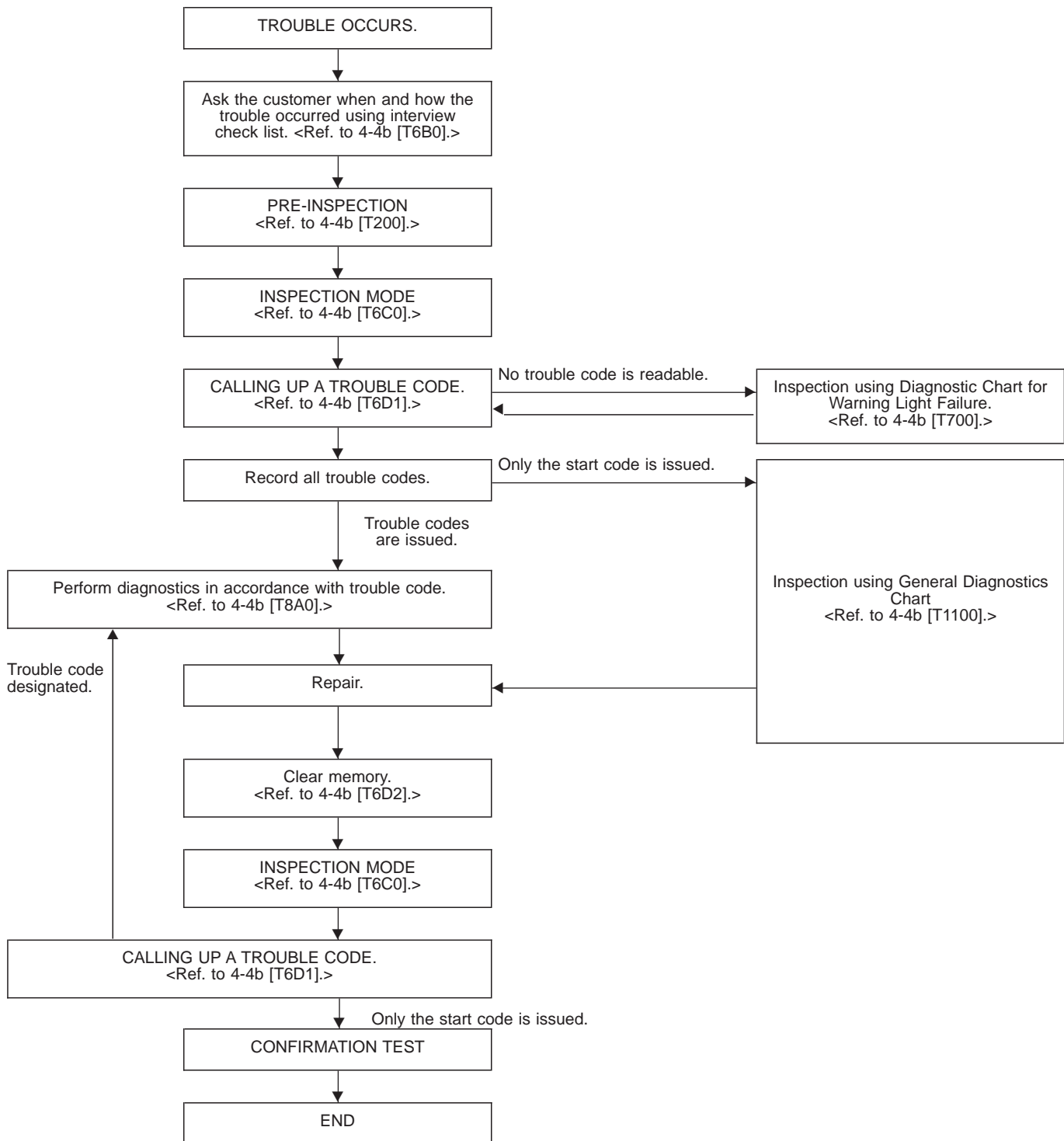


## 6. Diagnostics Chart for On-board Diagnosis System

### A: BASIC DIAGNOSTICS PROCEDURE



**NOTE:**

- To check harness for broken wires or short circuits, shake it while holding it or the connector.
- When TCS warning light illuminates, read and record trouble code indicated by TCS warning light.

