

CALIBRATION

1.VGRS SYSTEM CALIBRATION PROCEDURE
(USING SST CHECK WIRE)

NOTICE:

Use this procedure to center the steering wheel position if:

- VGRS actuator has been replaced
- VGRS ECU has been replaced
- Steering column or gear has been disconnected
- Steering wheel is still off –center after completing the steering angle sensor initialization in step 6.

Actuator angle initialization:

1	Face the tires straight ahead.
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NOTICE:

Drive the vehicle to confirm steering wheel is centered.

NEXT

2	Check for DTCs
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Is DTCC 1515/15 output?

A	DTCC 1515/15 is not output
B	DTCC 1515/15 is output
B	Go to step 4

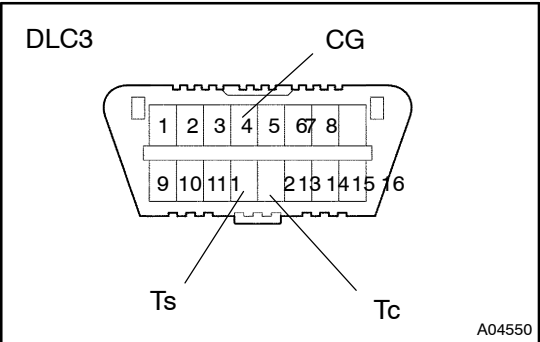
A

3	Actuator angle initialization
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NOTICE:

Complete steps (e) to (g) within 1 minute.

- (a) Turn the ignition switch ON.
- (b) Start the engine.
- (c) Turn the steering wheel to the center.
- (d) Using SST check wire, connect the terminals Ts and CG of DLC3.
- (e) Connect and disconnect the SST check wire to the terminal Tc of DLC3 10 times or more within 20 sec.
- (f) Turn the steering wheel to the left 180° or more and then return to the center position.
- (g) Connect and disconnect the SST check wire to the terminal Tc of DLC3 10 times or more within 20 sec.



- (h) Check that the VGRS warning light is ON.
- HINT:
When the VGRS warning light illuminates, DTC 1515/15 is memorized.
- (i) Disconnect the SST check wire from the DLC3.
- (j) Turn the ignition switch OFF.

NEXT

Go to step 1

Steering angle adjustment:

4	Confirm steering center
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Confirm that the steering wheel is centered when facing the tires straight ahead.

NOTICE:
Drive the vehicle to confirm steering wheels centered.

A	Steering wheel is off –center
B	Steering wheel is center

B

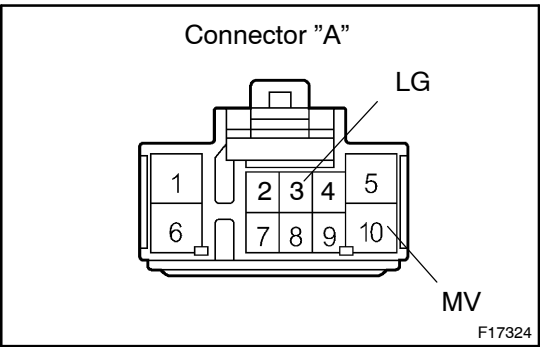
Go to step 8

A

5	Unlock the VGRS actuator
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- NOTICE:**
Do not start the engine.
- (a) Turn the ignition switch OFF. (Engine stop)
 - (b) Disconnect the negative battery terminal.
 - (c) Disconnect the VGRS ECU connector "A".
 - (d) Connect the jumper wire from terminal MV to Battery (+) and another jumper wire from terminal LG to ground(–).

NOTICE:
Do not apply the voltage for more than 3 minutes.



NEXT

6 Steering center adjustment

(a) Turn the steering wheel to the center.

NOTICE:

If the spiral cable for the airbag is not centered when installing the steering wheel, adjust the spiral cable to the center (See page SR-19).

NEXT

7 Lock the VGRS actuator

- (a) Confirm the ignition switch is turned OFF.
- (b) Reconnect the VGRS ECU connector "A".
- (c) Reconnect the battery terminal.
- (d) Turn the steering wheel to the right and left by about 5 degrees and check that the steering wheel is level.

