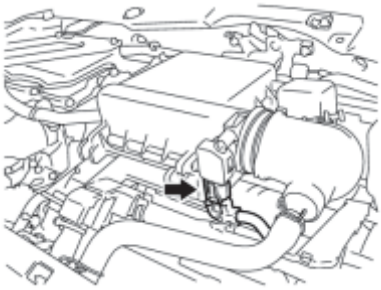
REMOVAL

1. REMOVE NO. 1 ENGINE UNDER COVER

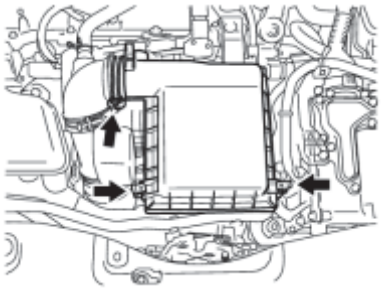
2. DRAIN ENGINE COOLANT (for Engine) INFO

3. REMOVE NO. 2 CYLINDER HEAD COVER INFO

4. REMOVE AIR CLEANER CAP SUB-ASSEMBLY



(a) Disconnect the mass air flow meter connector.

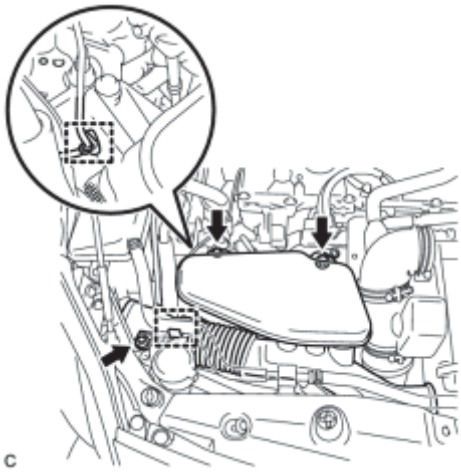


(b) Release the 2 clamps.

(c) Loosen the hose clamp and remove the air cleaner cap.

5. REMOVE INLET AIR CLEANER ASSEMBLY

(a) Separate the hose from the hose clamp.

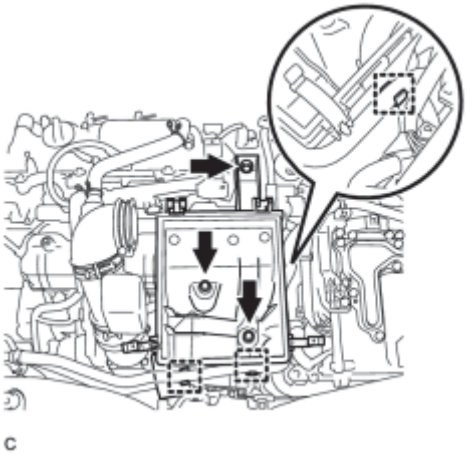


(b) Separate the wire harness clamp from the inlet air cleaner assembly.

(c) Remove the 3 bolts and inlet air cleaner assembly.

6. REMOVE AIR CLEANER CASE

(a) Remove the air cleaner filter element.



(b) Separate the hose from the 3 hose clamps.

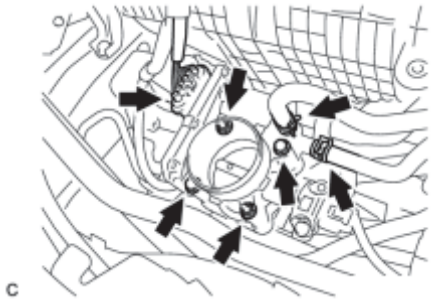
(c) Remove the 3 bolts and air cleaner case.

7. REMOVE AIR CLEANER HOSE ASSEMBLY

(a) Loosen the hose clamp and separate the ventilation hose.

