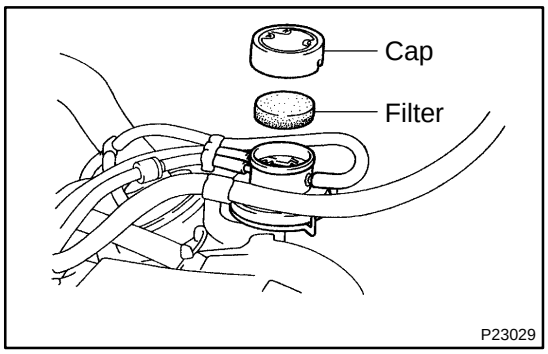


EXHAUST GAS RECIRCULATION (EGR) SYSTEM

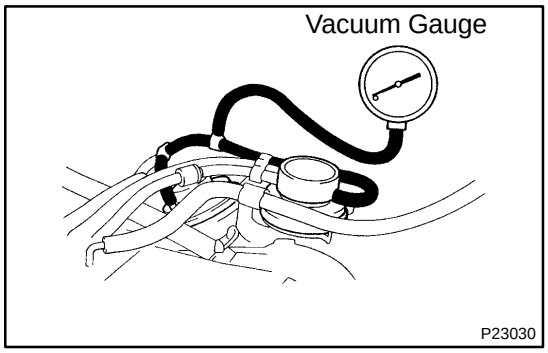
EC012–07

INSPECTION

1. INSPECT AND CLEAN FILTER IN EGR VACUUM MODULATOR

(a) Remove the cap and filter.
(b) Check the filter for contamination or damage.
(c) Using compressed air, clean the filter.
(d) Install the filter and cap.

HINT:
Install the filter with the coarser surface facing the atmospheric side (outward).

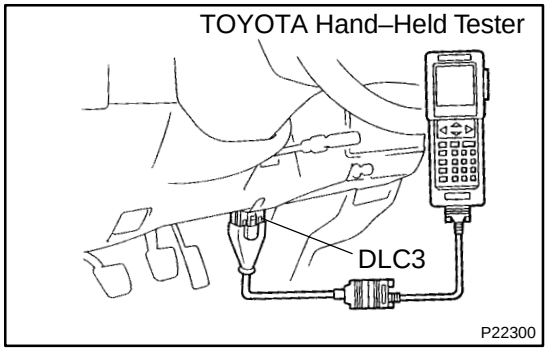


2. INSTALL VACUUM GAUGE

Using a 3–way connector, connect a vacuum gauge to the hose between the EGR valve and EGR vacuum modulator.

3. INSPECT SEATING OF EGR VALVE

Start the engine and check that the engine starts and runs at idle.



4. CONNECT TOYOTA HAND–HELD TESTER OR OBDII SCAN TOOL

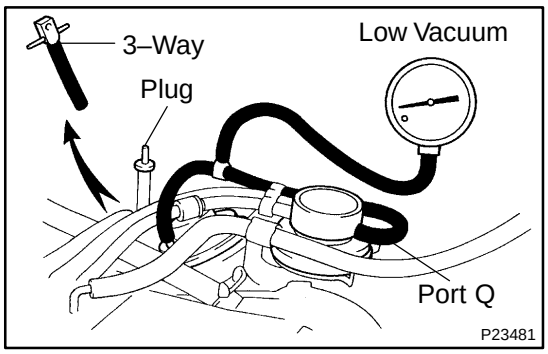
(a) Connect the TOYOTA hand–held tester or OBDII scan tool to the DLC3.
(b) Please refer to the TOYOTA hand–held tester or OBDII scan tool operators manual for further details.

5. INSPECT VSV OPERATION WITH COLD ENGINE

(a) The engine coolant temperature should be below 50˚C (122˚F).
(b) Check that the vacuum gauge indicates zero at 3,500 rpm.
(c) Check that the EGR pipe is not hot.

6. INSPECT OPERATION OF VSV AND EGR VACUUM MODULATOR

(a) Select the active test mode on the TOYOTA hand–held tester (VSV is closed.).

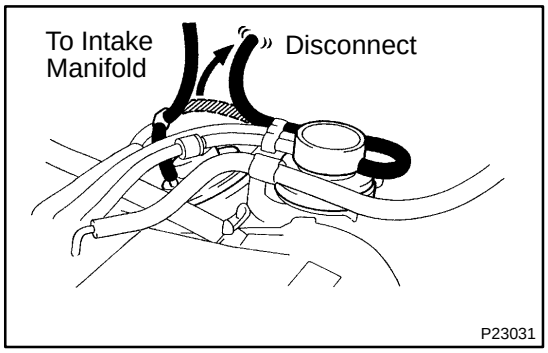


(b) If you have no TOYOTA hand–held tester, check these procedures:
  (1) Remove the 3–way connector with the vacuum hose.
  (2) Connect the vacuum hose (from port Q of EGR vacuum modulator) to the EGR valve.
  (3) Plug the vacuum hose (from VSV for EGR).
(c) Check that the vacuum gauge indicates low vacuum at 3,500 rpm.

7. DISCONNECT TOYOTA HAND–HELD TESTER OR OBDII SCAN TOOL

8. REMOVE VACUUM GAUGE

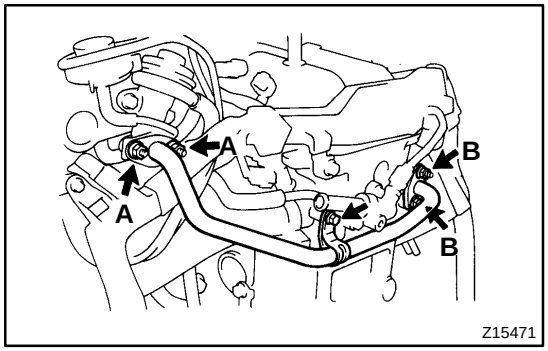
Remove the vacuum gauge, and reconnect the vacuum hoses to the proper locations.



