TEST MODE PROCEDURE

USING SST CHECK WIRE:

1. TEST MODE (SIGNAL CHECK) PROCEDURE

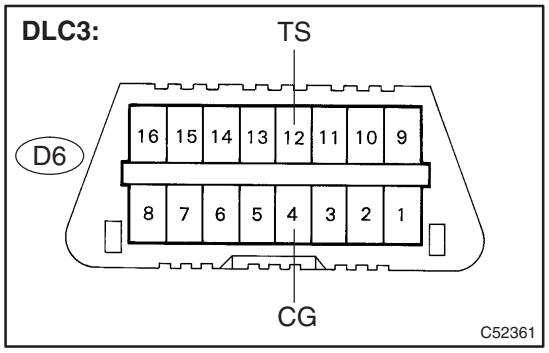
When having replaced the master cylinder solenoid and/or yaw rate and deceleration sensor, perform zero point calibration of the yaw rate and deceleration sensor.

HINT:

- If the ignition switch is turned from the ON to the ACC or LOCK position during test mode, DTCs of the signal check function will be erased.
- During test mode, the ECU records all DTCs of the signal check function. By performing the signal check, the codes are erased if normality is confirmed. The codes left over are the codes where an abnormality was found.

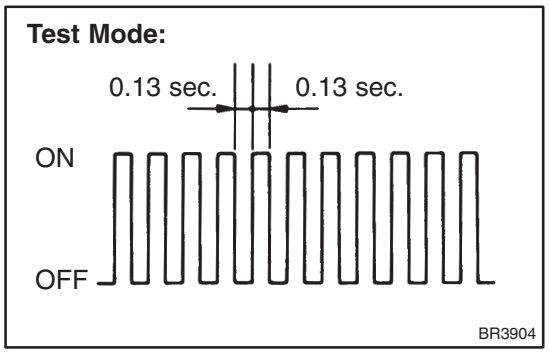
(a) Turn the ignition switch off.

(b) Check that the steering wheel is in the straight–ahead position and move the shift lever to the P position (Automatic Transaxle) or apply the parking brake (Manual Transaxle).



(c) Using SST, connect terminals TS and CG of the DLC3.
SST 09843–18040

(d) Turn the ignition switch to the ON position.



(e) Check that the ABS and VSC TRC warning lights blink in test mode.

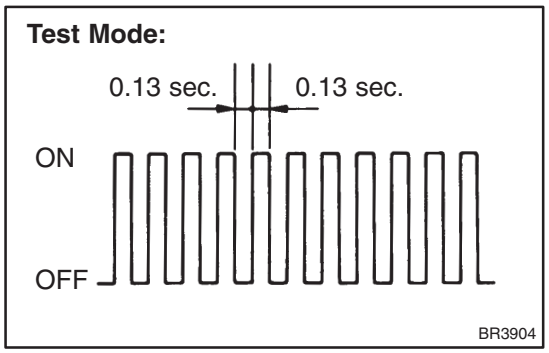
HINT:

If the ABS and VSC TRC warning lights do not blink, inspect the TS and CG terminal circuit and the ABS and VSC TRC warning light circuits.

Trouble Area	See Page
TS and CG terminal circuit	05–913
ABS warning light circuit	05–869 05–874
VSC TRC warning light circuit	05–876 05–879

(f) Start the engine.

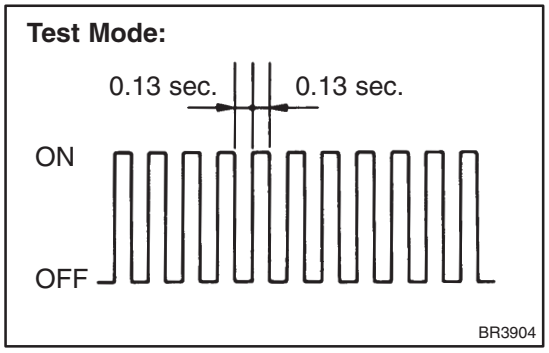
(g) Using a check wire, perform the ABS sensor (deceleration sensor, master cylinder pressure sensor, center diff. lock detection switch, L4 detection switch and speed sensor) and VSC sensor (yaw rate sensor and DAC operation switch) signal checks in test mode (ABS sensor: refer to step 2 to 7, VSC sensor: refer to step 8 to 10).



2. DECELERATION SENSOR SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Keep the vehicle in a stationary condition on a level surface for 1 second or more.