**B: CHECK LIST FOR INTERVIEW**

Check the following items about the vehicle's state.

**1. THE STATE OF THE WARNING LIGHTS**

|                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a. ABS warning light                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ① Is always on. ② Sometimes comes on. ③ Comes on only once. ④ Does not come on. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| When/how long does it come on?                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ignition key position                                                           | ① Lock ② Acc ③ On (before starting engine) ④ Start ⑤ On after starting (Engine: run)<br>⑥ On after starting (Engine: stop)                                                                                                                                                                                                                                                                                                                                                                               |
| Timing                                                                          | ① Immediately after ignition is on. ② Immediately after ignition starts.<br>③ When advancing (Speed ___miles/h → ___miles/h) ④ While traveling at a constant speed (Speed ___miles/h)<br>⑤ When decelerating (Speed ___miles/h → ___miles/h)<br>⑥ When turning (To right, to left, steering angle ___deg., steering time ___sec)<br>⑦ When other electrical parts move (Part name: ____, Operating condition _____)<br>⑧ When moving other electrical parts (Part name: ____, Operating condition _____) |
| b. TCS warning light                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ① Is always on. ② Sometimes comes on. ③ Comes on only once. ④ Does not come on. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| When does it come on?                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ignition key position                                                           | ① Lock ② Acc ③ On (before starting engine) ④ Start ⑤ On after starting (Engine: run)<br>⑥ On after starting (Engine: stop)                                                                                                                                                                                                                                                                                                                                                                               |
| Timing                                                                          | ① Immediately after ignition is on. ② Immediately after ignition starts.<br>③ When advancing (Speed ___miles/h → ___miles/h) ④ While traveling at a constant speed (Speed ___miles/h)<br>⑤ When decelerating (Speed ___miles/h → ___miles/h)<br>⑥ When turning (To right, to left, steering angle ___deg., steering time ___sec)<br>⑦ When other electrical parts move (Part name: ____, Operating condition _____)<br>⑧ When moving other electrical parts (Part name: ____, Operating condition _____) |
| c. TCS OFF indicator light                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ① Is always on. ② Sometimes comes on. ③ Comes on only once. ④ Does not come on. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| When/how long does it come on?                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ignition key position                                                           | ① Lock ② Acc ③ On (before starting engine) ④ Start ⑤ On after starting (Engine: run)<br>⑥ On after starting (Engine: stop)                                                                                                                                                                                                                                                                                                                                                                               |
| Timing                                                                          | ① Immediately after ignition is on. ② Immediately after ignition starts.<br>③ When advancing (Speed ___miles/h → ___miles/h) ④ While traveling at a constant speed (Speed ___miles/h)<br>⑤ When decelerating (Speed ___miles/h → ___miles/h)<br>⑥ When turning (To right, to left, steering angle ___deg., steering time ___sec)<br>⑦ When other electrical parts move (Part name: ____, Operating condition _____)<br>⑧ When moving other electrical parts (Part name: ____, Operating condition _____) |
| d. TCS operation indicator light                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ① Is always on. ② Sometimes comes on. ③ Comes on only once. ④ Does not come on. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| When does it come on?                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ignition key position                                                           | ① Lock ② Acc ③ On (before starting engine) ④ Start ⑤ On after starting (Engine: run)<br>⑥ On after starting (Engine: stop)                                                                                                                                                                                                                                                                                                                                                                               |
| Timing                                                                          | ① Immediately after ignition is on. ② Immediately after ignition starts.<br>③ When advancing (Speed ___miles/h → ___miles/h) ④ While traveling at a constant speed (Speed ___miles/h)<br>⑤ When decelerating (Speed ___miles/h → ___miles/h)<br>⑥ When turning (To right, to left, steering angle ___deg., steering time ___sec)<br>⑦ When other electrical parts move (Part name: ____, Operating condition _____)<br>⑧ When moving other electrical parts (Part name: ____, Operating condition _____) |

