

INTAKE & EXHAUST SYSTEM

Return To Main Table of Contents

GENERAL	2
AIR CLEANER	4
INTAKE MANIFOLD	6
EXHAUST MANIFOLD	8
MUFFLERS	9

GENERAL SPECIFICATIONS

Air cleaner	
Type	Dry type
Filter	Unwoven cloth type
Exhaust pipe	
Muffler	Expansion resonance type
Suspension system	Rubber hangers

TIGHTENING TORQUE

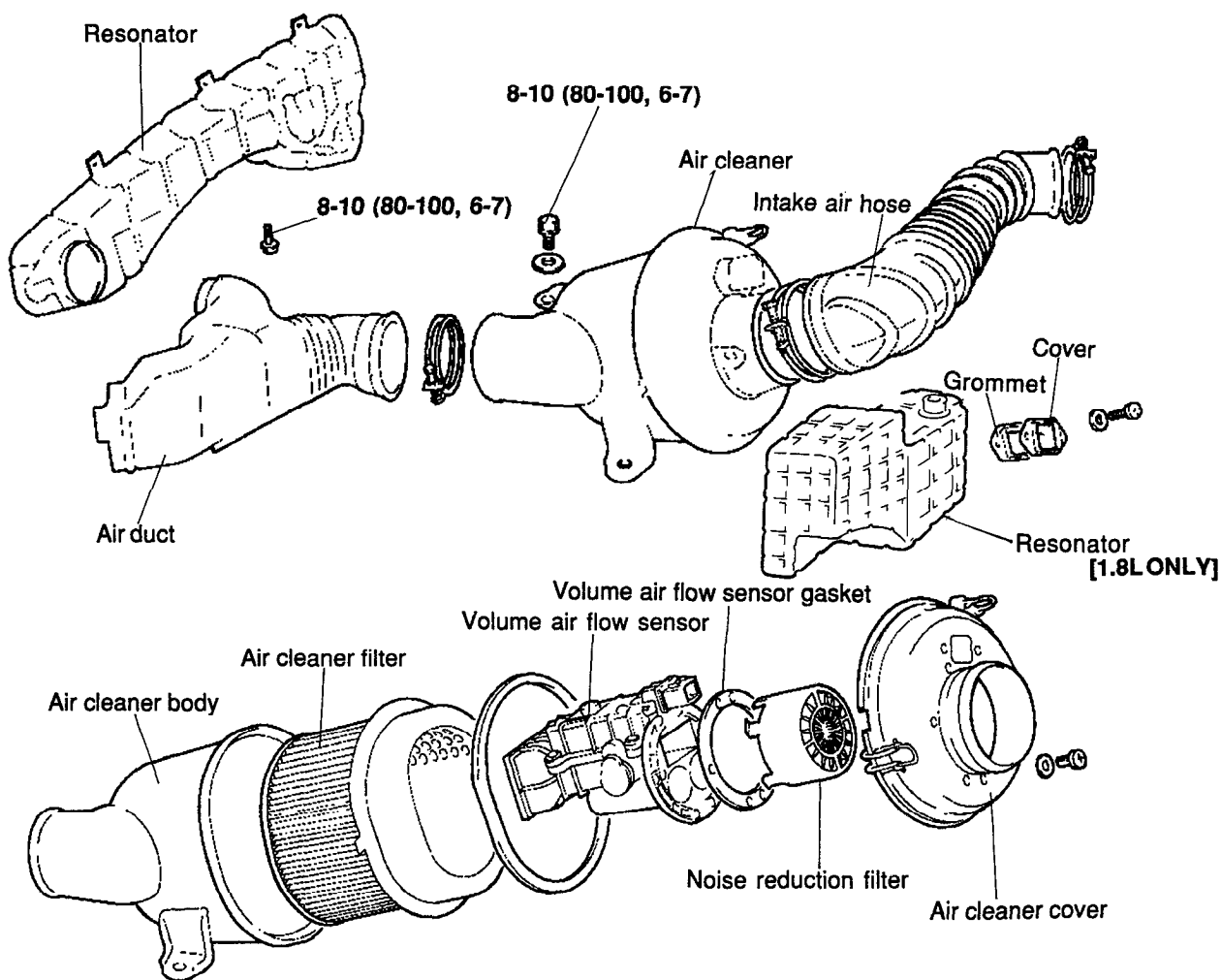
	Nm	kg.cm	lb.ft
Air cleaner mounting bolts	8-10	80-100	6-7
Resonator mounting bolt	8-10	80-160	6-7
Resonator mounting nut	4-6	40-60	3-4
Delivery pipe bolt to engine	10-13	100-130	7-9
Accelerator cable bolts to intake manifold	4-6	40-60	3-4
Throttle body to intake manifold	15-22	150-220	11-16
Intake manifold stay bolts	25-30	250-300	18-22
Intake manifold mounting bolt (M8)	15-20	150-200	11-14
Intake manifold mounting nut and bolt	30-42	300-420	22-30
Tension rod bracket bolt to tension rod	35-55	350-550	25-40
Ignition coil bolts	20-27	200-270	14-20
Power transistor bolts	10-12	100-120	7-9
EGR valve bolts	15-22	150-220	11-16
Front exhaust pipe nuts to exhaust manifold	30-40	300-400	22-29
Front exhaust pipe bolt to engine	20-30	200-300	14-22
Front exhaust pipe bolts to catalytic converter	40-60	400-600	29-43
Center exhaust pipe nuts to catalytic converter	30-40	300-400	22-29
Center exhaust pipe bolts to main muffler	30-40	300-400	22-29
Center exhaust pipe bolt to bracket	10-15	100-150	7-11
Hanger bolt to body	10-15	100-150	7-11
Hanger bolt to main muffler	10-15	100-150	7-11
Exhaust manifold nuts to engine	25-30	250-300	18-22
Heated oxygen sensor	40-50	400-500	29-36
Heat protector bolt to exhaust manifold	12-15	120-150	9-11

