

INTAKE & EXHAUST SYSTEM

Return To Main Table of Contents

GENERAL	2
AIR CLEANER	3
AIR INTAKE SURGE TANK	5
INTAKE MANIFOLD	8
EXHAUST MANIFOLD	10
MUFFLERS	11

GENERAL

SPECIFICATIONS

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

TIGHTENING TORQUE

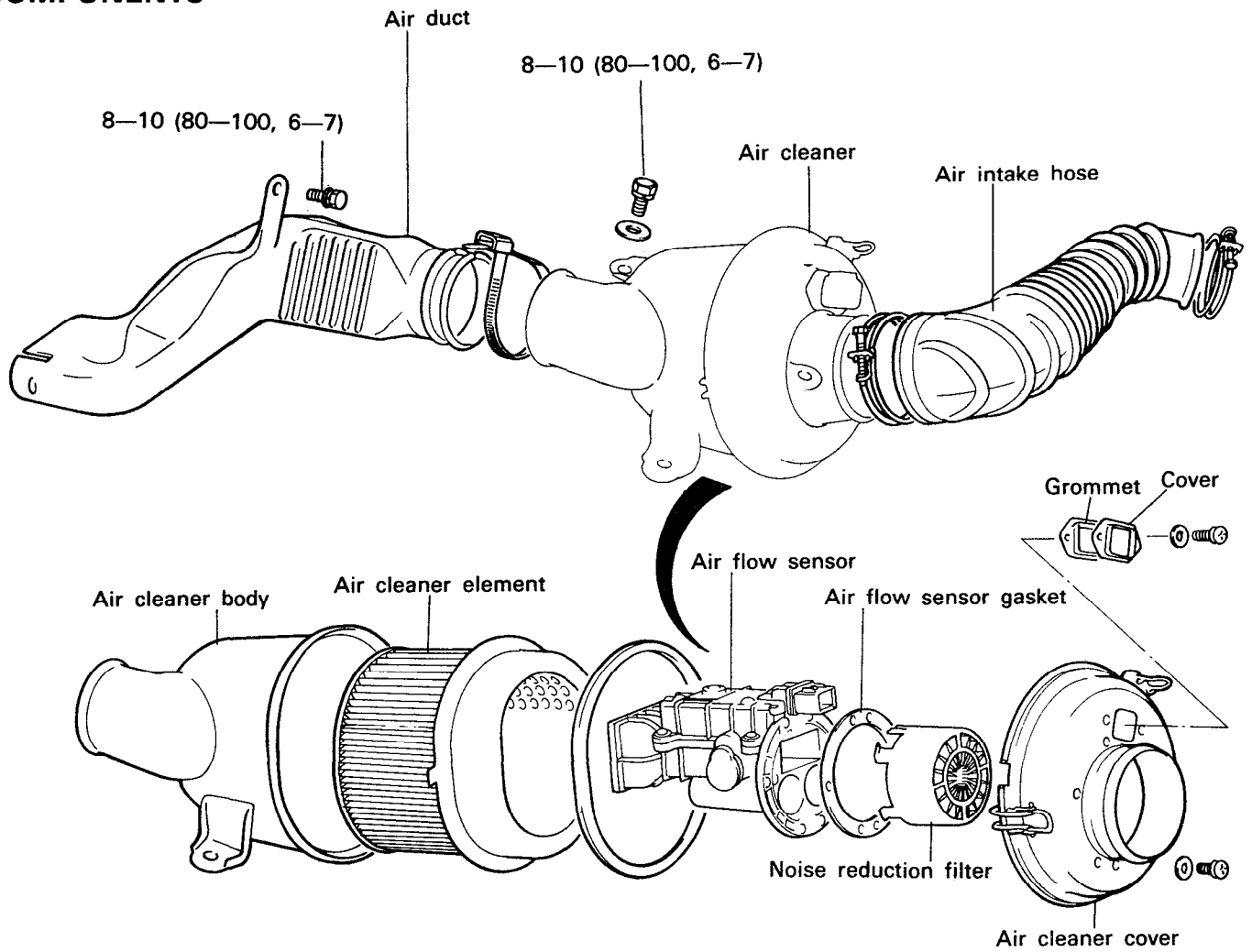
	Nm	Kg.cm	lb.ft
Air cleaner mounting bolts	8 - 10	80-100	6 - 7
Air cleaner mounting bracket bolts	15-22	150-220	11-16
Intake manifold to cylinder head nuts	15-20	150-200	11-14
Intake manifold stay to cylinder block bolts	18-25	180-250	13-18
Throttle body to surge tank bolts	10-13	100-130	7 - 9
Exhaust manifold to cylinder head nuts	15-22	150-220	11-16
Exhaust manifold heat protector to exhaust manifold bolts	12-15	120-150	9-11
Oxygen sensor to front exhaust pipe	39-49	400-500	29-36
Front exhaust pipe to exhaust manifold nuts	29-39	300-400	22-29
Front exhaust pipe to catalytic converter bolts	39-59	400-600	29-43
Catalytic converter to center exhaust pipe nuts	29-39	300-400	22-29
Center exhaust pipe to main muffler bolts	29-39	300-400	22-29
Main muffler hanger support bracket bolts	10-15	100-150	7-11
Delivery pipe installation bolts	10-13	100-130	7 - 9
Oil level dipstick bracket to engine bolt	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

