

Component Procedures: Fuel Delivery and Air Induction

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Component Procedures: Fuel Delivery and Air Induction

Parts and Labor (itype_189)

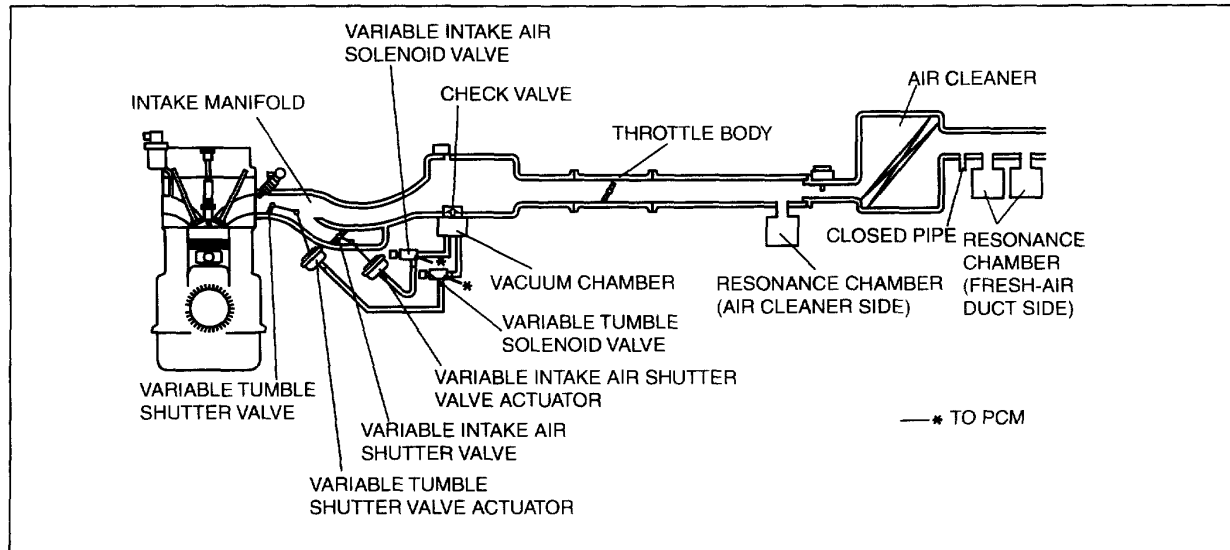
Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Clean	System, Service	B	3.5	0.0

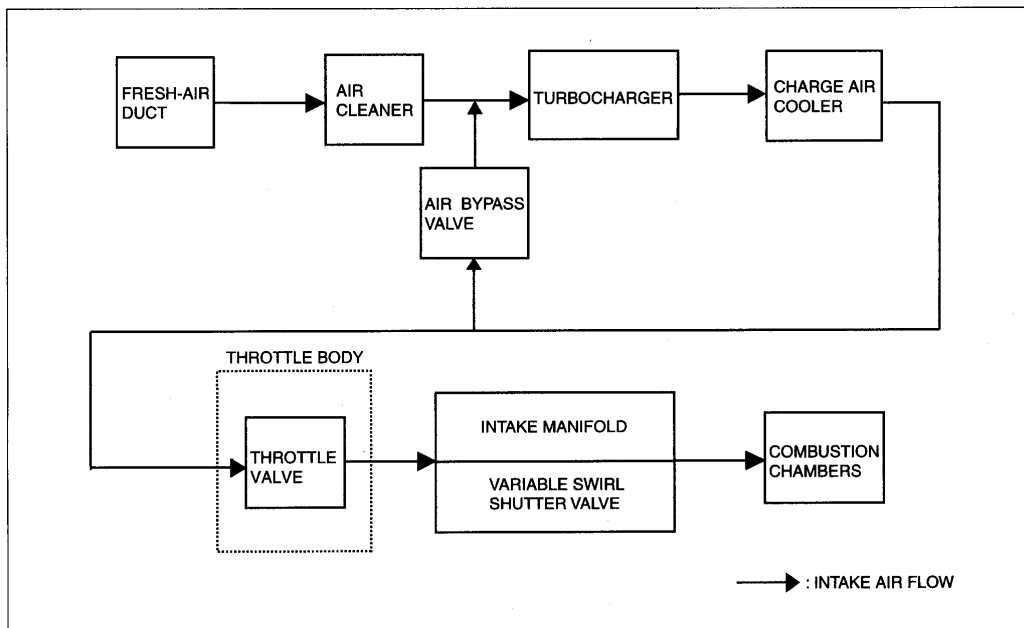
Components (itype_392)