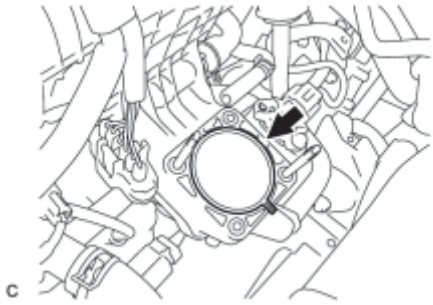
(b) Unlock the hose clamp and remove the air cleaner hose assembly.

8. REMOVE THROTTLE BODY ASSEMBLY



(a) Disconnect the throttle body connector and the 2 water by-pass hoses.

(b) Remove the 2 bolts, 2 nuts and throttle body assembly.



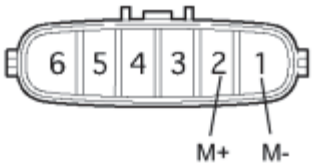
(c) Remove the gasket from the intake manifold.

INSPECTION

1. INSPECT THROTTLE BODY ASSEMBLY

(a) Measure the resistance according to the value(s) in the table below.

*1



Text in Illustration

*1	Component without harness connected (Throttle Body)

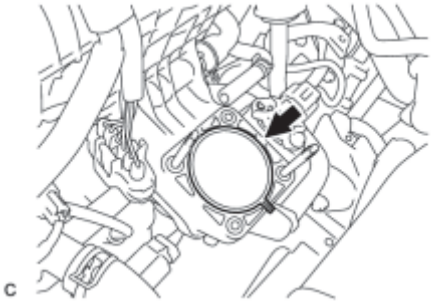
Standard Resistance:

Tester Connection	Condition	Specified Condition
1 (M-) - 2 (M+)	20°C (68°F)	0.3 to 100 Ω

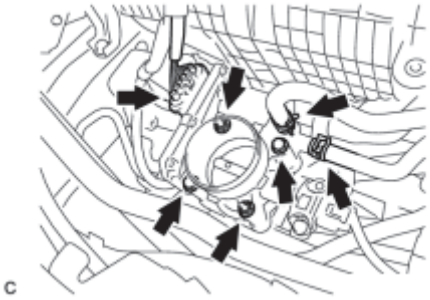
If the result is not as specified, replace the throttle body assembly.

INSTALLATION

1. INSTALL THROTTLE BODY ASSEMBLY



(a) Install a new gasket onto the intake manifold.



(b) Install the throttle body assembly with the 2 bolts and 2 nuts.

Torque: **10 N·m (102 kgf·cm, 7ft·lbf)**

(c) Connect the 2 water by-pass hoses and throttle body connector.

2. INSTALL AIR CLEANER HOSE ASSEMBLY

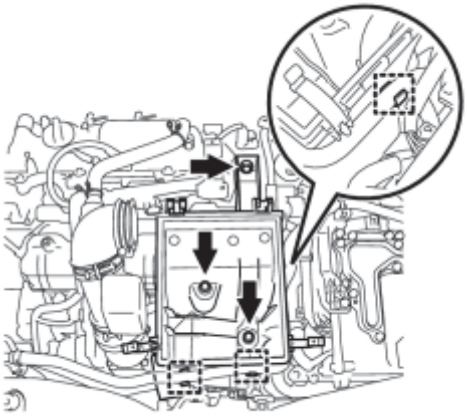
(a) Install the air cleaner hose assembly and lock the hose clamp.

(b) Connect the ventilation hose.

3. INSTALL AIR CLEANER CASE

(a) Install the air cleaner case with the 3 bolts.

Torque: **7.0 N·m (71 kgf·cm, 62in·lbf)**

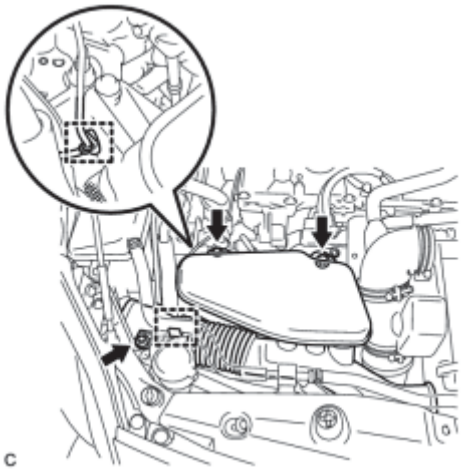


C

(b) Install the hose to the 3 hose clamps.