9. INSPECT EGR VALVE

(a) Apply vacuum directly to the EGR valve with the engine idling.
(b) Check that the engine runs rough or dies.
(c) Reconnect the vacuum hoses to the proper locations.

If no problem is found with this inspection, system is normal; otherwise inspect each part.



10. REMOVE EGR PIPE

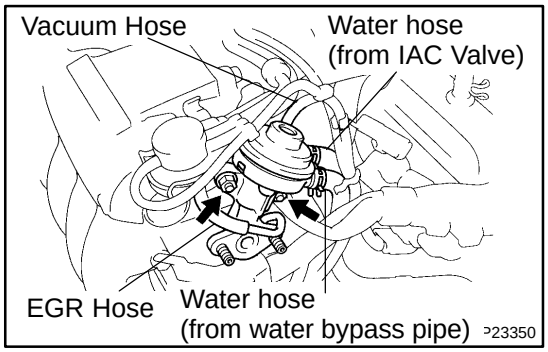
Remove the bolt, 4 nuts, EGR pipe and 2 gaskets.

HINT:

At the time of installation, please refer to the following items.

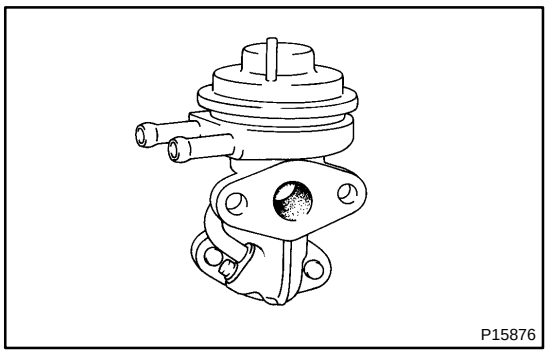
Install 2 new gaskets.

Torque:
18 N·m (185 kgf·cm, 13 ft·lbf) for bolt
19 N·m (195 kgf·cm, 14 ft·lbf) for nut A
20 N·m (200 kgf·cm, 15 ft·lbf) for nut B



11. REMOVE EGR VALVE

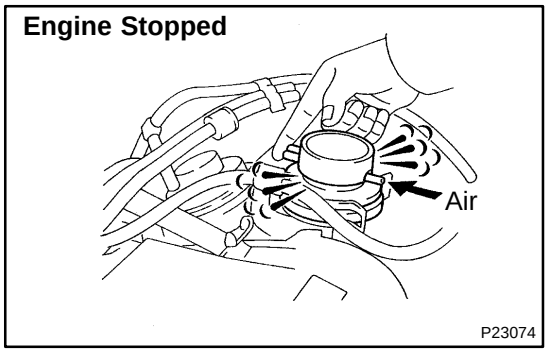
(a) Disconnect the vacuum hose and EGR hose.
(b) Disconnect the 2 water hoses.
  • Water hose (from IAC valve)
  • Water hose (from water bypass pipe)
(c) Remove the 2 nuts, EGR valve and gasket.
  Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)



12. INSPECT EGR VALVE

Check for sticking and heavy carbon deposits.

If a problem is found, replace the EGR valve.

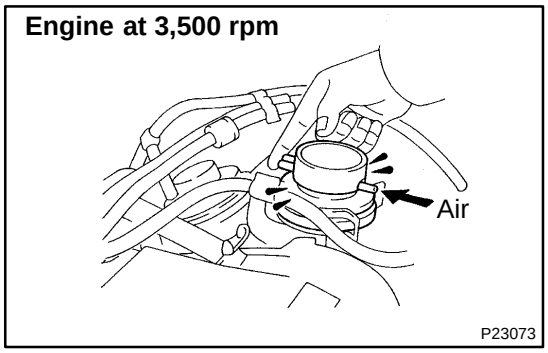


13. DISCONNECT VACUUM HOSES FROM EGR VACUUM MODULATOR

14. INSPECT EGR VACUUM MODULATOR OPERATION

(a) Block ports P and R with your finger.

(b) Blow air into port Q, and check that the air passes through to the air filter side freely.

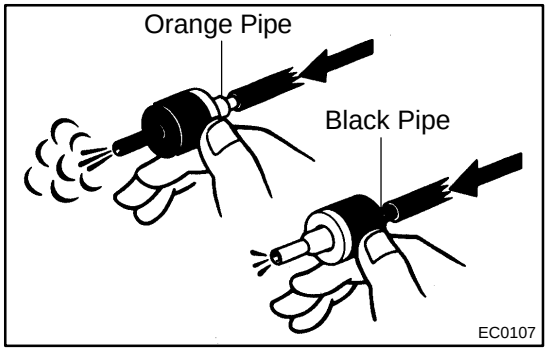


(c) Start the engine, and maintain speed at 3,500 rpm.

(d) Repeat the above test. Check that there is a strong resistance to air flow.

If operation is not as specified, replace the EGR vacuum modulator.

15. RECONNECT VACUUM HOSES TO EGR VACUUM MODULATOR



16. REMOVE CHECK VALVE

17. INSPECT CHECK VALVE

(a) Check that air flows from the orange pipe to the black pipe.

(b) Check that air does not flow from the black pipe to the orange pipe.

If operation is not as specified, replace the check valve.

18. INSTALL CHECK VALVE

HINT:

Install the check valve with the orange pipe facing the EGR vacuum modulator side.