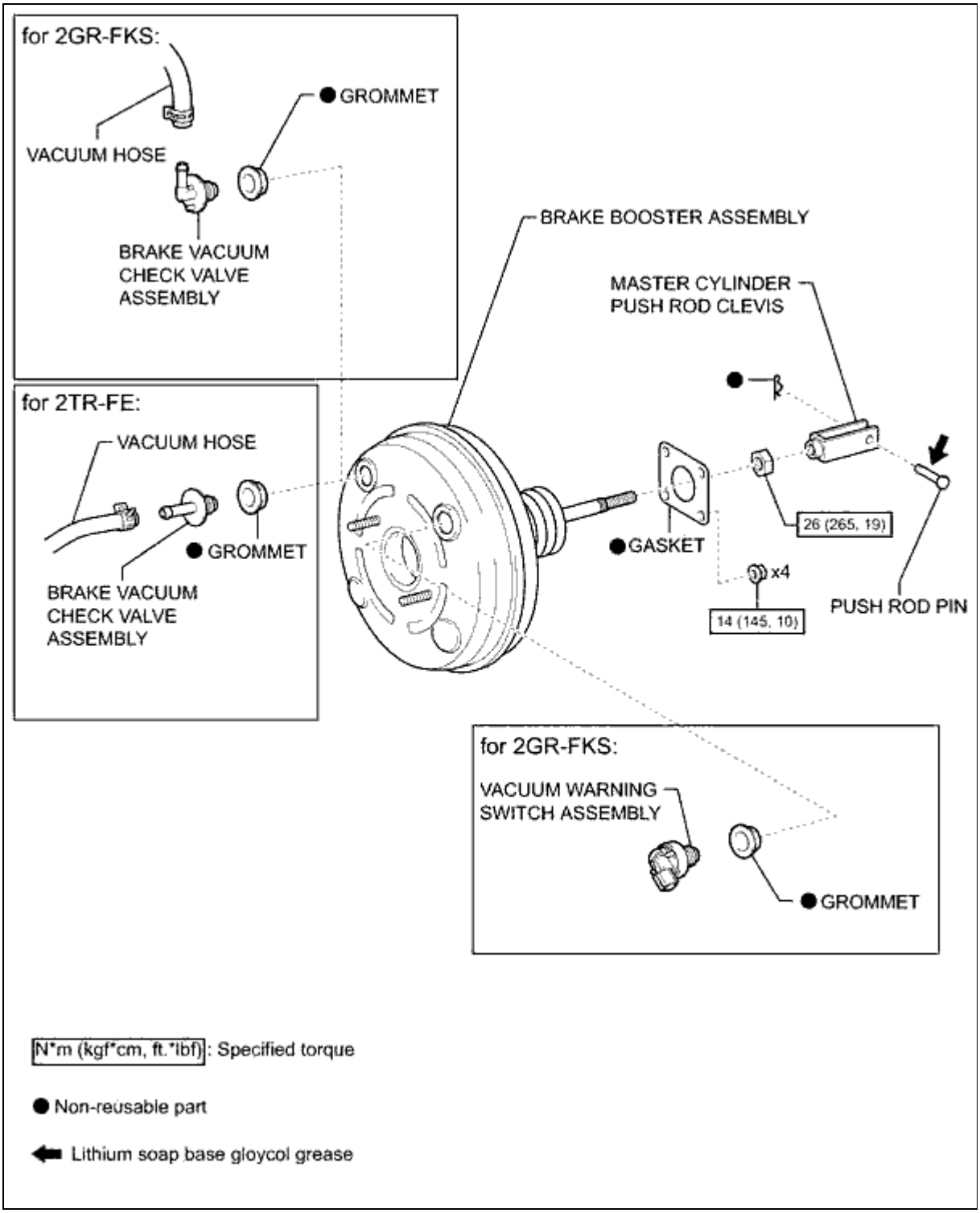
Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM00000172100AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE BOOSTER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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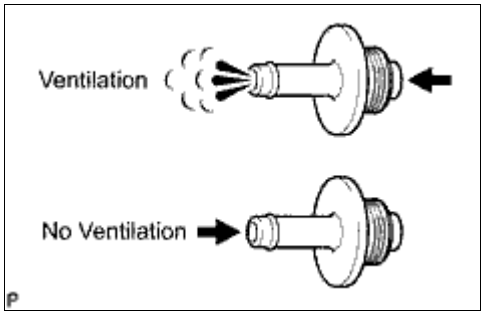
Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000002WLQ05EX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE BOOSTER: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT BRAKE VACUUM CHECK VALVE ASSEMBLY

(a) Check that there is ventilation from the booster to the engine, and no ventilation from the engine to the booster.

If the results are not as specified, replace the vacuum check valve.



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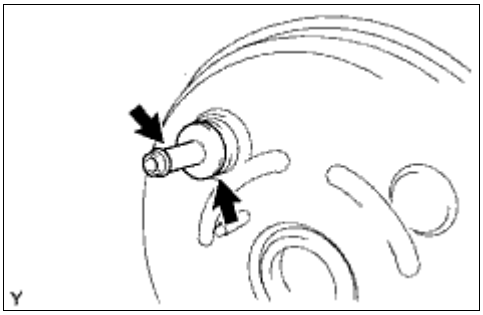
Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000172000AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE BOOSTER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL VACUUM WARNING SWITCH ASSEMBLY (for 2GR-FKS) INFO

2. INSTALL BRAKE VACUUM CHECK VALVE ASSEMBLY (for 2TR-FE)

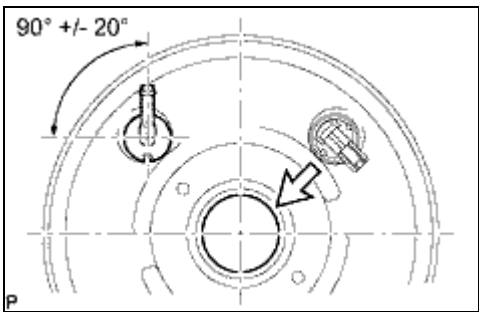
(a) Install a new grommet onto the brake booster assembly.



(b) Install the vacuum check valve onto the brake booster assembly.

3. INSTALL BRAKE VACUUM CHECK VALVE ASSEMBLY (for 2GR-FKS)

(a) Install a new grommet onto the brake booster assembly.



Text in Illustration

⇨	Center of the Brake Booster Assembly

(b) Install brake vacuum check valve assembly to the brake booster assembly as shown in the illustration.

4. INSTALL BRAKE BOOSTER ASSEMBLY

(a) Install the push rod clevis.

(b) Install a new gasket onto the brake booster assembly.

(c) Install the brake booster assembly with the 4 nuts.

Torque:

14 N·m {145 kgf·cm, 10ft·lbf}

(d) Connect the vacuum hose to the brake booster assembly.

(e) Connect the vacuum warning switch assembly connector. (for 2GR-FKS)

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5. INSTALL MASTER CYLINDER PUSH ROD CLEVIS INFO

6. INSTALL BRAKE MASTER CYLINDER SUB-ASSEMBLY

INFO

7. INSTALL LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000172300AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE BOOSTER: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

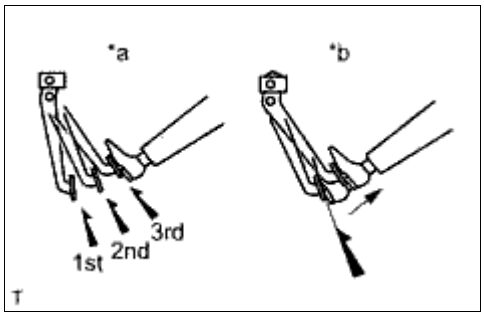
ON-VEHICLE INSPECTION

1. CHECK BRAKE BOOSTER ASSEMBLY

(a) Airtightness check.

Text in Illustration

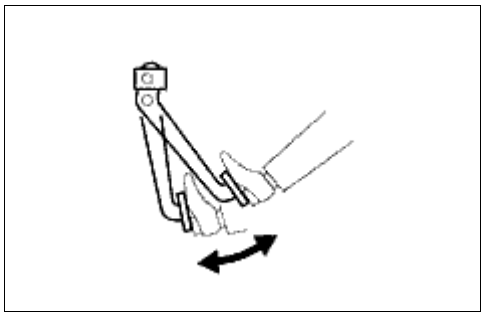
*a	Correct
*b	Incorrect



(1) Start the engine and stop it after 1 or 2 minutes. Slowly depress the brake pedal several times. If the pedal can be depressed to the floor the first time, but cannot be depressed to the floor the second and third time, the booster is airtight.

(2) Depress the brake pedal while the engine is running and stop the engine with the brake pedal depressed. If there is no change in the pedal reserve distance while holding the pedal for 30 seconds, the booster is airtight.

(b) Operation check.



(1) Depress the brake pedal several times with the ignition switch off and check that there is no change in the pedal reserve distance when the pedal is depressed.

(2) Depress and hold down the pedal, and then start the engine.

If the pedal goes down slightly, the operation is normal.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000172200AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE BOOSTER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

NOTICE:

Release the vacuum from booster by depressing the brake pedal several times.

Then remove the brake master cylinder from brake booster.

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. REMOVE LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO

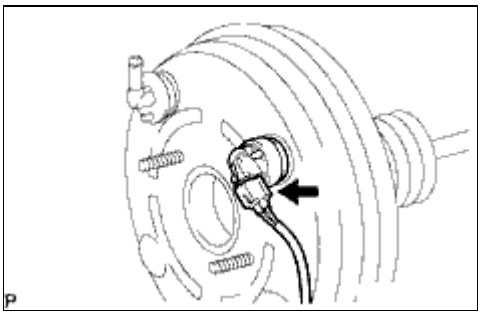
3. REMOVE BRAKE MASTER CYLINDER SUB-ASSEMBLY

INFO

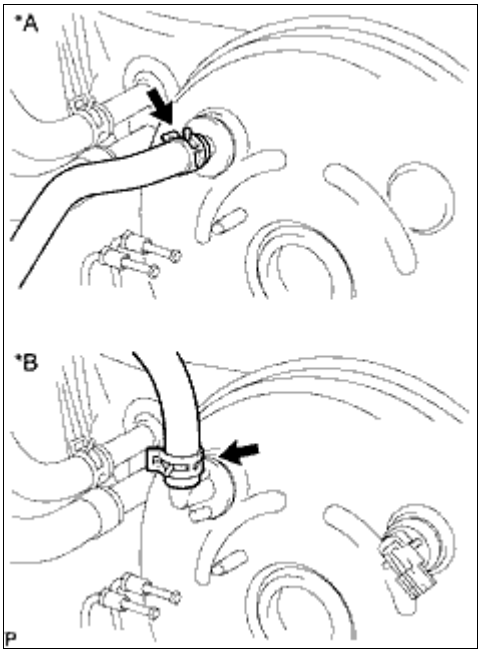
4. SEPARATE MASTER CYLINDER PUSH ROD CLEVIS INFO

5. REMOVE BRAKE BOOSTER ASSEMBLY

(a) Disconnect the vacuum warning switch assembly connector. (for 2GR-FKS)



(b) Disconnect the vacuum hose from the brake booster assembly.

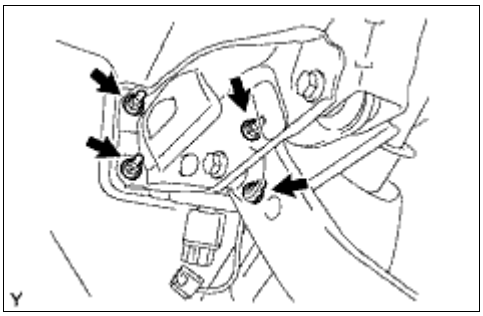


Text in Illustration

*A	for 2TR-FE
*B	for 2GR-FKS

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(c) Remove the 4 nuts, and pull out the brake booster assembly.

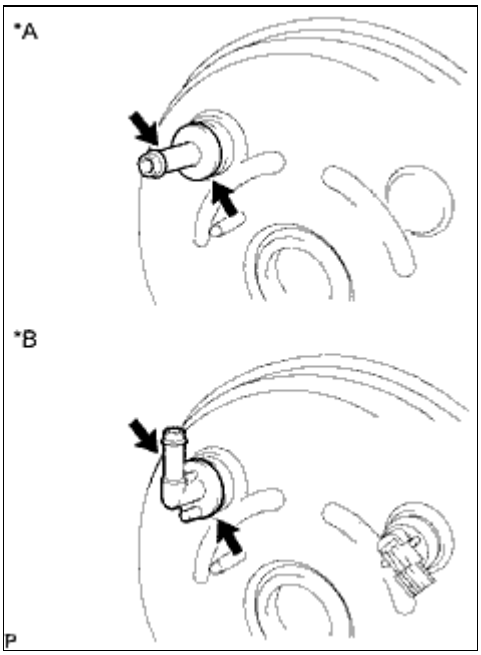


(d) Remove the gasket from the brake booster assembly.

(e) Loosen the lock nut and then remove the push rod clevis.

6. REMOVE BRAKE VACUUM CHECK VALVE ASSEMBLY

(a) Remove the vacuum check valve from the brake booster assembly.



Text in Illustration

*A	for 2TR-FE
*B	for 2GR-FKS

(b) Remove the grommet from the brake booster assembly.

7. REMOVE VACUUM WARNING SWITCH ASSEMBLY (for 2GR-FKS) INFO

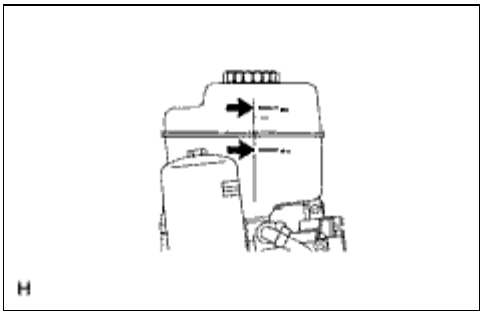
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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000003N60007X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE FLUID (for Hydraulic Brake Booster): ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT FLUID LEVEL IN RESERVOIR

(a) Turn the ignition switch to OFF, and depress the brake pedal more than 40 times (until the pedal reaction feels light and pedal stroke becomes longer), and adjust the fluid level to the MAX level.



(b) When the ignition switch is turned to the ON, brake fluid is sent to the accumulator and the fluid level decreases by approximately 5 mm from the level when the ignition switch is off (normal).

Fluid:

SAE J1703 or FMVSS No. 116 DOT 3

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000003N5Z007X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE FLUID (for Hydraulic Brake Booster): REPLACEMENT; 2016 MY Tacoma [08/2015 -]		

REPLACEMENT

NOTICE:

- Immediately wash off any brake fluid that comes into contact with any painted surfaces.
- Depressing the brake pedal with the reservoir cap removed will cause the fluid to spray.

HINT:

- If any work is done on the brake system or if air in the brake lines is suspected, bleed the air from the system.
- When bleeding, maintain the amount of fluid in the reservoir between the Min. and Max. lines.

1. FILL RESERVOIR WITH BRAKE FLUID

Fluid:

SAE J1703 or FMVSS NO. 116 DOT3

2. BLEED BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY

HINT:

If the brake master cylinder is disassembled, the brake line is disconnected from the brake master cylinder or if the reservoir becomes empty, bleed the brake master cylinder.

(a) Turn the ignition switch to ON, and wait until the pump motor has stopped (step A).

HINT:

Pump operating sound can be heard.

(b) Turn the ignition switch to OFF, and depress the brake pedal more than 20 times (step B).

HINT:

When pressure in the accumulator is released, the reaction force becomes lighter and the stroke becomes longer.

(c) Repeat step A and B 5 times (step C).

(d) Turn the ignition switch to ON, and check that the pump stops after approximately 8 to 14 seconds.

NOTICE:

If the pump does not stop, repeat step C again.

3. BLEED BRAKE LINE

(a) Turn the ignition switch to ON, and wait until the pump motor has stopped.

HINT:

Pump operating sound can be heard.

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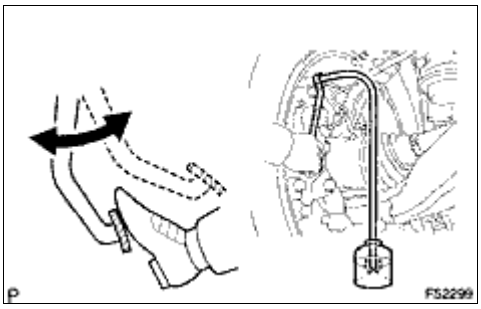
(b) Front brake line.

(1) Connect the vinyl tube to the brake caliper.

(2) Depress the brake pedal several times, then loosen the bleeder plug with the pedal held down (step D).

(3) At the point when the fluid stops coming out, tighten the bleeder plug, then release the brake pedal (step E).

(4) Repeat step D and E until all the air in the fluid has been bled out.



Torque:

11 N·m {110 kgf·cm, 8ft·lbf}

(5) Repeat the above procedures to bleed the other brake line.

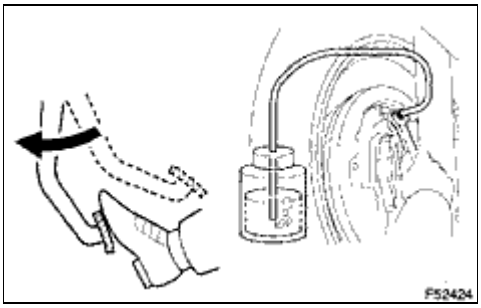
(c) Rear brake line.

(1) Connect the vinyl tube to the wheel cylinder.

(2) Depress the brake pedal, hold it, and then loosen the bleeder plug.

HINT:

Brake fluid is pumped out automatically.



(3) Loosen the bleeder plug and release air.

NOTICE:

Keep brake fluid in the reservoir tank above the MIN line during the above procedures.

(4) When the air is completely bled out of the brake fluid through the bleeder plug, tighten the bleeder plug.

Torque:

11 N·m {110 kgf·cm, 8ft·lbf}

(5) Repeat the above procedures to bleed the other brake line.

4. BLEED MASTER CYLINDER SOLENOID

HINT:

If the brake master cylinder is disassembled, the brake line is disconnected from the brake master cylinder or if the reservoir become empty, bleed the brake master cylinder.

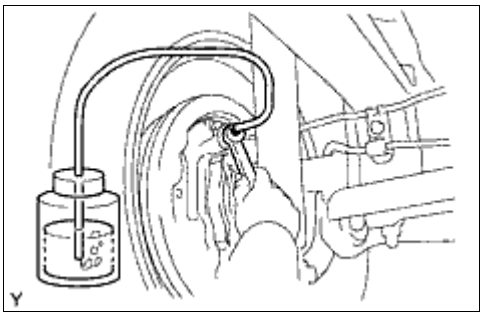
(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Select "Active Test" mode on the Techstream.

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(d) Connect the vinyl tube to the rear wheel cylinder.



(e) Loosen the bleeder plug.

(f) Select "TRAC Solenoid (SRMF & SRMR)" to drive the solenoids and bleed air from the rear wheel cylinder (step F).

NOTICE:

- Do not depress the brake pedal.
- Keep brake fluid in the reservoir tank above the MIN line during the above procedures.

HINT:

- Brake fluid is sent through the pump.
- To protect the solenoids, the Techstream turns OFF automatically 2 seconds after every solenoid has been turned ON.

(g) Repeat step F until all the air in the brake fluid is bled out.

(h) When the air is completely bled out of the brake fluid through the bleeder plug, tighten the bleeder plug.

Torque:

11 N·m {110 kgf·cm, 8ft·lbf}

(i) Repeat the above procedures to bleed the other brake line.

(j) Turn the ignition switch to OFF.

(k) Turn the ignition switch to ON.

(l) Clear DTC INFO .

5. INSPECT FOR BRAKE FLUID LEAK

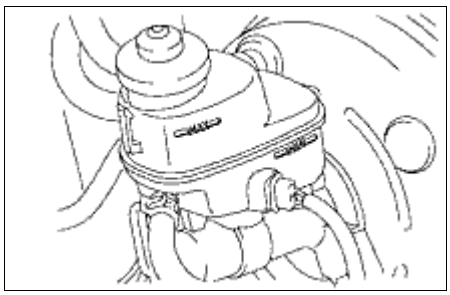
6. INSPECT FLUID LEVEL IN RESERVOIR INFO

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000002WKJ01NX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE FLUID (for Vacuum Brake Booster): ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT FLUID LEVEL IN RESERVOIR



(a) Check the fluid level.

If the brake fluid level is lower than the MIN line, check for leaks and inspect the disc brake pads. If necessary, refill the reservoir with brake fluid to the MAX line after repair or replacement.

Fluid:

SAE J1703 or FMVSS No. 116 DOT 3

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM0000033BB01JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE FLUID (for Vacuum Brake Booster): REPLACEMENT; 2016 MY Tacoma [08/2015 -]		

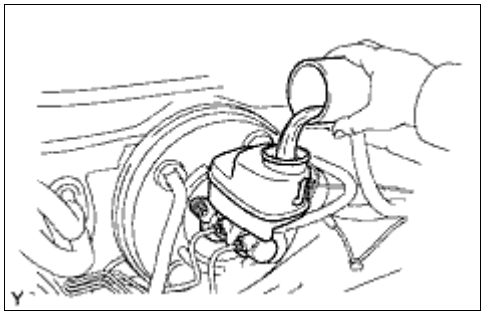
REPLACEMENT

NOTICE:

Immediately wash off any brake fluid that comes into contact with any painted surfaces.

HINT:

If any work is done on the brake system or if air in the brake lines is suspected, bleed the air from the system.



1. FILL RESERVOIR WITH BRAKE FLUID

Fluid:

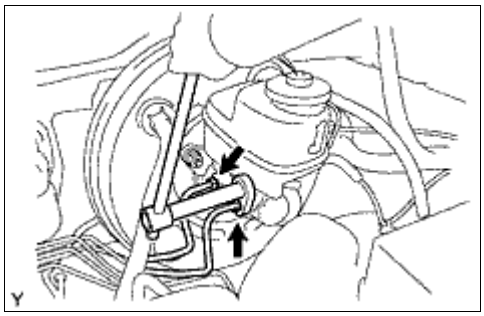
SAE J1703 or FMVSS No. 116 DOT3

2. BLEED MASTER CYLINDER

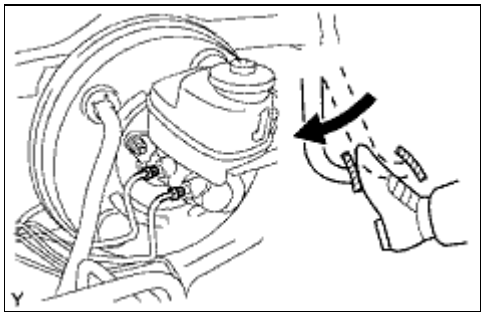
INFO

HINT:

If the master cylinder has been disassembled or if the reservoir becomes empty, bleed the air from the master cylinder.



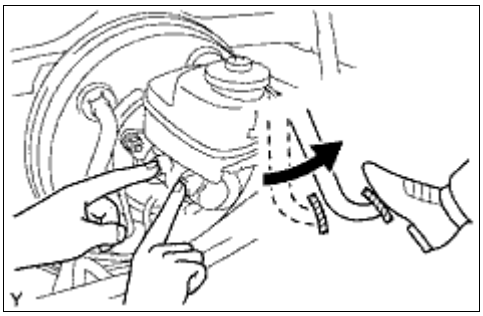
(a) Using a union nut wrench, separate the brake tubes from the master cylinder.



(b) Slowly depress the brake pedal and hold it there (Step A).

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(c) Block the outer holes with your fingers, and release the brake pedal (Step B).



(d) Repeat steps A and B 3 or 4 times.

(e) Using a union nut wrench, install the brake tubes into the master cylinder.

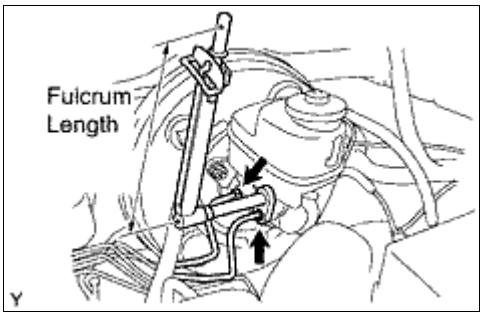
Torque:

without union nut wrench -

20 N·m {199 kgf·cm, 14ft·lbf}

with union nut wrench -

18 N·m {187 kgf·cm, 13ft·lbf}



HINT:

- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 20 mm (0.787 in.) INFO .
- This torque value is effective when the union nut wrench is parallel to the torque wrench.

3. BLEED BRAKE LINE

(a) Connect a vinyl tube to the bleeder plug.

(b) Depress the brake pedal several times, and then loosen the bleeder plug with the pedal depressed (Step C).

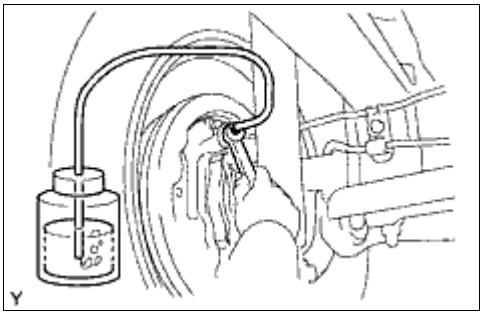
(c) At the point where the fluid stops coming out, tighten the bleeder plug, and then release the brake pedal (Step D).

(d) Repeat steps C and D until all the air in the fluid is completely bled out.

(e) Tighten the bleeder plug.

Torque:

11 N·m {112 kgf·cm, 8ft·lbf}



(f) Repeat the above procedure to bleed the air out of the brake line for each wheel.

4. BLEED BRAKE ACTUATOR

NOTICE:

After bleeding the air from the brake system, if the height or feel of the brake pedal cannot be obtained, perform air bleeding of the brake actuator with the Techstream by following the procedure below.

(a) Depress the brake pedal more than 20 times with the engine off.

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(b) Connect the Techstream to the DLC3, and turn the ignition switch ON.

NOTICE:

Do not start the engine.

(c) Select "Air Bleeding" on the Techstream.

HINT:

Refer to the Techstream operator's manual for further details.

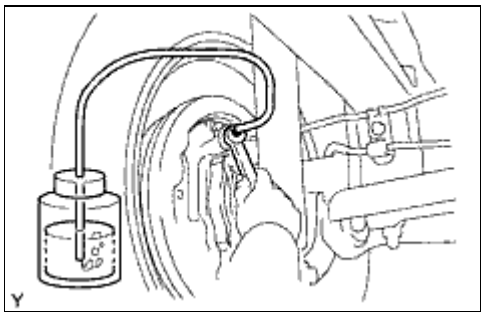
(d) Bleed the air out of the brake line when Step 1: Increase appears on the Techstream display.

NOTICE:

- Bleed the air by following the steps displayed on the Techstream.
- Make sure that the master cylinder reservoir tank does not become empty.

(1) Connect the vinyl tube to either one of the bleeder plugs.

(2) Depress the brake pedal several times, and then loosen the bleeder plug connected to the vinyl tube with the pedal depressed (Step E).



(3) When fluid stops coming out, tighten the bleeder plug and release the brake pedal (Step F).

(4) Repeat steps E and F until all the air in the fluid is completely bled out.

(5) Tighten the bleeder plug completely.

Torque:

11 N·m {112 kgf·cm, 8ft·lbf}

(6) Repeat the above procedure for each wheel to bleed the air out of the brake line.

(e) Bleed the air out of the suction line when Step 2: Inhalation appears on the Techstream display.

NOTICE:

- Bleed the air by following the steps displayed on the Techstream.
- Make sure that the master cylinder reservoir tank does not become empty.

(1) Connect the vinyl tube to the bleeder plug at the right front wheel or the right rear wheel and loosen the bleeder plug.

(2) Operate the brake actuator to bleed the air using the Techstream (Step G).

NOTICE:

Release the brake pedal at this time.

HINT:

This operation stops automatically after 4 seconds.

(3) Check if the operation has stopped by referring to the Techstream display and tighten the bleeder plug (Step H).

(4) Repeat steps G and H until all the air in the fluid is completely bled out.

(5) Tighten the bleeder plug.

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Torque:

11 N·m {112 kgf·cm, 8ft·lbf}

(6) Repeat the above procedure for the other wheels to bleed the air out of the brake line.

(f) Bleed the air out of the pressure reduction line when Step 3: Decrease appears on the Techstream display.

NOTICE:

- Bleed the air by following the steps displayed on the Techstream.
- Make sure that the master cylinder reservoir tank does not become empty.

(1) Connect a vinyl tube to either one of the bleeder plugs.

(2) Loosen the bleeder plug (Step I).

(3) Using the Techstream, operate the brake actuator assembly, completely depress the brake pedal and hold it there (Step J).

NOTICE:

- During this procedure, the pedal will feel heavy, but completely depress it so that the brake fluid comes out of the bleeder plug.
- Hold the brake pedal depressed. Do not depress and release the pedal repeatedly.

HINT:

- The operation stops automatically after 4 seconds. When performing this procedure continuously, set an interval of at least 20 seconds.
- When the operation is complete, the brake pedal goes down slightly. This is a normal phenomenon caused when the solenoid opens.

(4) Tighten the bleeder plug, and then release the brake pedal (Step K).

(5) Repeat steps I to K until all the air in the fluid is completely bled out.

(6) Tighten the bleeder plug.

Torque:

11 N·m {112 kgf·cm, 8ft·lbf}

(7) Repeat the above procedure for the other wheels to bleed the air out of the brake line.

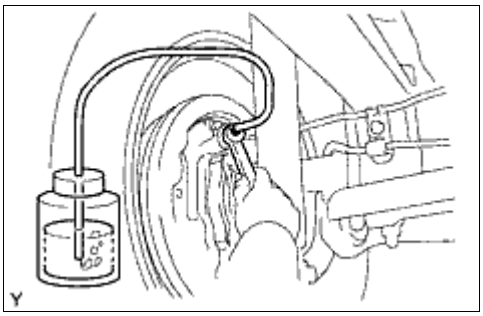
(g) Bleed the air out of the brake line again when Step 4: Increase appears on the Techstream display.

NOTICE:

- Bleed the air by following the steps displayed on the Techstream.
- Make sure that the master cylinder reservoir tank does not become empty.

(1) Connect the vinyl tube to either one of the bleeder plugs.

(2) Depress the brake pedal several times, and then loosen the bleeder plug connected to the vinyl tube with the pedal depressed (Step L).



(3) When fluid stops coming out, tighten the bleeder plug, and then release the brake pedal (Step M).

(4) Repeat steps L and M until all the air in the fluid is completely bled out.

(5) Tighten the bleeder plug.

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Torque:

11 N·m {112 kgf·cm, 8ft·lbf}

(6) Repeat the above procedure for the other wheels to bleed the air out of the brake line.

(7) Make sure that the air bleeding is complete by referring to the Techstream display and turn off the Techstream.

(8) Disconnect the Techstream from the DLC3.

(9) Turn the ignition switch off.

5. INSPECT FOR BRAKE FLUID LEAK

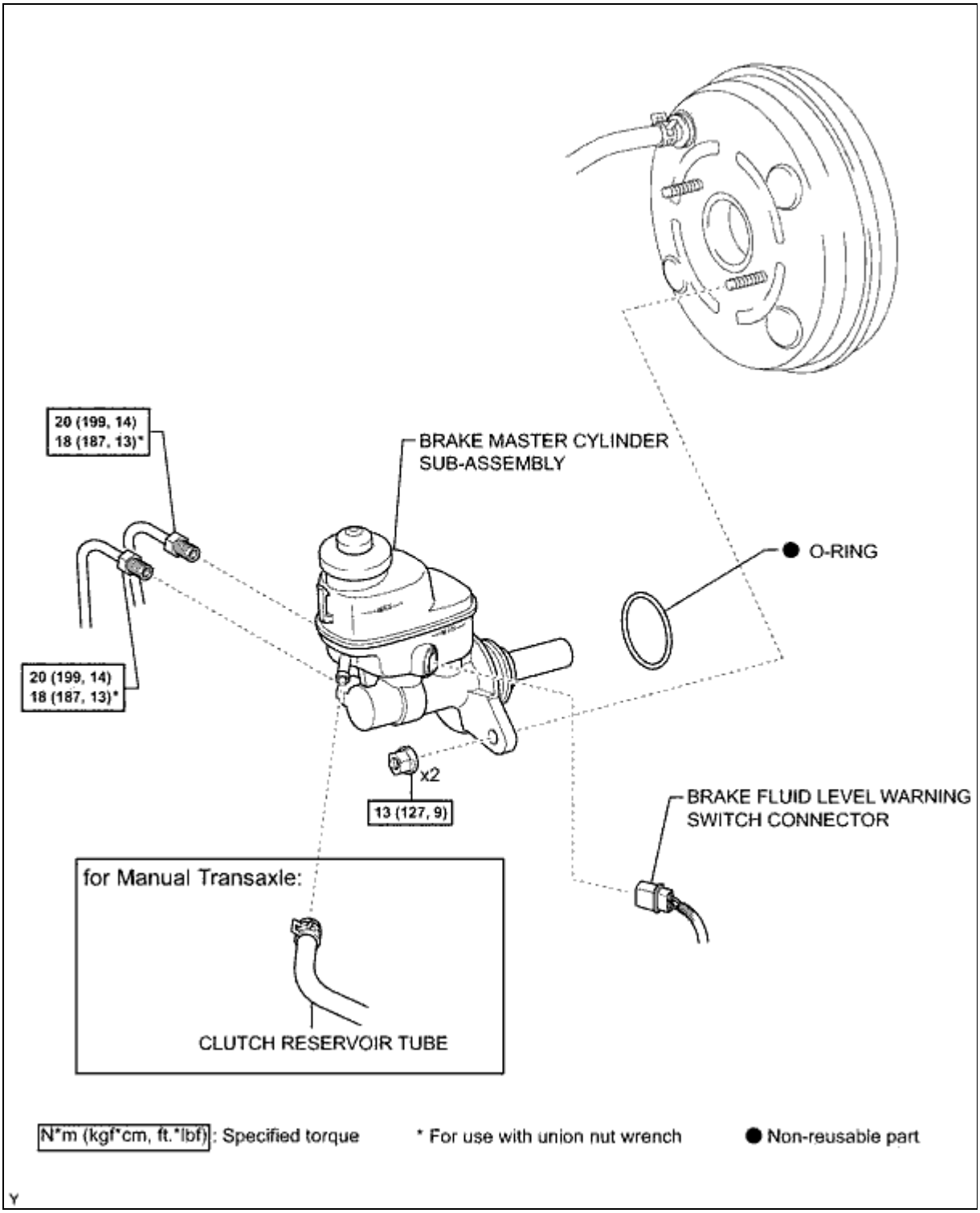
6. INSPECT FLUID LEVEL IN RESERVOIR INFO

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM00000171Y00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE MASTER CYLINDER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

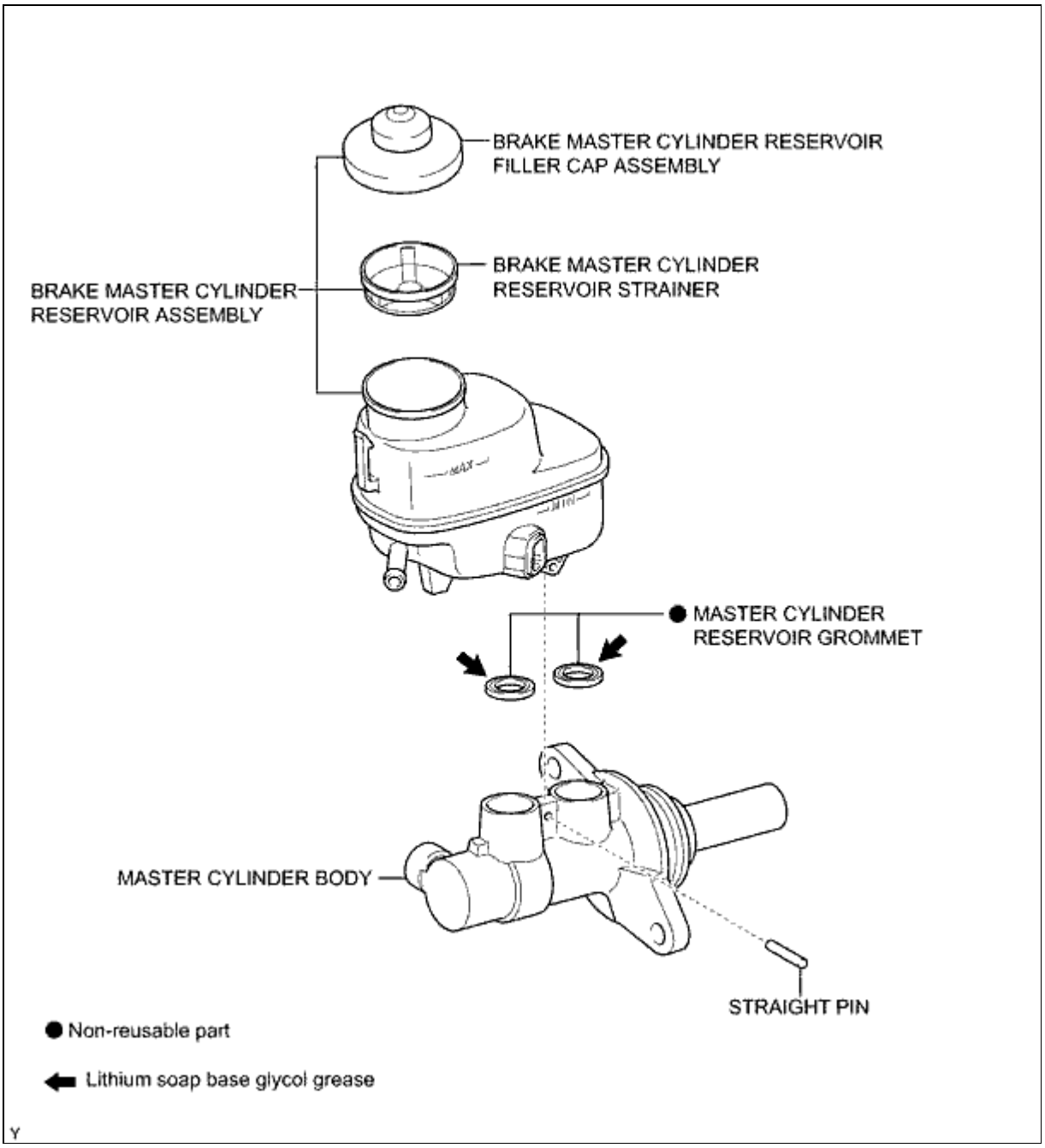
COMPONENTS

ILLUSTRATION



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ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000002WF205EX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE MASTER CYLINDER: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

DISASSEMBLY

1. REMOVE BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSEMBLY

2. REMOVE BRAKE MASTER CYLINDER RESERVOIR STRAINER

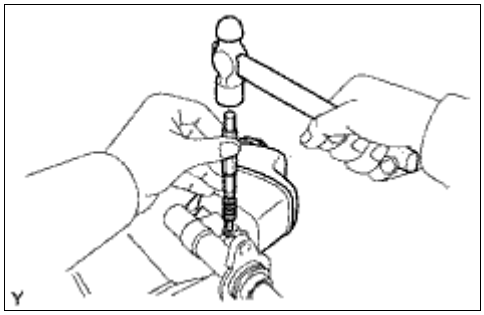
3. REMOVE BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY

(a) Fix the brake master cylinder in a vise between aluminum plates.

NOTICE:

Do not overtighten the vise.

(b) Using a pin punch and a hammer, tap out the straight pin and remove the brake master cylinder reservoir.



4. REMOVE MASTER CYLINDER RESERVOIR GROMMET

(a) Remove the 2 grommets from the master cylinder reservoir.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171X00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE MASTER CYLINDER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSPECT AND ADJUST BRAKE BOOSTER PUSH ROD

NOTICE:

The brake booster interior must not be a vacuum when adjusting the booster. Stop the engine and depress the brake pedal several times until there is no vacuum in the booster.

HINT:

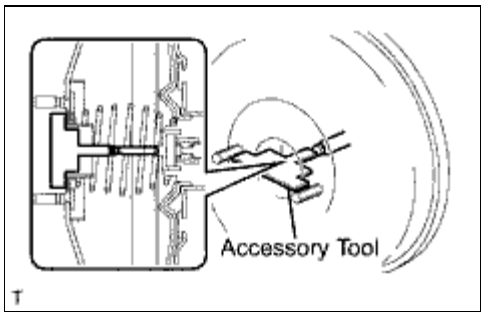
Adjust the booster push rod when the master cylinder sub-assembly is replaced with a new one. Adjustment is not necessary when the master cylinder sub-assembly is reinstalled and the booster is replaced with a new one.

(a) Apply chalk to the tip of an accessory tool.

HINT:

The accessory tool is enclosed with a new brake master cylinder sub-assembly.

(b) Place the accessory tool on the brake booster assembly.



(c) Measure the clearance between the brake booster push rod and accessory tool.

Standard clearance:
0 mm (0 in.)

HINT:

Adjust the clearance in the following cases:

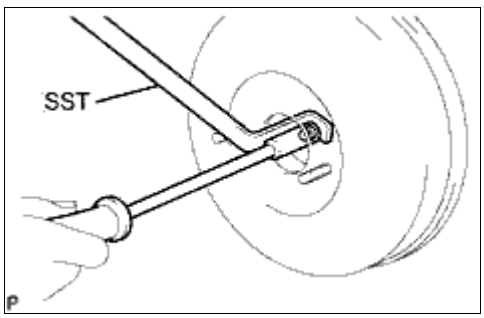
- If there is a clearance between the accessory tool and the shell of the brake booster (floating accessory tool), the push rod is protruding too far.
- If the chalk does not stick on the tip of the brake booster push rod, the push rod protrusion is insufficient.

(d) If the clearance is not as specified, adjust the push rod length by holding the rod using SST and turning the tip of the rod using a socket driver (7 mm).

SST: 09737-00020

HINT:

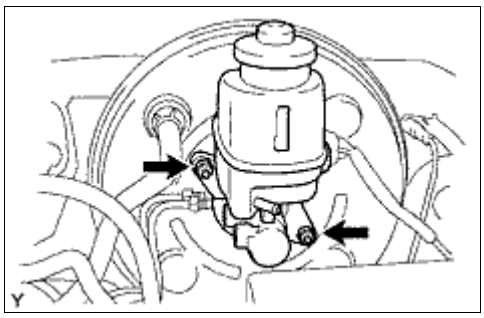
Check the push rod clearance again after adjustment.



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2. INSTALL BRAKE MASTER CYLINDER SUB-ASSEMBLY

(a) Install a new O-ring onto the brake master cylinder sub-assembly.



(b) Install the brake master cylinder sub-assembly with the 2 nuts onto the brake booster.

Torque:

13 N·m {127 kgf·cm, 9ft·lbf}

(c) Using a union nut wrench, connect the 2 brake lines to the brake master cylinder sub-assembly.

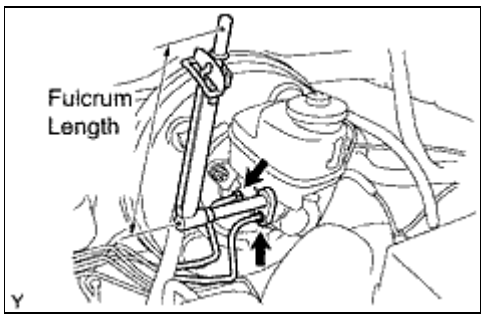
Torque:

without union nut wrench -

20 N·m {199 kgf·cm, 14ft·lbf}

with union nut wrench -

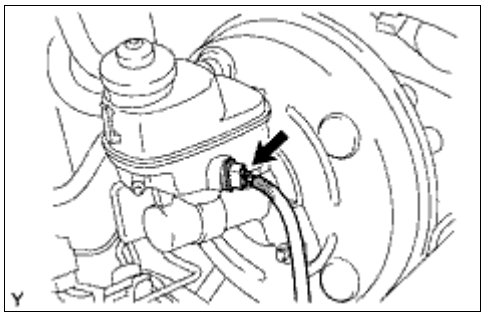
18 N·m {187 kgf·cm, 13ft·lbf}



HINT:

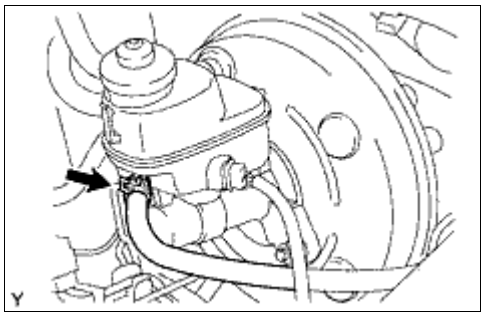
- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 20 mm (0.787 in.) INFO .
- This torque value is effective when the union nut wrench is parallel to the torque wrench.

(d) Connect the brake fluid level warning switch connector to the brake master cylinder sub-assembly.



3. INSTALL CLUTCH RESERVOIR TUBE (for Manual Transmission)

(a) Connect the clutch reservoir tube to the reservoir.



4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

5. FILL RESERVOIR WITH BRAKE FLUID INFO

6. BLEED MASTER CYLINDER INFO

7. BLEED BRAKE LINE INFO

8. BLEED BRAKE ACTUATOR INFO

9. INSPECT FLUID LEVEL IN RESERVOIR INFO

10. INSPECT FOR BRAKE FLUID LEAK

11. INSPECT BRAKE PEDAL HEIGHT INFO

12. INSPECT PEDAL FREE PLAY INFO

13. INSPECT PEDAL RESERVE DISTANCE INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000002WF3056X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE MASTER CYLINDER: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

1. INSTALL MASTER CYLINDER RESERVOIR GROMMET

(a) Apply lithium soap base glycol grease to 2 new grommets.

(b) Install the 2 grommets onto the brake master cylinder reservoir.

2. INSTALL BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY

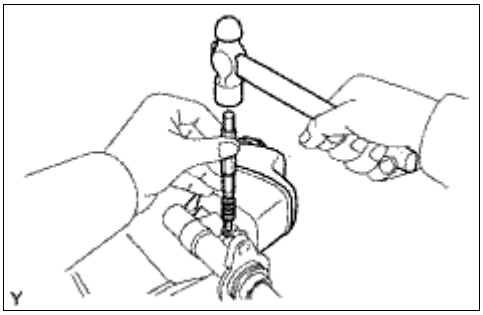
(a) Install the brake master cylinder reservoir to the master cylinder body.

(b) Fix the brake master cylinder in a vise between aluminum plates.

NOTICE:

Do not overtighten the vise.

(c) Using a pin punch and a hammer, tap in the straight pin.



3. INSTALL BRAKE MASTER CYLINDER RESERVOIR STRAINER

4. INSTALL BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSEMBLY

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171Z00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE MASTER CYLINDER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

NOTICE:

Release the vacuum from booster by depressing the brake pedal several times.

Then remove the brake master cylinder from brake booster.

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

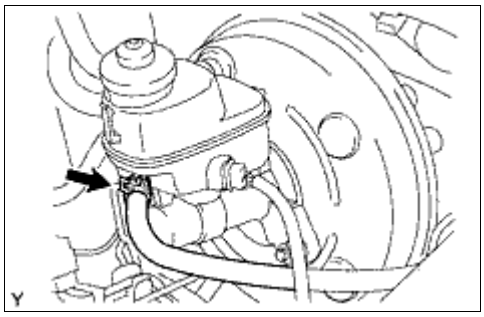
2. DRAIN BRAKE FLUID

NOTICE:

Immediately wash off any brake fluid that comes into contact with any painted surfaces.

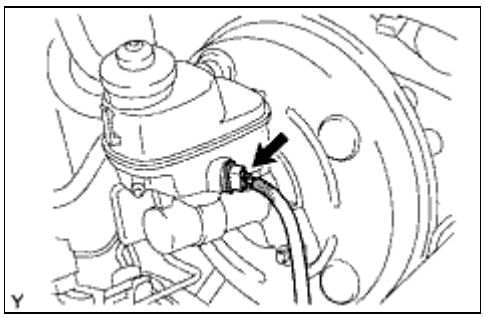
3. REMOVE CLUTCH RESERVOIR TUBE (for Manual Transmission)

(a) Disconnect the clutch reservoir tube from the reservoir.

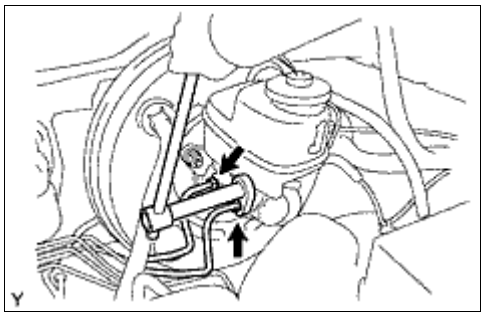


4. REMOVE BRAKE MASTER CYLINDER SUB-ASSEMBLY

(a) Disconnect the brake fluid level warning switch connector.

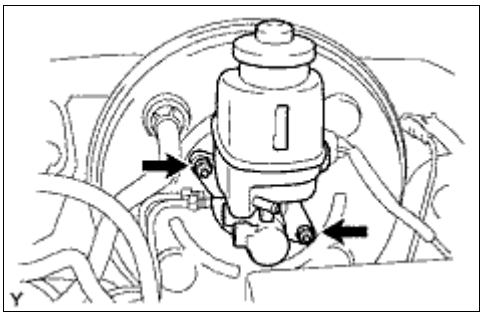


(b) Using a union nut wrench, disconnect the 2 brake lines from the brake master cylinder sub-assembly.



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(c) Remove the 2 nuts, and then pull the brake master cylinder sub-assembly out of the brake booster.



(d) Remove the O-ring from the brake master cylinder sub-assembly.

NOTICE:

- The master cylinder requires careful handling. Do not allow the master cylinder to receive any impact, such as from being dropped. Do not reuse a master cylinder that has been dropped.
- Do not strike or pinch the master cylinder piston, and do not cause any damage to the master cylinder piston by any other means.
- Release the vacuum from booster by depressing the brake pedal several times.

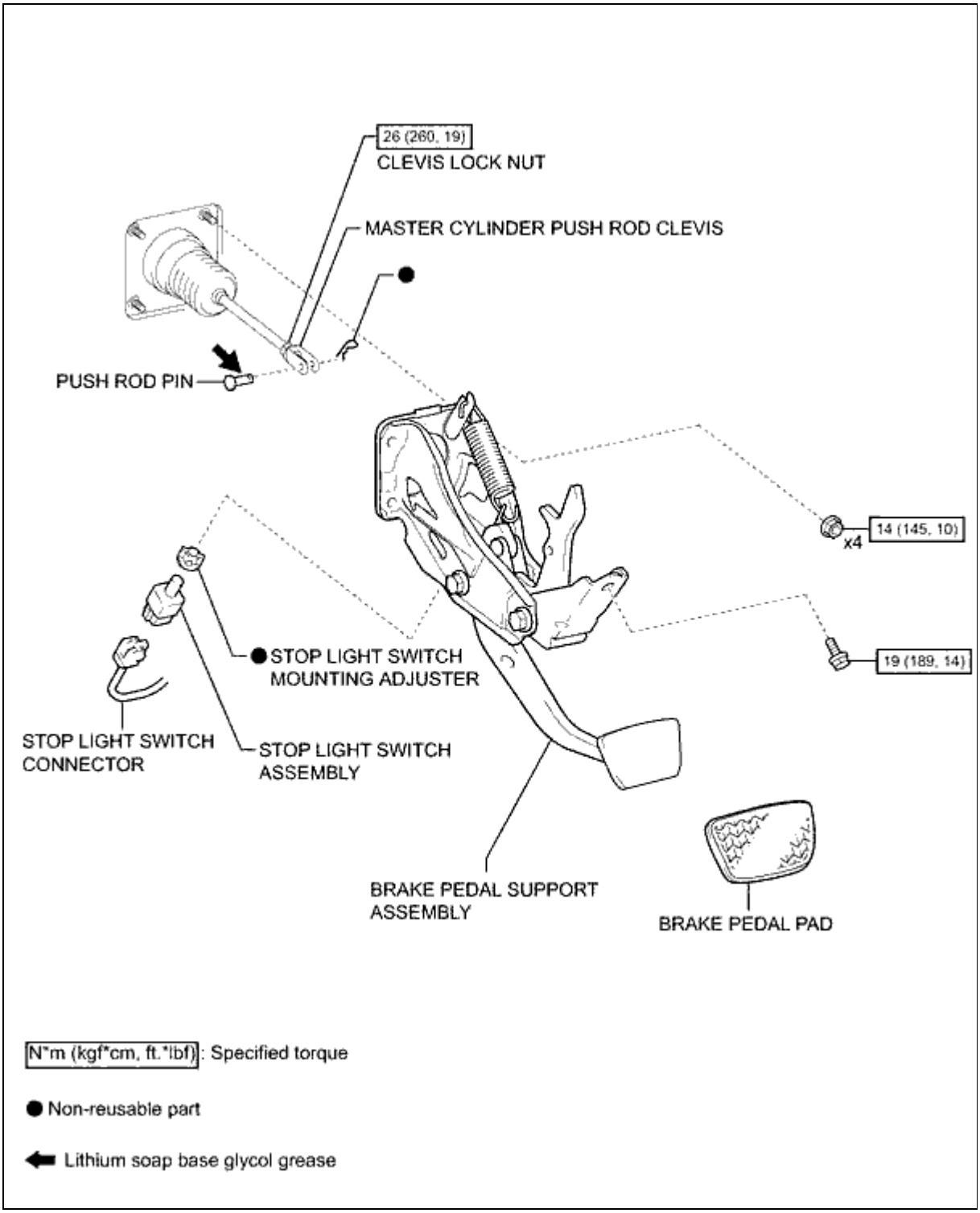
  Then remove the brake master cylinder from brake booster.
- When installing the brake master cylinder sub-assembly onto the brake booster, or when removing the brake master cylinder sub-assembly from the brake booster, make sure that the brake master cylinder sub-assembly is kept horizontal or its tip faces downward (the piston faces upward) to prevent the master cylinder piston from falling off.
- Do not allow any foreign objects to contaminate the master cylinder piston. If a foreign object gets on the piston, remove it by using a piece of cloth and then apply an even layer of lithium soap based glycol grease around the circumference (sliding part) of the piston.
- Do not use any other type of grease or fluid.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM00000171500KX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE PEDAL: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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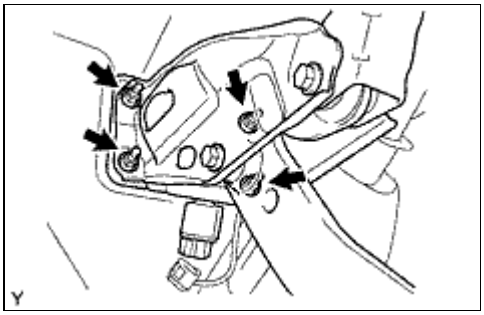
Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171400MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE PEDAL: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL BRAKE PEDAL PAD

(a) Install the brake pedal pad onto the brake pedal.

2. INSTALL BRAKE PEDAL SUPPORT ASSEMBLY

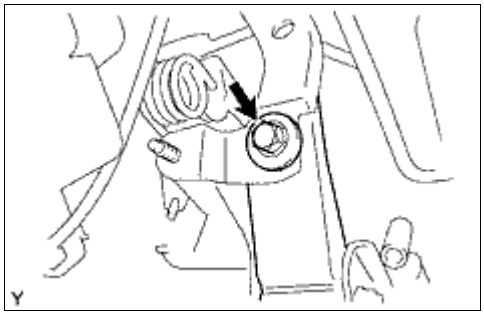


(a) Install the brake pedal support assembly with 4 nuts.

Torque:

14 N·m {145 kgf·cm, 10ft·lbf}

(b) Connect the stop light switch connector to the stop light switch.



(c) Install the bolt onto the reinforcement.

Torque:

19 N·m {189 kgf·cm, 14ft·lbf}

3. INSTALL MASTER CYLINDER PUSH ROD CLEVIS

(a) Apply lithium soap base glycol grease to the inner surface of the hole on the brake pedal lever.

(b) Install the push rod clevis onto the brake pedal lever with the push rod pin and a new clip.

4. INSPECT BRAKE PEDAL HEIGHT INFO

5. INSPECT PEDAL FREE PLAY INFO

6. INSPECT PEDAL RESERVE DISTANCE INFO

7. INSTALL LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

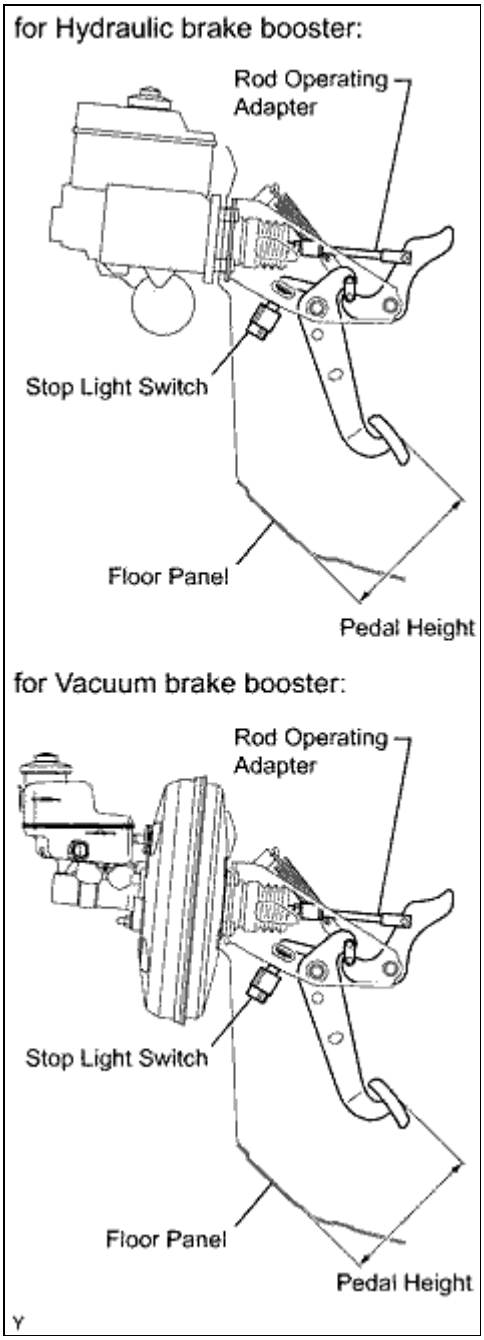
INFO

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000171700LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE PEDAL: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT BRAKE PEDAL HEIGHT



(a) Check the brake pedal height.