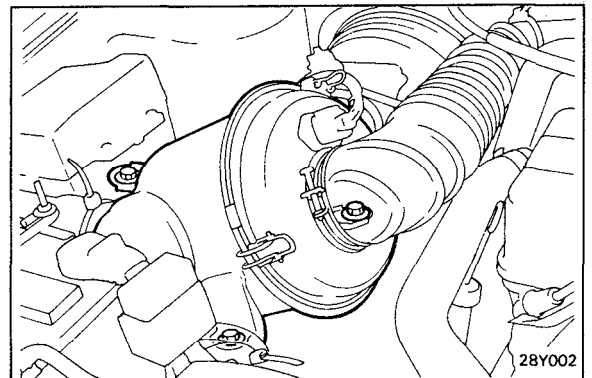
COMPONENTS



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

REMOVAL

1. Remove the air intake hose and air duct connected to the air cleaner.
2. Remove the three bolts attaching the air cleaner body.
3. Remove the air cleaner.

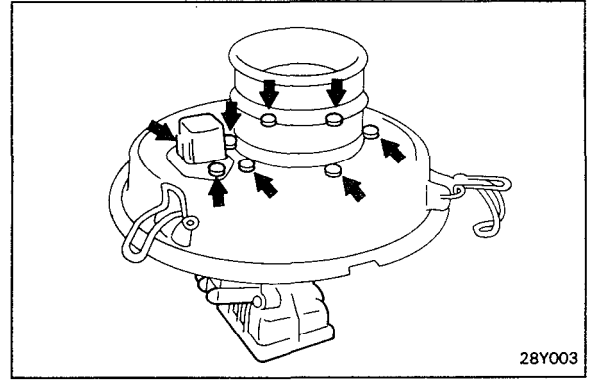


AIR CLEANER

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

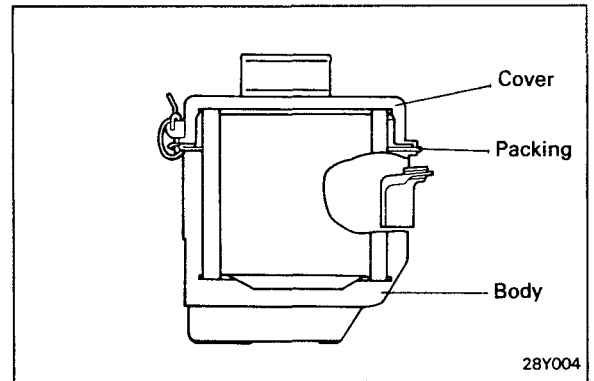
CAUTION

Do not pull on the air flow sensor harness.

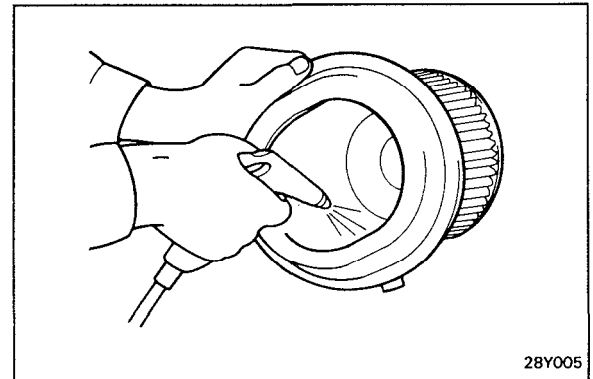


INSPECTION

1. Check the air cleaner body, cover and packing for distortion, corrosion or damage.
2. Check the air intake duct for damage.



3. Check the air cleaner element for restriction, contamination or damage.
If the element is slightly restricted, remove dust and debris by blowing air from inside of the element. Replace element if it cannot be cleaned.