TROUBLESHOOTING

Symptom	Probable cause	Remedy
Exhaust gas leakage	Loose connections Broken pipe or muffler	Re-tighten Repair or replace
Abnormal noise	Detached baffle plate in muffler Broken rubber hanger Pipe or muffler contacting vehicle body Broken pipe or muffler	Replace Replace Correct Repair or replace

AIR CLEANER

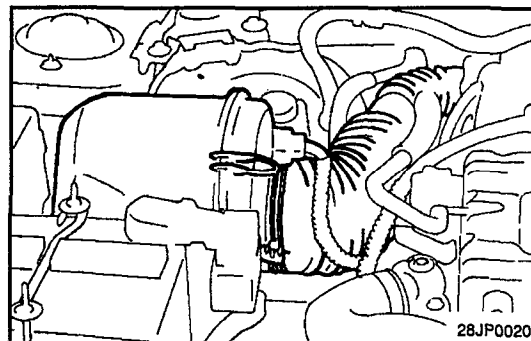
COMPONENTS



TORQUE : Nm (kg.cm, lb.ft)

REMOVAL

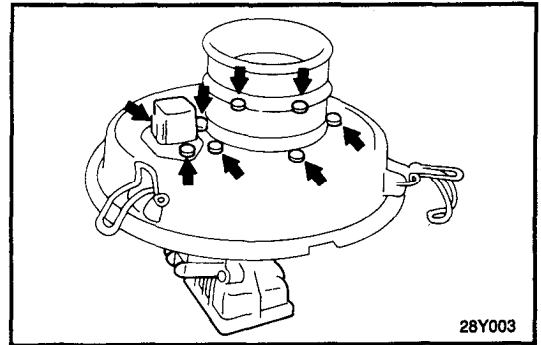
1. Remove the intake air hose and air duct connected to the air cleaner, and the resonator.
2. Remove the three bolts attaching the air cleaner mounting brackets.
3. Detach the air cleaner.