Pedal height from dash panel:

TYPE	PEDAL HEIGHT
Automatic transmission	164.4 to 174.4 mm (6.473 to 6.866 in.)

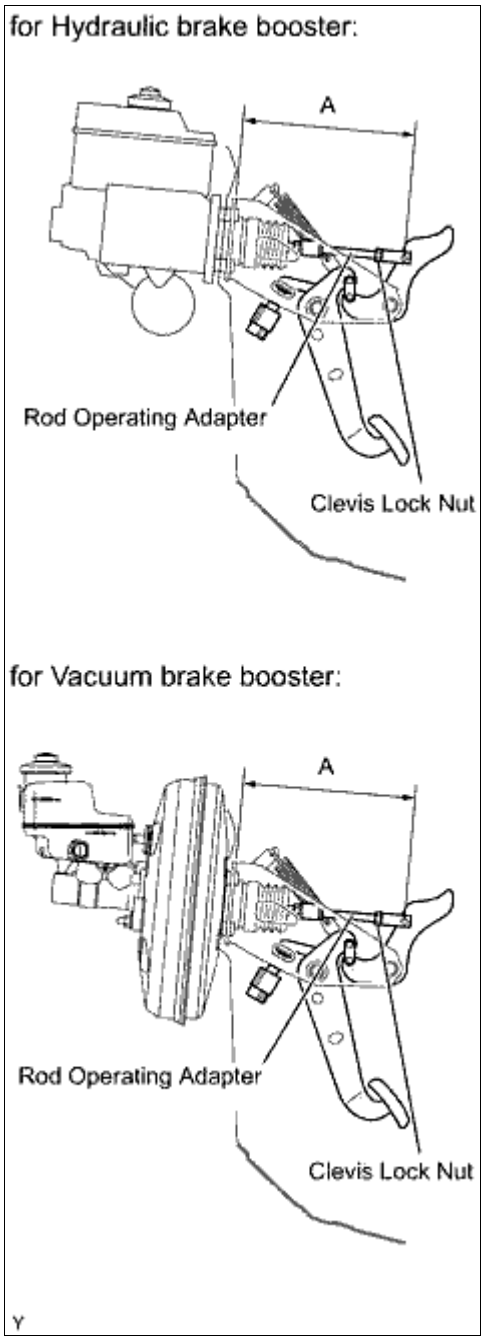
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TYPE	PEDAL HEIGHT
Manual transmission	160.5 to 170.5 mm (6.319 to 6.712 in.)

NOTICE:

Do not adjust the pedal height. Doing so by changing the push rod length will structurally change the pedal ratio.

If the pedal height is incorrect, adjust the rod operating adapter length.



(b) Adjust the rod operating adapter length.

(1) Remove the clip and clevis pin.

(2) Loosen the clevis lock nut.

(3) Adjust the rod operating adapter length by turning the pedal push rod clevis.

Rod operating adapter length A:

for Hydraulic brake booster

214 to 224 mm (8.425 to 8.818 in.)

for Vacuum brake booster

213 to 223 mm (8.386 to 8.780 in.)

(4) Tighten the clevis lock nut.

Torque:

26 N·m {260 kgf·cm, 19ft·lbf}

(5) Install the clip and clevis pin.

- If the pedal height is incorrect even when the rod operating adapter is adjusted, check that there is no damage in the brake pedal, brake pedal lever, brake pedal bracket or dash panel.
- Even if there is damage, there is no problem if the reserve distance is within the standard value.
- If necessary, replace the parts.

2. INSPECT AND ADJUST STOP LIGHT SWITCH ASSEMBLY

HINT:

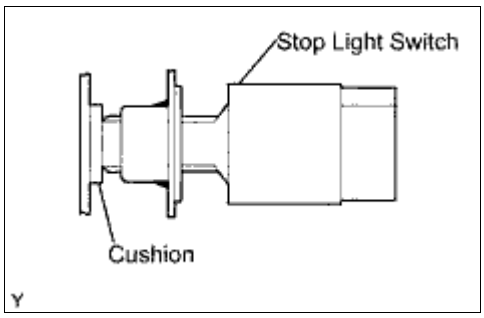
If the pedal height is incorrect, check and adjust the stop light switch.

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(a) Disconnect the stop light switch connector from the stop light switch.

(b) Turn the stop light switch counterclockwise, and remove the stop light switch.

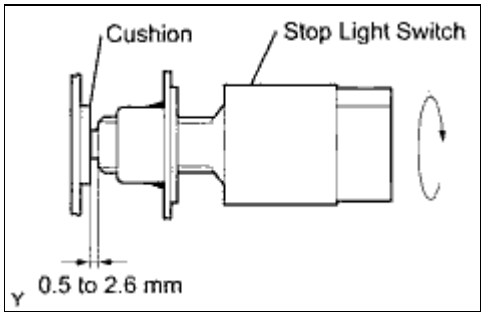
(c) Insert the stop light switch until the body comes into contact with the cushion.



NOTICE:

- When inserting the stop light switch, support the pedal from behind so that the pedal is not pushed in.
- Take care not to depress the pedal during the operation.

(d) Make a quarter turn clockwise to install the stop light switch.



NOTICE:

The turning torque for installing the stop light switch:

Torque:

1.5 N·m {15 kgf·cm, 13in·lbf} or less

(e) Check the protrusion of the rod.

Protrusion of the rod:

0.5 to 2.6 mm (0.020 to 0.102 in.)

(f) Connect the stop light switch connector to the stop light switch.

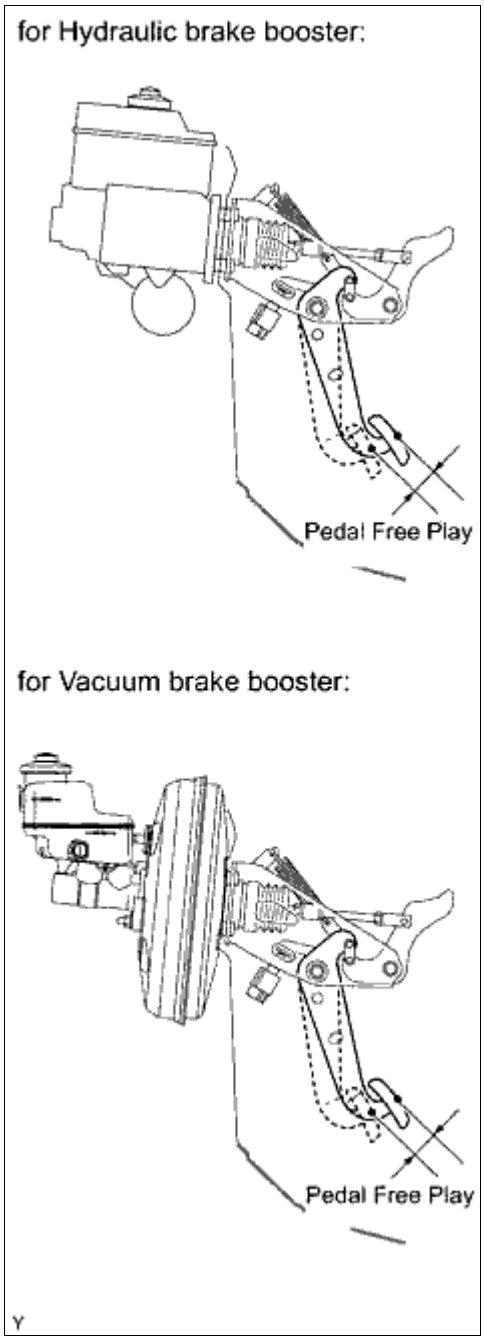
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3. INSPECT PEDAL FREE PLAY

(a) Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.

(b) Push in the pedal until the beginning of the resistance is felt. Measure the distance as shown.

Pedal free play:
1 to 6 mm (0.04 to 0.24 in.)



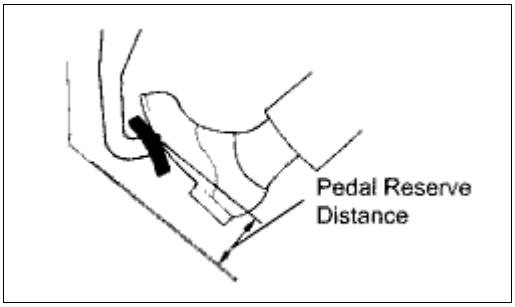
4. INSPECT PEDAL RESERVE DISTANCE

(a) Release the parking brake pedal.

With the engine running, depress the pedal and measure the pedal reserve distance as shown.

Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110.2 lbf):
More than 55 mm (2.17 in.)

If incorrect, troubleshoot the brake system.



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171600MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE PEDAL: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

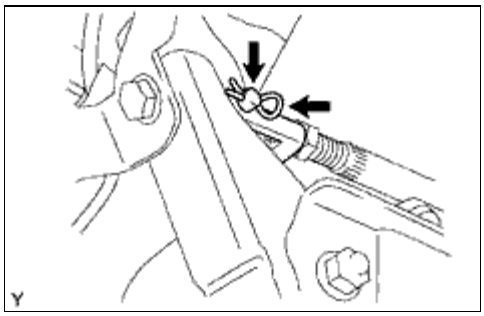
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. REMOVE LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

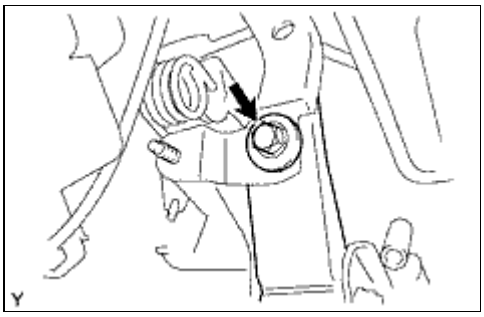
INFO

3. SEPARATE MASTER CYLINDER PUSH ROD CLEVIS

(a) Remove the clip and push rod pin, and then separate the push rod clevis.



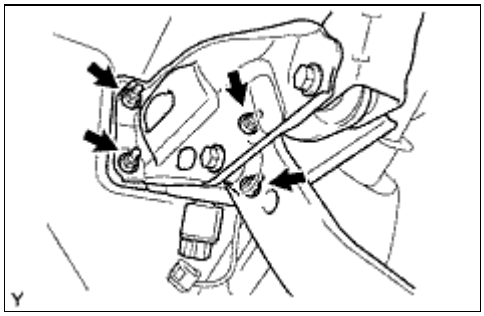
4. REMOVE BRAKE PEDAL SUPPORT ASSEMBLY



(a) Remove the bolt from the reinforcement.

(b) Disconnect the stop light switch connector from the stop light switch.

(c) Remove the 4 nuts and brake pedal support.



5. REMOVE BRAKE PEDAL PAD

(a) Remove the brake pedal pad from the brake pedal.

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Last Modified: 11-13-2015	6.6 L	**Doc ID:** RM00000172400KX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE SYSTEM: PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. **Necessary care must be taken to replace each part properly as it could affect the brake system performance. This could cause driving hazards. Replace each part with an identical part with the same number.**

2. **It is very important to keep parts and the area clean when repairing the brake system.**

3. **If the vehicle is equipped with a mobile communication system, refer to the precautions in the INTRODUCTION section.**

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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM00000172600MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: BRAKE SYSTEM: PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

SYMPTOM	SUSPECTED AREA	SEE PAGE
Low pedal or spongy pedal	Fluid leakage in brake system	-
	Air in brake system (for Hydraulic brake booster)	INFO
	Air in brake system (for Vacuum brake booster)	INFO
	Piston seal (Worn or damaged)	INFO
	Cylinder cup	INFO
	Rear brake (Shoe clearance out of adjustment)	INFO
	Brake master cylinder (Faulty) (for Vacuum brake booster)	INFO
	Hydraulic brake booster (Faulty) (for Hydraulic brake booster)	INFO
	Booster push rod (Out of adjustment) (for Vacuum brake booster)	INFO
Brake drag	Brake pedal free play (Minimum)	INFO
	Parking brake pedal travel (Out of adjustment)	INFO
	Parking brake wire (Sticking)	INFO
	Rear brake (Shoe clearance out of adjustment)	INFO
	Pad (Cracked or distorted)	INFO
	Brake shoe (Cracked or distorted)	INFO
	Front disc brake piston	INFO
	Piston (Stuck)	INFO
	Front disc brake piston (Frozen)	INFO
	Piston (Frozen)	INFO
	Tension or return spring (Faulty)	INFO
	Booster push rod (Out of adjustment) (for Vacuum brake booster)	INFO
	Booster system (Vacuum leakage) (for Vacuum brake booster)	INFO
	Brake master cylinder (Faulty) (for Vacuum brake booster)	INFO
	Hydraulic brake booster (Faulty)	INFO
Brake pull	Front disc brake piston (Stuck)	INFO
	Piston (Stuck)	INFO

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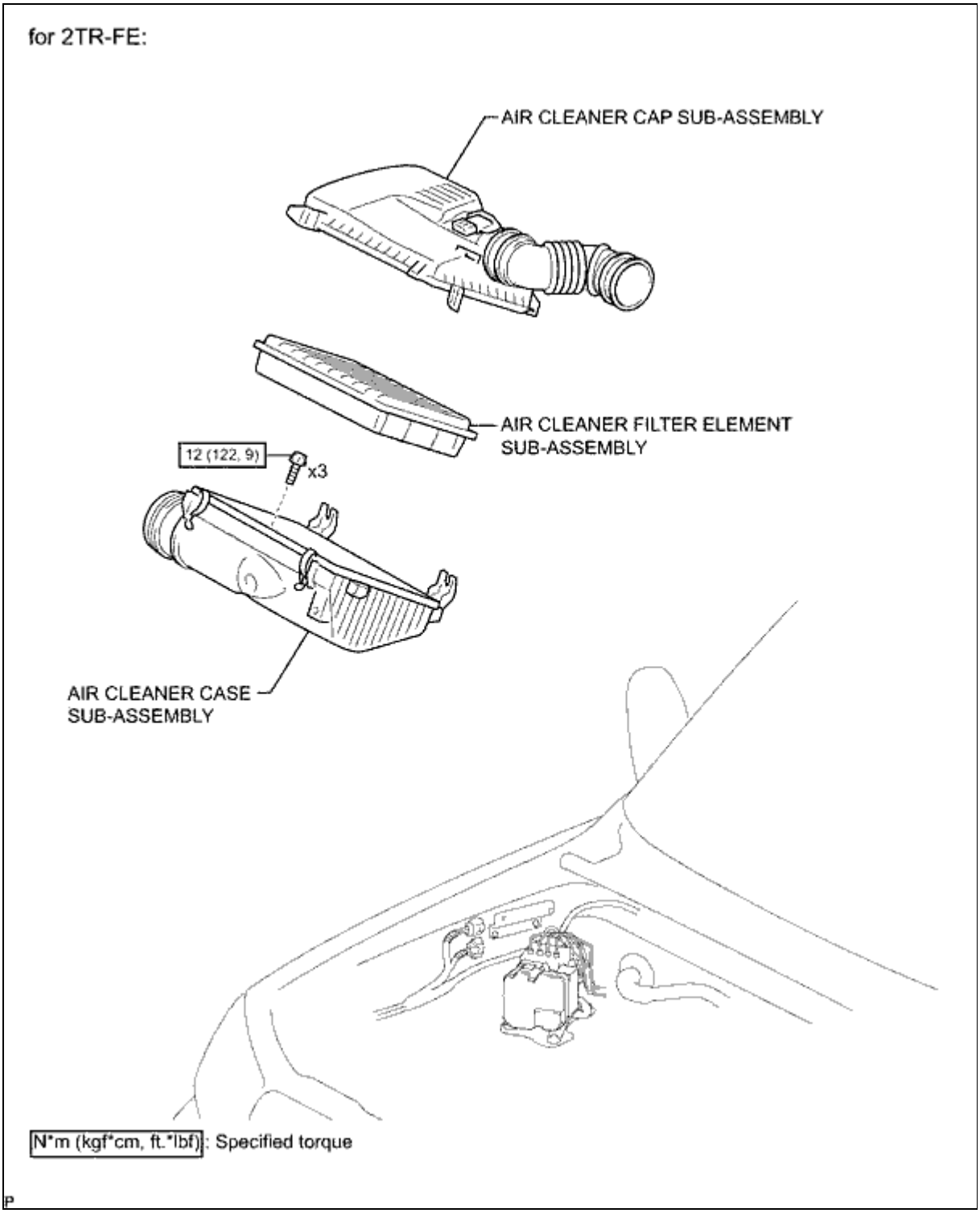
SYMPTOM	SUSPECTED AREA	SEE PAGE
	Pad (Oily)	INFO
	Brake shoe (Oily)	INFO
	Front disc brake piston (Frozen)	INFO
	Piston (Frozen)	INFO
	Front disc (Scored)	INFO
	Pad (Cracked or distorted)	INFO
	Brake shoe (Cracked or distorted)	INFO
Firm pedal but braking inefficient	Fluid leakage in brake system	-
	Air in brake system (for Hydraulic brake booster)	INFO
	Air in brake system (for Vacuum brake booster)	INFO
	Pad (Worn)	INFO
	Brake shoe (Worn)	INFO
	Pad (Cracked or distorted)	INFO
	Brake shoe (Cracked or distorted)	INFO
	Rear brake (Shoe clearance out of adjustment)	INFO
	Pad (Oily)	INFO
	Brake shoe (Oily)	INFO
	Pad (Glazed)	INFO
	Brake shoe (Glazed)	INFO
	Front disc (Scored)	INFO
	Booster push rod (Out of adjustment) (for Vacuum brake booster)	INFO
	Booster system (Vacuum leakage) (for Vacuum brake booster)	INFO
Noise from brakes	Pad (Cracked or distorted)	INFO
	Brake shoe (Cracked or distorted)	INFO
	Installation bolt (Loose)	INFO
	Front disc (Scored)	INFO
	Pad (Dirty)	INFO
	Brake shoe (Dirty)	INFO
	Pad (Glazed)	INFO
	Brake shoe (Glazed)	INFO
	Tension or return spring (Faulty)	INFO
	Anti-squeal shim (Damaged)	INFO
	Shoe hold-down spring (Damaged)	INFO

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000001JRE00UX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: BRAKE ACTUATOR: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

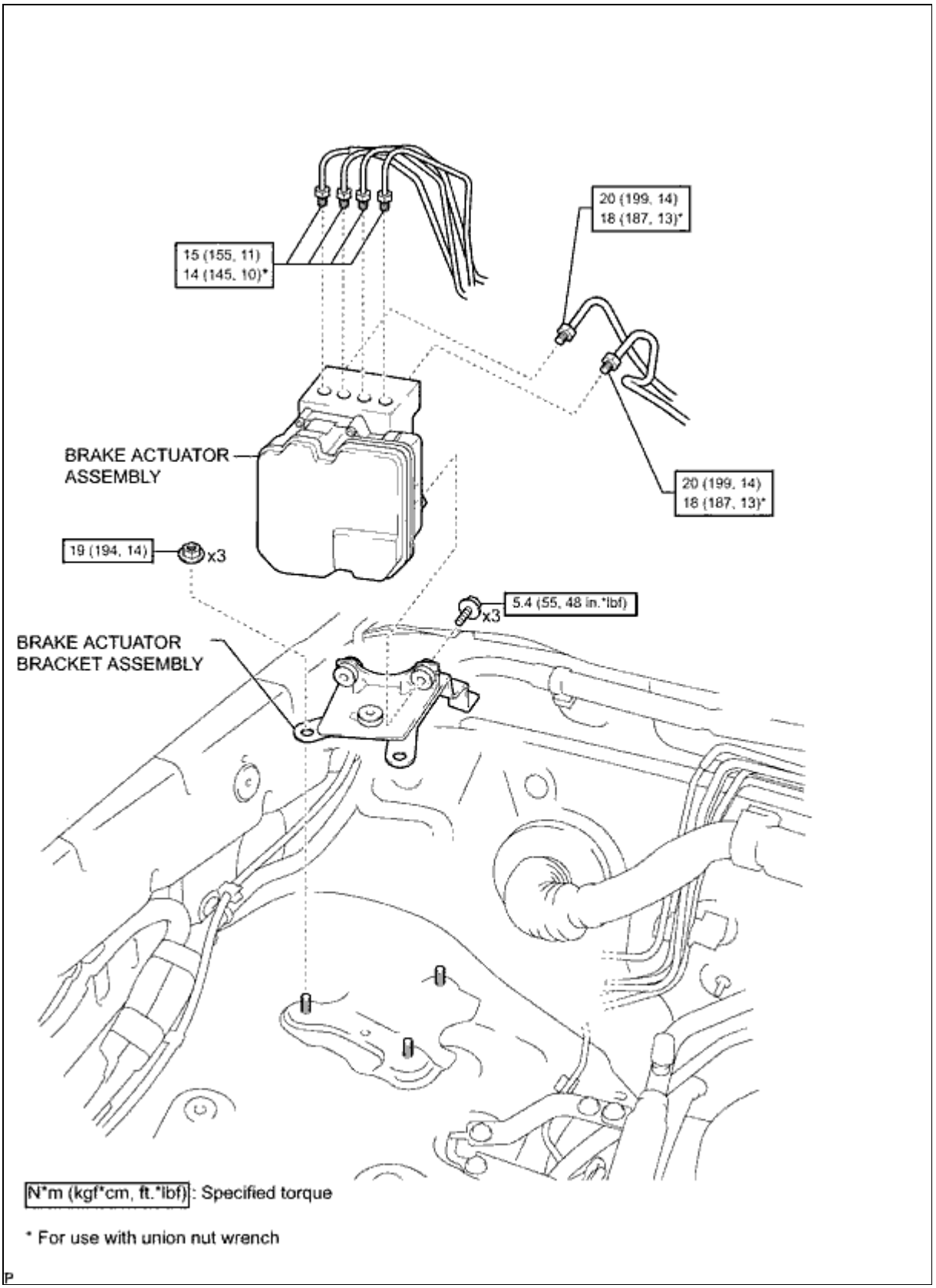
COMPONENTS

ILLUSTRATION



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ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000V4Y01TX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: BRAKE ACTUATOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

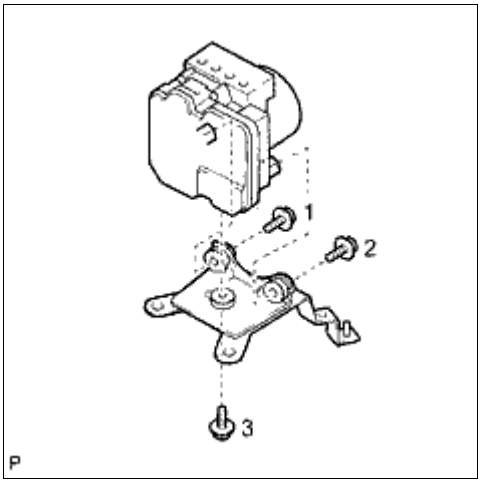
INSTALLATION

1. INSTALL BRAKE ACTUATOR BRACKET ASSEMBLY

(a) Install the actuator bracket with the 3 bolts in the sequence shown in the illustration.

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}



2. INSTALL BRAKE ACTUATOR ASSEMBLY

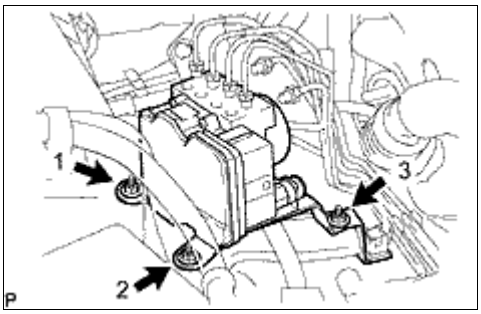
(a) Install the brake actuator with bracket with the 3 nuts in the sequence shown in the illustration.

Torque:

19 N·m {194 kgf·cm, 14ft·lbf}

NOTICE:

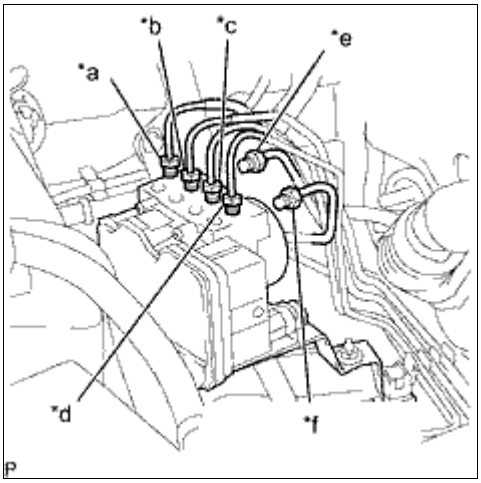
- Be careful not to damage the brake tubes and wire harness.



(b) Temporarily install each brake tube in the correct positions of the brake actuator as shown in the illustration.

Text in Illustration

*a	RR LH
*b	RR RH
*c	FR LH
*d	FR RH
*e	RR Master Cylinder
*f	FR Master Cylinder

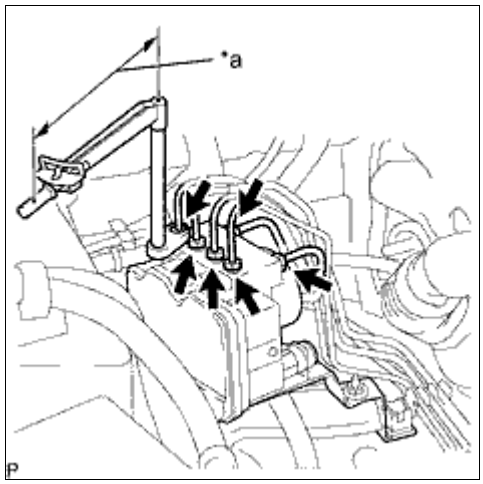


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(c) Using a union nut wrench, install the 6 brake tubes to the brake actuator.

Text in Illustration

*a	Torque Wrench Fulcrum Length



(1) for 12 mm flare nuts :

Torque:

Specified tightening torque -

20 N·m {199 kgf·cm, 14ft·lbf}

HINT:

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench INFO .
- When using a union nut wrench (fulcrum length of 20 mm (0.787 in.)) + torque wrench (fulcrum length of 300 mm (11.8 in.)): 18 N*m (187 kgf*cm, 13 ft.*lbf)

(2) for 10 mm flare nuts :

Torque:

Specified tightening torque -

15 N·m {155 kgf·cm, 11ft·lbf}

HINT:

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench INFO .
- When using a union nut wrench (fulcrum length of 22 mm (0.866 in.)) + torque wrench (fulcrum length of 300 mm (11.8 in.)): 14 N*m (145 kgf*cm, 10 ft.*lbf)

(d) Connect the brake actuator connector.

(e) Lock the connector lock lever.

NOTICE:

Make sure that the lever is locked securely.

3. INSTALL AIR CLEANER CASE SUB-ASSEMBLY (for 2TR-FE) INFO

4. INSTALL AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY (for 2TR-FE)

5. INSTALL AIR CLEANER CAP SUB-ASSEMBLY (for 2TR-FE) INFO

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

7. FILL RESERVOIR WITH BRAKE FLUID INFO

8. BLEED MASTER CYLINDER INFO

9. BLEED BRAKE LINE INFO

10. BLEED BRAKE ACTUATOR INFO

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11. INSPECT FLUID LEVEL IN RESERVOIR INFO

12. INSPECT FOR BRAKE FLUID LEAK

13. CHECK BRAKE ACTUATOR WITH TECHSTREAM

INFO

14. PERFORM YAW RATE AND ACCELERATION SENSOR ZERO POINT CALIBRATION

INFO

15. CHECK AND CLEAR DTC

INFO

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000108K02JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: BRAKE ACTUATOR: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. CONNECT TECHSTREAM

(a) Warm up the engine.

(b) Turn the ignition switch to off.

(c) Connect the Techstream to the DLC3.

(d) Turn the ignition switch to ON.

(e) Turn the Techstream on.

(f) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

2. INSPECT BRAKE ACTUATOR MOTOR

(a) With the motor relay ON, check the actuator motor operation sounds.

NOTICE:

Do not keep the motor relay turned ON for more than 5 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(b) Turn the motor relay OFF.

(c) Depress the brake pedal and hold it for approximately 15 seconds. Check that the brake pedal cannot be depressed further.

(d) With the motor relay ON, check that the pedal does not pulsate.

(e) Turn the motor relay OFF and release the brake pedal.

3. INSPECT BRAKE ACTUATOR SOLENOID (for Front Right Wheel)

NOTICE:

Never turn a solenoid ON in any manner other than described below.

(a) With the brake pedal depressed, perform the following operations.

(b) Turn the SFRH and SFRR solenoids ON simultaneously, and check that the pedal cannot be depressed further.

NOTICE:

Do not keep the solenoid turned ON for more than 10 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(c) Turn the SFRH and SFRR solenoids OFF simultaneously, and check that the pedal can be depressed further.

(d) Turn the motor relay ON, and check that the pedal can be depressed.

NOTICE:

Do not keep the motor relay turned ON for more than 5 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(e) Turn the motor relay OFF and release the brake pedal.

4. INSPECT BRAKE ACTUATOR SOLENOID (for Front Left Wheel)

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NOTICE:

Never turn a solenoid ON in any manner other than described below.

(a) With the brake pedal depressed, perform the following operations.

(b) Turn the SFLH and SFLR solenoids ON simultaneously, and check that the pedal cannot be depressed further.

NOTICE:

Do not keep the solenoid turned ON for more than 10 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(c) Turn the SFLH and SFLR solenoids OFF simultaneously, and check that the pedal can be depressed further.

(d) Turn the motor relay ON, and check that the pedal can be depressed.

NOTICE:

Do not keep the motor relay turned ON for more than 5 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(e) Turn the motor relay OFF and release the brake pedal.

5. INSPECT BRAKE ACTUATOR SOLENOID (for Rear Right Wheel)

NOTICE:

Never turn a solenoid ON in any manner other than described below.

(a) With the brake pedal depressed, perform the following operations.

(b) Turn the SRRH and SRRR solenoids ON simultaneously, and check that the pedal cannot be depressed further.

NOTICE:

Do not keep the solenoid turned ON for more than 10 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(c) Turn the SRRH and SRRR solenoids OFF simultaneously, and check that the pedal can be depressed further.

(d) Turn the motor relay ON, and check that the pedal can be depressed.

NOTICE:

Do not keep the motor relay turned ON for more than 5 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(e) Turn the motor relay OFF and release the brake pedal.

6. INSPECT BRAKE ACTUATOR SOLENOID (for Rear Left Wheel)

NOTICE:

Never turn a solenoid ON in any manner other than described below.

(a) With the brake pedal depressed, perform the following operations.

(b) Turn the SRLH and SRLR solenoids ON simultaneously, and check that the pedal cannot be depressed further.

NOTICE:

Do not keep the solenoid turned ON for more than 10 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(c) Turn the SRLH and SRLR solenoids OFF simultaneously, and check that the pedal can be depressed further.

(d) Turn the motor relay ON, and check that the pedal can be depressed.

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NOTICE:

Do not keep the motor relay turned ON for more than 5 seconds continuously. Allow intervals of at least 20 seconds between consecutive operations.

(e) Turn the motor relay OFF and release the brake pedal.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000V5001TX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: BRAKE ACTUATOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the negative (-) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) battery terminal notices before proceeding with work INFO .

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

3. DRAIN BRAKE FLUID

NOTICE:

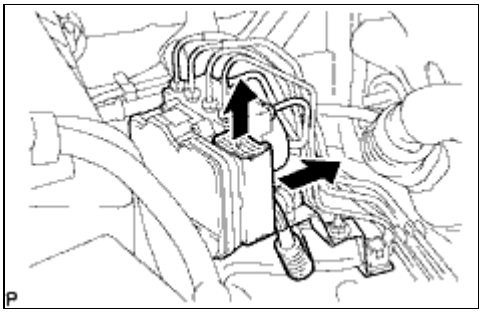
Immediately wash off any brake fluid that comes into contact with any painted surfaces.

4. REMOVE AIR CLEANER CAP SUB-ASSEMBLY (for 2TR-FE) INFO

5. REMOVE AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY (for 2TR-FE)

6. REMOVE AIR CLEANER CASE SUB-ASSEMBLY (for 2TR-FE) INFO

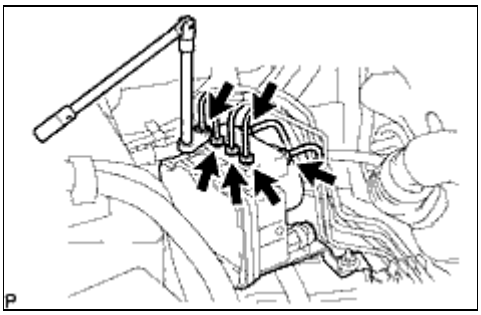
7. REMOVE BRAKE ACTUATOR ASSEMBLY



(a) Release the connector lock lever.

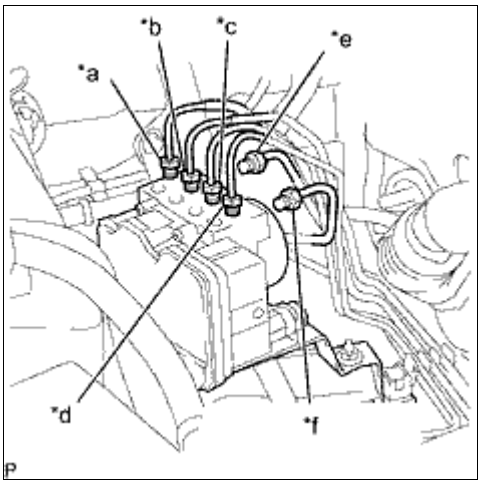
(b) Disconnect the brake actuator connector.

(c) Using a union nut wrench, separate the 6 brake tubes from the brake actuator.



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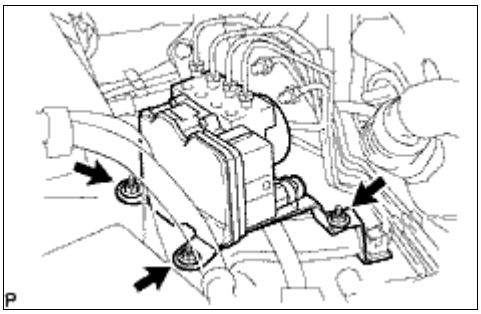
(d) Use tags or labels to identify the place to reconnect each brake tube.



Text in Illustration

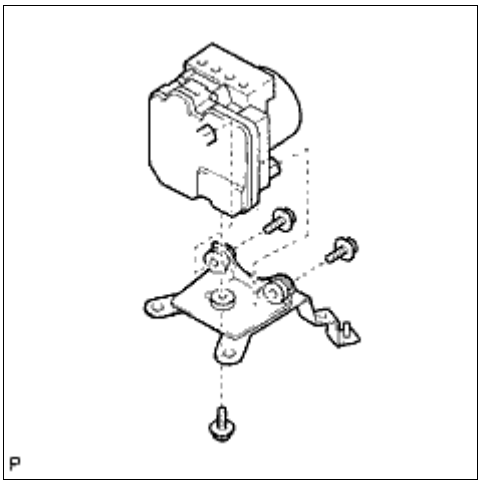
*a	RR LH
*b	RR RH
*c	FR LH
*d	FR RH
*e	RR Master Cylinder
*f	FR Master Cylinder

(e) Remove the 3 nuts and brake actuator with bracket.



8. REMOVE BRAKE ACTUATOR BRACKET ASSEMBLY

(a) Remove the 3 bolts and actuator bracket.

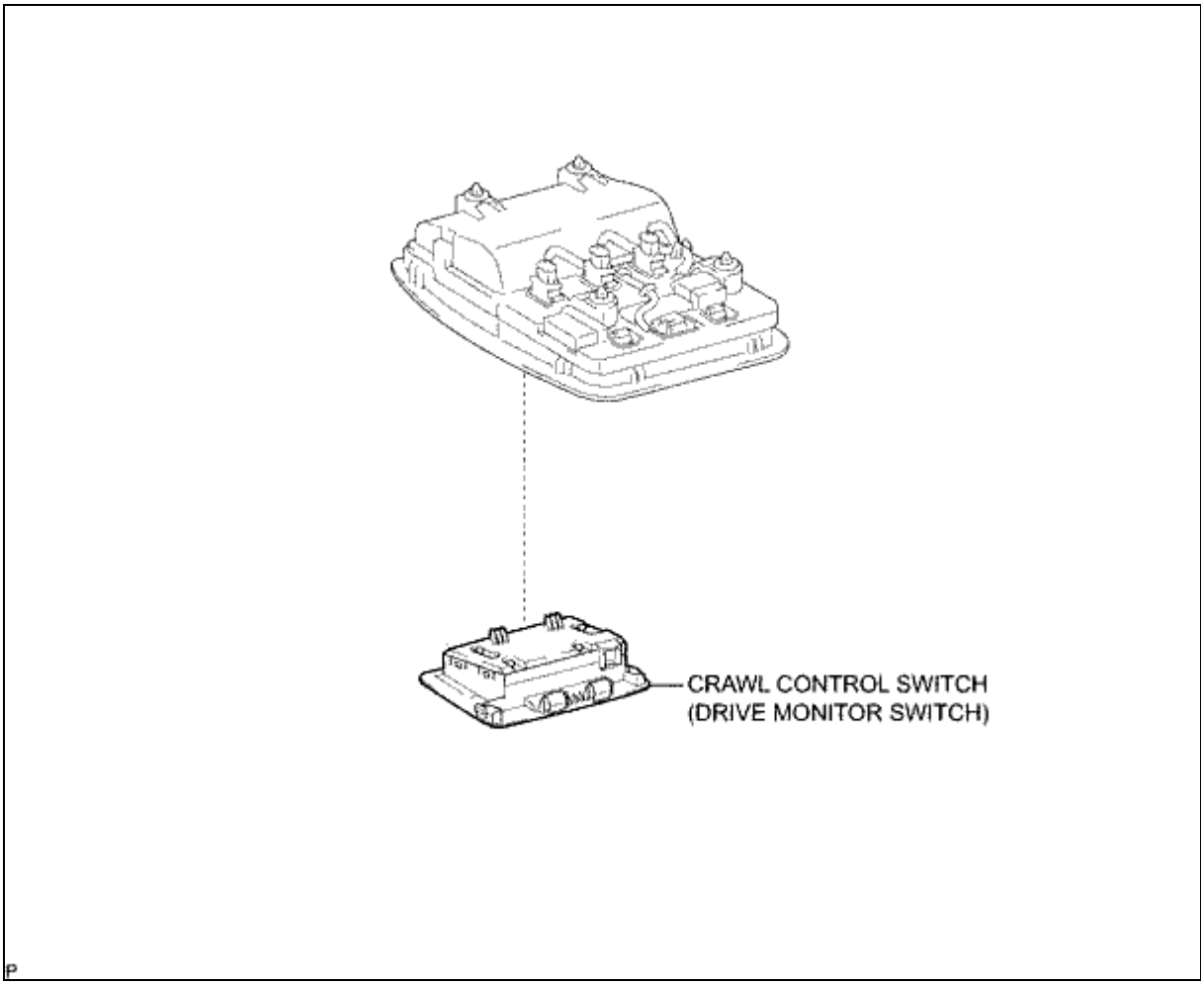


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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM0000056LJ006X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: CRAWL SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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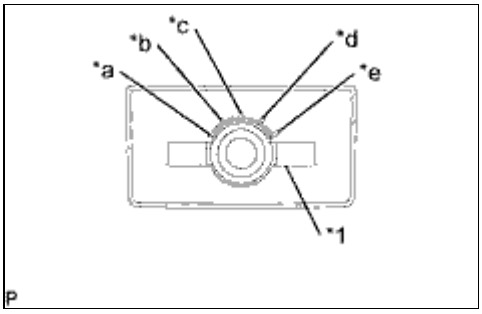
Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000003C4B01BX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: CRAWL SWITCH: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT CRAWL CONTROL SWITCH (DRIVE MONITOR SWITCH)

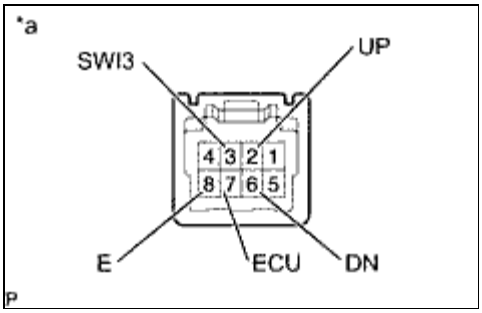
(a) Check the resistance.

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



Text in Illustration

*1	Crawl Control Switch
*a	Low
*b	Between Low and Medium
*c	Medium
*d	Between Medium and High
*e	High



Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
7 (ECU) - 8 (E)	Low	Below 1 Ω
2 (UP) - 8 (E)		
6 (DN) - 8 (E)		10 kΩ or higher
7 (ECU) - 8 (E)	Between Low and Medium	Below 1 Ω
2 (UP) - 8 (E)		

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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
6 (DN) - 8 (E)		10 kΩ or higher
7 (ECU) - 8 (E)	Medium	Below 1 Ω
2 (UP) - 8 (E)		
6 (DN) - 8 (E)		10 kΩ or higher
7 (ECU) - 8 (E)	Between Medium and High	Below 1 Ω
2 (UP) - 8 (E)		
6 (DN) - 8 (E)		10 kΩ or higher
7 (ECU) - 8 (E)	High	Below 1 Ω
2 (UP) - 8 (E)		
6 (DN) - 8 (E)		10 kΩ or higher
3 (SWI3) - 8 (E)	ON/OFF: Pressed	Below 1 Ω
	ON/OFF: Not pressed	10 kΩ or higher

Text in Illustration

*a	Component without harness connected (Crawl Control Switch (Drive Monitor Switch))

If the result is not as specified, replace the crawl control switch (drive monitor switch).

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000003C4C01OX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: CRAWL SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL CRAWL CONTROL SWITCH (DRIVE MONITOR SWITCH)

(a) Engage the 2 claws to install the crawl control switch (drive monitor switch).

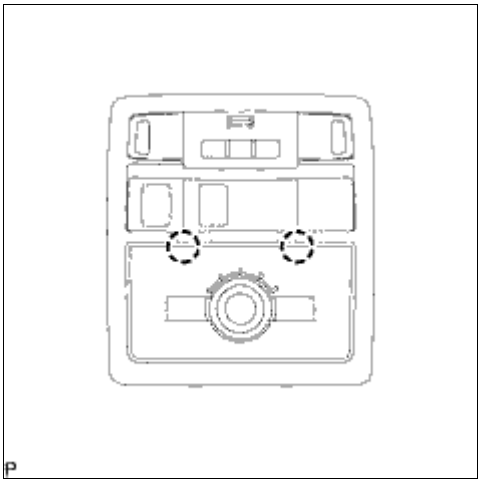
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000003C4A01MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: CRAWL SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE CRAWL CONTROL SWITCH (DRIVE MONITOR SWITCH)

(a) Disengage the 2 claws to remove the crawl control switch (drive monitor switch).



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000WET04XX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: FRONT SPEED SENSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL FRONT SPEED SENSOR

(a) Install the front speed sensor with the bolt.

Torque:

8.3 N·m {85 kgf·cm, 73in·lbf}

NOTICE:

Make sure that the sensor tip is clean.

(b) Connect the speed sensor connector.

2. INSTALL FRONT WHEEL

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

4. CHECK VSC SENSOR SIGNAL (for Hydraulic Brake Booster)

INFO

5. CHECK VSC SENSOR SIGNAL (for Vacuum Brake Booster)

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000WEU04CX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: FRONT SPEED SENSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. REMOVE FRONT WHEEL

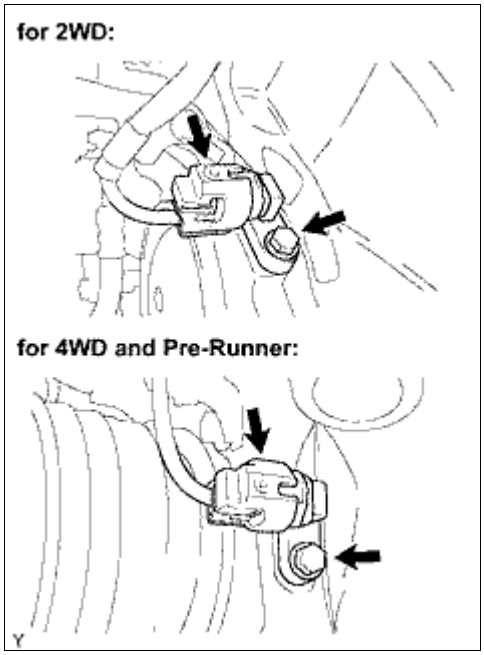
3. REMOVE FRONT SPEED SENSOR

(a) Disconnect the speed sensor connector.

(b) Remove the bolt and front speed sensor.

NOTICE:

- Do not attach any foreign matter to the sensor tip.
- Ensure that no foreign matter enters the sensor installation part.

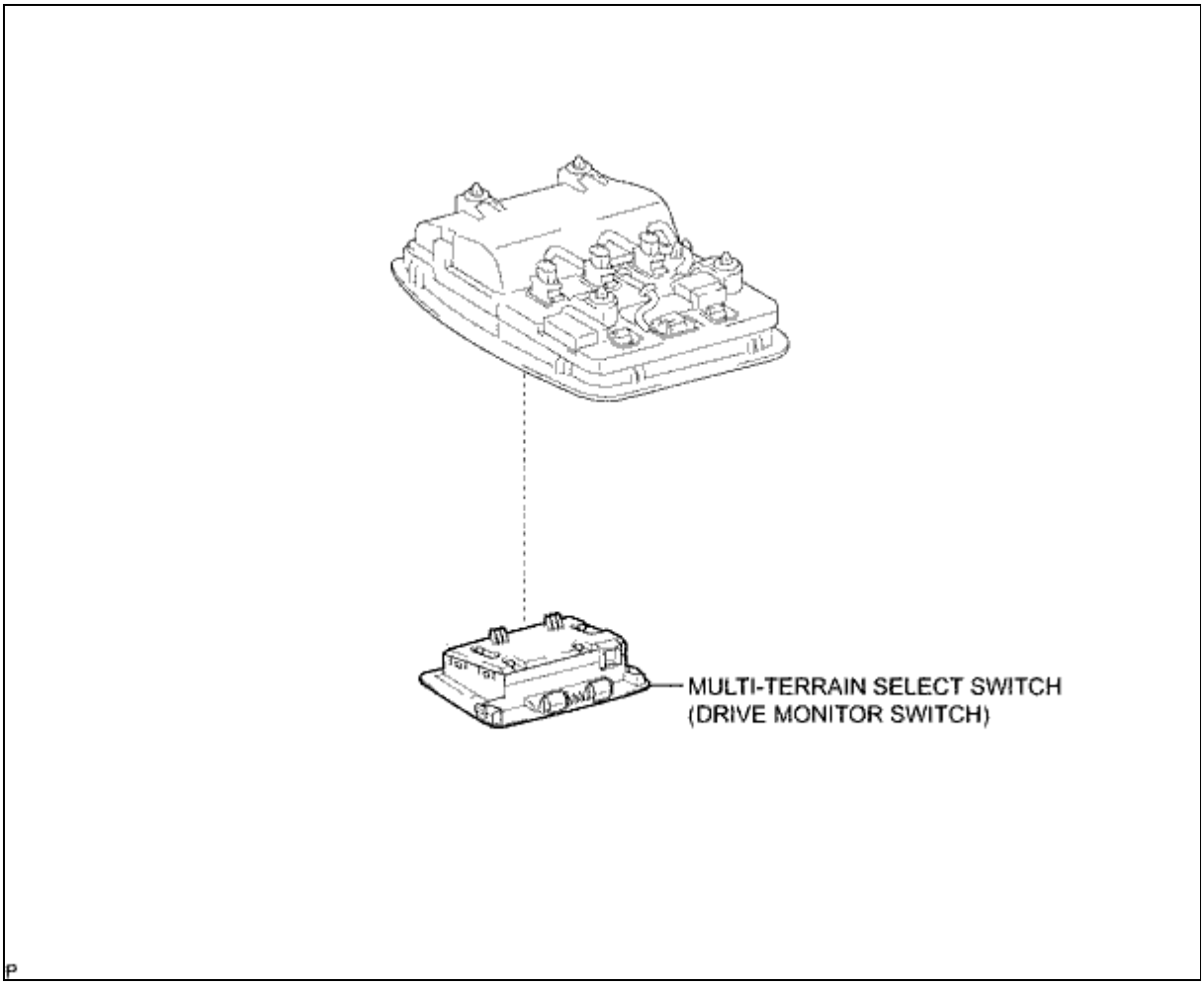


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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005MSL002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: MULTI-TERRAIN SELECT SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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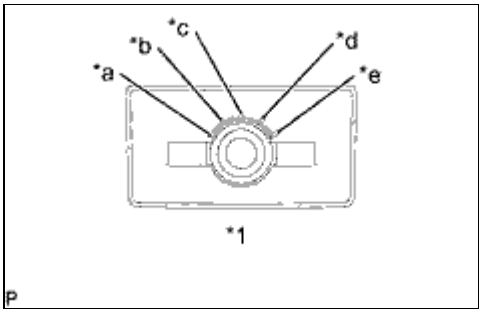
Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000005MSK002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: MULTI-TERRAIN SELECT SWITCH: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT MULTI-TERRAIN SELECT SWITCH (DRIVE MONITOR SWITCH)

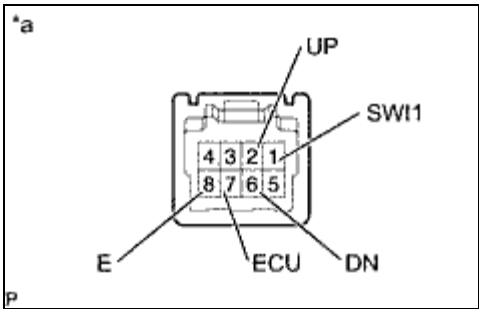
(a) Check the resistance.

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



Text in Illustration

*1	Multi-terrain Select Switch
*a	MUD and SAND
*b	LOOSE ROCK
*c	MOGUL
*d	ROCK and DIRT
*e	ROCK



Text in Illustration

*a	Component without harness connected (Multi-terrain Select Switch (Drive Monitor Switch))

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
7 (ECU) - 8 (E)	MUD and SAND	Below 1 Ω
2 (UP) - 8 (E)		

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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
6 (DN) - 8 (E)		10 kΩ or higher
7 (ECU) - 8 (E)	LOOSE ROCK	Below 1 Ω
2 (UP) - 8 (E)		10 kΩ or higher
6 (DN) - 8 (E)		
7 (ECU) -8 (E)	MOGUL	10 kΩ or higher
2 (UP) -8 (E)		
6 (DN) -8 (E)		
7 (ECU) - 8 (E)	ROCK and DIRT	10 kΩ or higher
2 (UP) - 8 (E)		
6 (DN) - 8 (E)		Below 1 Ω
7 (ECU) - 8 (E)	ROCK	10 kΩ or higher
2 (UP) - 8 (E)		Below 1 Ω
6 (DN) - 8 (E)		
1 (SWI1) - 8 (E)	ON/OFF: Pressed	Below 1 Ω
	ON/OFF: Not pressed	10 kΩ or higher

If the result is not as specified, replace the multi-terrain select switch (drive monitor switch).

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005MSJ002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: MULTI-TERRAIN SELECT SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL MULTI-TERRAIN SELECT SWITCH (DRIVE MONITOR SWITCH)

(a) Engage the 2 claws to install the multi-terrain select switch (drive monitor switch).

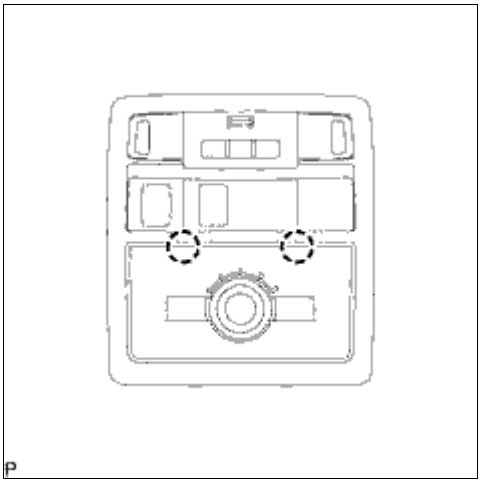
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005MSM002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: MULTI-TERRAIN SELECT SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE MULTI-TERRAIN SELECT SWITCH (DRIVE MONITOR SWITCH)

(a) Disengage the 2 claws to remove the multi-terrain select switch (drive monitor switch).

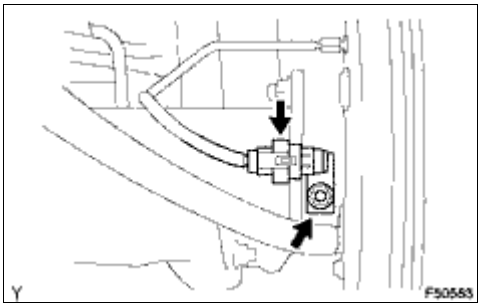


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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000SRY03QX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: REAR SPEED SENSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL REAR SPEED SENSOR



(a) Install the rear speed sensor with the nut.

Torque:

8.0 N·m {82 kgf·cm, 71in·lbf}

NOTICE:

Make sure that the sensor tip is clean.

(b) Connect the speed sensor connector.

2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

3. CHECK VSC SENSOR SIGNAL (for Hydraulic Brake Booster)

INFO

4. CHECK VSC SENSOR SIGNAL (for Vacuum Brake Booster)

INFO

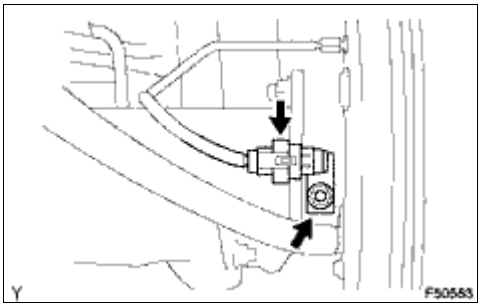
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000SS103AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: REAR SPEED SENSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. REMOVE REAR SPEED SENSOR



(a) Disconnect the speed sensor connector.

(b) Remove the nut and speed sensor rear.

NOTICE:

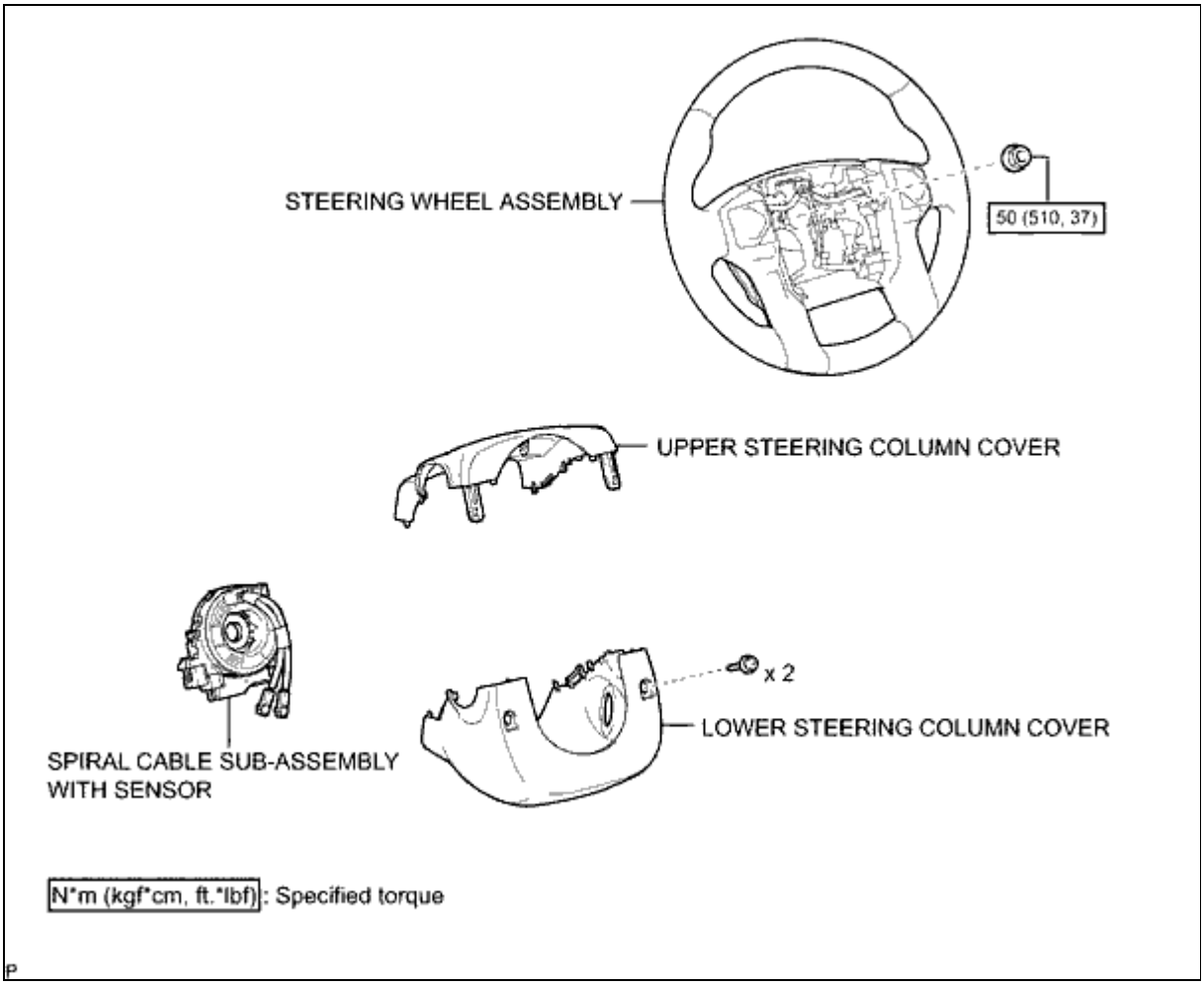
- Do not attach any foreign matter to the sensor tip.
- Ensure that no foreign matter enters the sensor installation hole.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005W9V000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: STEERING ANGLE SENSOR: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



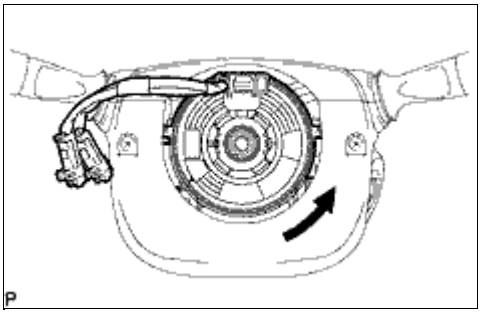
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000SS60AHX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: STEERING ANGLE SENSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL SPIRAL CABLE SUB-ASSEMBLY WITH SENSOR

(a) Check that the ignition switch is off.