NOTICE:

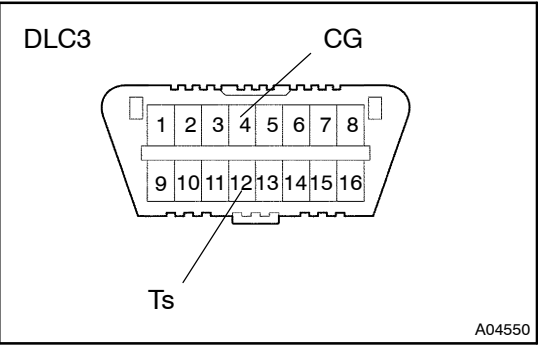
The DTC will be detected later on when not turning the steering wheel to the right and left by about 5 degrees.

NEXT

Goto step 1

Actuator angle adjustment:

8 Adjust the actuator angle



HINT:

Actuator angle adjustment is completed by turning the Test Mode ON and OFF.

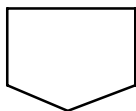
- (a) Make sure the ignition switch is OFF.
- (b) Using the SST check wire, connect the terminals Ts and CG of DLC3.
- (c) Turn the ignition switch ON.
- (d) Check that the VGRS warning light is blinking.
- (e) Turn the ignition switch OFF and disconnect the SST check wire from the DLC3.
- (f) Actuator angle sensor learning confirmation procedure:
 - (1) Start the engine.
 - (2) Turn the steering wheel from center to the left 90° and then back to center.
 - (3) Turn the steering wheel from center to the right 90° and then back to center.
 - (4) Confirm that the steering wheel is centered.

- (5) Hold the steering wheel in the centered position for 3 seconds.
- (6) Perform the following check procedure;
 - Turn the steering wheel slowly to the left.
 - While turning the steering wheel to the left, turn off the engine.
 - Continue to turn the steering wheel slowly to the left for 3 seconds.
- (7) Repeat steps (1) to (6) 15 times.

NOTICE:

DTCC 1568/68 requires that the fault occurs 5 consecutive times to set. The confirmation procedure must be performed multiple times to ensure the condition does not repeat.