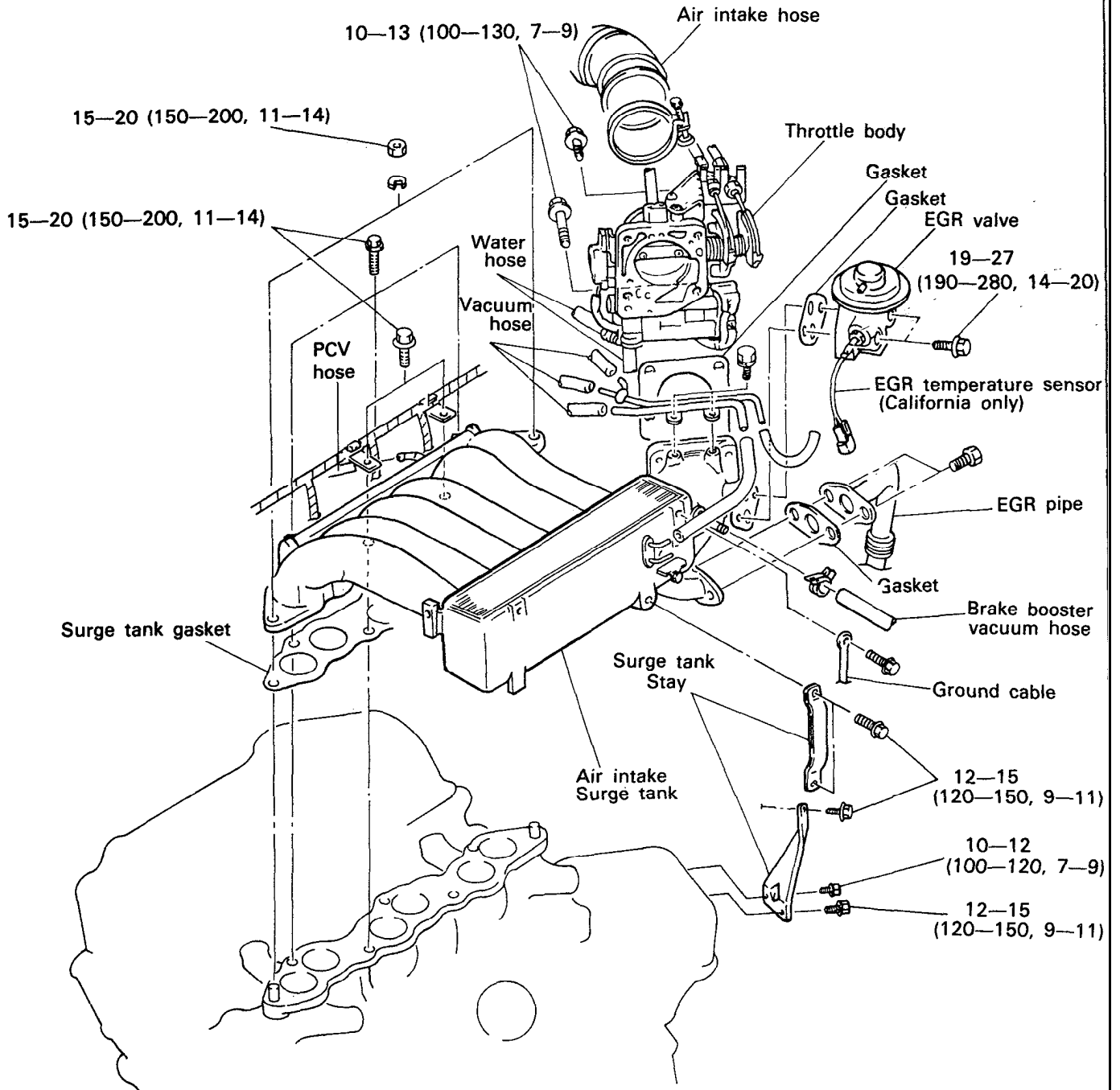


INSTALLATION

Install the air cleaner in the reverse order of removal.

AIR INTAKE SURGE TANK

COMPONENTS

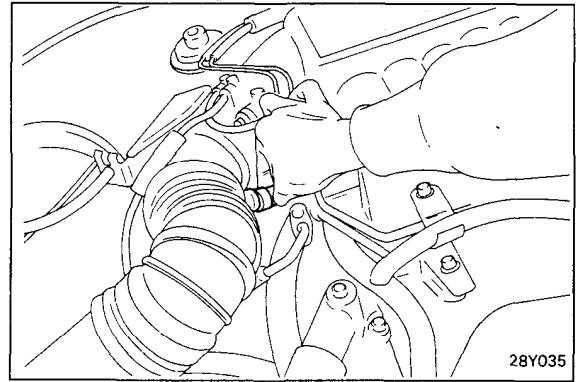


TORQUE : Nm (kg.cm, lb.ft)

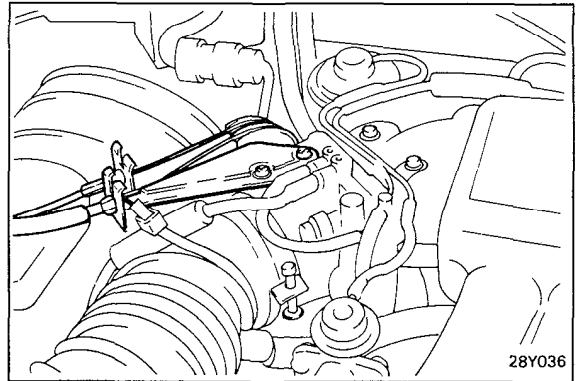
AIR INTAKE SURGE TANK

REMOVAL

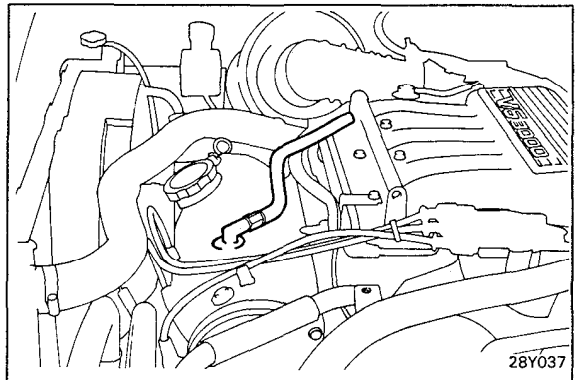
1. Remove the air intake hose connected to the throttle body.



