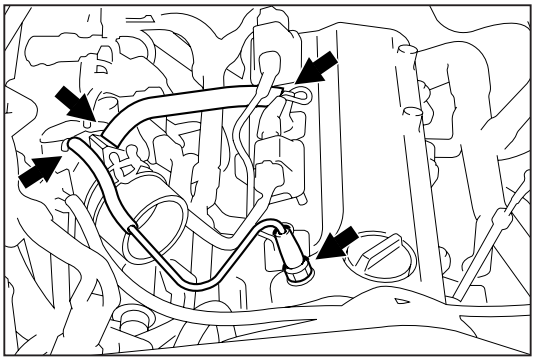
Blow-by gases amount is small



Blow-by gases amount is large

JEC00003-00003

INSPECTION OF PCV HOSE & CONNECTION



JEC00004-00004

Visual inspection of hoses and connections

Check the hoses and connections for cracks, leakage or damage.

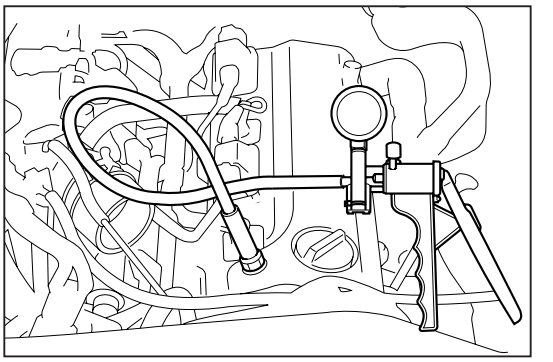
If any parts exhibit fault, replace or repair them, as required.

Inspection of blow-by gas recirculation device

1. Disconnect the blow-by gas hose from the throttle body side.
2. Ensure that a heavy resistance exists when you blow your breath from the disconnected hose end.
   If no resistance is felt, replace the cylinder head cover.
   NOTE:
   - Slight air continuity normally exists.

JEC00005-00000

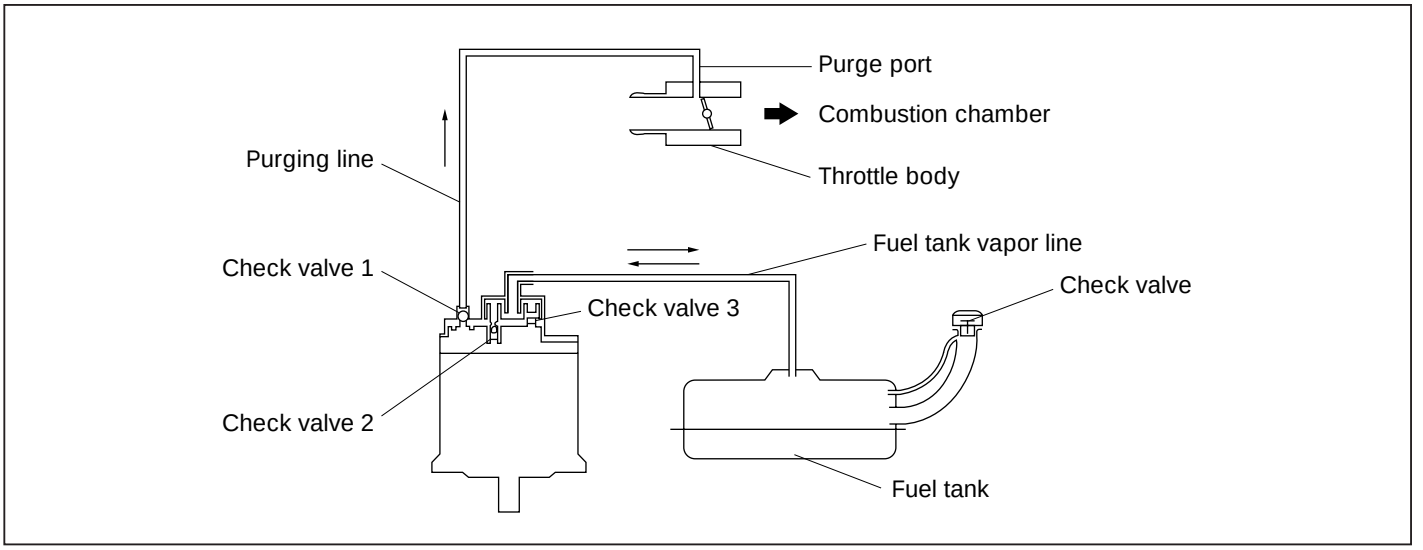
3. Connect a MityVac to the disconnected hose.
4. Ensure that air continuity exists without resistance when air is sucked in the MityVac.
   If no air continuity exists, replace the cylinder head cover.
5. Disconnect the MityVac from the disconnected hose.
6. Connect the blow-by hose to the throttle body.