INTAKE AIR SYSTEM DIAGRAM[LF, L3]

id0113a5804000



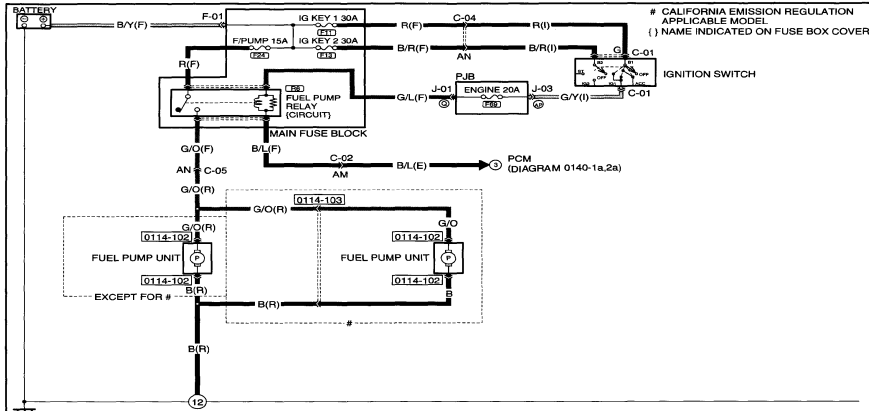
E3U113ZW6002



Fuel Delivery (Fuel Pump) (Article 1469554)

FUEL SYSTEM (EXCEPT L3 WITH TC)

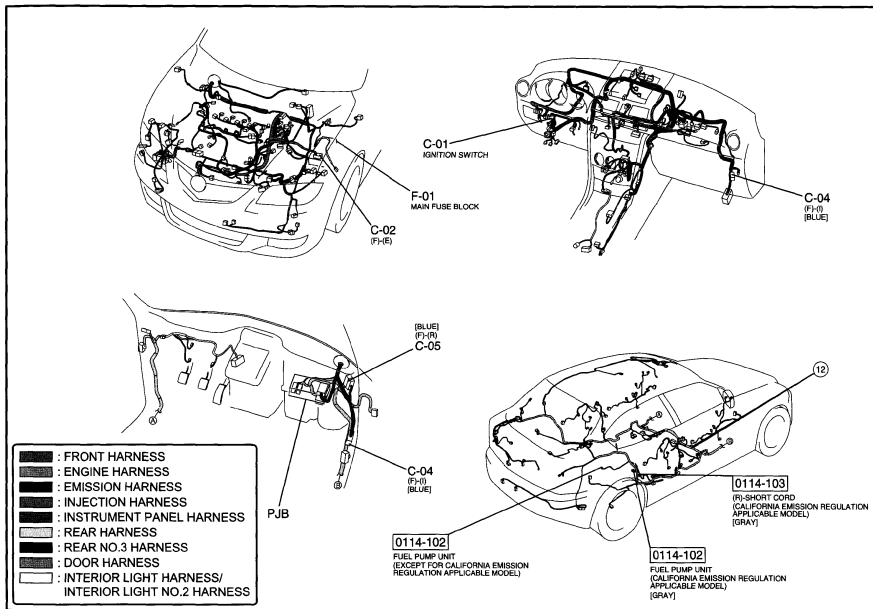
0114-1



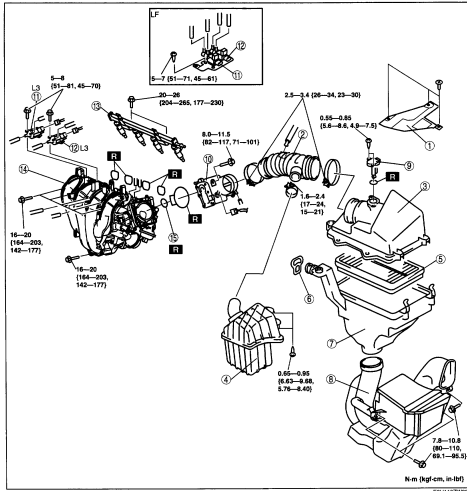
<p>0114-102 FUEL PUMP UNIT</p> <p>SHORT CORD (CALIFORNIA EMISSION REGULATION APPLICABLE MODEL)</p> <p>REAR HARNESS (EXCEPT FOR CALIFORNIA EMISSION REGULATION APPLICABLE MODEL)</p>	<p>0114-103 REAR HARNESS-SHORT CORD</p> <p>REAR HARNESS</p> <p>SHORT CORD</p>
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FUEL SYSTEM (EXCEPT L3 WITH TC)