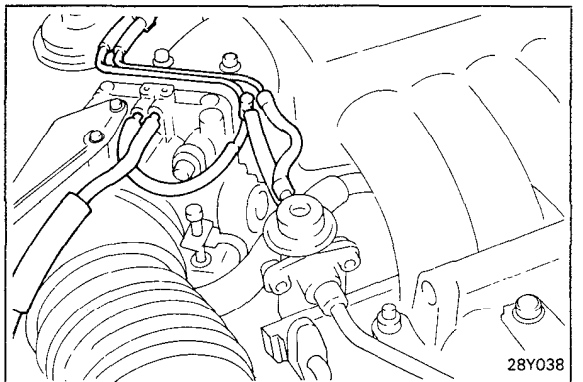
2. Remove the accelerator and cruise control cables.
3. Remove the water hose and throttle body.



4. Remove the P.C.V. hose and brake booster vacuum hoses.

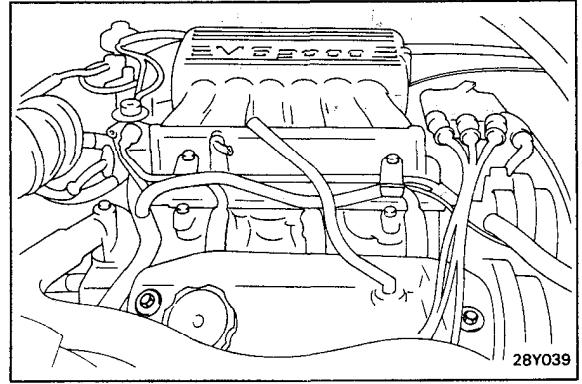


5. Disconnect the vacuum hose connections.



AIR INTAKE SURGE TANK

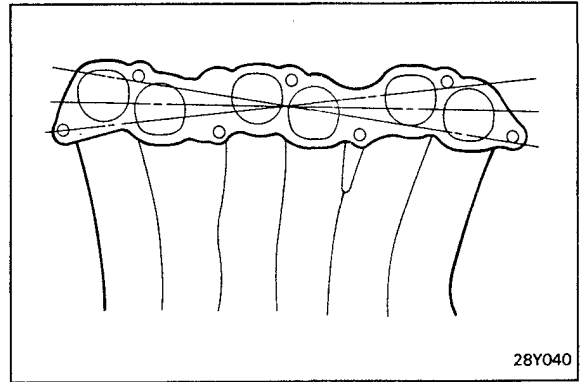
6. Remove the EGR pipe and gasket.
7. Remove the ground cable.
8. Remove the surge tank stay.
9. Remove the air intake surge tank and surge tank gasket.



INSPECTION

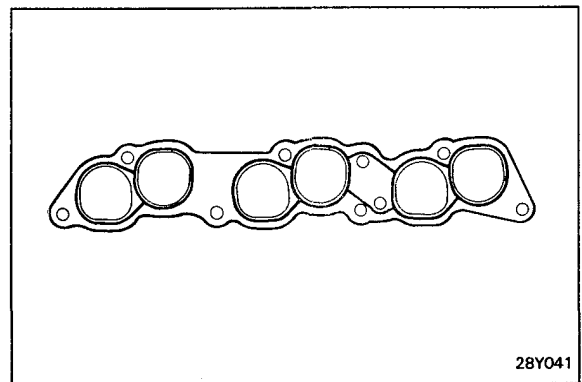
1. Check air intake surge tank for defect or cracks. Replace if defective.
2. Check coolant passage ways for restrictions. Clean if necessary.
3. Check deflection of installation surface with straight edge and feeler gauge.

Standard value Within 0.15 mm (0.006 in.)
Service limit 0.2 mm (0.008 in.)