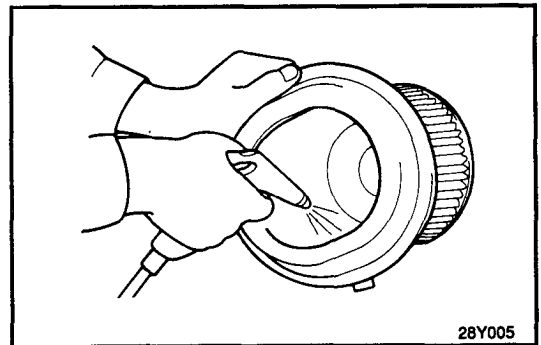
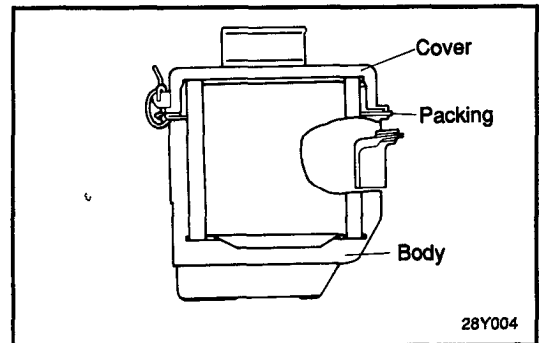
4. Remove the volume air flow sensor from the air cleaner case.

CAUTION

Do not pull on the volume airflow sensor harness, because the grommet is attached to the air cleaner case.

**INSPECTION**

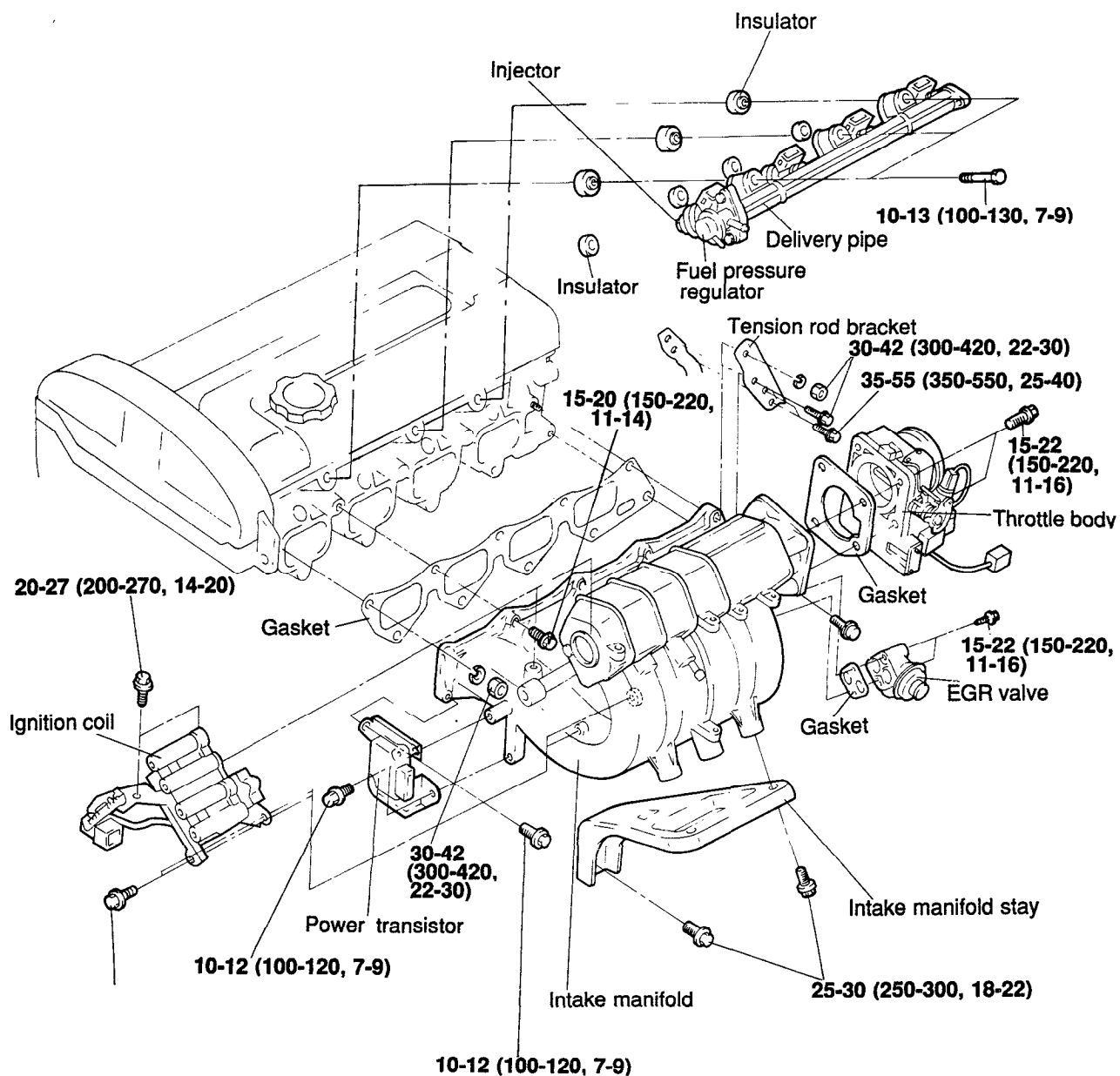
1. Check the air cleaner body, cover, or packing for distortion, corrosion or damage.
2. Check the air duct for damage.
3. Check the air cleaner filter for restriction, contamination or damage.
If the element is slightly restricted, remove the dust and other contaminants by blowing air from the inside through the filter.
4. Check the air cleaner housing for restrictions, contamination or damage.
5. Check the resonator for damage.