JEC00006-00005

FUEL EVAPORATIVE EMISSION CONTROL SYSTEM

The fuel evaporative emission control system employs a charcoal canister type. The charcoal canister type leads the fuel vapor into the charcoal canister which uses activated carbon to absorb HC emission. The absorbed HC emission is drawn into the throttle body to be burnt together with mixture in the combustion chamber.



JEC00007-00006

Pressure condition in tank	Engine condition	Canister check valve			Check valve in safety filler cap	Fuel Evaporative emission (HC)
		1	2	3		
High pressure in tank	Engine is running at idle condition	Closed	Open	Closed	Closed	HC emission is absorbed by the charcoal canister.
	Vehicle is running	Open	Open	Closed	Closed	HC emission is sucked into the engine through the charcoal canister.
Low vacuum pressure in tank	Engine is running at idle condition	Closed	Closed	Open	Closed	HC emission absorbed by the charcoal canister is returned to the tank.
High vacuum pressure in tank	Engine is running at idle condition	Closed	Closed	Open	Open	If the vacuum pressure rises, even after the check valve of charcoal canister has opened, the safety valve in the fuel filler cap will open to prevent damage to fuel tank

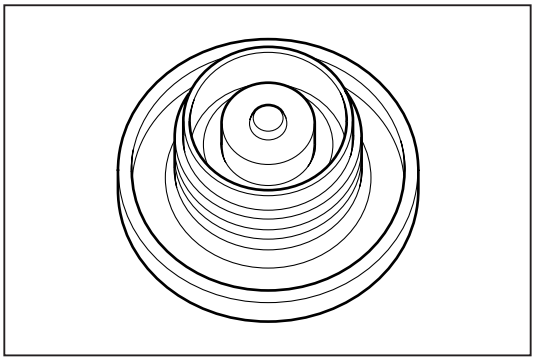
JEC00008-00000

Inspection of fuel vapor lines, fuel tank & filler cap

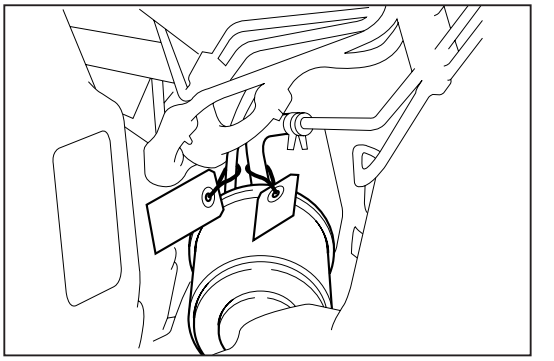
1. Visual inspection of fuel vapor lines and connections for loose connections, kinks or damage
   If any damage is present, repair or replace the parts, as required.
2. Visual inspection of fuel tank
   Check the fuel tank for deformation, cracks or fuel leakage.
   If any damage is present, repair or replace the part, as required.
   Replace the fuel tank cap, if any deformation is caused by the negative pressure in the fuel tank.

JEC00009-00000

3. Inspection of the fuel filler cap
   Check the fuel filler cap and gasket for damage or deformation.
   Also check the air continuity with some resistance is existing on the fuel filler cap.
   Replace the cap, if necessary.
   NOTE:
   - If fuel tank deformed by negative pressure, be sure to replace the fuel filler cap with new one after replacing the fuel tank.

