TURBOCHARGER SYSTEM (2JZ–GTE)

PREPARATION
SST (SPECIAL SERVICE TOOLS)

	09992–00241 Turbocharger Pressure Gauge	

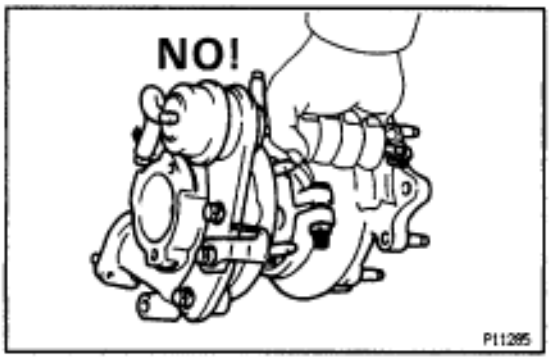
EQUIPMENT

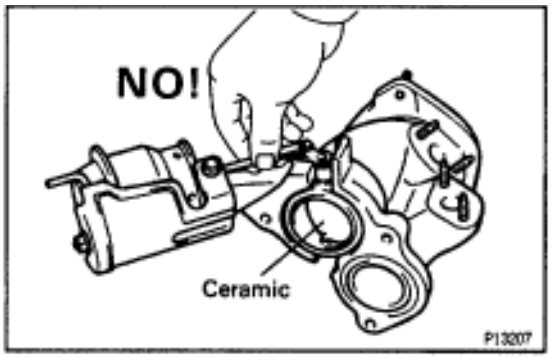
Dial indicator	Impeller wheel
Torque wrench	

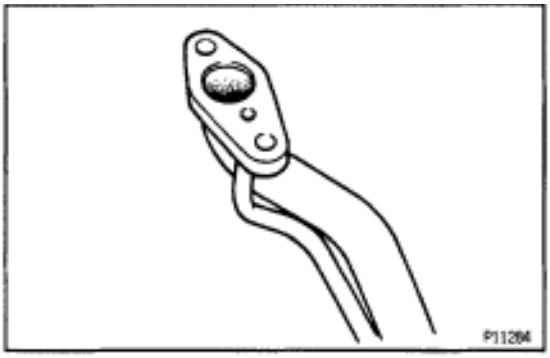
COOLANT

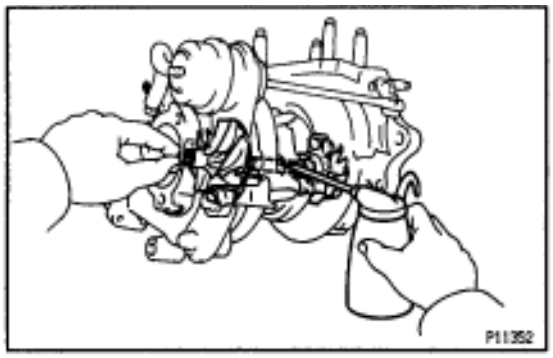
Item		Capacity	Classification
Engine coolant (w/ Heater)	M/T	9.5 liters (10.0 US qts. 8.4 lmp. qts)	Ethylene–glycol base
	A/T	9.4 liters (9.9 US qts, 8.3 lmp. qts)	

PRECAUTION









1. **Do not stop the engine immediately after pulling a trailer or after high speed or uphill driving. Idle the engine for 20–120 seconds, depending on how hard the vehicle has been driven.**
2. **Avoid sudden acceleration or racing immediately after starting a cold engine.**
3. **Do not run the engine with air cleaner removed, as this may cause foreign material to enter and damage the impeller wheel operating at high speed.**
4. **If a turbocharger is found to be defective and must be replaced, check for the cause, and repair or replace the following items as necessary:**
   - **Engine oil level and quality**
   - **Conditions under which the turbocharger was used**
   - **Oil lines leading to the turbocharger**
5. **Use caution when removing and reinstalling the turbocharger assembly. Do not drop it or knock it against anything or grasp it by easily–deformed parts, such as the actuator or rod, when moving it.**
6. **Use caution when removing and reinstalling the exhaust gas control valve assembly. Do not drop it or knock it against anything or grasp it by easily–deformed parts, such as the actuator or rod, when moving it. The control valve is ceramic.**
7. **Before removing the turbocharger, plug the intake and exhaust ports and oil inlet to prevent entry of dirt or other foreign material.**
8. **If replacing the turbocharger, check for accumulation of sludge particles in the oil pipes, and if necessary, replace the oil pipes.**
9. **Completely remove the gasket adhered to the lubrication oil pipe flange and turbocharger oil flange.**
10. **When replacing bolt or nuts, use only authorized replacement parts to prevent breakage or deformation.**
11. **If replacing the turbocharger, pour approx. 20 cm^3 (1.2 cu in.) of fresh oil into the turbocharger oil inlet and turn the impeller wheel by hand to spread oil to the bearing.**
12. **If overhauling or replacing the engine, cut the fuel supply after reassembly and crank the engine for 30 seconds to distribute oil throughout the engine. Then allow the engine to idle for 60 seconds.**

TROUBLESHOOTING

HINT: Before troubleshooting the turbocharger, first check the engine itself. (Valve clearance, engine compression, ignition timing etc.)

INSUFFICIENT ACCELERATION, LACK OF POWER OR EXCESSIVE FUEL CONSUMPTION

(Possible Cause)	Check Procedure and Correction Method)
1. TURBOCHARGING PRESSURE TOO LOW	Check turbocharging pressure. (See page EG–144) **Turbocharging pressure:** **61–75 kPa** **(062–0.76 kgf/cm^2, 8.8–10.8 psi)** If the pressure is below specifications, begin diagnosis from item 2.
2. RESTRICTED INTAKE SYSTEM	Check intake air system, and repair or replace parts as necessary. (See page EG–144)
3. LEAK IN INTAKE AIR SYSTEM	Check intake air system, and repair or replace parts as necessary. (See page EG–144)
4. RESTRICTED EXHAUST SYSTEM	Check intake air system, and repair or replace parts as necessary. (See page EG–144)
5. LEAK IN EXHAUST SYSTEM	Check intake air system, and repair or replace parts as necessary. (See page EG–144)
6. ERRATIC TURBOCHARGER OPERATION	Check rotation of turbine shaft. If it does not turn or turns with a heavy drag, replace the turbocharger assembly. Check axial and radial play of turbine shaft. (See page EG–158) Maximum axial play : 0.110 mm (0.0045 in.) Maximum radial play : 0.162 mm (0.0064 in.) If the play is greater than maximum, replace the turbocharger assembly.

ABNORMAL NOISE

(Possible Cause)	(Check Procedure and Correction Method)
1. TURBOCHARGING HEAT INSULATOR RESONANCE	Check for loose, improperly installed or deformed insulator mounting bolts, and repair or replace as necessary.
2. EXHAUST PIPE LEAKING OR VIBRATING	Check for deformed exhaust pipe, loose mounting bolts or damaged gasket, and repair or replace as necessary.
3. ERRATIC TURBOCHARGER OPERATION	Refer to item 6 of INSUFFICIENT ACCELERATION, LACK OF POWER OR EXCESSIVE FUEL CONSUMPTION.

EXCESSIVE OIL CONSUMPTION OR WHITE EXHAUST

(Possible Cause)	(Check Procedure and Correction Method)
FAULTY TURBOCHARGER SEAL	Check for oil leakage in exhaust system. • Remove the turbine elbow from the turbocharger and check for excessive carbon deposits on the turbine wheel. Excessive carbon deposits indicate a faulty turbocharger. Check for oil leakage in intake air system. • Check for axial and radial play of turbine shaft and replace the turbocharger if necessary. (See page EG–158) Maximum axial play : 0.110 mm (0.0045 in.) Maximum radial play : 0.162 mm (0.0064 in.) **NOTICE: Some oil mist in the blowby from the PCV is normal.** **Do not mistake it for an oil leak from the turbocharger.**

TURBOCHARGER
On–Vehicle Inspection

1. INSPECT INTAKE AIR SYSTEM

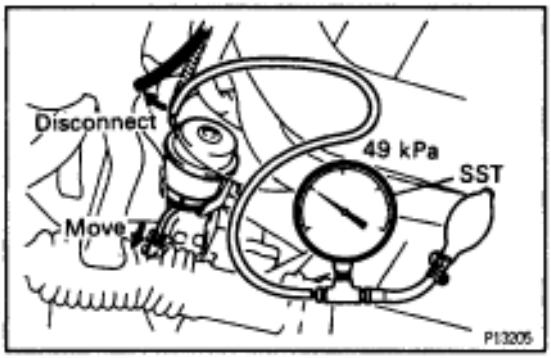
Check for leakage or clogging between the air cleaner and turbocharger inlet and between the turbocharger outlet and cylinder head.

- Clogged air cleaner .... Clean or replace air filter
- Hoses collapsed or deformed .... Repair or replace
- Leakage from connections .... Check each connection and repair
- Cracks in components Check and replace

2. INSPECT EXHAUST SYSTEM

Check for leakage or clogging between the cylinder head and turbocharger inlet and between the turbocharger outlet and exhaust pipe.