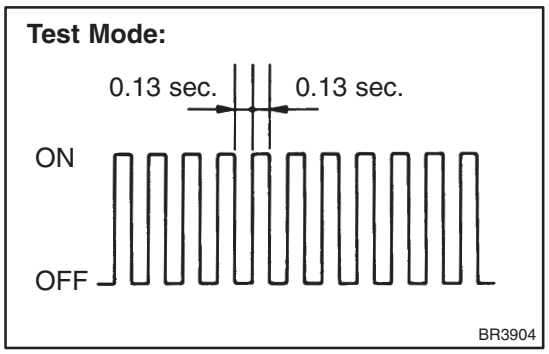
3. MASTER CYLINDER PRESSURE SENSOR SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Leave the vehicle in a stationary condition and release the brake pedal for 1 second or more, and quickly depress the brake pedal with a force of 98 N (10 kgf, 22 lbf) or more for 1 second or more.

HINT:

- At this time, the ABS warning light stays on for 3 seconds.
- While the ABS warning light stays on, continue to depress the brake pedal with a force of 98 N (10 kgf, 22 lbf) or more.
- The ABS warning light comes on for 3 seconds every time the brake pedal operation above is performed.



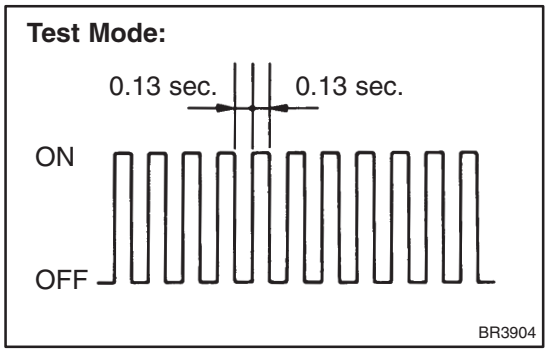
4. CENTER DIFF. LOCK DETECTION SWITCH SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Check the center diff. lock switch.

(1) Push the center diff. lock switch on to lock the center differential.

(2) Push the center diff. lock switch off to unlock the center differential.



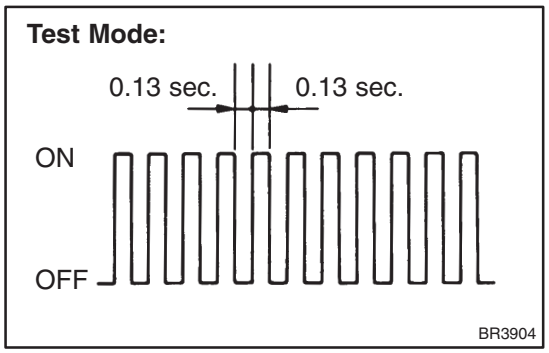
5. L4 DETECTION SWITCH SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Check the transfer indicator (L4) switch.

(1) Turn the H–L switch to the L position to put the vehicle in L4 mode.

(2) Turn the H–L switch to the H position to put the vehicle in H4 mode.



6. SPEED SENSOR SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Check the backward signal.

(1) Drive the vehicle in reverse for more than 1 second at 2 mph (3 km/h) or higher.

HINT:

Drive the vehicle in reverse and check the speed sensor signal. Note that the signal check cannot be complete if the vehicle speed is 28 mph (45 km/h) or more.

(c) Check the forward signal.

(1) Drive the vehicle straight forward.
Drive the vehicle at a speed of 28 mph (45 km/h) or higher for several seconds and check that the ABS warning light goes off.

HINT:

The signal check may not be completed if the vehicle has its wheels spun or the steering wheel turned during this check.

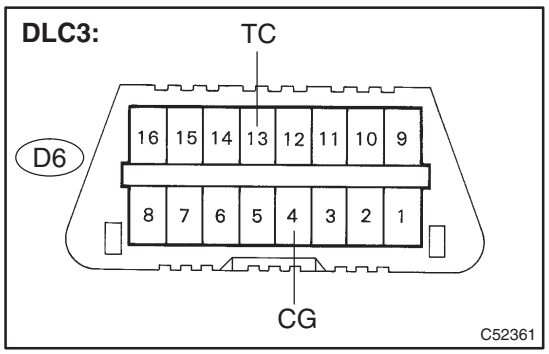
(d) Stop the vehicle.