(b) Check that the battery negative (-) terminal is disconnected.

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

(c) Confirm that the front tires face straight forward.

(d) Engage the 3 claws and install the spiral cable sub-assembly with sensor.

NOTICE:

When replacing the spiral cable sub-assembly with sensor with a new one, remove the lock pin before installing the steering wheel.

(e) Connect the connectors to the spiral cable sub-assembly with sensor.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

2. REMOVE UPPER STEERING COLUMN COVER INFO

3. INSTALL LOWER STEERING COLUMN COVER INFO

4. ADJUST SPIRAL CABLE

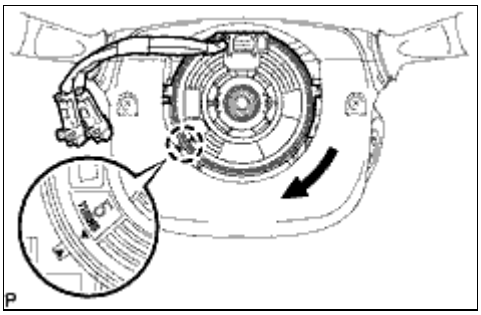
(a) Rotate the spiral cable sub-assembly with sensor counterclockwise slowly by hand until it feels firm.

NOTICE:

Do not turn the spiral cable sub-assembly with sensor by the airbag wire harness.

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(b) Rotate the spiral cable sub-assembly with sensor clockwise approximately 2.5 turns to align the marks.



NOTICE:

Do not turn the spiral cable sub-assembly with sensor by the airbag wire harness.

HINT:

The spiral cable sub-assembly withy sensor will rotate approximately 2.5 turns to both the left and right from the center.

5. INSTALL STEERING WHEEL ASSEMBLY INFO

6. INSTALL STEERING PAD

INFO

7. INSPECT STEERING PAD INFO

8. INSPECT SRS WARNING LIGHT

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000000SS90A3X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: STEERING ANGLE SENSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE STEERING PAD

INFO

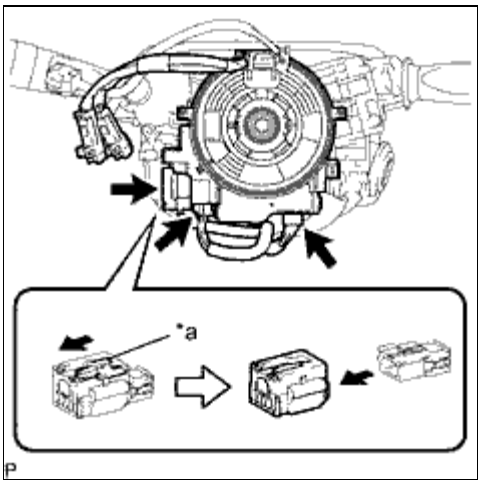
2. REMOVE STEERING WHEEL ASSEMBLY INFO

3. REMOVE LOWER STEERING COLUMN COVER INFO

4. REMOVE UPPER STEERING COLUMN COVER INFO

5. REMOVE SPIRAL CABLE SUB-ASSEMBLY WITH SENSOR

(a) Slide the slider and disconnect the airbag connector.



(b) Disconnect the 2 connectors from the spiral cable sub-assembly with sensor.

Text in Illustration

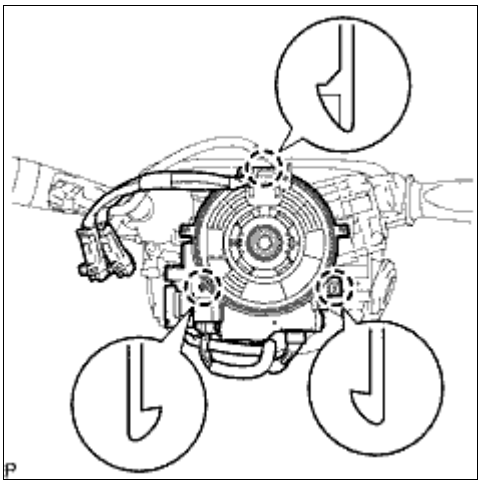
*a	Slider

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

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(c) Disengage the 3 claws to remove the spiral cable sub-assembly with sensor.



NOTICE:

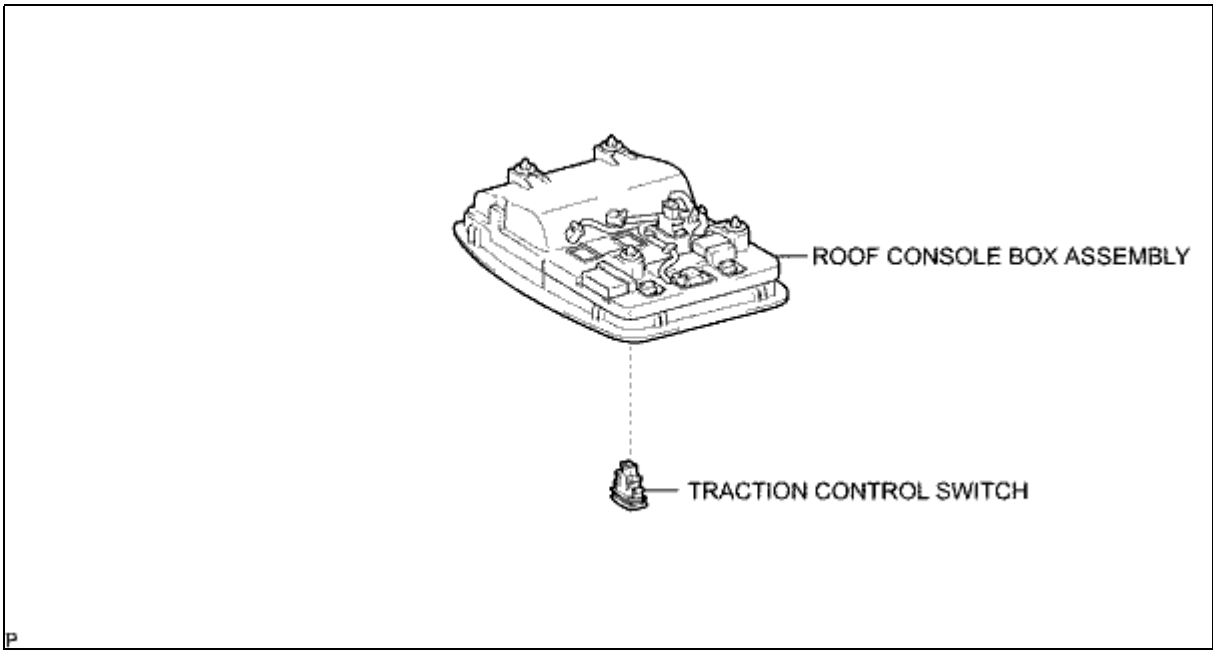
- Do not replace the spiral cable sub-assembly with sensor when the ignition switch is ON and the battery cable is connected.
- Do not rotate the spiral cable sub-assembly with sensor when the ignition switch is ON and the battery cable is connected.
- Make sure the steering wheel is installed and centered before rotating the steering sensor when performing steering sensor when performing steering sensor operation inspections (inspecting for abnormal noise, diagnosis inspections, etc.).
- Do not remove the steering sensor from the spiral cable sub-assembly.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000001WZ104JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: TRACTION OFF SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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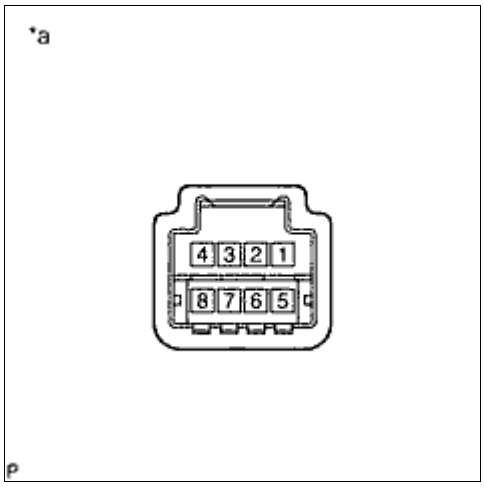
Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000001WZ004TX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: TRACTION OFF SWITCH: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT A-TRAC SWITCH (TRACTION CONTROL SWITCH)

(a) Check the resistance.

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



Text in Illustration

*a	Component without harness connected (A-TRAC Switch (Traction Control Switch))

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
5 - 8	Pressed	Below 1 Ω
	Not pressed	10 kΩ or higher

If the value is not as specified, replace the A-TRAC switch (traction control switch).

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000001WYV059X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: TRACTION OFF SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL A-TRAC SWITCH (TRACTION CONTROL SWITCH)

(a) Attach the 2 claws to install the A-TRAC switch (traction control switch) into the roof console box assembly.

(b) Connect the A-TRAC switch (traction control switch) connector.

2. INSTALL ROOF CONSOLE BOX ASSEMBLY

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000001WYY058X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: TRACTION OFF SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

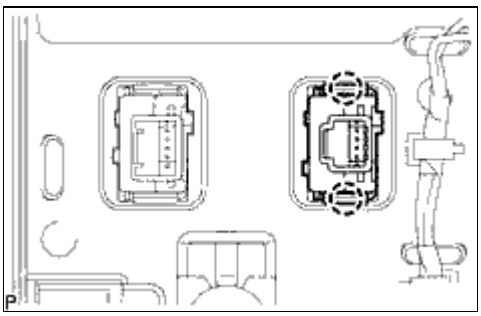
1. REMOVE ROOF CONSOLE BOX ASSEMBLY

INFO

2. REMOVE A-TRAC SWITCH (TRACTION CONTROL SWITCH)

(a) Disconnect the A-TRAC switch (traction control switch) connector.

(b) Using a screwdriver, detach the 2 claws and remove the A-TRAC switch (traction control switch) from the roof console box assembly.



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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXI01LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): 43; ABS Control System Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**43**	**ABS Control System Malfunction**

DESCRIPTION

This DTC is output when the VSC system detects a malfunction in the ABS system. When DTC 43 is stored, there is no malfunction in the skid control ECU (master cylinder solenoid).

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
43	ABS control system abnormal	ABS control system

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK DTC (ABS)**

(a) Clear the DTC INFO .

(b) Turn the ignition switch to ON.

(c) Check if the relating to ABS control system DTC is recorded INFO .

RESULT	PROCEED TO
DTC output (relating to ABS control system DTC)	A
DTC not output (relating to ABS control system DTC)	B

B ▶ **END**

A ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

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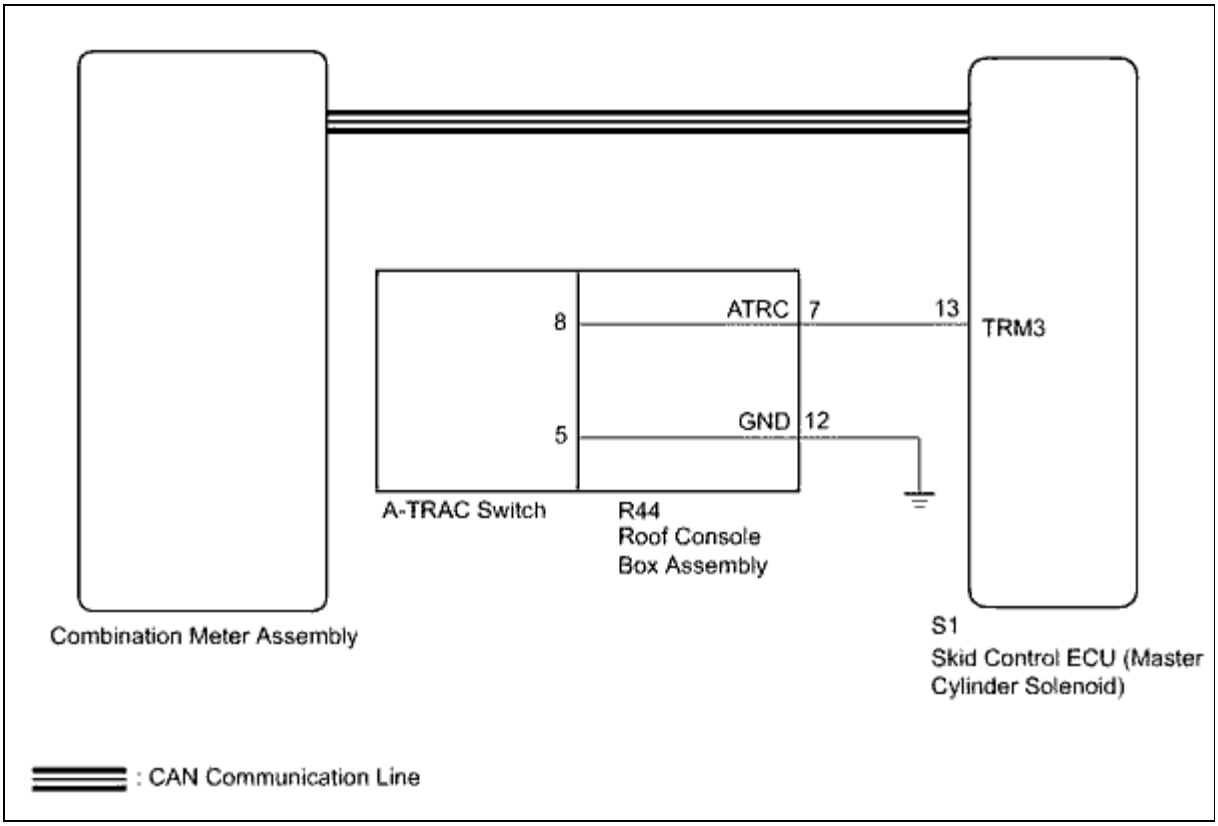
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000452000PX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): A-TRAC Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

A-TRAC Indicator Light Remains ON

DESCRIPTION

This is the A-TRAC main switch circuit. When the A-TRAC switch is turned on with the transfer in L4, the A-TRAC function is available and the A-TRAC indicator light illuminates.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

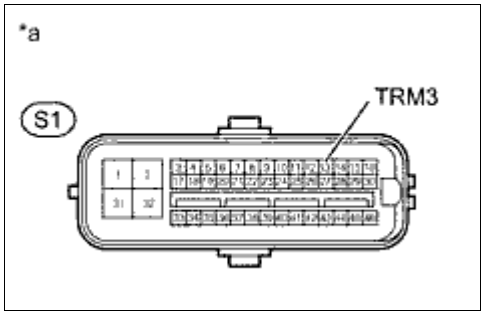
2.	**CHECK HARNESS AND CONNECTOR (ATRC TERMINAL)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-13 (TRM3) - Body ground	A-TRAC switch not pushed in	10 kΩ or higher
	A-TRAC switch pushed in	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(c) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

NG ▶ **GO TO STEP 4**

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OK

3.	READ VALUE USING TECHSTREAM (A-TRC(TRAC) SWITCH)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
A-TRC(TRAC) Switch	A-TRC Switch/ ON or OFF	ON: A-TRC switch on OFF: A-TRC switch off	-

(f) Check that the mode display changes according to A-TRAC OFF switch operation.

OK:
Display changes according to switch operation.

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

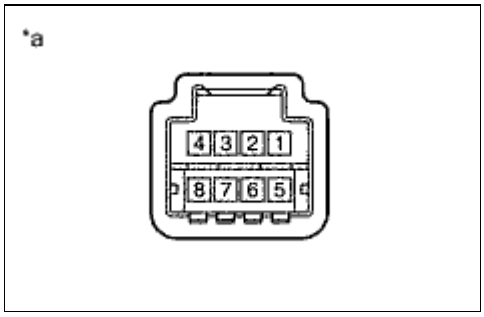
4.	INSPECT A-TRAC SWITCH

(a) Remove the A-TRAC switch INFO .

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
5 - 8	Switch is not pushed	Below 1 Ω
	Switch is pushed	10 kΩ or higher



Text in Illustration

*a	Component without harness connected

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	(A-TRAC Switch)

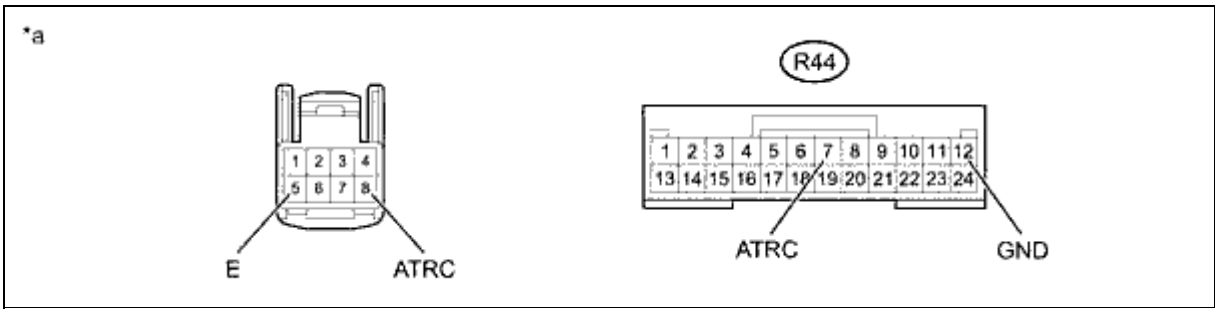
NG ▶ **REPLACE A-TRAC SWITCH**

OK ▼

5.	**INSPECT ROOF CONSOLE BOX ASSEMBLY**

(a) Remove the roof console box assembly.

for Double Cab: INFO
for Access Cab: INFO



Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-7 (ATRC) - 8	Always	Below 1 Ω
R44-12 (GND) - 5	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

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C ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000000452100NX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): A-TRAC Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

A-TRAC Indicator Light does not Come ON

DESCRIPTION

The A-TRAC does not operate even if the A-TRAC switch is pressed under the following conditions:

- The TRAC or VSC system is faulty.
- The temperature inside the hydraulic brake booster increases and the A-TRAC operation is suspended.

WIRING DIAGRAM

Refer to A-TRAC Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (ATRC TERMINAL)** INFO

NG ▶ **GO TO STEP 4**

OK ▼

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3.	READ VALUE USING TECHSTREAM (A-TRC(TRAC) SWITCH) INFO

NG ▶ REPLACE MASTER CYLINDER SOLENOID

OK ▶ GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)

4.	INSPECT A-TRAC SWITCH INFO

NG ▶ REPLACE A-TRAC SWITCH

OK ▼

5.	INSPECT ROOF CONSOLE BOX ASSEMBLY INFO

B ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

C ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451O01LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): ABS Warning Light Remains ON; 2016 MY Tacoma [08/2015 -]		

ABS Warning Light Remains ON

DESCRIPTION

If any of the following is detected, the ABS warning light remains on.

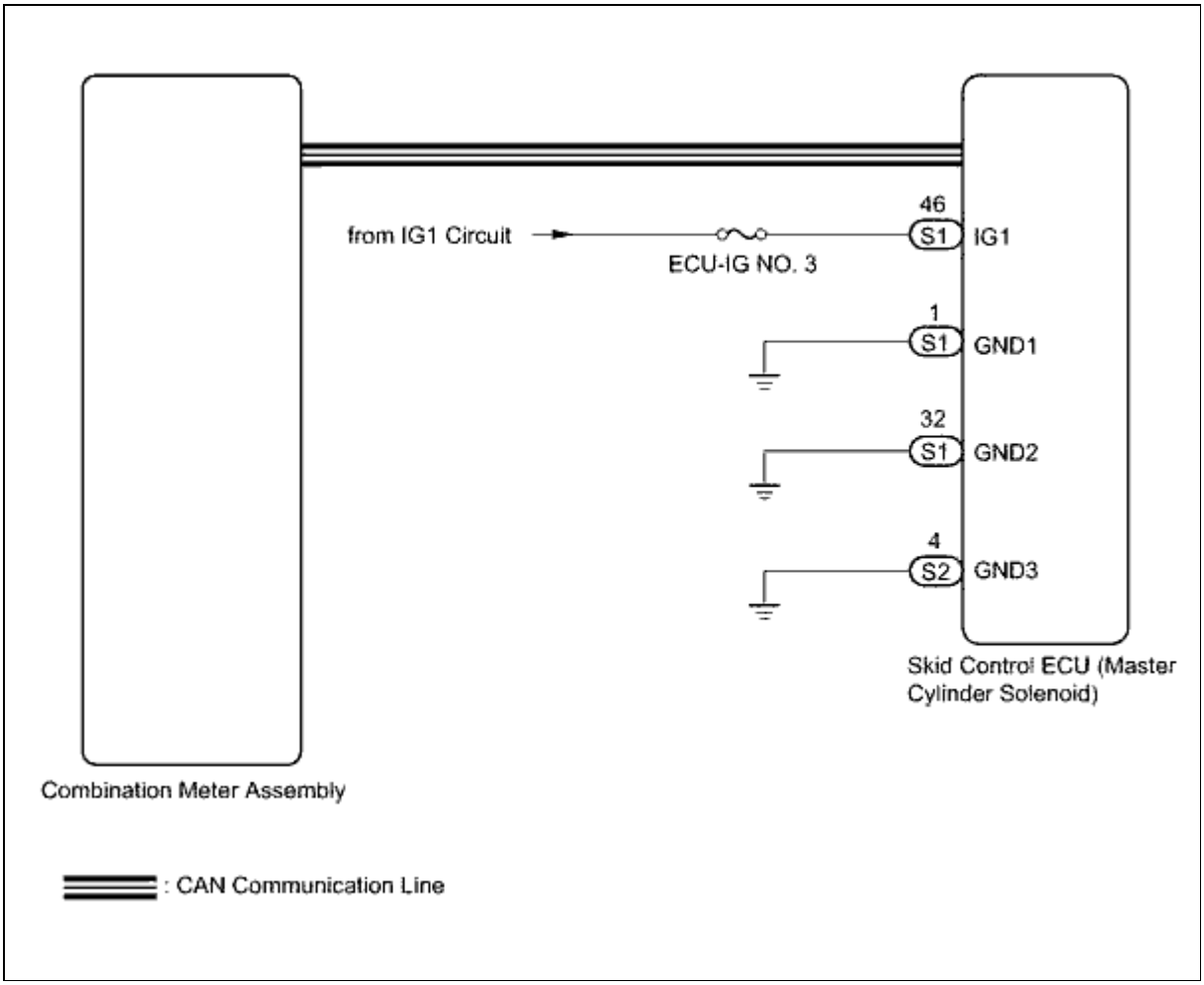
- The skid control ECU (master cylinder solenoid) connectors are disconnected from the skid control ECU (master cylinder solenoid).
- There is a malfunction in the skid control ECU (master cylinder solenoid) internal circuit.
- There is an open in the harness between the combination meter assembly and skid control ECU (master cylinder solenoid).
- The anti-lock brake system is defective.
- The voltage at terminal IG1 is high.
- The rear differential is locked.

HINT:

It may not be possible to use the Techstream when the skid control ECU (master cylinder solenoid) is abnormal.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK THAT SKID CONTROL ECU CONNECTOR IS SECURELY CONNECTED**

(a) Check the skid control ECU (master cylinder solenoid) connector connection.

OK:

The connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO ECU CORRECTLY**

OK ▼

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2.	**CHECK DTC**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▼

3.	**INSPECT BATTERY**

(a) Inspect the battery voltage INFO .

Standard voltage:
11 to 14 V

NG ▶ **CHECK CHARGING SYSTEM**

OK ▼

4.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:
CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

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OK

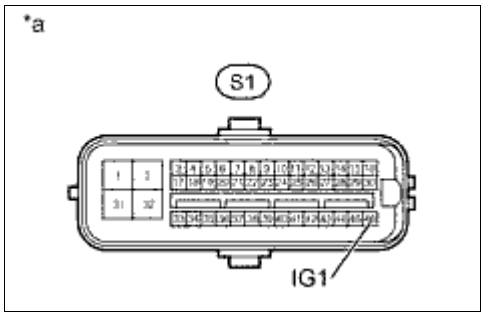
5.	**CHECK HARNESS AND CONNECTOR (IG1 TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-46 (IG1) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

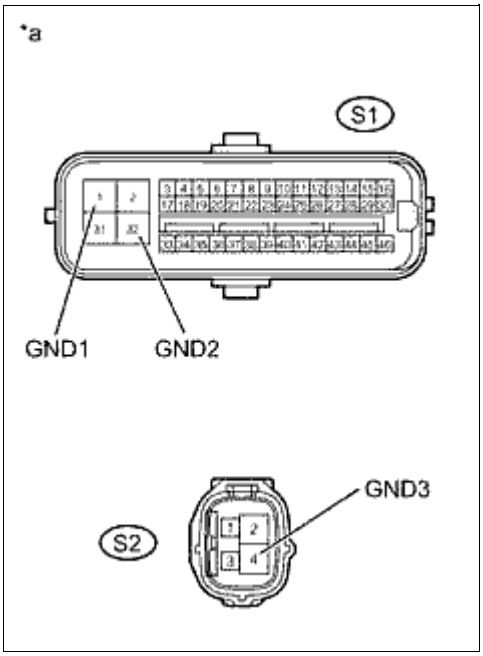
6.	**CHECK HARNESS AND CONNECTOR (GND TERMINAL)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND1) - Body ground	Always	Below 1 Ω
S1-32 (GND2) - Body ground	Always	Below 1 Ω
S2-4 (GND3) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(b) Reconnect the skid control ECU (master cylinder solenoid) connector.

Result

RESULT	PROCEED TO
OK (w/ Rear Differential Lock)	A
OK (w/o Rear Differential Lock)	B
NG	C

B ▶ **GO TO STEP 7**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

7.	**CHECK DIFFERENTIAL SYSTEM**

(a) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.

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(f) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO DIFFERENTIAL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A ▼

8.	READ VALUE USING TECHSTREAM (ABS WARNING LIGHT)

(a) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light/ ON or OFF	OFF	-

(g) Check the Techstream display condition of the ABS warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **GO TO METER / GAUGE SYSTEM**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451P01LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): ABS Warning Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

ABS Warning Light does not Come ON

DESCRIPTION

Refer to ABS Warning Light Remains ON INFO .

WIRING DIAGRAM

Refer to ABS Warning Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (ABS WARNING LIGHT)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

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TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped

(f) When performing the ABS Warning Light Active Test, check ABS Warning Light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light/ ON or OFF	OFF	-

Result

RESULT	PROCEED TO
ABS warning light in the Data List does not change using the Active Test	A
ABS warning light in the Data List turns ON/OFF using the Active Test	B

B ▶ **GO TO STEP 3**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

3.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:

The ABS warning light turns on or off in accordance with the Techstream.

NG ▶ **GO TO METER / GAUGE SYSTEM**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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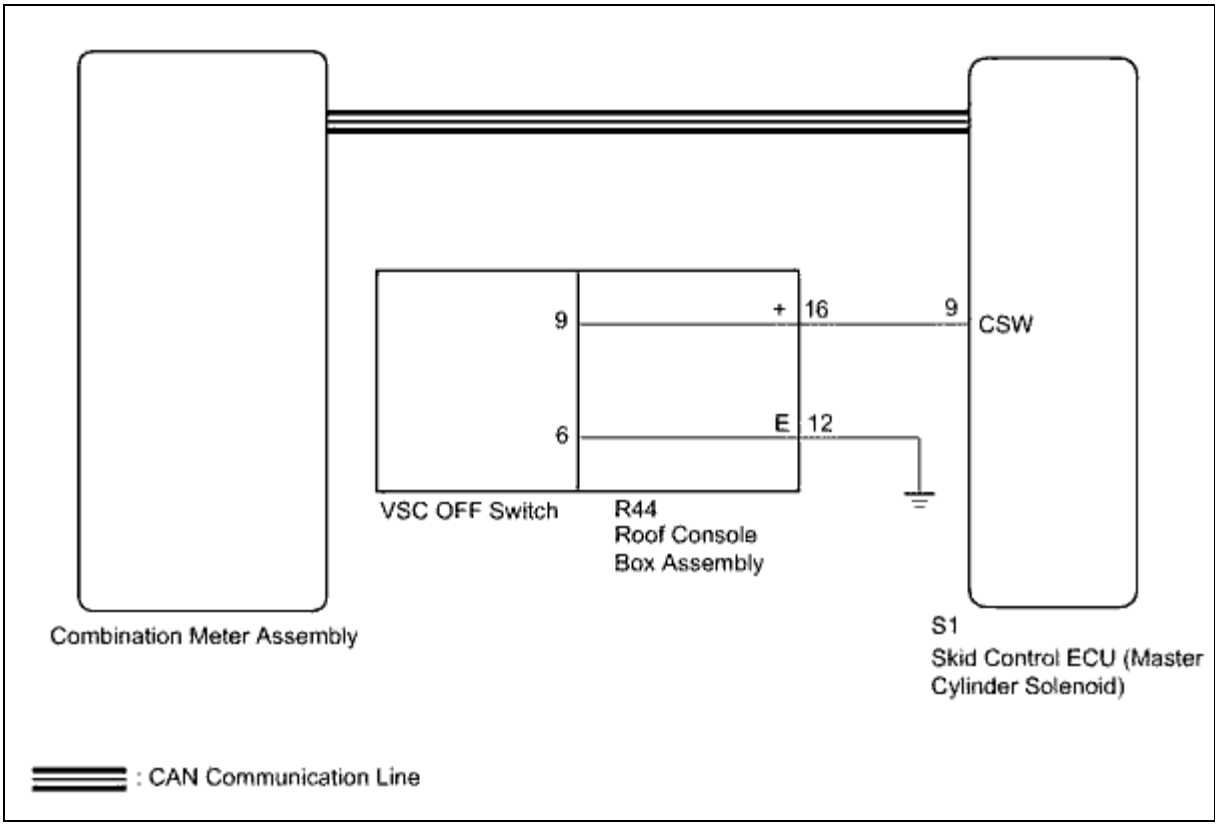
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451Y00PX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): AUTO LSD Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

AUTO LSD Indicator Light Remains ON

DESCRIPTION

During normal mode, pressing the VSC OFF switch for a short amount of time changes vehicle to AUTO LSD mode.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

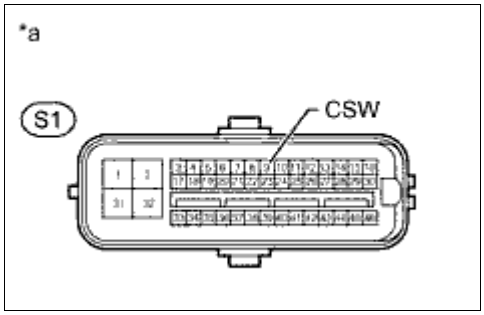
2.	**INSPECT SKID CONTROL ECU (CSW TERMINAL)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-9 (CSW) - Body ground	VSC OFF switch not pushed in	10 kΩ or higher
	VSC OFF switch pushed in	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU)

(c) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

NG ▶ **GO TO STEP 4**

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OK

3.	**READ VALUE USING TECHSTREAM (AUTO LSD INDICATOR LIGHT)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Auto LSD Indicator Light	Auto LSD indicator light/ ON or OFF	Indicator light OFF/ON	ON: Indicator light on OFF: Indicator light off

(g) Check the Techstream display condition of the brake warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

4.	**INSPECT VSC OFF SWITCH** INFO

NG ▶ **REPLACE VSC OFF SWITCH**

OK

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5.	**INSPECT ROOF CONSOLE BOX ASSEMBLY** INFO

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451Z00PX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): AUTO LSD Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

AUTO LSD Indicator Light does not Come ON

DESCRIPTION

The AUTO LSD does not operate even if the VSC OFF switch is pressed under the following conditions:

- The brake system is faulty.
- The temperature inside the hydraulic brake booster increases and the AUTO LSD operation is suspended.
- The rear differential is locked.

WIRING DIAGRAM

Refer to AUTO LSD Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**CHECK DTC**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is not output	A

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RESULT	PROCEED TO
DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▼

3.	**CHECK HARNESS AND CONNECTOR (CSW TERMINAL)** INFO

NG ▶ **GO TO STEP 6**

OK ▼

4.	**CHECK FOR DIFFERENTIAL SYSTEM**

(a) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.

(f) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO DIFFERENTIAL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A ▼

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5.	**PERFORM ACTIVE TEST USING TECHSTREAM (AUTO LSD INDICATOR LIGHT)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Auto LSD Indicator Light	Auto LSD indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped

(f) When performing the ABS Warning Light Active Test, check ABS Warning Light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Auto LSD Indicator Light	Auto LSD indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-

Result

RESULT	PROCEED TO
Auto LSD Indicator Light in the Data List does not change using the Active Test	A
Auto LSD Indicator Light in the Data List turns ON/OFF using the Active Test	B

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

6.	**INSPECT VSC OFF SWITCH** INFO

NG ▶ **REPLACE VSC OFF SWITCH**

OK ▼

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7.	**INSPECT ROOF CONSOLE BOX ASSEMBLY** INFO

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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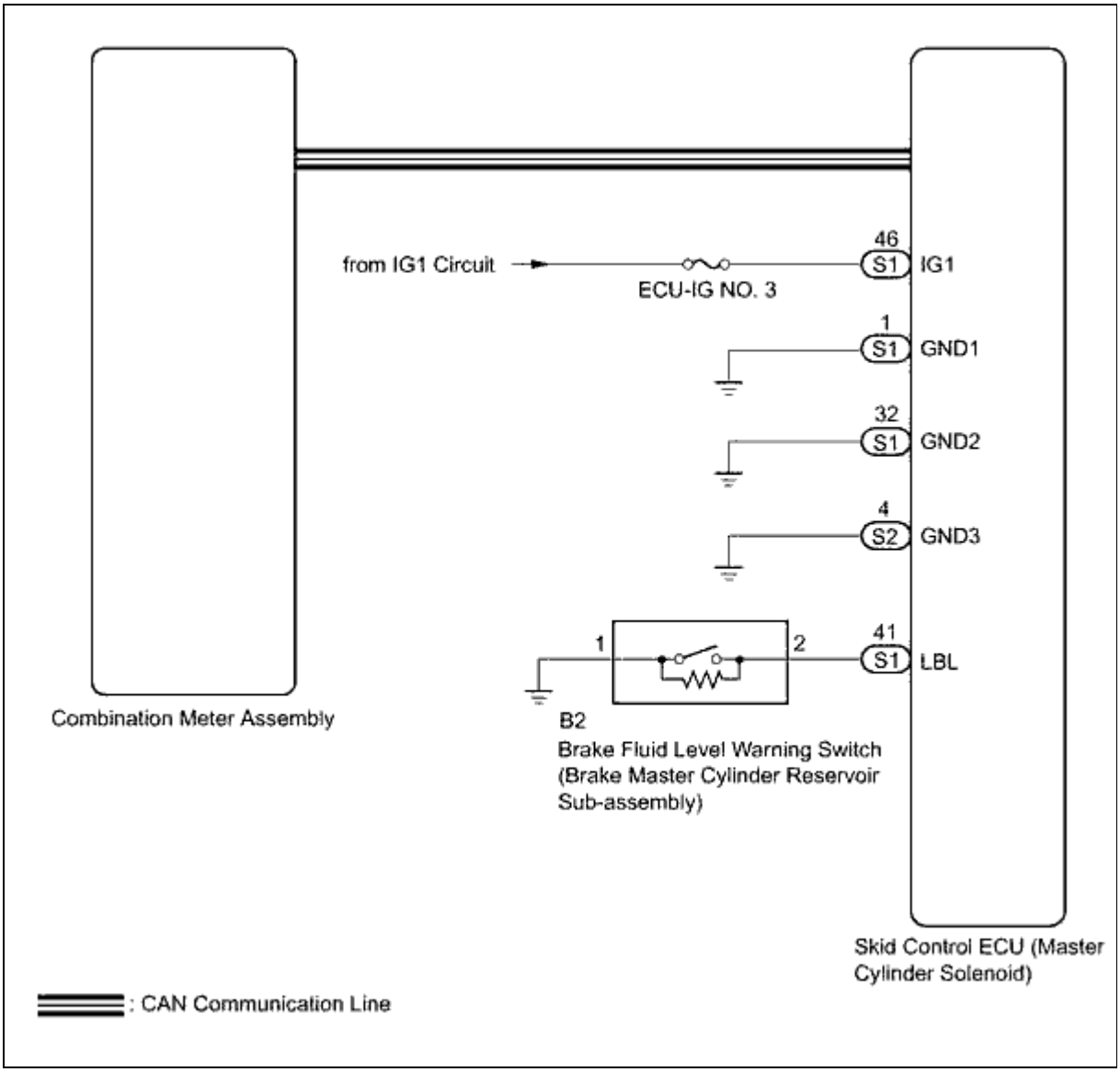
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451Q01NX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Brake Warning Light Remains ON; 2016 MY Tacoma [08/2015 -]		

Brake Warning Light Remains ON

DESCRIPTION

The BRAKE warning light comes on when brake fluid is insufficient, the parking brake is applied or the EBD is defective.

WIRING DIAGRAM



INSPECTION PROCEDURE

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NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK THAT SKID CONTROL ECU CONNECTOR SECURELY CONNECTED**

(a) Check the skid control ECU (master cylinder solenoid) connector connection.

OK:

The connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO ECU CORRECTLY**

OK ▼

2.	**CHECK DTC**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▼

3.	**INSPECT BATTERY**

(a) Inspect the battery voltage INFO .

Standard voltage:

11 to 14 V

NG ▶ **CHECK CHARGING SYSTEM**

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OK

4.	**CHECK BRAKE FLUID LEVEL**

(a) Turn the ignition switch off.

(b) Depress the brake pedal 20 times or more (until the pedal reaction feels light and pedal stroke becomes longer).

(c) Check the amount of fluid in the brake reservoir.

HINT:

When the ignition switch is turned to ON, brake fluid is sent to the accumulator and the fluid level decreases by approximately 5 mm (0.197 in.) from the level when the ignition switch is off (normal).

OK:

Brake fluid level is normal.

NG ▶ **CHECK AND REPAIR BRAKE FLUID LEAKAGE**

OK

5.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK

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6.	**PERFORM ACTIVE TEST USING TECHSTREAM (BRAKE WARNING LIGHT)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Brake Warning Light	Brake warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped

(g) Check the Techstream display condition of the brake warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

NG ▶ **GO TO METER / GAUGE SYSTEM**

OK ▼

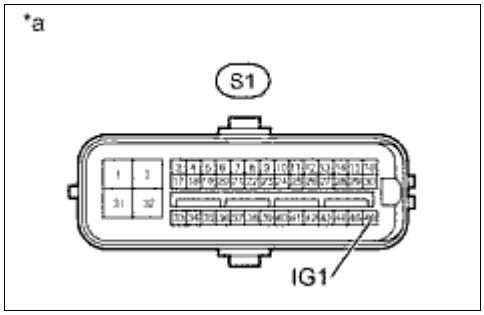
7.	**CHECK HARNESS AND CONNECTOR (IG1 TERMINAL)**

(a) Disconnect the skid control ECU connector (master cylinder solenoid).

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-46 (IG1) - Body ground	Ignition switch ON	11 to 14 V



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Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

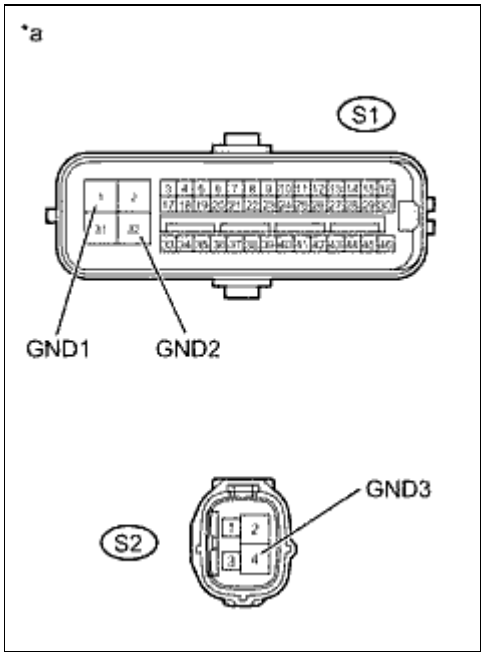
OK ▼

8.	**CHECK HARNESS AND CONNECTOR (GND TERMINAL)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND1) - Body ground	Always	Below 1 Ω
S1-32 (GND2) - Body ground	Always	Below 1 Ω
S2-4 (GND3) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(b) Reconnect the skid control ECU (master cylinder solenoid) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

9.	**INSPECT BRAKE FLUID LEVEL WARNING SWITCH**

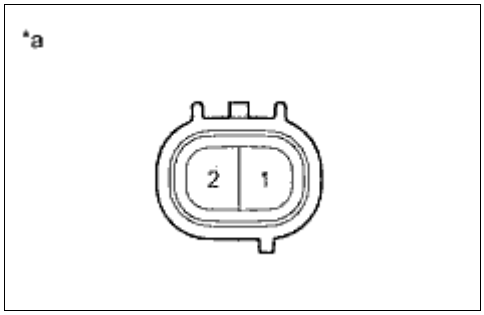
(a) Disconnect the B2 brake fluid level warning switch (brake master cylinder reservoir sub-assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Float UP (Switch off)	1.9 to 2.1 kΩ
	Float DOWN (Switch on)	Below 1 Ω



Text in Illustration

*a	Component without harness connected (Brake Fluid Level Warning Switch (Brake Master Cylinder Reservoir Sub-assembly))

NG ▶ **REPLACE BRAKE MASTER CYLINDER SUB-ASSEMBLY (BRAKE FLUID LEVEL WARNING SWITCH)**

OK ▼

10.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - BRAKE FLUID LEVEL WARNING SWITCH)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-41 (LBL) - B2-2	Always	Below 1 Ω
S1-41 (LBL) - Body ground	Always	10 kΩ or higher
B2-1 - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451R01NX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Brake Warning Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

Brake Warning Light does not Come ON

DESCRIPTION

Refer to Brake Warning Light Remains ON INFO .

WIRING DIAGRAM

Refer to Brake Warning Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (BRAKE WARNING LIGHT)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

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TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Brake Warning Light	Brake warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped

(g) When performing the Brake Warning Light Active Test, check Brake Warning Light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Brake Warning Light	Brake warning light/ ON or OFF	OFF	-

Result

RESULT	PROCEED TO
Brake warning light in the Data List turns ON/OFF using the Active Test	A
Brake warning light in the Data List does not change using the Active Test	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▼

3.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:
The brake warning light turns on or off in accordance with the Techstream.

NG ▶ **GO TO METER / GAUGE SYSTEM**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXG03EX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1203; ECM Communication Circuit Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1203**	**ECM Communication Circuit Malfunction**

DESCRIPTION

The circuit sends TRAC, A-TRAC and VSC control information from the skid control ECU (master cylinder solenoid) to the ECM, and engine control information from the ECM to the skid control ECU (master cylinder solenoid) via the CAN communication system.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1203	Information relating to engine drive source or destination stored in ECM does not match that stored in skid control ECU (master cylinder solenoid).	• CAN communication system • ECM

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

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2.	**CHECK DTC (SFI SYSTEM)**

(a) Check if any DTC is recorded for the SFI system INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **REPLACE ECM**

A ▶ **GO TO SFI SYSTEM**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIK0FGX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1210,C1336; Zero Point Calibration of Yaw Rate Sensor Undone; 2016 MY Tacoma [08/2015 -]		

DTC	**C1210**	**Zero Point Calibration of Yaw Rate Sensor Undone**

DTC	**C1336**	**Zero Point Calibration of Acceleration Sensor Undone**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the yaw rate and acceleration (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle's condition using 2 circuits (GL1, GL2).

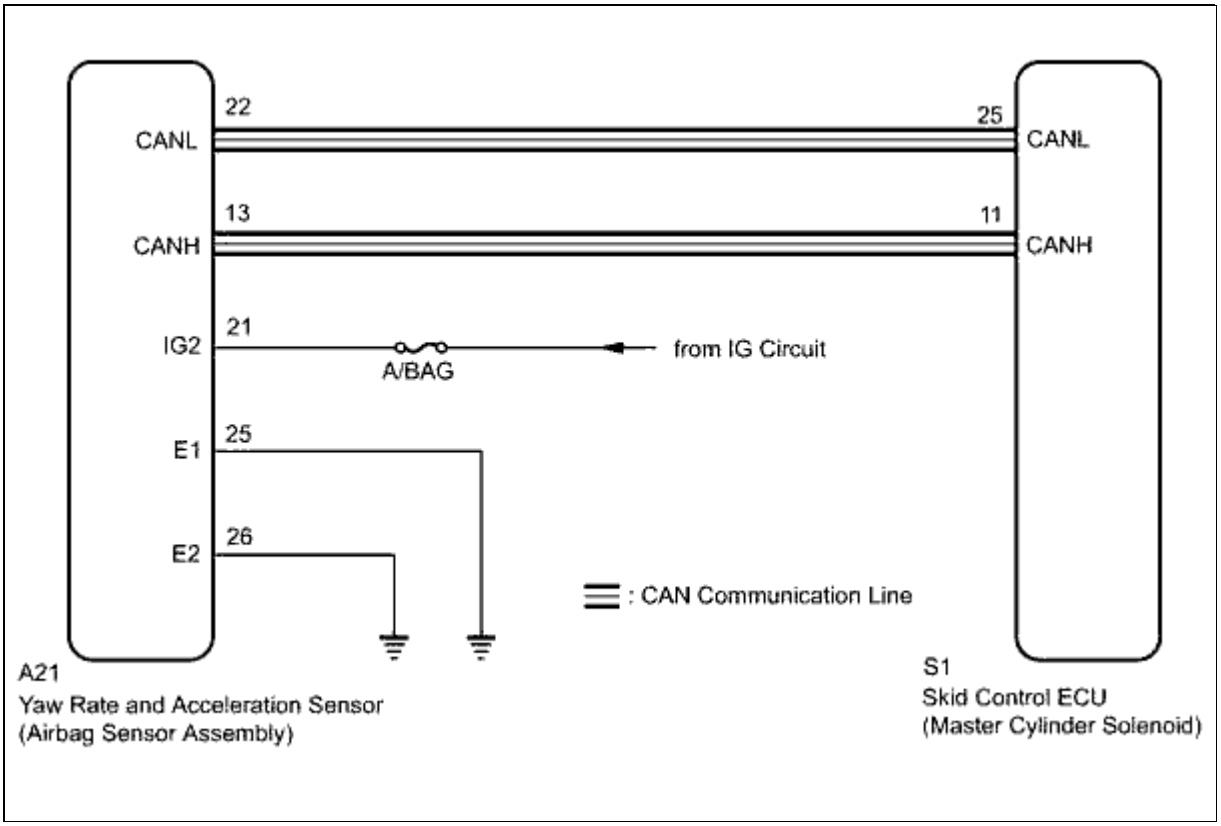
If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, DTCs U0123 (yaw rate sensor communication trouble) and U0124 (acceleration sensor communication trouble) are stored.

These DTCs are also output when calibration has not been completed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1210	Zero point calibration of the yaw rate sensor is incomplete.	• Zero point calibration incomplete • Sensor installation • Yaw rate and acceleration sensor (airbag sensor assembly) • Skid control ECU (master cylinder solenoid)
C1336	Zero point calibration of the acceleration sensor is incomplete.	

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration INFO
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A

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2.	PERFORM ZERO POINT CALIBRATION OF YAW RATE AND ACCELERATION SENSOR

(a) Perform zero point calibration of the yaw rate and acceleration sensor INFO .

NEXT

3.	PERFORM TEST MODE (SIGNAL CHECK)

(a) Turn the ignition switch off.

(b) Perform the signal check in the Test Mode Procedure INFO .

OK:
All test mode DTCs are cleared.

NG ▶ **GO TO STEP 4**

OK ▶ **END**

4.	CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION

(a) Turn the ignition switch off.

(b) Check that the yaw rate and acceleration sensor (airbag sensor assembly) has been installed properly INFO .

OK:
The sensor is tightened to the specified torque.
The sensor is not installed at an angle.

NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY CORRECTLY**

OK

5.	READ VALUE USING TECHSTREAM (YAW RATE AND ACCELERATION SENSOR)

(a) Turn the ignition switch off.

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(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Deceleration Sensor	Acceleration sensor/ Min.: -18.525 m/s^2 , Max.: 18.387 m/s^2	-	Changes continuously during acceleration/deceleration.
Deceleration Sensor2	Acceleration sensor 2/ Min.: -18.525 m/s^2 , Max.: 18.387 m/s^2	-	Changes continuously during acceleration/deceleration.
Yaw Rate Sensor	Yaw rate sensor/ Min.: -128°/s, Max.: 127°/s	0°/s: Vehicle stationary -128 to 0°/s: Right turn 0 to 127°/s: Left turn	-

(f) Check that the yaw rate and acceleration sensor output value is displayed on the Techstream.

OK:

The yaw rate and acceleration sensor output value is normal.

NOTICE:

The yaw rate and acceleration sensor (airbag sensor assembly) output value is normal INFO .

NG ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EA2035X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1225-C1228,C1468,C1469,C146A,C146B; SM Solenoid Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1225**	**SM Solenoid Circuit**

DTC	**C1226**	**SA2 Solenoid Circuit**

DTC	**C1227**	**SA3 Solenoid Circuit**

DTC	**C1228**	**STR Solenoid Circuit**

DTC	**C1468**	**SFR Solenoid Circuit**

DTC	**C1469**	**SFL Solenoid Circuit**

DTC	**C146A**	**SRR Solenoid Circuit**

DTC	**C146B**	**SRL Solenoid Circuit**

DESCRIPTION

The solenoid goes on when signals are received from the skid control ECU (master cylinder solenoid) and controls the pressure action on the wheel cylinders thus controlling the braking force.

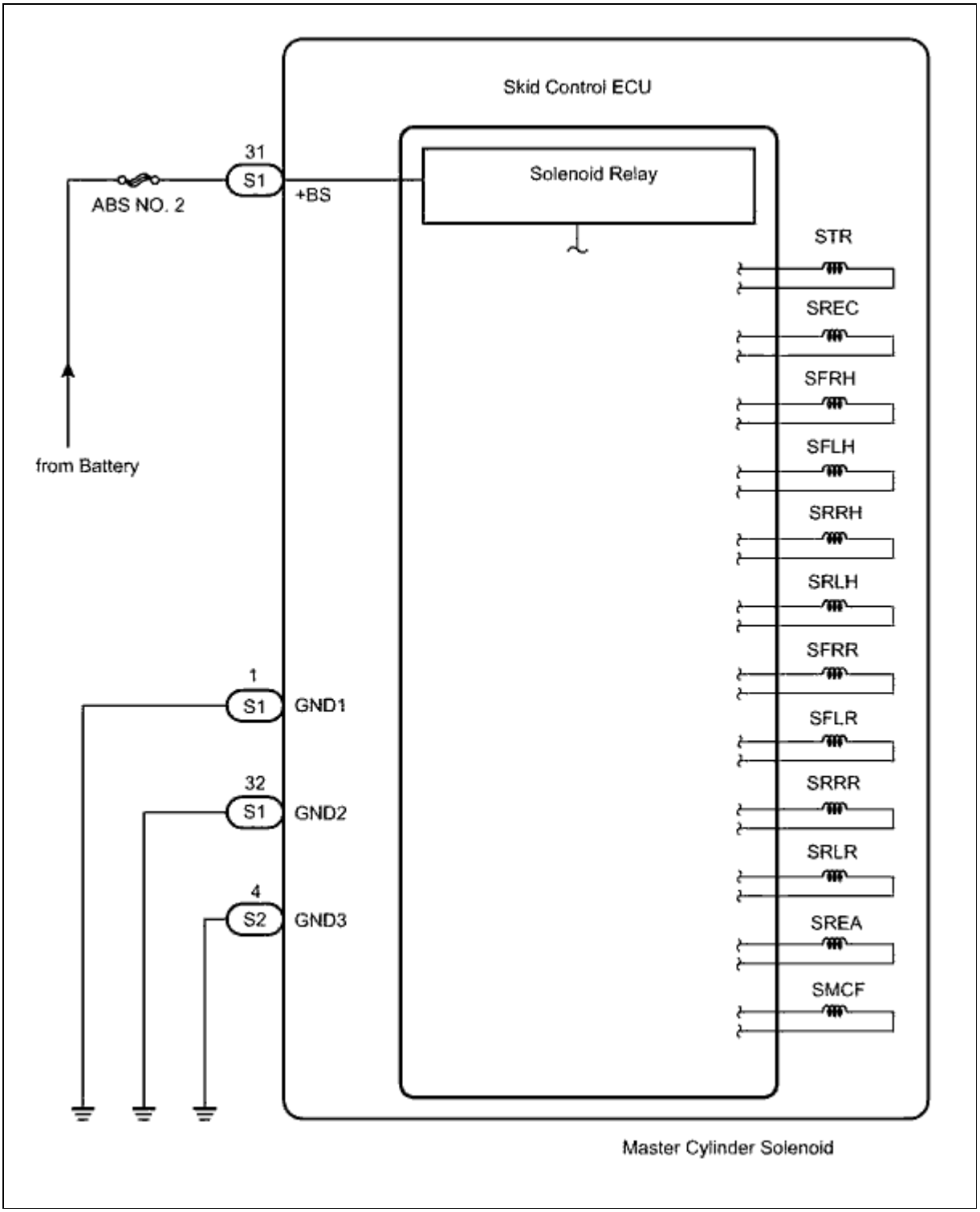
DTC NO.	DTC DETECTING CONDITIONS	TROUBLE AREAS
C1225	Open or short in SMCR circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SMCR circuit
C1226	Open or short in SREA circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SREA circuit

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DTC NO.	DTC DETECTING CONDITIONS	TROUBLE AREAS
C1227	Open or short in SREC circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SREC circuit
C1228	Open or short in STR circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • STR circuit
C1468	Open or short in SFRH or SFRR circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SFRH or SFRR circuit
C1469	Open or short in SFLH or SFLR circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SFLH or SFLR circuit
C146A	Open or short in SRRH or SRRR circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SRRH or SRRR circuit
C146B	Open or short in SRLH or SRLR circuit continues for 0.05 seconds or more.	• Master cylinder solenoid • SRLH or SRLR circuit

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**RECONFIRM DTC**

HINT:

This DTCs are set when a problem is identified in the master cylinder solenoid.

The solenoid circuit is in the master cylinder solenoid.

Therefore, solenoid circuit inspection and solenoid unit inspection cannot be performed. Be sure to check if the DTCs are output before replacing the master cylinder solenoid.

(a) Clear the DTC INFO .

(b) Check if the same DTCs are detected.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000002D4700NX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1232,C1243,C1245,C1279; Acceleration Sensor Stuck Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1232**	**Acceleration Sensor Stuck Malfunction**

DTC	**C1243**	**Acceleration Sensor Stuck Malfunction**

DTC	**C1245**	**Acceleration Sensor Output Malfunction**

DTC	**C1279**	**Acceleration Sensor Output Voltage Malfunction (Test Mode DTC)**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the yaw rate and acceleration (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle's condition using 2 circuits (GL1, GL2).

If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, DTCs U0123 (yaw rate sensor communication trouble) and U0124 (acceleration sensor communication trouble) are stored.