0114-1



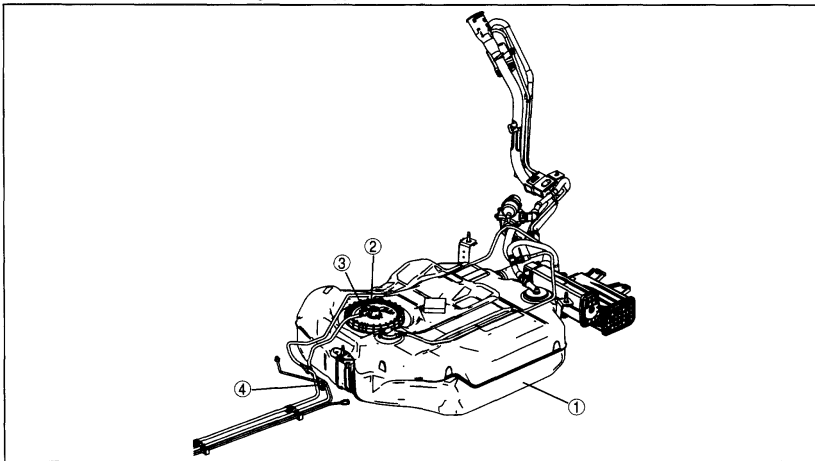
Exploded Views (itype_46)



1 Intake air cover	9 MAF/IAT sensor
2 Air hose	10 Throttle body
3 Air cleaner cover	11 Variable intake air solenoid valve
4 Resonance chamber (Air cleaner side)	12 Variable tumble solenoid valve
5 Air cleaner element	13 Fuel distributor
6 Strap	14 Intake manifold
7 Air cleaner case	15 EGR pipe gasket
8 Fresh-air duct	

Fuel System Location Index (Article 1470447)