- Deformed components Repair or replace
- Foreign material in passages Remove
- Leakage from components Repair or replace
- Cracks in components Check and replace



3. INSPECT EXHAUST EXHAUST GAS CONTROL VALVE OPERATION

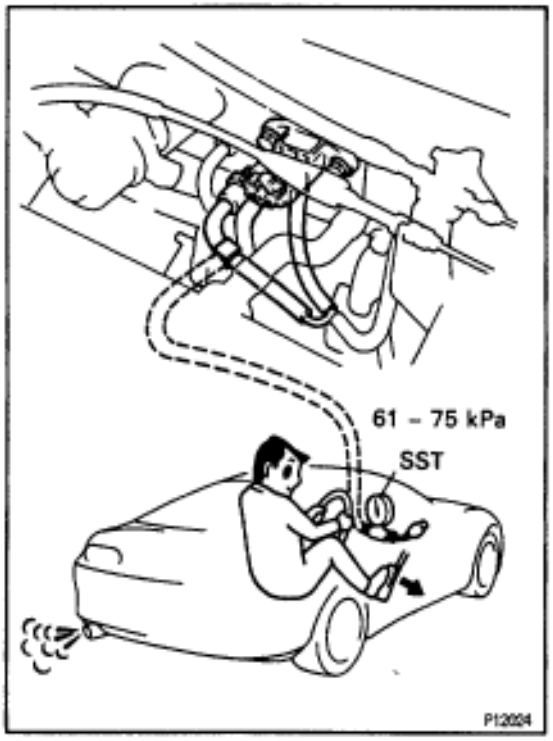
(a) Disconnect the air hose from the actuator.

(b) Using SST, apply approx. 49 kPa (0.50 kgf/cm^2, 7.1 psi) of pressure to the actuator.
SST 09992–00241

(c) Check that the actuator push rod moves.

(d) Reconnect the air hose to the actuator.

If operation is not as specified, replace the control valve assembly.



4. INSPECT TURBOCHARGING PRESSURE

(a) Using a 3–way connector, connect SST (turbocharger pressure gauge) to the hose between the gas filter and turbo pressure sensor.
SST 09992–00241

(b) While driving with the engine running at 5,600 rpm or more with the throttle valve fully open in the 1st gear/ L range, check the turbocharging pressure.

Standard pressure:

61–75 kPa (0.62–0.76 kgf/cm^2, 8.8–10.8 psi)

If the pressure is less than that specified, check the intake and exhaust systems for leakage. If there is no leakage, replace the turbocharger assembly.

If the pressure is above specification, check if the actuator hose is disconnected or cracked. If not, replace the turbocharger assembly.

VSV for Intake Air Control Valve

(See SFI System)

VSV for Waste Gate Valve

(See SFI System)

VSV for Exhaust Gas Control Valve

(See SFI System)

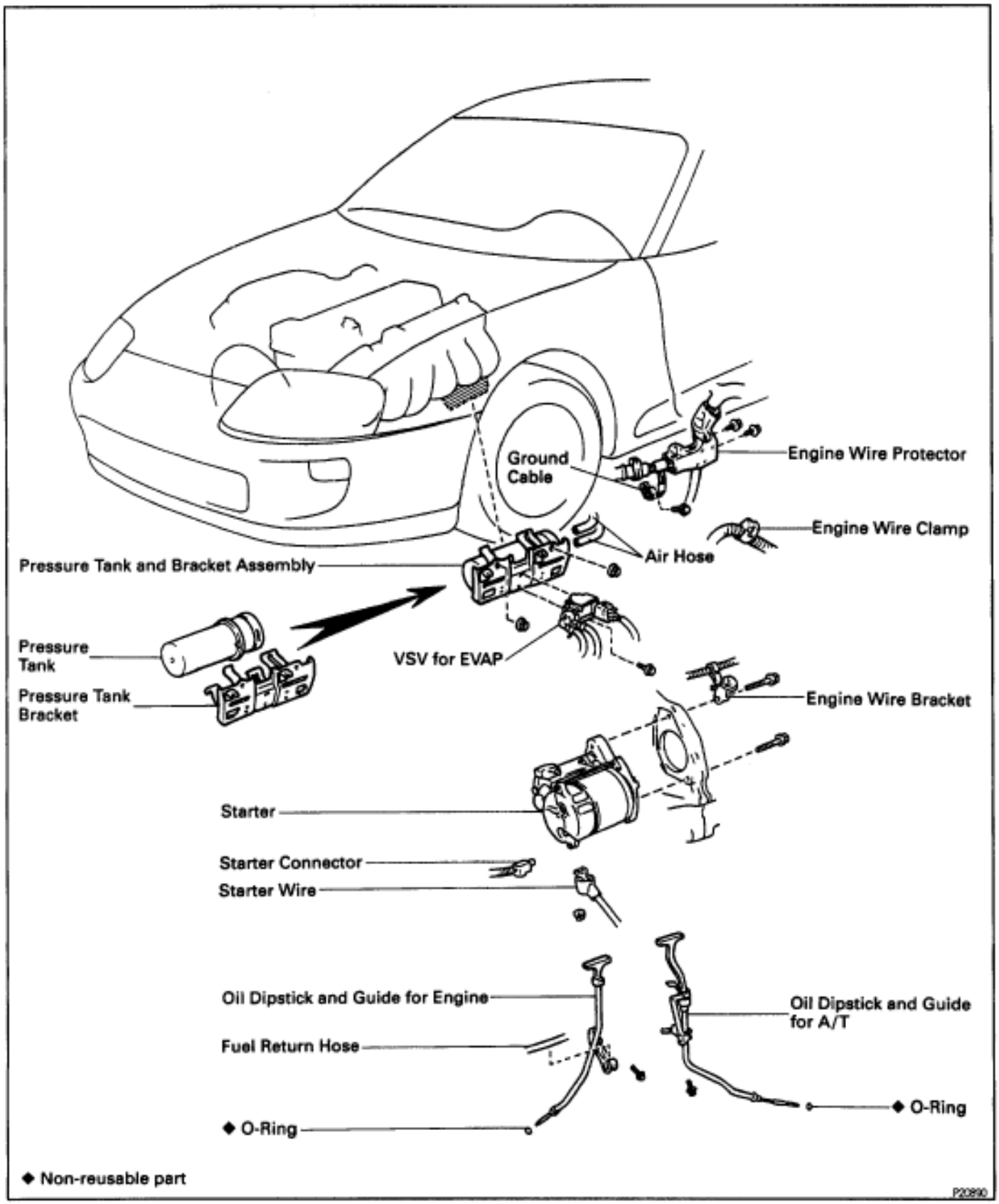
VSV for Exhaust Bypass Valve

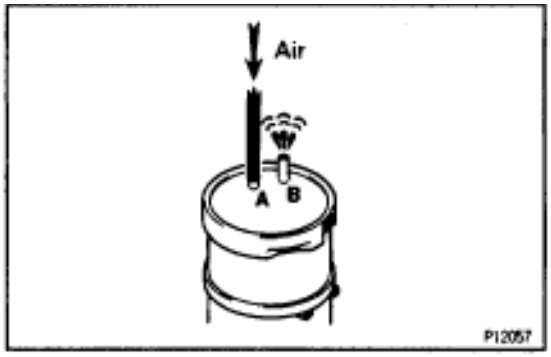
(See SFI System)

Turbo Pressure Sensor

(See SFI System)

Pressure Tank
COMPONENTS FOR REMOVAL AND INSTALLATION



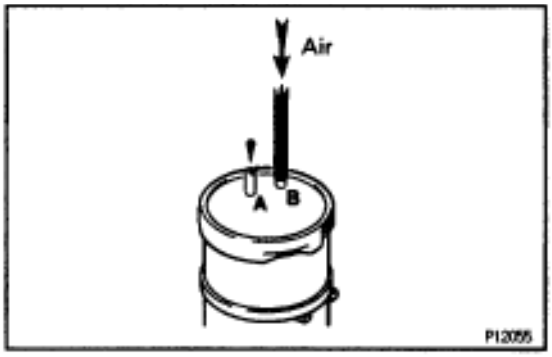


PRESSURE TANK INSPECTION

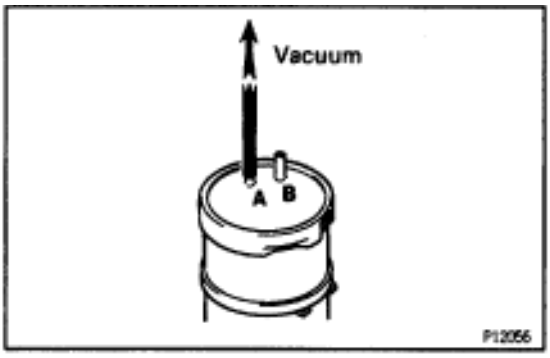
1. REMOVE PRESSURE TANK

2. INSPECT PRESSURE TANK

(a) Check that air flows from port A to B.