|                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| e. Malfunction indicator light                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ① Is always on. ② Sometimes comes on. ③ Comes on only once. ④ Does not come on. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| When does it come on?                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Ignition key position                                                           | ① Lock ② Acc ③ On (before starting engine) ④ Start ⑤ On after starting (Engine: run)<br>⑥ On after starting (Engine: stop)                                                                                                                                                                                                                                                                                                                                                                                      |
| Timing                                                                          | ① Immediately after ignition is on. ② Immediately after ignition starts.<br>③ When advancing (Speed ___ miles/h → ___ miles/h) ④ While traveling at a constant speed (Speed ___ miles/h)<br>⑤ When decelerating (Speed ___ miles/h → ___ miles/h)<br>⑥ When turning (To right, to left, steering angle ___ deg., steering time ___ sec)<br>⑦ When other electrical parts move (Part name: ____, Operating condition _____)<br>⑧ When moving other electrical parts (Part name: ____, Operating condition _____) |

**2. SYMPTOMS**

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABS operating condition | ① Performs no work. ② Operates only when abruptly applying brakes. (Conditions: vehicle speed ___ miles/h, how to step on brake pedal ___)<br>③ Operating time ( ___ sec., etc. _____) ④ Operating noise (Produced/Not produced)<br>⑤ What kind of noise? (Knock, gong gong, bong, buzz, gong gong buzz, etc. _____)<br>⑥ Reaction force of brake pedal (Stick, pressed down once with a clunk, pressed and released, etc. _____)                                                                                                                                                                                                                                                                                                                                                                                        |
| TCS operating condition | ① Performs no work. ② Operates only when abruptly accelerating. (Conditions: vehicle speed ___ miles/h, how to step on accelerator pedal ___)<br>③ Operating time ( ___ sec., etc. _____) ④ Operating noise (Produced/Not produced)<br>⑤ What kind of noise? (Knock, gong gong, bong, buzz, gong gong buzz, etc. _____)<br>⑥ Whether or not operation indicator light comes on. (Come on/Does not come on, Others _____)                                                                                                                                                                                                                                                                                                                                                                                                 |
| Behavior of vehicle     | ① Directional stability cannot be obtained or steering arm refuses to work when applying brakes (vehicle turns to right, turns to left, spins, etc. _____).<br>② Directional stability cannot be obtained or steering arm refuses to work when accelerating (vehicle turns to right, turns to left, spins, etc. _____).<br>③ Brakes are out of order (braking distance is long, brakes lock or drag, pedal stroke is long, pedal sticks, etc. _____).<br>④ Poor acceleration (fails to accelerate, engine stalls, etc. _____).<br>⑤ Vibration, abnormal noise (operating noise is loud, noise is produced during operation from the front of vehicle (right, left) (tones: ___), noise is produced during operation from the rear of vehicle (tones: ____, others _____))<br>⑥ Other phenomena (concrete symptoms _____) |

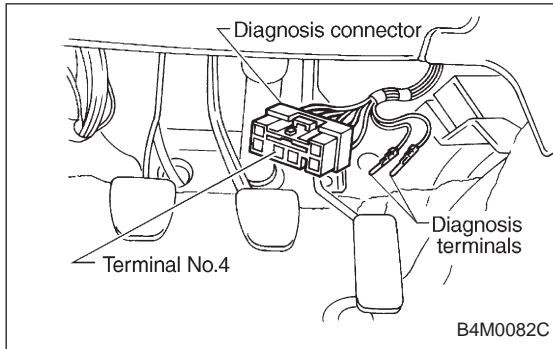
**3. CONDITIONS UNDER WHICH TROUBLE OCCURS**

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environment | ① Weather (fine, cloudy, rain, snow, etc. ___)<br>② Ambient temperature ( ___ °C/°F)<br>③ Road (urban area, suburbs, highway, general road, ascending slope, descending slope, paved road, gravel road, muddy road, sandy place, etc. ___)<br>④ Road surface (dry, wet, new-fallen snow, compressed snow, frozen slope, etc. _____)                                                                                                                                                                                      |
| Conditions  | ① Brakes (deceleration ___ g, continuous/intermittent) ② Accelerator (acceleration ___ g, continuous/intermittent)<br>③ Travel speed ( ___ miles, advancing, accelerating, reducing speed, low speed, turning, etc. _____)<br>④ Condition of tire of each wheel (air pressure ____, degree of wear ____, whether or not genuine parts are used, whether or not chain is passed around tires, whether or not T tire is used.) others ( _____)<br>⑤ Condition of suspension alignment ( _____)<br>⑥ Loading state ( _____) |