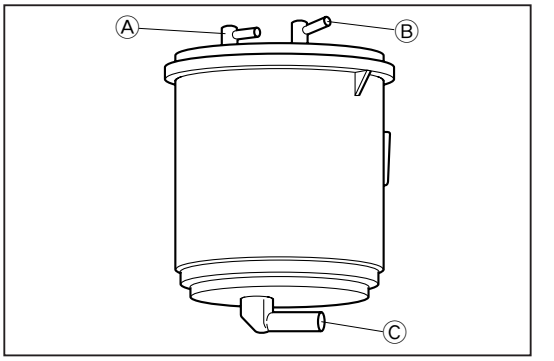

JEC00010-00007

4. Inspection of the charcoal canister
   (1) Detach the hose band from charcoal canister.
   (2) Disconnect the rubber hoses from charcoal canister.
   NOTE:
   - Prior to disconnection of the rubber hose, put a tag on each of the rubber hoses so that they may be reconnected correctly to the original position.


JEC00011-00008

   (3) Remove the charcoal canister from vehicle by pull up the charcoal canister case.

   (4) Visually inspect the charcoal canister case for cracks or damage.
   If any damage is found, replace the charcoal canister with new one.
   (5) Check of charcoal canister for air leakage Ensure that no air leakage is present when applying compressed air of 29.4 kPa (0.3 kgf-cm^2) into the fuel tank side pipe Ⓑ with carburetor side Ⓐ and atmosphere side Ⓒ pipes plugged.
   If air leakage is present, replace the charcoal canister with new one.
   (6) Ensure that the no air continuity is exist when blowing your breath into purge side Ⓐ pipe of the charcoal canister.
   If air continuity is exist, replace the charcoal canister with new one.
   (7) Check of charcoal canister for restriction.
   ① Ensure that the air continuity is existing to the atmosphere side Ⓒ pipe, when blow your breath into the fuel tank side pipe Ⓑ while the purge side Ⓐ pipe is plugged.
   If no air continuity is exist, replace the charcoal canister with new one.
   ② Ensure that the air continuity is existing when applying a negative pressure to the purge side pipe Ⓐ by the Mity Vac.
   If no air continuity is exist, replace the charcoal canister with new one.



JEC00012-00009

(8) Cleaning of charcoal canister Clean the charcoal canister by blowing compressed air of 294.2 kPa (3.0 kg/cm^2) into the fuel tank side pipe Ⓑ while holding the purge side of canister pipes Ⓐ closed.

NOTE:

- Do not attempt to wash the charcoal canister.
- No activated carbon should come out during the test. If activated carbon comes out replace the charcoal canister.

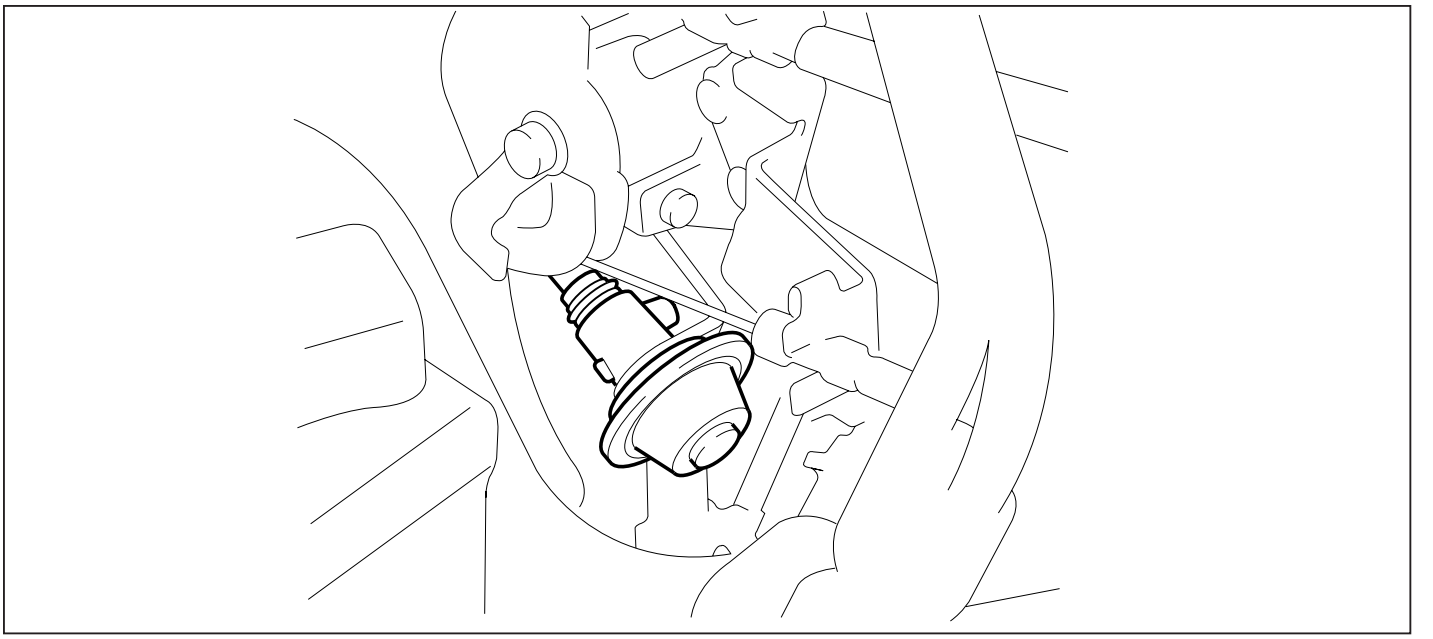
(9) Install the charcoal canister to vehicle.