NOTICE:

- **Before performing the speed sensor signal check, complete the deceleration sensor, master cylinder pressure sensor, center diff. lock detection switch and L4 detection switch signal checks.**
- **The speed sensor signal check may not be completed if the speed sensor signal check is started while turning the steering wheel or spinning the wheels.**
- **After the ABS warning light goes off, if the vehicle speed exceeds 50 mph (80 km/h), signal check code will be stored again. Decelerate or stop before the speed reaches 50 mph (80 km/h).**
- **If the signal check has not been completed, the ABS warning light blinks while driving and the ABS system does not operate.**

HINT:

When the signal check has been completed, the ABS warning light goes off while driving and blinks in the test mode pattern while stationary.



7. READ DTC OF ABS SENSOR

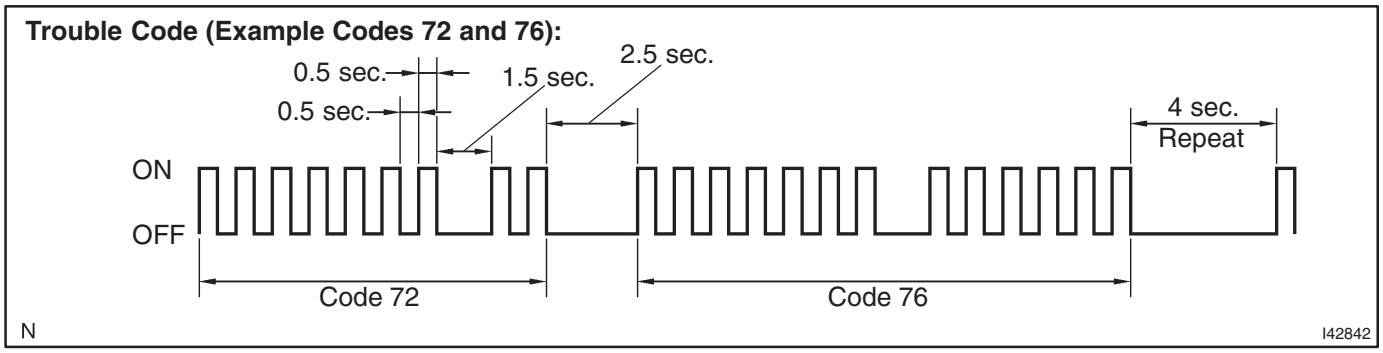
(a) Using SST, connect terminals TC and CG of the DLC3.
SST 09843–18040

(b) Read the number of blinks of the ABS warning light.

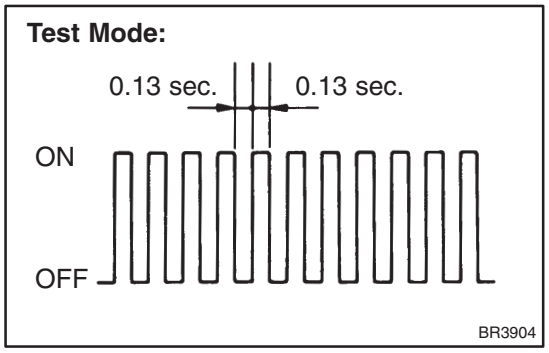
HINT:

- See the list of DTC (refer to step 11).
- If every sensor is normal, the normal system code is output. (A cycle of 0.25 second ON and 0.25 second OFF is repeated.)

- If more than 1 malfunction is detected at the same time, the lowest numbered code will be displayed first.



(c) After the check, disconnect the SST from terminals TC and CG of the DLC3.



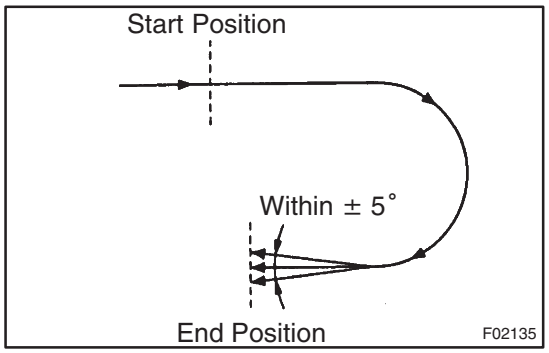
8. YAW RATE SENSOR SIGNAL CHECK

(a) Check that the VSC TRC warning light is blinking in test mode.

(b) Check the zero point voltage of the yaw rate sensor.