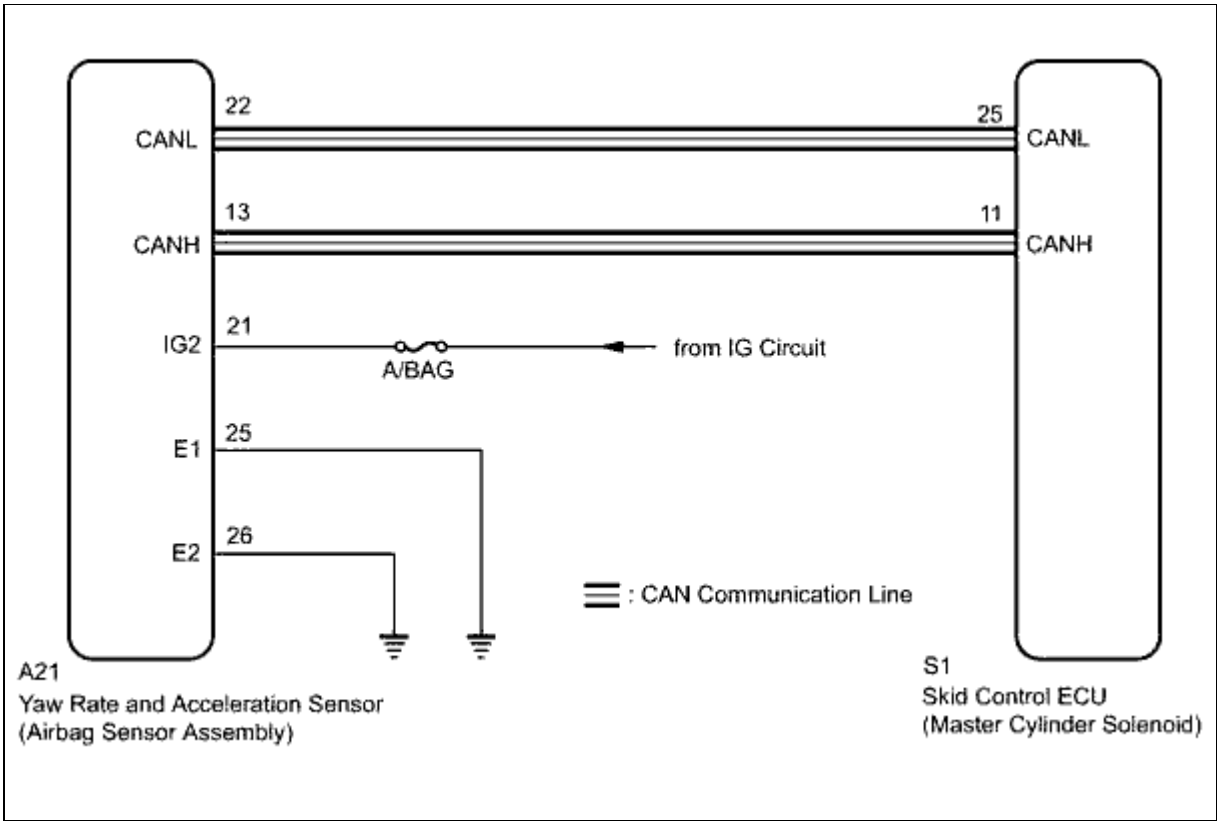
These DTCs are also output when calibration has not been completed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1232	At vehicle speed of 10 km/h (6 mph) or more, signal from either GL1 or GL2 does not change for 30 seconds or more.	• A/BAG fuse • Sensor installation • Harness or connector • Yaw rate and acceleration sensor (airbag sensor assembly) • CAN communication system
C1243	Following condition repeats 16 times. • GL1 and GL2 do not change by more than 2LSB when vehicle decelerates from 30 km/h (19 mph) to 0 km/h (0 mph).	
C1245	Following condition continues for at least 60 seconds. • Difference between values calculated from acceleration sensor value and vehicle speed exceeds 0.35 G.	
C1279	Detected only during test mode	• A/BAG fuse • Sensor installation

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DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
		• Harness or connector • Yaw rate and acceleration sensor (airbag sensor assembly)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

When U0073, U0100, U0123, U0124 or U0126 are output together with C1232 or C1234, inspect and repair the trouble areas indicated by U0073, U0100, U0123, U0124 or U0126 first.

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

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(b) Turn the ignition switch off.

(c) Check if DTCs U0073, U0123, C1210 and/or C1336 are output INFO .

Result

RESULT	PROCEED TO
DTC U0073, U0123, C1210 and/or C1336 are not output	A
DTC U0073 and/or U0123 are output	B
DTC C1210 and/or C1336 are output	C

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

C ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A

▼

2.	CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION

(a) Check that the yaw rate and acceleration sensor (airbag sensor assembly) is installed properly INFO .

OK:

The sensor is tightened to the specified torque.

The sensor is not tilted.

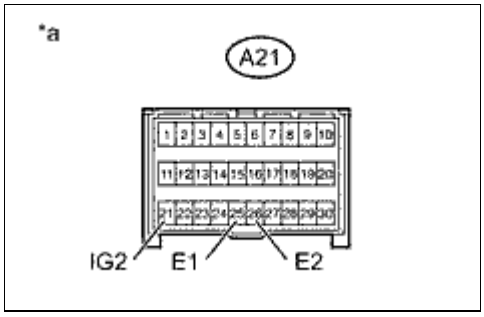
NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY CORRECTLY**

OK

▼

3.	CHECK HARNESS AND CONNECTOR (IG2, E1, E2 TERMINAL)

(a) Disconnect the yaw rate and acceleration sensor (airbag sensor assembly) connector.



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(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A21-21 (IG2) - Body ground	Ignition switch ON	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A21-25 (E1) - Body ground	Always	Below 1 Ω
A21-26 (E2) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Yaw Rate and Acceleration Sensor (Airbag Sensor Assembly))

Result

RESULT	PROCEED TO
OK (When troubleshooting in accordance with Diagnostic Trouble Code Chart)	A
OK (When troubleshooting in accordance with Problem Symptoms Table)	B
NG	C

B ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXW038X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1241; Low Power Supply Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1241**	**Low Power Supply Voltage Malfunction**

DESCRIPTION

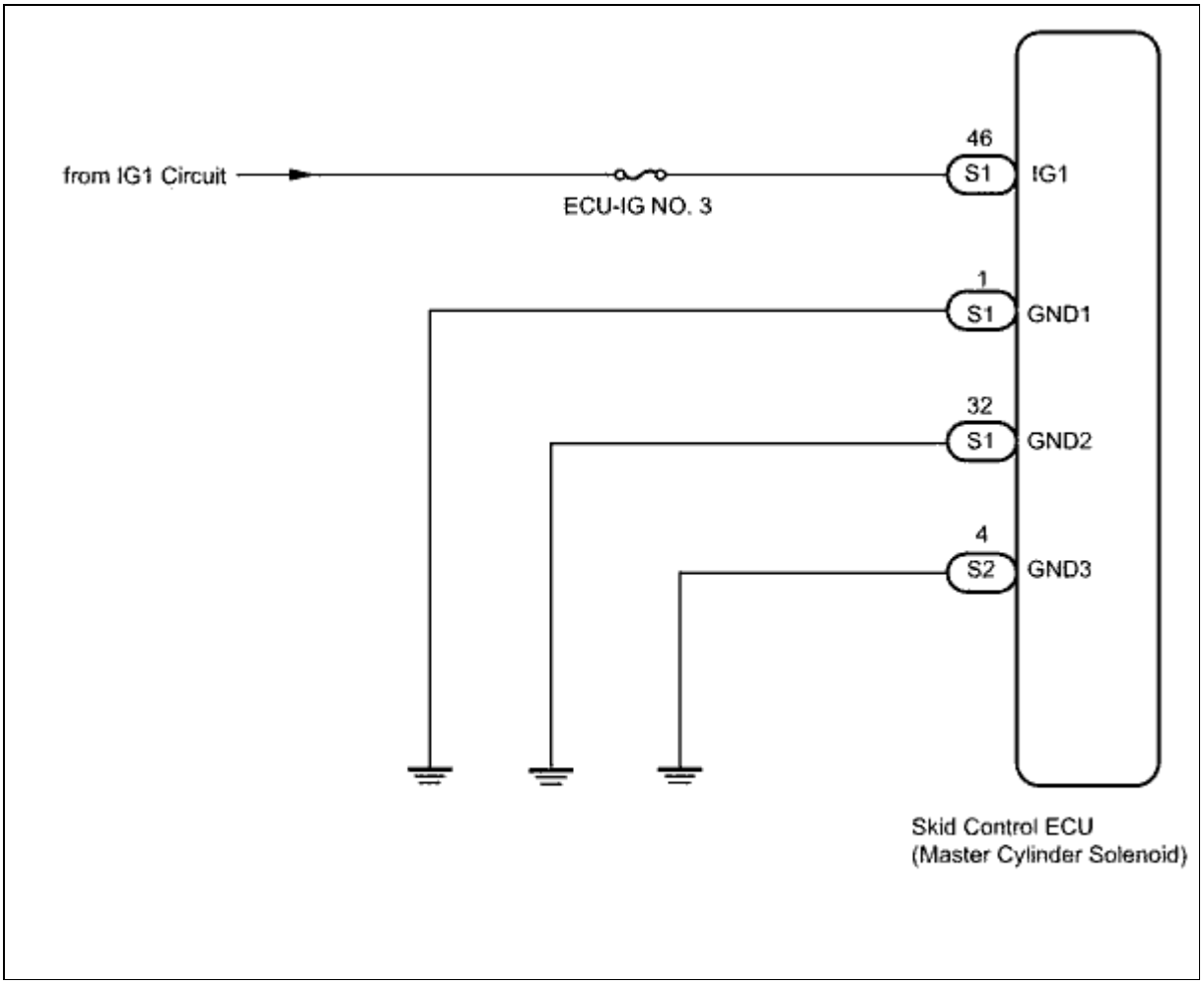
If there is a problem with the skid control ECU (master cylinder solenoid) power supply circuit, the skid control ECU outputs the DTC and prohibits operation under the fail-safe function.

If the voltage supplied to terminal IG1 is not within the DTC detection threshold due to malfunctions in parts such as the battery and generator circuit, this DTC is stored.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1241	When either of following conditions detected: 1. Both of following conditions continue for at least 10 seconds. • Vehicle speed more than 3 km/m (2 mph). • IG1 terminal voltage less than 9.5 V. 2. All of following conditions continue for at least 0.2 seconds. • Solenoid relay remains ON. • IG1 terminal voltage less than 9.5 V. • Relay contact open.	• Battery • ECU-IG NO. 3 fuse • Charging system • Harness or connector • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform zero point calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (IG VOLTAGE)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Start the engine.

(f) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

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TESTER DISPLAY	MEASUREMENT ITEM : RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
IG1 Voltage Value	IG1 voltage value/ Min.: 0.00 V, Max.: 20.00 V	11 to 14 V	Changes in proportion to battery voltage

(g) Measure the voltage output from the ECU displayed on the Techstream.

Result

RESULT	PROCEED
Data display is within Normal Condition	A
Data display is not within Normal Condition	B

B ▶ **GO TO STEP 3**

A ▼

2.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Check if the same DTCs are output INFO .

HINT:

Reinstall the sensors, connectors, etc. and restore the previous vehicle conditions before rechecking for DTCs.

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output (When troubleshooting in accordance with Diagnostic Trouble Code Chart)	B
DTC is not output (When troubleshooting in accordance with Problem Symptoms Table)	C

B ▶ **USE SIMULATION METHOD TO CHECK**

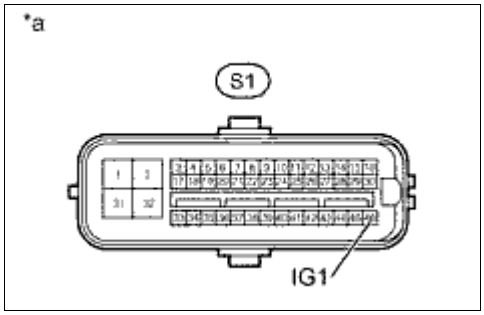
C ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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3.	**CHECK HARNESS AND CONNECTOR (IG1 TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-46 (IG1) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

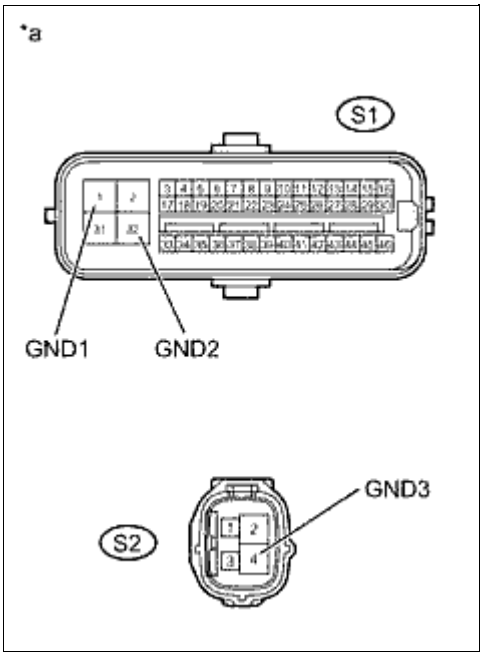
4.	**CHECK HARNESS AND CONNECTOR (GND TERMINAL)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND1) - Body ground	Always	Below 1 Ω
S1-32 (GND2) - Body ground	Always	Below 1 Ω
S2-4 (GND3) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

5.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Check if the same DTCs are output INFO .

HINT:

Reinstall the sensors, connectors, etc. and restore the previous vehicle conditions before rechecking for DTCs.

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output (When troubleshooting in accordance with Diagnostic Trouble Code Chart)	B
DTC is not output (When troubleshooting in accordance with Problem Symptoms Table)	C

B ▶ **USE SIMULATION METHOD TO CHECK**

C ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

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A ▶ REPLACE MASTER CYLINDER SOLENOID

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EA502UX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1242; Open Circuit in IG1/IG2 Power Source Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1242**	**Open Circuit in IG1/IG2 Power Source Circuit**

DESCRIPTION

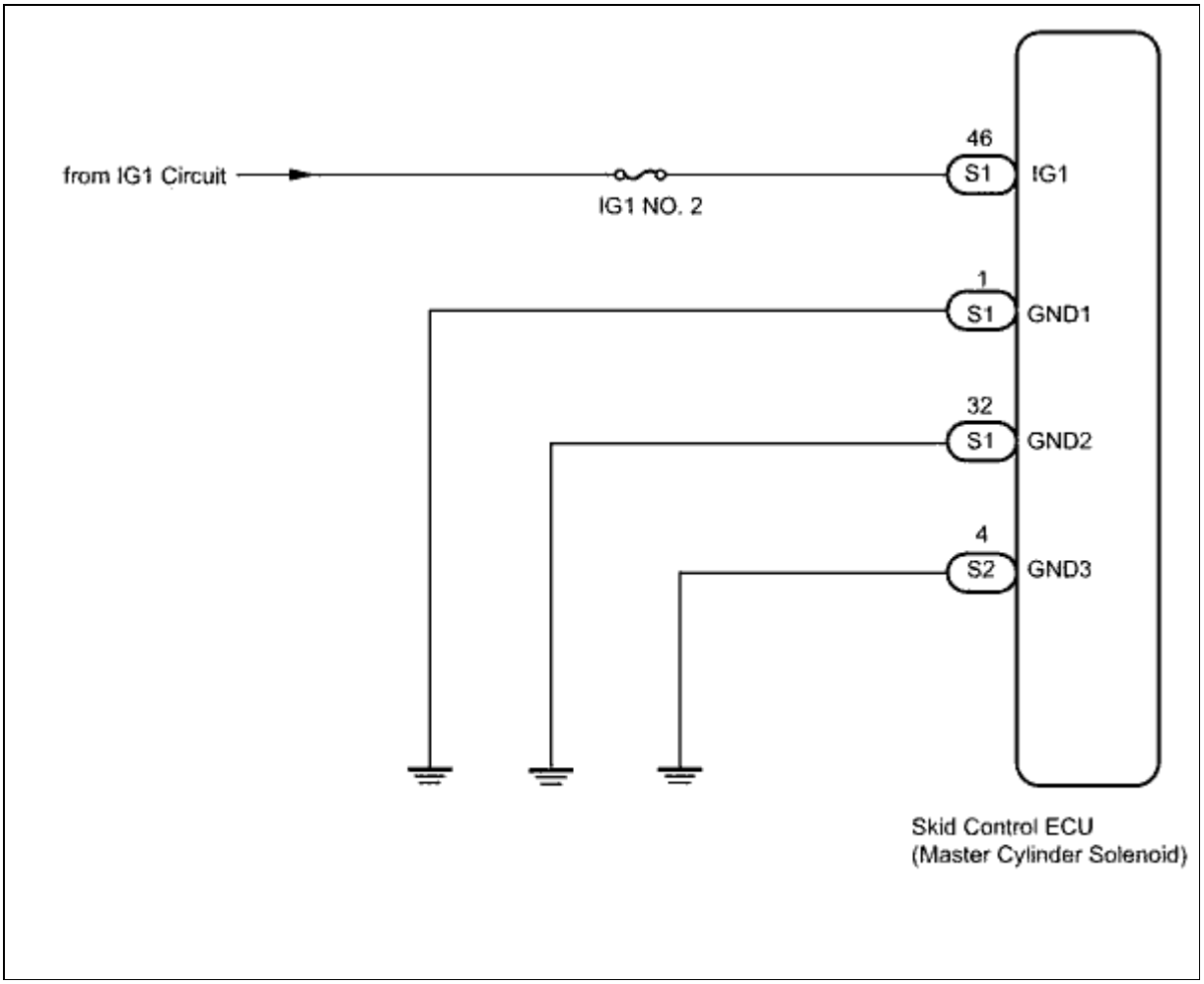
If there is a problem with the skid control ECU (master cylinder solenoid) power supply circuit, the skid control ECU outputs the DTC and prohibits operation under the fail safe function.

If the voltage supplied to terminal IG1 and/or IG2 is not within the DTC detection threshold due to malfunctions in parts such as the battery or alternator circuit, this DTC is stored.

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1242	Vehicle speed 3 km/h (1.9 mph) or more and voltage of skid control ECU (master cylinder solenoid) terminal IG1 and/or IG2 remains at below 6.5 V for more than 7 seconds.	• Battery • IC regulator • Power source circuit • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform zero point calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**INSPECT BATTERY**

(a) Check the battery voltage.

Standard Voltage:

11 to 14 V

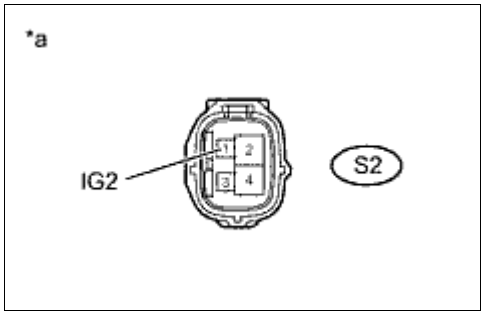
NG ▶ **GO TO CHARGING SYSTEM**

OK ▼

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2.	**CHECK HARNESS AND CONNECTOR (IG2 TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



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

(c) Measure the voltage.

Standard Voltage:

TESTER CONNECTION	SPECIFIED CONDITION
S2-1 (IG2) - Body ground	10 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(d) Reconnect the skid control ECU (master cylinder solenoid) connector.

(e) Turn the ignition switch to OFF.

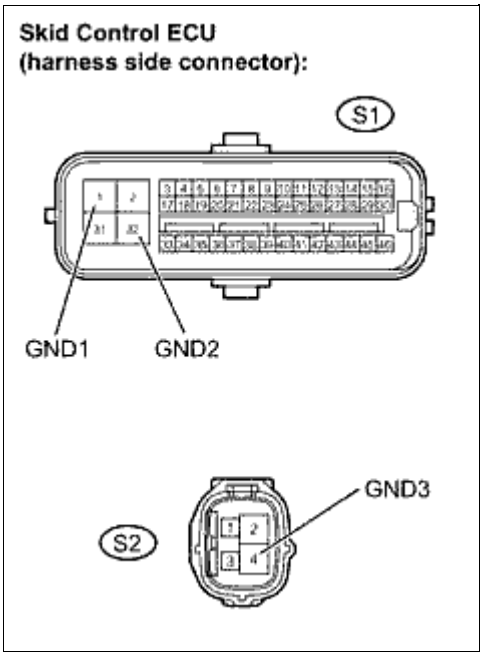
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

3.	**CHECK HARNESS AND CONNECTOR (GND TERMINAL)**

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(a) Disconnect the skid control ECU (master cylinder solenoid) connectors.



(b) Measure the resistance.

Standard Resistance:

TESTER CONNECTION	SPECIFIED CONDITION
S1-1 (GND1) - Body ground	Below 1 Ω
S1-32 (GND2) - Body ground	Below 1 Ω
S2-4 (GND3) - Body ground	Below 1 Ω

(c) Reconnect the skid control ECU (master cylinder solenoid) connectors.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Drive the vehicle at a speed of 3 km/h (1.9 mph) or more for 7 seconds or more.

(c) Check if the same DTCs are detected.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

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B ▶ END

A ▶ REPLACE MASTER CYLINDER SOLENOID

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EA7038X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1251; Open in Pump Motor Circuit; 2016 MY Tacoma [08/2015 -]		

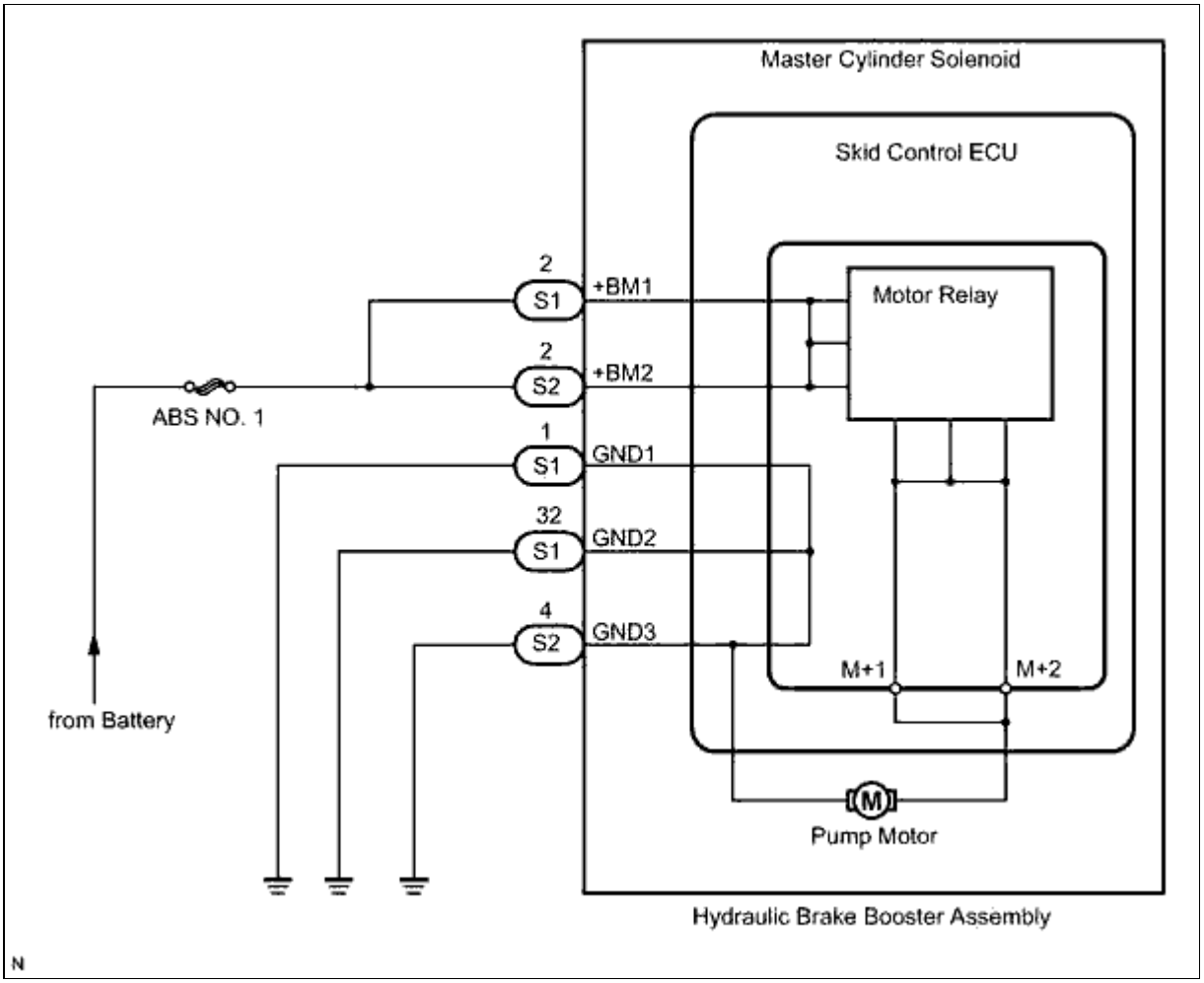
DTC	**C1251**	**Open in Pump Motor Circuit**

DESCRIPTION

The motor relay (semiconductor relay) is built into the master cylinder solenoid and drives the pump motor based on a signal from the skid control ECU (master cylinder solenoid).

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1251	Open in motor system circuit (motor input circuit)	Hydraulic brake booster pump motor circuit

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

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Remove the hydraulic brake booster before the inspection INFO .

PROCEDURE

1.	**CHECK BRAKE PUMP MOTOR WIRE HARNESS CONNECTION (MT+ / MT-)**

(a) Using a screwdriver, remove the 2 plugs from the hydraulic brake booster INFO .

(b) Check the tightening torque of 2 screws which fasten the wire harness connecting hydraulic brake booster and brake booster pump INFO .

Torque:

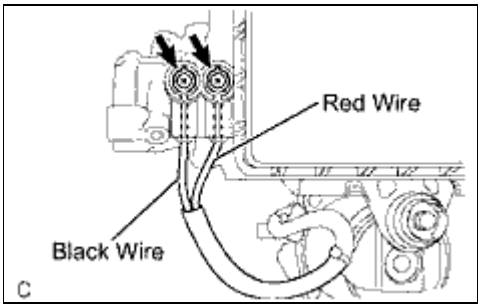
2.9 N·m {30 kgf·cm, 26in·lbf}

NG ▶ **RETIGHTEN SCREWS**

OK ▼

2.	**CHECK RESISTANCE OF PUMP MOTOR WIRE HARNESS (MT+/MT-)**

(a) Using a screwdriver, remove the 2 screws and pull the wire harness from the hydraulic brake booster.



(b) Measure the resistance between the red wire (MT+) and black wire (MT-).

Resistance:

2 Ω

NG ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

OK ▼

3.	**RECONFIRM DTC**

(a) Reassemble the hydraulic brake booster, then reinstall the hydraulic brake booster.

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(b) Clear the DTCs INFO .

(c) Check if the same DTCs are detected.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EA9037X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1252; Brake Booster Pump Motor on Time Abnormally Long; 2016 MY Tacoma [08/2015 -]		

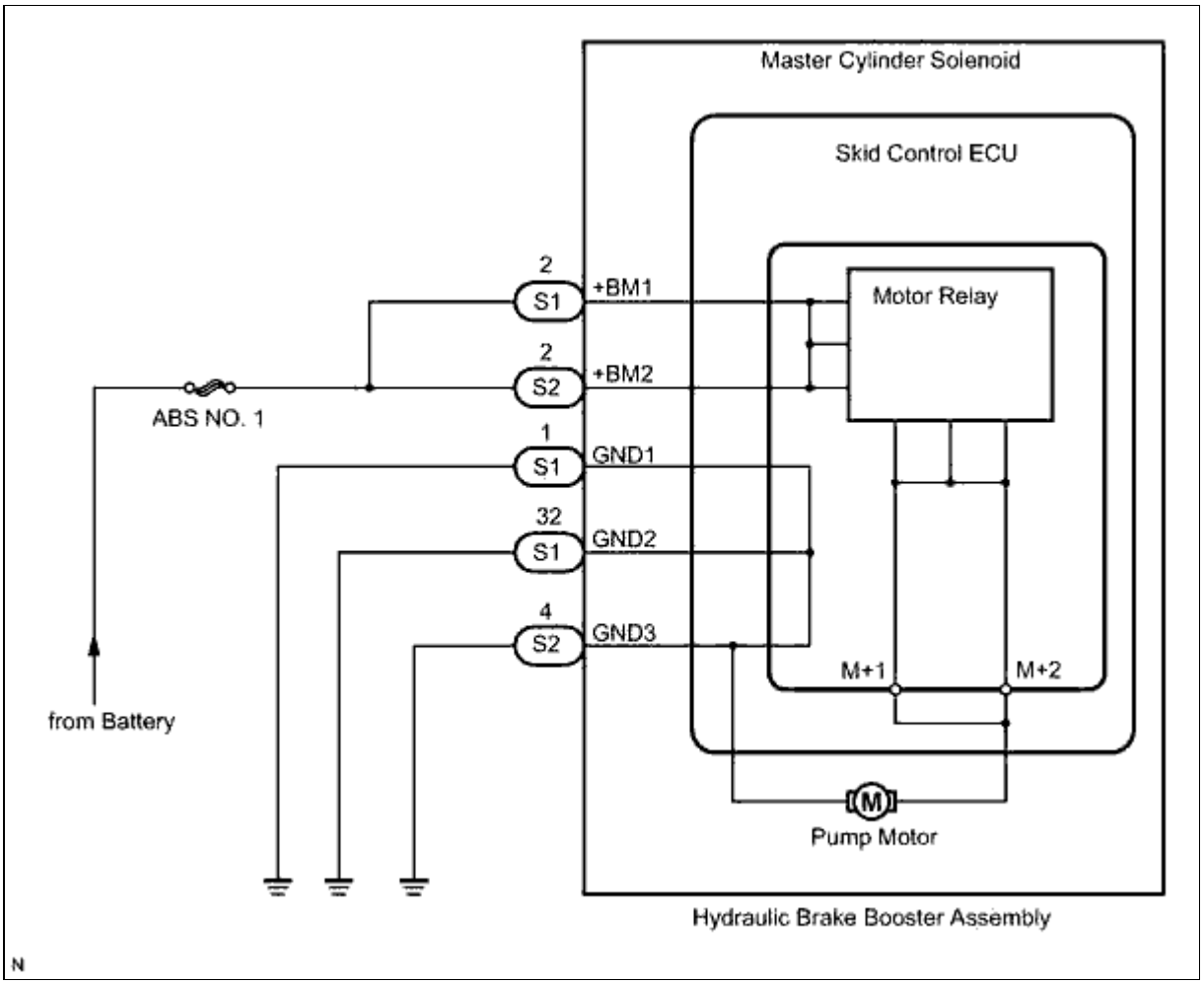
DTC	**C1252**	**Brake Booster Pump Motor on Time Abnormally Long**

DESCRIPTION

The motor relay (semiconductor relay) is built into the master cylinder solenoid and drives the pump motor based on a signal from the skid control ECU (master cylinder solenoid).

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1252	Motor operates for 5 minutes or more.	• Hydraulic brake booster pump motor • Hydraulic brake booster pump motor circuit • Accumulator pressure

WIRING DIAGRAM



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INSPECTION PROCEDURE

HINT:

When C1253, C1254 or C1256 is output together with C1252, inspect and repair the trouble areas indicated by C1253, C1254 or C1256 first.

PROCEDURE

1.	**CHECK HYDRAULIC BRAKE BOOSTER PUMP MOTOR OPERATION**

(a) Turn the ignition switch to OFF.

(b) Depress the brake pedal more than 20 times.

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

(d) Check how the hydraulic brake booster pump motor operates.

RESULT	PROCEED TO
Pump motor does not operate	A
Pump motor operates continuously (Does not stop)	B
Pump motor operates intermittently	C
Pump motor operates, then stops	D

B ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

C ▶ **GO TO STEP 4**

D ▶ **GO TO STEP 5**

A ▼

2.	**CHECK BRAKE PUMP MOTOR WIRE HARNESS CONNECTION (MT+ / MT-)**

(a) Using a screwdriver, remove the 2 plugs from the hydraulic brake booster INFO .

(b) Check the tightening torque of 2 screws which fasten the wire harness connecting hydraulic brake booster and brake booster pump INFO .

Torque:

2.9 N·m {30 kgf·cm, 26in·lbf}

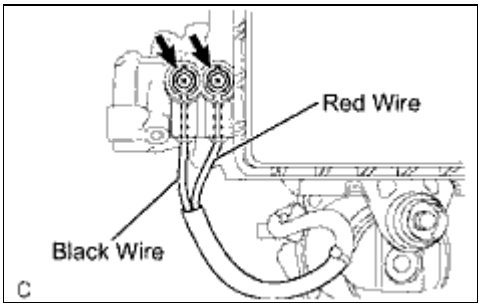
NG ▶ **RETIGHTEN SCREWS**

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OK

3.	CHECK RESISTANCE OF PUMP MOTOR WIRE HARNESS (MT+/MT-)

(a) Using a screwdriver, remove the 2 screws and pull the wire harness from the hydraulic brake booster assembly.



(b) Measure the resistance between the red wire (MT+) and black wire (MT-).

Resistance:
2 Ω

NG ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

OK

4.	READ VALUE USING DATA LIST (ACCUMULATOR SENSOR)

(a) Connect Techstream to the DLC3.

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

(c) Turn Techstream ON.

(d) Select the Data List mode on the Techstream.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM / RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Accumulator Sensor	Accumulator pressure sensor reading / min.: 0 V, max.: 5 V	3.58 to 5 V	If value constant regardless of pump operation, accumulator pressure sensor malfunction suspected.

(e) Check that the accumulator pressure sensor output is normal.

RESULT	PROCEED TO

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RESULT	PROCEED TO
Output value varies within "Normal Condition" range	A
Output value does not reach "Normal Condition" range	B
Output value constant regardless of pump motor operation	C

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

C ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

A

▼

5.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch to OFF.

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

(d) Wait for more than 5 minutes.

(e) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXN036X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1253; Pump Motor Relay; 2016 MY Tacoma [08/2015 -]		

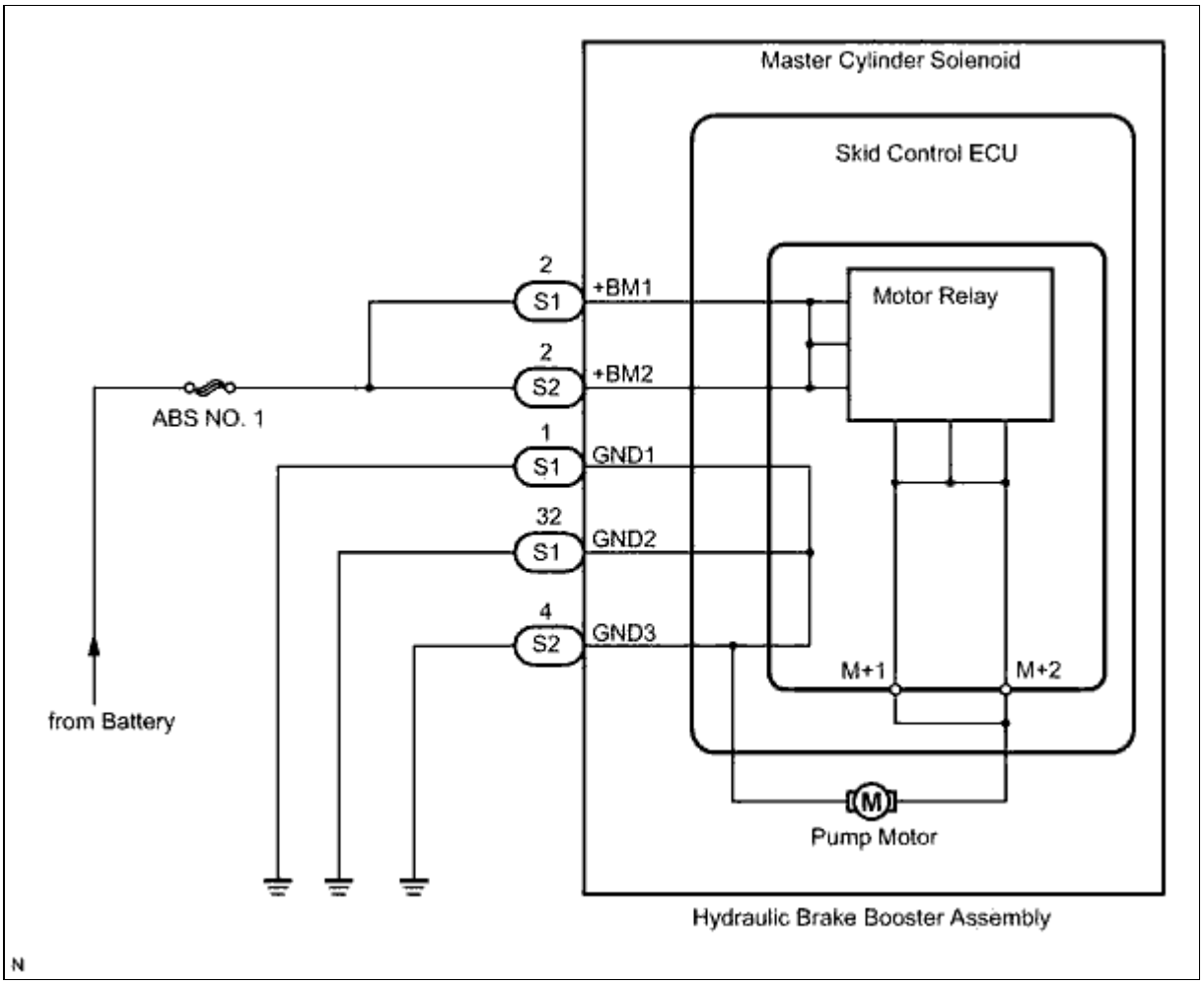
DTC	**C1253**	**Pump Motor Relay**

DESCRIPTION

The motor relay (semiconductor relay) is built into the master cylinder solenoid and drives the pump motor based on a signal from the skid control ECU (master cylinder solenoid).

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1253	Open in motor system circuit (motor input circuit)	• Hydraulic brake booster pump motor • Hydraulic brake booster pump motor circuit

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform zero point calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

Start the inspection from step 1 when using Techstream and start from step 3 when not using Techstream.

PROCEDURE

1.	**PERFORM ACTIVE TEST USING TECHSTREAM (MOTOR RELAY)**

(a) Connect Techstream to the DLC3.

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

(c) Turn Techstream ON.

(d) Select the Active Test mode on the Techstream.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Motor Relay	Turns motor relay	ON / OFF	Operation of motor can be heard

(e) Check for operation sound of the motor when it is operated with Techstream.

OK:

The operation sound of the motor can be heard.

NG ▶ **GO TO STEP 3**

OK ▼

2.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch to OFF.

(c) Depress the brake pedal more than 20 times.

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

(e) Wait until the pump motor stops.

(f) Depress the brake pedal several times until the pump motor is turned on.

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(g) Wait until the pump stops.

(h) Repeat (f) and (g) three times.

(i) Check if the same DTCs are recorded.

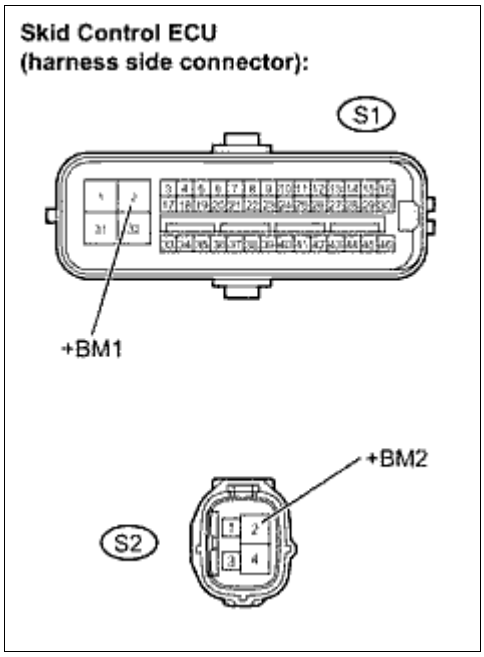
RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

3.	**CHECK HARNESS AND CONNECTOR (+BM, +BM2 TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connectors.



(b) Measure the voltage.

Standard Voltage:

TESTER CONNECTION	SPECIFIED CONDITION
S1-2 (+BM1) - Body ground	10 to 14 V
S2-2 (+BM2) - Body ground	10 to 14 V

(c) Reconnect the skid control ECU (master cylinder solenoid) connectors.

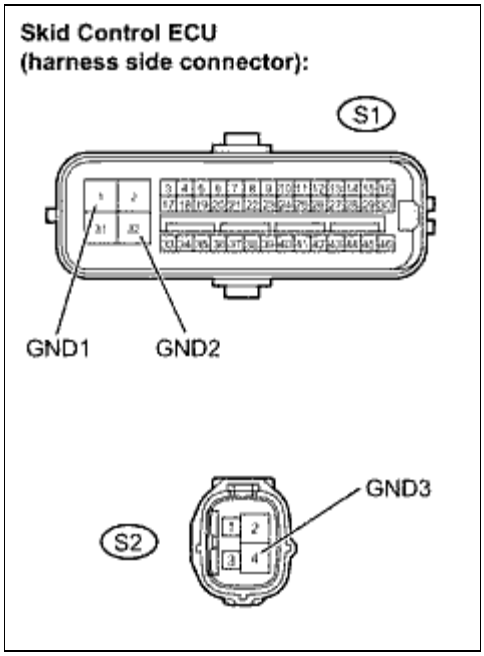
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (+BM1 AND +BM2 CIRCUIT)**

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OK

4.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - BODY GROUND)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connectors.



(b) Measure the resistance.

Standard Resistance:

TESTER CONNECTION	SPECIFIED CONDITION
S1-1 (GND1) - Body ground	Below 1 Ω
S1-32 (GND2) - Body ground	Below 1 Ω
S2-4 (GND3) - Body ground	Below 1 Ω

(c) Reconnect the skid control ECU (master cylinder solenoid) connectors.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND CIRCUIT)**

OK

5.	**RECONFIRM DTC**

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(a) Clear the DTCs INFO .

(b) Turn the ignition switch to OFF.

(c) Depress the brake pedal more than 20 times.

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

(e) Wait until the pump motor stops.

(f) Depress the brake pedal several times until the pump motor is turned on.

(g) Wait until the pump stops.

(h) Repeat (f) and (g) three times.

(i) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE HYDRAULIC BRAKE BOOSTER**

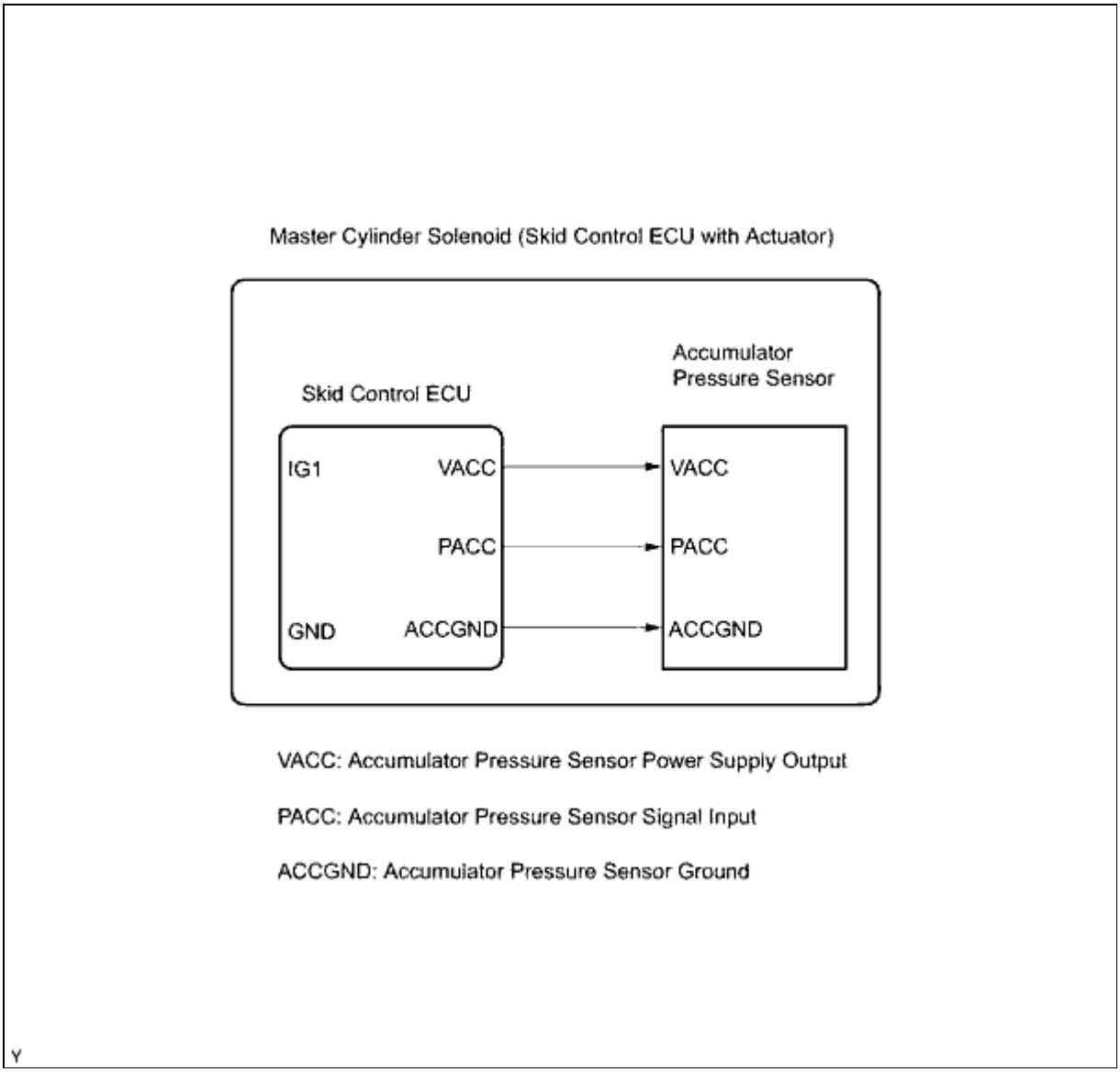
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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EA8036X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1254; Pressure Sensor or Switch; 2016 MY Tacoma [08/2015 -]		

DTC	**C1254**	**Pressure Sensor or Switch**

DESCRIPTION

The accumulator pressure sensor is connected to the skid control ECU in the master cylinder solenoid.



DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1254	Accumulator pressure sensor fault (Fluid pressure does not change when it should e.g. pump operates, brake pedal depressed/released).	• Hydraulic brake booster

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DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
		• Accumulator pressure sensor • Master cylinder pressure sensor

INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING DATA LIST (ACCUMULATOR SENSOR)**

(a) Connect Techstream to the DLC3.

(b) Turn the ignition switch to OFF.

(c) Depress the brake pedal more than 20 times.

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

(e) Select the Data List mode on the Techstream.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM / RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Accumulator Sensor	Accumulator pressure sensor reading / min.: 0 V, max.: 5 V	3.58 to 5 V	-

(f) Confirm whether the accumulator output voltage is normal.

RESULT	PROCEED TO
Output value normal	A
Output value not normal	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▼

2.	**READ VALUE USING DATA LIST (MASTER CYLINDER PRESSURE SENSOR)**

(a) Turn the ignition switch to OFF.

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(b) Depress the brake pedal more than 20 times.

(c) Install a brake pedal effort gauge (SST), and bleed air.

(d) Connect Techstream to the DLC3.

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

(f) Select the Data List mode on the Techstream.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM / RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Master Cylinder Sensor	Master cylinder pressure sensor reading / min.: 0 V, max.: 5 V	0.3 to 1.9 V With pedal pressure of 49 N (5 kgf, 11 lbf)	Front brake pressure: 770 to 1280 kPa (7.9 to 13.1 kgf/cm2, 112 to 186 psi)

(g) Check that the master cylinder output value is in the Normal Condition range.

OK:

Master cylinder pressure sensor value is in the Normal Condition.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▼

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch to OFF.

(c) Depress the brake pedal more than 20 times.

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

(e) Wait until the pump motor stops.

(f) Depress the brake pedal and release it.

(g) Wait for 25 minutes.

(h) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

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B ▶ END

A ▶ REPLACE MASTER CYLINDER SOLENOID

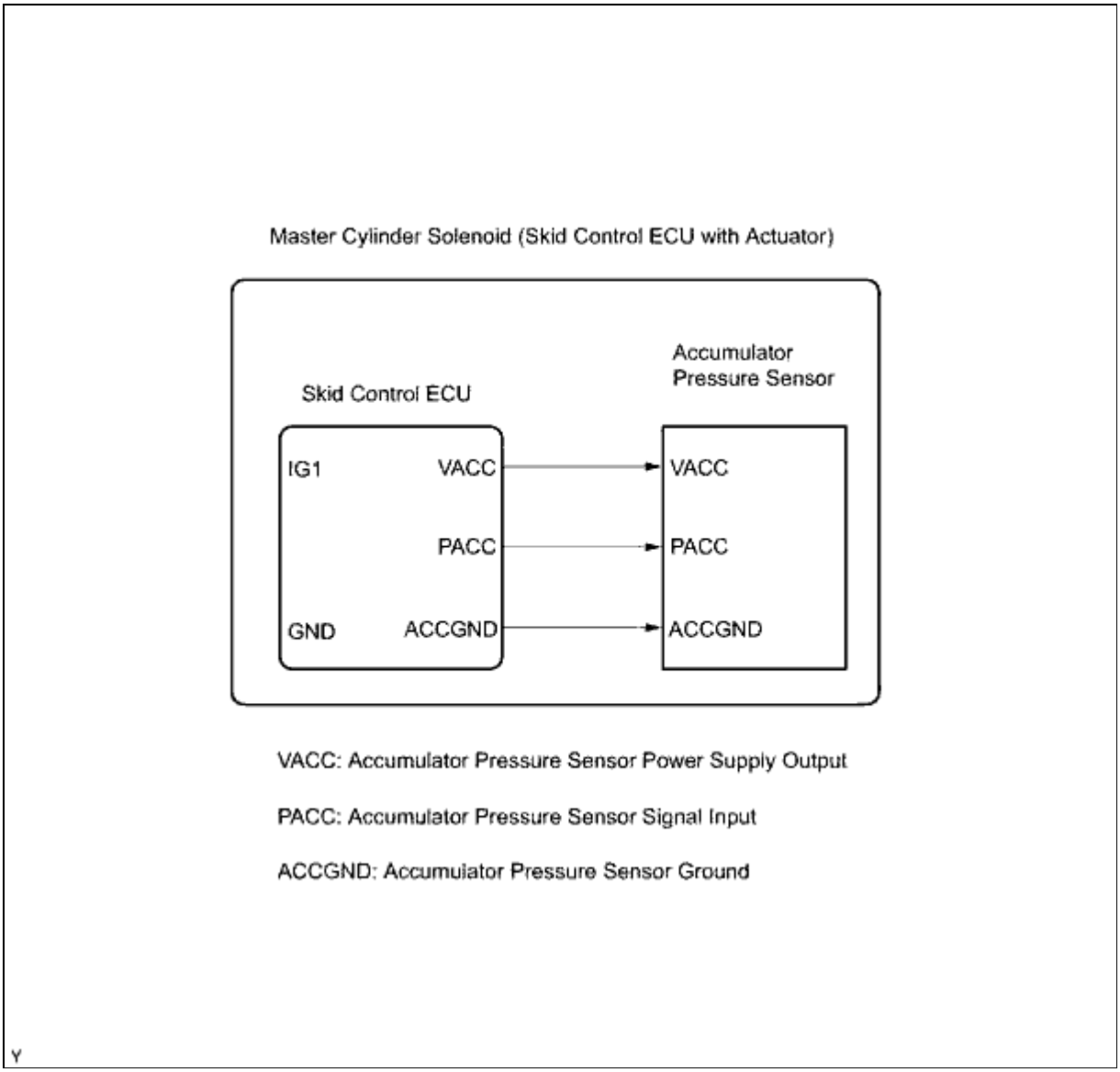
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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXO037X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1256; Accumulator Low Pressure; 2016 MY Tacoma [08/2015 -]		

DTC	**C1256**	**Accumulator Low Pressure**

DESCRIPTION

The accumulator pressure sensor is connected to the skid control ECU in the master cylinder solenoid.



DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1256	Fluid pressure inside the accumulator drops below the specification value.	• Brake booster with accumulator pump assembly

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DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
		• Master cylinder solenoid (Accumulator pressure sensor) • Hydraulic brake booster assembly

INSPECTION PROCEDURE

PROCEDURE

1.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch to OFF.

(c) Depress the brake pedal 20 times or more.

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

(e) Wait for 99 seconds.

(f) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▼

2.	**INSPECT HYDRAULIC BRAKE BOOSTER ASSEMBLY FUNCTION**

(a) Inspect brake booster pump power supply system function.

(1) Turn the ignition switch off.

(2) Depress the brake pedal 20 times or more to release the pressure in the accumulator.

HINT:

When the pressure is released, the brake pedal stroke becomes longer.

(3) Check that the brake fluid level is at the MAX level.

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(4) Chock the 4 wheels and release the parking brake.

(5) Turn the ignition switch to ON and measure the brake booster pump operating time (the time from when the brake booster pump starts operating until it stops).

OK:

20 to 80 seconds

(6) Start the engine after the brake boost pump stops.

(7) Check that the ABS warning light and slip indicator light are not illuminated.

(8) Turn off the engine, and then turn the ignition switch to ON.

(9) Check that the brake boost pump operates and then stops when the brake pedal is depressed 4 or 5 times.

(10) Depress the brake pedal 4 or 5 times and measure the brake booster pump operating time (the time from when the brake booster pump starts operating until it stops).

OK:

2 to 11 seconds

(11) Check that the brake warning light illuminates and the buzzer sounds when the brake pedal is fully depressed continuously 15 to 20 times.

NOTICE:

Wait 120 seconds or more after turning the ignition switch to ON before performing this inspection.

(b) Check brake booster operation.

(1) Turn the ignition switch off.

(2) Depress the brake pedal 20 times or more to release the pressure in the accumulator.

HINT:

When the pressure is released, the brake pedal stroke becomes longer.

(3) Depress the brake pedal, start the engine, and check the change in the brake pedal height.

OK:

The brake pedal moves slightly inward.

(c) Inspect brake master cylinder fluid pressure change INFO .

NG ▶ **GO TO STEP 5**

OK ▼

3.	**READ VALUE USING DATA LIST (ACCUMULATOR SENSOR)**

(a) Connect Techstream to the DLC3.

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

(c) Turn Techstream ON.

(d) Select the "Data List" mode on the Techstream.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM / RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Accumulator Sensor	Accumulator pressure sensor reading / min.: 0 V, max.: 5 V	3.58 to 5 V	If value constant regardless of pump operation, accumulator pressure sensor malfunction suspected.

(e) Check that the accumulator's output value is in the Normal Condition range.

OK:
Accumulator pressure sensor value is in the Normal Condition.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

5.	**INSPECT BRAKE BOOSTER PUMP ASSEMBLY**

(a) Remove the hydraulic brake booster assembly INFO .

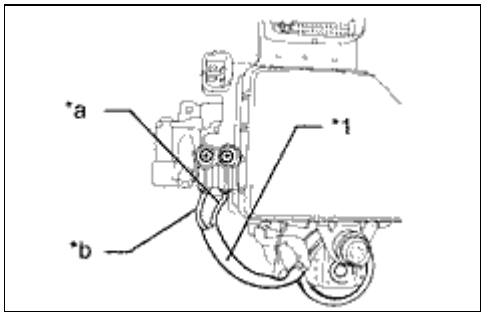
(b) Using a screwdriver, remove the 2 screws and pull out the wire harness from the master cylinder solenoid.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Red wire terminal - Black wire terminal	Always	Below 2 Ω



Text in Illustration

*1	Pump motor wire harness
*a	Red wire
*b	Black wire

(d) Install the pump motor wire harness to the master cylinder solenoid with the 2 screws.

Torque:

2.9 N·m {30 kgf·cm, 26in·lbf}

NG ▶ **REPLACE BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY**

OK ▶ **REPLACE HYDRAULIC BRAKE BOOSTER ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EAA036X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1257; Power Supply Drive Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1257**	**Power Supply Drive Circuit**

DESCRIPTION

The motor relay (semiconductor relay) is built into the hydraulic brake booster and drives the pump motor based on a signal from the skid control ECU (master cylinder solenoid).

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1257	Open in pump motor input circuit	Hydraulic brake booster pump motor circuit

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK HYDRAULIC BRAKE BOOSTER PUMP MOTOR OPERATION**

(a) Turn the ignition switch to OFF.

(b) Disconnect the actuator connector (S1).

(c) Depress the brake pedal more than 20 times.

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

(e) Check the hydraulic brake booster pump motor operation.

OK:
Hydraulic brake booster pump operates.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▼

2.	**RECONFIRM DTC**

(a) Turn the ignition switch to OFF.

(b) Reconnect the actuator connector (S1).

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

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(d) Clear the DTCs INFO .

(e) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EAB02PX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1268; Transfer L4 Position Switch Circuit; 2016 MY Tacoma [08/2015 -]		

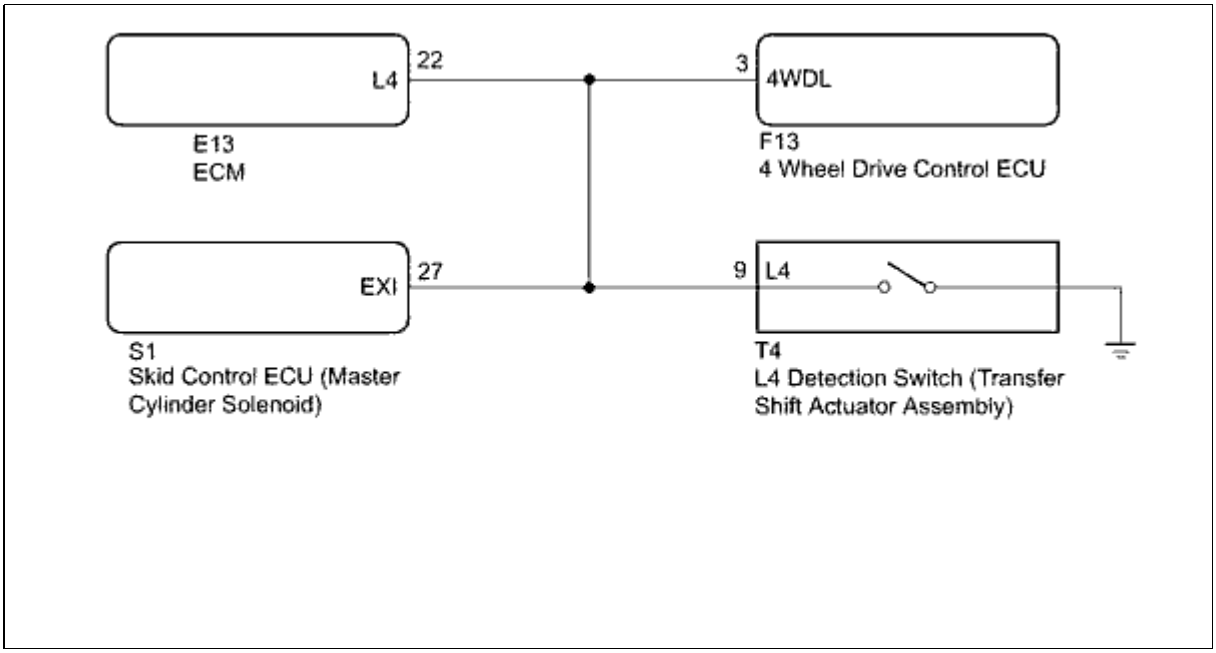
DTC	**C1268**	**Transfer L4 Position Switch Circuit**

DESCRIPTION

A-TRAC is activated if wheel skid is detected while the transfer is in the L4 position.