(c) Install the air cleaner filter element.

4. INSTALL INLET AIR CLEANER ASSEMBLY



C

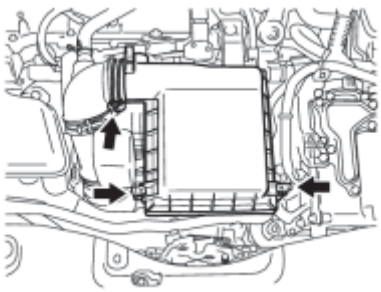
(a) Install the inlet air cleaner assembly with the 3 bolts.

Torque: **7.0 N·m (71 kgf·cm, 62in·lbf)**

(b) Connect the wire harness clamp to the inlet air cleaner assembly.

(c) Install the hose to the hose clamp.

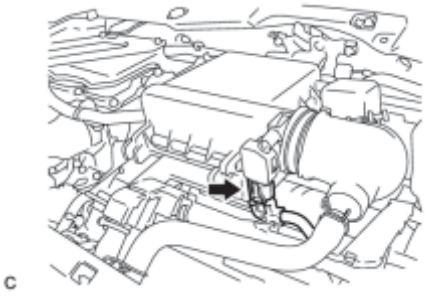
5. INSTALL AIR CLEANER CAP SUB-ASSEMBLY



C

(a) Install the air cleaner cap sub-assembly with the 2 clamps.

(b) Tighten the hose clamp.



(c) Connect the mass air flow meter connector.

6. ADD ENGINE COOLANT (for Engine) INFO

7. INSPECT FOR COOLANT LEAK (for Engine) INFO

8. INSTALL NO. 2 CYLINDER HEAD COVER INFO

9. INSTALL NO. 1 ENGINE UNDER COVER

10. PERFORM INITIALIZATION

NOTICE:

Be sure to perform this procedure after reassembling the throttle body assembly, removing and reinstalling any throttle body component or replacing the ECM.

(a) Disconnect the cable from the negative (-) battery terminal. Wait at least 60 seconds and reconnect the cable.

(b) Connect the Techstream to the DLC3 and clear the DTCs INFO.

(c) Set the vehicle to the inspection mode INFO.

(d) Start the engine without operating the accelerator pedal and check that the MIL is not illuminated and that the idle speed is within the specified range when the air conditioning is switched off after the engine is warmed up.

Standard:

Condition	Engine Idle Speed
A/C switched off	950 to 1050 rpm

NOTICE:

- If the accelerator pedal is operated, perform the above steps again.
- Be sure to perform this step with all accessories off.
- Make sure that park (P) is selected.

(e) Perform a road test and confirm that there are no abnormalities.

DTC CHECK / CLEAR

NOTICE:

When the diagnosis system is changed from normal mode to check mode or vice versa, all DTCs and freeze frame data recorded in normal mode are cleared. Before changing modes, always check and make a note of DTCs and freeze frame data.

HINT:

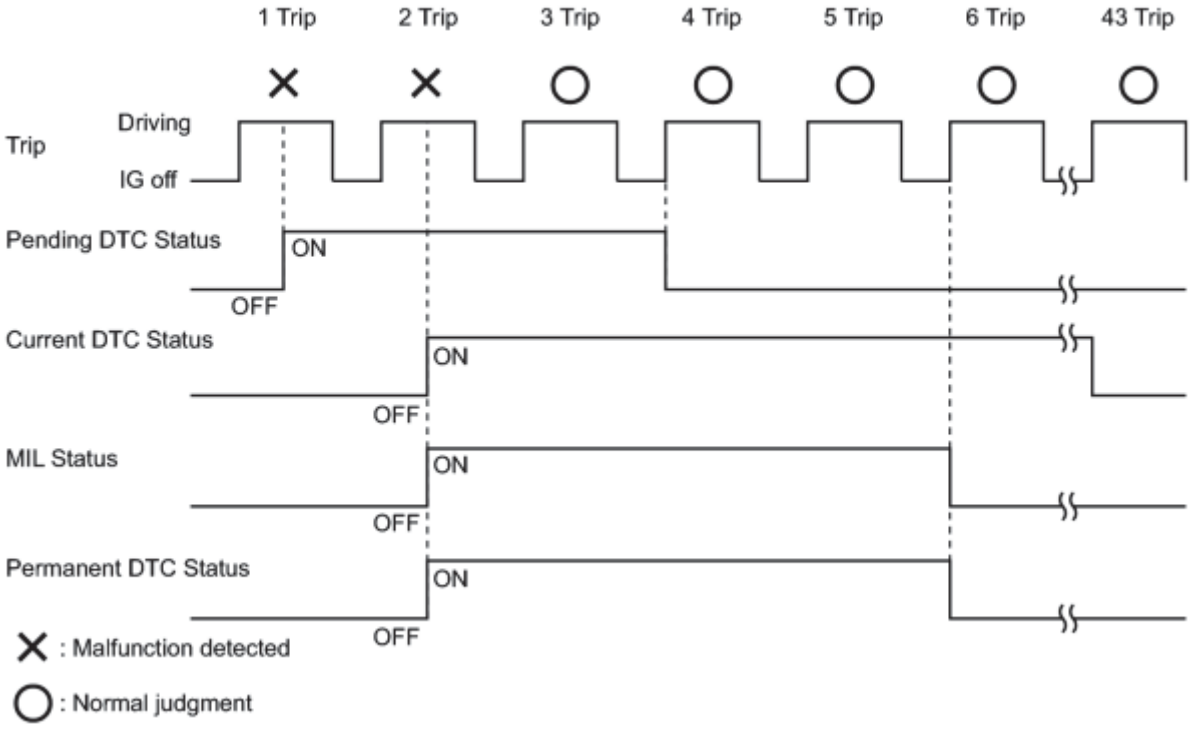
- DTCs which are stored in the ECM can be displayed on the Techstream. The Techstream can display the current, pending and permanent DTCs.
- If a malfunction is detected during the current driving cycle, current and permanent DTCs are stored.
- Some DTCs are not stored if the ECM does not detect the same malfunction again during a second consecutive driving cycle. However, such malfunctions, detected on only one occasion, are stored as pending DTCs.
- Current and pending DTCs can be cleared by using the Techstream or by disconnecting the cable from the negative battery terminal. However, permanent DTCs cannot be cleared using either of these two methods.
- After clearing current DTCs using the Techstream (or by disconnecting the cable from the negative battery terminal), permanent DTCs can be cleared when the system is determined to be normal for the relevant DTCs and then the universal trip is performed. The driving pattern to obtain a normal judgment is described under the "Confirmation Driving Pattern" for the respective DTC.