(1) Keep the vehicle in a stationary condition on a level surface for 1 second or more.

(c) Check the output of the yaw rate sensor and the direction of the steering angle sensor.

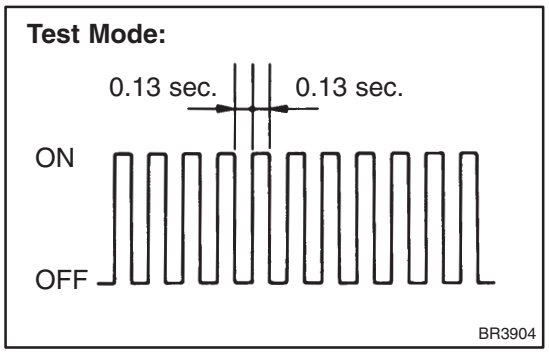


(1) Shift the shift lever to the D position and drive the vehicle at a vehicle speed of approx. 3 mph (5 km/h), turn the steering wheel either to the left or right 90° or more, and turn the vehicle through 180 degrees.

(2) Stop the vehicle and shift the shift lever to the P position. Check that the skid control buzzer sounds for 3 seconds.

HINT:

- If the skid control buzzer sounds, the signal check is completed normally.
- If the skid control buzzer does not sound, check the skid control buzzer circuit (see page 05–905), then perform the signal check again.
- If the skid control buzzer still won't sound, there is a malfunction in the yaw rate sensor, so check the DTC.
- Drive the vehicle in a 180° circle. At the end of the turn, the direction of the vehicle should be within 180° ± 5° of its start position.
- Do not spin the wheels.



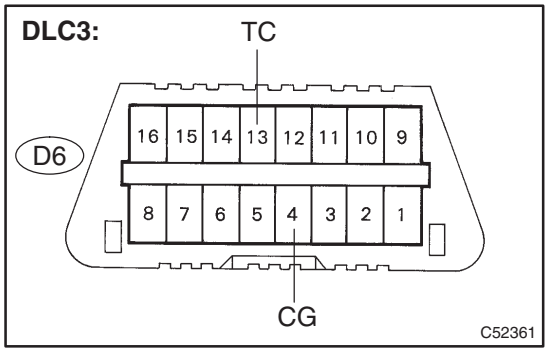
9. DAC OPERATION SWITCH SIGNAL CHECK (A/T)

(a) Check that the VSC TRC warning light is blinking in test mode.

(b) Check the DAC switch.

(1) Push the DAC switch on.

(2) Push the DAC switch off.



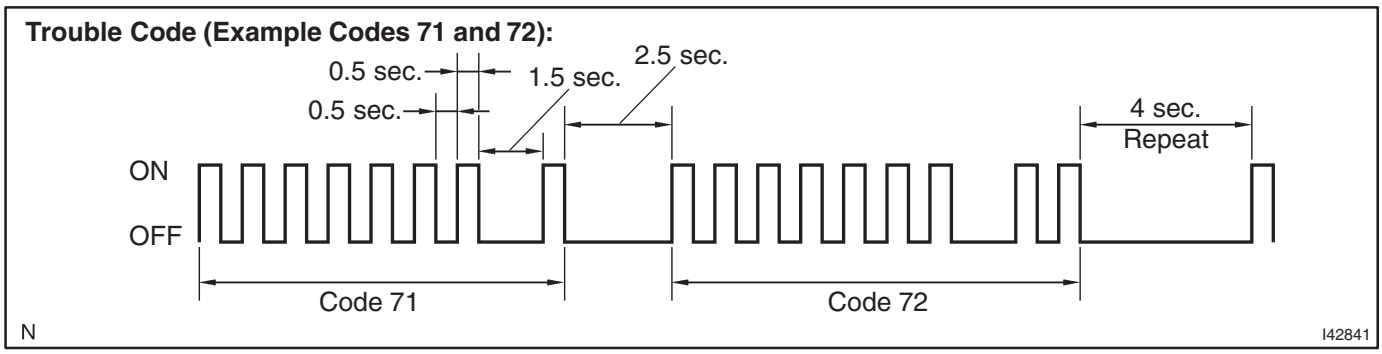
10. READ DTC OF VSC SENSOR

(a) Using SST, connect terminals TC and CG of the DLC3.
SST 09843–18040

(b) Read the number of blinks of the VSC TRC warning light.