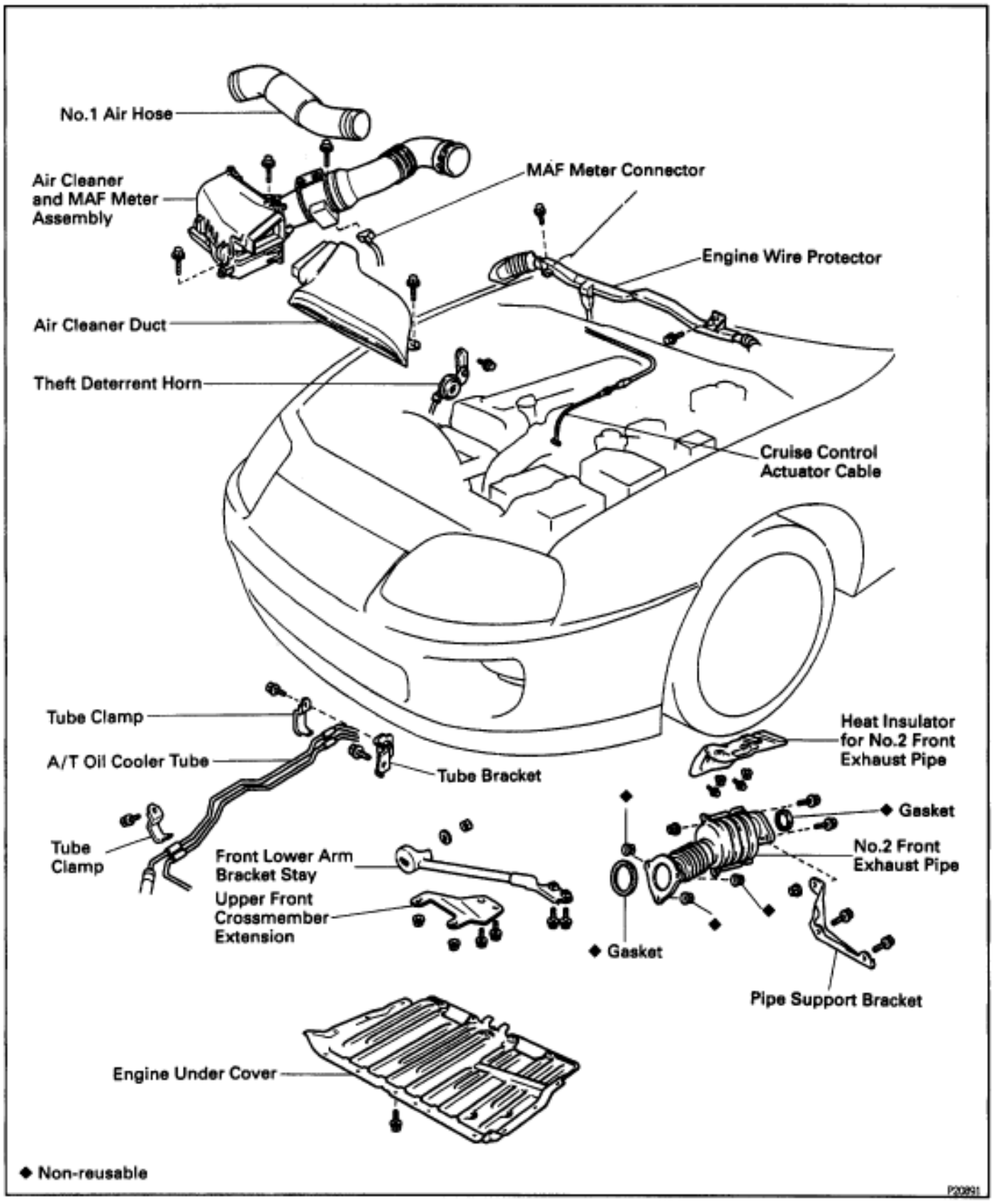
(b) Check that air does not flow from port B to A.

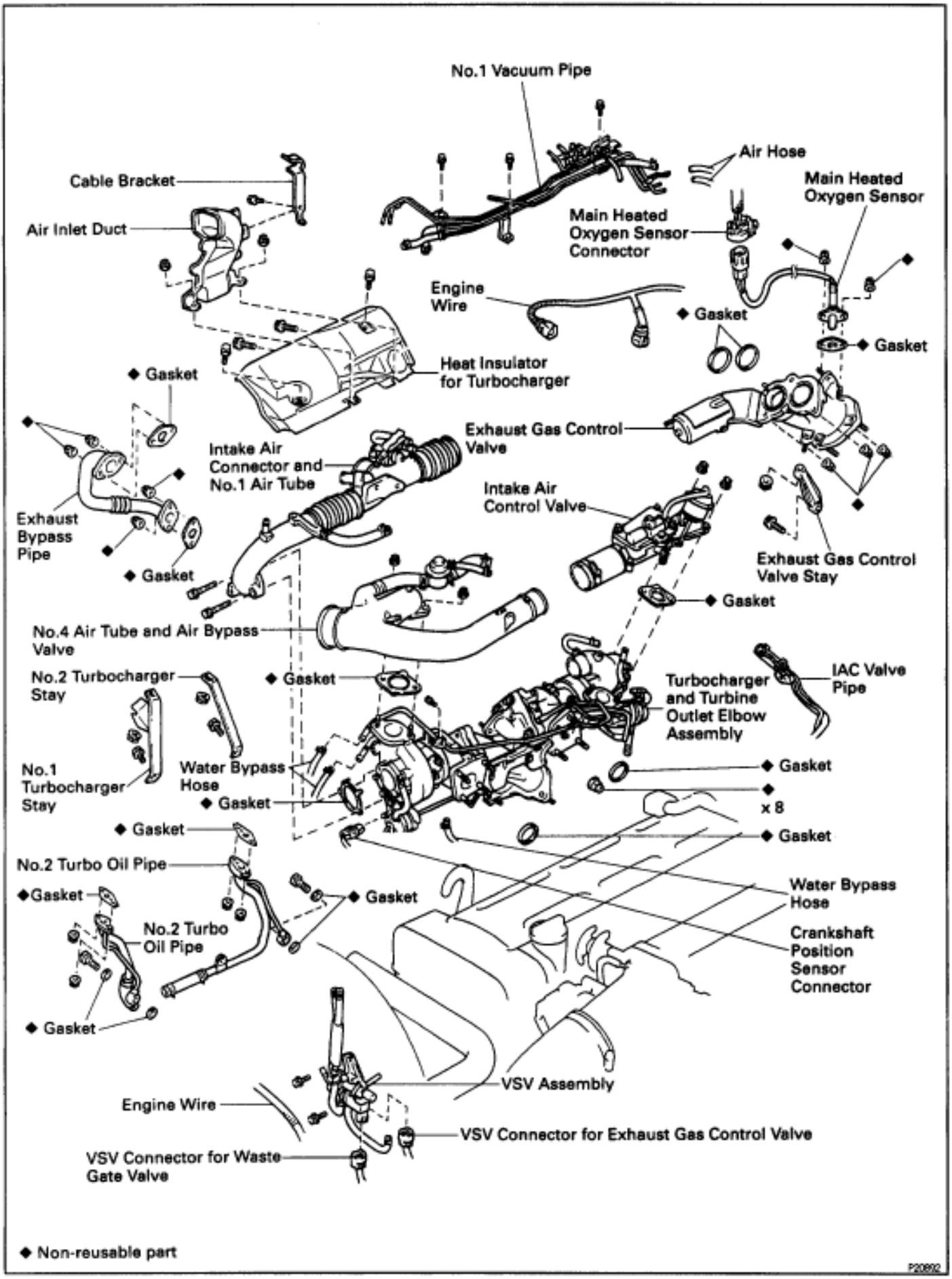


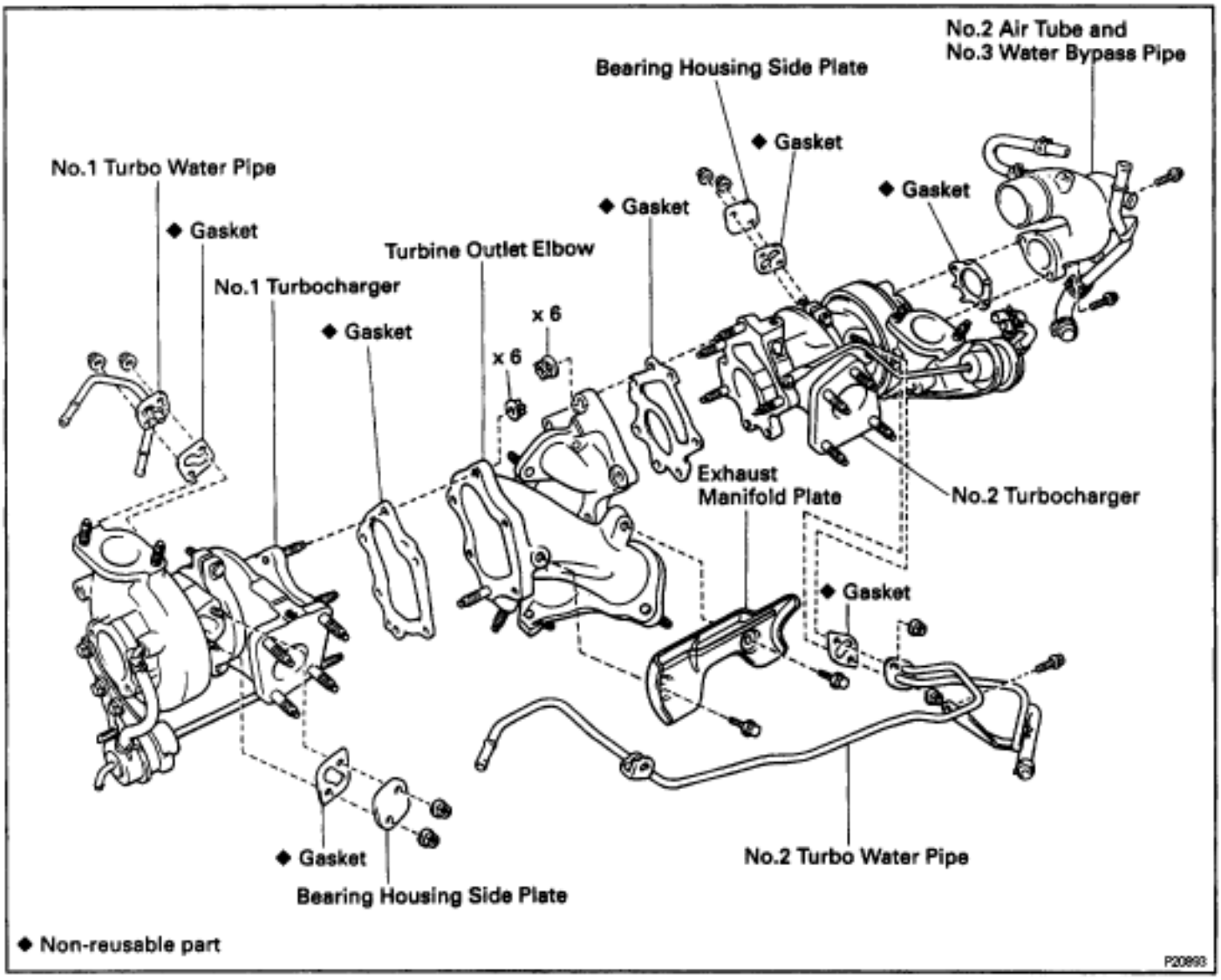
(c) Apply 60.0 kPa (450 mmHg, 17.72 in.Hg) of vacuum to port A, and check that there is no change in vacuum after 1 minute.
If operation is not as specified, replace the pressure tank.