(10) Reconnect the rubber hoses and attach the new hose band.

JEC00013-00000

DASHPOT (DP) SYSTEM (only for automatic transmission models)

This system prevents the throttle valve from suddenly closing, thus reducing the CO and HC emissions.



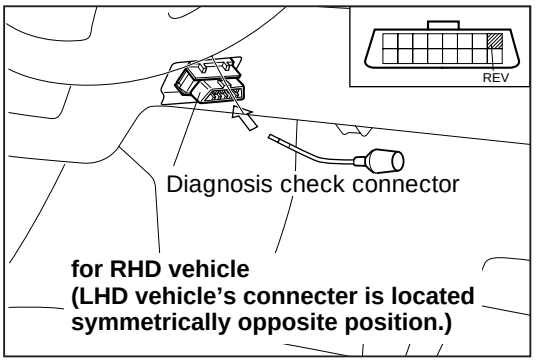
JEC00014-00010

Conditions	Throttle valve	Dashpot
Idling	Idle speed position	Pushed in by return force of throttle lever.
Normal driving	Opened position	Pushed out by the diaphragm spring.
Deceleration	Slightly opens and then slowly closes to the idle position	Pushed in by return force of the throttle lever.

JEC00015-00000

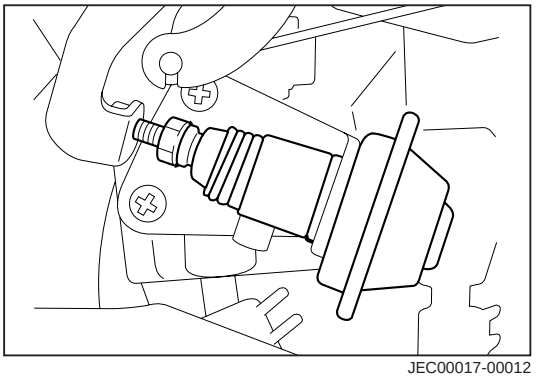
Inspection and adjustment of dashpot (DP) system

1. Connection of tachometer
   Connect the tachometer to the engine (REV terminal, vehicle side of connector), by connecting the following SST between them.
   SST: 09991-87402-000



JEC00016-00011

2. Start and warm-up the engine.
3. Ensure that the adjusting screw of the dashpot is not contact with dashpot shaft when the engine revolution speed at 3500 rpm.
   If adjusting screw of the dashpot is contact with the dashpot shaft, adjust the adjusting bolt height.



JEC00017-00012

4. Slowly release the throttle lever.
5. Ensure that the engine revolution within the specified range.
   Specified Engine Revolution
   AT: 2400 ± 100 rpm

   If not adjust the engine revolution speed by adjusting screw and repeat the step (3) to (5) again.