HINT:

- See the list of DTC (refer to step 11).
- If every sensor is normal, the normal system code is output. (A cycle of 0.25 second ON and 0.25 second OFF is repeated.)
- If more than 1 malfunction is detected at the same time, the lowest numbered code will be displayed first.



(c) After performing the check, disconnect the SST from terminals TS and CG, TC and CG of the DLC3 and turn the ignition switch off.

11. DTC OF SIGNAL CHECK FUNCTION

ABS sensor:

Code No. (See Page)	Diagnosis	Trouble Area
C1271/71 (05–780)	Low output voltage of right front speed sensor	• Right front speed sensor • Sensor installation • Speed sensor rotor
C1272/72 (05–780)	Low output voltage of left front speed sensor	• Left front speed sensor • Sensor installation • Speed sensor rotor
C1273/73 (05–788)	Low output voltage of right rear speed sensor	• Right rear speed sensor • Sensor installation • Speed sensor rotor
C1274/74 (05–788)	Low output voltage of left rear speed sensor	• Left rear speed sensor • Sensor installation • Speed sensor rotor
C1275/75 (05–780)	Abnormal change in output voltage of right front speed sensor	Speed sensor rotor
C1276/76 (05–780)	Abnormal change in output voltage of left front speed sensor	Speed sensor rotor
C1277/77 (05–788)	Abnormal change in output voltage of right rear speed sensor	Speed sensor rotor
C1278/78 (05–788)	Abnormal change in output voltage of left rear speed sensor	Speed sensor rotor
C1279/79 (05–817)	Deceleration sensor is faulty	Yaw rate and deceleration sensor
C1281/81 (05–828)	Master cylinder pressure sensor output signal is faulty	Master cylinder pressure sensor
C1282/82 (05–858)	Center differential lock position switch malfunction	Center diff. lock switch
C1283/83 (05–850)	L4 position switch malfunction	Transfer indicator (L4) switch

VSC sensor:

Code No. (See Page)	Diagnosis	Trouble Area
C0371/71 (05–817)	Yaw rate sensor output signal malfunction	Yaw rate and deceleration sensor
C1379/74 (05–898, 05–902)	Malfunction in DAC operation switch	DAC switch

HINT:

The codes in this table are output only in test mode (signal check).

USING INTELLIGENT TESTER II:

12. TEST MODE (SIGNAL CHECK) PROCEDURE

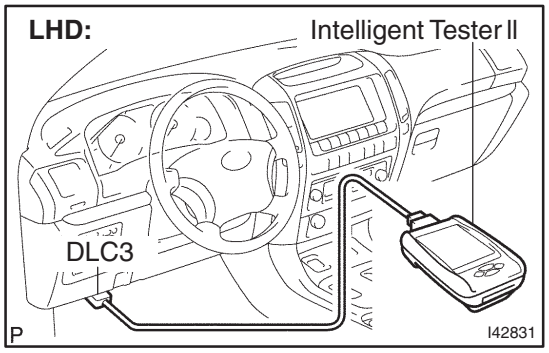
When having replaced the master cylinder solenoid and/or yaw rate and deceleration sensor, perform zero point calibration of the yaw rate and deceleration sensor.

HINT:

- If the ignition switch is turned from the ON to the ACC or LOCK position during test mode, DTCs of the signal check function will be erased.
- During test mode, the ECU records all DTCs of the signal check function. By performing the signal check, the codes are erased if normality is confirmed. The codes left over are the codes where an abnormality was found.

(a) Turn the ignition switch off.

(b) Check that the steering wheel is in the straight–ahead position and move the shift lever to the P position (Automatic Transaxle) or apply the parking brake (Manual Transaxle).



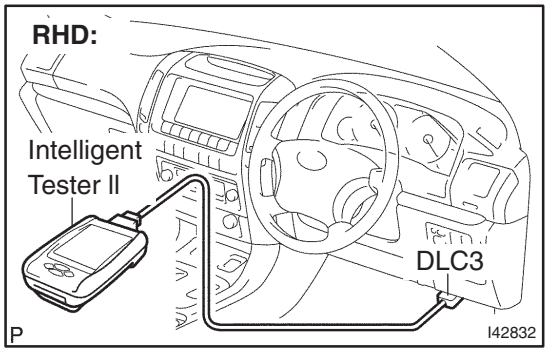
(c) Connect the intelligent tester II to the DLC3.