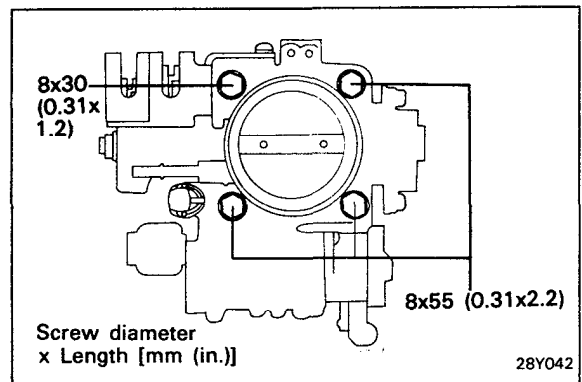


INSTALLATION

1. Attach the surge tank gasket with the printed surface faced upward.



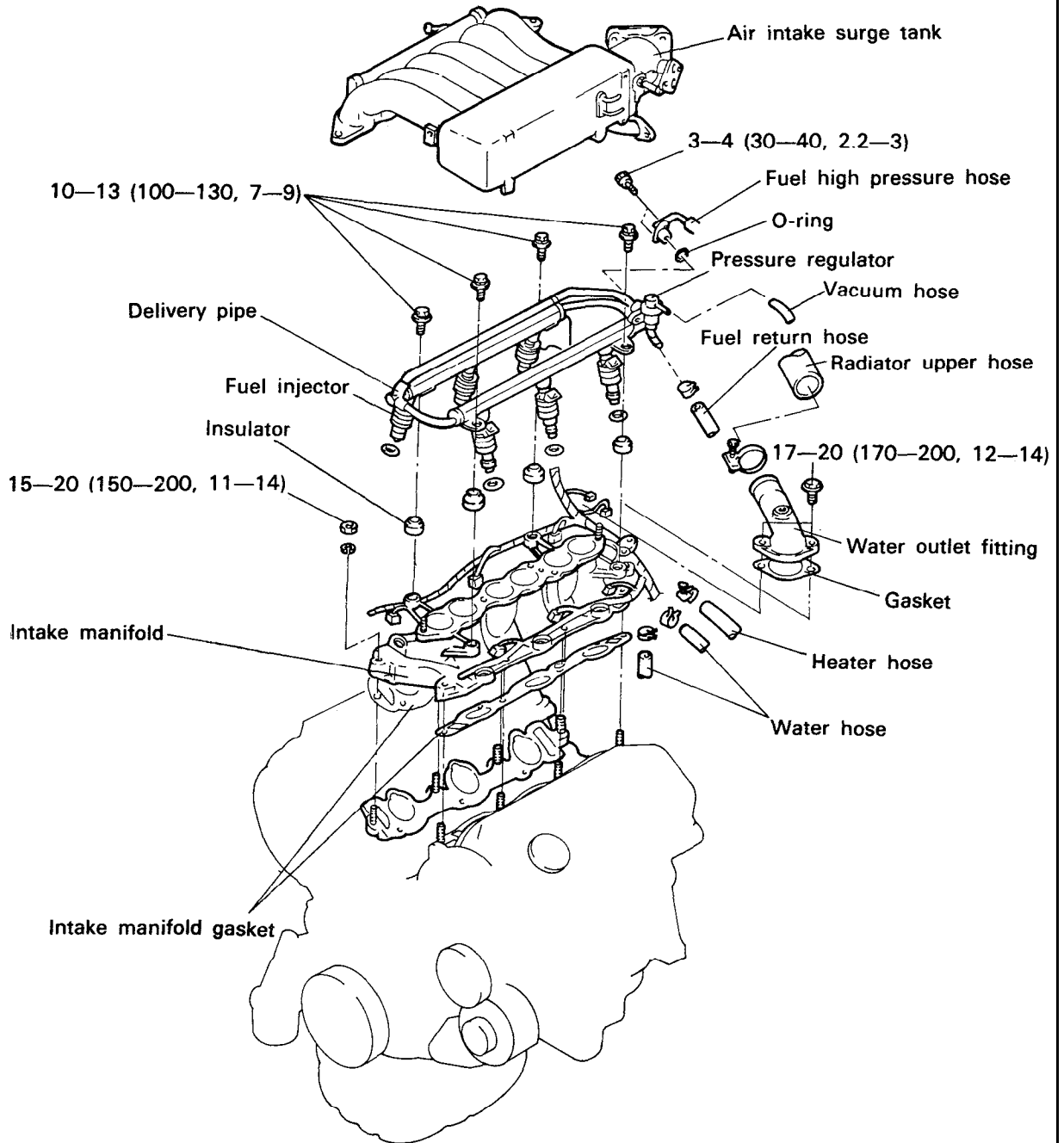
2. Install the throttle body mounting bolts as illustrated.



INTAKE MANIFOLD

INTAKE MANIFOLD

COMPONENTS



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

INTAKE MANIFOLD

REMOVAL

1. Remove the air intake surge tank.
2. Remove the high pressure fuel hose.

CAUTION

Reduce the internal pressure of the high pressure fuel hose prior to disconnecting. For more details, refer to FUEL SYSTEM "Fuel filter replacement".