**4. REPAIRED PARTS ARE USED OR NOT**

**C: INSPECTION MODE**

The on-board diagnosis system is designed to detect problems while the vehicle is being driven. If a problem is found, the ABS and TCS warning light will illuminate to inform the driver of the occurrence of a problem. When the warning light is on, the ABS/TCS system will be inactive and the normal braking function will work. It is possible for the most recent trouble code and history of problem to be stored in memory until cleared.



**D: TROUBLE CODES**

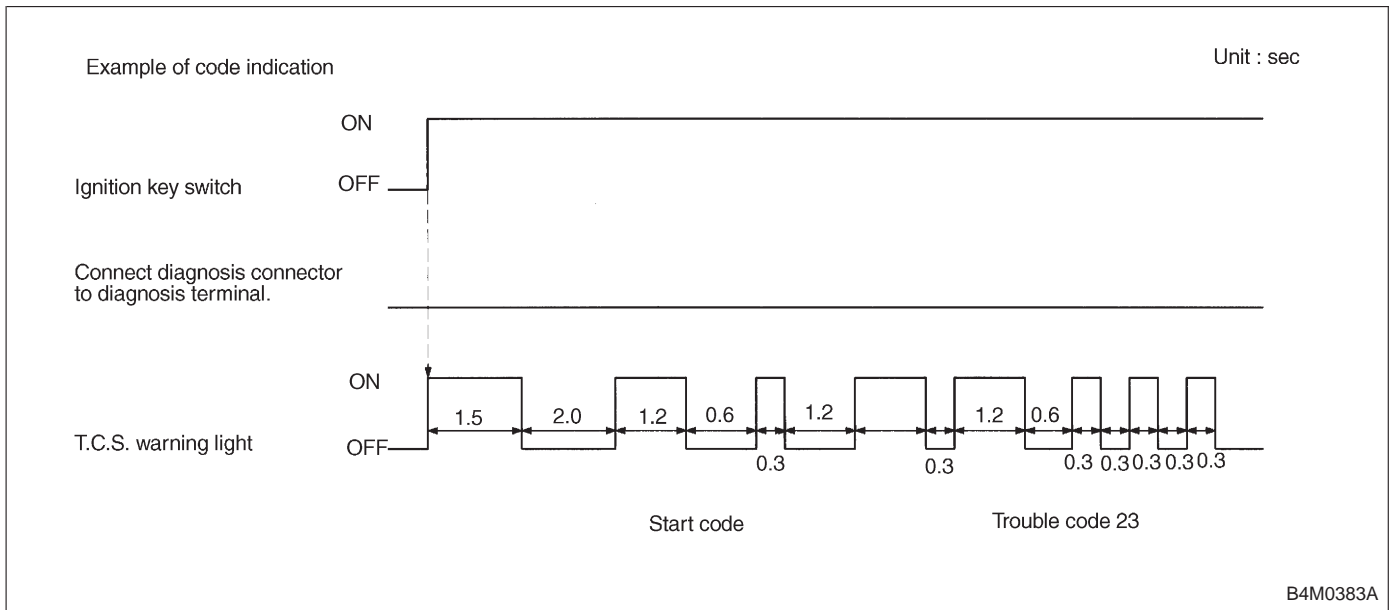
When on-board diagnosis of the ABS/TCS control module detects a problem, the information will be stored in the EEPROM as a trouble code. (Stored codes will stay in memory until they are cleared.)