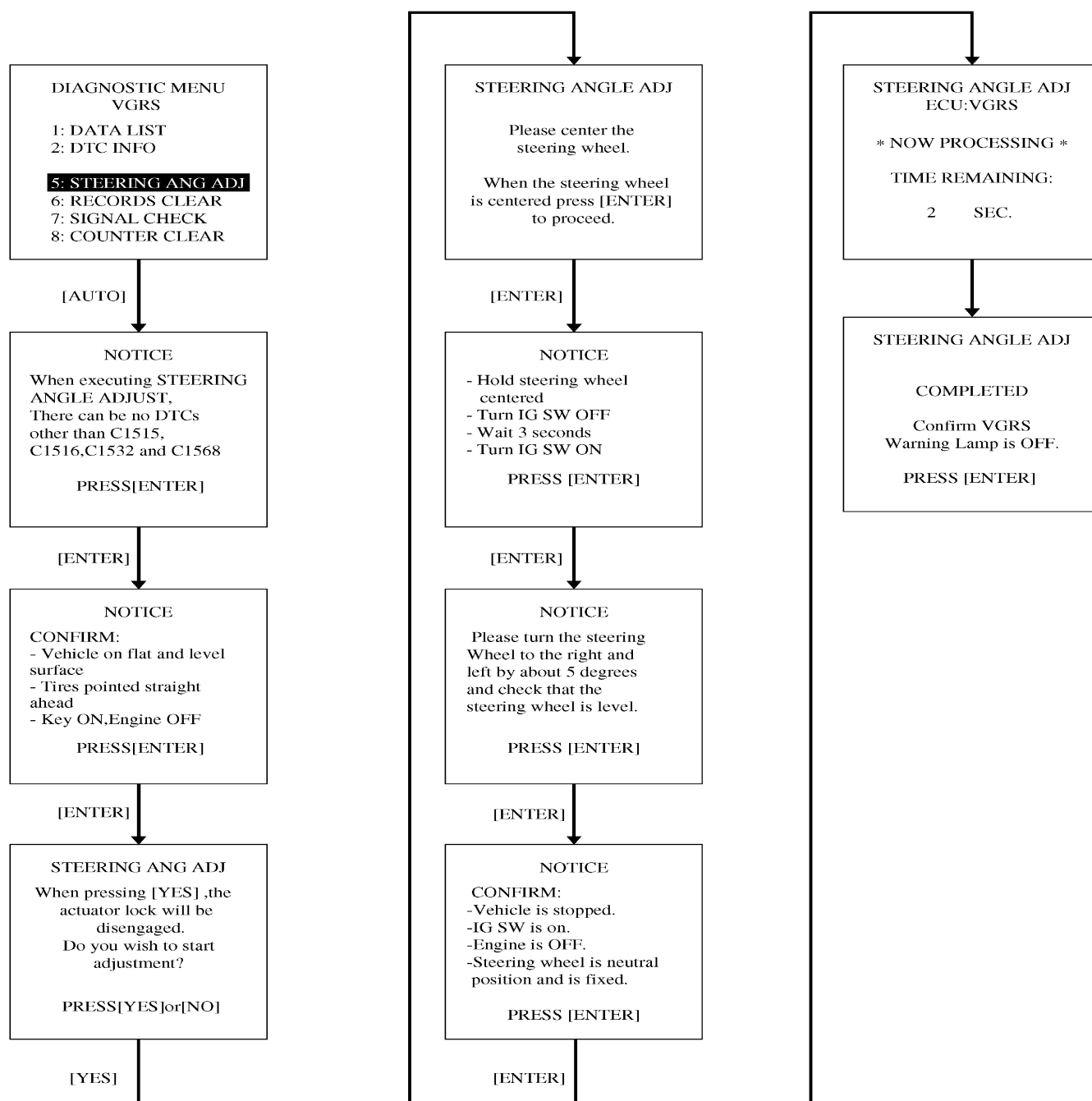
- (8) Recheck for DTCs
 - If C 1568/68 is set, repeat the procedure for a second time. If C1 568/68 is set again, replace the VGRS actuator.

**END**

2. VGRS SYSTEM CALIBRATION PROCEDURE (USING HAND-HELD TESTER)

- Stop the vehicle and face the tires straight ahead.
- Connect the hand-held tester to DLC3.
- Turn the ignition switch ON.
- Perform the steering angle adjust procedure from the VGRS menu.

Tester menu flow:



- (e) Follow the tester prompts to complete procedure.
- (f) Confirm that the VGRS warning light OFF.
- (g) Turn the ignition switch OFF.
- (h) Disconnect the hand-held tester.
- (i) Confirm normal VGRS light operation.
- (j) Start the engine.
- (k) Turn the steering wheel from lock to lock to check that it rotates approximately 2.4 turns.
- (l) Actuator angle sensor learning confirmation procedure:
 - (1) Start the engine.
 - (2) Turn the steering wheel from center to the left 90° and then back to center.
 - (3) Turn the steering wheel from center to the right 90° and then back to center.
 - (4) Confirm that the steering wheel is centered.
 - (5) Hold the steering wheel in the centered position for 3 seconds.
 - (6) Perform the following check procedure;
 - S Turn the steering wheel slowly to the left.
 - S While turning the steering wheel to the left, turn off the engine.
 - S Continue to turn the steering wheel slowly to the left for 3 seconds.
 - (7) Repeat steps (1) to (6) 15 times.

NOTICE:

DTC C1568/68 requires that the fault occurs 5 consecutive times to set. The confirmation procedure must be performed multiple times to ensure the condition does not repeat.

- (8) Recheck for DTCs
 - S If C1568/68 is set, repeat the procedure for a second time. If C1568/68 is set again, replace the VGRS actuator.
- (m) Drive vehicle to confirm steering wheel is centered.