3. REINSTALL PRESSURE TANK

Turbocharger
COMPONENTS FOR REMOVAL AND INSTALLATION



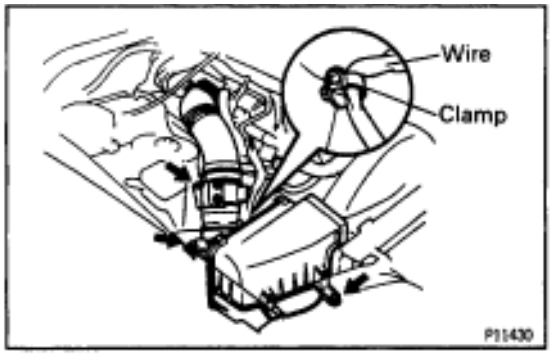

No.1 Vacuum Pipe
Air Hose
Cable Bracket
Main Heated Oxygen Sensor
Air Inlet Duct
Main Heated Oxygen Sensor Connector
Engine Wire
◆ Gasket
◆ Gasket
Heat Insulator for Turbocharger
◆ Gasket
Exhaust Gas Control Valve
Intake Air Connector and No.1 Air Tube
Intake Air Control Valve
Exhaust Bypass Pipe
Exhaust Gas Control Valve Stay
◆ Gasket
◆ Gasket
No.4 Air Tube and Air Bypass Valve
No.2 Turbocharger Stay
◆ Gasket
Turbocharger and Turbine Outlet Elbow Assembly
IAC Valve Pipe
No.1 Turbocharger Stay
Water Bypass Hose
◆ Gasket
◆ Gasket
◆ x 8
◆ Gasket
◆ Gasket
No.2 Turbo Oil Pipe
Water Bypass Hose
◆ Gasket
◆ Gasket
No.2 Turbo Oil Pipe
Crankshaft Position Sensor Connector
◆ Gasket
VSV Assembly
Engine Wire
VSV Connector for Exhaust Gas Control Valve
VSV Connector for Waste Gate Valve
◆ Non-reusable part



TURBOCHARGER REMOVAL

Installation is in the reverse order of removal.

1. **DRAIN ENGINE COOLANT**
2. **REMOVE ENGINE UNDER COVER**
3. **DISCONNECT CRUISE CONTROL ACTUATOR CABLE FROM THROTTLE BODY**
4. **REMOVE NO.1 AIR HOSE**
5. **REMOVE AIR CLEANER DUCT**



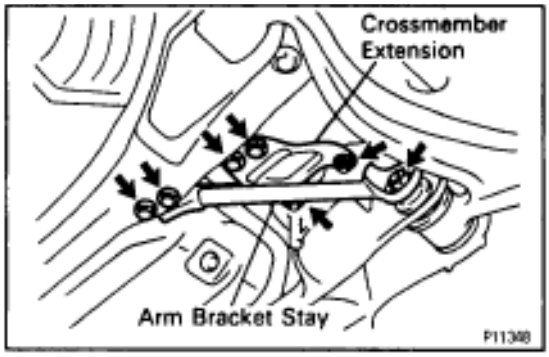
6. **REMOVE AIR CLEANER AND MAF METER ASSEMBLY**

(a) Remove the 3 bolts.

(b) Loosen the hose clamp, disconnect the air hose from the intake air connector.

(c) Disconnect the MAF meter wire from the clamp on the air cleaner case.

(d) Disconnect the MAF meter connector, and remove the air cleaner and MAF meter assembly.



7. DISCONNECT THEFT DETERRENT HORN FROM BODY

8. REMOVE FRONT LOWER ARM BRACKET STAY

Remove the 2 bolts, nut, plate washer and arm bracket stay.

Torque:

Bolts

44 N·m (450 kgf·cm, 33 ft·lbf)

Nut

59 N·m (600 kgf·cm, 43 ft·lbf)

9. REMOVE UPPER FRONT CROSSMEMBER EXTENSION

Remove the 2 bolts, 2 nuts and crossmember extension.

Torque:

Bolts

29 N·m (300 kgf·cm, 22 ft·lbf)

Nuts

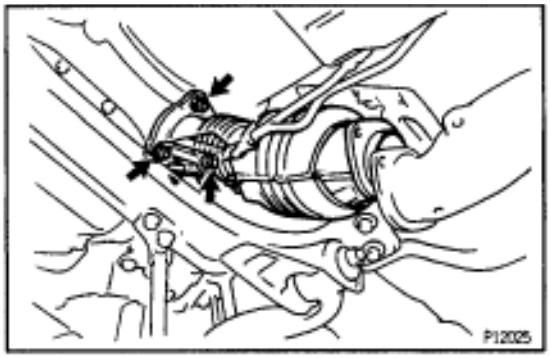
33 N·m (340 kgf·cm, 25 ft·lbf)

10. REMOVE NO.2 FRONT EXHAUST PIPE

(a) Remove the 2 bolts and nuts holding the front exhaust pipe to the No.2 front exhaust pipe.
Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)

(b) Remove the 2 bolts and pipe support bracket.
Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

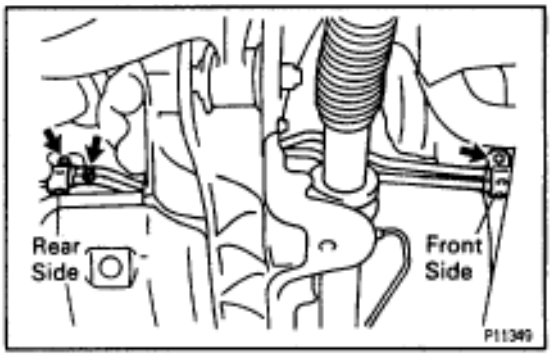
(c) Disconnect the front exhaust pipe from the No.2 exhaust pipe. Remove the gasket.
INSTALLATION HINT: Use a new gasket.



(d) Remove the 3 nuts, No.2 front exhaust pipe and gasket.
INSTALLATION HINT: Use a new gasket and 3 new nuts.
Torque: 62 N·m (630 kgf·cm, 46 ft·lbf)

11. REMOVE HEAT INSULATOR FOR NO.2 FRONT EXHAUST PIPE

Remove the 2 bolts, 2 nuts and heat insulator.

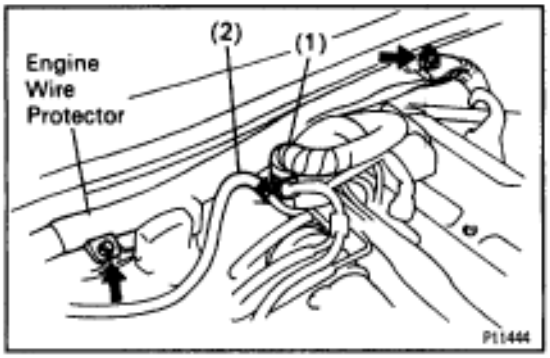


12. DISCONNECT A/T OIL COOLER TUBES FROM ENGINE

(a) Remove the bolt and tube clamp, and disconnect the oil cooler tubes from the bracket (front side) on the generator.

(b) Remove the bolt and tube clamp, and disconnect the oil cooler tubes from the bracket (rear side) on the cylinder block.

(c) Remove the bolt and tube bracket (rear side) from the cylinder block.



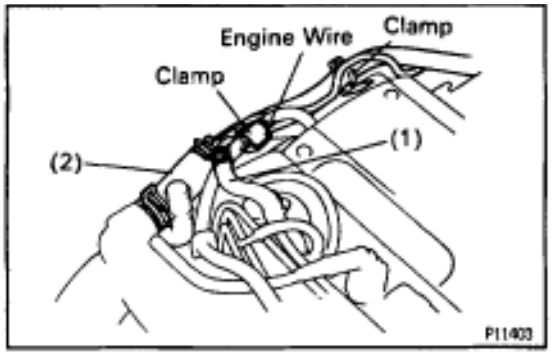
13. DISCONNECT ENGINE WIRE PROTECTOR FROM BODY

Remove the 2 bolts, and disconnect the wire protector from the body.

14. DISCONNECT HOSES

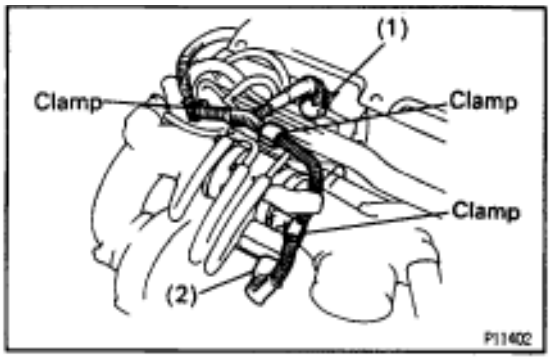
Disconnect these hoses:

(1) Heater hose from No.3 water bypass pipe
(2) EVAP hose from No.1 vacuum pipe



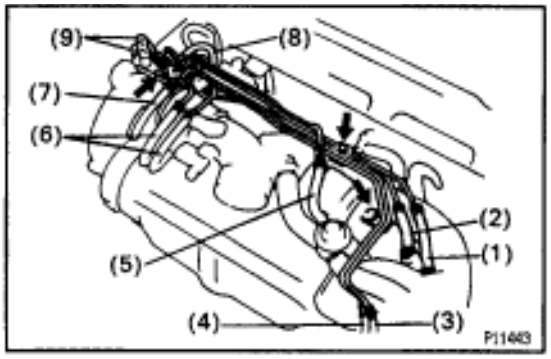
15. DISCONNECT IAC VALVE PIPE FROM NO.2 AIR TUBE

(a) Disconnect the engine wire from the clamp.
(b) Disconnect these hoses:
(1) Air hose (from No.1 vacuum pipe) from IAC valve pipe
(2) Air hose from No.2 air tube
(c) Disconnect the IAC valve pipe from the clamp.