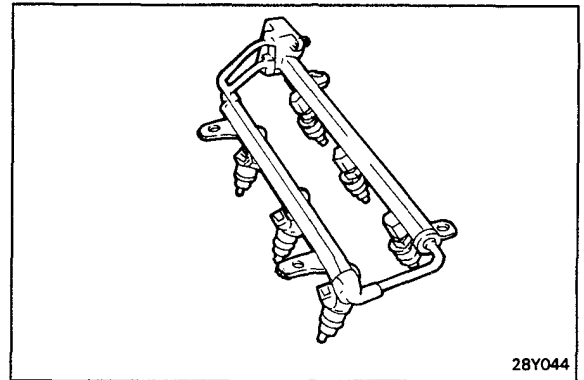
3. Disconnect the fuel return hose.
4. Remove the delivery pipe with the fuel injector.

NOTE

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

CAUTION

Be aware that fuel may flow out when removing the injector.

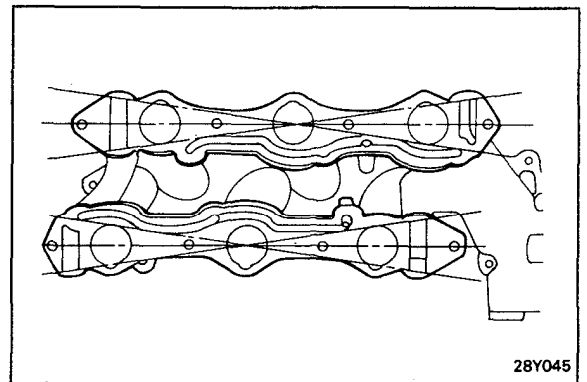


INSPECTION

Intake Manifold

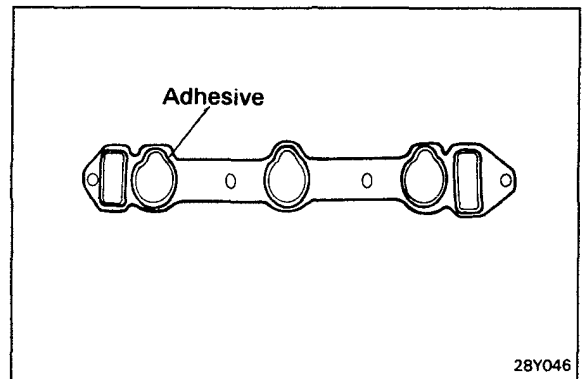
1. Check the intake manifold for damage, cracking, or restriction of the vacuum outlet port, water and or gas passages.
2. Check for distortion of the cylinder head mounting surface by using a straight edge and feeler gauge.

Standard value	0.15 mm (0.006 in.) or less
Service limit. value	0.3 mm (0.012 in.)



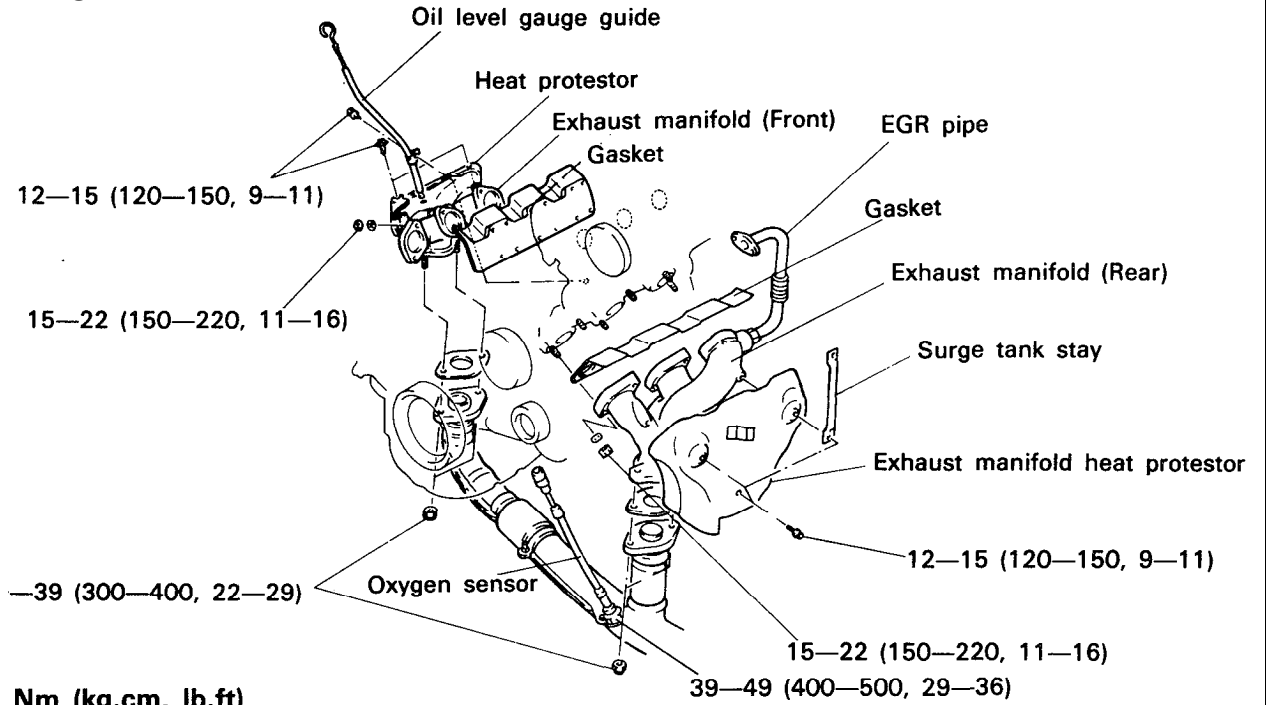
INSTALLATION

1. Attach the intake manifold gasket with the adhesive coated side faced upward toward the intake manifold.
2. install a new insulator to the intake manifold.