Except for California emission regulation applicable model

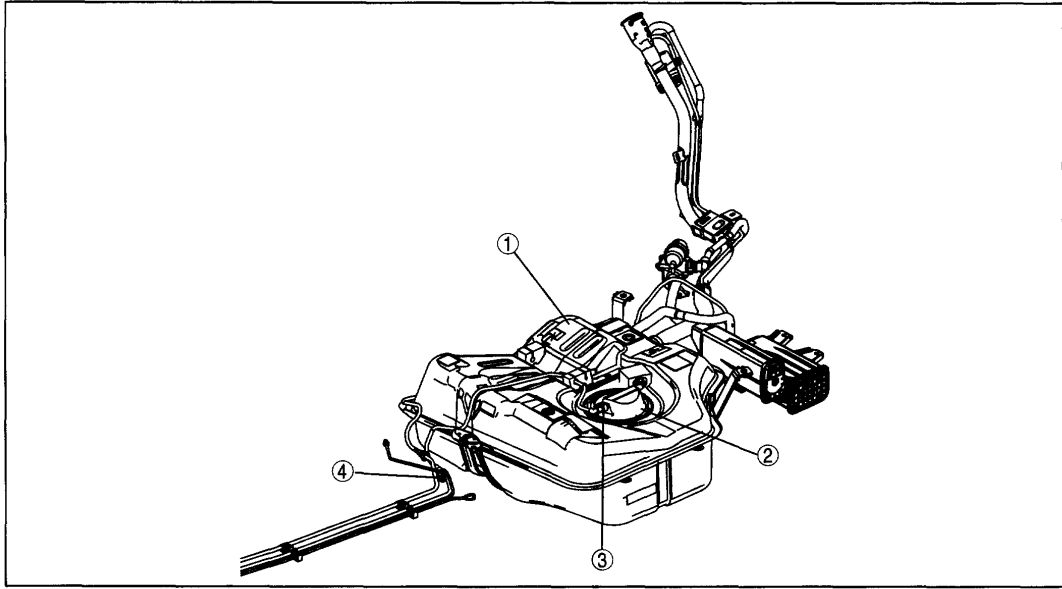


c3u0114w010

1	Fuel tank
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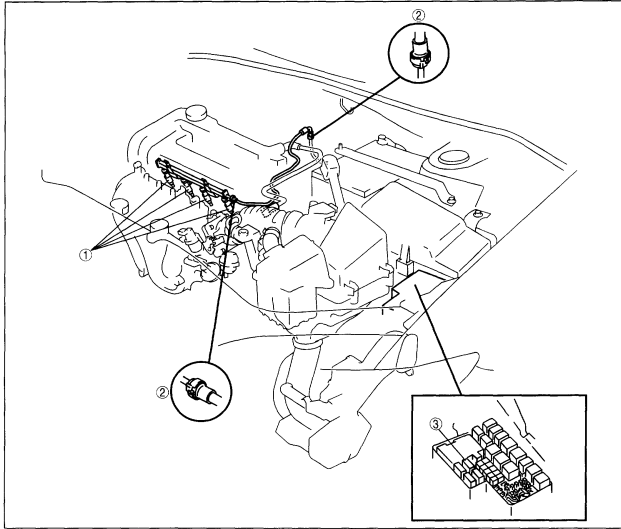
2	Fuel pump unit
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California emission regulation applicable model



c3u0114w011

Engine Compartment Side

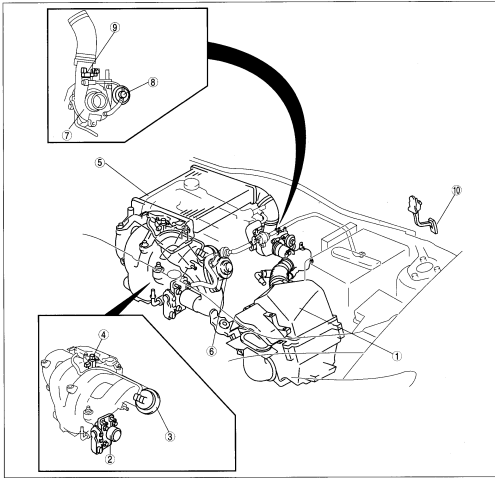


82E0114W001

1	Fuel injector
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2	Quick release connector (Type A)
3	Fuel pump relay

Intake Air System Location Index[LF, L3] (Article 1470455)



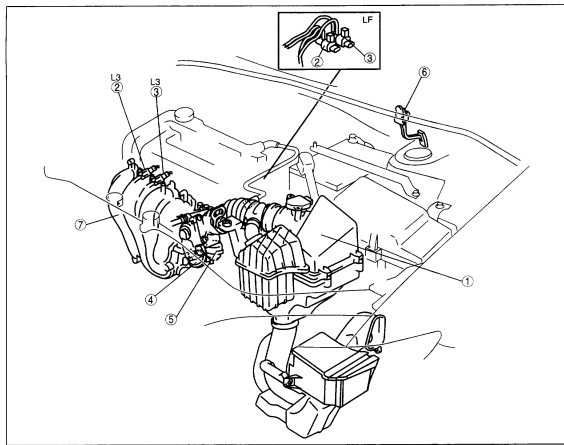
an52v00004

1	Air cleaner
2	Throttle body
3	Variable swirl shutter valve actuator
4	Variable swirl solenoid valve
5	Charge air cooler

6	Air bypass valve
7	Turbocharger
8	Wastegate actuator
9	Wastegate control solenoid valve
10	Accelerator pedal

INTAKE AIR SYSTEM LOCATION INDEX(LF, L3)

40113a580100



ESJ113Z9601

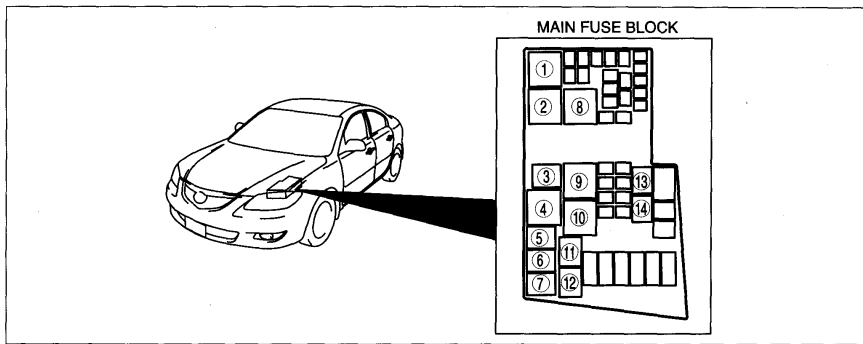
1	Air cleaner
2	Variable intake air solenoid valve
3	Variable tumble solenoid valve
4	Variable intake air shutter valve actuator

5	Variable tumble shutter valve actuator
6	Accelerator pedal
7	Intake air system

Injector Drive Relay/ AT Main Relay (Article 1470463)