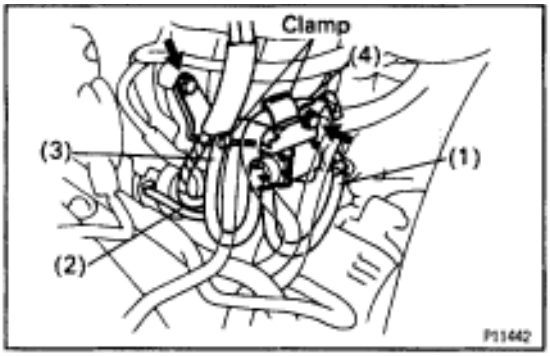


16. DISCONNECT NO.1 VACUUM PIPE FROM AIR TUBES

(a) Disconnect these connectors:
(1) VSV connector for intake air control valve
(2) VSV connector for exhaust bypass valve
(b) Disconnect the engine wire from the 3 clamps.



(c) Disconnect these hoses:
(1) Air hose from No.4 air tube
(2) Air hose from No.1 air tube
(3) Air hose (from VSV for waste gate valve) from vacuum pipe
(4) Air hose (from VSV for exhaust gas control valve) from vacuum pipe
(5) Vacuum hose (from air bypass valve) from No.1 air tube
(6) 2 air hoses (from VSV for exhaust bypass valve) from vacuum pipe
(7) Air hose (from No.2 air tube) from vacuum pipe
(8) Air hose from VSV for intake air control valve
(9) 2 air hoses (from pressure tank) from vacuum pipe
(d) Remove the 3 bolts, and disconnect the vacuum pipe from the air tubes.

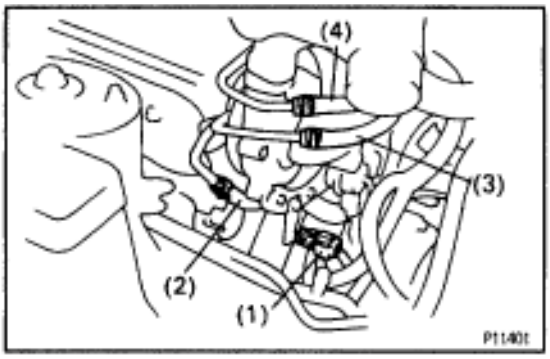


17. REMOVE VSV ASSEMBLY

(a) Disconnect these hoses:
  (1) Air hose from actuator for waste gate valve
  (2) Air hose from actuator for exhaust gas control valve
  (3) Air hose from hose clamp
  (4) Engine wire from wire clamp

(b) Remove the 2 bolts.

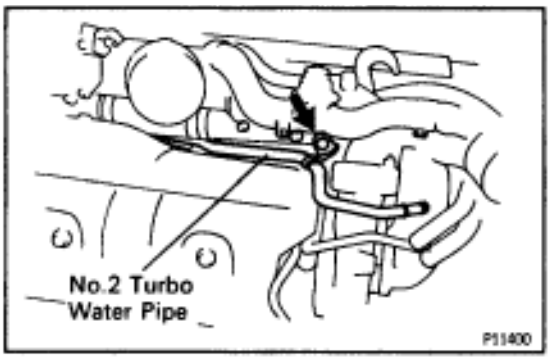
(c) Disconnect the 2 VSV connectors, and remove the VSV assembly.



18. REMOVE AIR TUBES AND INTAKE AIR CONNECTOR

(a) Disconnect the connector and hoses:
  (1) Crankshaft position sensor connector from clamp
  (2) Water bypass hose (from water pump) from No.1 turbo water pipe
  (3) Water bypass hose (from water outlet) from No.1 turbo water pipe
  (4) Water bypass hose (from water outlet) from No.2 turbo water pipe

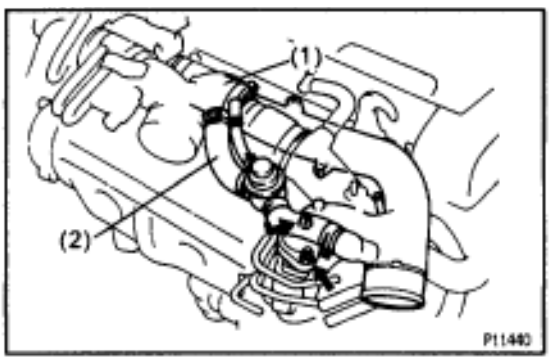
(b) Remove the bolt, and disconnect the No.2 turbo water pipe from the No.4 air tube.

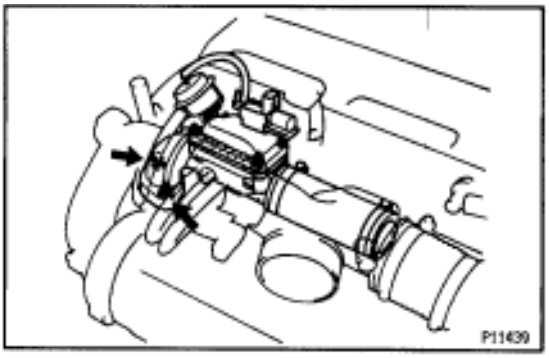


(c) Remove the 2 bolts, and disconnect the No.1 air tube from the No.1 turbocharger. Remove the gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

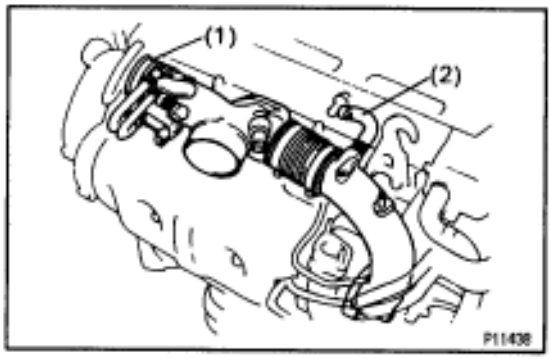
(d) Remove the 2 bolts holding the No.4 air tube to the No.1 turbocharger. Remove the gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

(e) Disconnect these hoses, and remove the No.4 air tube and air bypass valve assembly.
  (1) Air hose from No.4 air tube
  (2) Air hose from intake air connector

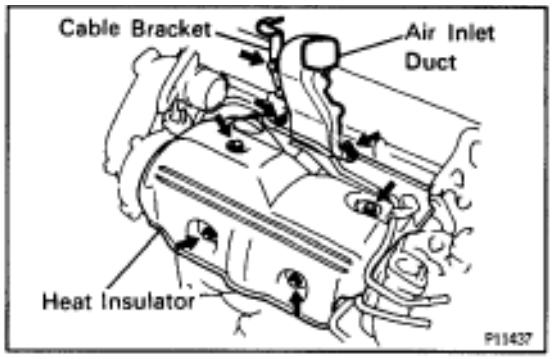




(f) Remove the 2 nuts, intake air control valve and gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

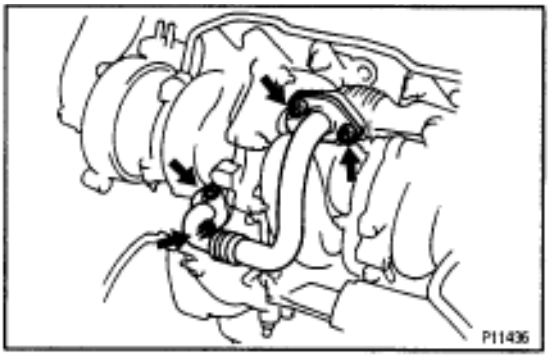


(g) Disconnect these hoses, and remove the intake air connector and No.1 air tube assembly.
(1) Air hose from No.2 air tube
(2) PCV hose from No.2 cylinder head cover



19. REMOVE AIR INLET DUCT
Remove the bolt, 2 nuts, cable bracket and air inlet duct.

20. REMOVE HEAT INSULATOR FOR TURBOCHARGER
Remove the 4 bolts and heat insulator.



21. REMOVE EXHAUST BYPASS PIPE
Remove the 4 nuts, bypass pipe and 2 gaskets.
INSTALLATION HINT: Use 2 new gaskets and 4 new nuts.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

22. REMOVE EXHAUST GAS CONTROL VALVE STAY
Remove the bolt, nut and valve stay.
Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

23. REMOVE MAIN HEATED OXYGEN SENSOR

(a) Disconnect the oxygen sensor connector.

(b) Remove the 2 nuts, oxygen sensor and gasket.

INSTALLATION HINT: Use a new gasket and 2 new nuts.

Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

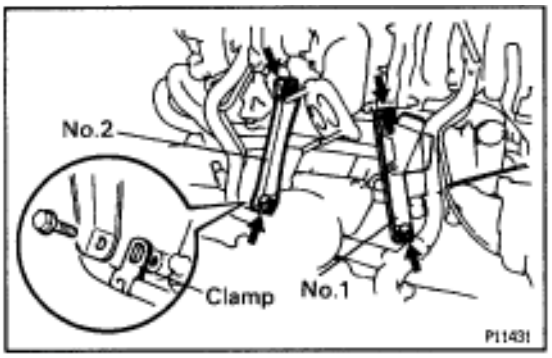
24. REMOVE EXHAUST GAS CONTROL VALVE

Remove the 3 nuts, control valve and 2 gaskets.