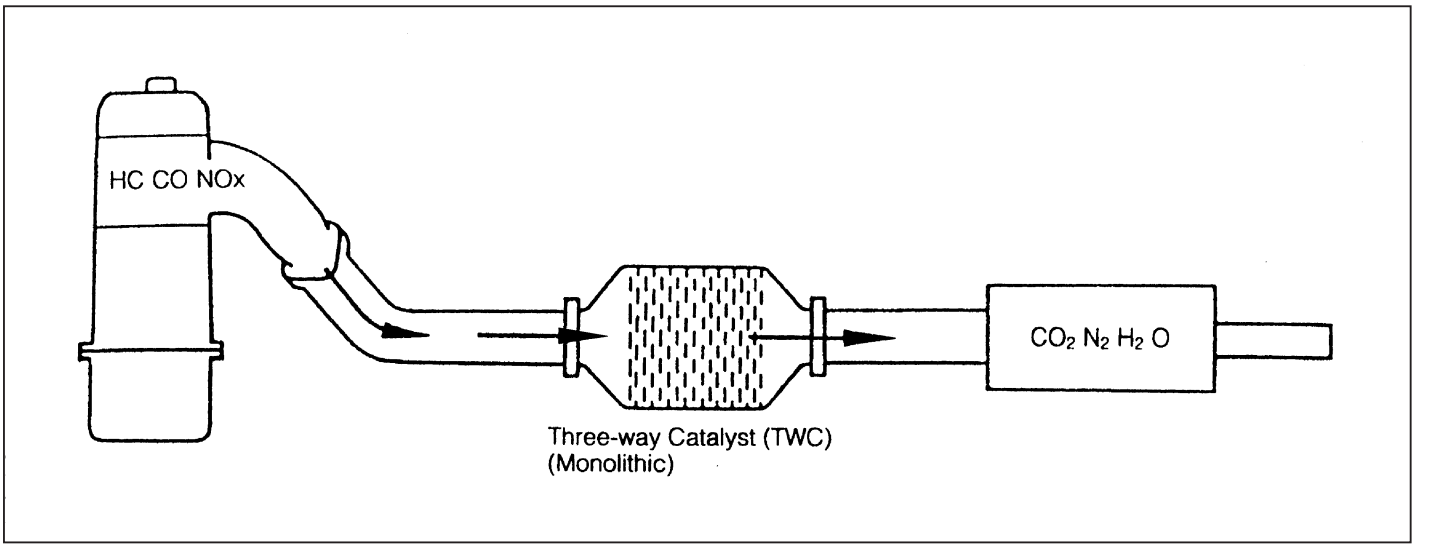
JEC00018-00000

6. On condition that engine revolution speed is 3500 rpm, release the throttle lever quickly.
   Make sure that the engine revolution speed changes from 3500 rpm to idle speed within 0.5 - 5.0 seconds after dashpot works.
7. Stop the engine.
8. Remove the tachometer.
9. Remove the SST from the REV terminal, vehicle side of connector.

JEC00019-00000

THREE-WAY CATALYST (TWC) SYSTEM

In this three-way catalyst, the oxidation of carbon monoxide (CO) and the reduction of nitrogen oxides (NOx) contained in exhaust gas can take place simultaneously. Thus, the three-way catalyst purifies the exhaust gas by converting its harmful component gas into harmless carbon dioxide (CO_2), water vapor (H_2O) and nitrogen (N_2).



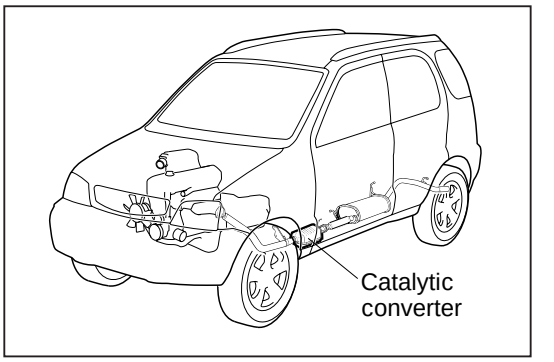
JEC00020-00013

Exhausta gas component	TWC	Exhaust gas
HC, CO and NOx	Oxidation and reducation	CO_2 H_2O and N_2

JEC00021-00000

INSPECTION OF EXHAUST PIPE ASSEMBLY

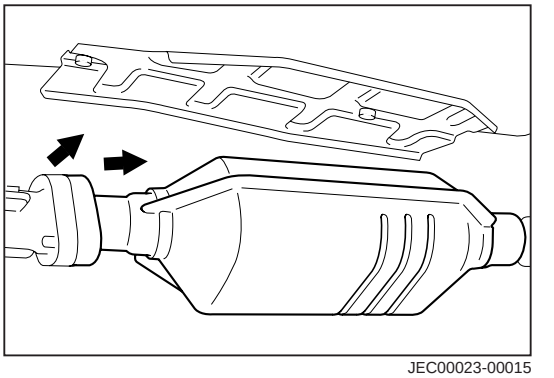
1. Check the connections for looseness or damage.
2. Check the clamps for weakness, bend or damage.