RELAY LOCATION

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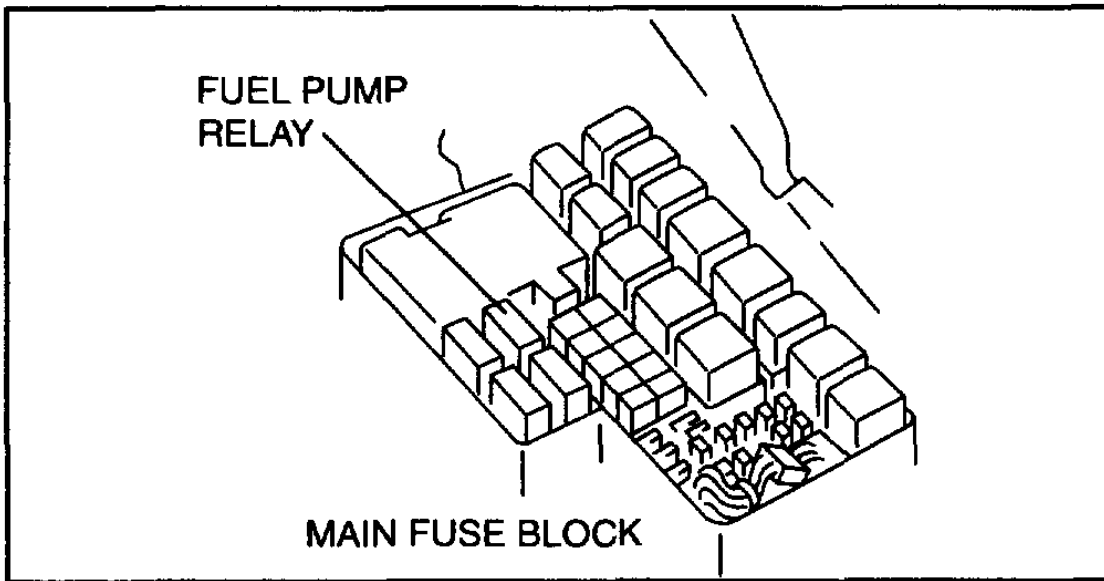


c3u0921w001

1	Main relay
2	Starter relay
3	A/C relay
4	Blower relay (L3 with TC)
5	Injector driver relay (L3 with TC) AT main relay (FS5A-EL)
6	Drive-by-wire relay
7	Horn relay
8	Rear washer relay (L3 with TC)

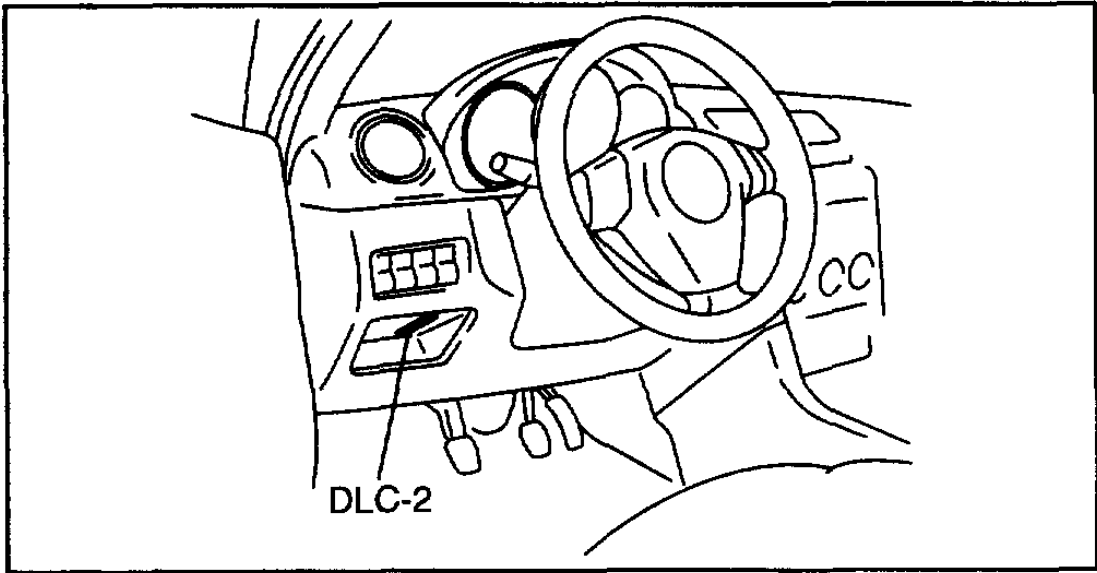
9	DRL relay (L3 with TC) Blower relay (except L3 with TC)
10	Headlight cleaner relay (L3 with TC) Rear washer relay (except L3 with TC)
11	Rear window defroster relay
12	Front fog light relay
13	Fuel pump relay No.2 (L3 with TC) DRL relay (except L3 with TC) Headlight cleaner relay (except L3 with TC)
14	Fuel pump relay