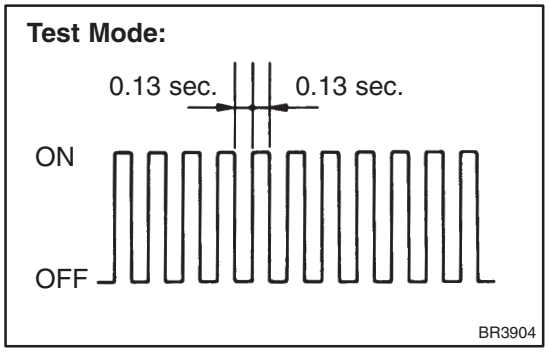
(d) Turn the ignition switch to the ON position.

(e) Operate the intelligent tester II in test mode (signal check).

HINT:

Refer to the intelligent tester II operator's manual for further details.





(f) Check that the ABS and VSC TRC warning lights blink in test mode.

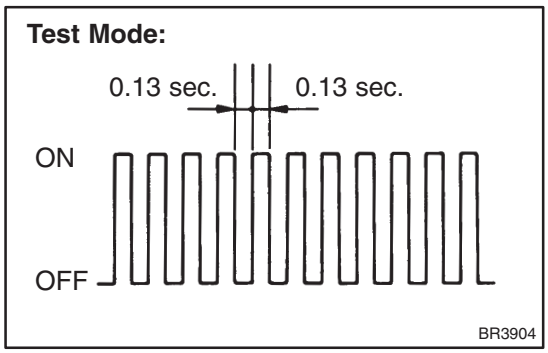
HINT:

If the ABS and VSC TRC warning lights do not blink, inspect the TS and CG terminal circuit and the ABS and VSC TRC warning light circuits.

Trouble Area	See Page
TS and CG terminal circuit	05–913
ABS warning light	05–869 05–874
VSC TRC warning light	05–876 05–879

(g) Start the engine.

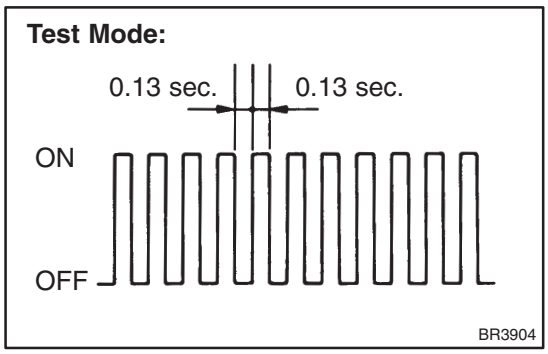
(h) Using the intelligent tester II, perform the ABS sensor (deceleration sensor, master cylinder pressure sensor, center diff. lock detection switch, L4 detection switch and speed sensor) and VSC sensor (yaw rate sensor and DAC operation switch) signal checks in test mode (ABS sensor: refer to step 13 to 18, VSC sensor: refer to step 19 to 21).



13. DECELERATION SENSOR SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Keep the vehicle in a stationary condition on a level surface for 1 second or more.



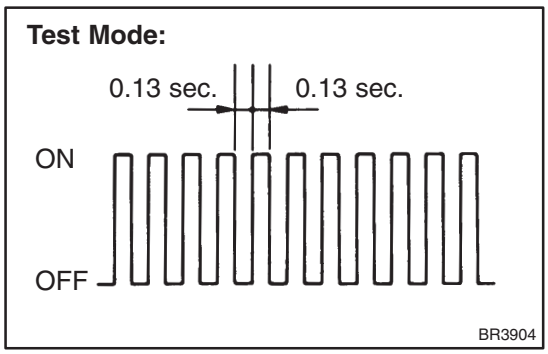
14. MASTER CYLINDER PRESSURE SENSOR SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Leave the vehicle in a stationary condition and release the brake pedal for 1 second or more, and quickly depress the brake pedal with a force of 98 N (10 kgf, 22 lbf) or more for 1 second or more.

HINT:

- At this time, the ABS warning light stays on for 3 seconds.
- While the ABS warning light stays on, continue to depress the brake pedal with a force of 98 N (10 kgf, 22 lbf) or more.
- The ABS warning light comes on for 3 seconds every time the brake pedal operation above is performed.