NOTICE: The control valve is ceramic. Do not drop or knock the control valve.

INSTALLATION HINT: Use 2 new gaskets and 3 new nuts.

Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)



25. REMOVE NO.1 TURBOCHARGER STAY

Remove the bolt, nut and turbocharger stay.

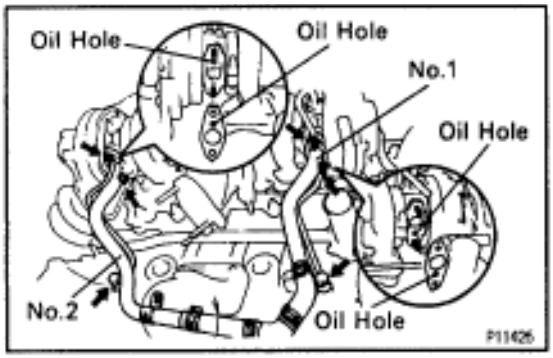
Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

26. REMOVE NO.2 TURBOCHARGER STAY

Remove the bolt, nut and turbocharger stay.

INSTALLATION HINT: Install the turbocharger stay and No.1 turbo oil pipe clamp with the bolt and nut.

Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)



27. REMOVE NO.1 TURBO OIL PIPE

(a) Remove the union bolt holding the turbo oil pipe to the cylinder block. Remove the 2 gaskets.

INSTALLATION HINT: Use 2 new gaskets.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

(b) Remove the 2 nuts, and disconnect the turbo oil pipe from turbocharger. Remove the gasket.

INSTALLATION HINT:

- Use a new gasket.
- Align the oil holes of the gasket and turbocharger housing.

Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

(c) Disconnect the turbo oil hose from the turbo oil outlet on the No.1 oil pan, and remove the turbo oil pipe.

28. REMOVE NO.2 TURBO OIL PIPE

(a) Remove the union bolt holding the turbo oil pipe to the cylinder block. Remove the 2 gaskets.

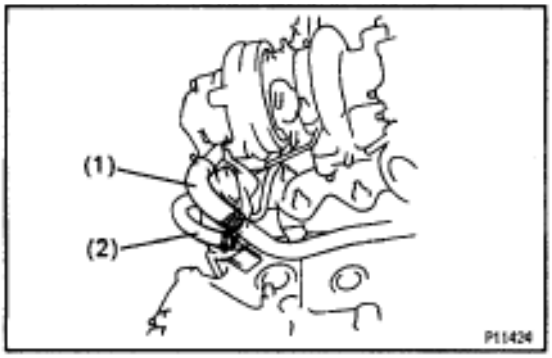
INSTALLATION HINT: Use 2 new gaskets.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

(b) Remove the 2 nuts, and disconnect the turbo oil pipe from turbocharger. Remove the gasket.
INSTALLATION HINT:
- Use a new gasket.
- Align the oil holes of the gasket and turbocharger housing.

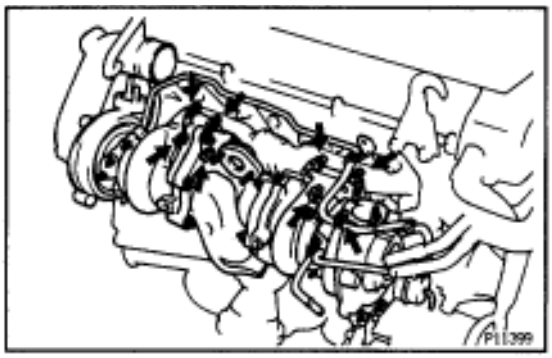
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

(c) Disconnect the turbo oil hose from the turbo oil outlet on the No.1 oil pan, and remove the turbo oil pipe.



29. REMOVE TURBOCHARGERS AND TURBINE OUTLET ELBOW ASSEMBLY

(a) Disconnect these hoses:
(1) Heater hose (from No.3 water bypass pipe) from No.2 water bypass pipe
(2) Water bypass hose (from No.2 turbo water pipe) from No.2 water bypass pipe

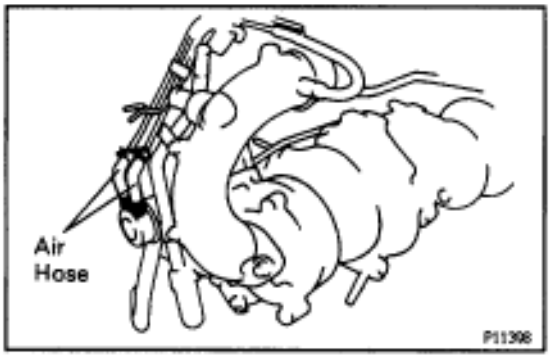


(b) Remove the 8 nuts holding the turbochargers to the exhaust manifold.
INSTALLATION HINT:
- Use 8 new nuts.
- Uniformly tighten the nuts in several passes.

Torque: 54 N·m (550 kgf·cm, 40 ft·lbf)

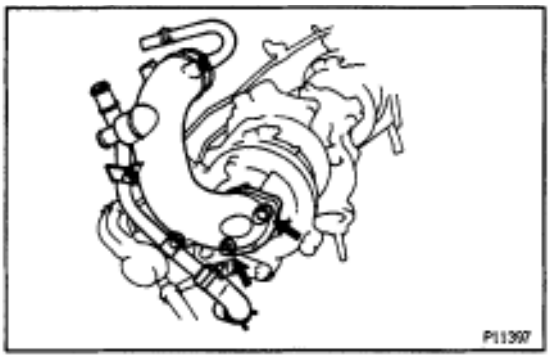
(c) Remove the 2 turbochargers and turbine outlet elbow assembly.

(d) Remove the 2 gaskets.
INSTALLATION HINT: Use 2 new gaskets.



30. REMOVE NO.1 VACUUM PIPE FROM NO.2 TURBOCHARGER

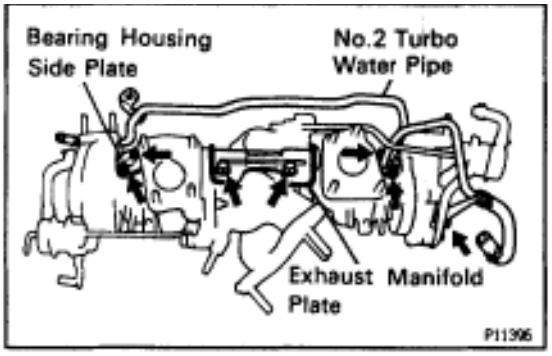
Disconnect the 2 air hoses from the actuator for the exhaust bypass valve, and remove the vacuum pipe.



31. REMOVE NO.2 AIR TUBE AND NO.3 WATER BYPASS PIPE ASSEMBLY FROM NO.2 TURBOCHARGER

Remove the 2 bolts, the air tube, bypass pipe assembly and gasket.
INSTALLATION HINT: Use a new gasket.

Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)



32. REMOVE EXHAUST MANIFOLD PLATE FROM TURBINE OUTLET ELBOW

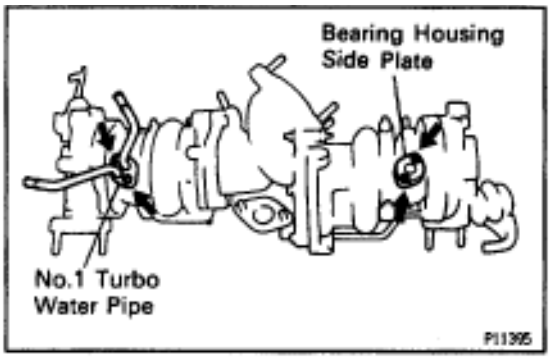
Remove the 2 bolts and manifold plate.

33. REMOVE NO.2 TURBO WATER PIPE FROM NO.2 TURBOCHARGER

Remove the 2 nuts, water pipe and gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 8.8 N·m (90 kgf·cm, 78 in.·lbf)

34. REMOVE BEARING HOUSING SIDE PLATE FROM NO.1 TURBOCHARGER

Remove the 2 nuts, housing plate and gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 8.8 N·m (90 kgf·cm, 78 in.·lbf)

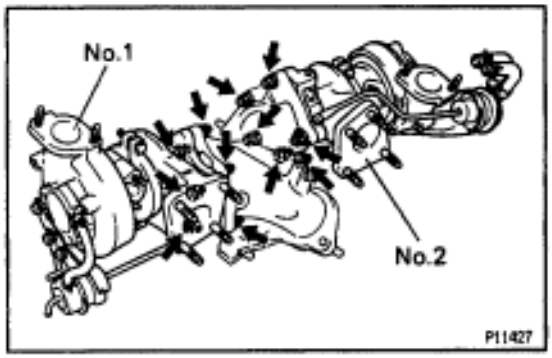


35. REMOVE NO.1 TURBO WATER PIPE FROM NO.1 TURBOCHARGER

Remove the 2 nuts, water pipe and gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 8.8 N·m (90 kgf·cm, 78 in.·lbf)

36. REMOVE BEARING HOUSING SIDE PLATE FROM NO.2 TURBOCHARGER

Remove the 2 nuts, housing plate and gasket.
INSTALLATION HINT: Use a new gasket.
Torque: 8.8 N·m (90 kgf·cm, 78 in.·lbf)



37. REMOVE NO.1 TURBOCHARGER FROM TURBINE OUTLET ELBOW

Remove the 6 nuts, turbocharger and gasket.
INSTALLATION HINT:

- Use a new gasket and 6 new nuts.
- Uniformly tighten the nuts in several passes.