Before Service Precaution (Article 1387476)

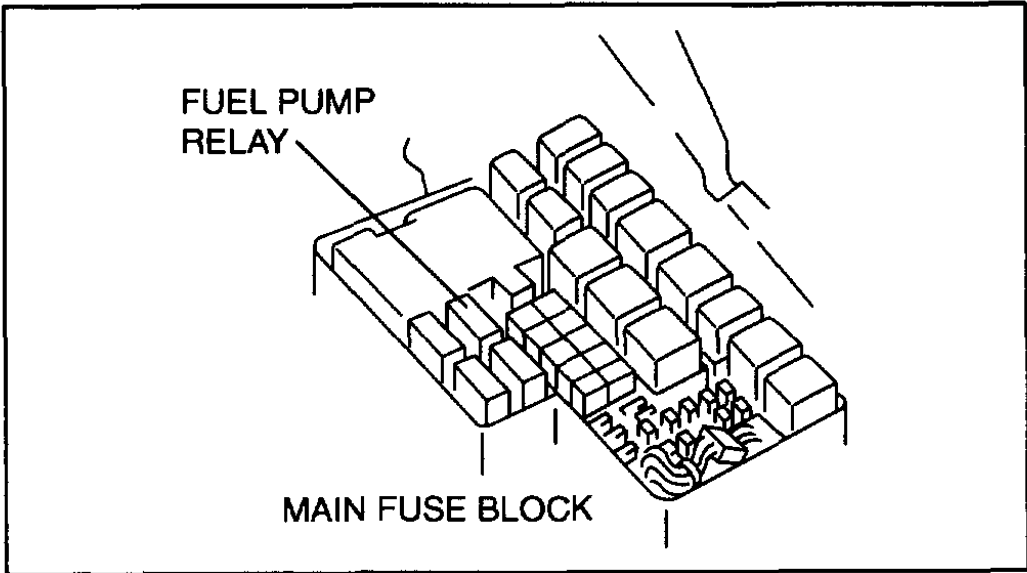


B3E0114W005

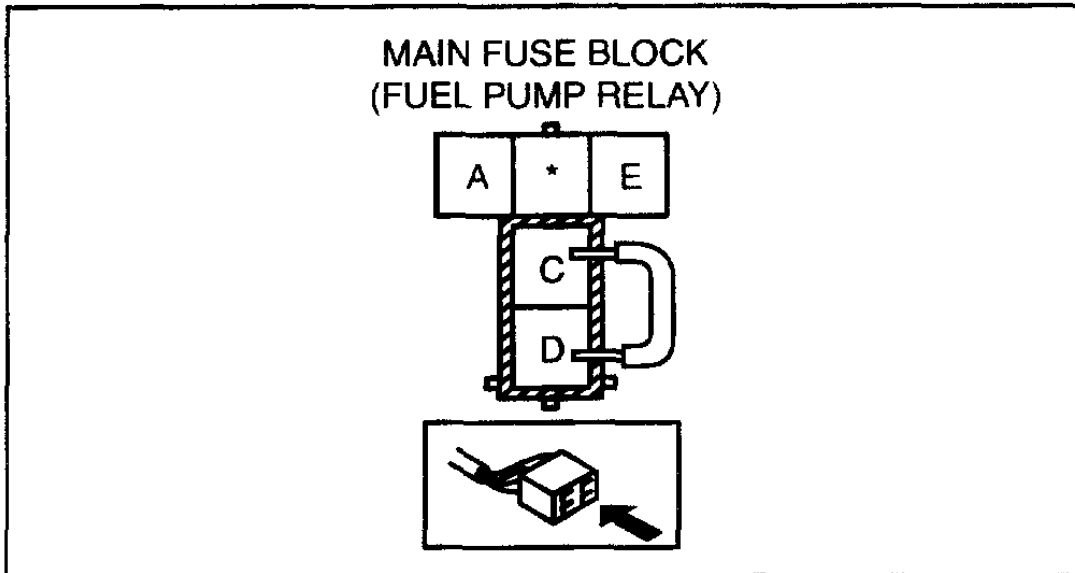
After Service Precaution (Article 1371277)



am3uuw0000013



am3uuw0000013



ada3912w333

Technician Safety Information (itype_15)