DTC CODE	DTC DETECTING CONDITION	TROUBLE AREAS
C1268	L4 detection switch signal input to skid control ECU (master cylinder solenoid) does not match L4 detection switch signal output from ECM.	• L4 detection switch (transfer shift actuator assembly) • L4 detection switch (transfer shift actuator assembly) circuit • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform zero point calibration INFO .

HINT:

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When DTC U0114 is output together with DTC C1268, inspect and repair the trouble areas indicated by DTC U0114 first INFO .

PROCEDURE

1.	**INSPECT TOUCH SELECT 2-4 AND HIGH-LOW SYSTEM**

(a) Turn the 4WD control switch (transfer position switch) to L4, and then drive the vehicle and check that there are no problems with the touch select 2-4 and high-low system.

OK:

There are no problems with the touch select 2-4 and high-low system.

NG ▶ **GO TO TOUCH SELECT 2-4 AND HIGH-LOW SYSTEM**

OK ▼

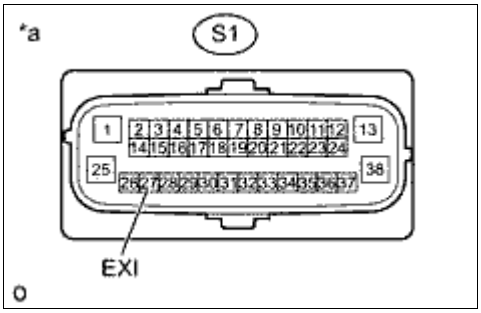
2.	**CHECK HARNESS AND CONNECTOR (EXI TERMINAL)**

(a) Connect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Turn the 4WD control switch (transfer position switch) to L4.

(c) Disconnect the E13 ECM connector.

(d) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.



(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-27 (EXI) - Body ground	• Ignition switch ON • 4WD control switch (transfer position switch) set to L4	Below 1.5 V

Text in Illustration

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*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(f) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(g) Reconnect the E13 ECM connector.

(h) Turn the 4WD control switch (transfer position switch) to 2WD or H4.

(i) Disconnect the E13 ECM connector.

(j) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(k) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-27 (EXI) - Body ground	• Ignition switch ON • 4WD control switch (transfer position switch) set to 2WD or H4	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (EXI TERMINAL)**

OK ▼

3.	**RECONFIRM DTC OUTPUT**

(a) Turn the ignition switch off.

(b) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(c) Reconnect the E13 ECM connector.

(d) Turn the ignition switch to ON.

(e) Clear the DTC INFO .

(f) Turn the ignition switch off.

(g) Start the engine.

(h) Turn the 4WD control switch (transfer position switch) to 2WD or H4.

(i) Turn the 4WD control switch (transfer position switch) to L4, drive the vehicle, and then check for DTCs.

Result

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RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XI911CX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1271,C1272,C1401,C1402; Low Output Signal of Front Speed Sensor RH (Test Mode DTC); 2016 MY Tacoma [08/2015 -]		

DTC	**C1271**	**Low Output Signal of Front Speed Sensor RH (Test Mode DTC)**

DTC	**C1272**	**Low Output Signal of Front Speed Sensor LH (Test Mode DTC)**

DTC	**C1401**	**Front Speed Sensor RH Malfunction**

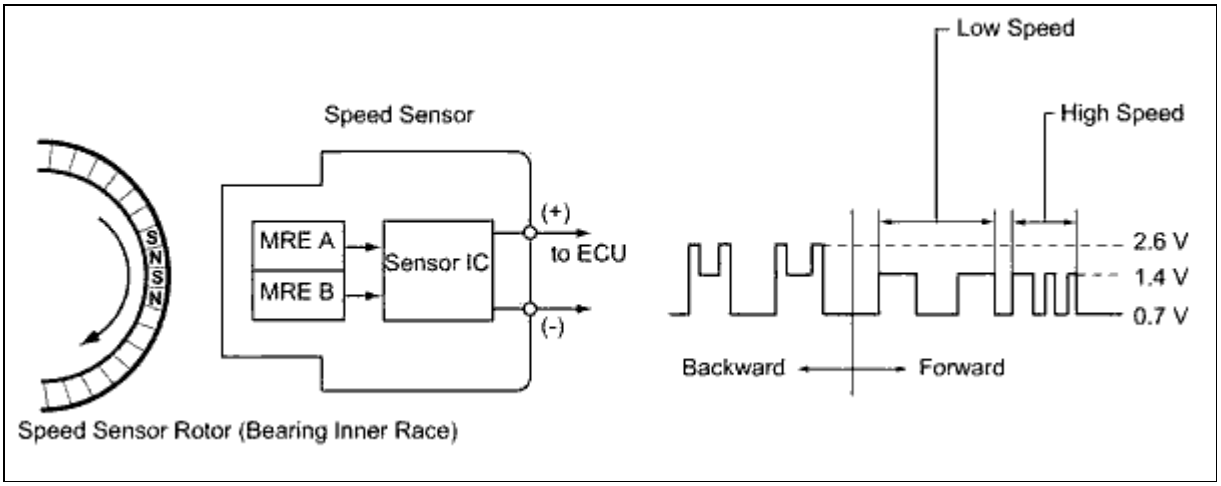
DTC	**C1402**	**Front Speed Sensor LH Malfunction**

DESCRIPTION

The speed sensor detects the wheel speed and sends the appropriate signals to the skid control ECU (master cylinder solenoid). These signals are used for brake control.

The speed sensor rotors have rows of alternating N and S magnetic poles and their magnetic fields change when the rotors turn.

Each speed sensor detects that magnetic change and sends a pulse signal to the skid control ECU (master cylinder solenoid).



DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1271 C1272	Stored only during test mode.	• Front speed sensor RH/LH • Front speed sensor rotor RH/LH (front axle with ABS

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DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
		rotor bearing assembly RH/LH) • Sensor installation
C1401 C1402	One of the following conditions is met: 1. At a vehicle speed of 10 km/h (6 mph) or more, the output voltage from one of the speed sensors is less than that from the other sensors for 15 seconds or more. 2. At a vehicle speed of less than 10 km/h (6 mph), the output from one of the speed sensors is 0 km/h (0 mph) for 1 second or more. 3. At a vehicle speed of 10 km/h (6 mph) or more, the outputs from both front speed sensors are 0 km/h (0 mph) for 30 seconds or more.	• Front speed sensor RH/LH • Front speed sensor rotor RH/LH (front axle with ABS rotor bearing assembly RH/LH) • Sensor installation

HINT:

- DTCs C1401 and C1271 are for the front speed sensor RH.
- DTCs C1402 and C1272 are for the front speed sensor LH.

INSPECTION PROCEDURE

NOTICE:

Check the speed sensor signal after cleaning or replacement INFO .

PROCEDURE

1.	**CHECK FRONT SPEED SENSOR INSTALLATION**

(a) Turn the ignition switch off.

(b) Check the speed sensor installation.

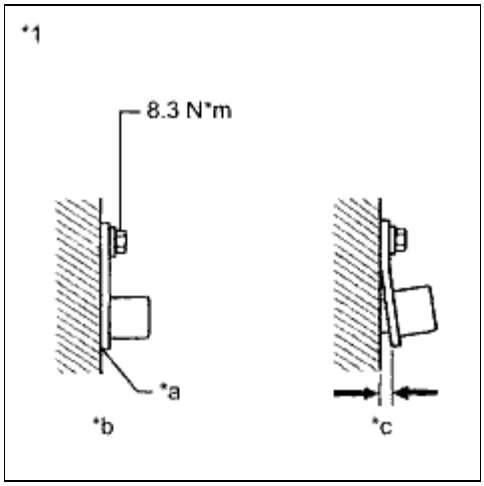
OK:

There is no clearance between the sensor and the front steering knuckle.

The installation bolt is tightened properly.

Torque

8.3 N*m (85 kgf*cm, 73 in.*lbf)



Text in Illustration

*1	Front Speed Sensor
*a	No clearance
*b	OK
*c	NG

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NG ▶ INSTALL FRONT SPEED SENSOR CORRECTLY

OK ▼

2.	INSPECT FRONT SPEED SENSOR TIP

(a) Remove the front speed sensor INFO .

(b) Check the speed sensor tip.

OK:

No scratches, oil, or foreign matter on the sensor tip.

NOTICE:

If no damage to the speed sensor tip is found during this inspection, do not replace the speed sensor.

NG ▶ CLEAN OR REPLACE FRONT SPEED SENSOR

OK ▼

3.	INSPECT FRONT SPEED SENSOR ROTOR

(a) Remove the front axle with ABS rotor bearing assembly INFO .

(b) Check the speed sensor rotor.

OK:

No scratches, oil, or foreign matter on the rotors.

HINT:

The front speed sensor rotor is incorporated into the front axle with ABS rotor bearing assembly.

If the front speed sensor rotor needs to be replaced, replace it together with the front axle with ABS rotor bearing assembly.

NG ▶ CLEAN OR REPLACE FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY

OK ▼

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4.	**READ VALUE USING TECHSTREAM (FRONT SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.

(f) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, refer to the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NG ▶ **GO TO STEP 5**

OK ▶ **USE SIMULATION METHOD TO CHECK**

5.	**REPLACE FRONT SPEED SENSOR**

(a) Replace the front speed sensor INFO .

NEXT

▼

6.	**RECONFIRM DTC**

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(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1401 and C1402 are not output	A
DTCs C1401 and/or C1402 are output	B

B ▶ **REPLACE FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000369R091X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1273,C1274,C1403,C1404; Low Output Signal of Rear Speed Sensor RH (Test Mode DTC); 2016 MY Tacoma [08/2015 -]		

DTC	**C1273**	**Low Output Signal of Rear Speed Sensor RH (Test Mode DTC)**

DTC	**C1274**	**Low Output Signal of Rear Speed Sensor LH (Test Mode DTC)**

DTC	**C1403**	**Rear Speed Sensor RH Malfunction**

DTC	**C1404**	**Rear Speed Sensor LH Malfunction**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1273 C1274	Stored only during test mode.	• Rear speed sensor RH/LH • Rear speed sensor rotor RH/LH (rear axle hub and bearing assembly RH/LH) • Sensor installation
C1403 C1404	One of the following conditions is met: 1. At a vehicle speed of 10 km/h (6 mph) or more, the output voltage from one of the speed sensors is less than that from the other sensors for 15 seconds or more. 2. At a vehicle speed of less than 10 km/h (6 mph), the output from one of the speed sensors is 0 km/h (0 mph) for 1 second or more. 3. At a vehicle speed of less than 10 km/h (6 mph), the outputs from both rear speed sensors are 0 km/h (0 mph) for 30 seconds or more.	• Rear speed sensor RH/LH • Rear speed sensor rotor RH/LH (rear axle hub and bearing assembly RH/LH) • Sensor installation

HINT:

- DTCs C1403 and C1273 are for the rear speed sensor RH.
- DTCs C1404 and C1274 are for the rear speed sensor LH.

INSPECTION PROCEDURE

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NOTICE:

Check the speed sensor signal after cleaning or replacement INFO .

PROCEDURE

1.	**CHECK REAR SPEED SENSOR INSTALLATION**

(a) Turn the ignition switch off.

(b) Check the speed sensor installation.

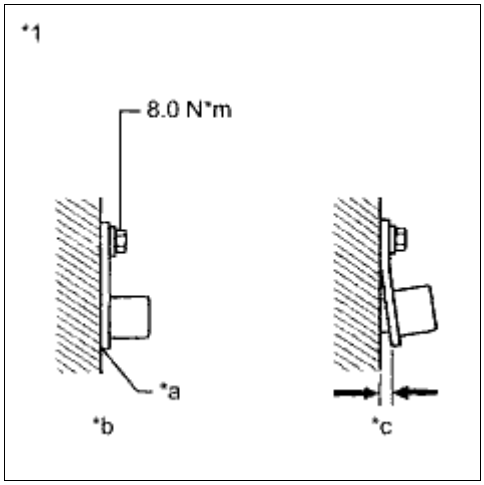
OK:

There is no clearance between the sensor and the rear axle.

The installation nut is tightened properly.

Torque:

8.0 N*m (82 kgf*cm, 71 in.*lbf)



Text in Illustration

*1	Rear Speed Sensor
*a	No clearance
*b	OK
*c	NG

NG ▶ **INSTALL REAR SPEED SENSOR CORRECTLY**

OK ▼

2.	**INSPECT REAR SPEED SENSOR TIP**

(a) Remove the rear speed sensor INFO .

(b) Check the speed sensor tip.

OK:

No scratches, oil, or foreign matter on the sensor tip.

NOTICE:

If no damage to the speed sensor tip is found during this inspection, do not replace the speed sensor.

NG ▶ **CLEAN OR REPLACE REAR SPEED SENSOR**

OK

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3.	**INSPECT REAR SPEED SENSOR ROTOR**

(a) Remove the rear axle hub and bearing assembly INFO .

(b) Check the speed sensor rotor.

OK:

No scratches, oil, or foreign matter on the rotors.

HINT:

The rear speed sensor rotor is incorporated into the rear axle hub and bearing assembly.

If the rear speed sensor rotor needs to be replaced, replace it together with the rear axle hub and bearing assembly.

NG ▶ **CLEAN OR REPLACE REAR AXLE HUB AND BEARING ASSEMBLY**

OK ▼

4.	**READ VALUE USING TECHSTREAM (REAR SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Wheel Speed	Rear speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
RL Wheel Speed	Rear speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.

(f) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

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Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NG ▶ **GO TO STEP 5**

OK ▶ **USE SIMULATION METHOD TO CHECK**

5.	**REPLACE REAR SPEED SENSOR**

(a) Replace the rear speed sensor INFO .

NEXT

6.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more or at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1403 and C1404 are not output	A
DTCs C1403 and/or C1404 are output	B

B ▶ **REPLACE REAR AXLE HUB AND BEARING ASSEMBLY**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIA0PEX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1275,C1276,C1413,C1414; Abnormal Change in Output Signal of Front Speed Sensor RH (Test Mode DTC); 2016 MY Tacoma [08/2015 -]		

DTC	**C1275**	**Abnormal Change in Output Signal of Front Speed Sensor RH (Test Mode DTC)**

DTC	**C1276**	**Abnormal Change in Output Signal of Front Speed Sensor LH (Test Mode DTC)**

DTC	**C1413**	**Front Speed Sensor RH Output Malfunction**

DTC	**C1414**	**Front Speed Sensor LH Output Malfunction**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1275 C1276	Stored only during test mode.	• Front speed sensor RH/LH • Front speed sensor rotor RH/LH (Front axle with ABS rotor bearing assembly RH/LH)
C1413 C1414	One of the following conditions is met: 1. An open in the sensor signal circuit of a malfunctioning area occurs 255 times or more. 2. At a vehicle speed of 20 km/h (12 mph) or more, noise occurs in the sensor signals of a malfunctioning wheel 75 times or more within 5 seconds. 3. At a vehicle speed of 10 km/h (6 mph) or more, noise occurs once per rotor rotation for 15 seconds or more.	• Front speed sensor RH/LH • Skid control sensor wire • Speed sensor circuit • Front speed sensor rotor RH/LH (Front axle with ABS rotor bearing assembly RH/LH) • Skid control ECU (master cylinder solenoid)

HINT:

- DTCs C1413 and C1275 are for the front speed sensor RH.
- DTCs C1414 and C1276 are for the front speed sensor LH.

WIRING DIAGRAM

Refer to DTCs C1405 and C1406 INFO .

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Check the speed sensor signal after cleaning or replacement INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)** INFO

NG ▶ **GO TO STEP 9**

OK ▼

2.	**READ VALUE USING TECHSTREAM (FRONT SPEED SENSOR)** INFO

NG ▶ **GO TO STEP 5**

OK ▼

3.	**PERFORM TEST MODE (SIGNAL CHECK)**

(a) Perform the signal check in the Test Mode Procedure INFO .

OK:
All test mode DTCs are cleared.

NG ▶ **GO TO STEP 5**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

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(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1413 and C1414 are not output	A
DTCs C1413 and/or C1414 are output	B

B ▶ **GO TO STEP 12**

A ▶ **USE SIMULATION METHOD TO CHECK**

5.	**CHECK FRONT SPEED SENSOR INSTALLATION** INFO

NG ▶ **INSTALL FRONT SPEED SENSOR CORRECTLY**

OK
▼

6.	**INSPECT FRONT SPEED SENSOR TIP** INFO

NG ▶ **CLEAN OR REPLACE FRONT SPEED SENSOR**

OK
▼

7.	**INSPECT FRONT SPEED SENSOR ROTOR** INFO

NG ▶ **CLEAN OR REPLACE FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY**

OK

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8.	**INSPECT SKID CONTROL SENSOR WIRE** INFO

NG ▶ **REPLACE SKID CONTROL SENSOR WIRE**

OK

9.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - FRONT SPEED SENSOR)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

10.	**INSPECT SKID CONTROL ECU (FR+, FL+ TERMINAL)** INFO

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK

11.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

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RESULT	PROCEED TO
DTCs C1413 and C1414 are not output	A
DTCs C1413 and/or C1414 are output	B

B ▶ **GO TO STEP 12**

A ▶ **USE SIMULATION METHOD TO CHECK**

12.	**REPLACE FRONT SPEED SENSOR** INFO

NEXT

13.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1413 and C1414 are not output	A
DTCs C1413 and/or C1414 are output	B

B ▶ **REPLACE FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000369S097X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1277,C1278,C1415,C1416; Abnormal Change in Output Signal of Rear Speed Sensor RH (Test Mode DTC); 2016 MY Tacoma [08/2015 -]		

DTC	**C1277**	**Abnormal Change in Output Signal of Rear Speed Sensor RH (Test Mode DTC)**

DTC	**C1278**	**Abnormal Change in Output Signal of Rear Speed Sensor LH (Test Mode DTC)**

DTC	**C1415**	**Rear Speed Sensor RH Output Malfunction**

DTC	**C1416**	**Rear Speed Sensor LH Output Malfunction**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1277 C1278	Stored only during test mode.	• Rear speed sensor RH/LH • Rear speed sensor rotor RH/LH (Rear axle hub and bearing assembly RH/LH)
C1415 C1416	One of the following conditions is met: 1. An open in the sensor signal circuit of a malfunctioning area occurs 255 times or more. 2. At a vehicle speed of 20 km/h (12 mph) or more, noise occurs in the sensor signals of a malfunctioning wheel 75 times or more within 5 seconds. 3. At a vehicle speed of 10 km/h (6 mph) or more, noise occurs once per rotor rotation for 15 seconds or more.	• Rear speed sensor RH/LH • Skid control sensor wire • Speed sensor circuit • Rear speed sensor rotor RH/LH (Rear axle hub and bearing assembly RH/LH) • Skid control ECU (master cylinder solenoid)

HINT:

- DTCs C1415 and C1277 are for the rear speed sensor RH.
- DTCs C1416 and C1278 are for the rear speed sensor LH.

WIRING DIAGRAM

Refer to DTCs C1407 and C1408 INFO .

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Check the speed sensor signal after cleaning or replacement INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)** INFO

NG ▶ **GO TO STEP 9**

OK ▼

2.	**READ VALUE USING TECHSTREAM (REAR SPEED SENSOR)** INFO

NG ▶ **GO TO STEP 5**

OK ▼

3.	**PERFORM TEST MODE (SIGNAL CHECK)**

(a) Perform the signal check in the Test Mode Procedure INFO .

OK:
All test mode DTCs are cleared.

NG ▶ **GO TO STEP 5**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

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(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1415 and C1416 are not output	A
DTCs C1415 and/or C1416 are output	B

B ▶ **GO TO STEP 12**

A ▶ **USE SIMULATION METHOD TO CHECK**

5.	**CHECK REAR SPEED SENSOR INSTALLATION** INFO

NG ▶ **INSTALL REAR SPEED SENSOR CORRECTLY**

OK ▼

6.	**INSPECT REAR SPEED SENSOR TIP** INFO

NG ▶ **CLEAN OR REPLACE REAR SPEED SENSOR**

OK ▼

7.	**INSPECT REAR SPEED SENSOR ROTOR** INFO

NG ▶ **CLEAN OR REPLACE REAR AXLE HUB AND BEARING ASSEMBLY**

OK

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8.	INSPECT SKID CONTROL SENSOR WIRE INFO

NG ▶ REPLACE SKID CONTROL SENSOR WIRE

OK ▼

9.	CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - REAR SPEED SENSOR) INFO

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

10.	INSPECT SKID CONTROL ECU (RR+, RL+ TERMINAL) INFO

NG ▶ REPLACE MASTER CYLINDER SOLENOID

OK ▼

11.	RECONFIRM DTC

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

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RESULT	PROCEED TO
DTCs C1415 and C1416 are not output	A
DTCs C1415 and/or C1416 are output	B

B ▶ **GO TO STEP 12**

A ▶ **USE SIMULATION METHOD TO CHECK**

12.	**REPLACE REAR SPEED SENSOR** INFO

NEXT

13.	**RECONFIRM DTC**

(a) Turn the ignition switch off.

(b) Clear the DTCs INFO .

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1415 and C1416 are not output	A
DTCs C1415 and/or C1416 are output	B

B ▶ **REPLACE REAR AXLE HUB AND BEARING ASSEMBLY**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIG0R6X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1281,C1421,C1423,C1424; Master Cylinder Pressure Sensor Output Malfunction (Test Mode DTC); 2016 MY Tacoma [08/2015 -]		

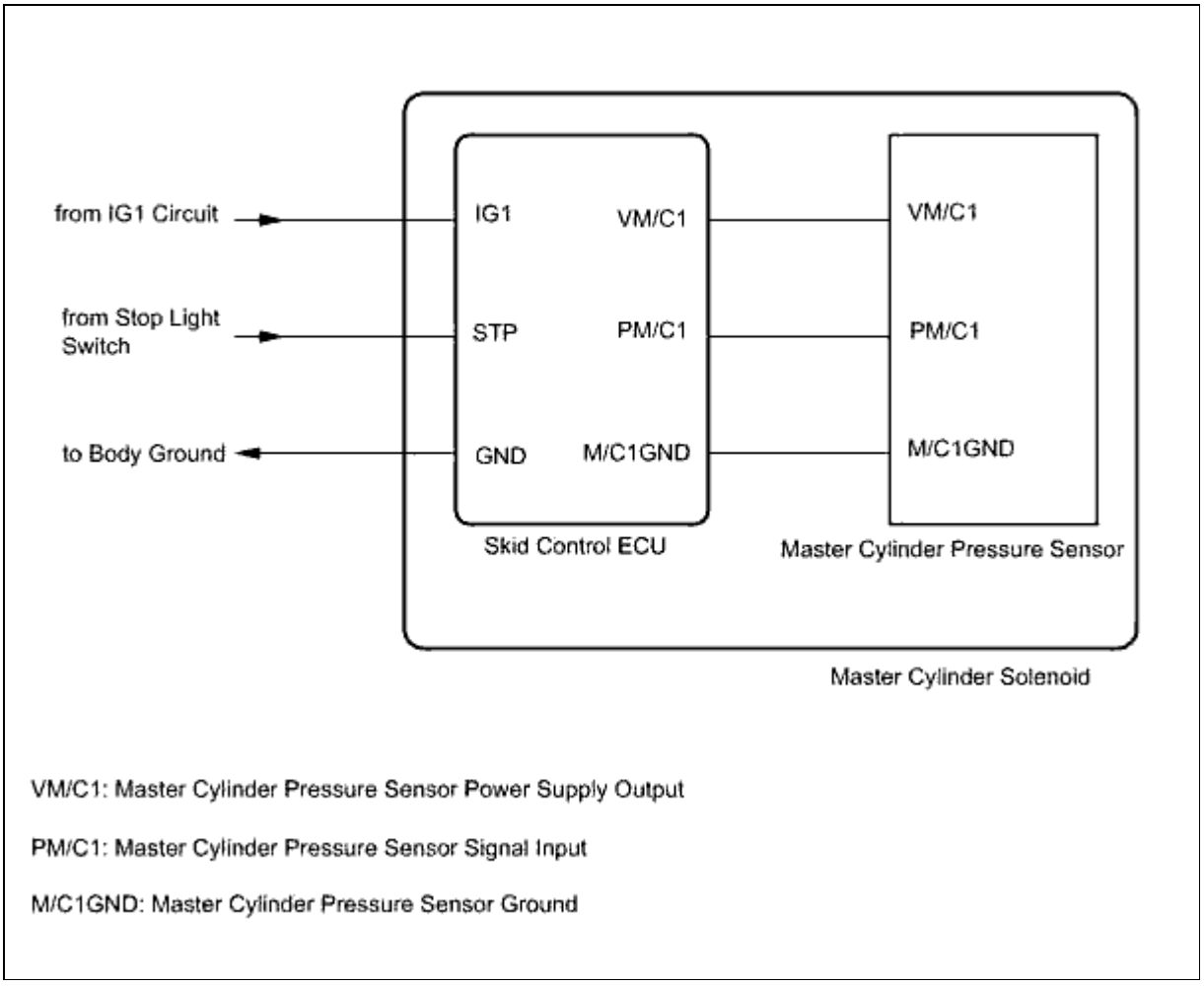
DTC	**C1281**	**Master Cylinder Pressure Sensor Output Malfunction (Test Mode DTC)**

DTC	**C1421**	**Open or Short in Master Cylinder Pressure Sensor**

DTC	**C1423**	**Master Cylinder Pressure Sensor Zero Point Low Malfunction**

DTC	**C1424**	**Master Cylinder Pressure Sensor Output Malfunction**

DESCRIPTION



VM/C1: Master Cylinder Pressure Sensor Power Supply Output

PM/C1: Master Cylinder Pressure Sensor Signal Input

M/C1GND: Master Cylinder Pressure Sensor Ground

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DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1281	Stored only during test mode.	• Master cylinder pressure sensor circuit • Skid control ECU, master cylinder pressure sensor (master cylinder solenoid)
C1421	Either condition is met: Both of the following conditions continue for at least 1.2 seconds. • The IG1 terminal voltage is between 9.5 V and 17.0 V. • The VM/C1 terminal voltage is not within 4.4 V and 5.6 V. Both of the following conditions continue for at least 1.2 seconds. • The VM/C1 terminal voltage is between 4.4 V and 5.6 V. • The PM/C1 terminal voltage is not within 0.19 V and 4.57 V.	
C1423	Both of the following conditions continue for at least 5 seconds • The stop light switch is off. • The PM/C1 terminal voltage is below 0.3 V.	
C1424	One of the following conditions is met: • Noise occurs in the signal from the PM/C1 terminal 7 times or more within 5 seconds • When the vehicle speed drops from 40 km/h (25 mph) to 10 km/h (6 mph), the master cylinder pressure does not change by at least 0.048 MPa. • At a vehicle speed of 7 km/h (4 mph) or more, the PM/C1 terminal voltage is between 0.86 and 1.0 V and master cylinder pressure does not change by at least 0.048 MPa for 60 seconds or more. • At a vehicle speed of 7 km/h (4 mph) or more, the PM/C1 terminal voltage is 1.0 V or higher and master cylinder pressure does not change by at least 0.048 MPa for 30 seconds or more. • At a vehicle speed of 7 km/h (4 mph) or more with the stop light switch ON, a state in which the master cylinder pressure sensor input value is sufficiently greater than the estimated master pressure continues for 1 second or more and this state occurs 5 or more times each time the ignition switch is turned to ON, and this occurs 8 or more times consecutively.	

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

PROCEDURE

1.	**REPLACE MASTER CYLINDER SOLENOID**

(a) Replace the master cylinder solenoid INFO .

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000452D01QX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1282; Center Differential Lock Position Switch; 2016 MY Tacoma [08/2015 -]		

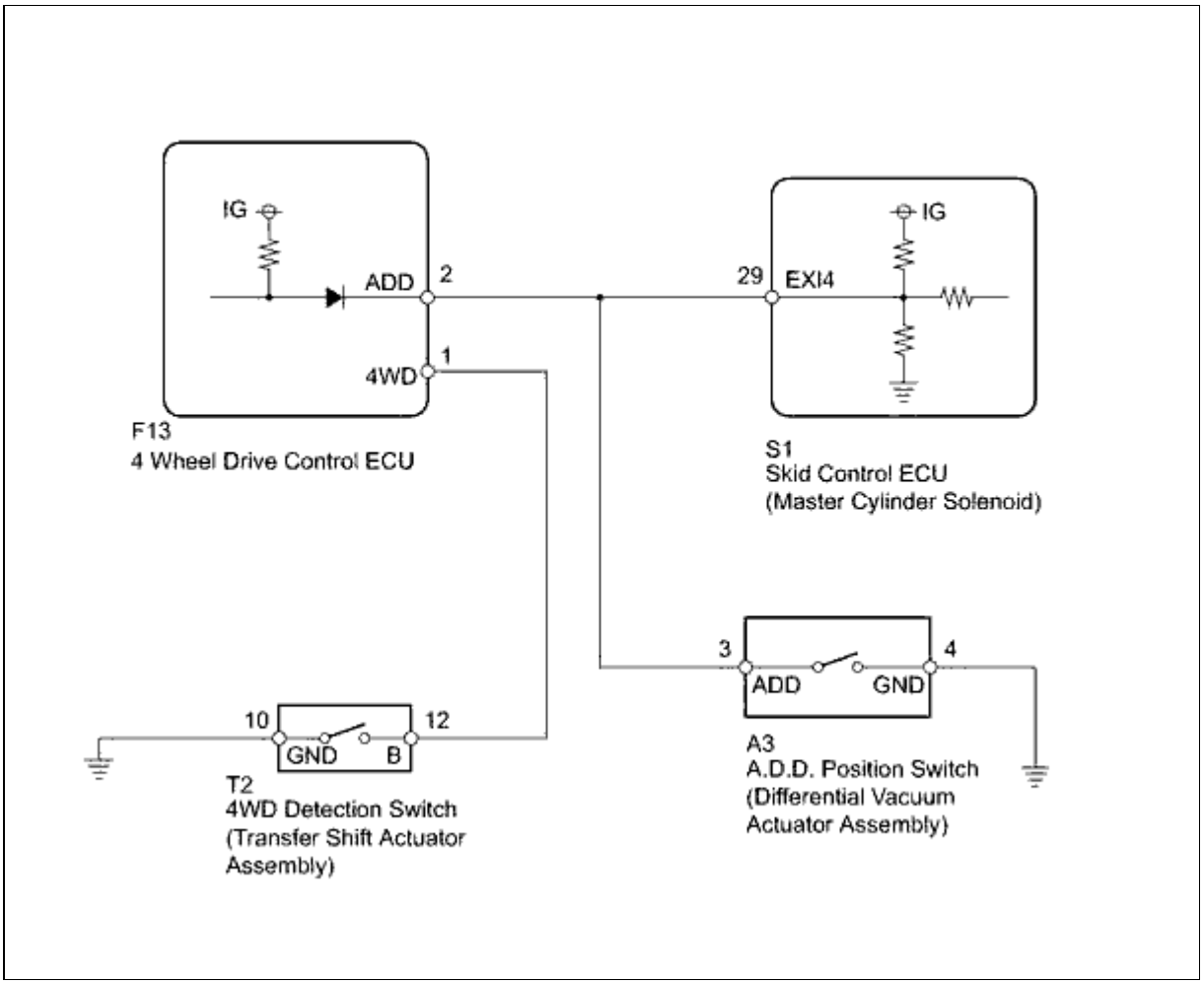
DTC	**C1282**	**Center Differential Lock Position Switch**

DESCRIPTION

DTC C1282 is stored only in test mode.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1282	Stored during test mode.	• Harness or connector • Transfer system • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM



INSPECTION PROCEDURE

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NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

PROCEDURE

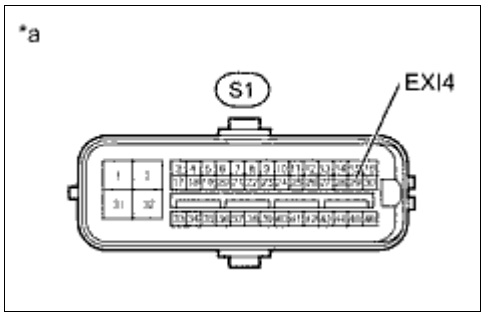
1.	**INSPECT SKID CONTROL ECU (EXI4)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-29 (EXI4) - Body ground	• Ignition switch ON • Transfer 2WD position	11 to 14 V
	• Ignition switch ON • Transfer 4WD position	Below 1.5 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **GO TO STEP 3**

OK ▼

2.	**CHECK TEST MODE DTC**

(a) Switch the vehicle to test mode, perform the 4WD detection switch signal check, and then check that DTC C1282 is cleared INFO .

Result

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RESULT	PROCEED TO
DTC is not cleared	A
DTC is cleared	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

3.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - 4 WHEEL DRIVE CONTROL ECU AND A.D.D. POSITION SWITCH)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Disconnect the F13 4 wheel drive control ECU connector.

(c) Disconnect the A3 A.D.D. position switch (differential vacuum actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-29 (EXI4) - F13-2 (ADD)	Always	Below 1 Ω
S1-29 (EXI4) - A3-3 (ADD)	Always	Below 1 Ω
S1-29 (EXI4) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **GO TO TRANSFER SYSTEM (PROBLEM SYMPTOMS TABLE)**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000ZRR0HVX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1290; Steering Angle Sensor Zero Point Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1290**	**Steering Angle Sensor Zero Point Malfunction**

DESCRIPTION

The skid control ECU (master cylinder solenoid) acquires steering angle sensor zero point every time the ignition switch is turned to ON and the vehicle is driven at 35 km/h (22 mph) or more for approximately 5 seconds. The ECU also stores the previous zero point.

If the front wheel alignment or steering wheel position is adjusted without disconnecting the cable from the negative (-) battery terminal, or if the yaw rate and acceleration sensor zero point is not acquired after the adjustments have been completed, the skid control ECU (master cylinder solenoid) detects the difference between the previous zero point and newly acquired zero point and stores this DTC to indicate poor adjustment.

The steering angle sensor zero point malfunction warning is canceled by turning the ignition switch off.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1290	The steering angle sensor zero point calibration position vastly differs from the recorded value.	• Yaw rate and acceleration sensor zero point calibration incomplete • Poor adjustment of centered position of steering wheel • Poor adjustment of front wheel alignment

INSPECTION PROCEDURE

PROCEDURE

1.	**PERFORM ZERO POINT CALIBRATION OF YAW RATE AND ACCELERATION SENSOR**

(a) Perform zero point calibration of the yaw rate and acceleration sensor INFO .

HINT:

- When the stored zero point of the yaw rate and acceleration sensor is cleared, steering angle sensor zero point is also cleared.
- If the zero point and output value of the yaw rate and acceleration sensor and the output value of the speed sensors are not normal, steering angle sensor zero point cannot be acquired normally even if the vehicle is driven straight ahead at 35 km/h (22 mph) or more.

NEXT

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2.	**CHECK STEERING ANGLE SENSOR ZERO POINT CALIBRATION**

(a) Drive the vehicle straight ahead at 35 km/h (22 mph) or more for at least 5 seconds.

(b) Check that the centered position of the steering wheel is correctly set while driving straight ahead.

HINT:

If the front wheel alignment and steering position are adjusted as a result of an abnormal centered position of the steering wheel, acquire the yaw rate and acceleration sensor zero point again after the adjustments are completed.

OK:

The centered position of the steering wheel is correctly set.

NG ▶ **ADJUST FRONT WHEEL ALIGNMENT OR STEERING POSITION**

OK ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXS04LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1337; Diameter of the Tire is not Uniform; 2016 MY Tacoma [08/2015 -]		

DTC	**C1337**	**Diameter of the Tire is not Uniform**

DESCRIPTION

The skid control ECU (master cylinder solenoid) measures the speed of each wheel by receiving signals from the speed sensors. These signals are used for recognizing whether all 4 wheels are operating properly. Therefore, all wheel signals must be equal.

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREAS
C1337	When either one of following condition detected: • Diameters different of 2 front wheels and 2 rear wheels. • Wheel speed sensor fault	• Speed sensor • Speed sensor rotor • Speed sensor circuit • Tire sizes

INSPECTION PROCEDURE

NOTICE:

Check the speed sensor signal after replacement INFO .

PROCEDURE

1.	**CHECK TIRE SIZE**

(a) Check tire size and condition of all 4 wheels.

OK:

All 4 wheels are the same size and in the same condition.

NG ▶ **REPLACE TIRES SO THAT ALL 4 TIRES ARE SAME IN SIZE**

OK ▼

2.	**CHECK SPEED SENSOR ROTOR**

(a) Remove the drive shaft, and check around the speed sensor rotor.

OK:

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No scratches or foreign matter on the sensor tip.

NG ▶ **REPLACE SPEED SENSOR ROTOR**

OK ▼

3.	**CHECK SPEED SENSOR**

(a) Check the speed sensor circuit.

Front speed sensor INFO .
Rear speed sensor INFO .

NG ▶ **REPLACE SPEED SENSOR**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - EACH SPEED SENSOR)**

(a) Check the speed sensor circuit .

Front speed sensor INFO .
Rear speed sensor INFO .

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

5.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Drive the vehicle at more than 20 km/h (13 mph) for more than 60 seconds.

(c) Check if the same DTCs are detected.

RESULT	PROCEED TO

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RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000452G01JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1379; Downhill Assist Control Switch Malfunction (Test Mode DTC); 2016 MY Tacoma [08/2015 -]		

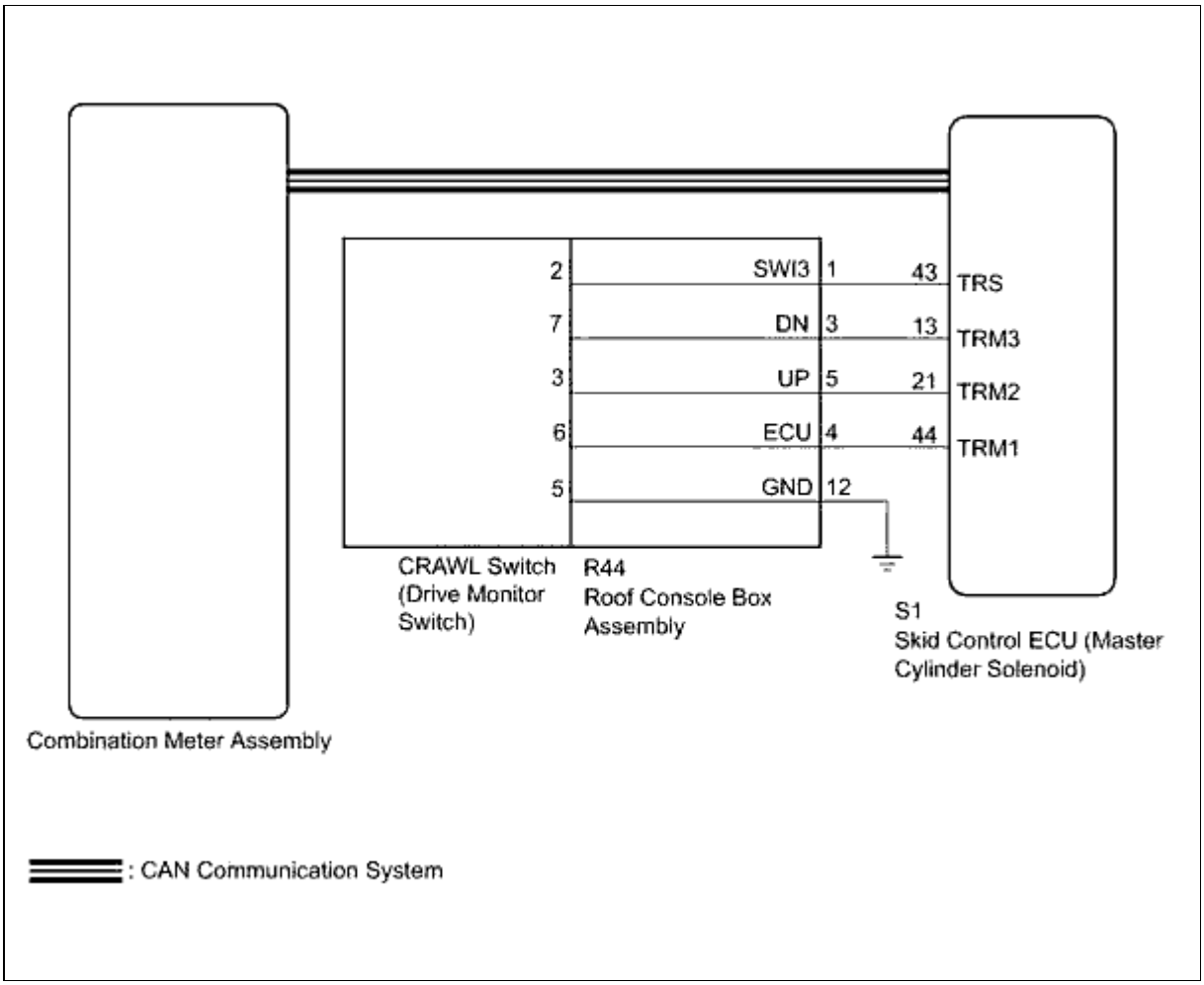
DTC	**C1379**	**Downhill Assist Control Switch Malfunction (Test Mode DTC)**

DESCRIPTION

DTC C1379 is cleared when the crawl control switch sends a crawl control operation signal or when test mode ends.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1379	Stored only during test mode.	• Crawl control switch (drive monitor switch) • Harness or connector • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (CRAWL CONTROL SWITCH)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) Check the Data List for proper functioning of the crawl control switch.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Crawl Control Switch	Crawl speed selector switch status/ LOW, MIDLOW, MID, MIDHIGH or HIGH	Actual crawl speed selector switch position	-

OK:

The Techstream displays according to crawl control switch operation.

NG ▶ **GO TO STEP 3**

OK ▼

2.	**CHECK TEST MODE DTC**

(a) Perform the crawl control switch check in the Test Mode Procedure INFO .

OK:

Test mode DTC C1379 is cleared.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **USE SIMULATION METHOD TO CHECK**

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3.	INSPECT DRIVE MONITOR SWITCH

(a) Remove the crawl control switch (drive monitor switch) INFO .

(b) Inspect the crawl control switch (drive monitor switch) INFO .

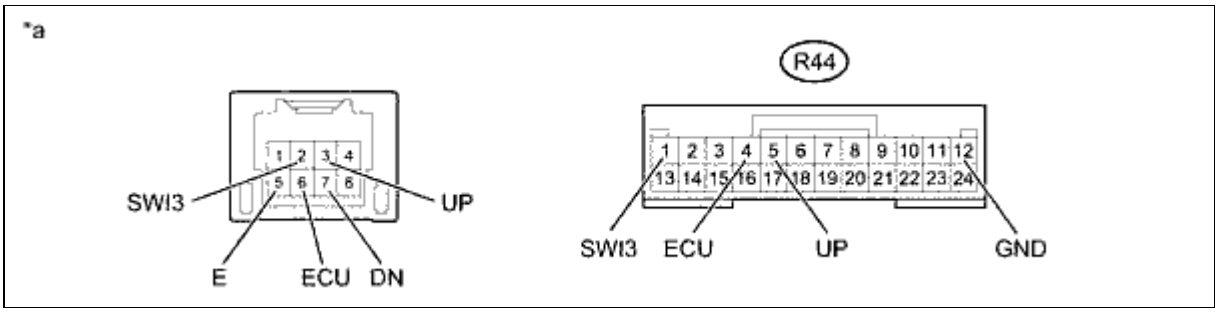
NG ▶ **REPLACE DRIVE MONITOR SWITCH**

OK
▼

4.	INSPECT ROOF CONSOLE BOX ASSEMBLY

(a) Remove the roof console box assembly.

for Double Cab: INFO
for Access Cab: INFO



Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-1 (SWI3) - 2	Always	Below 1 Ω
R44-3 (DN) - 7	Always	Below 1 Ω
R44-4 (ECU) - 6	Always	Below 1 Ω
R44-5 (UP) - 3	Always	Below 1 Ω
R44-12 (GND) - 5	Always	Below 1 Ω

Result

RESULT	PROCEED TO

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RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXT023X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1380; Stop Light Control Relay Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1380**	**Stop Light Control Relay Malfunction**

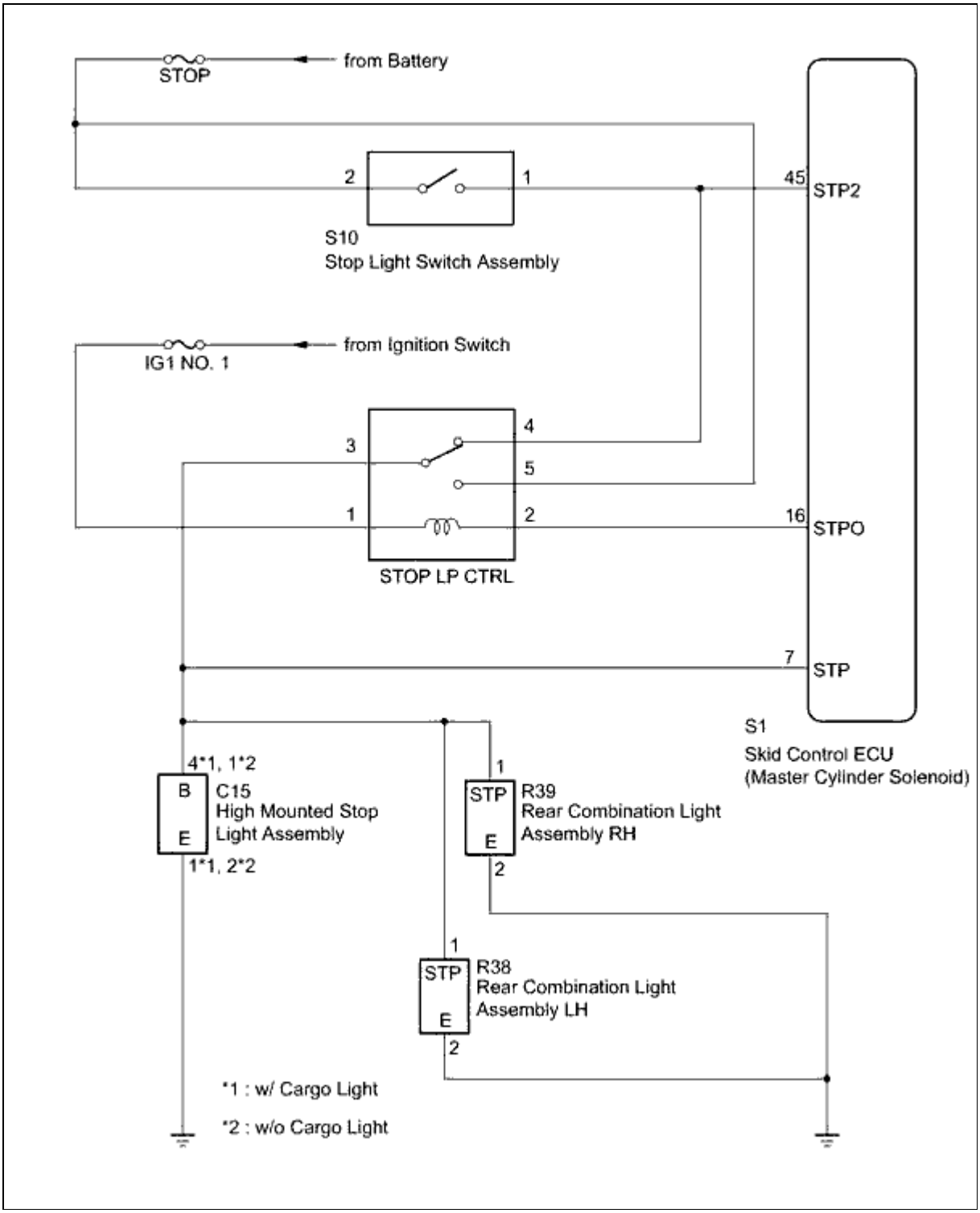
DESCRIPTION

The skid control ECU (master cylinder solenoid) inputs the stop light switch signal and detects the status of the brake operation.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1380	Either condition is met: • When the voltage at the IG1 terminal is between 10 V and 14 V, the stop light driving output (STPO) is on, and a signal has not been input to the STP terminal for 5 seconds or more. • When the voltage at the IG1 terminal is between 10 V and 14 V, the stop light driving output (STPO) is off, and the input signal at the STP terminal is different from the input signal at the STP2 terminal for 5 seconds or more.	• STOP fuse • Harness or connector • Stop light control relay (STOP LP CTRL) • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform zero point calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

When DTC C1425 is output together with DTC C1380, inspect and repair the trouble areas indicated by DTC C1425 first INFO .

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PROCEDURE

1.	**CHECK STOP LIGHT SWITCH OPERATION**

(a) Check that the stop lights come on when the brake pedal is depressed and go off when the brake pedal is released.

OK:

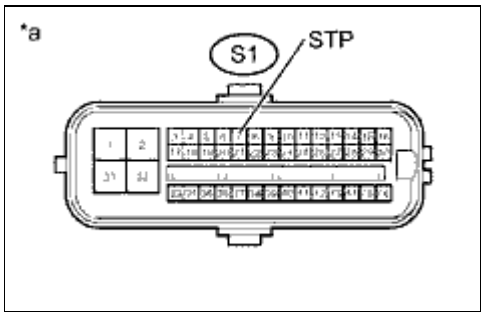
Stop light switch function is normal.

NG ▶ **GO TO STEP 10**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-7 (STP) - Body ground	Brake pedal depressed	8 to 14 V
S1-7 (STP) - Body ground	Brake pedal released	Below 1.5 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

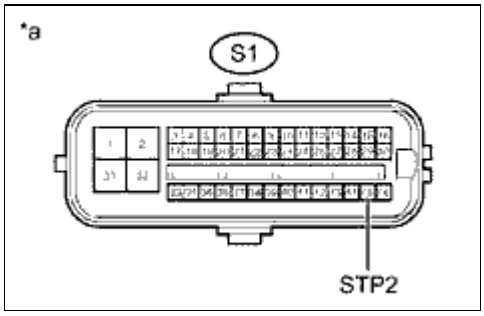
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP CIRCUIT)**

OK

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3.	**CHECK HARNESS AND CONNECTOR (STP2 TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-45 (STP2)- Body ground	Brake pedal depressed	8 to 14 V
S1-45 (STP2)- Body ground	Brake pedal released	Below 1.5 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP2 CIRCUIT)**

OK

4.	**PERFORM ACTIVE TEST USING TECHSTREAM (STOP LIGHT RELAY)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

ABS/VSC/TRAC

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TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Stop Light Relay	Stop light control relay (STP LP CTRL)	OFF/ON	Observe the stop lights (does not come on for 2 to 5 seconds).

(f) Check that the stop lights turn on and off on the rear combination light when using the Techstream.

OK:

The stop lights turn on and off according to the Techstream operations.

NG ▶ **GO TO STEP 6**

OK ▼

5.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

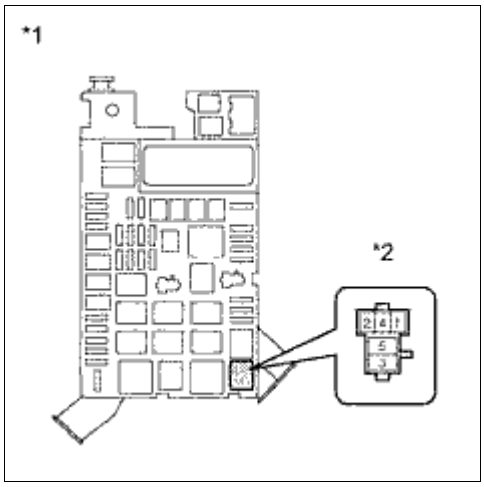
B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

6.	**CHECK HARNESS AND CONNECTOR (STOP LP CTRL RELAY TERMINAL)**

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(a) Remove the STOP LP CTRL relay from the engine room relay block.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - Body ground	Ignition switch ON	8 to 14 V
5 - Body ground	Always	11 to 14 V

Text in Illustration

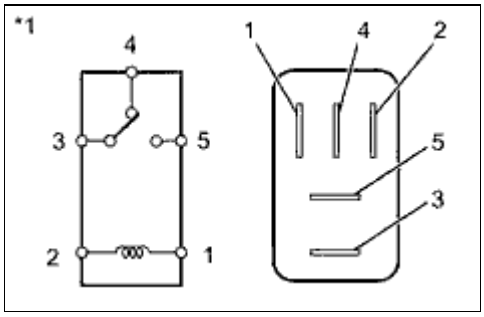
*1	Engine Room Relay Block
*2	STOP LP CTRL Relay Holder

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STOP LP CTRL RELAY CIRCUIT)**

OK ▼

7.	**INSPECT STOP LP CTRL RELAY**

(a) Remove the STOP LP CTRL relay from the engine room relay block.



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

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Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 4	Battery voltage not applied	Below 1 Ω
	Battery voltage applied to terminal 1 and 2	10 kΩ or higher
3 - 5	Battery voltage not applied	10 kΩ or higher
	Battery voltage applied to terminal 1 and 2	Below 1 Ω

Text in Illustration

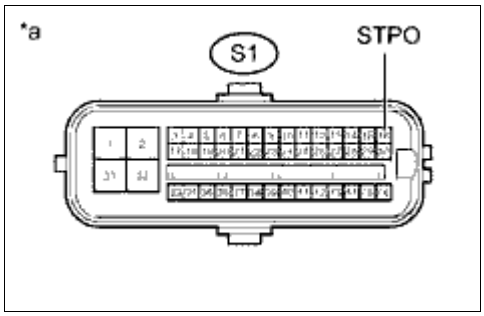
*1	STOP LP CTRL Relay

NG ▶ **REPLACE STOP LP CTRL RELAY**

OK ▼

8.	**CHECK HARNESS AND CONNECTOR (STPO TERMINAL)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-16 (STPO) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STPO CIRCUIT)**

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OK

9.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

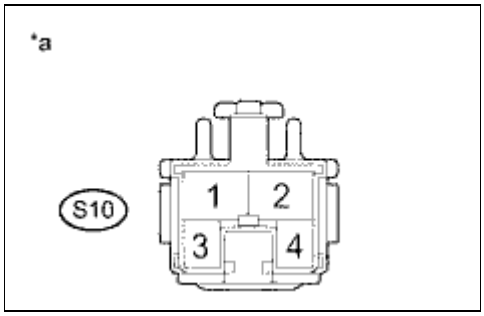
10.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)**

(a) Disconnect the stop light switch assembly connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S10-2 - Body ground	Always	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Stop Light Switch Assembly)

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)**

OK

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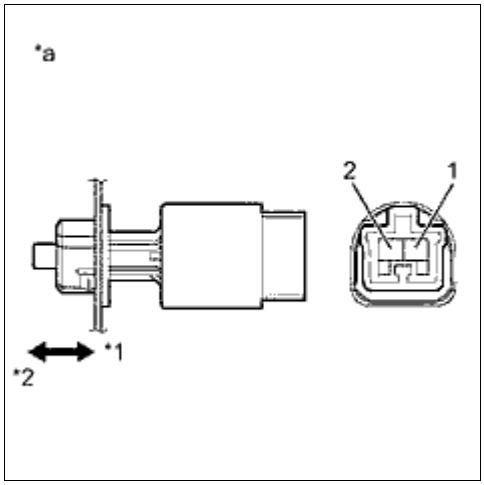
11.	**INSPECT STOP LIGHT SWITCH ASSEMBLY**

(a) Disconnect the stop light switch assembly connector.

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

Standard Resistance:

TESTER CONDITION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Switch pin free	Below 1 Ω
1 - 2	Switch pin pushed in	10 kΩ or higher



Text in Illustration

*a	Component without harness connected (to Stop Light Switch Assembly)
*1	Pushed in
*2	Free

(c) Reconnect the stop light switch assembly connector.

NG ▶ **REPLACE STOP LIGHT SWITCH ASSEMBLY**

OK

12.	**CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH ASSEMBLY - STOP LP CTRL RELAY)**

(a) Remove the STOP LP CTRL relay from the engine room relay block.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S10-1 - STOP LP CTRL relay-4	Always	Below 1 Ω
S10-1 - Body ground	Always	10 Ω or higher

(c) Reinstall the STOP LP CTRL relay from the engine room relay block.