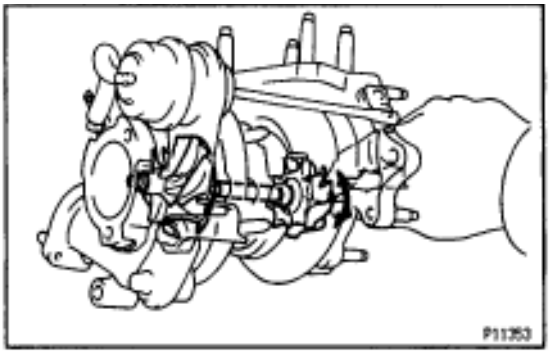
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

38. REMOVE NO.2 TURBOCHARGER FROM TURBINE OUTLET ELBOW

Remove the 6 nuts, turbocharger and gasket.
INSTALLATION HINT:

- Use a new gasket and 6 new nuts.
- Uniformly tighten the nuts in several passes.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



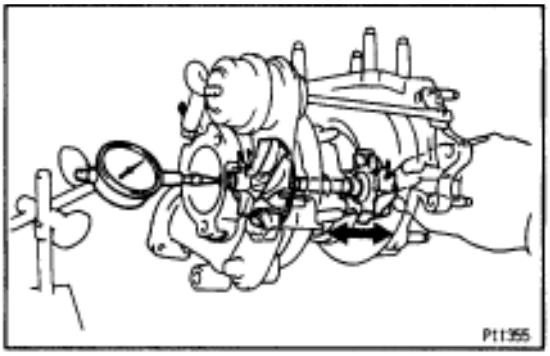
TURBOCHARGER COMPONENTS INSPECTION

Turbochargers

1. INSPECT TURBINE SHAFT ROTATION

Grasp the edge of the turbine wheel and turn it. Check that the impeller wheel turns smoothly.

If the impeller wheel does not turn or if it turns with a drag, replace the turbocharger assembly.



2. INSPECT AXIAL PLAY OF TURBINE SHAFT

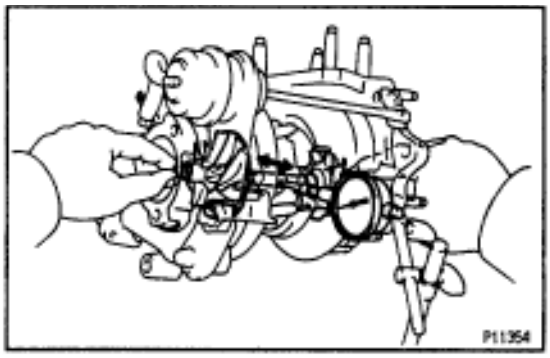
(a) Using a dial indicator, insert the needle of the dial indicator into the air tube side.

(b) Move the turbine shaft in an axial direction, measure the axial play of the turbine shaft.

Maximum axial play:

0.110 mm (0.0045 in.)

If the axial play is greater than maximum, replace the turbocharger assembly.



3. INSPECT RADIAL PLAY OF TURBINE SHAFT

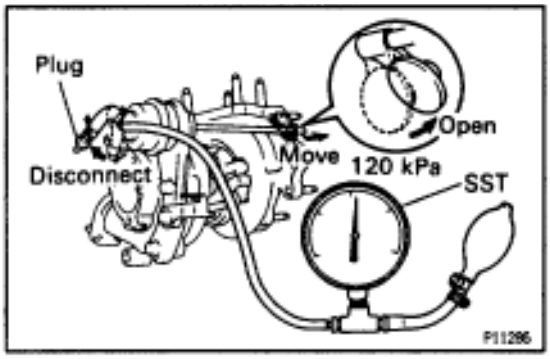
(a) Using a dial indicator, insert the needle of the dial indicator into the oil outlet hole and set it in the center of the turbine shaft.

(b) Move the turbine shaft in a radial direction, measure the radial play of the turbine shaft.

Maximum radial play:

0.162 mm (0.0064 in.)

If the axial play is greater than maximum, replace the turbocharger assembly.



4. INSPECT WASTE GATE VALVE OPERATION

(a) Disconnect the actuator air hose from the housing, and plug the hose end.

(b) Using SST, apply approx. 120 kPa (1.22 kgf/cm^2, 17.4 psi) of pressure to the actuator.

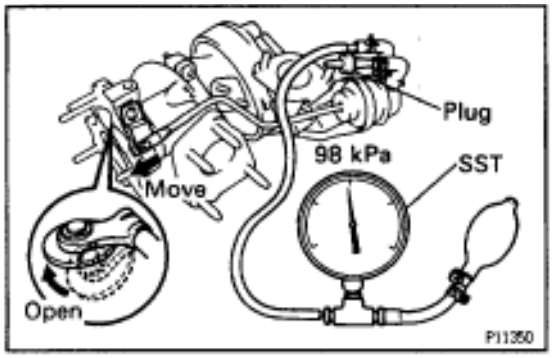
SST 09992–00241

(c) Move the actuator push rod, and check that the waste gate valve is open.

If operation is not as specified, replace the No.1 turbocharger assembly.

NOTICE: Never apply more than 187 kPa (1.91 kgf/cm^2, 27.2 psi) of pressure to the actuator.

(d) Reconnect the actuator air hose to the housing.



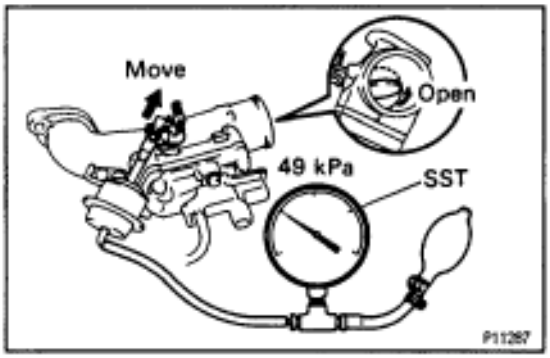
5. INSPECT EXHAUST BYPASS VALVE OPERATION

(a) Plug one side of the actuator air hose end.

(b) Using SST, apply approx. 98 kPa (1.00 kgf/cm^2, 14.2 psi) of pressure to the actuator.
SST 09992–00241

(c) Move the actuator push rod, and check that the exhaust bypass valve is open.
If operation is not as specified, replace the No.2 turbocharger assembly.
NOTICE: Never apply more than 187 kPa (1.91 kgf/cm^2, 27.2 psi) of pressure to the actuator.

(d) Remove the plug from the actuator air hose end.

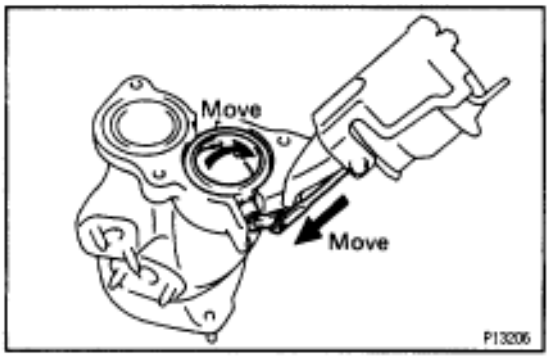


Intake Air Control Valve

INSPECT CONTROL VALVE OPERATION

(a) Using SST, apply approx. 49 kPa (0.50 kgf/cm^2, 7.1 psi) of pressure to the actuator.
SST 09992–00241

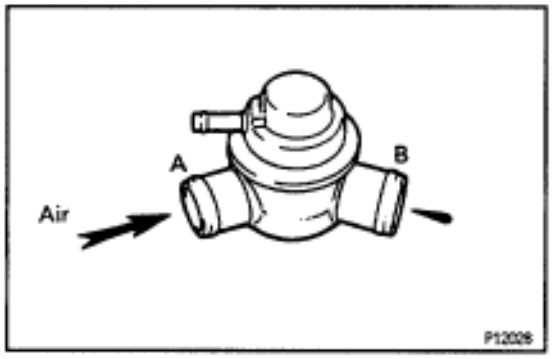
(b) Move the actuator push rod, and check that the control valve is open.
If operation is not as specified, replace the control valve assembly.



Exhaust Gas Control Valve

INSPECT CONTROL VALVE FOR DAMAGE

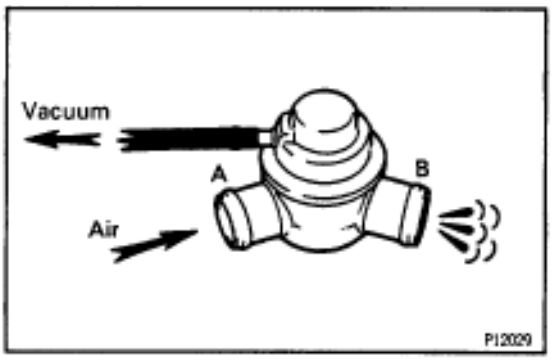
Move the actuator push rod and control valve, and check the control valve for damage.
If the valve is damaged, replace the control valve assembly.