JEC00022-00014

INSPECTION OF HEAT INSULATOR

1. Check heat insulator for damage.
2. Check for adequate clearance between the three-way catalyst and heat insulator.

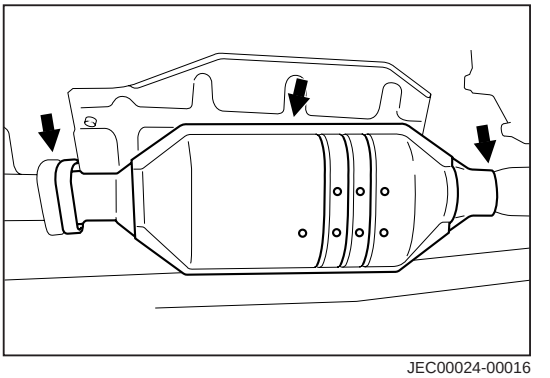


JEC00023-00015

THREE-WAY CATALYST

INSPECTION

1. Check the connection for looseness or damage.
2. Check the three-way catalyst for dents or damage.



JEC00024-00016

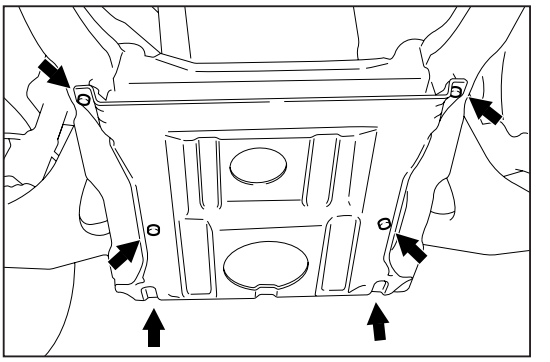
REMOVAL

WARNING:
- Do not perform any operation while the exhaust pipe is still hot.

1. Jack up the vehicle and support it with safety stands.

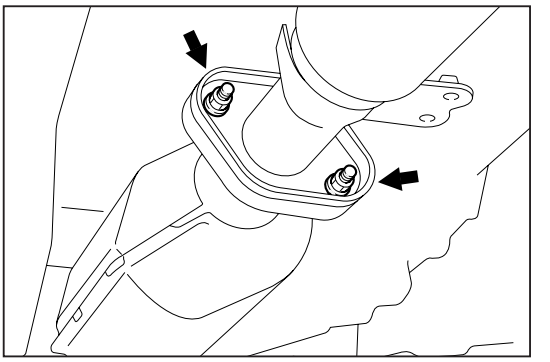
JEC00025-00000

2. Remove the engine undercover, by removing the six attaching bolts.



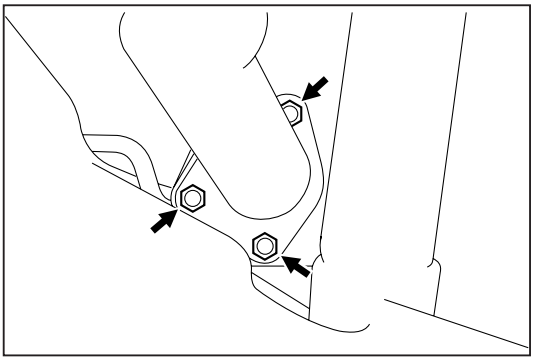
JEC00026-00017

3. Separate the tail pipe assembly from the front exhaust pipe assembly by removing the two bolts and nuts.



JEC00027-00018

4. Separate the front exhaust pipe assembly from the exhaust manifold by removing the three bolts and nuts.
   NOTE:
   - When replace the catalytic converter, replace it as the front exhaust pipe assembly.