**INSTALLATION**

Install the air cleaner in the reverse order of removal.

INTAKE MANIFOLD

COMPONENTS



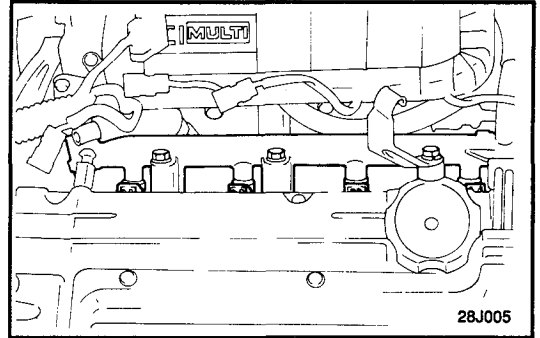
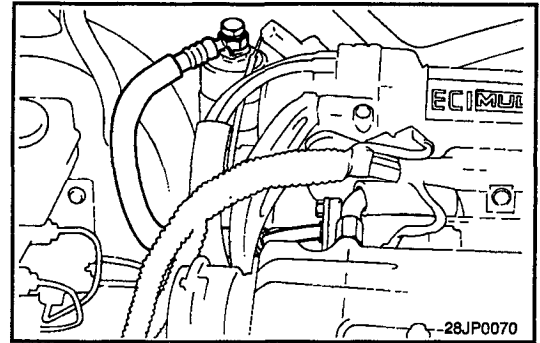
TORQUE : Nm (kg.cm, lb.ft)

REMOVAL

1. Disconnect the high pressure fuel hose connection after relieving pressure in the fuel pipe line to prevent fuel overflow. (Refer to "Fuel system").
2. Remove the delivery pipe with the fuel injectors and pressure regulator attached.