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NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

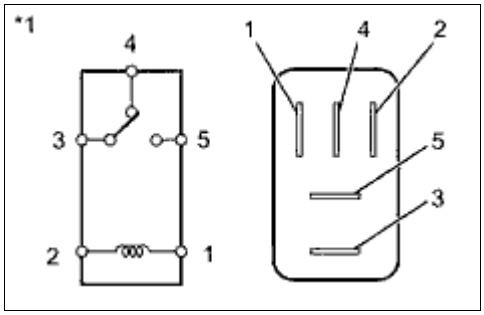
13.	**INSPECT STOP LP CTRL RELAY**

(a) Remove the STOP LP CTRL relay from the engine room relay block.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 4	Battery voltage not applied	Below 1 Ω
	Battery voltage applied to terminal 1 and 2	10 kΩ or higher
3 - 5	Battery voltage not applied	10 kΩ or higher
	Battery voltage applied to terminal 1 and 2	Below 1 Ω



Text in Illustration

*1	STOP LP CTRL Relay

NG ▶ REPLACE STOP LP CTRL RELAY

OK ▼

14.	**CHECK HARNESS AND CONNECTOR (REAR COMBINATION LIGHT ASSEMBLY, HIGH MOUNTED STOP LIGHT ASSEMBLY - STOP LP CTRL RELAY)**

(a) Disconnect the rear combination light assembly connector.

(b) Disconnect the high mounted stop light assembly connector.

(c) Remove the STOP LP CTRL relay.

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

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Standard Resistance:

Rear Combination Light Assembly RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R39-1 (STP) - STOP LP CTRL-3	Always	Below 1 Ω
R39-1 (STP) - Body ground	Always	10 kΩ or higher
R39-2 (E) - Body ground	Always	Below 1 Ω

Standard Resistance:

Rear Combination Light Assembly LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R38-1 (STP) - STOP LP CTRL-3	Always	Below 1 Ω
R38-1 (STP) - Body ground	Always	10 kΩ or higher
R38-2 (E) - Body ground	Always	Below 1 Ω

Standard Resistance:

High Mounted Stop Light Assembly (w/o Cargo Light)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C15-1 (B) - STOP LP CTRL-3	Always	Below 1 Ω
C15-1 (B) - Body ground	Always	10 kΩ or higher
C15-2 (E) - Body ground	Always	Below 1 Ω

High Mounted Stop Light Assembly (w/ Cargo Light)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C15-4 (B) - STOP LP CTRL-3	Always	Below 1 Ω
C15-4 (B) - Body ground	Always	10 kΩ or higher
C15-1 (E)- Body ground	Always	Below 1 Ω

(e) Reinstall the STOP LP CTRL relay.

(f) Reconnect the rear combination light assembly connector.

(g) Reconnect the high mounted stop light assembly connector.

Result

RESULT	PROCEED TO
NG	A
OK (Rear Combination Light Assembly)	B
OK (High Mounted Stop Light Assembly)	C

B ▶ **GO TO STEP 15**

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C ▶ GO TO STEP 16

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

15.	INSPECT REAR COMBINATION LIGHT ASSEMBLY

(a) w/ Cargo Light

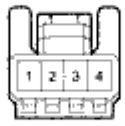
(1) Remove the rear combination light assembly connector.

(2) Apply battery voltage to the terminals and check that the rear combination light illuminates.

OK

MEASUREMENT CONDITION	SPECIFIED CONDITION
Positive battery - Terminal 4 Negative battery - Terminal 1	Rear combination light illuminates

*a



Text in Illustration

*a	Component without harness connected (to Rear Combination Light Assembly)

(3) Reinstall the rear combination light assembly.

(b) w/o Cargo Light

(1) Remove the rear combination light assembly connector.

(2) Apply battery voltage to the terminals and check that the rear combination light illuminates.

OK

MEASUREMENT CONDITION	SPECIFIED CONDITION
Positive battery - Terminal 1 Negative battery - Terminal 2	Rear combination light illuminates

*a



Text in Illustration

*a	Component without harness connected (to Rear Combination Light Assembly)

(3) Reinstall the rear combination light assembly.

NG ▶ REPLACE REAR COMBINATION LIGHT ASSEMBLY

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OK ▶ USE SIMULATION METHOD TO CHECK

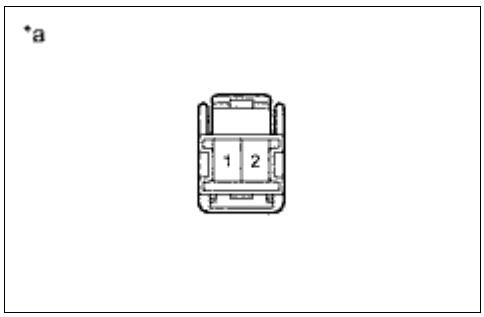
16.	INSPECT CENTER STOP LIGHT BULB

(a) Remove the high mounted stop light assembly connector.

(b) Apply battery voltage to the terminals and check that the rear combination light illuminates.

OK

MEASUREMENT CONDITION	SPECIFIED CONDITION
Positive battery - Terminal 1 Negative battery - Terminal 2	High mounted stop light illuminates



Text in Illustration

*a	Component without harness connected (to High Mounted Stop Light Assembly)

(c) Reinstall the high mounted stop light assembly.

NG ▶ REPLACE CENTER STOP LIGHT BULB

OK ▶ USE SIMULATION METHOD TO CHECK

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001RFV0M0X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1381; Acceleration Sensor Power Supply Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1381**	**Acceleration Sensor Power Supply Voltage Malfunction**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the yaw rate and acceleration (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle's condition using 2 circuits (GL1, GL2).

If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, DTCs U0123 (yaw rate sensor communication trouble) and U0124 (acceleration sensor communication trouble) are stored.

These DTCs are also output when calibration has not been completed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1381	At a vehicle speed of more than 3 km/h (2 mph), the acceleration sensor power source malfunction signal is received for 10 seconds or more.	• ECU-IG fuse • Yaw rate and acceleration sensor (airbag sensor assembly)

WIRING DIAGRAM

Refer to DTCs C1232, C1243 and C1245 INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO

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RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A ▼

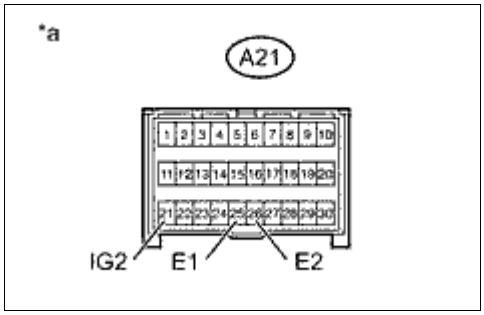
2.	**CHECK HARNESS AND CONNECTOR (IG2, E1, E2 TERMINAL)**

(a) Disconnect the yaw rate and acceleration sensor (airbag sensor assembly) connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A21-21 (IG2) - Body ground	Ignition switch ON	11 to 14 V



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A21-25 (E1) - Body ground	Always	Below 1 Ω
A21-26 (E2) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Yaw Rate and Acceleration Sensor (Airbag Sensor Assembly))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

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3.	**RECONFIRM DTC**

(a) Reconnect the yaw rate and acceleration sensor (airbag sensor assembly) connector.

(b) Clear the DTCs INFO .

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC C1381 is not output	A
DTC C1381 is output	B

B ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XI911BX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1405,C1406; Open or Short in Front Speed Sensor RH Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1405**	**Open or Short in Front Speed Sensor RH Circuit**

DTC	**C1406**	**Open or Short in Front Speed Sensor LH Circuit**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

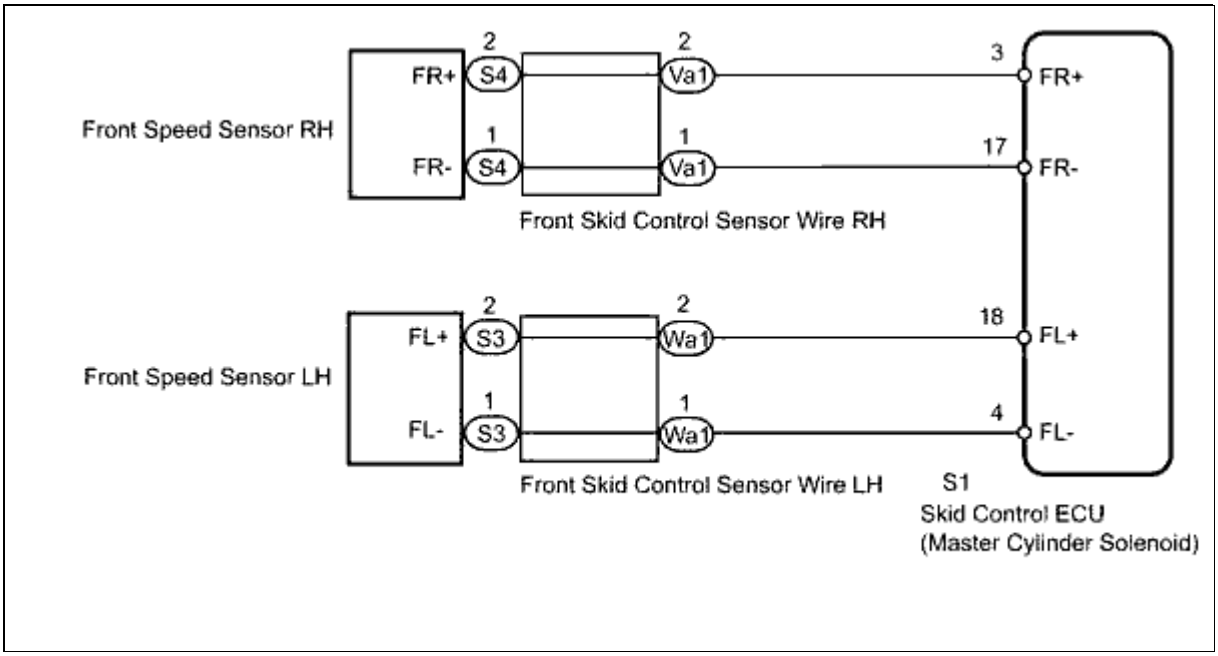
DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1405 C1406	Either condition is met: 1. An open in the speed sensor signal circuit continues for 0.5 seconds or more. 2. With the IG1 terminal voltage at 9.5 V or higher, the sensor power supply voltage decreases for 0.5 seconds or more.	• Front speed sensor RH/LH • Skid control sensor wire • Speed sensor circuit • Skid control ECU (master cylinder solenoid)

HINT:

- DTC C1405 is for the front speed sensor RH.
- DTC C1406 is for the front speed sensor LH.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Check the speed sensor signal after replacement INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Speed Open	Front speed sensor RH open detection/ Error or Normal	Normal	-
FL Speed Open	Front speed sensor LH open detection/ Error or Normal	Normal	-

OK:

Normal (there are no momentary interruptions).

HINT:

Perform the above inspection before removing the sensor and connector.

NG ▶ **GO TO STEP 4**

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OK

2.	**READ VALUE USING TECHSTREAM (FRONT SPEED SENSOR)** INFO

NG → **GO TO STEP 4**

OK

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1405 and C1406 are not output	A
DTCs C1405 and/or C1406 are output	B

B → **REPLACE MASTER CYLINDER SOLENOID**

A → **USE SIMULATION METHOD TO CHECK**

4.	**INSPECT SKID CONTROL SENSOR WIRE**

(a) Remove the skid control sensor wire.

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

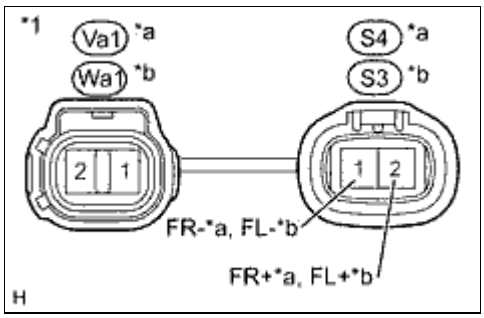
Standard Resistance:

RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Va1-1 - S4-1 (FR-)	Always	Below 1 Ω
Va1-2 - S4-2 (FR+)	Always	Below 1 Ω
Va1-1 - Va1-2	Always	10 kΩ or higher

LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Wa1-1 - S3-1 (FL-)	Always	Below 1 Ω
Wa1-2 - S3-2 (FL+)	Always	Below 1 Ω
Wa1-1 - Wa1-2	Always	10 kΩ or higher



Text in Illustration

*1	Skid Control Sensor Wire
*a	RH
*b	LH

NG ▶ **REPLACE SKID CONTROL SENSOR WIRE**

OK ▼

5.	CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - FRONT SPEED SENSOR)

(a) Install the skid control sensor wire.

(b) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(c) Disconnect the S4 and/or S3 front speed sensor connector.

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

Standard Resistance:

RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-3 (FR+) - S4-2 (FR+)	Always	Below 1 Ω

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-3 (FR+) - Body ground	Always	10 kΩ or higher
S1-17 (FR-) - S4-1 (FR-)	Always	Below 1 Ω
S1-17 (FR-) - Body ground	Always	10 kΩ or higher

LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-18 (FL+) - S3-2 (FL+)	Always	Below 1 Ω
S1-18 (FL+) - Body ground	Always	10 kΩ or higher
S1-4 (FL-) - S3-1 (FL-)	Always	Below 1 Ω
S1-4 (FL-) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

6.	**INSPECT SKID CONTROL ECU (FR+, FL+ TERMINAL)**

(a) Disconnect the S4 and/or S3 front speed sensor connector.

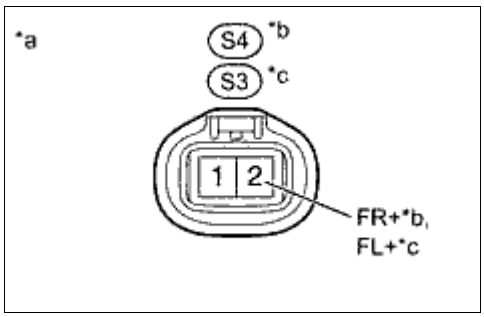
(b) Connect the S1 skid control ECU (master cylinder solenoid) connector.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

RH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S4-2 (FR+) - Body ground	Ignition switch ON	11 to 14 V



LH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S3-2 (FL+) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

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*a	Front view of wire harness connector (to Front Speed Sensor)
*b	RH
*c	LH

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **REPLACE FRONT SPEED SENSOR**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000003693093X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1407,C1408; Open or Short in Rear Speed Sensor RH Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1407**	**Open or Short in Rear Speed Sensor RH Circuit**

DTC	**C1408**	**Open or Short in Rear Speed Sensor LH Circuit**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

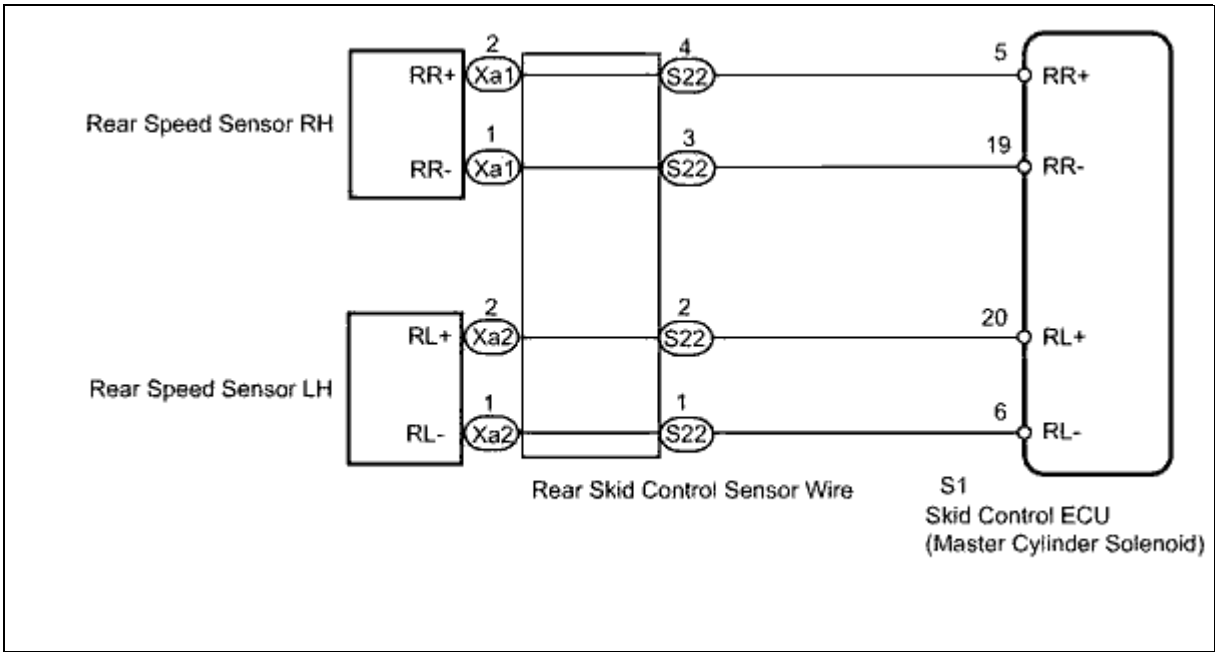
DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1407 C1408	Either condition is met: 1. An open in the speed sensor signal circuit continues for 0.5 seconds or more. 2. With the IG1 terminal voltage at 9.5 V or higher, the sensor power supply voltage decreases for 0.5 seconds or more.	• Rear speed sensor RH/LH • Skid control sensor wire • Speed sensor circuit • Skid control ECU (master cylinder solenoid)

HINT:

- DTC C1407 is for the rear speed sensor RH.
- DTC C1408 is for the rear speed sensor LH.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Check the speed sensor signal after replacement INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Speed Open	Rear speed sensor RH open detection/ Error or Normal	Normal	-
RL Speed Open	Rear speed sensor LH open detection/ Error or Normal	Normal	-

OK:

Normal (there are no momentary interruptions).

HINT:

Perform the above inspection before removing the sensor and connector.

NG ▶ **GO TO STEP 4**

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OK

2.	**READ VALUE USING TECHSTREAM (REAR SPEED SENSOR)** INFO

NG ▶ **GO TO STEP 4**

OK

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is output INFO .

Result

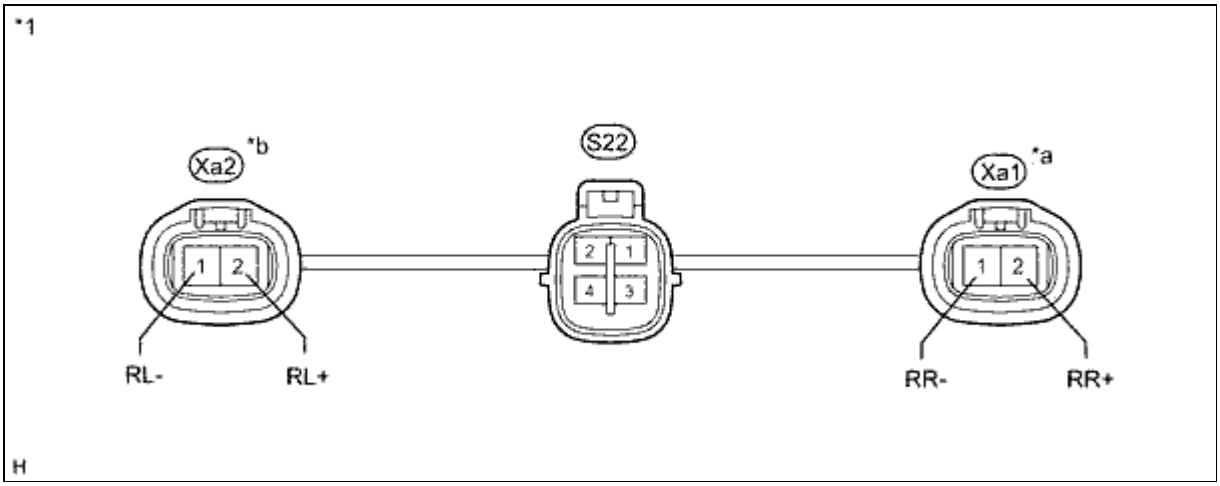
RESULT	PROCEED TO
DTCs C1407 and C1408 are not output	A
DTCs C1407 and/or C1408 are output	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **USE SIMULATION METHOD TO CHECK**

4.	**INSPECT SKID CONTROL SENSOR WIRE**

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Text in Illustration

*1	Skid Control Sensor Wire	-	-
*a	RH	*b	LH

(a) Remove the skid control sensor wire.

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

Standard Resistance:

RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S22-4 - Xa1-2 (RR+)	Always	Below 1 Ω
S22-3 - Xa1-1 (RR-)	Always	Below 1 Ω
S22-4 - S22-3	Always	10 kΩ or higher
S22-4 - S22-1	Always	10 kΩ or higher
S22-4 - S22-2	Always	10 kΩ or higher

LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S22-2 - Xa2-2 (RL+)	Always	Below 1 Ω
S22-1 - Xa2-1 (RL-)	Always	Below 1 Ω
S22-2 - S22-1	Always	10 kΩ or higher
S22-2 - S22-3	Always	10 kΩ or higher
S22-2 - S22-4	Always	10 kΩ or higher

NG ▶ **REPLACE SKID CONTROL SENSOR WIRE**

OK

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5.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - REAR SPEED SENSOR)**

(a) Install the skid control sensor wire.

(b) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(c) Disconnect the Xa1 and/or Xa2 rear speed sensor connector.

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

Standard Resistance:

RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-5 (RR+) - Xa1-2 (RR+)	Always	Below 1 Ω
S1-5 (RR+) - Body ground	Always	10 kΩ or higher
S1-19 (RR-) - Xa1-1 (RR-)	Always	Below 1 Ω
S1-19 (RR-) - Body ground	Always	10 kΩ or higher

LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-20 (RL+) - Xa2-2 (RL+)	Always	Below 1 Ω
S1-20 (RL+) - Body ground	Always	10 kΩ or higher
S1-6 (RL-) - Xa2-1 (RL-)	Always	Below 1 Ω
S1-6 (RL-) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

6.	**INSPECT SKID CONTROL ECU (RR+, RL+ TERMINAL)**

(a) Disconnect the Xa1 and/or Xa2 rear speed sensor connector.

(b) Connect the S1 skid control ECU (master cylinder solenoid) connector.

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(c) Measure the voltage according to the value(s) in the table below.

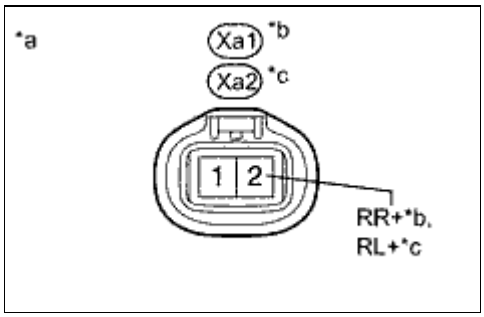
Standard Voltage:

RH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Xa1-2 (RR+) - Body ground	Ignition switch ON	11 to 14 V

LH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Xa2-2 (RL+) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Rear Speed Sensor)
*b	RH
*c	LH

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **REPLACE REAR SPEED SENSOR**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000452E01XX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1409,C1410; Front Speed Sensor RH Performance; 2016 MY Tacoma [08/2015 -]		

DTC	**C1409**	**Front Speed Sensor RH Performance**

DTC	**C1410**	**Front Speed Sensor LH Performance**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1409 C1410	One of the following conditions is met: 1. When the vehicle is driven in reverse at a speed of 3 km/h (2 mph) or more and 3 of the wheel sensors detect the reverse signal, the other sensor detects a high frequency pulse 75 times while the ignition switch is ON. 2. At a vehicle speed of 10 km/h (6 mph) or more, the vehicle speed sensor output drops by 50% for 5 seconds. 3. The lowest wheel speed is 10 km/h (6 mph) or more and the difference between the highest and lowest wheel speed values is 2 km/h (1 mph) or less for 15 seconds. 4. At a vehicle speed of 30 km/h (19 mph) or more, one wheel direction is different from the other 3 wheels for 1 second. 5. At a vehicle speed of 100 km/h (62 mph), a reverse signal is output for 1 second or more. 6. At a vehicle speed of 30 km/h (19 mph) or more, the rotation direction of one of the wheels is not detected normally and the rotation direction of the other 3 wheels is not the same for 1 second.	Front speed sensor RH/LH

HINT:

- DTC C1409 is for the front speed sensor RH.
- DTC C1410 is for the front speed sensor LH.

INSPECTION PROCEDURE

NOTICE:

Check the speed sensor signal after replacement INFO .

PROCEDURE

1.	**REPLACE FRONT SPEED SENSOR**

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(a) Replace the front speed sensor INFO .

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000452F01XX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1411,C1412; Rear Speed Sensor RH Performance; 2016 MY Tacoma [08/2015 -]		

DTC	**C1411**	**Rear Speed Sensor RH Performance**

DTC	**C1412**	**Rear Speed Sensor LH Performance**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1411 C1412	One of the following conditions is met: 1. When the vehicle is driven in reverse at a speed of 3 km/h (2 mph) or more and 3 of the wheel sensors detect the reverse signal, the other sensor detects a high frequency pulse 75 times while the ignition switch is ON. 2. At a vehicle speed of 10 km/h (6 mph) or more, the vehicle speed sensor output drops by 50% for 5 seconds. 3. The lowest wheel speed is 10 km/h (6 mph) or more and the difference between the highest and lowest wheel speed values is 2 km/h (1 mph) or less for 15 seconds. 4. At a vehicle speed of 30 km/h (19 mph) or more, one wheel direction is different from the other 3 wheels for 1 second. 5. At a vehicle speed of 100 km/h (62 mph), a reverse signal is output for 1 second or more. 6. At a vehicle speed of 30 km/h (19 mph) or more, the rotation direction of one of the wheels is not detected normally and the rotation direction of the other 3 wheels is not the same for 1 second.	Rear speed sensor RH/LH

HINT:

- DTC C1411 is for the rear speed sensor RH.
- DTC C1412 is for the rear speed sensor LH.

INSPECTION PROCEDURE

NOTICE:

Check the speed sensor signal after replacement INFO .

PROCEDURE

1.	**REPLACE REAR SPEED SENSOR**

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(a) Replace the rear speed sensor INFO .

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000368W0A2X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1417; High Power Supply Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1417**	**High Power Supply Voltage Malfunction**

DESCRIPTION

If a malfunction is detected in the power supply circuit, the skid control ECU (housed in the master cylinder solenoid) stores this DTC and the fail-safe function prohibits ABS/VSC/TRAC operation.

This DTC is stored when the IG1 terminal voltage deviates from the DTC detection condition due to a malfunction in the power supply or charging circuit such as the battery or generator circuit, etc.

This DTC is cleared when the IG1 terminal voltage returns to normal.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1417	The IG1 terminal voltage is 17.4 V or higher for 0.8 seconds or more.	• Charging system • Power source circuit • Internal power supply circuit of the skid control ECU (master cylinder solenoid)

WIRING DIAGRAM

Refer to DTC C1241 INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

PROCEDURE

1.	**INSPECT SKID CONTROL ECU (IG1 TERMINAL)** INFO

NG ▶ **GO TO CHARGING SYSTEM (ON-VEHICLE INSPECTION)**

OK ▼

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2.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM0000035P408UX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1419,C1435; Acceleration Sensor Internal Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1419**	**Acceleration Sensor Internal Circuit**

DTC	**C1435**	**Yaw Rate Sensor Internal Circuit**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the yaw rate and acceleration (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle's condition using 2 circuits (GL1, GL2).

If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, DTCs U0123 (yaw rate sensor communication trouble) and U0124 (acceleration sensor communication trouble) are stored.

These DTCs are also output when calibration has not been completed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1419	A data malfunction signal is received from the acceleration sensor.	Yaw rate and acceleration sensor (airbag sensor assembly)
C1435	A data malfunction signal is received from the yaw rate and acceleration sensor.	Yaw rate and acceleration sensor (airbag sensor assembly)

WIRING DIAGRAM

Refer to DTCs C1232, C1243 and C1245 INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform calibration INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

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RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A

▼

2.	**REPLACE AIRBAG SENSOR ASSEMBLY**

(a) Replace the yaw rate and acceleration sensor (airbag sensor assembly) INFO .

NEXT ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM0000035P607ZX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1420; Acceleration Sensor Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1420**	**Acceleration Sensor Malfunction**

DESCRIPTION

Refer to DTCs C1419 and C1435 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1420	After the difference between GL1 and GL2 becomes 0.6 G or more with the vehicle stationary, the difference remains 0.4 G or more for 60 seconds or more.	• Sensor installation • Yaw rate and acceleration sensor (airbag sensor assembly)

WIRING DIAGRAM

Refer to DTCs C1232, C1243 and C1245 INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform calibration INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A

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2.	**CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION**

(a) Check that the yaw rate and acceleration sensor (airbag sensor assembly) is installed properly INFO .

OK:

The sensor is tightened to the specified torque.

The sensor is not installed at an angle.

NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY CORRECTLY**

OK ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIG0R5X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1422; Master Cylinder Pressure Sensor Zero Point High Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1422**	**Master Cylinder Pressure Sensor Zero Point High Malfunction**

DESCRIPTION

Refer to DTCs C1421, C1423 and C1424 INFO .

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1422	When the stop light switch is off, the PM/C1 terminal voltage is 0.86 V or higher for 5 seconds or more.	• Stop light switch • Stop light switch circuit • Master cylinder pressure sensor circuit • Master cylinder solenoid (Master cylinder pressure sensor)

WIRING DIAGRAM

Refer to DTC C1380 INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the master cylinder solenoid, perform calibration INFO .

HINT:

When DTC C1425 is output together with DTC C1422 inspect and repair the trouble areas indicated by DTC C1425 first INFO .

PROCEDURE

1.	**CHECK STOP LIGHT SWITCH OPERATION** INFO

NG ▶ **GO TO STEP 6**

OK ▼

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2.	READ VALUE USING TECHSTREAM (STOP LIGHT SW AND MASTER CYLINDER SENSOR)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Stop Light SW	Stop light switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
Master Cylinder Sensor	Master cylinder pressure sensor reading/ Min.: 0 V, Max.: 5 V	0.3 to 0.9 V: When brake pedal is released	Reading increases when brake pedal is depressed.

Standard:

Master cylinder pressure sensor reading is 0.86 V or less at the instant the stop light switch changes from off to on.

NG ▶ **GO TO STEP 4**

OK ▼

3.	RECONFIRM DTC

(a) Clear the DTCs INFO .

(b) Start the engine.

(c) Drive the vehicle at a speed of 40 km/h (25 mph) or more and perform a braking test (decelerate the vehicle by depressing the brake pedal).

(d) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC C1422 is not output	A

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RESULT	PROCEED TO
DTC C1422 is output	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **USE SIMULATION METHOD TO CHECK**

4.	**CHECK BRAKE PEDAL AND STOP LIGHT SWITCH INSTALLATION**

(a) Turn the ignition switch off.

(b) Check the brake pedal height and stop light switch installation INFO .

OK:

The brake pedal height and stop light switch installation are normal.

NG ▶ **ADJUST BRAKE PEDAL OR STOP LIGHT SWITCH**

OK ▼

5.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

6.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)**

OK ▼

7.	**INSPECT STOP LIGHT SWITCH ASSEMBLY** INFO

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NG ▶ REPLACE STOP LIGHT SWITCH ASSEMBLY

OK ▼

8.	CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH ASSEMBLY - STOP LP CTRL RELAY) INFO

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

9.	INSPECT LP CTRL RELAY INFO

NG ▶ REPLACE STOP LP CTRL RELAY

OK ▼

10.	CHECK HARNESS AND CONNECTOR (REAR COMBINATION LIGHT ASSEMBLY, HIGH MOUNTED STOP LIGHT ASSEMBLY - STOP LP CTRL RELAY) INFO

B ▶ GO TO STEP 11

C ▶ GO TO STEP 12

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

11.	INSPECT REAR COMBINATION LIGHT ASSEMBLY INFO

NG ▶ REPLACE REAR COMBINATION LIGHT ASSEMBLY

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OK ▶ USE SIMULATION METHOD TO CHECK

12.	INSPECT CENTER STOP LIGHT BULB INFO

NG ▶ REPLACE CENTER STOP LIGHT BULB

OK ▶ USE SIMULATION METHOD TO CHECK

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIE0W7X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1425; Open in Stop Light Switch Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1425**	**Open in Stop Light Switch Circuit**

DESCRIPTION

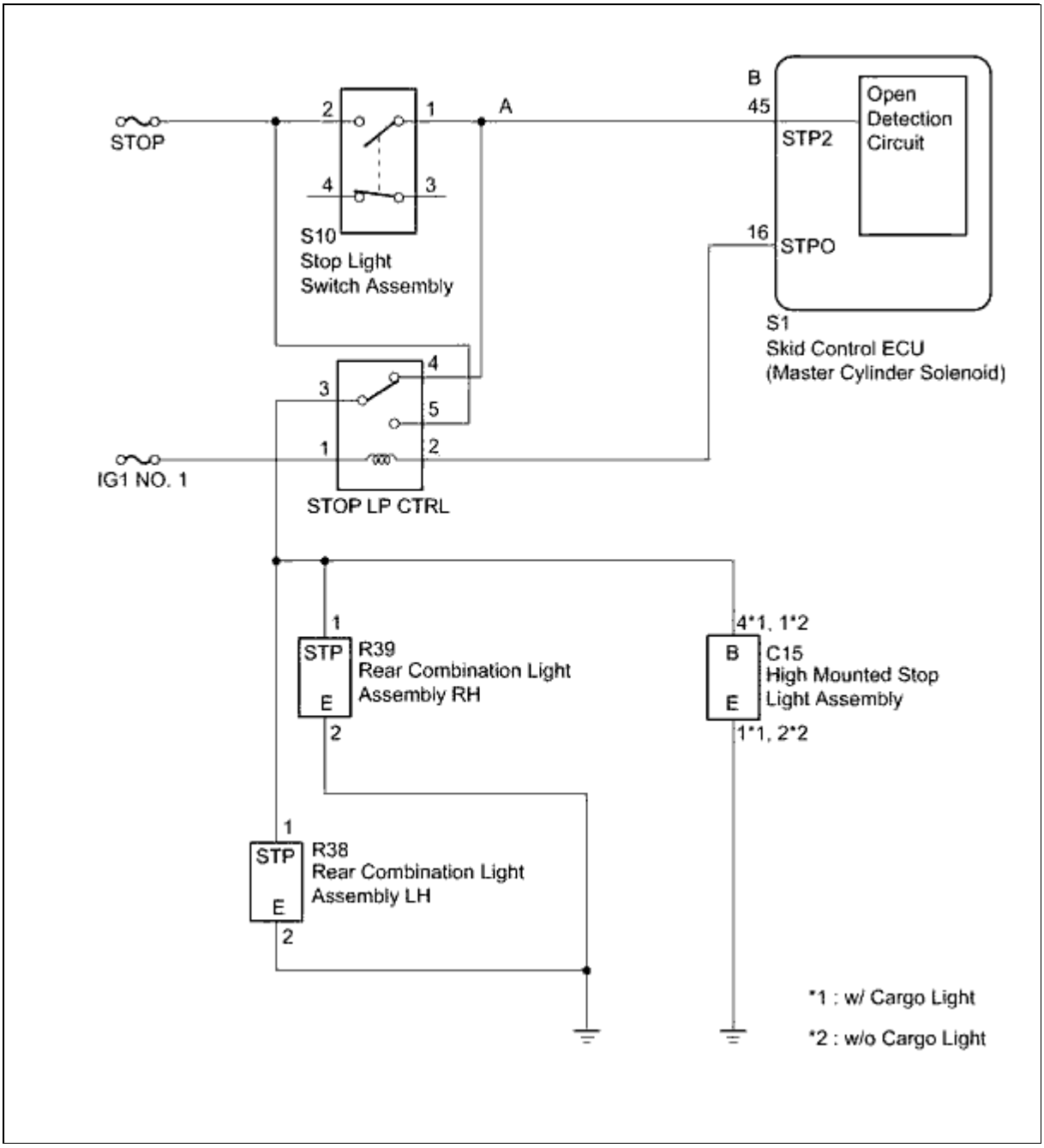
The skid control ECU (master cylinder solenoid) inputs stop light switch signals and the brake operation condition.

The skid control ECU (master cylinder solenoid) has an open detection circuit, which outputs this DTC when detecting an open circuit in the stop light input line or the ground line of the stop light circuit with the stop light switch off (brake pedal not depressed).

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1425	When the IG1 terminal voltage is between 9.5 and 17.4 V and the skid control ECU (master cylinder solenoid) STPO terminal output is off, an open in the stop light switch circuit (A to B, A to body ground) continues for 3 seconds or more.	• Stop light switch circuit • Skid control ECU (master cylinder solenoid)

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

When replacing the master cylinder solenoid, perform calibration INFO .

PROCEDURE

1.	**CHECK STOP LIGHT SWITCH OPERATION** INFO

NG ▶ **GO TO STEP 5**

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OK

2.	**READ VALUE USING TECHSTREAM (STOP LIGHT SW)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Stop Light SW	Stop light switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-

(f) Check that the stop light condition observed on the Techstream changes according to brake pedal operation.

Standard:

The Techstream displays ON or OFF according to brake pedal operation.

NG ▶ **GO TO STEP 3**

OK ▶ **USE SIMULATION METHOD TO CHECK**

3.	**CHECK HARNESS AND CONNECTOR (STP2 TERMINAL)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP2 CIRCUIT)**

OK

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

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(c) Start the engine.

(d) Depress the brake pedal several times to test the stop light circuit.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **USE SIMULATION METHOD TO CHECK**

5.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)**

OK ▼

6.	**INSPECT STOP LIGHT SWITCH ASSEMBLY** INFO

NG ▶ **REPLACE STOP LIGHT SWITCH ASSEMBLY**

OK ▼

7.	**CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH ASSEMBLY - STOP LP CTRL RELAY)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

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8.	INSPECT STOP LP CTRL RELAY INFO

NG ▶ REPLACE STOP LP CTRL RELAY

OK

9.	CHECK HARNESS AND CONNECTOR (REAR COMBINATION LIGHT ASSEMBLY, HIGH MOUNTED STOP LIGHT ASSEMBLY - STOP LP CTRL RELAY) INFO

B ▶ GO TO STEP 10

C ▶ GO TO STEP 11

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

10.	INSPECT REAR COMBINATION LIGHT ASSEMBLY INFO

NG ▶ REPLACE REAR COMBINATION LIGHT ASSEMBLY

OK ▶ USE SIMULATION METHOD TO CHECK

11.	INSPECT CENTER STOP LIGHT BULB INFO

NG ▶ REPLACE CENTER STOP LIGHT BULB

OK ▶ USE SIMULATION METHOD TO CHECK

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIM107X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1432; Steering Angle Sensor Power Source Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

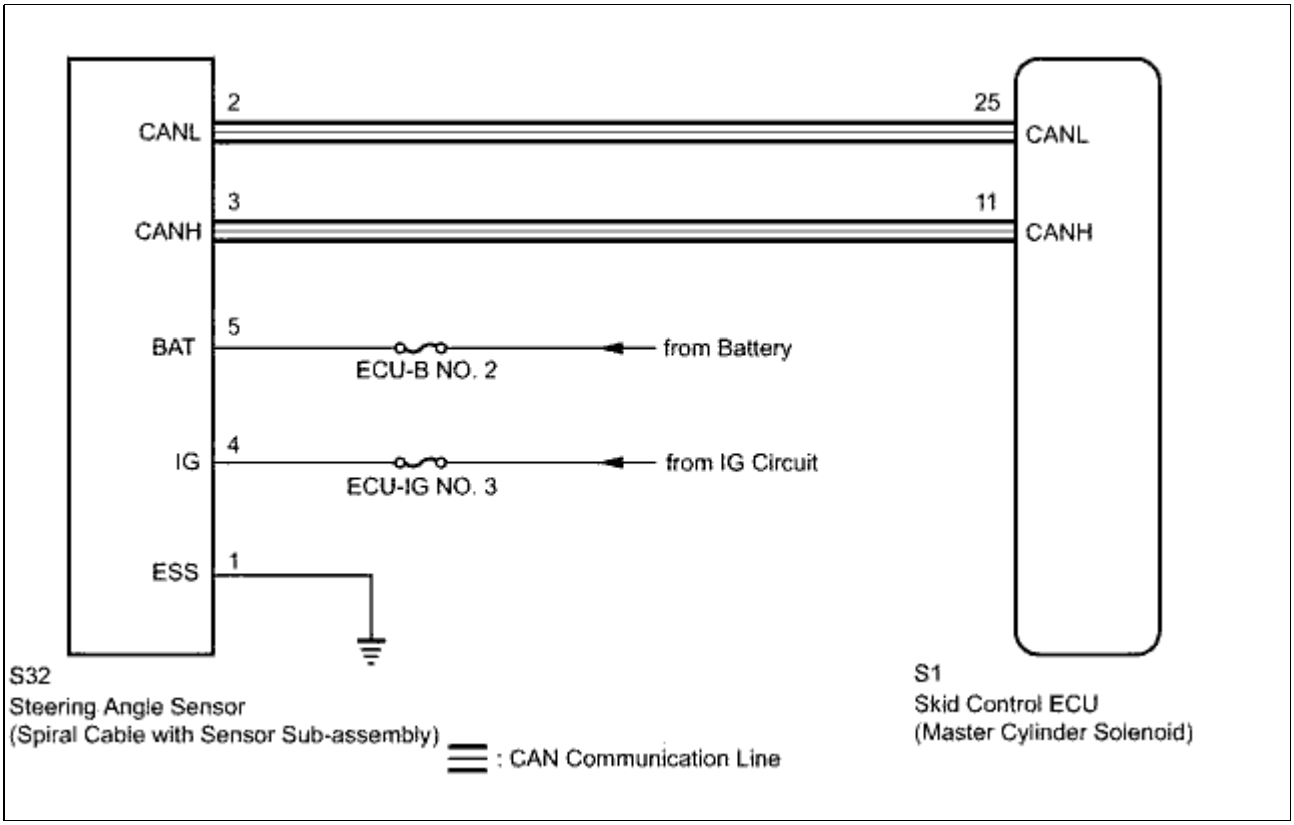
DTC	**C1432**	**Steering Angle Sensor Power Source Voltage Malfunction**

DESCRIPTION

Steering angle sensor (spiral cable with sensor sub-assembly) signals are sent to the skid control ECU (master cylinder solenoid) via the CAN communication system. When there is a malfunction in the CAN communication system, it is detected by the steering angle sensor zero point malfunction diagnostic function.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1432	A steering angle sensor power supply malfunction signal is received from the steering angle sensor.	• ECU-B NO. 2 fuse • ECU-IG NO. 3 fuse • Steering angle sensor (spiral cable with sensor sub-assembly) power supply • Steering angle sensor (spiral cable with sensor sub-assembly)

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

When the speed sensor or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be stored even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensor or yaw rate and acceleration sensor (airbag sensor assembly) are output together with DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A ▼

2.	**CHECK HARNESS AND CONNECTOR (IG, BAT TERMINAL)**

(a) Make sure that there is no looseness in the locking part and connecting part of the connectors.

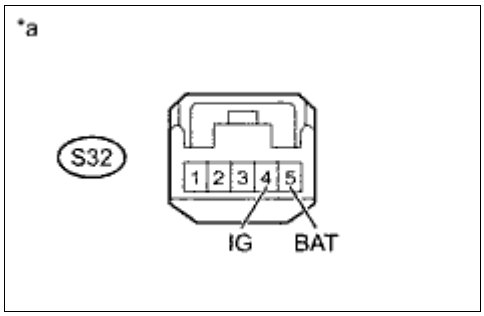
(b) Disconnect the S32 steering angle sensor (spiral cable with sensor sub-assembly) connector.

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(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S32-4 (IG) - Body ground	Ignition switch ON	11 to 14 V
S32-5 (BAT) - Body ground	Always	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Steering Angle Sensor (Spiral Cable with Sensor Sub-assembly))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (ESS TERMINAL)**

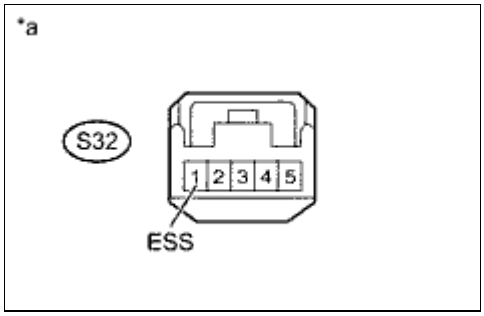
(a) Turn the ignition switch off.

(b) Disconnect the S32 steering angle sensor (spiral cable with sensor sub-assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S32-1 (ESS) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Steering Angle Sensor (Spiral Cable with Sensor Sub-assembly))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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(GROUND CIRCUIT)

OK ▶ REPLACE STEERING ANGLE SENSOR (SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY)

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIM108X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1433; Steering Angle Sensor Internal Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1433**	**Steering Angle Sensor Internal Circuit**

DESCRIPTION

Steering angle sensor (spiral cable with sensor sub-assembly) signals are sent to the skid control ECU (master cylinder solenoid) via the CAN communication system. When there is a malfunction in the CAN communication system, it is detected by the steering angle sensor (spiral cable with sensor sub-assembly) zero point malfunction diagnostic function.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1433	Either condition is met: 1. With the IG1 terminal voltage at 9.5 to 17.4 V, the skid control ECU (master cylinder solenoid) receives an error signal from the steering angle sensor for 0.012 seconds. 2. An open in the sensor power supply circuit for 1 second or more.	Steering angle sensor (spiral cable with sensor sub-assembly)

WIRING DIAGRAM

Refer to DTC C1432 INFO .

INSPECTION PROCEDURE

HINT:

When any of the speed sensors or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be stored even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensors or yaw rate and acceleration sensor (airbag sensor assembly) are output together with DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO

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RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A

▼

2.	**REPLACE STEERING ANGLE SENSOR (SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY)**

(a) Replace the steering angle sensor (spiral cable with sensor sub-assembly) INFO .

NEXT ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000XIM109X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1434; Steering Angle Sensor Output Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1434**	**Steering Angle Sensor Output Malfunction**

DESCRIPTION

Steering angle sensor (spiral cable with sensor sub-assembly) signals are sent to the skid control ECU (master cylinder solenoid) via the CAN communication system. When there is a malfunction in the CAN communication system, it is detected by the steering angle sensor (spiral cable with sensor sub-assembly) zero point malfunction diagnostic function.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1434	An error in communication between the skid control ECU (master cylinder solenoid) and the steering angle sensor, or an abnormal steering angle sensor zero point.	• ECU-B NO. 2 fuse • ECU-IG NO. 3 fuse • Steering angle sensor (spiral cable with sensor sub-assembly) power supply • Steering angle sensor (spiral cable with sensor sub-assembly)

WIRING DIAGRAM

Refer to DTC C1432 INFO .

INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

- When DTC U0073, U0123, U0124 and/or U0126 is output together with DTC C1434, inspect and repair the trouble areas indicated by DTC U0073, U0123, U0124 and/or U0126 first INFO .
- When any of the speed sensors or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be stored even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensors or yaw rate and acceleration sensor (airbag sensor assembly) are output together with DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**CHECK DTC**

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(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Turn the ignition switch to ON again and check that no CAN communication system DTC is output INFO .

(d) Start the engine.

(e) Drive the vehicle at a speed of 35 km/h (22 mph) and turn the steering wheel to the right and left, and then check that no speed sensor or yaw rate and acceleration sensor (airbag sensor assembly) DTCs are output INFO .

Result

RESULT	PROCEED TO
No CAN communication system, speed sensor, or yaw rate and acceleration sensor DTCs are output	A
CAN communication system DTC is output	B
Speed sensor or yaw rate and acceleration sensor DTC is output	C

HINT:

- If there is a malfunction in any of the speed sensors or the yaw rate and acceleration sensor (airbag sensor assembly), an abnormal value may be output although the steering angle sensor (spiral cable with sensor sub-assembly) is normal.
- If speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) DTCs are output simultaneously, repair these two sensors first, and then inspect the steering angle sensor (spiral cable with sensor sub-assembly).

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

C ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

A ▼

2.	**INSPECT STEERING ANGLE SENSOR (SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY) (IG, BAT TERMINAL)** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)**

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OK

3.	**INSPECT STEERING ANGLE SENSOR (SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY) (ESS TERMINAL)** INFO

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)**

OK → **REPLACE STEERING ANGLE SENSOR (SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM0000035P508PX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1436; Yaw Rate Sensor Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1436**	**Yaw Rate Sensor Malfunction**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the yaw rate and acceleration (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle's condition using 2 circuits (GL1, GL2).

If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, DTCs U0123 (yaw rate sensor communication trouble) and U0124 (acceleration sensor communication trouble) are stored.

These DTCs are also output when calibration has not been completed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1436	Either condition is met: 1. With the vehicle stationary, the yaw rate and acceleration sensor output value is not 0°/s. 2. An abnormal comparison value.	• Yaw rate and acceleration sensor (airbag sensor assembly) • Sensor installation

WIRING DIAGRAM

Refer to DTCs C1232, C1243 and C1245 INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform calibration INFO .
- Check the yaw rate and acceleration sensor (airbag sensor assembly) signal after replacement INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
CAN DTC is not output	A

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B GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)

A

2.	READ VALUE USING TECHSTREAM (YAW RATE SENSOR)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Yaw Rate Sensor	Yaw rate and acceleration sensor 1 reading/ Min.: -128°/s, Max.: 127°/s	0°/s: Vehicle stationary -128 to 0°/s: Right turn 0 to 127°/s: Left turn	-

(f) Check that the yaw rate and acceleration sensor output value is displayed on the Techstream.

Result

RESULT		PROCEED TO
NG	Yaw rate and acceleration sensor output value is 0°/s when vehicle is stationary, but value fluctuates when turning	A
	Yaw rate and acceleration sensor output value is not 0°/s when vehicle is stationary	B
OK		C

B REPLACE AIRBAG SENSOR ASSEMBLY

C USE SIMULATION METHOD TO CHECK

A

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3.	**CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION**

(a) Turn the ignition switch off.

(b) Check that the yaw rate and acceleration sensor (airbag sensor assembly) is installed properly INFO .

OK:
The sensor is tightened to the specified torque.
The sensor is not installed at an angle.

NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY CORRECTLY**

OK ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000000YUO0TTX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1437; Lost Communication with ECM; 2016 MY Tacoma [08/2015 -]		

DTC	**C1437**	**Lost Communication with ECM**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the ECM via the CAN communication system.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1437	When the IG1 terminal voltage is 10 V or higher and the vehicle speed is 15 km/h (9 mph) or more, data cannot be sent from the ECM for 2 seconds or more.	• Engine control system • CAN communication system • Skid control ECU (master cylinder solenoid)

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
EFI Communication Open	EFI communication open detection/ Error or Normal	Normal	-

OK:

Normal (there are no momentary interruptions).

HINT:

Perform the above inspection before removing the sensor and connector.

NG ▶ **GO TO STEP 3**

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OK

2.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 15 km/h (9 mph) or more for 10 seconds or more.

(e) Check that no CAN communication system DTC is output INFO .

(f) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC C1437 is not output	A
DTC C1437 is output	B
CAN communication system DTC is output	C

B ▶ **GO TO ENGINE CONTROL SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

C ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A ▶ **USE SIMULATION METHOD TO CHECK**

3.	**REPAIR OR REPLACE HARNESS OR CONNECTOR (SKID CONTROL ECU - ECM)**

(a) Turn the ignition switch off.

(b) Repair or replace the harness or connector.

(c) Check for any momentary interruption between the skid control ECU (master cylinder solenoid) and ECM INFO .

(d) Check that there is no momentary interruption.

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NEXT

4.	RECONFIRM DTC

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 15 km/h (9 mph) or more for 10 seconds or more.

(e) Check that no CAN communication system DTC is output INFO .

(f) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC C1437 is not output	A
DTC C1437 is output	B
CAN communication system DTC is output	C

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

C ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000003NJL0FIX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1439,C1445; Steering Angle Sensor Initialization Incomplete; 2016 MY Tacoma [08/2015 -]		

DTC	**C1439**	**Steering Angle Sensor Initialization Incomplete**

DTC	**C1445**	**Vehicle Driven with Steering Angle Sensor not Initialized**

DESCRIPTION

The skid control ECU (master cylinder solenoid) acquires steering angle sensor (spiral cable with sensor sub-assembly) zero point every time the ignition switch is turned to ON and the vehicle is driven at 35 km/h (22 mph) or more for approximately 5 seconds. The ECU also stores the previous zero point.

The steering angle sensor (spiral cable with sensor sub-assembly) zero point malfunction warning will be cancelled by turning the ignition switch to off.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1439	After the steering angle sensor 0 calibration is cleared due to, for example, fluctuations in the power source, the steering angle 0 calibration cannot be obtained for 0.048 seconds of continuous driving	• Steering angle sensor (spiral cable with sensor sub-assembly) • Yaw rate and acceleration sensor (airbag sensor assembly) • Skid control ECU (master cylinder solenoid)
C1445	Steering angle sensor 0 calibration cannot be obtained when the vehicle is driven without a record of steering angle sensor 0 calibration at a speed of 36 km/h (22 mph) or more for 30 seconds or more without the brake pedal being depressed	• Steering angle sensor (spiral cable with sensor sub-assembly) • Yaw rate and acceleration sensor (airbag sensor assembly) • Skid control ECU (master cylinder solenoid)

INSPECTION PROCEDURE

NOTICE:

- Before proceeding with the inspection, explain to the customer that the output DTC is related to temporary loss of the steering angle zero calibration, such as when the power voltage drops when the battery is removed, and confirm that this condition occurred.
- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

HINT:

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- When DTC U0073, U0123, U0124 and/or U0126 is output together with DTC C1439 and/or C1445, inspect and repair the trouble areas indicated by DTC U0073, U0123, U0124 and/or U0126 first INFO .
- When the speed sensor or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be stored even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensor or yaw rate and acceleration sensor (airbag sensor assembly) are output together with other DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Turn the ignition switch to ON again and check that no CAN communication system DTC is output INFO .

(d) Drive the vehicle at a speed of 35 km/h (22 mph) and turn the steering wheel to the right and left, and then check that no speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) DTCs are output INFO .

Result

RESULT		PROCEED TO
DTC is output	C1439 and/or C1445	A
	Relating to CAN communication system	B
	Relating to speed sensor or yaw rate and acceleration sensor	C
	DTC is not output	D

HINT:

- If there is a malfunction in the speed sensor or the yaw rate and acceleration sensor (airbag sensor assembly), an abnormal value may be output although the steering angle sensor (spiral cable with sensor sub-assembly) is normal.
- If the speed sensor and the yaw rate and acceleration sensor (airbag sensor assembly) DTCs are output simultaneously, repair the sensors and inspect the steering angle sensor (spiral cable with sensor sub-assembly).
- If DTC C1439 and/or C1445 is not output again, the DTC may have been stored due to a temporary loss of the steering angle zero calibration, such as when the power voltage drops.

B ▶ **GO TO COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

C ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

D ▶ **USE SIMULATION METHOD TO CHECK**

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A

2.	**PERFORM STEERING ANGLE SENSOR ZERO POINT CALIBRATION**

(a) Drive the vehicle straight ahead at 35 km/h (22 mph) or more for at least 5 seconds.

(b) Check that the centered position of the steering wheel is correctly set while driving straight ahead.

HINT:

If the front wheel alignment and steering position are adjusted as a result of an abnormal centered position of the steering wheel, acquire the yaw rate and acceleration sensor zero point again after the adjustments are completed.

OK:

The centered position of the steering wheel is correctly set.

NG ▶ **ADJUST FRONT WHEEL ALIGNMENT OR STEERING POSITION**

OK

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 35 km/h (22 mph) or more and turn the steering wheel to the right and left.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTCs C1439 and C1445 are not output	A
Yaw rate and acceleration sensor and/or steering angle sensor DTC is output	B

HINT:

If DTC C1439 and/or C1445 is not output again, the DTC may have been stored due to a temporary loss of the steering angle zero calibration, such as when the power voltage drops.

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

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A END

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000003NL20CHX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1440; Steering Angle Sensor Unusual Bank Angle Detected; 2016 MY Tacoma [08/2015 -]		

DTC	**C1440**	**Steering Angle Sensor Unusual Bank Angle Detected**

DESCRIPTION

If the skid control ECU (master cylinder solenoid) determines that the vehicle is being driven at a steep bank angle, the skid control ECU (master cylinder solenoid) stores DTC C1440 while VSC operation is temporarily disabled. It is not a malfunction if the system and sensor circuits are normal and if the normal VSC operation resumes, which automatically clears DTC C1440, after the vehicle is returned to a normal position.

HINT:

DTC C1440 and the yaw rate and acceleration sensor (airbag sensor assembly) DTC are stored when the skid control ECU (master cylinder solenoid) determines that the vehicle is being driven at a steep bank angle and either of the following conditions is met:

- The yaw rate and acceleration sensor (airbag sensor assembly) is installed at an angle.
- The yaw rate and acceleration sensor (airbag sensor assembly) signal output is stuck.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1440	Driving at a steep bank angle.	Yaw rate and acceleration sensor (airbag sensor assembly)

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Perform a road test.

(c) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC C1440 is output	A
DTC C1440 is not output	B
Yaw rate and acceleration sensor DTC is output	C

B ▶ **END**

C ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

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A

2.	**CHECK DTC**

(a) Clear the DTCs INFO .

HINT:

- If the skid control ECU (master cylinder solenoid) determines that the vehicle is being driven at a steep bank angle, the skid control ECU (master cylinder solenoid) stores DTC C1440 while VSC operation is temporarily disabled.
- It is not a malfunction if the system and sensor circuits are normal and if the normal VSC operation resumes, which automatically clears DTC C1440, after the vehicle is returned to a normal position.