JEC00028-00019

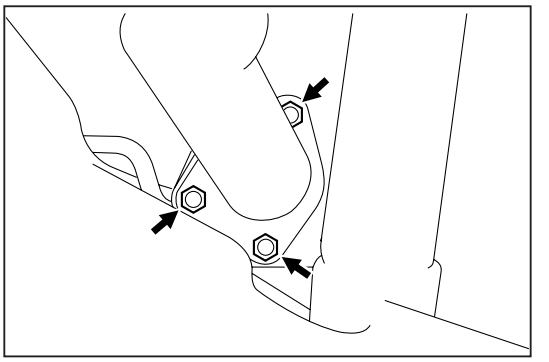
INSTALLATION

1. Install a new gasket to the front exhaust pipe and tail pipe.

JEC00029-00000

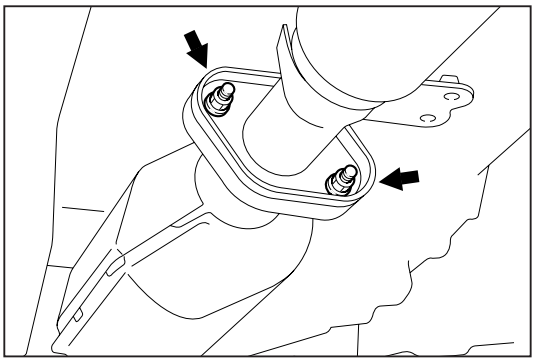
2. Install the front exhaust pipe assembly to the exhaust manifold.
   Tightening Torque: 36.3 - 51.0 N·m (3.7 - 5.2 kgf-m)

   NOTE:
   - Mark sure that the front mark is located at front side.



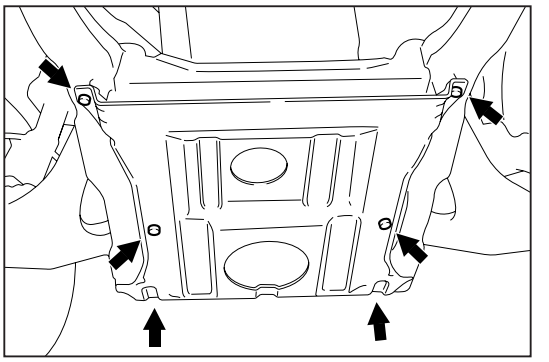
JEC00030-00021

3. Tighten the attaching bolts and nuts for the three-way catalyst at the tail pipe side.
   Tightening Torque: 36.3 - 51.0 N·m (3.7 - 5.2 kgf-m)



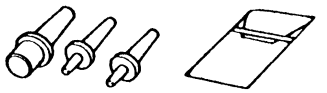
JEC00031-00022

4. Install the engine undercover, by attaching the six bolts.



JEC00032-00023

SST (Special Service Tools)

Shape	Part No. and name	Purpose
	09991-87402-000 Tacho pulse pick-up wire	Connecting engine tachometer
	09258-00030-000 Plug set	Plugging rubber hoses.

JEC00033-00024

TIGHTENING TORQUE

Tightening component	Tightening Torque		
	N·m	kgf-m	Remark
Cylinder head × Exhaust manifold	29.4 - 44.1	3.0 - 4.5	Dry
Exhaust manifold × Exhaust pipe	34.3 - 49.0	3.5 - 5.0	Dry
Exhaust manifold clamp	29.4 - 44.1	3.0 - 4.5	Dry
Exhaust pipe front × Exhaust pipe rear	36.3 - 51.0	3.7 - 5.2	Dry
Exhaust pipe support	9.8 - 15.7	1.0 - 1.6	Dry

JEC00034-00000

SERVICE SPECIFICATIONS

Ignition timing		B.T.D.C. 0 ± 2°/800 ± 50 rpm (M/T) B.T.D.C. 0 ± 2°/850 ± 50 rpm (A/T)
Idle speed		
Transmission type	M/T	A/T
Idle speed	800 ± 50 rpm	850 ± 50 rpm
Throttle positioner touch revolution		2400 ± 100 rpm (A/T)
Throttle positioner operating time		0.5 - 5.0 seconds (A/T)
Compression pressure at 300 rpm	Standard Minimum Difference between cylinders	1373 kPa (14.0 kgf/cm^2) 1030 kPa (10.5 kgf/cm^2) 147 kPa (1.5 kgf/cm^2)

JEC00035-00000

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