CAUTION

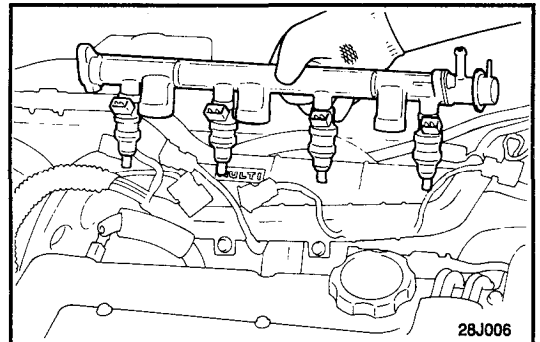
Be careful not to drop the injectors when removing the delivery pipe.

**INSPECTION****Intake Manifold**

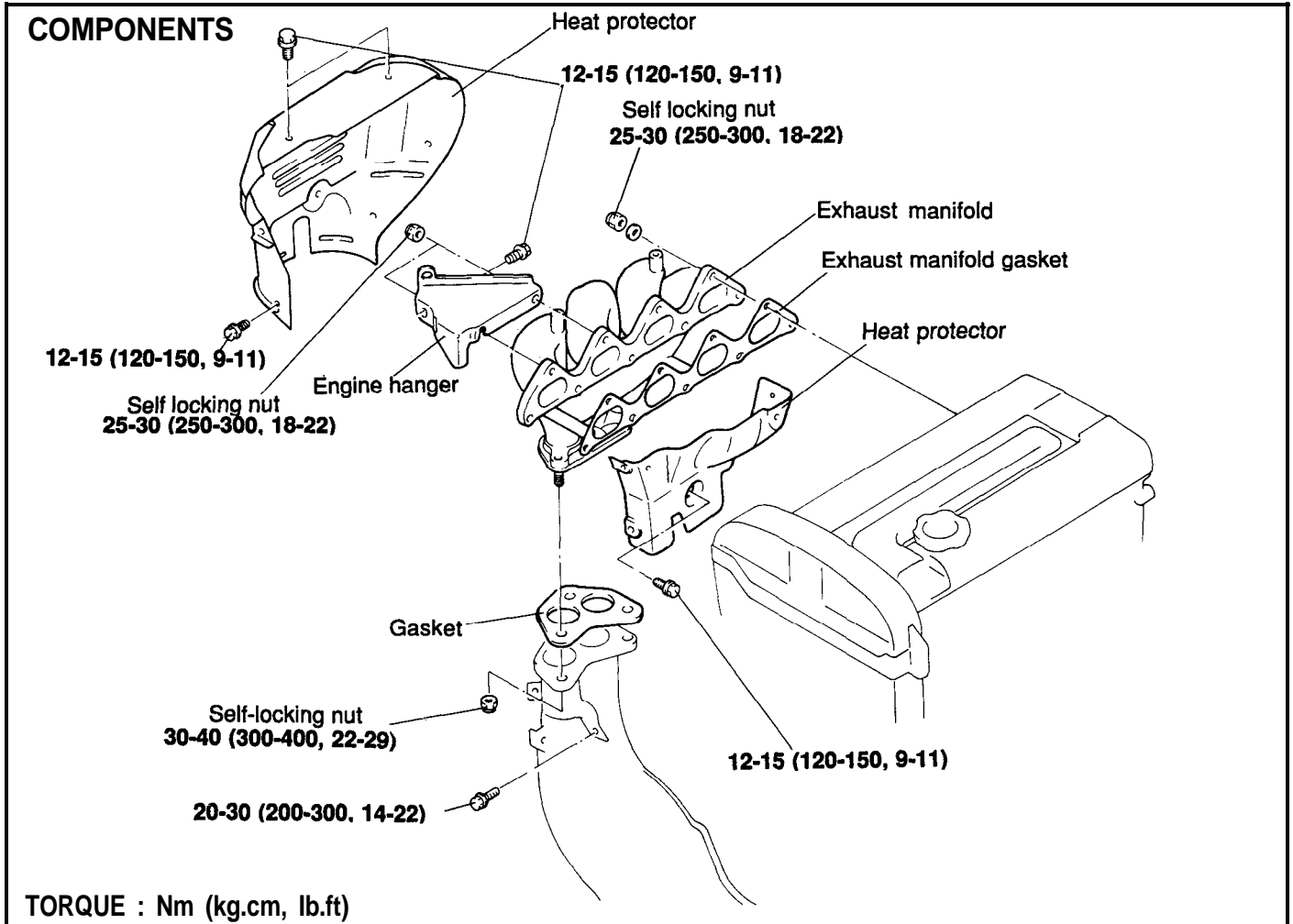
1. Check for damage or cracking of any part.
2. Check for obstruction of the vacuum outlet port, and for obstruction of the gas passage.