EXHAUST MANIFOLD

COMPONENTS

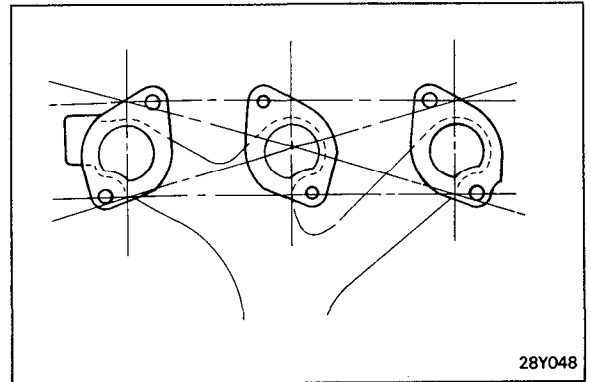


28Y047

INSPECTION

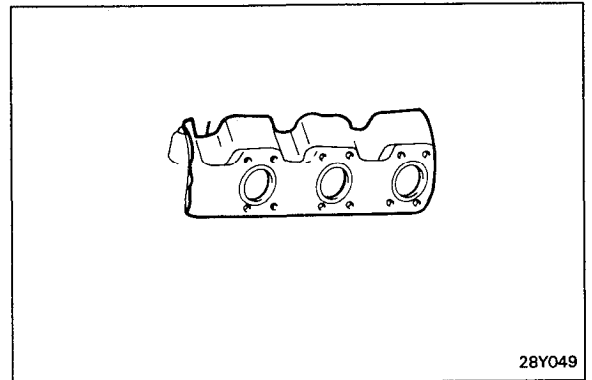
1. Check for damage or cracking.
2. Using a straight edge and a feeler gauge, check for distortion on the cylinder head mating surface.

Standard value 0.15 mm (0.006 in.) or less
 Service limit 0.3 mm (0.012 in.) or less