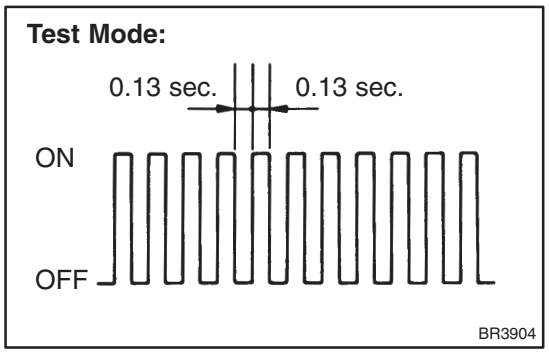
15. CENTER DIFF. LOCK DETECTION SWITCH SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.

(b) Check the center diff. lock switch.

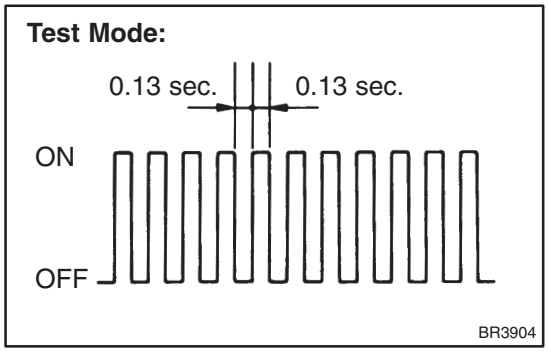
(1) Push the center diff. lock switch on to lock the center differential.

(2) Push the center diff. lock switch off to unlock the center differential.



16. L4 DETECTION SWITCH SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.
(b) Check the transfer indicator (L4) switch.
  (1) Turn the H–L switch to the L position to put the vehicle in L4 mode.
  (2) Turn the H–L switch to the H position to put the vehicle in H4 mode.



17. SPEED SENSOR SIGNAL CHECK

(a) Check that the ABS warning light is blinking in test mode.
(b) Check the backward signal.
  (1) Drive the vehicle in reverse for more than 1 second at 2 mph (3 km/h) or higher.

HINT:
Drive the vehicle in reverse and check the speed sensor signal. Note that the signal check cannot be complete if the vehicle speed is 28 mph (45 km/h) or more.

(c) Check the forward signal.
  (1) Drive the vehicle straight forward.
  Drive the vehicle at a speed of 28 mph (45 km/h) or higher for several seconds and check that the ABS warning light goes off.

HINT:
The signal check may not be completed if the vehicle has its wheels spun or the steering wheel turned during this check.

(d) Stop the vehicle.

NOTICE:

- **Before performing the speed sensor signal check, complete the deceleration sensor, master cylinder pressure sensor, center diff. lock detection switch and L4 detection switch signal checks.**
- **The speed sensor signal check may not be completed if the speed sensor signal check is started while turning the steering wheel or spinning the wheels.**
- **After the ABS warning light goes off, if the vehicle speed exceeds 50 mph (80 km/h), a signal check code will be stored again. Decelerate or stop before the speed reaches 50 mph (80 km/h).**
- **If the signal check has not been completed, the ABS warning light blinks while driving and the ABS system does not operate.**

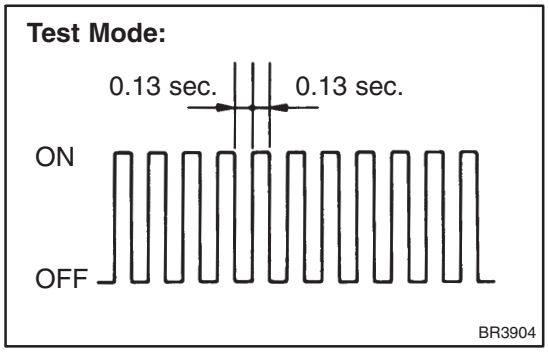
HINT:
When the signal check has been completed, the ABS warning light goes off while driving and blinks in the test mode pattern while stationary.

18. READ DTC OF ABS SENSOR

(a) Read the DTC(s) by following the tester screen.

HINT:

- Refer to the intelligent tester II operator's manual for further details.
- See the list of DTC (refer to step 22).



19. YAW RATE SENSOR SIGNAL CHECK

(a) Check that the VSC TRC warning light is blinking in test mode.