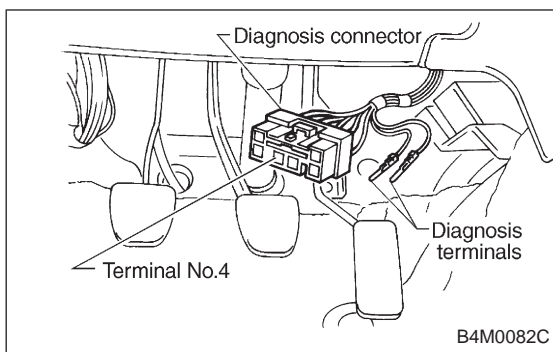
**1. CALLING UP A TROUBLE CODE**

- 1) Take out diagnosis connector from side of driver's seat heater unit.
- 2) Turn ignition switch OFF.
- 3) Connect diagnosis connector terminal No. 4 to diagnosis terminal.
- 4) Turn ignition switch ON.
- 5) TCS warning light is set in the diagnostic mode and blinks to identify trouble code.
- 6) After the start code (11) is shown, the trouble codes will be shown in order of the last information first.

**NOTE:**

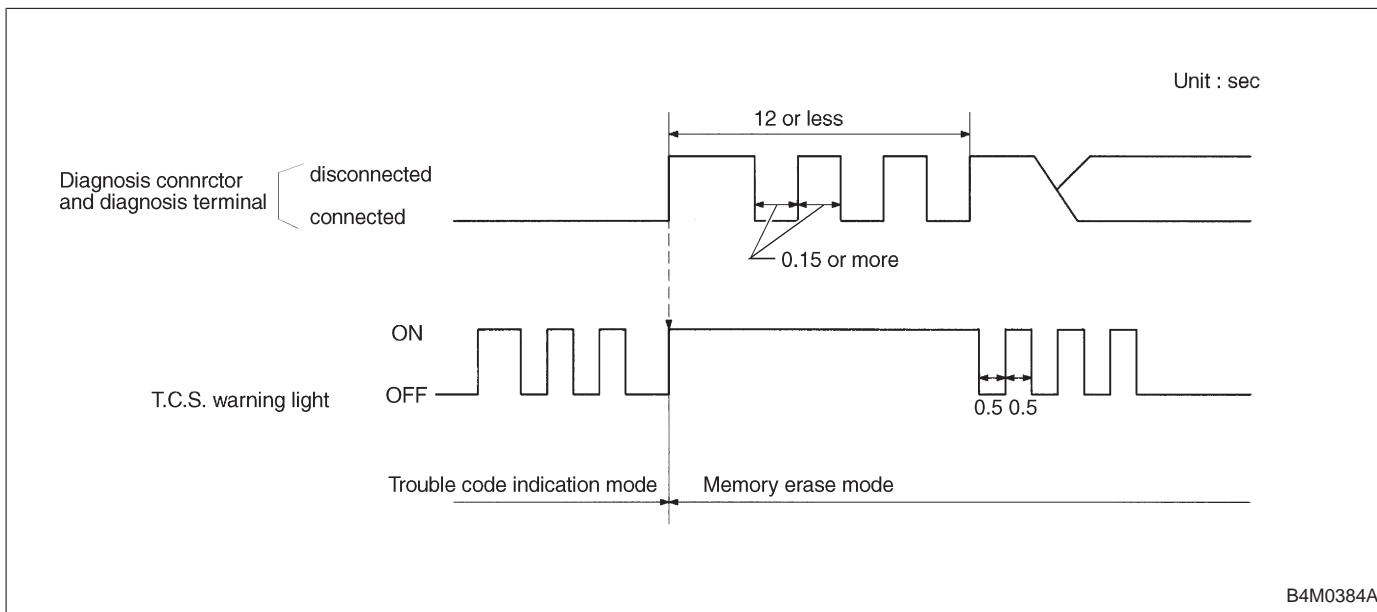
When there are no trouble codes in memory, only the start code (11) is shown.





**2. CLEARING MEMORY**

- 1) After calling up a trouble code, disconnect ABS check connector terminal No. 4 from diagnosis terminal.
- 2) Repeat 3 times within approx. 12 seconds; connecting and disconnecting terminal No. 4 and diagnosis terminal for at least 0.15 seconds each time.
- 3) Turn off the ignition key.



**NOTE:**  
After diagnostics is completed, make sure to clear memory. Make sure only start code (11) is shown after memory is cleared.