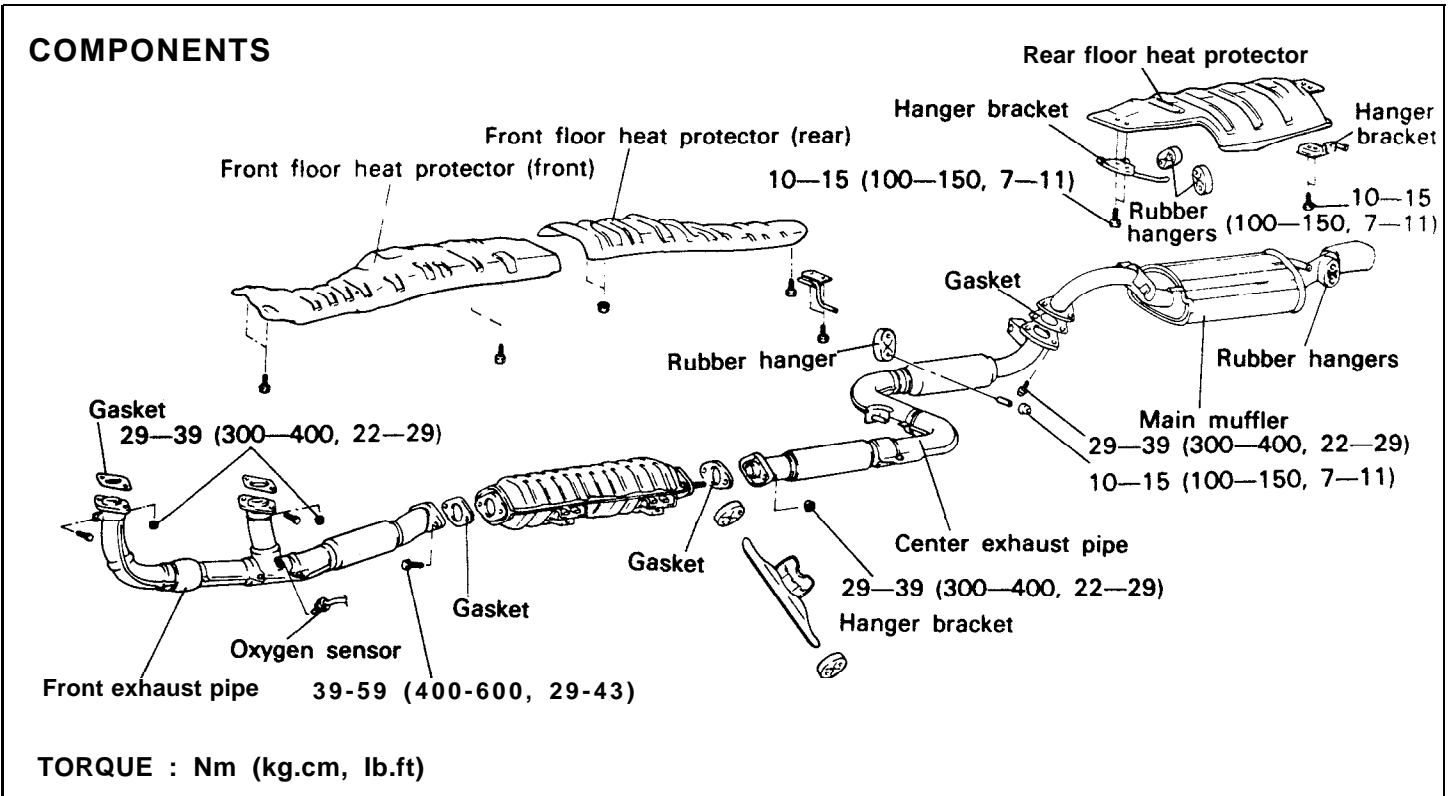
28Y048

3. Check for flaking or damage of the gasket.



28Y049

MUFFLERS



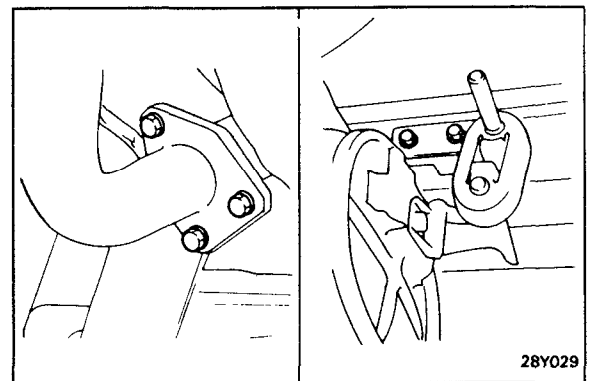
REMOVAL

Main Muffler

CAUTION

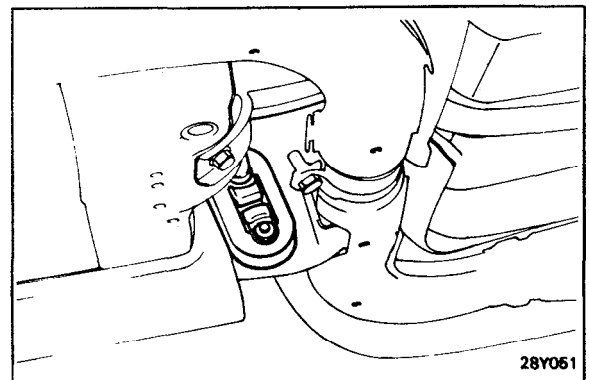
Before removing or inspecting the exhaust system, ensure that the exhaust system is cool.

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



Center Muffler Assembly

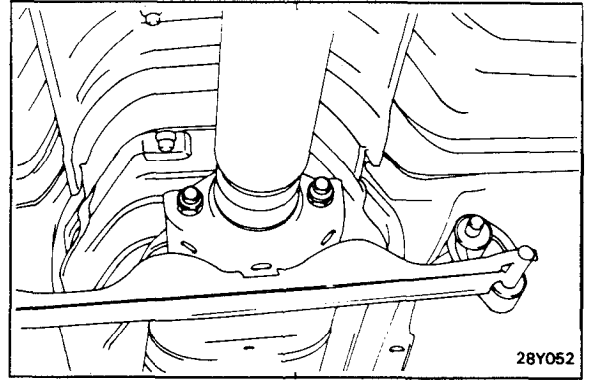
1. Disconnect the center muffler assembly from the main muffler and the catalytic converter.
2. Remove the rubber hangers and take out the center muffler assy.



MUFFLERS

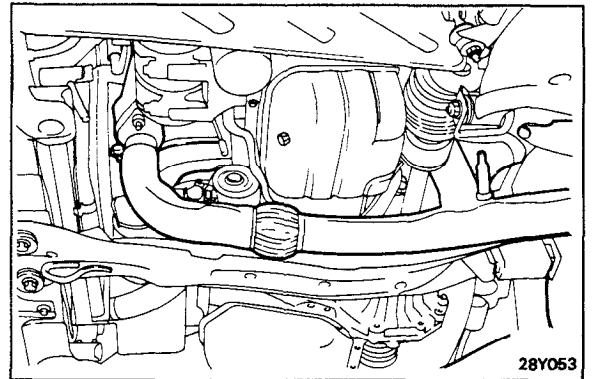
Catalytic Converter

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



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.



INSPECTION

1. Check the mufflers and pipes for corrosion and damage.
2. Check the rubber 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.