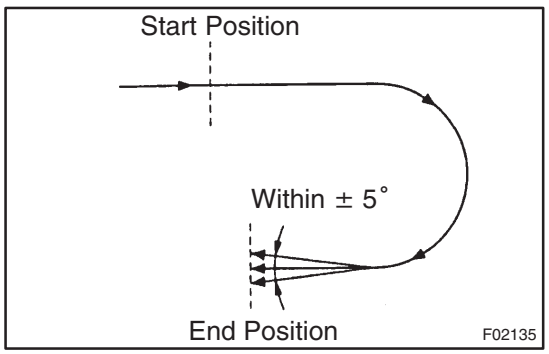
(b) Check the zero point voltage of the yaw rate sensor.

(1) Keep the vehicle in a stationary condition on a level surface for 1 second or more.

(c) Check the output of the yaw rate sensor and the direction of the steering angle sensor.

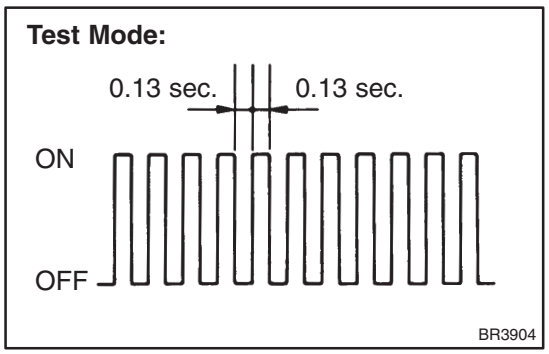
(1) Shift the shift lever to the D position and drive the vehicle at a vehicle speed of approx. 3 mph (5 km/h), turn the steering wheel either to the left or right 90° or more, and turn the vehicle through 180 degrees.

(2) Stop the vehicle and shift the shift lever to the P position. Check that the skid control buzzer sounds for 3 seconds.



HINT:

- If the skid control buzzer sounds, the signal check is completed normally.
- If the skid control buzzer does not sound, check the skid control buzzer circuit (see page 05–905), then perform the signal check again.
- If the skid control buzzer still won't sound, there is a malfunction in the yaw rate sensor, so check the DTC.
- Drive the vehicle in a 180° circle. At the end of the turn, the direction of the vehicle should be within 180° ± 5° of its start position.
- Do not spin the wheels.



20. DAC OPERATION SWITCH SIGNAL CHECK (A/T)

(a) Check that the VSC TRC warning light is blinking in test mode.

(b) Check the DAC switch.

(1) Push the DAC switch on.

(2) Push the DAC switch off.

21. READ DTC OF VSC SENSOR

(a) Read the DTC(s) by following the tester screen.

HINT:

- Refer to the intelligent tester II operator's manual for further details.
- See the list of DTC (refer to step 22).

22. DTC OF SIGNAL CHECK FUNCTION

ABS sensor:

Code No. (See Page)	Diagnosis	Trouble Area
C1271/71 (05–780)	Low output voltage of right front speed sensor	• Right front speed sensor • Sensor installation • Speed sensor rotor
C1272/72 (05–780)	Low output voltage of left front speed sensor	• Left front speed sensor • Sensor installation • Speed sensor rotor
C1273/73 (05–788)	Low output voltage of right rear speed sensor	• Right rear speed sensor • Sensor installation • Speed sensor rotor
C1274/74 (05–788)	Low output voltage of left rear speed sensor	• Left rear speed sensor • Sensor installation • Speed sensor rotor
C1275/75 (05–780)	Abnormal change in output voltage of right front speed sensor	Speed sensor rotor
C1276/76 (05–780)	Abnormal change in output voltage of left front speed sensor	Speed sensor rotor
C1277/77 (05–788)	Abnormal change in output voltage of right rear speed sensor	Speed sensor rotor
C1278/78 (05–788)	Abnormal change in output voltage of left rear speed sensor	Speed sensor rotor
C1279/79 (05–817)	Deceleration sensor is faulty	Yaw rate and deceleration sensor
C1281/81 (05–828)	Master cylinder pressure sensor output signal is faulty	Master cylinder pressure sensor
C1282/82 (05–858)	Center differential lock position switch malfunction	Center diff. lock switch
C1283/83 (05–850)	L4 position switch malfunction	Transfer indicator (L4) switch

VSC sensor:

Code No. (See Page)	Diagnosis	Trouble Area
C0371/71 (05–817)	Yaw rate sensor output signal malfunction	Yaw rate and deceleration sensor
C1379/74 (05–898, 05–902)	Malfunction in DAC operation switch	DAC switch

HINT:

The codes in this table are output only in test mode (signal check).