WARNING: Adhere to the following procedures any time the fuel system

is being worked on in order to reduce the risk of fire and personal injury:

- Keep a dry chemical (Class B) fire extinguisher near the work area.
- Place a "CAUTION FLAMMABLE" sign in the work area.
- Work in a well-ventilated area. Do not smoke, and keep sparks and open flames away.
- Wear eye protection.
- Use caution when working near the catalytic converter

to prevent the possibility of burns or fire. (The temperatures within the converter can

exceed

537 degrees C (1000 degrees F)

.)

- Relieve the fuel system pressure prior to disconnecting fuel system components.
- Disconnect the negative battery cable except for tests where battery voltage is required.
- Use a suitable container to store or catch fuel.
- Do not replace fuel pipe with fuel hose.
- Plug all disconnected fuel line fittings and hoses.
- After making any fuel system repairs ALWAYS inspect for fuel leaks.

All Technical Service Bulletins (itype_100)

Tsbs

- Engine/Fuel - MIL ON/DTC P2006 Stored (0100611, 2011/02/09)
- Fuel System - Fuel Filler Cap Broken Inside Filler Neck (0105008, 2008/11/25)
- Fuel System - MIL ON/DTC's P0442/P0455/P0456 (0102010, 2010/03/26)
- Fuel System - Ethanol Fuel Usage (MTIP-07-12-6, 2007/12/01)
- Fuel System - Fuel Ethanol Content Testing (MTIP-09-01-5, 2009/01/01)
- Engine - Unstable Idle/Engine Stalling (0100709, 2009/02/11)

Customer Interest Bulletins (itype_109)

Tsbs

- Engine/Fuel - MIL ON/DTC P2006 Stored (0100611, 2011/02/09)
- Fuel System - Fuel Filler Cap Broken Inside Filler Neck (0105008, 2008/11/25)
- Fuel System - MIL ON/DTC's P0442/P0455/P0456 (0102010, 2010/03/26)
- Engine - Unstable Idle/Engine Stalling (0100709, 2009/02/11)

Repair Tips (itype_110)

Tsbs

- Fuel System - Ethanol Fuel Usage (MTIP-07-12-6, 2007/12/01)
- Fuel System - Fuel Ethanol Content Testing (MTIP-09-01-5, 2009/01/01)

Intake Air System Manifold Vacuum Inspection (Article 1465198)

INTAKE

AIR

SYSTEM MANIFOLD VACUUM INSPECTION[LF, L3]

1. Verify that the intake air hoses are installed securely.
 2. Warm up the engine.
 3. Disconnect the vacuum hose connecting the intake manifold and the purge solenoid valve (purge solenoid valve side) and install the vacuum gauge.
 4. Measure the intake manifold vacuum while idling (no load) using the vacuum gauge.
- If not within the specification, perform the following inspections.
 - Accelerator cable play
 -

Compression pressure

(See COMPRESSION INSPECTION[LF, L3].)

- Air suction (installation areas of throttle body

,

fuel injector

PCV valve

, intake manifold)

NOTE:

If any air suction exists, the change in engine speed can

be made apparent by spraying the penetrant lubricating spray on the applicable part.

Standard

LF ATX: -55.0 kPa {-413 mmHg, -16.3 inHg} or more

LF MTX: -57.0 kPa {-428 mmHg, -16.9 inHg} or more

L3 ATX: -57.0 kPa {-428 mmHg, -16.9 inHg} or more

L3 MTX: -60.0 kPa {-451 mmHg, -17.8 inHg} or more

Intake Manifold Vacuum Inspection (Article 1431905)

INTAKE MANIFOLD VACUUM INSPECTION [L3 WITH TC]

1. Verify that the intake air hoses are installed securely.
 2. Warm up the engine.
 3. Disconnect the vacuum hose connected between the check valve and the intake manifold from the intake manifold and install the vacuum gauge.
 4. Measure the intake manifold vacuum while idling (no load) using the vacuum gauge.
- If not within the specification, perform the following inspections.
 -

Compression pressure

(See COMPRESSION INSPECTION [L3 WITH TC].)