NEXT END

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000003NL30DYX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1442,C1443; Invalid Data Received from Acceleration Sensor; 2016 MY Tacoma [08/2015 -]		

DTC	**C1442**	**Invalid Data Received from Acceleration Sensor**

DTC	**C1443**	**Invalid Data Received from Yaw Rate Sensor**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1442	An invalid data signal is transmitted continuously from the acceleration sensor for 10 seconds or more.	Yaw rate and acceleration sensor (airbag sensor assembly)
C1443	An invalid data signal is transmitted continuously from the yaw rate sensor for 10 seconds or more.	Yaw rate and acceleration sensor (airbag sensor assembly)

INSPECTION PROCEDURE

NOTICE:

When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration INFO .

PROCEDURE

1.	**CHECK DTC**

(a) Turn the ignition switch off.

(b) Clear the DTC INFO .

(c) Start and idle the engine for 60 seconds, and then stop the engine.

(d) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC output	A
DTC not output	B

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B ▶ CHECK USE SIMULATION METHOD TO CHECK

A ▶ REPLACE AIRBAG SENSOR ASSEMBLY

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM0000049GV00KX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1452; Accumulator Low Pressure; 2016 MY Tacoma [08/2015 -]		

DTC	**C1452**	**Accumulator Low Pressure**

DESCRIPTION

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1452	After braking, the fluid pressure inside the accumulator is below the threshold within 3.2 seconds.	• Hydraulic circuit • Accumulator pressure sensor (master cylinder solenoid)

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

PROCEDURE

1.	**CUSTOMER PROBLEM ANALYSIS**

(a) Check with the customer to determine if frequent braking has been performed.

NEXT

2.	**RECONFIRM DTC**

(a) Clear the DTC INFO .

(b) Turn the ignition switch off.

(c) Depress the brake pedal more than 40 times.

(d) Turn the ignition switch to ON.

(e) Wait for 99 seconds.

(f) Check if the same DTC is output INFO .

Result

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RESULT	PROCEED TO
DTC is output	A
Frequent braking was not performed and DTC is not output	B
Frequent braking was performed and DTC is not output	C

HINT:

Excessive brake pedal operation results in abnormal accumulator pressure consumption. This is normal.

B ▶ **USE SIMULATION METHOD TO CHECK**

C ▶ **END**

A

▼

3.	**CHECK HYDRAULIC CIRCUIT**

(a) Check the hydraulic circuit INFO .

OK:

Hydraulic circuit is normal (no leakage).

NG ▶ **REPAIR HYDRAULIC CIRCUIT**

OK

▼

4.	**READ VALUE USING TECHSTREAM (ACCUMULATOR SENSOR)** INFO

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK

▼

5.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

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(b) Turn the ignition switch off.

(c) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM00000452I01WX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C1453,C1454; Reservoir Level Switch Disconnected; 2016 MY Tacoma [08/2015 -]		

DTC	**C1453**	**Reservoir Level Switch Disconnected**

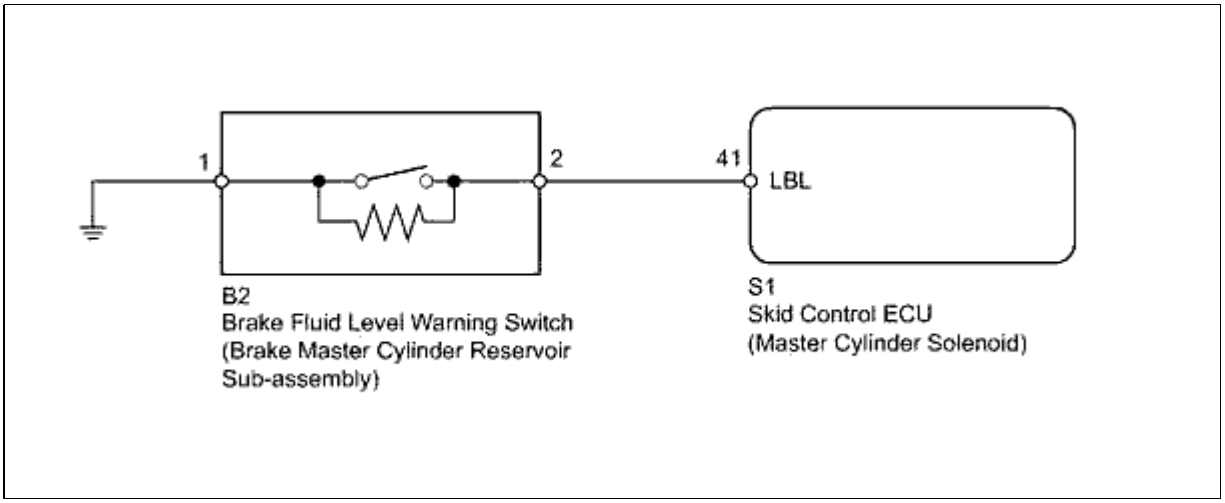
DTC	**C1454**	**Reservoir Level Low**

DESCRIPTION

The brake fluid level warning switch sends the appropriate signal to the skid control ECU (master cylinder solenoid) when the brake fluid level drops.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
C1453	With the ECU terminal IG1 voltage at 10 to 14 V, an open in the brake fluid level warning switch circuit continues for 2 seconds or more.	• Brake fluid level • Brake fluid level warning switch (Brake master cylinder reservoir sub-assembly) • Harness or connector • Skid control ECU (master cylinder solenoid)
C1454	The fluid level of the reservoir is LOW for 40 seconds after the ignition switch is turned to ON, or for 7 seconds during pump motor operation.	

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .

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PROCEDURE

1.	**CHECK BRAKE FLUID LEVEL**

(a) Turn the ignition switch off.

(b) Depress the brake pedal 40 times or more (until the pedal reaction feels light and pedal stroke becomes longer).

(c) Check the amount of fluid in the brake reservoir.

HINT:

When the ignition switch is turned to ON, brake fluid is sent to the accumulator and the fluid level decreases by approximately 5 mm (0.197 in.) from the level when the ignition switch is off (normal).

OK:

Brake fluid level is normal.

NG ▶ **CHECK AND REPAIR BRAKE FLUID LEAKAGE**

OK

▼

2.	**INSPECT BRAKE FLUID LEVEL WARNING SWITCH**

(a) Disconnect the B2 brake fluid level warning switch (brake master cylinder reservoir sub-assembly) connector.

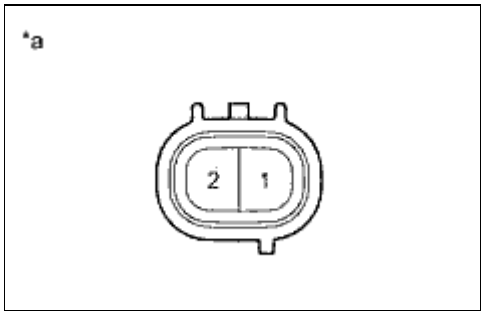
(b) Measure the resistance according to the value(s) in the table below.

HINT:

A float is placed inside the reservoir. Its position can be changed by increasing/decreasing the level of brake fluid.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Float UP (Switch off)	1.9 to 2.1 kΩ
	Float DOWN (Switch on)	Below 1 Ω



Text in Illustration

*a	Component without harness connected (Brake Fluid Level Warning Switch (Brake Master Cylinder

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	Reservoir Sub-assembly))

HINT:

If there is no problem after finishing the above check, adjust the brake fluid level to the MAX level.

NG ▶ **REPLACE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - BRAKE FLUID LEVEL WARNING SWITCH)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Disconnect the B2 brake fluid level warning switch (brake master cylinder reservoir sub-assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-41 (LBL) - B2-2	Always	Below 1 Ω
S1-41 (LBL) - Body ground	Always	10 kΩ or higher
S1-41 (GND) - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine and idle it for approximately 40 seconds.

(d) Check if the same DTCs are output INFO .

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Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001DXQ02TX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): C146E,C146F; Open in ABS Solenoid Relay Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C146E**	**Open in ABS Solenoid Relay Circuit**

DTC	**C146F**	**Short in ABS Solenoid Relay Circuit**

DESCRIPTION

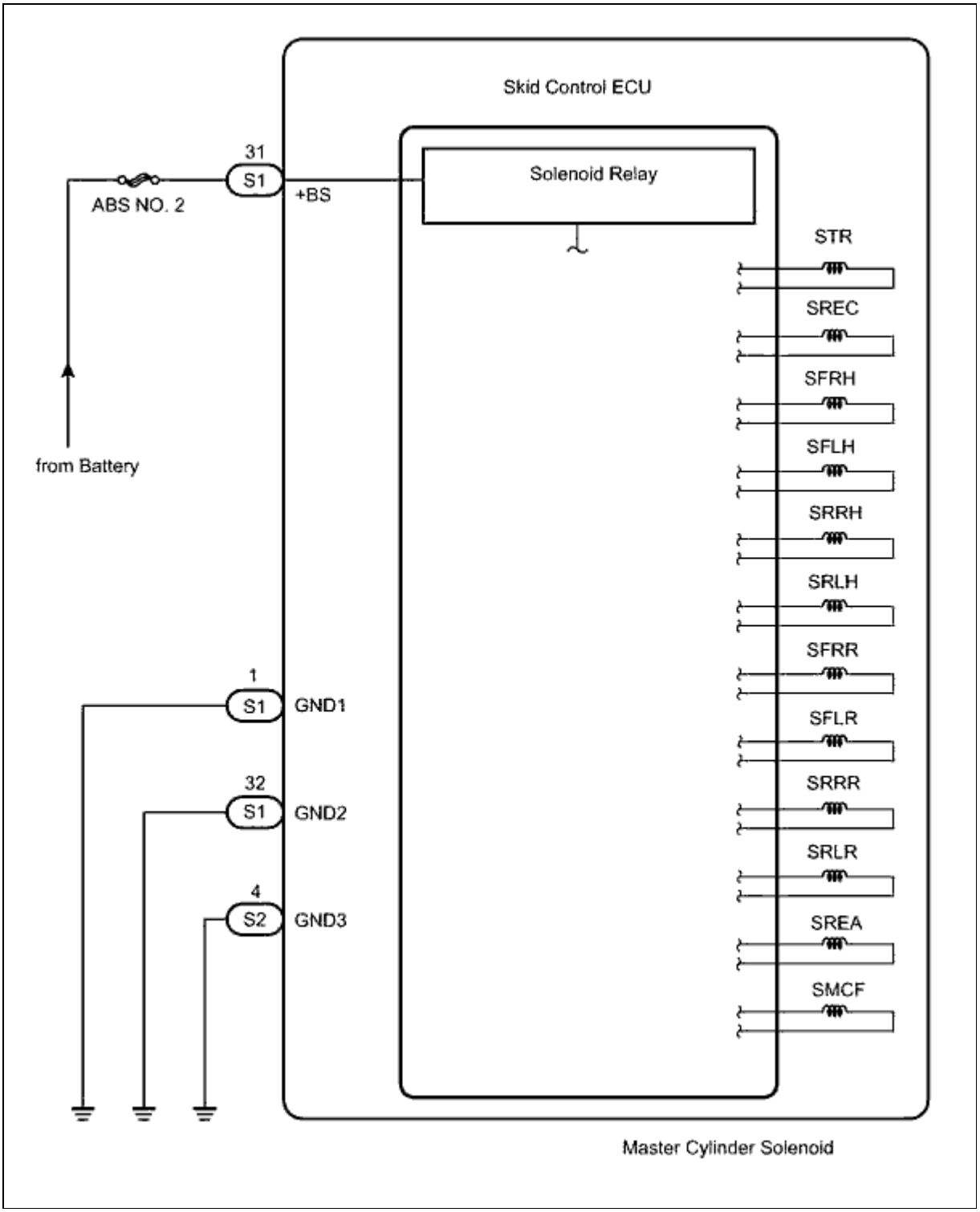
The ABS solenoid relay is built into the master cylinder solenoid.

This relay supplies power to each ABS solenoid. After the ignition switch is turned ON, if the initial check is OK, the relay turns on.

DTC NO.	DTC DETECTING CONDITIONS	TROUBLE AREAS
C146E	When either of following condition detected: 1. Both of following conditions continue for at least 0.2 seconds. a. IG voltage between 9.5 V and 17 V. b. Relay contact open when relay ON 2. Both of the following conditions continue for at least 0.2 seconds. a. IG voltage 9.5 V or less when relay ON. b. Relay contact remains open.	• ABS NO. 2 fuse • ABS solenoid relay • ABS solenoid relay circuit • Master cylinder solenoid
C146F	The following condition continues for at least 0.2 seconds. • Relay contact closed immediately after turning IG switch to the ON position when the relay OFF.	• ABS NO. 2 fuse • ABS solenoid relay • ABS solenoid relay circuit • Master cylinder solenoid

WIRING DIAGRAM

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INSPECTION PROCEDURE

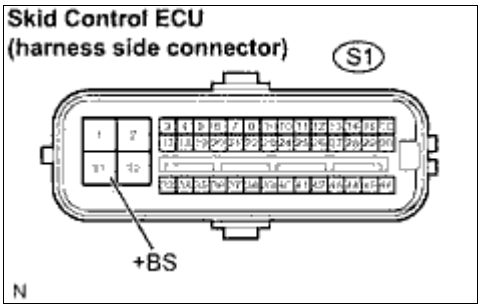
NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform zero point calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

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1.	**INSPECT SKID CONTROL ECU CONNECTOR (+BS TERMINAL VOLTAGE)**



(a) Disconnect the skid control ECU connector.

(b) Measure the voltage.

Standard Voltage:

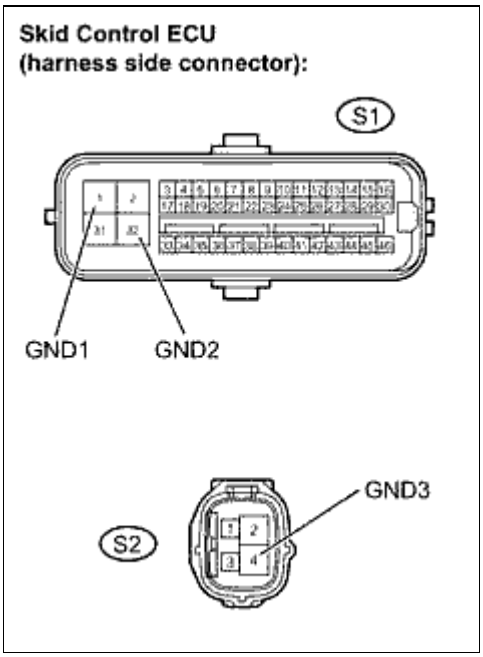
TESTER CONNECTION	SPECIFIED CONDITION
S1-31 (+BS) - Body ground	10 to 14 V

(c) Reconnect the skid control ECU connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

2.	**CHECK HARNESS OR CONNECTOR (GND - BODY GROUND)**



(a) Disconnect the skid control ECU connectors.

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(b) Measure the resistance.

Standard Resistance:

TESTER CONNECTION	SPECIFIED CONDITION
S1-1, 32 (GND1, GND2) - Body ground	Below 1 Ω
S2-4 (GND3) - Body ground	Below 1 Ω

(c) Reconnect the skid control ECU connectors.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND CIRCUIT)**

OK ▼

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Check if the same DTCs are recorded.

RESULT	PROCEED TO
DTC output	A
DTC not output	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001DWZ01VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): CALIBRATION; 2016 MY Tacoma [08/2015 -]		

CALIBRATION

1. DESCRIPTION

(a) After replacing the VSC relevant components or performing "Front wheel alignment adjustment", clearing and reading the sensor calibration data are necessary.

(b) Follow the chart to perform calibration.

REPLACING PARTS	NECESSARY OPERATIONS
Skid Control ECU (Master Cylinder Solenoid)	1. Crawl control calibration (for Automatic transmission) data. 2. Yaw rate and acceleration sensor zero point calibration.
Yaw Rate and Acceleration Sensor (Airbag sensor assembly)	1. Clearing zero point calibration data. 2. Yaw rate sensor and acceleration sensor zero point calibration.
Front Wheel Alignment	1. Clearing zero point calibration data. 2. Yaw rate sensor and acceleration sensor zero point calibration.

2. CLEAR ZERO POINT CALIBRATION (for Using Techstream)

HINT:

After replacing the yaw rate and acceleration sensor (airbag sensor assembly), be sure to clear the zero point calibration data in the skid control ECU (master cylinder solenoid) and perform zero point calibration.

(a) Connect Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Operate Techstream to erase the DTCs.

(d) Perform zero point calibration of the yaw rate and acceleration sensor using Techstream.

3. PERFORM ZERO POINT CALIBRATION OF YAW RATE SENSOR AND ACCELERATION SENSOR (for Using Techstream)

HINT:

After replacing the yaw rate and acceleration sensor (airbag sensor assembly), be sure to clear the zero point calibration data in the skid control ECU (master cylinder solenoid) and perform zero point calibration.

NOTICE:

- While obtaining the zero point, do not vibrate the vehicle by tilting, moving or shaking it and keep it stationary. (Do not start the engine.)
- Be sure to do this on a level surface (with an inclination of less than 1°).

(a) Procedures for test mode.

(1) Turn the ignition switch to off.

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(2) Check that the steering wheel is in the straight-ahead position.

(3) for Automatic transmission: Check that the shift lever is in P and apply the parking brake.

for Manual transmission: Check that the shift lever is in neutral and apply the parking brake.

NOTICE:

DTC C1210 and C1336 will be recorded if the shift lever is not in the P position.

(4) Connect Techstream to the DLC3.

(5) Turn the ignition switch to ON.

(6) Switch the ECU to test mode using Techstream. Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Signal Check.

(7) Keep the vehicle stationary on a level surface for 5 seconds or more.

(8) Check that the slip indicator light comes on for several seconds and then blinks in the test mode pattern (0.125 seconds on and 0.125 seconds off).

NOTICE:

The slip indicator light stay ON when obtaining the zero point.

HINT:

- If the slip indicator light does not blink, perform the zero point calibration again.
- The zero point calibration is performed only once after the system enters test mode.
- Calibration cannot be performed again until the stored data is cleared once.

(9) Turn the ignition switch to off.

4. CLEAR ZERO POINT CALIBRATION (for Using SST Check Wire)

HINT:

After replacing the yaw rate and acceleration sensor (airbag sensor assembly), be sure to clear the zero point calibration data in the skid control ECU (master cylinder solenoid) and perform zero point calibration.

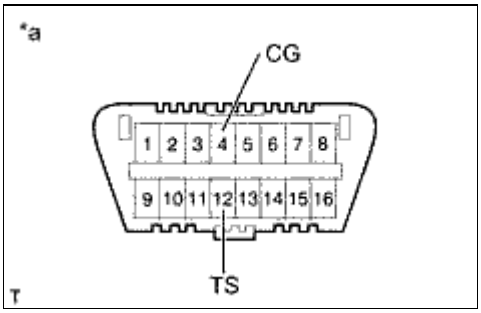
(a) Turn the ignition switch to ON.

(b) Using SST, connect and disconnect terminals TS and CG of the DLC3 4 times or more within 8 seconds.

SST: 09843-18040

Text in Illustration

*a	Front view of DLC3



(c) Check that the slip indicator light comes on.

(d) Perform zero point calibration of the yaw rate and acceleration sensor using a check wire.

5. PERFORM ZERO POINT CALIBRATION OF YAW RATE SENSOR AND ACCELERATION SENSOR (for Using SST Check Wire)

HINT:

After replacing the skid control ECU (master cylinder solenoid) and/or yaw rate and acceleration sensor (airbag sensor assembly), be sure to perform yaw rate sensor and acceleration sensor zero point calibration.

NOTICE:

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- While obtaining the zero point, do not vibrate the vehicle by tilting, moving or shaking it and keep it stationary. (Do not start the engine.)
- Be sure to do this on a level surface (with an inclination less than 1°).

(a) Procedures for test mode:

(1) Turn the ignition switch to off.

(2) Check that the steering wheel is in the straight- ahead position.

(3) for Automatic transmission: Check that the shift lever is in P and apply the parking brake.

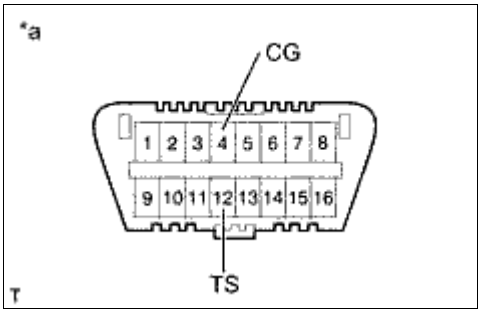
for Manual transmission: Check that the shift lever is in neutral and apply the parking brake.

NOTICE:

DTC C1210 and C1336 will be recorded if the shift lever is not in the P position.

(4) Using SST, connect terminals TS and CG of the DLC3.

SST: 09843-18040



Text in Illustration

*a	Front view of DLC3

(5) Turn the ignition switch to ON.

(6) Keep the vehicle stationary on a level surface for 5 seconds or more.

(7) Check that the slip indicator light comes on for several seconds and then blinks in the test mode pattern (0.125 seconds on and 0.125 seconds off).

HINT:

- If the slip indicator light does not blink, perform the zero point calibration again.
- The zero point calibration is performed only once after the system enters test mode.
- Calibration cannot be performed again until the stored data is cleared once.

(8) Turn the ignition switch off.

6. PERFORM CRAWL CONTROL CALIBRATION (for Automatic transmission)

(a) Enter test mode (when using the Techstream).

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Test Mode.

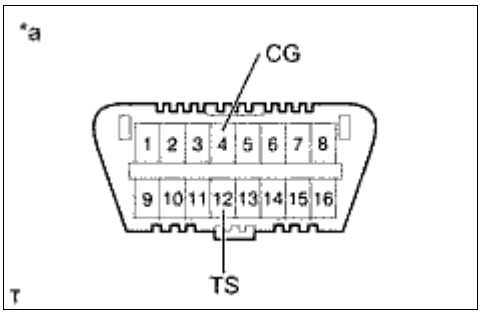
(b) Enter test mode (when using SST check wire).

(1) Turn the ignition switch off.

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(2) Using SST, connect terminals 12 (TS) and 4 (CG) of the DLC3.

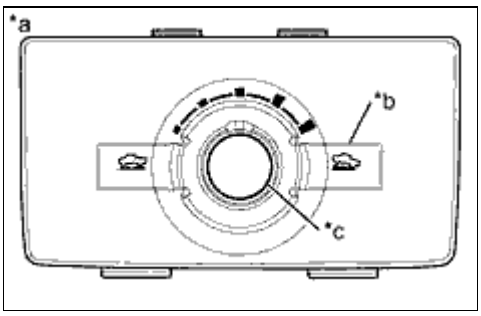
SST: 09843-18040



Text in Illustration

*a	Front view of DLC3

(c) Push the ON/OFF switch and check that the crawl indicator light is on while the switch is being pushed.



Text in Illustration

*a	Drive Monitor Switch
*b	ON/OFF Switch
*c	Speed Selector Switch

(d) Turn the ON/OFF switch off.

(e) Set the target vehicle speed to L (low) with the speed selector switch.

(f) Set the target vehicle speed to medium-low with the speed selector switch.

(g) Set the target vehicle speed to M (medium) with the speed selector switch.

(h) Set the target vehicle speed to medium-high with the speed selector switch.

(i) Set the target vehicle speed to H (high) with the speed selector switch.

(j) Set the target vehicle speed to L (low) with the speed selector switch.

HINT:

The speed selector status is displayed on the multi-information display.

(k) Turn the ignition switch off.

(l) Check if DTC C120A is output.

HINT:

If DTC C120A is not output, calibration was performed successfully.

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001DX102QX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): CHECK FOR INTERMITTENT PROBLEMS; 2016 MY Tacoma [08/2015 -]		

CHECK FOR INTERMITTENT PROBLEMS

1. DESCRIPTION

HINT:

A momentary interruption (open circuit) in the connectors and/or wire harness between the sensors and ECUs can be detected through the ECU data monitor function of the Techstream.

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) Select areas where momentary interruptions should be monitored.

HINT:

- A momentary interruption (open circuit) cannot be detected for 3 seconds after the ignition switch is turned to ON (initial check).
- If Error is displayed, check for continuity between the ECUs and the sensors or between ECUs.
- Error remains displayed on the Techstream for 1 second after the harness signal changes from a momentary interruption (open circuit) to normal.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Speed Open	Front speed sensor RH open circuit detection/ Error or Normal	Normal	-
FL Speed Open	Front speed sensor LH open circuit detection/ Error or Normal	Normal	-
RR Speed Open	Rear speed sensor RH open circuit detection/ Error or Normal	Normal	-
RL Speed Open	Rear speed sensor LH open circuit detection/ Error or Normal	Normal	-
EFI Communication Open	ECM communication open circuit detection/ Error or Normal	Normal	-
Yaw Rate Open	Yaw rate and acceleration sensor open circuit detection/ Error or Normal	Normal	-
Deceleration Open	Acceleration sensor open circuit detection/ Error or Normal	Normal	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Steering Open	Steering angle sensor open circuit detection/ Error or Normal	Normal	-
Master Cylinder Open	Master cylinder pressure sensor open circuit detection/ Error or Normal	Normal	-
IG Voltage Value Decreased	IG1 voltage value decreased detection/ Error or Normal	Normal	-
IG Voltage Value Increased	IG1 voltage value increased detection/ Error or Normal	Normal	-
FR Speed Sensor Voltage Open	Front speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
FL Speed Sensor Voltage Open	Front speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
RR Speed Sensor Voltage Open	Rear speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
RL Speed Sensor Voltage Open	Rear speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
M/C Pressure Sensor Noise	Master cylinder pressure sensor noise detection/ Error or Normal	Normal	-
Yaw Rate Sensor Voltage Open	Yaw rate and acceleration sensor voltage open circuit detection/ Error or Normal	Normal	-
EFI Communication Invalid	ECM communication invalid detection/ Error or Normal	Normal	-

(g) While observing the screen, gently jiggle the connectors or wire harnesses between the ECUs and sensors or between ECUs.

OK:

Normal display appears.

HINT:

The connector and/or wire harness has a momentary interruption (open circuit) if the display changes. Repair or replace the connectors and/or wire harnesses as one of them is faulty.

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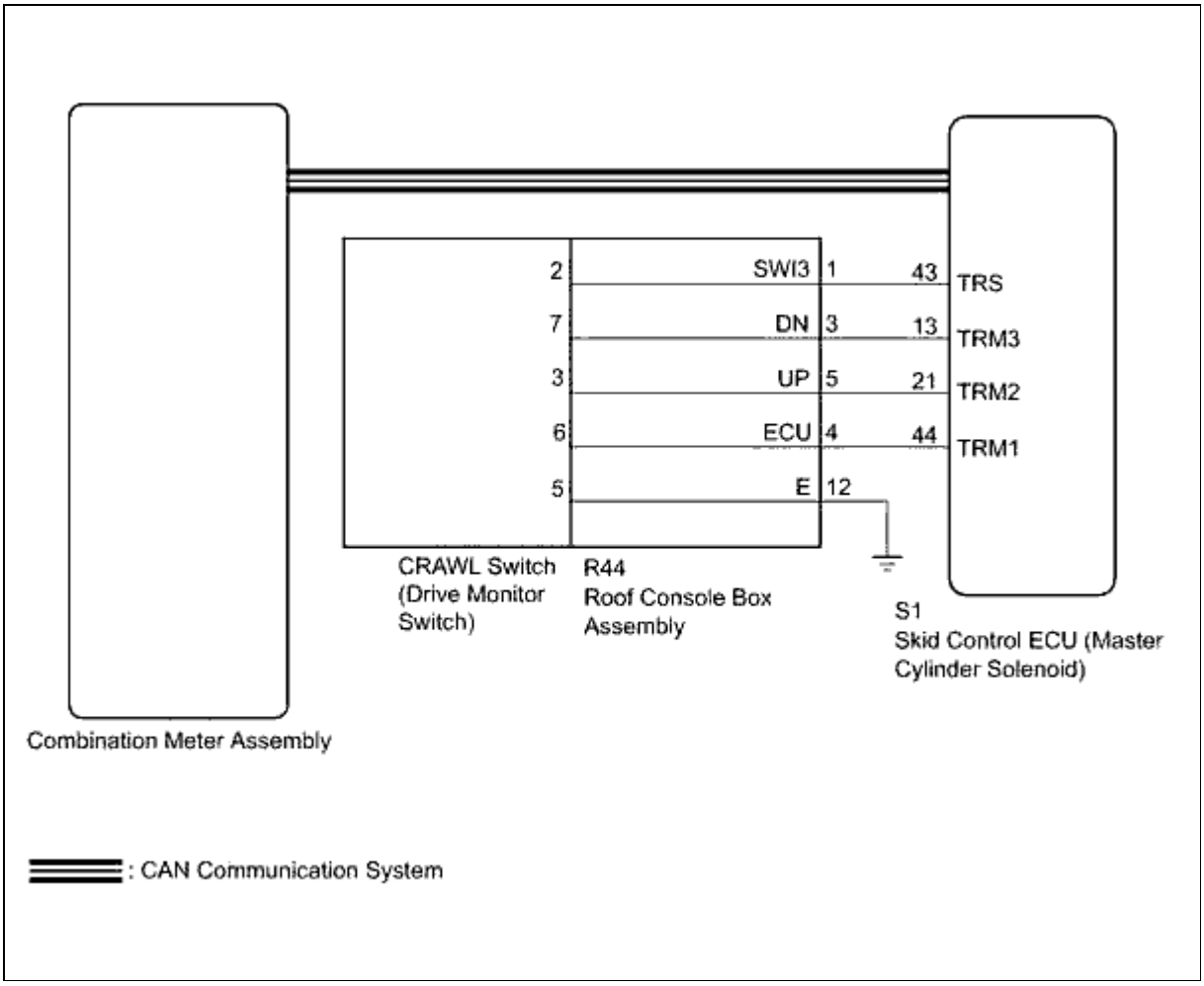
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001DY101VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Crawl Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

Crawl Indicator Light Remains ON

DESCRIPTION

When CRAWL starts after operating the CRAWL switch (drive monitor switch), the CRAWL indicator light turns on. While CRAWL is in the process of stopping, the CRAWL indicator light begins blinking. When CRAWL totally stops, the CRAWL indicator light turns off.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

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PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:
CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

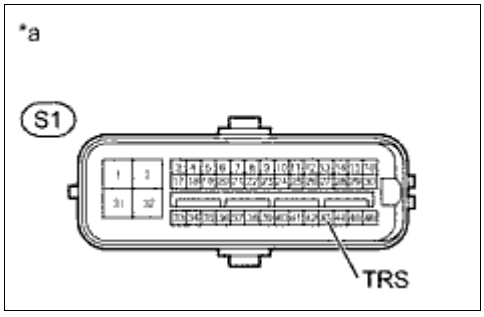
2.	**INSPECT SKID CONTROL ECU (TRS TERMINAL)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-43 (TRS) - Body ground	CRAWL switch not pushed in	10 kΩ or higher
	CRAWL switch pushed in	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(c) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

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NG ▶ GO TO STEP 4

OK ▼

3.	READ VALUE USING TECHSTREAM (CRAWL CONTROL LIGHT)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Crawl Control Light	Crawl indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-

(g) Check the Techstream display condition of the brake warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ REPLACE MASTER CYLINDER SOLENOID

A ▶ GO TO METER / GAUGE SYSTEM

4.	INSPECT DRIVE MONITOR SWITCH

(a) Remove the crawl control switch (drive monitor switch) INFO .

(b) Inspect the crawl control switch (drive monitor switch) INFO .

NG ▶ REPLACE DRIVE MONITOR SWITCH

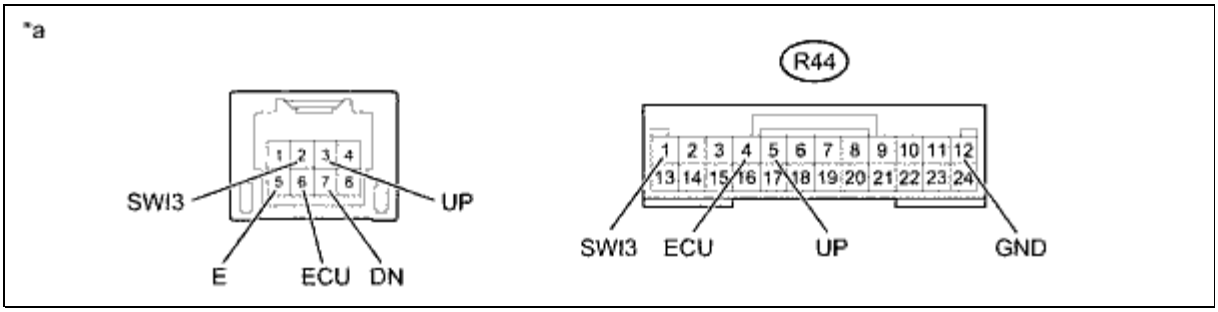
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OK

5.	**INSPECT ROOF CONSOLE BOX ASSEMBLY**

(a) Remove the roof console box assembly.

for Double Cab: INFO
for Access Cab: INFO



Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-1 (SWI3) - 2	Always	Below 1 Ω
R44-3 (DN) - 7	Always	Below 1 Ω
R44-4 (ECU) - 6	Always	Below 1 Ω
R44-5 (UP) - 3	Always	Below 1 Ω
R44-12 (GND) - 5	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

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A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001FQN01TX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Crawl Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

Crawl Indicator Light does not Come ON

DESCRIPTION

Refer to Crawl Indicator Light Remains ON INFO .

WIRING DIAGRAM

Refer to Crawl Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**READ VALUE USING TECHSTREAM (CRAWL CONTROL SWITCH)** INFO

NG ▶ **GO TO STEP 4**

OK ▼

3.	**PERFORM ACTIVE TEST USING TECHSTREAM (CRAWL CONTROL LIGHT)**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Crawl Control Light	CRAWL indicator light	Indicator light ON/OFF	Observe the combination meter.

(f) Check the Techstream display condition of the brake warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **GO TO METER / GAUGE SYSTEM**

4.	**INSPECT DRIVE MONITOR SWITCH** INFO

NG ▶ **REPLACE DRIVE MONITOR SWITCH**

OK ▼

5.	**INSPECT ROOF CONSOLE BOX ASSEMBLY** INFO

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000001DWY02ZX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

(a) Warm up the engine.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light/ ON or OFF	OFF	-
Brake Warning Light	Brake warning light/ ON or OFF	OFF	-
Downhill Assist Control Light	Downhill assist control indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	Item is displayed on Techstream but not used.
Buzzer	VSC warning buzzer/ ON or OFF	ON: Buzzer on OFF: Buzzer off	-
Stop Light SW	Stop light switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
Parking Brake SW	Parking brake switch/ ON or OFF	ON: Parking brake applied OFF: Parking brake released	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Reservoir Warning SW	Brake fluid level warning switch/ ON or OFF	OFF	-
Main Idle SW	Main idle switch/ ON or OFF	ON: Accelerator pedal released OFF: Accelerator pedal depressed	-
Gear Position	Gear position/ Fail, 1st-8th, P, N, R, Not R	Actual gear position	-
Shift Lever Position	Shift lever position/ Fail, 1st-6th/B, D/M, P, N, R	Actual shift lever position	-
Shift Information	Shift information/ ON or OFF	ON: During gear change OFF: Not during gear change	-
Inspection Mode	Inspection mode/ Other or Inspect	Other: Normal mode Inspect: Inspection mode	-
Number of IG ON (Inspection)	Number of times ignition switch turned ON after entering inspection mode/ Min.: 0, Max.: 255	-	-
Master Cylinder Sensor	Master cylinder pressure sensor reading/ Min.: 0.00 V, Max.: 5.00 V	0.3 to 0.9 V: When brake pedal released	The value increases when the brake pedal is depressed.
Zero Point of M/C	Memorized zero value/ Min.: -12.50 MPa, Max.: 12.40 MPa	-	-
Accumulator Sensor	Accumulator pressure sensor reading/ Min.: 0.00 V, Max.: 5.00 V	3.58 to 5 V	If the value is constant regardless of the pump operation, an accumulator pressure sensor malfunction is suspected.
Deceleration Sensor	Acceleration sensor reading/ Min.: -18.525 m/s^2 , Max.: 18.387 m/s^2	-	Changes continuously during acceleration/deceleration.
Zero Point of Decele	Memorized zero value/ Min.: -25.10 m/s^2 , Max.: 24.90 m/s^2	-	-
Deceleration Sensor2	Acceleration sensor 2 reading/ Min.: -18.525 m/s^2 , Max.: 18.387 m/s^2	-	Changes continuously during acceleration/deceleration.

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Zero Point of Decele2	Memorized zero value/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	-
Yaw Rate Sensor	Yaw rate and acceleration sensor 1/ Min.: -128°/s, Max.: 127°/s	0°/s: Vehicle stationary -128 to 0°/s: Right turn 0 to 127°/s: Left turn	-
Zero Point of Yaw Rate	Memorized zero value/ Min.: -128°, Max.: 127°	-	-
Zero Point of Yaw Rate2	Memorized zero value/ Min.: -128 °/s, Max.: 127 °/s	-	-
Steering Angle Sensor	Steering angle sensor/ Min.: -3276.8°, Max.: 3276.7°	Left turn: Increases Right turn: Decreases	-
Zero Point of Steering Angle	Memorized zero value/ Min.: -3276.8°, Max.: 3276.7°	-	-
Lateral G	Lateral G/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	Changes in proportion with acceleration during turning.
Forward and Rearward G	Forward and rearward G/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	Changes in proportion with acceleration during acceleration/deceleration.
Yaw Rate Value	Yaw rate value/ Min.: -128°/s, Max.: 127°/s	-	Changes in proportion with yaw during turning.
Steering Angle Value	Steering angle value/ Min.: -3276.8°, Max.: 3276.7°	-	Changes in proportion with the amount of steering wheel rotation during steering operation.
Stop Light Relay	Stop light control relay (STOP LP)/ ON or OFF	ON: Relay on OFF: Relay off	-
Crawl Control Light*2	Crawl indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-
Slip Indicator Light	Slip indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-
Rear Diff Lock Switch	Rear differential lock detection switch/ ON or OFF	ON: Rear differential lock detection switch on OFF: Rear differential lock detection switch off	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Automatic Disconnect Diff SW	A.D.D. actuator 4WD detection switch/ ON or OFF	ON: 4WD OFF: 2WD	-
L4 Switch	Transfer L4 detection switch/ ON or OFF	ON: L4 OFF: except L4	-
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual vehicle speed	No large fluctuations when driving at a constant speed.
FR Wheel Acceleration	Front wheel acceleration RH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
FL Wheel Acceleration	Front wheel acceleration LH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
RR Wheel Acceleration	Rear wheel acceleration RH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
RL Wheel Acceleration	Rear wheel acceleration LH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
FR Wheel Direction	Front wheel direction RH/ Forward or Back	Forward: Forward Back: Backward	-
FL Wheel Direction	Front wheel direction LH/ Forward or Back	Forward: Forward Back: Backward	-
RR Wheel Direction	Rear wheel direction RH/ Forward or Back	Forward: Forward Back: Backward	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RL Wheel Direction	Rear wheel direction LH/ Forward or Back	Forward: Forward Back: Backward	-
Stop Light Relay Output	Stop light control relay (STOP LP) output/ ON or OFF	ON: Relay on (Stop light on) OFF: Relay off (Stop light off)	-
Crawl Control Switch*2	Crawl speed selector switch status/ LOW, MIDLOW, MID, MIDHIGH or HIGH	Actual crawl speed selector switch position	-
Auto LSD Indicator Light	Auto LSD indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-
A-TRAC Indicator Light*1	A-TRAC indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-
FR Wheel ABS Ctrl Status	Front wheel RH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
FL Wheel ABS Ctrl Status	Front wheel LH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
RR Wheel ABS Ctrl Status	Rear wheel RH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
RL Wheel ABS Ctrl Status	Rear wheel LH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
RR Wheel EBD Ctrl Status	Rear wheel RH EBD control status/ ON or OFF	ON: During control OFF: Not during control	-
RL Wheel EBD Ctrl Status	Rear wheel LH EBD control status/ ON or OFF	ON: During control OFF: Not during control	-
BA Ctrl Status	BA control status/ ON or OFF	ON: During control OFF: Not during control	-
TRC (TRAC) Ctrl Status	Traction control status/ ON or OFF	ON: During control OFF: Not during control	-
TRC (TRAC) Engine Ctrl Status	Traction control (engine control) status/ ON or OFF	ON: During control OFF: Not during control	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
TRC (TRAC) Brake Ctrl Status	Traction control (brake control) status/ ON or OFF	ON: During control OFF: Not during control	-
FR Wheel VSC Ctrl Status	Front wheel RH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
FL Wheel VSC Ctrl Status	Front wheel LH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
RR Wheel VSC Ctrl Status	Rear wheel RH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
RL Wheel VSC Ctrl Status	Rear wheel LH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
Engine Revolutions	Engine speed/ Min.: 0 rpm, Max.: 65535 rpm	Actual engine speed	-
Real Engine Torque	Actual engine torque/ Min.: -1024.0 Nm, Max.: 1023.0 Nm	-	-
Accelerator Opening Angle %	Percentage of accelerator pedal opening angle/ Min.: 0.0%, Max.: 128.0%	0%: When accelerator pedal released	Changes in proportion with the movement of the pedal during accelerator pedal operation.
Solenoid Relay	Solenoid relay/ ON or OFF	ON: Solenoid relay on OFF: Solenoid relay off	-
ECB (Electronically Controlled Brake system) Motor Relay	ECB (Electronically Controlled Brake) motor relay/ ON or OFF	ON: Motor relay on OFF: Motor relay off	-
TR(A)C/VSC Solenoid (SRM2)	TRAC/VSC solenoid (STR)/ ON or OFF	ON: Operating OFF: Not operating	-
TR(A)C/VSC Solenoid (SRM1)	TRAC/VSC solenoid (SREC)/ ON or OFF	ON: Operating OFF: Not operating	-
TR(A)C/VSC Solenoid (SRC2)	TRAC/VSC solenoid (SREA)/ ON or OFF	ON: Operating OFF: Not operating	-
TR(A)C/VSC Solenoid (SRC1)	TRAC/VSC solenoid (SMCF)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SFRH)	ABS solenoid (SFRH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SFRR)	ABS solenoid (SFRR)/ ON or OFF	ON: Operating OFF: Not operating	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Solenoid (SFLH)	ABS solenoid (SFLH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SFLR)	ABS solenoid (SFLR)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRRH)	ABS solenoid (SRRH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRRR)	ABS solenoid (SRRR)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRLH)	ABS solenoid (SRLH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRLR)	ABS solenoid (SRLR)/ ON or OFF	ON: Operating OFF: Not operating	-
FR Speed Open	Front speed sensor RH open circuit detection/ Error or Normal	Normal	-
FL Speed Open	Front speed sensor LH open circuit detection/ Error or Normal	Normal	-
RR Speed Open	Rear speed sensor RH open circuit detection/ Error or Normal	Normal	-
RL Speed Open	Rear speed sensor LH open circuit detection/ Error or Normal	Normal	-
EFI Communication Open	ECM communication open circuit detection/ Error or Normal	Normal	-
Yaw Rate Open	Yaw rate and acceleration sensor open circuit detection/ Error or Normal	Normal	-
Deceleration Open	Acceleration sensor open circuit detection/ Error or Normal	Normal	-
Steering Open	Steering angle sensor open circuit detection/ Error or Normal	Normal	-
Master Cylinder Open	Master cylinder pressure sensor open circuit detection/ Error or Normal	Normal	-
IG1 Voltage Value	IG1 voltage value/ Min.: 0.00 V, Max.: 20.00 V	11 to 14 V	Changes in proportion to battery voltage

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
IG2 Voltage Value	IG2 voltage value/ Min.: 0.00 V, Max.: 20.00 V	11 to 14 V	Changes in proportion to battery voltage
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRC OFF, Unknown or VSC OFF	Normal: Normal TRC OFF: TRAC OFF mode VSC OFF: VSC OFF mode	-
Number of DTC	Number of DTCs/ Min.: 0, Max.: 255	0	-
IG Voltage Value Decreased	IG1 voltage value decreased/ Error or Normal	Normal	-
IG Voltage Value Increased	IG1 voltage value increased/ Error or Normal	Normal	-
FR Speed Sensor Voltage Open	Front speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
FL Speed Sensor Voltage Open	Front speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
RR Speed Sensor Voltage Open	Rear speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
RL Speed Sensor Voltage Open	Rear speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
M/C Pressure Sensor Noise	Master cylinder pressure sensor noise detection/ Error or Normal	Normal	-
Yaw Rate Sensor Voltage Open	Yaw rate and acceleration sensor voltage open circuit detection/ Error or Normal	Normal	-
EFI Communication Invalid	ECM communication invalid detection/ Error or Normal	Normal	-
A-TRC(TRAC) Switch*1	A-TRC(TRAC) Switch/ ON or OFF	ON: A-TRC switch on OFF: A-TRC switch off	-
Operation History of IG OFF while Vehicle is moving	History of ignition switch turned off when vehicle is in motion/ON or OFF	OFF: No history ON: History of ignition switch turned off with vehicle speed 3 km/h (2 mph) or	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
		higher	

*1: for Manual transmission

*2: for Automatic transmission

2. ACTIVE TEST

HINT:

Using the Techstream to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

(a) Warm up the engine.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Brake Warning Light	BRAKE warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Buzzer	VSC warning buzzer	Buzzer OFF/ON	The buzzer can be heard. [Vehicle condition] Vehicle stopped
Solenoid Relay	Solenoid relay	Relay OFF/ON	An operating sound of the solenoid (clicking sound) can be heard. [Vehicle condition] Vehicle stopped
Motor Relay	Motor relay	Relay OFF/ON	An operating sound of the motor can be heard (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped
Stop Light Relay	Stop light control relay (STOP LP CTRL)	Relay OFF/ON	Observe the stop light (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped

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TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
ABS Solenoid (SRLR)	ABS solenoid (SRLR)	Solenoid OFF/ON	An operating sound of the solenoid (clicking sound) can be heard (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped Parking brake applied Shift lever is in P (neutral)
ABS Solenoid (SRLH)	ABS solenoid (SRLH)	Solenoid OFF/ON	
ABS Solenoid (SRRR)	ABS solenoid (SRRR)	Solenoid OFF/ON	
ABS Solenoid (SRRH)	ABS solenoid (SRRH)	Solenoid OFF/ON	
ABS Solenoid (SFLR)	ABS solenoid (SFLR)	Solenoid OFF/ON	
ABS Solenoid (SFLH)	ABS solenoid (SFLH)	Solenoid OFF/ON	
ABS Solenoid (SFRR)	ABS solenoid (SFRR)	Solenoid OFF/ON	
ABS Solenoid (SFRH)	ABS solenoid (SFRH)	Solenoid OFF/ON	
VSC/TRAC Solenoid (SRMR)	VSC/TRAC solenoid (STR)	Solenoid OFF/ON	An operating sound of the solenoid (clicking sound) can be heard (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped Parking brake applied Shift lever is in P (neutral)
VSC/TRAC Solenoid (SRMF)	VSC/TRAC solenoid (SREC)	Solenoid OFF/ON	
VSC/TRAC Solenoid (SRCR)	VSC/TRAC solenoid (SREA)	Solenoid OFF/ON	
VSC/TRAC Solenoid (SRCF)	VSC/TRAC solenoid (SMCF)	Solenoid OFF/ON	
Crawl Control Light*1	CRAWL indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
TRC(TRAC) OFF Indicator Light	TRAC OFF indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
VSC OFF Indicator Light	VSC OFF indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Slip Indicator Light	Slip indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Auto LSD Indicator Light	Auto LSD indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
ABS Solenoid	ABS solenoid (SRLR, SRLH, SRRR, SRRH, SFLR, SFLH, SFRR,	Solenoid SFRH/SFRR /SFLH/SFLR/SRRH/SRRR /SRLH/SRLR	An operating sound of the solenoid (clicking sound) can be heard (does not come on for 2 to 5 seconds).

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TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
	SFRH)		[Vehicle condition] Vehicle stopped Parking brake applied Shift lever is in P (neutral)
VSC/TRC(TRAC) Solenoid	Master cut solenoid (SM1, SM2)	Solenoid SRCF/SRCR /SRMF/SRMR/SMF/SMR /SPFR/SPFL	

*1: for Automatic transmission





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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001DWV04CX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DIAGNOSIS

(a) If the skid control ECU (master cylinder solenoid) detects a malfunction, the ABS and/or BRAKE warning lights and the slip indicator lights come on in accordance with the trouble area to warn the driver.

HINT:

- The DTCs are simultaneously stored in the memory. The DTCs can be read by connecting SST between terminals 13 (TC) and 4 (CG) of the DLC3 and observing the blinking pattern of the ABS warning light and slip indicator light, or by connecting the Techstream.
- This system has a Test Mode sensor signal check function. Test mode DTCs can be read by connecting the Techstream and observing the blinking pattern of the ABS warning light and slip indicator light.

NOTICE:

If parts connected to the IG terminal circuit are damaged due to high voltage, DTCs may not be able to be output from the ABS warning light and slip indicator light by connecting SST to the DLC3. In this case, inspect the IG power source circuit.

2. WARNING LIGHT AND INDICATOR LIGHT CHECK

(a) Release the parking brake.

CAUTION:

When releasing the parking brake, set chocks to hold the vehicle for safety.

HINT:

When the parking brake is applied or the level of the brake fluid is low, the BRAKE warning light comes on.

(b) Check that the ABS warning light, BRAKE warning light and slip indicator light come on when the ignition switch is turned to ON, and go off in approximately 3 seconds.

HINT:

If the indicator remains on or does not come on, proceed to troubleshooting for the light circuit below.

TROUBLE AREA	SEE PAGE
ABS warning light circuit (Remains on)	INFO
ABS warning light circuit (Does not come on)	INFO
BRAKE warning light circuit (Remains on)	INFO
BRAKE warning light circuit (Does not come on)	INFO
Slip indicator light circuit (Remains on)	INFO
Slip indicator light circuit (Does not come on)	INFO

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Last Modified: 11-13-2015	6.6 S	**Doc ID:** RM000001DWQ01ZX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

NOTICE:

When removing any parts, turn the ignition switch off.

HINT:

- If no abnormality is found when inspecting parts, check the skid control ECU and check for poor contact at ground points.
- When 2 or more DTCs are detected, perform each circuit inspection until the problem is identified.
- All DTCs in the table below are detected in accordance with 1 trip detection logic.

DTC Chart of ABS

DTC CODE	DETECTION ITEM	SEE PAGE
C1225	SM Solenoid Circuit	INFO
C1226	SA2 Solenoid Circuit	INFO
C1227	SA3 Solenoid Circuit	INFO
C1228	STR Solenoid Circuit	INFO
C1241	Low Power Supply Voltage Malfunction	INFO
C1242	Open Circuit in IG1/IG2 Power Source Circuit	INFO
C1243	Acceleration Sensor Stuck Malfunction	INFO
C1245	Acceleration Sensor Output Malfunction	INFO
C1251	Open in Pump Motor Circuit	INFO
C1252	Brake Booster Pump Motor on Time Abnormally Long	INFO
C1253	Pump Motor Relay	INFO
C1254	Pressure Sensor or Switch	INFO
C1256	Accumulator Low Pressure	INFO
C1257	Power Supply Drive Circuit	INFO
C1268	Transfer L4 Position Switch Circuit	INFO
C1337	Diameter of the Tire is not Uniform	INFO
C1381	Acceleration Sensor Power Supply Voltage Malfunction	INFO
C1401	Front Speed Sensor RH Malfunction	INFO
C1402	Front Speed Sensor LH Malfunction	INFO
C1403	Rear Speed Sensor RH Malfunction	INFO
C1404	Rear Speed Sensor LH Malfunction	INFO
C1405	Open or Short in Front Speed Sensor RH Circuit	INFO

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DTC CODE	DETECTION ITEM	SEE PAGE
C1406	Open or Short in Front Speed Sensor LH Circuit	INFO
C1407	Open or Short in Rear Speed Sensor RH Circuit	INFO
C1408	Open or Short in Rear Speed Sensor LH Circuit	INFO
C1409	Front Speed Sensor RH Performance	INFO
C1410	Front Speed Sensor LH Performance	INFO
C1411	Rear Speed Sensor RH Performance	INFO
C1412	Rear Speed Sensor LH Performance	INFO
C1413	Front Speed Sensor RH Output Malfunction	INFO
C1414	Front Speed Sensor LH Output Malfunction	INFO
C1415	Rear Speed Sensor RH Output Malfunction	INFO
C1416	Rear Speed Sensor LH Output Malfunction	INFO
C1417	High Power Supply Voltage Malfunction	INFO
C1419	Acceleration Sensor Internal Circuit	INFO
C1420	Acceleration Sensor Malfunction	INFO
C1421	Open or Short in Master Cylinder Pressure Sensor	INFO
C1422	Master Cylinder Pressure Sensor Zero Point High Malfunction	INFO
C1423	Master Cylinder Pressure Sensor Zero Point Low Malfunction	INFO
C1424	Master Cylinder Pressure Sensor Output Malfunction	INFO
C1425	Open in Stop Light Switch Circuit	INFO
C1442	Invalid Data Received from Acceleration Sensor	INFO
C1452	Accumulator Low Pressure	INFO
C1453	Reservoir Level Switch Disconnected	INFO
C1454	Reservoir Level Low	INFO
C1468	SFR Solenoid Circuit	INFO
C1469	SFL Solenoid Circuit	INFO
C146A	SRR Solenoid Circuit	INFO
C146B	SRL Solenoid Circuit	INFO
C146E	Open in ABS Solenoid Relay Circuit	INFO
C146F	Short in ABS Solenoid Relay Circuit	INFO
U0073	Control Module Communication Bus OFF	INFO
U0124	Lost Communication with Lateral Acceleration Sensor Module	INFO

DTC Chart of VSC

DTC CODE	DETECTION ITEM	SEE PAGE

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DTC CODE	DETECTION ITEM	SEE PAGE
43	ABS Control System Malfunction	INFO
C1203	ECM Communication Circuit Malfunction	INFO
C1210	Zero Point Calibration of Yaw Rate Sensor Undone	INFO
C1232	Acceleration Sensor Stuck Malfunction	INFO
C1290	Steering Angle Sensor Zero Point Malfunction	INFO
C1336	Zero Point Calibration of Acceleration Sensor Undone	INFO
C1380	Stop Light Control Relay Malfunction	INFO
C1432	Steering Angle Sensor Power Source Voltage Malfunction	INFO
C1433	Steering Angle Sensor Internal Circuit	INFO
C1434	Steering Angle Sensor Output Malfunction	INFO
C1435	Yaw Rate Sensor Internal Circuit	INFO
C1436	Yaw Rate Sensor Malfunction	INFO
C1437	Lost Communication with ECM	INFO
C1439	Steering Angle Sensor Initialization Incomplete	INFO
C1440	Steering Angle Sensor Unusual Bank Angle Detected	INFO
C1443	Invalid Data Received from Yaw Rate Sensor	INFO
C1445	Vehicle Driven with Steering Angle Sensor not Initialized	INFO
U0100	Lost Communication with ECM / PCM	INFO
U0114	Lost Communication with Four-Wheel Drive Clutch Control Module	INFO
U0123	Lost Communication with Yaw Rate Sensor Module	INFO
U0126	Lost Communication with Steering Angle Sensor Module	INFO

Test Mode DTC Chart of ABS Sensor

DTC CODE	DETECTION ITEM	SEE PAGE
C1271	Low Output Signal of Front Speed Sensor RH (Test Mode DTC)	INFO
C1272	Low Output Signal of Front Speed Sensor LH (Test Mode DTC)	INFO
C1273	Low Output Signal of Rear Speed Sensor RH (Test Mode DTC)	INFO
C1274	Low Output Signal of Rear Speed Sensor LH (Test Mode DTC)	INFO
C1275	Abnormal Change in Output Signal of Front Speed Sensor RH (Test Mode DTC)	INFO
C1276	Abnormal Change in Output Signal of Front Speed Sensor LH (Test Mode DTC)	INFO
C1277	Abnormal Change in Output Signal of Rear Speed Sensor RH (Test Mode DTC)	INFO
C1278	Abnormal Change in Output Signal of Rear Speed Sensor LH (Test Mode DTC)	INFO
C1279	Acceleration Sensor Output Voltage Malfunction (Test Mode DTC)	INFO
C1281	Master Cylinder Pressure Sensor Output Malfunction (Test Mode DTC)	INFO

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DTC CODE	DETECTION ITEM	SEE PAGE
C1282	Center Differential Lock Position Switch	INFO

Test Mode DTC Chart of VSC Sensor

DTC CODE	DETECTION ITEM	SEE PAGE
C1379	Downhill Assist Control Switch Malfunction (Test Mode DTC)	INFO

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001DWW034X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. DTC CHECK / CLEAR (when Using Techstream)

(a) Check for DTCs.

(1) Connect the Techstream to the DLC3.

(2) Turn the ignition switch to ON.

(3) Turn the Techstream on.

(4) Enter the following menus: Chassis / ABS/VSC/ TRAC / Trouble Codes.

(5) Read the DTCs by following the prompts on the Techstream screen.

(b) Clear the DTCs.

(1) Connect the Techstream to the DLC.

(2) Turn the ignition switch to ON.

(3) Turn the Techstream on.

(4) Enter the following menus: Chassis / ABS/VSC/ TRAC / Trouble Codes.

(5) Operate the Techstream to clear the codes.

HINT:

Refer to the Techstream operator's manual for further details.