INSTALLATION

1. Make sure that the injector is not dropped, when installing the delivery pipe.



EXHAUST MANIFOLD



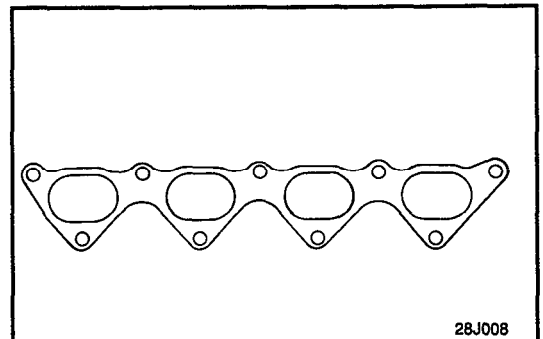
INSPECTION

Exhaust Manifold

Check for damage or cracking of any part.

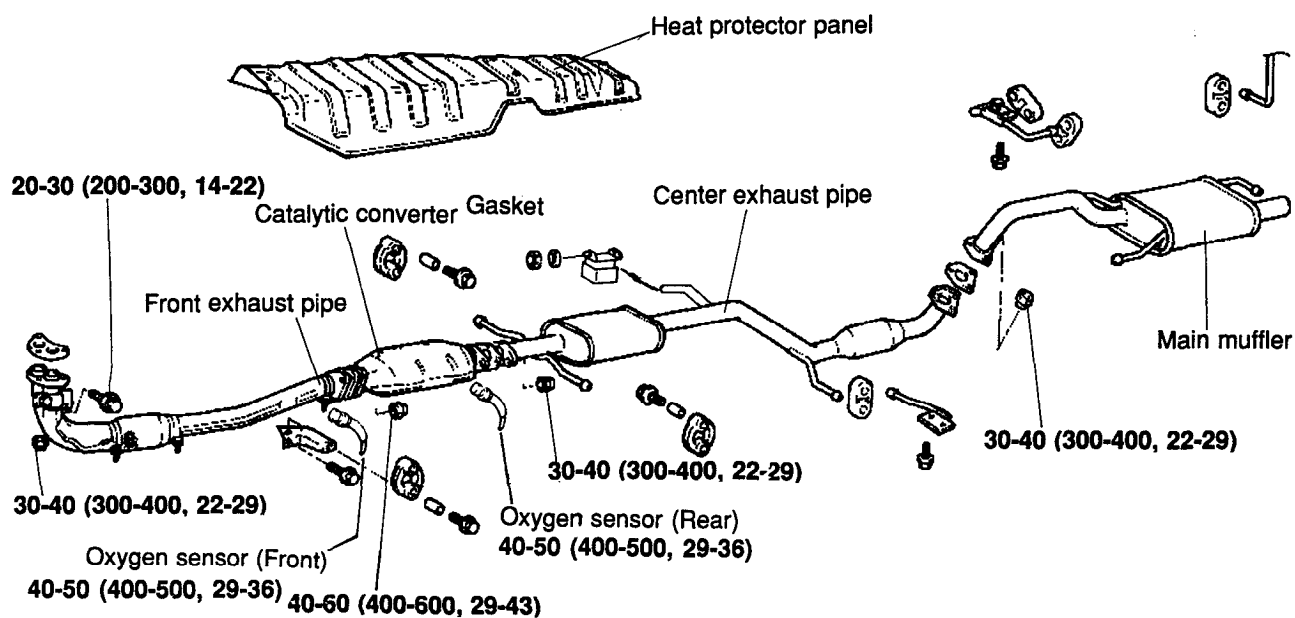
Exhaust Manifold Gasket

Check for flaking damage of the gasket.

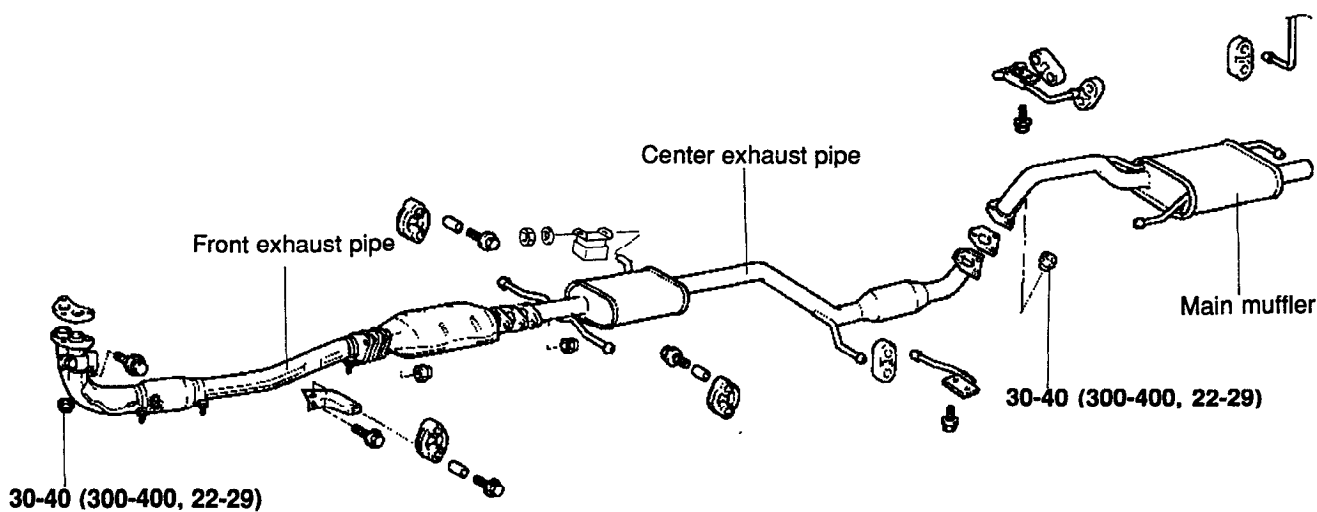


MUFFLERS

COMPONENTS



[UNLEAD Vehicles]



[LEAD Vehicles]

TORQUE : Nm (kg.cm, lb.ft)