2 Trip Detection Examples

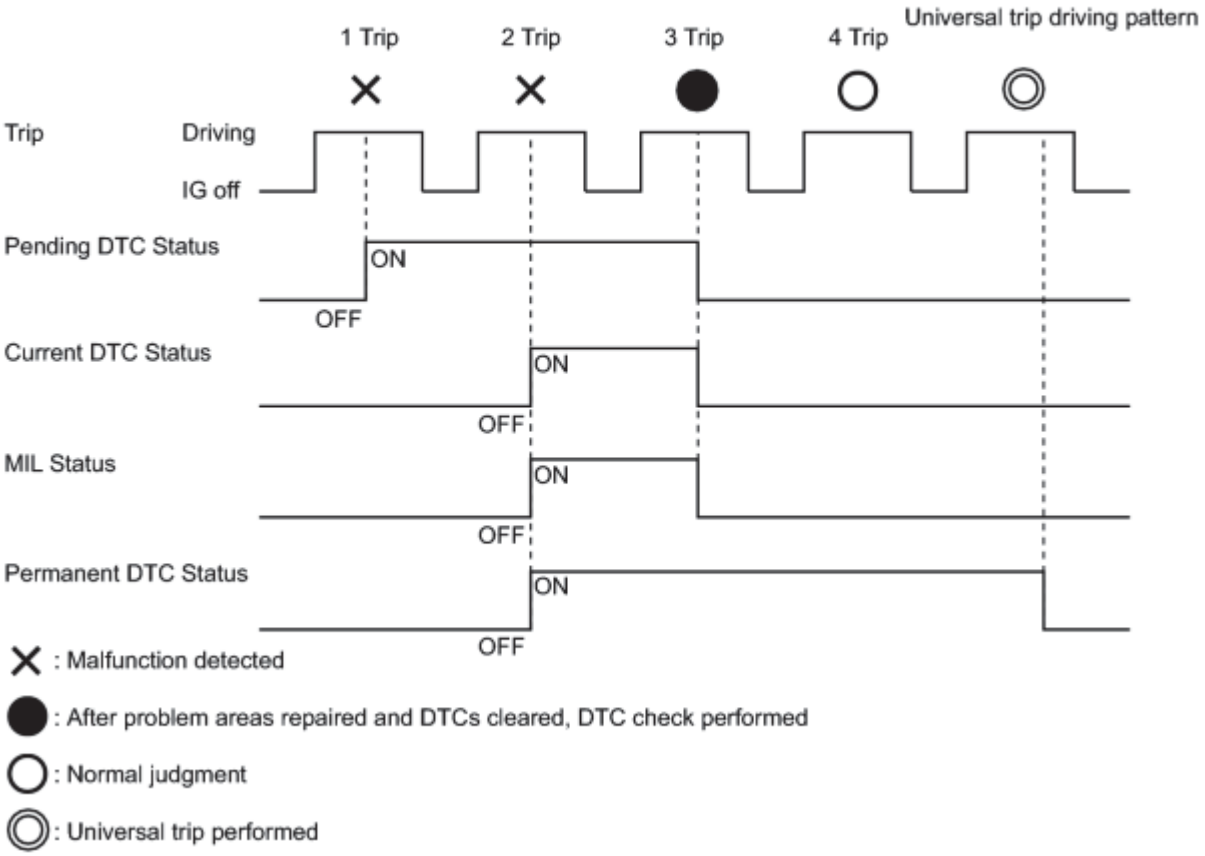
Pending DTC	Store condition	Malfunction detected
	Clear condition	System determined to be normal or DTCs cleared using Techstream or Cable disconnected from negative (-) battery terminal
Current DTC	Store condition	Malfunction detected (2nd trip)
	Clear condition	No malfunctions in 40 driving cycles or DTCs cleared using Techstream or Cable disconnected from negative (-) battery terminal
Permanent	Store	Malfunction detected (2nd trip)

DTC	condition	
	Clear condition	Power switch turned to on (IG) after normal judgment obtained in 3 consecutive driving cycles or After DTCs cleared using Techstream or cable disconnected from negative (-) battery terminal, normal judgment obtained and universal trip performed (not for misfire and fuel system DTCs) or After DTCs cleared using Techstream or cable disconnected from negative (-) battery terminal, malfunction not detected when universal trip driving performed (misfire and fuel system DTCs)
MIL	ON	Malfunction detected (2nd trip)
	OFF	Power switch turned to on (IG) after normal judgment obtained in 3 consecutive driving cycles or DTCs cleared using Techstream or Cable disconnected from negative (-) battery terminal

2 Trip Detection Examples



2 Trip Detection Examples (Instance when DTCs were cleared midway through by using the Techstream or by disconnecting the cable from the negative battery terminal)



HINT:

- Obtaining a normal judgment and performing a universal trip driving pattern can be done in the same driving cycle or in different driving cycles.
- It is unnecessary to obtain a normal judgment if the DTCs are misfire or fuel system DTCs.

1. CHECK DTC

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.

(e) Check the DTC(s) and freeze frame data, and then write them down.

(f) Check the details of the DTC(s) INFO.