Air Bypass Valve

INSPECT AIR BYPASS VALVE OPERATION

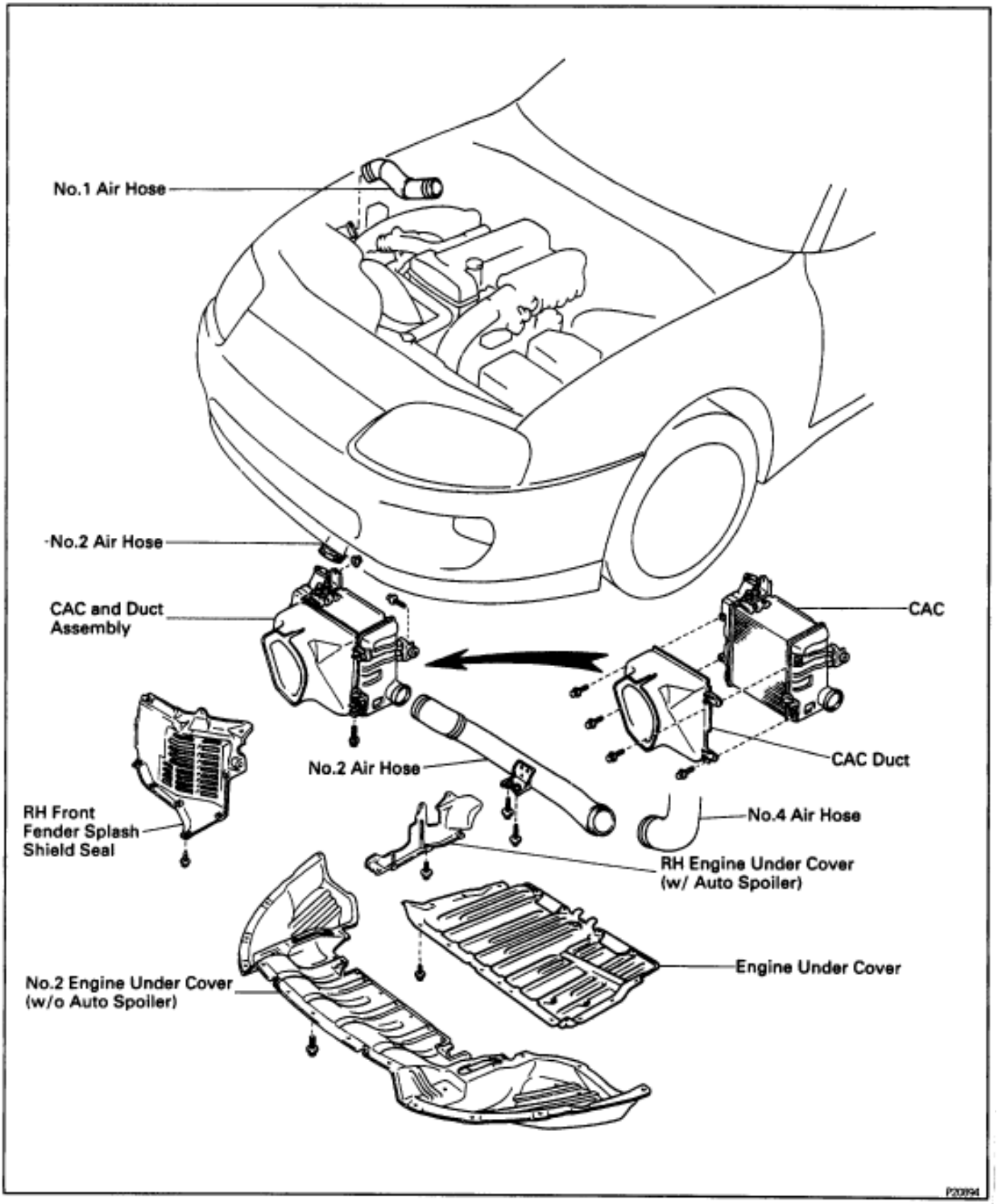
(a) Check that air does not flow from port A to B.



(b) Apply vacuum to the actuator.

(c) Check that air flows from port A to B.
If operation is not as specified, replace the valve.

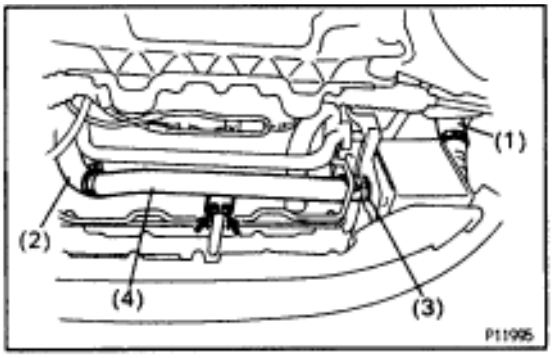
CHARGE AIR COOLER (CAC) COMPONENTS FOR REMOVAL AND INSTALLATION



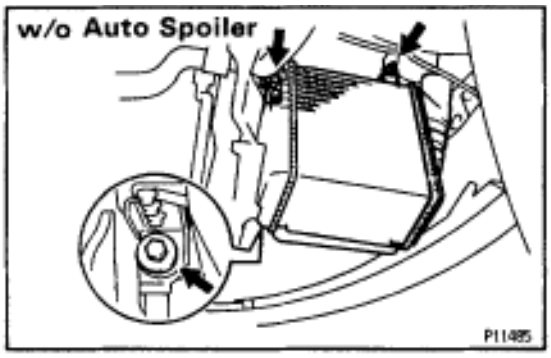
CAC REMOVAL

Installation is in the reverse order of removal.

1. **REMOVE NO.1 AIR HOSE**
2. **REMOVE ENGINE UNDER COVER**
3. **w/o Auto Spoiler:**
   REMOVE NO.2 ENGINE UNDER COVER
4. **REMOVE RH FRONT FENDER SPLASH SHIELD SEAL**
5. **w/ Auto Spoiler:**
   REMOVE RH ENGINE UNDER COVER
6. **DISCONNECT AIR HOSE FROM CAC**



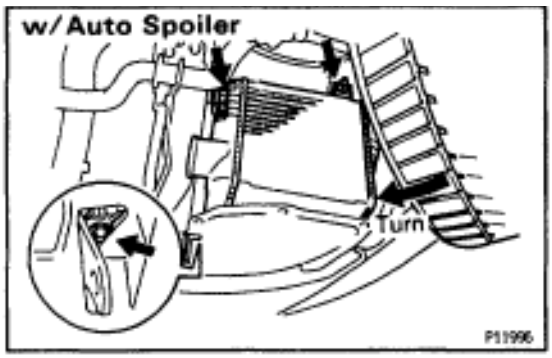
(a) Remove the 2 bolts holding the No.2 air tube (3) to the body.
(b) Disconnect these hoses:
   (1) No.2 air hose from CAC
   (2) No.4 air hose from No.2 air tube
   (3) No.3 air hose from CAC
(c) Remove the No.2 air tube (4).



7. **REMOVE CAC AND CAC DUCT ASSEMBLY**

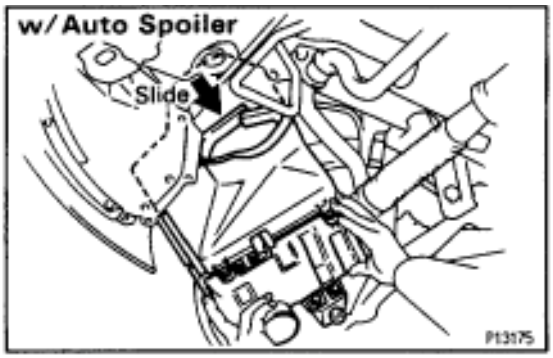
w/o Auto Spoiler:

Remove the nut, 2 bolts and CAC.
Torque: 13 N·m (135 kgf·cm, 10 ft·lbf)



w/ Auto Spoiler:

(a) Fully turn the tire in the illustration direction.
(b) Remove the nut, 2 bolts and CAC.
Torque: 13 N·m (135 kgf·cm, 10 ft·lbf)



HINT: Remove the CAC between the suspension and body at the illustrated angle of the CAC.

8. **REMOVE CAC DUCT FROM CAC**

Remove the 4 bolts and CAC duct.
Torque: 4.9 N·m (50 kgf·cm, 43 in.·lbf)

SERVICE SPECIFICATIONS
SERVICE DATA

Turbocharger	Turbocharging pressure		61–75 kPa (0.62–0.76 kgf/cm^2, 8.8–10.8 psi)
	Impeller wheel axial play	Limit	0.162 mm (0.0064 in.)
	Impeller wheel radial play	Limit	0.110 mm (0.0045 in.)

TORQUE SPECIFICATIONS

Part tightened		N·m	kgf·cm	ft·lbf
Turbocharger x Turbine outlet elbow		25	250	18
Turbo water pipe x Turbocharger		8.8	90	78 in.·lbf
Side bearing housing plate x Turbocharger		8.8	90	78 in.·lbf
No.2 air tube x No.2 turbocharger		21	210	15
Turbocharger x Exhaust manifold		54	550	40
Turbo oil pipe x Turbocharger		21	210	15
Turbo oil pipe x Cylinder block		39	400	29
Turbocharger stay x Turbocharger		43	440	32
Turbocharger stay x Cylinder block		43	440	32
Exhaust gas control valve x Turbine outlet elbow		69	700	51
Main heated oxygen sensor x Exhaust gas control valve		20	200	14
Exhaust gas control valve stay x Exhaust gas control valve		43	440	32
Exhaust gas control valve stay x Cylinder block		43	440	32
Exhaust bypass pipe x Turbine outlet elbow		25	250	18
Exhaust bypass pipe x Exhaust gas control valve		25	250	18
Intake air control valve x No.2 turbocharger		21	210	15
No.4 air tube x No.1 turbocharger		21	210	15
No.1 air tube x No.1 turbocharger		21	210	15
No.2 front exhaust pipe x Exhaust gas control valve		62	630	46
Front exhaust pipe x No.2 front exhaust pipe		58	590	43
Pipe support bracket x Transmission		43	440	32
Upper front crossmember extension x Front suspension	Bolt	29	300	22
	Nut	33	340	25
Front lower arm bracket stay x Front suspension	Bolt	44	450	33
	Nut	59	600	43
CAC duct x CAC		4.9	50	43 in.·lbf
CAC x Body		13	135	10