- Air suction (installation areas of throttle body

,

fuel injector

PCV valve

, intake manifold)

NOTE:

If any air suction exists, the change in engine speed

can
 be made apparent by spraying the penetrant lubricating spray on the applicable part.
 Standard
 -73 kPa {-548 mmHg, -22 inHg} or more

No.27 Fuel Refill Concerns (Article 1465122)

27	FUEL REFILL CONCERNS
DESCRIPTION	<ul style="list-style-type: none"> Fuel tank is not filled smoothly. Clogged EVAP pipes Nonreturn valve malfunction Improper use of fuel nozzle Inadequate fuel filling speed
POSSIBLE CAUSE	<p>Warning</p> <ul style="list-style-type: none"> The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before servicing the fuel system: <ul style="list-style-type: none"> Fuel vapor is hazardous. It can easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel. Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described. <p>Caution</p> <ul style="list-style-type: none"> Disconnecting/connecting quick release connector without cleaning it may cause damage to fuel pipe and quick release connector. Always clean quick release connector joint area before disconnecting/connecting, and make sure that it is free of foreign material.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Connect the M-MDS to the DLC-2. Turn the ignition switch to the ON position (Engine off). Retrieve any DTCs. Are there any DTCs displayed?	Yes DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [L.F. L3].)
		No No DTC is displayed: Go to the next step.
2	Remove the fuel-filler pipe. Make sure the nonreturn valve is installed properly. Inspect nonreturn valve operation. Is the nonreturn valve normal?	Yes Inspect for the following: • Improper use of fuel nozzle • Inadequate fuel filling speed
		No Nonreturn valve is installed improperly: • Reinstall nonreturn valve to proper position. Nonreturn valve does not operate properly: • Replace nonreturn valve.
3	<ul style="list-style-type: none"> Verify test results. <ul style="list-style-type: none"> If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [L.F. L3].) If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. <ul style="list-style-type: none"> If vehicle is repaired, troubleshooting completed. If vehicle is not repaired or additional diagnostic information is not available, replace the PCM. 	

No.28 Fuel Filling Shut Off Concerns (Article 1465123)

28	FUEL FILLING SHUT OFF CONCERNS
DESCRIPTION	<ul style="list-style-type: none"> Fuel does not shut off properly. Clogged EVAP pipes Nonreturn valve malfunction Fuel shut-off valve malfunction Fuel nozzle malfunction Fuel nozzle is not inserted correctly.
POSSIBLE CAUSE	<p>Warning</p> <ul style="list-style-type: none"> The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before servicing the fuel system: <ul style="list-style-type: none"> Fuel vapor is hazardous. It can easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel. Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described. <p>Caution</p> <ul style="list-style-type: none"> Disconnecting/connecting quick release connector without cleaning it may cause damage to fuel pipe and quick release connector. Always clean quick release connector joint area before disconnecting/connecting, and make sure that it is free of foreign material.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Connect the M-MDS to the DLC-2. Turn the ignition switch to the ON position (Engine off). Retrieve any DTCs. Are there any DTCs displayed?	Yes DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [L.F. L3].)
		No No DTC is displayed: Go to the next step.
2	Remove the fuel-filler pipe. Make sure the nonreturn valve is installed properly. Inspect nonreturn valve operation. Is the nonreturn valve normal?	Yes Inspect for the following: • Improper use of fuel nozzle • Fuel is not inserted correctly. • Inspect fuel shut-off valve.
		No Nonreturn valve is installed improperly: • Reinstall the nonreturn valve to proper position. Nonreturn valve does not operate properly: • Replace the nonreturn valve.
3	<ul style="list-style-type: none"> Verify test results. <ul style="list-style-type: none"> If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [L.F. L3].) If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. <ul style="list-style-type: none"> If vehicle is repaired, troubleshooting completed. If vehicle is not repaired or additional diagnostic information is not available, replace the PCM. 	

Abnormal wear/deterioration (itype_122)

Tsbs
 - Fuel System - Fuel Filler Cap Broken Inside Filler Neck (0105008, 2008/11/25)

Driveability (itype_131)

Tsbs
 - Engine - Unstable Idle/Engine Stalling (0100709, 2009/02/11)

New / Updated Parts (itype_117)

Tsbs

- Engine/Fuel - MIL ON/DTC P2006 Stored (0100611, 2011/02/09)
- Fuel System - Fuel Filler Cap Broken Inside Filler Neck (0105008, 2008/11/25)
- Fuel System - MIL ON/DTC's P0442/P0455/P0456 (0102010, 2010/03/26)