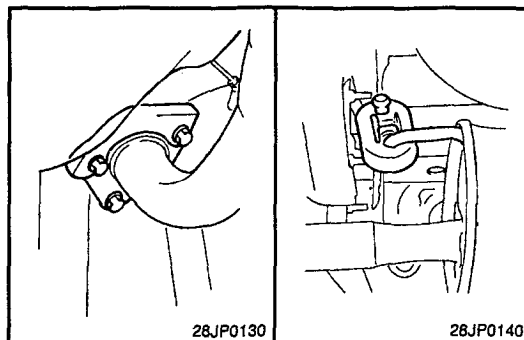
REMOVAL

Main Muffler

CAUTION

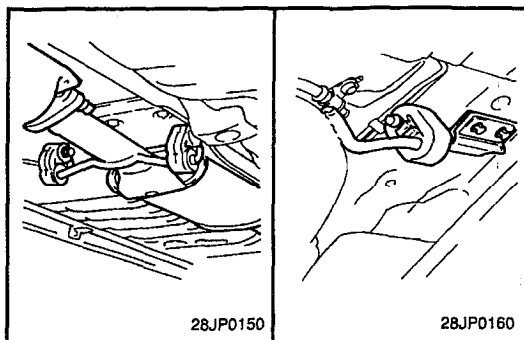
Before removing or inspecting the exhaust system, ensure that the exhaust system is cool enough.

1. Disconnect the main muffler from the center exhaust pipe.
2. Remove the rubber hangers and take out the main muffler.



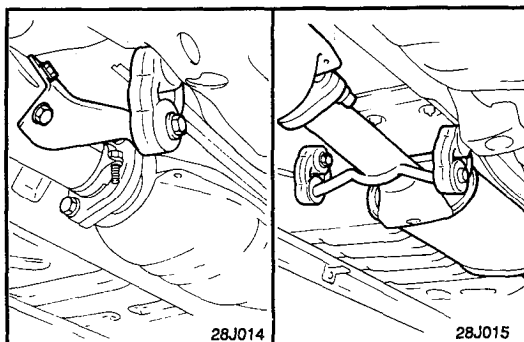
Center Exhaust Pipe

1. Disconnect the center exhaust pipe from the main muffler and the catalytic converter.
2. Remove the rubber hangers and take out the center exhaust pipe.



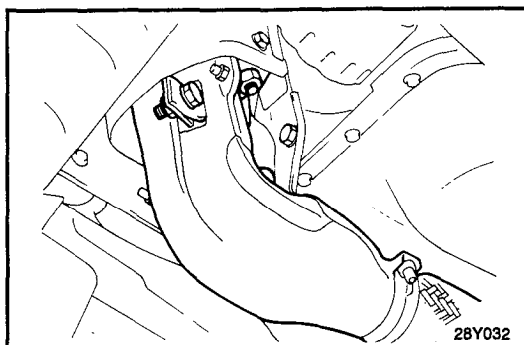
Catalytic Converter [For UNLEAD Vehicles]

1. Disconnect the center exhaust pipe from the center exhaust pipe and front exhaust pipe.
2. Remove the rubber hangers and take out the center exhaust pipe.

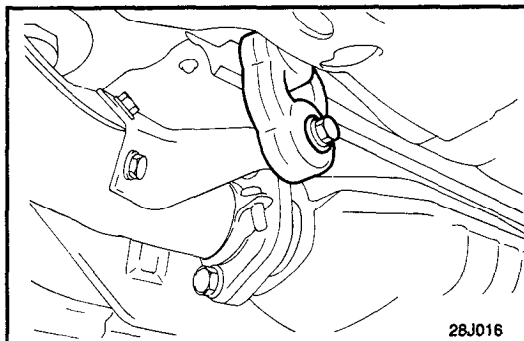


Front Exhaust Pipe

1. Remove the front exhaust pipe-to-catalytic converter mounting bolts.
2. Remove the front exhaust pipe clamp bolt and remove the exhaust manifold-to-front exhaust pipe mounting nuts.



3. Remove the front exhaust pipe from the rubber hanger.



INSPECTION

1. Check the mufflers and pipes for corrosion and damage.
2. Check the rubber hanger and hangers for deterioration and cracks.

INSTALLATION

1. Temporarily install the front exhaust pipe, the catalytic converter assembly, the center exhaust pipe, and the main muffler, in that order.
2. Install the rubber hangers so that they are identical (left and right) in length.
3. Tighten the parts securely, and then confirm that there is no interference with any body components.