2. CLEAR DTC (Pending and Current DTC)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.

(e) Clear the DTCs.

3. CLEAR DTC (Pending and Current DTC without using Techstream)

(a) Perform either of the following operations:

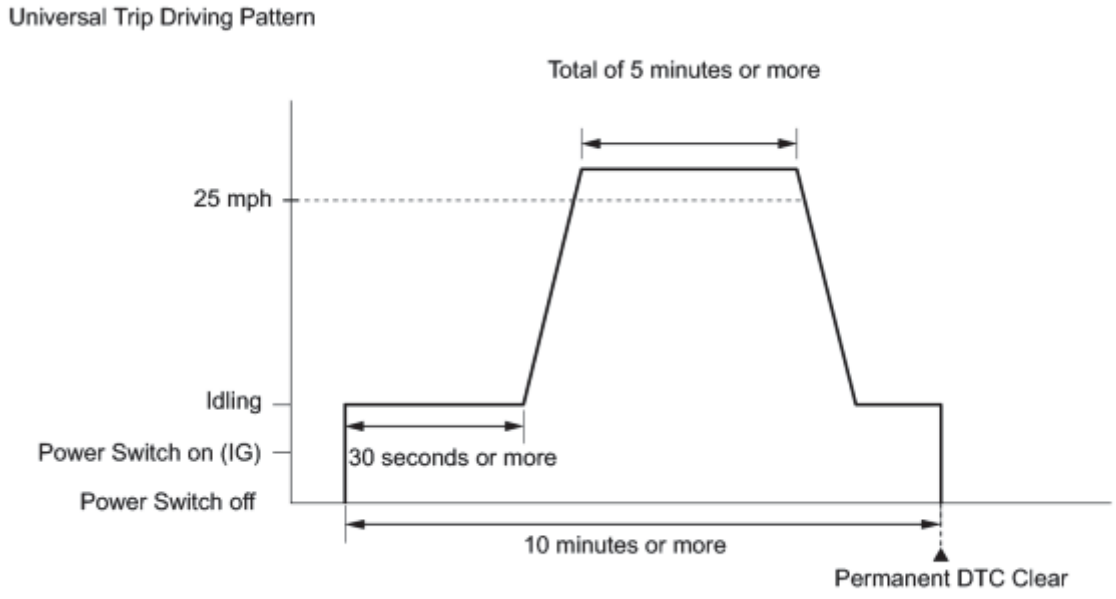
(1) Disconnect the cable from the negative (-) battery terminal for more than 1 minute.

(2) Remove the EFI MAIN and ETCS fuses from the engine room relay block located inside the engine compartment for more than 1 minute.

4. CLEAR PERMANENT DTC

HINT:

Even if the following procedure is not performed, permanent DTCs are cleared by obtaining a normal judgment during 3 consecutive driving cycles.



(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.

(e) Check if permanent DTCs are stored.

HINT:

If permanent DTCs are not output, it is not necessary to continue this procedure.

(f) Clear DTCs.

(g) Perform the respective confirmation driving patterns in order to obtain a normal judgment for the output DTCs.

HINT:

- Confirmation driving patterns do not need to be performed for misfire and fuel system DTCs.
- For the confirmation driving pattern, refer to the procedures for the relevant DTC INFO.

(h) Perform the universal trip.

HINT:

The driving pattern to obtain a normal judgment and the universal trip driving can be performed consecutively in the same driving cycle.

1. Put the engine in inspection mode INFO.
2. Idle the engine for 30 seconds or more.
3. Drive the vehicle at 25 mph (40 km/h) or more for a total of 5 minutes or more.

   HINT:

   It is possible to complete the drive pattern even if the vehicle decelerates to less than 25 mph (40 km/h) during the driving cycle provided that the vehicle is driven at 25 mph (40 km/h) or more for a total of 5 minutes.

4. Allow 10 minutes or more to elapse from the time the engine is started.

(i) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.

(j) Check that the permanent DTCs have been cleared.

HINT:

The permanent DTCs are cleared when the universal trip is completed.