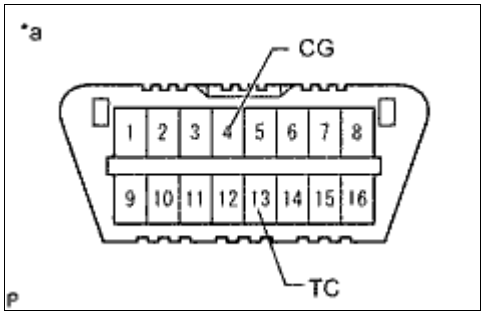
2. DTC CHECK / CLEAR (when Using SST Check Wire)

(a) Check for DTCs.

(1) Turn the ignition switch off.

(2) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040



Text in Illustration

*a	Front view of DLC3

(3) Turn the ignition switch to ON.

(4) Read the DTCs output from the ABS warning light and slip indicator light in the combination meter.

HINT:

- When the system is operating correctly, each light will blink continuously in a pattern of 0.25 seconds on, then 0.25 seconds off.
- When one DTC is output, each light will output the same code at 4 second intervals. (For example, Code 21 would be output as 2 flashes, a 1.5 second pause, and then 1 flash)
- When 2 or more DTCs are output, each light will output a different code at 2.5 second intervals, and when all codes have been output, there will be a 4 second pause and the sequence will repeat.

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- When multiple codes are set, they are output in order starting with the lowest DTC number.
- If no code is output, inspect the TC and CG terminal circuit and the ABS warning light and slip indicator light circuits.

TROUBLE AREA	SEE PAGE
TC and CG terminal circuit	INFO
ABS warning light circuit (Remains on)	INFO
ABS warning light circuit (Does not come on)	INFO
Slip indicator light circuit (Remains on)	INFO
Slip indicator light circuit (Does not come on)	INFO

(5) The codes are explained in the code table.

ABS DTC

ABS WARNING LIGHT DISPLAY	TECHSTREAM DISPLAY
11	C146E
12	C146F
21	C1468
22	C1469
23	C146A
24	C146B
25	C1225
26	C1226
27	C1227
28	C1228
31	C1401
	C1405
	C1409
32	C1402
	C1406
	C1410
33	C1403
	C1407
	C1411
34	C1404
	C1408
	C1412
35	C1413
36	C1414

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ABS WARNING LIGHT DISPLAY	TECHSTREAM DISPLAY
37	C1337
38	C1415
39	C1416
41	C1241
	C1417
42	C1242
43	C1243
44	C1419
	C1420
	C1442
45	C1245
46	C1421
	C1422
	C1423
	C1424
	C1455
	C1456
	C1457
	C1458
49	C1425
51	C1251
52	C1252
53	C1253
54	C1254
56	C1256
	C1452
57	C1257
58	C1453
	C1454
68	C1268
94	U0073
95	U0124
97	C1381
98	C1336
A1*	U0114

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*: The light blinks 10 times, turns off for 1.5 seconds, and then blinks once.

VSC DTC

SLIP INDICATOR LIGHT DISPLAY	TECHSTREAM DISPLAY
31	C1432
	C1433
	C1434
32	C1232
34	C1435
	C1436
	C1443
36	C1210
43*	-
53	C1203
62	U0123
63	U0126
64	C1380
65	C1437
	U0100
66	C1290
	C1439
	C1445
98	C1440

*: This DTC is output when the VSC system detects a malfunction in the ABS.

(6) Disconnect terminals 13 (TC) and 4 (CG) of the DLC3.

If 2 or more DTCs are output at the same time, the DTCs are output in ascending order.

(b) Clear the DTCs.

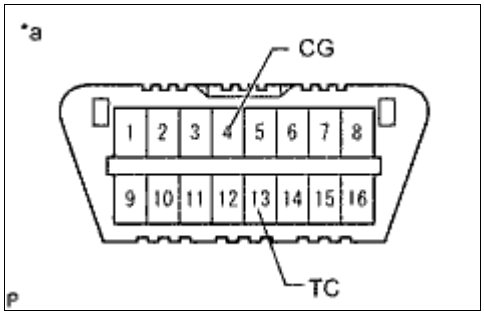
(1) Turn the ignition switch off.

(2) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040

Text in Illustration

*a	Front view of DLC3



(3) Turn the ignition switch to ON.

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(4) Clear the DTCs stored in the ECU by depressing the brake pedal 8 times or more within 5 seconds.

(5) Check that the ABS warning light and slip indicator light blink at 0.25 second intervals (0.25 seconds on and 0.25 seconds off).

(6) Remove SST from the terminals of the DLC3.

3. END OF DTC CHECK/CLEAR

(a) Turn the ignition switch to ON.

(b) Check that the ABS warning light and slip indicator light go off within approximately 3 seconds.

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000001DX004EX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): FAIL-SAFE CHART; 2016 MY Tacoma [08/2015 -]		

FAIL-SAFE CHART

1. FAIL SAFE OPERATION

- If there is a problem with any sensor signals or hydraulic brake booster systems, the skid control ECU prohibits the power supply to the actuator in the hydraulic brake booster and informs the ECM of VSC system failure.

  The hydraulic brake booster turns off each solenoid and the ECM shuts off the VSC control (traction control signal) from the skid control ECU accordingly, which turns out to be as if the ABS, TRAC, A-TRAC and VSC systems were not installed.

  The ABS control is prohibited, but EBD control continues as far as possible. If EBD control is impossible, the BRAKE warning light comes on to warn the driver INFO .
- If system components have any malfunctions before starting control, immediately stop the operation.

  If system components have any malfunctions during control, gradually stop the control so as not to trigger a sudden change in vehicle conditions.

  If it is impossible to control the systems, the warning light comes on to inform the driver of the termination of the systems INFO .
- VSC control continues as much as possible while the TRAC OFF indicator light is on even when the engine has failed.

HINT:

If the hydraulic brake booster encounters a malfunction, brake performance is gradually lost and ABS, BA, TRAC, A-TRAC, VSC, AUTO LSD, hill-start assist control, Crawl Control and multi-terrain select controls are prohibited.

(a) ABS, EBD and BA system:

HINT:

If the ABS, BA or EBD system malfunctions, the following controls are prohibited as shown in the table below.

MALFUNCTION AREA	CONTROL METHOD
ABS system	ABS, BA, TRAC, A-TRAC, VSC, AUTO LSD control, hill-start assist, CRAWL and multi-terrain select control are prohibited.
BA system	ABS, BA, TRAC, A-TRAC, VSC, AUTO LSD control, hill-start assist, CRAWL and multi-terrain select control are prohibited.
EBD system	ABS, BA, EBD, TRAC, A-TRAC, VSC, AUTO LSD control, hill-start assist, CRAWL and multi-terrain select control are prohibited.

(b) TRAC, A-TRAC, VSC, AUTO LSD, hill-start assist control and CRAWL system:

HINT:

If TRAC, A-TRAC, VSC, AUTO LSD, hill-start assist control and/or CRAWL malfunction, the following controls

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are prohibited as shown in the table below.

MALFUNCTION AREA	CONTROL METHOD
Engine control system (TRAC and A-TRAC systems)	Before control: Disables control During control: Uses only brakes to effect control
Brake control system (VSC system)	Before control: Disables control During control: Uses only brakes to effect control
Brake control system (TRAC, A-TRAC, AUTO LSD, hill-start assist control and CRAWL systems)	Before control: Disables control During control: Disables control (by gradually ending control)

2. SYSTEM TEMPERATURE PROTECTION OPERATION

If TRAC, A-TRAC, AUTO LSD, CRAWL or Hill-Start Assist Control system has been used constantly for a long time, the temperature of the hydraulic brake booster, may increase excessively. If the temperature increases excessively, the VSC warning buzzer sounds intermittently. If the temperature increases more, the VSC warning buzzer sounds for 3 seconds repeatedly and the indicator light either comes on or blinks.

SYSTEM	INDICATOR CONDITION
TRAC, A-TRAC and hill-start assist control systems	TRAC OFF indicator light comes on Slip indicator light comes on
AUTO LSD system	Slip indicator light comes on AUTO LSD indicator light stays on
CRAWL system	TRAC OFF indicator light comes on CRAWL indicator light blinks and then turns off





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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): FREEZE FRAME DATA; 2016 MY Tacoma [08/2015 -]		

FREEZE FRAME DATA

1. FREEZE FRAME DATA

HINT:

- Whenever a DTC is detected or the ABS operates, the skid control ECU stores the current vehicle (sensor) state as freeze frame data.
- The skid control ECU stores the number of times (maximum: 31) the ignition switch has been turned from OFF to ON since the last time the ABS was activated. However, if the vehicle was stopped or at low speed (4.3 mph (7 km/h) or less), or if a DTC is detected, the skid control ECU will not count the number after that.
- Freeze frame data at the time the ABS operates: The skid control ECU stores and updates the data whenever the ABS system operates. When the ECU stores data at the time a DTC is detected, the data stored when the ABS operated is erased.
- Freeze frame data at the time a DTC is detected: When the skid control ECU stores data at the time a DTC is detected, no updates will be performed until the data is cleared.

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Check the freeze frame data by following the prompts on the Techstream display.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Elapsed Time after Freeze Trigger	Elapsed time after freeze trigger/ Min.: 0 msec, Max.: 500 msec	-	-
Number of IG ON	Number of times ignition switch turned to ON after storing freeze frame data/ 0 to 31	-	-
Buzzer	VSC warning buzzer/ ON or OFF	ON: Buzzer on OFF: Buzzer off	-
Stop Light SW	Stop light switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
Parking Brake SW	Parking brake switch/ ON or OFF	ON: Parking brake applied OFF: Parking brake released	-
Reservoir Warning SW	Brake fluid level warning switch/ ON or OFF	OFF	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Gear Position	Gear position information/ P/N, R, 1st-8th, Fail or Not R	Actual gear position	-
Shift Lever Position	Shift lever position information/ P/N, R, D/M, 1st-6th/B or Fail	Actual shift lever position	-
Operated System	Operated system status/ ABS, VSC, TRAC, BA, HAB, Fail, Sys or Non	-	ABS: ABS is activated. VSC: VSC is activated. TRAC: TRAC is activated. BA: BA is activated. HAB: HAB is activated. Fail: Fail safe mode is activated. Sys: System prohibit is activated. Non: No operation is activated.
Master Cylinder Sensor	Master cylinder pressure sensor reading/ Min.: 0.00 V, Max.: 5.00 V	0.3 to 0.9 V: When brake pedal released	The value increases when the brake pedal is depressed.
M/C Sensor Grade	Master cylinder pressure sensor change/ Min.: -30 MPa/s, Max.: 225 MPa/s	0 MPa/s: When brake pedal released or pedal held at constant position	Changes in proportion with the pedal movement speed when the brake pedal is being operated.
Yaw Rate Sensor	Yaw rate and acceleration sensor/ Min.: -128°/s, Max.: 127°/s	0°/s: Vehicle stopped -128 to 0°/s: Turning right 0 to 127°/s: Turning left	-
Lateral G	Lateral G/ Min.: -25.10 m/s^2, Max.: 24.90 m/s^2	-	Changes in proportion with the pedal movement speed when the brake pedal is being operated.
Forward and Rearward G	Forward and backward G/ Min.: - 25.10 m/s^2, Max.: 24.90 m/s^2	-	Changes in proportion with acceleration during acceleration/deceleration.
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
Vehicle Speed Grade	Vehicle acceleration/ Min.: -25.10 m/s^2 , Max.: 24.90 m/s^2	0 m/s^2 : Vehicle stopped	Changes in proportion with the vehicle acceleration/deceleration during driving.
FR Wheel Direction	Front wheel RH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
FL Wheel Direction	Front wheel LH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
RR Wheel Direction	Rear wheel RH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
RL Wheel Direction	Rear wheel LH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
Real Engine Torque	Actual engine torque/ Min.: -1024.0 Nm, Max.: 1023.0 Nm	-	-
Accelerator Opening Angle %	Throttle valve opening amount/ Min.: 0.0%, Max.: 127.0%	0%: When accelerator pedal released	Changes in proportion with the movement of the pedal during accelerator pedal operation.
Inspection Mode	Inspection mode/ Other or Inspect	Other: Normal mode Inspect: Inspection mode	-
Steering Angle Sensor	Steering angle sensor/ Min.: -3276.8°, Max.: 3276.7°	Left turn: Increase Right turn: Decrease	-
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRC OFF or VSC OFF	Normal: Normal mode TRC OFF: TRAC off mode VSC OFF: VSC off mode	-

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Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

Techstream can be used in steps 3, 6, 9 and 12.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**CUSTOMER PROBLEM ANALYSIS**

NEXT

3.	**CHECK AND CLEAR DTCS AND FREEZE FRAME DATA**

NEXT

4.	**PROBLEM SYMPTOM CONFIRMATION**

NEXT

5.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check for output DTCs.

HINT:

The ECM of this system is connected to the CAN communication system. Therefore, before starting troubleshooting, be sure to check that there is no trouble in the CAN communication system.

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RESULT	PROCEED TO
CAN communication system DTC not output	A
CAN communication system DTC output	B

B ▶ **CAN COMMUNICATION SYSTEM**

A
▼

6.	**CHECK AND CLEAR DTCS**

NEXT
▼

7.	**PROBLEM SYMPTOM SIMULATION**

RESULT	PROCEED TO
Symptom does not occur	A
Symptom occurs	B

B ▶ **GO TO STEP 9**

A
▼

8.	**SYMPTOM SIMULATION**

NEXT
▼

9.	**CHECK DTCS (OTHER THAN CAN SYSTEM DTCS)**

RESULT	PROCEED TO

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RESULT	PROCEED TO
DTC not output	A
DTC output	B

B ▶ **GO TO STEP 11**

A
▼

10.	**PROBLEM SYMPTOMS TABLE**

NEXT ▶ **GO TO STEP 12**

11.	**DTC CHART**

NEXT
▼

12.	**CIRCUIT INSPECTION**

NEXT
▼

13.	**PROBLEM IDENTIFICATION**

NEXT
▼

14.	**REPAIR OR REPLACE**

NEXT

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15.	**CONFIRMATION TEST**

NEXT **END**

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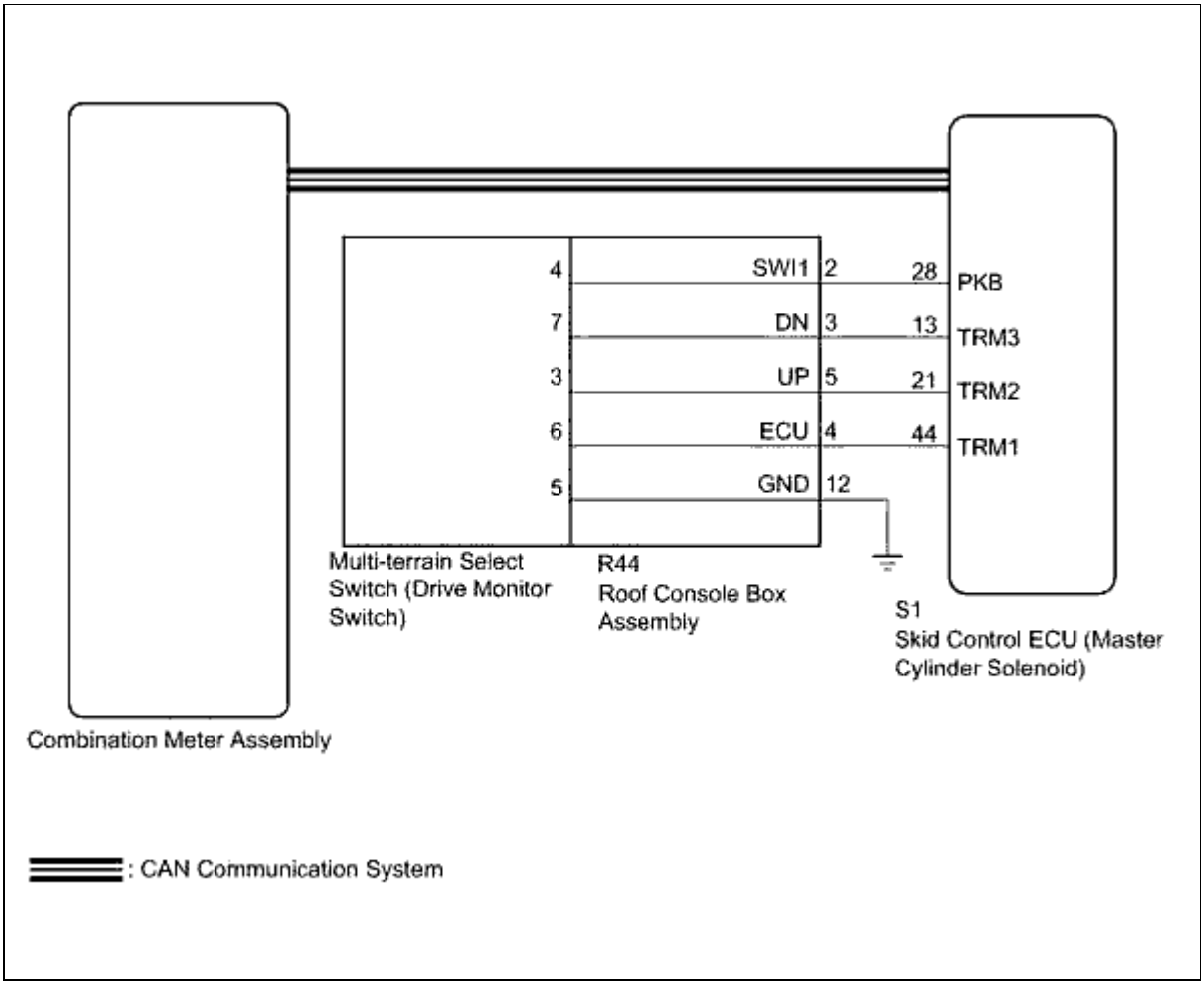
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM0000045Z701GX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Multi-terrain Select Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

Multi-terrain Select Indicator Light Remains ON

DESCRIPTION

Refer to Multi-terrain Select Indicator Light does not Come ON INFO .

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

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1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**CHECK DTC**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▼

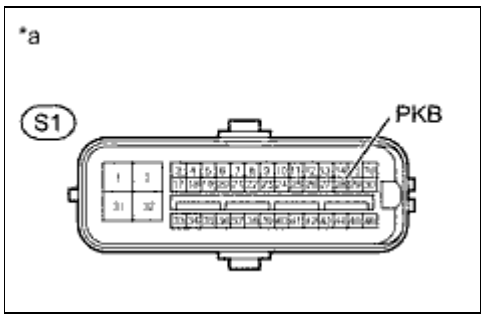
3.	**INSPECT SKID CONTROL ECU (PKB TERMINAL)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-28 (PKB) - Body ground	Multi-terrain select switch not pushed in	10 kΩ or higher
	Multi-terrain select switch pushed in	Below 1 Ω



Text in Illustration

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*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(c) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

NG ▶ **GO TO STEP 5**

OK ▼

4.	**REPLACE COMBINATION METER ASSEMBLY**

(a) Replace the combination meter assembly a new one.

OK:
The multi-terrain select indicator light turns on or off in accordance with the switch operation.

NG ▶ **END**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

5.	**INSPECT DRIVE MONITOR SWITCH**

(a) Remove the multi-terrain select switch (drive monitor switch) INFO .

(b) Inspect the multi-terrain select (drive monitor switch) INFO .

NG ▶ **REPLACE DRIVE MONITOR SWITCH**

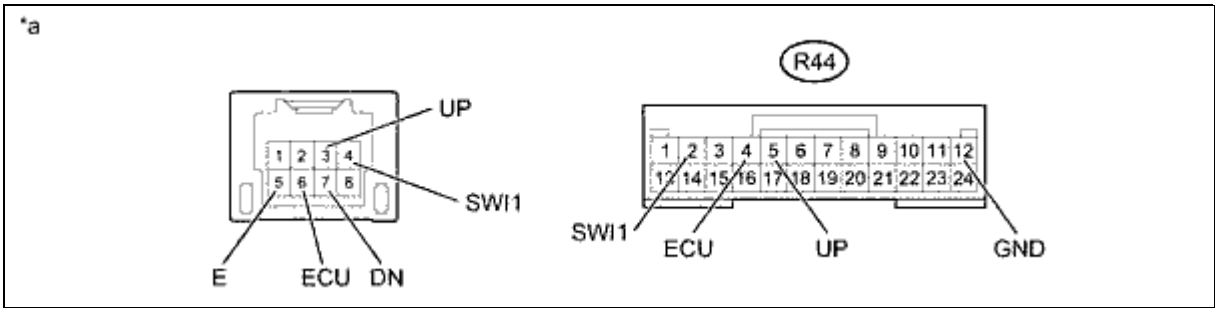
OK ▼

6.	**INSPECT ROOF CONSOLE BOX ASSEMBLY**

(a) Remove the roof console box assembly.

for Double Cab: INFO
for Access Cab: INFO

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Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-2 (SWI1) - 4	Always	Below 1 Ω
R44-3 (DN) - 7	Always	Below 1 Ω
R44-4 (ECU) - 6	Always	Below 1 Ω
R44-5 (UP) - 3	Always	Below 1 Ω
R44-12 (GND) - 5	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM0000045Z801GX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Multi-terrain Select Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

Multi-terrain Select Indicator Light does not Come ON

DESCRIPTION

When the transfer gear position is L4, the multi-terrain select indicator light illuminates and control begins.

Under any of the following conditions, the multi-terrain select system does not begin control and the multi-terrain select indicator light does not illuminate.

- The vehicle is in the VSC/TRAC OFF state.
- Crawl Control is operating.
- There is a malfunction in the VSC system.

WIRING DIAGRAM

Refer to Crawl Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**CHECK DTC** INFO

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

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A

3.	INSPECT SKID CONTROL ECU (PKB TERMINAL) INFO

NG ▶ GO TO STEP 5

OK

4.	REPLACE COMBINATION METER ASSEMBLY INFO

NG ▶ REPLACE MASTER CYLINDER SOLENOID

OK ▶ END

5.	INSPECT DRIVE MONITOR SWITCH INFO

NG ▶ REPLACE DRIVE MONITOR SWITCH

OK

6.	INSPECT ROOF CONSOLE BOX ASSEMBLY INFO

B ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

C ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

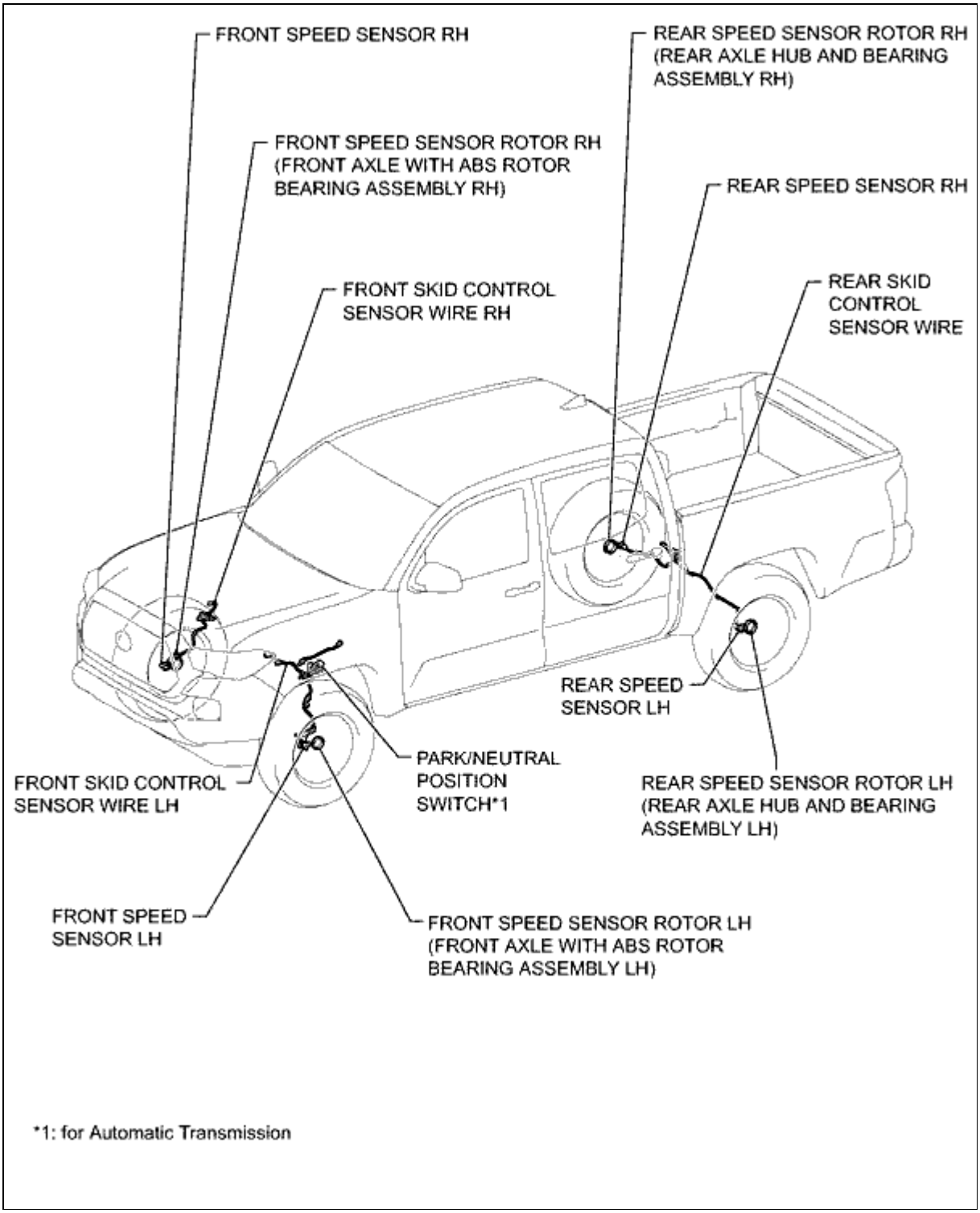
A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)

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Last Modified: 11-13-2015	6.6 R	**Doc ID:** RM000001DWR022X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

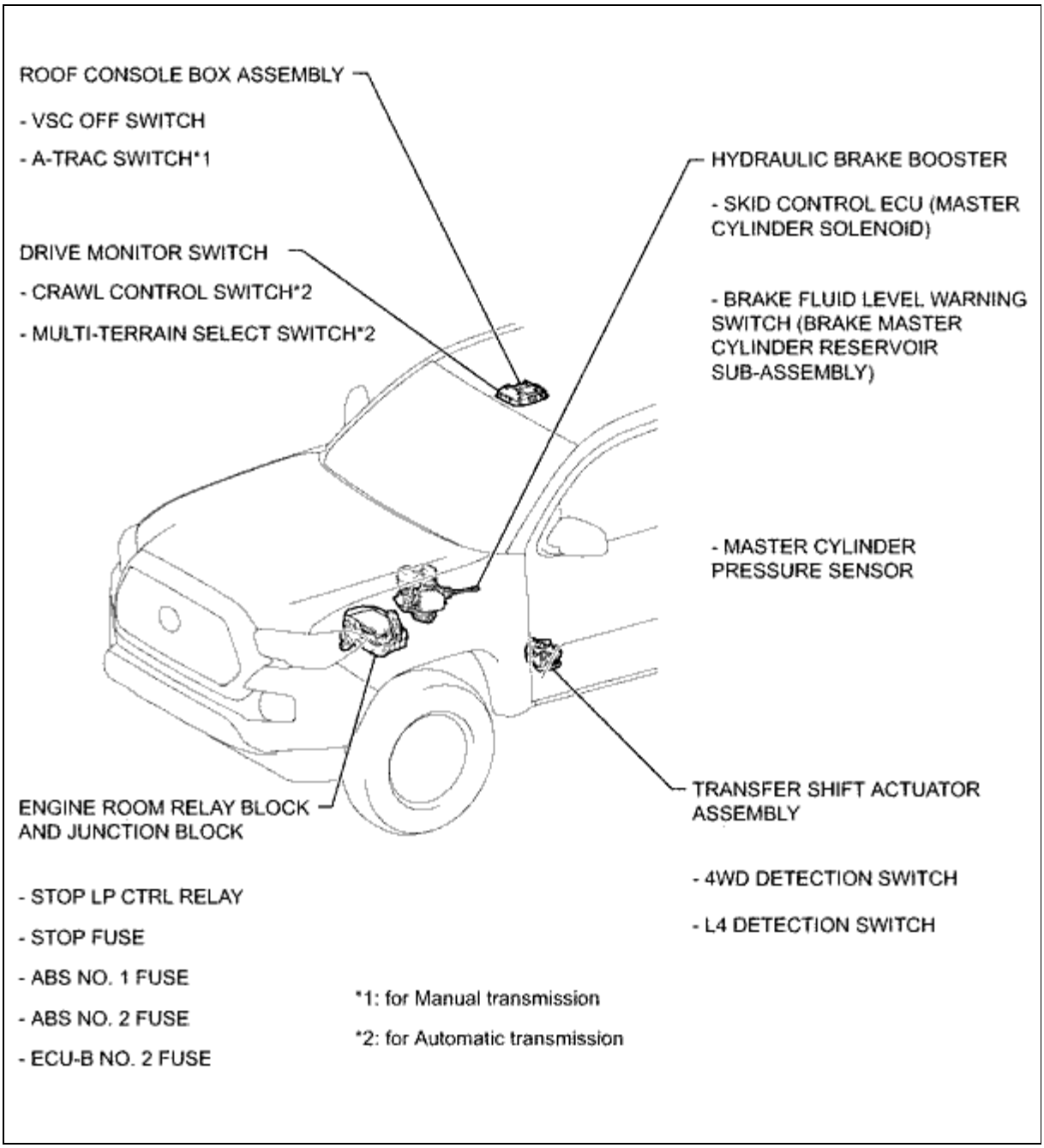
PARTS LOCATION

ILLUSTRATION



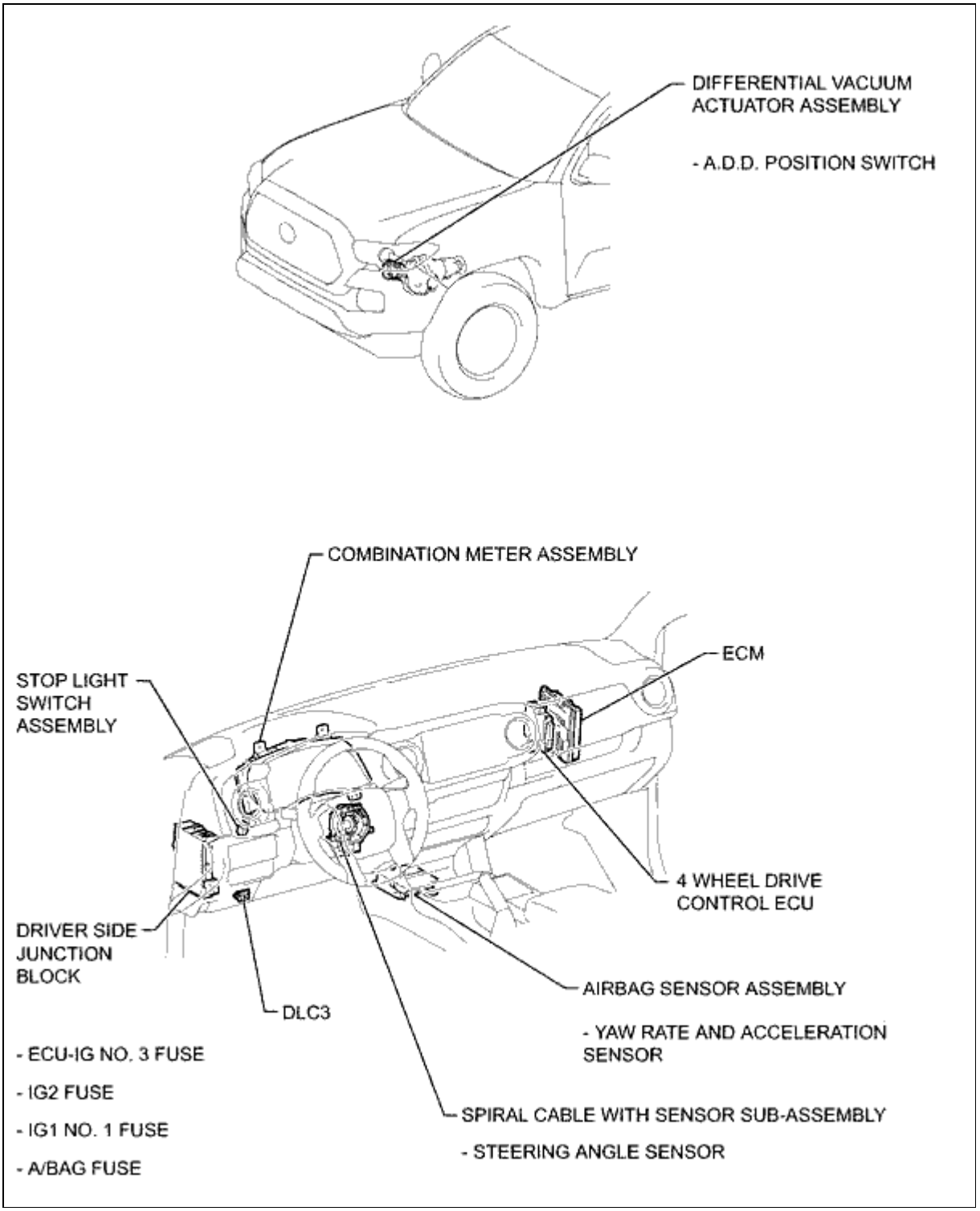
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ILLUSTRATION



ILLUSTRATION

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Last Modified: 11-13-2015	6.6 L	**Doc ID:** RM000001DWO03SX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. IGNITION SWITCH EXPRESSION

(a) The type of ignition switch used on this model differs depending on the specifications of the vehicle. The expressions listed in the table below are used in this section.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	LOCK	Off (Lock)
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	On	On (IG)
Engine Start	START	On (Start)

2. TROUBLESHOOTING PRECAUTIONS

- When there is a malfunction in the contact point of the terminals or installation problems with parts, removal and reinstallation of the suspected problem parts may return the system to its normal condition either completely or temporarily.
- In order to determine the location of the malfunction, be sure to check the engine conditions at the time the malfunction occurred, through data such as DTC and freeze frame data outputs. Record this information before disconnecting any connectors and removing or installing any parts.
- Since the Vehicle Stability Control system may be influenced by malfunctions in other systems, be sure to check for DTCs in other systems.
- Be sure to remove and reinstall the hydraulic brake booster and each sensor with the ignition switch OFF unless specified in the inspection procedure.
- When removing and installing the hydraulic brake booster and each sensor, be sure to check that the normal display is output during a test mode inspection and a DTC output inspection after reinstalling all the parts.
- After replacing the skid control ECU (master cylinder solenoid) and/or the yaw rate and acceleration sensor (airbag sensor assembly), be sure to perform the yaw rate sensor and acceleration sensor zero point calibration INFO .
- The CAN communication system is used for communication between the skid control ECU (master cylinder solenoid), steering angle sensor (spiral cable sub-assembly), yaw rate and acceleration sensor (airbag sensor assembly) and other ECUs.
- If there is trouble in the CAN communication line, the DTC relating to the communication line is output. If a DTC relating to the CAN communication line is output, repair the malfunction in the communication line and troubleshoot the Vehicle Stability Control system.
- Since the CAN communication line has a specific length and route, it cannot be repaired temporarily with a bypass wire.

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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM000001DWT021X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), sensor or etc., turn the ignition switch to off.

Vehicle Stability Control System

SYMPTOM	SUSPECTED AREA	SEE PAGE
ABS, BA and/or EBD does not operate	Check for DTCs again and make sure that normal system code displayed.	INFO
	IG power source circuit	INFO
	Speed sensor circuit	INFO
		INFO
	Check hydraulic brake booster using Techstream (Check hydraulic brake booster operation using active test function) If abnormal, check hydraulic circuit for leakage	INFO
	If symptoms still occur even after above circuits in suspected areas inspected and proved to be normal, replace master cylinder solenoid.	INFO
ABS, BA and/or EBD does not operate efficiently	Check for DTCs again and make sure that normal system code displayed.	INFO
	Speed sensor circuit	INFO
		INFO
	Stop light switch circuit	INFO
	Check hydraulic brake booster using Techstream (Check hydraulic brake booster operation using active test function) If abnormal, check hydraulic circuit for leakage	INFO
	If symptoms still occur even after above circuits in suspected areas inspected and proved to be normal, replace master cylinder solenoid.	INFO
VSC and/or TRC does not operate	Check for DTCs again and make sure that normal system code displayed.	INFO
	IG power source circuit	INFO
	Check hydraulic circuit for leakage	-
	Speed sensor circuit	INFO
		INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Yaw rate and acceleration sensor circuit	INFO
	Steering angle sensor circuit	INFO
	VSC OFF switch circuit	INFO
	If symptoms still occur even after above circuits in suspected areas inspected and proved to be normal, replace master cylinder solenoid.	INFO
Sensor signal check cannot be performed	TS and CG terminal circuit	INFO
	Master cylinder solenoid	INFO
DTC check cannot be performed	Check for DTCs again and make sure that normal system code displayed.	INFO
	TC terminal circuit	INFO
	If symptoms still occur even after above circuits in suspected areas inspected and proved to be normal, replace master cylinder solenoid.	INFO
ABS warning light remains on	ABS warning light circuit	INFO
	Master cylinder solenoid	INFO
ABS warning light does not come on	ABS warning light circuit	INFO
	Master cylinder solenoid	INFO
BRAKE warning light remains on	BRAKE warning light circuit	INFO
	Master cylinder solenoid	INFO
BRAKE warning light does not come on	BRAKE warning light circuit	INFO
	Master cylinder solenoid	INFO
TRAC OFF indicator light remains on	TRAC OFF indicator light circuit	INFO
	Master cylinder solenoid	INFO
TRAC OFF indicator light does not come on	TRAC OFF indicator light circuit	INFO
	Master cylinder solenoid	INFO
VSC OFF indicator light remains on	VSC OFF indicator circuit	INFO
	Master cylinder solenoid	INFO
VSC OFF indicator light does not come on	VSC OFF indicator circuit	INFO
	Master cylinder solenoid	INFO
AUTO LSD indicator light remains on	AUTO LSD indicator circuit	INFO
	Master cylinder solenoid	INFO
AUTO LSD indicator light does not come on	AUTO LSD indicator circuit	INFO
	Master cylinder solenoid	INFO
Slip indicator light remains on	Slip indicator light circuit	INFO
	Master cylinder solenoid	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
Slip indicator light does not come on	Slip indicator light circuit	INFO
	Master cylinder solenoid	INFO
A-TRAC indicator light remains on*1	A-TRAC indicator light circuit	INFO
	Master cylinder solenoid	INFO
A-TRAC indicator light does not come on*1	A-TRAC indicator light circuit	INFO
	Master cylinder solenoid	INFO
Crawl indicator light abnormal (Remains on)*2	Crawl indicator light circuit	INFO
	Master cylinder solenoid (skid control ECU)	INFO
Crawl indicator light abnormal (Does not come on)*2	Crawl indicator light circuit	INFO
	Master cylinder solenoid (skid control ECU)	INFO
Multi-terrain select indicator light abnormal (Remains on)*2	Multi-terrain select indicator light circuit	INFO
	Master cylinder solenoid	INFO
Multi-terrain select indicator light abnormal (Does not come on)*2	Multi-terrain select indicator light circuit	INFO
	Master cylinder solenoid	INFO
VSC warning buzzer abnormal	VSC warning buzzer circuit	INFO
	Master cylinder solenoid	INFO

*1: for Manual Transmission
*2: for Automatic Transmission

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001DWU01WX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. SYSTEM DESCRIPTION

HINT:

The skid control ECU is built into the hydraulic brake booster.

(a) ABS (Anti-lock Brake System)

The ABS helps prevent the wheels from locking when the brakes are applied firmly or when braking on a slippery surface.

(b) Multi-terrain Anti-lock Brake System (Multi-terrain ABS)

This function detects off-road driving in sand, mud, gravel, dirt and so on based on signals from the yaw rate and acceleration sensor, the speed sensor and the ECM, and then automatically switches to the ABS control most appropriate for the current road conditions.

(c) EBD (Electronic Brake force Distribution)

The EBD control utilizes ABS, realizing proper brake force distribution between the front and rear wheels in accordance with the driving conditions.

In addition, when braking while cornering, it also controls the brake forces of the right and left wheels, helping to maintain the vehicle stability.

(d) VSC (Vehicle Stability Control)

The VSC system helps prevent the vehicle from slipping sideways as a result of strong front wheel skid or strong rear wheel skid during cornering.

(e) TRAC (Traction Control)

The TRAC system helps prevent the drive wheels from slipping if the driver presses down on the accelerator pedal excessively when starting off or accelerating on a slippery surface.

HINT:

The TRAC system operates when H2 (2WD) mode is selected.

(f) A-TRAC (Active Traction Control)

During rugged off-road driving, this function controls the brake fluid pressure that is applied to slipping wheels, and distributes the drive force that would have been lost through the slippage to the remaining wheels in order to achieve an LSD (Limited Slip Differential) effect. As a result, the vehicle's off-road drivability and ability to free itself from ruts have been increased.

HINT:

The A-TRAC system operates when L4 (Low speed 4WD) mode is selected.

(g) AUTO-LSD (Auto Limited Slip Differential)

When the vehicle is in H2 (2WD) mode, the AUTO LSD will operate with the VSC OFF switch on (TRAC OFF mode (AUTO LSD control)) and the accelerator pedal depressed.

the AUTO LSD will operate with the VSC OFF switch on (TRAC OFF mode (AUTO LSD control)) and the accelerator pedal depressed. The AUTO LSD system is used to apply brake pressure and limit differential slippage, thus transmitting drive torque to the other drive wheel to ensure traction when starting under the

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following conditions:

- One of the drive wheels spins, for example, when one drive wheel is driven off of the pavement.
- One of the drive wheels slips on snow/ice when starting on a slope.

HINT:

The AUTO LSD system operates when H2 (2WD) mode is selected.

(h) Hill-start Assist Control

When the vehicle starts off on a steep hill, hill-start assist control detects the backward descent of the vehicle and effects 4-wheel hydraulic pressure control to reduce the speed of the vehicle.

For a Maximum of 5 seconds after the control starts, fluid pressure is gradually released and the control is complete.

HINT:

Depressing the brake pedal cancels control of the hill-start assist control system.

Does not operate when the shift lever in P or N, or when the vehicle is running/rolling back up a slope with the shift lever in R.

(i) Crawl (Crawl Control)

Crawl control is a system that provides assistance when driving on bumpy off-road surfaces, slippery road surfaces, etc. When crawl control is operating, the engine output and braking force are controlled automatically to enable driving while maintaining a constant speed. As a result, the driver can concentrate on steering the vehicle without having to operate the accelerator and brake pedals very much.

(j) Multi-terrain Select Control

When multi-terrain select control is active, A-TRAC brake control and engine output control most appropriate for the selected road mode are performed automatically. In this way, superior off-road driveability is achieved.

(k) Trailer Sway Control

If the vehicle is towing a trailer with an inappropriate hitch load, trailer sway could be caused by crosswinds, imbalance caused by the load, or the driver's steering. Trailer sway control reduces trailer sway by controlling the engine output and the braking of each wheel.

2. FUNCTION OF COMPONENTS

COMPONENTS	FUNCTION
Speed sensor	Detects wheel speed of each wheel.
Hydraulic brake booster	Upon receiving brake control signal from skid control ECU (master cylinder solenoid), controls hydraulic circuit and sends hydraulic pressure to each wheel. Skid control ECU (master cylinder solenoid) removable.
Skid control ECU (Master cylinder solenoid)	Detects vehicle condition based on signals from sensors and sends brake control signal to hydraulic brake booster.
Motor relay	Supplies power source to pump motor.
Solenoid relay	Supplies power source to each solenoid.
ABS warning light	Illuminates to inform driver that skid control ECU (master cylinder solenoid) has detected ABS system malfunction and terminated ABS system operation.
BRAKE warning light	Illuminates to inform driver that skid control (master cylinder solenoid) ECU has detected EBD system malfunction.

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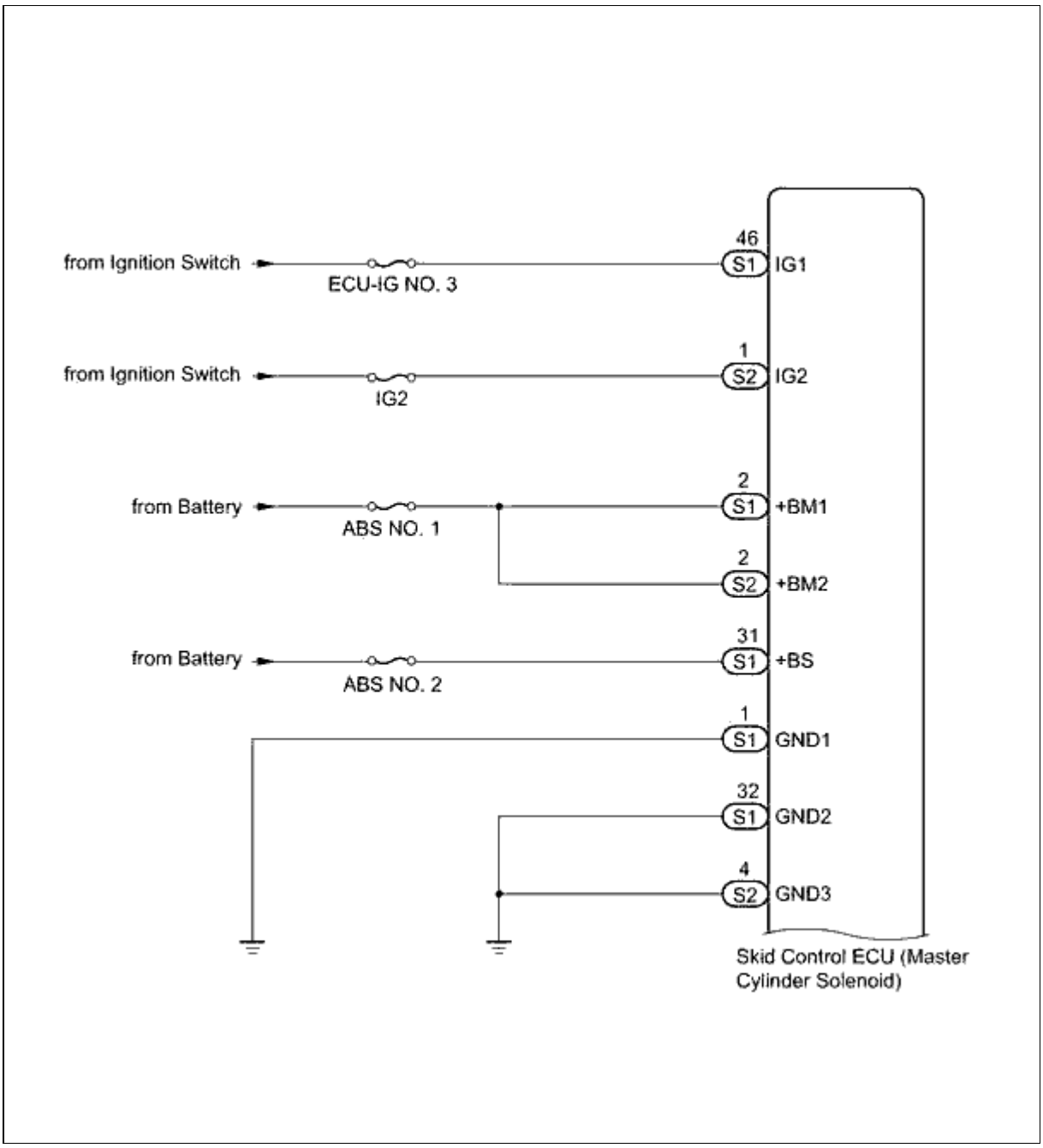
COMPONENTS	FUNCTION
VSC OFF indicator light	Illuminates when vehicle is in VSC OFF mode.
TRAC OFF indicator light	Illuminates when vehicle is in TRAC OFF mode.
A-TRAC indicator light	Illuminates to inform driver that A-TRAC is ready to operate.
Slip indicator light	• Blinks to inform driver that TRAC, VSC and AUTO LSD in operation. • Illuminates to inform driver that skid control ECU (master cylinder solenoid) has detected VSC system malfunction.
Crawl indicator light (for Automatic transmission)	Illuminates to inform the driver that crawl control is ready to operate.
Multi-terrain select indicator light (for Automatic transmission)	Illuminates to inform the driver that multi-terrain select control is ready to operate.
Multi-terrain select indicator (for Automatic transmission)	Displays the selected road surface mode.
Multi-information display (for Automatic transmission)	Displays multi-terrain select operation assist messages.
	Informs the driver of the status of the crawl control operation.
VSC OFF switch	Operation of VSC OFF switch changes vehicle from normal mode to TRAC OFF mode to VSC OFF mode. • During normal mode, pressing VSC OFF switch for short amount of time changes vehicle to TRAC OFF mode. • When vehicle is stopped, pressing VSC OFF switch for 3 seconds or more changes vehicle to VSC OFF.
Crawl control switch (for Automatic transmission)	The ON/OFF switch of the crawl control switch turns crawl control on and off and the speed selector switch of the crawl control switch changes the control mode.
Multi-function switch (for Automatic transmission)	Changes the display on the multi-information display.
	Turns multi-terrain select control on and off.
	Selects the road surface mode for multi-terrain select.
A-TRAC switch	Allows driver to turn A-TRAC on and off.
Yaw rate and acceleration sensor (Airbag sensor assembly)	Detects vehicle's yaw rate and acceleration and sends signal to skid control ECU (master cylinder solenoid).
Master cylinder pressure sensor	Built into hydraulic brake booster. Detects pressure inside master cylinder.
Accumulator pressure sensor	Built into master cylinder solenoid and detects accumulator pressure.
Steering angle sensor (Spiral cable with sensor sub-assembly)	Detects steering wheel's steering angle and amount of movement, then sends signal to skid control ECU (master cylinder solenoid).
ECM	• Sends sensor signals (throttle opening angle, engine rpm) to skid control ECU (master cylinder solenoid). • Engine controlled based on traction control signal from skid control ECU (master cylinder solenoid).

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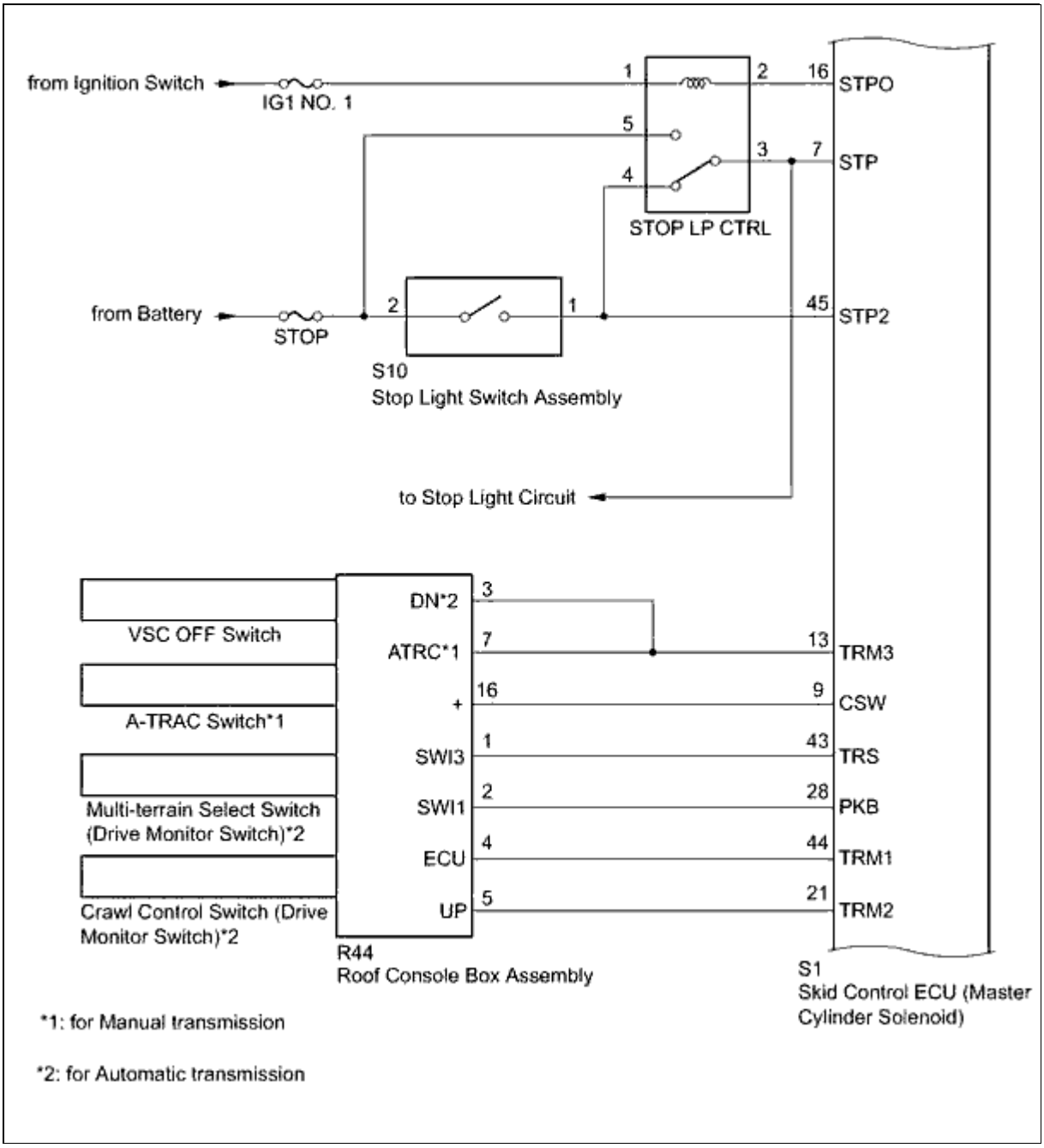
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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

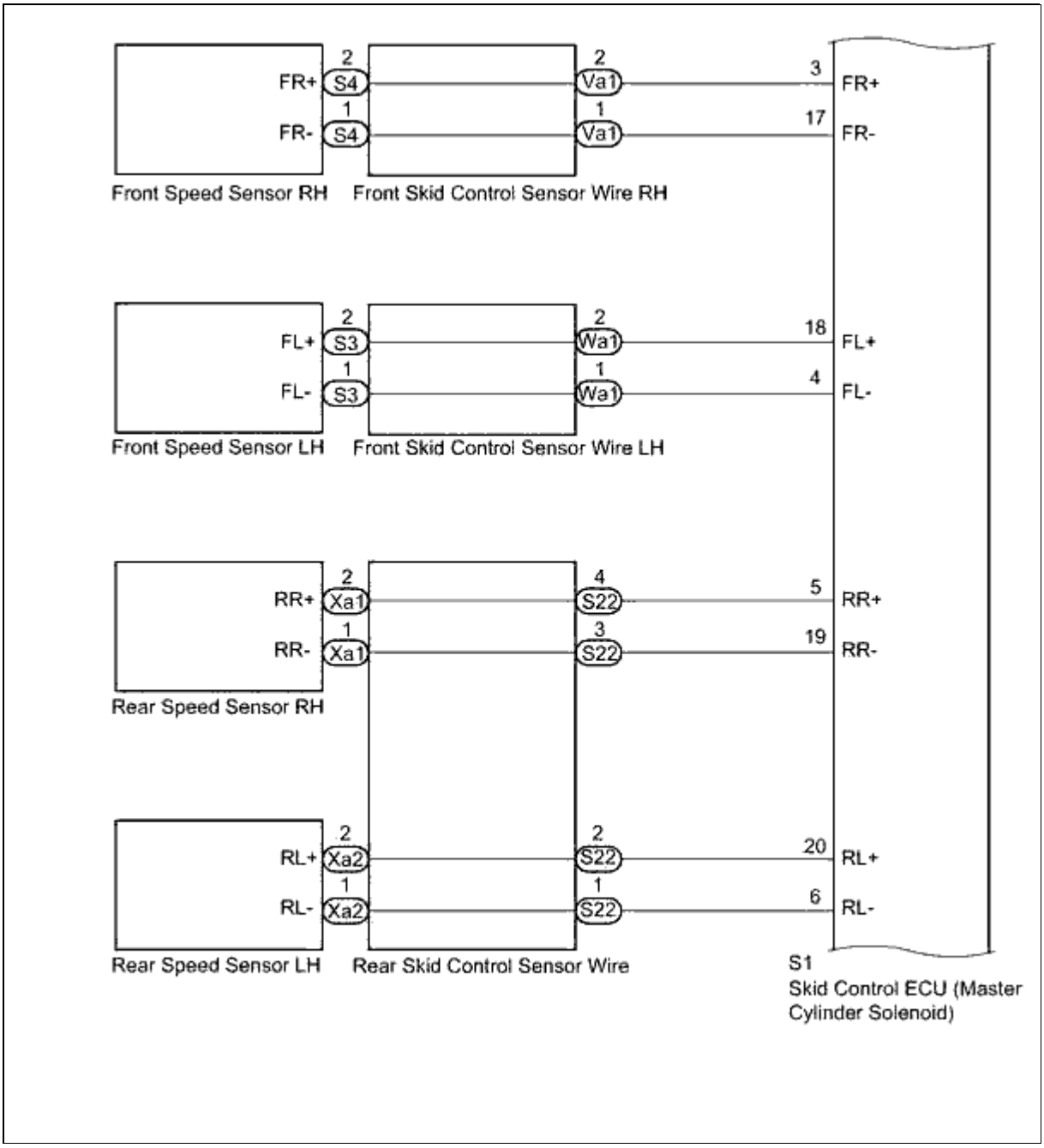
SYSTEM DIAGRAM



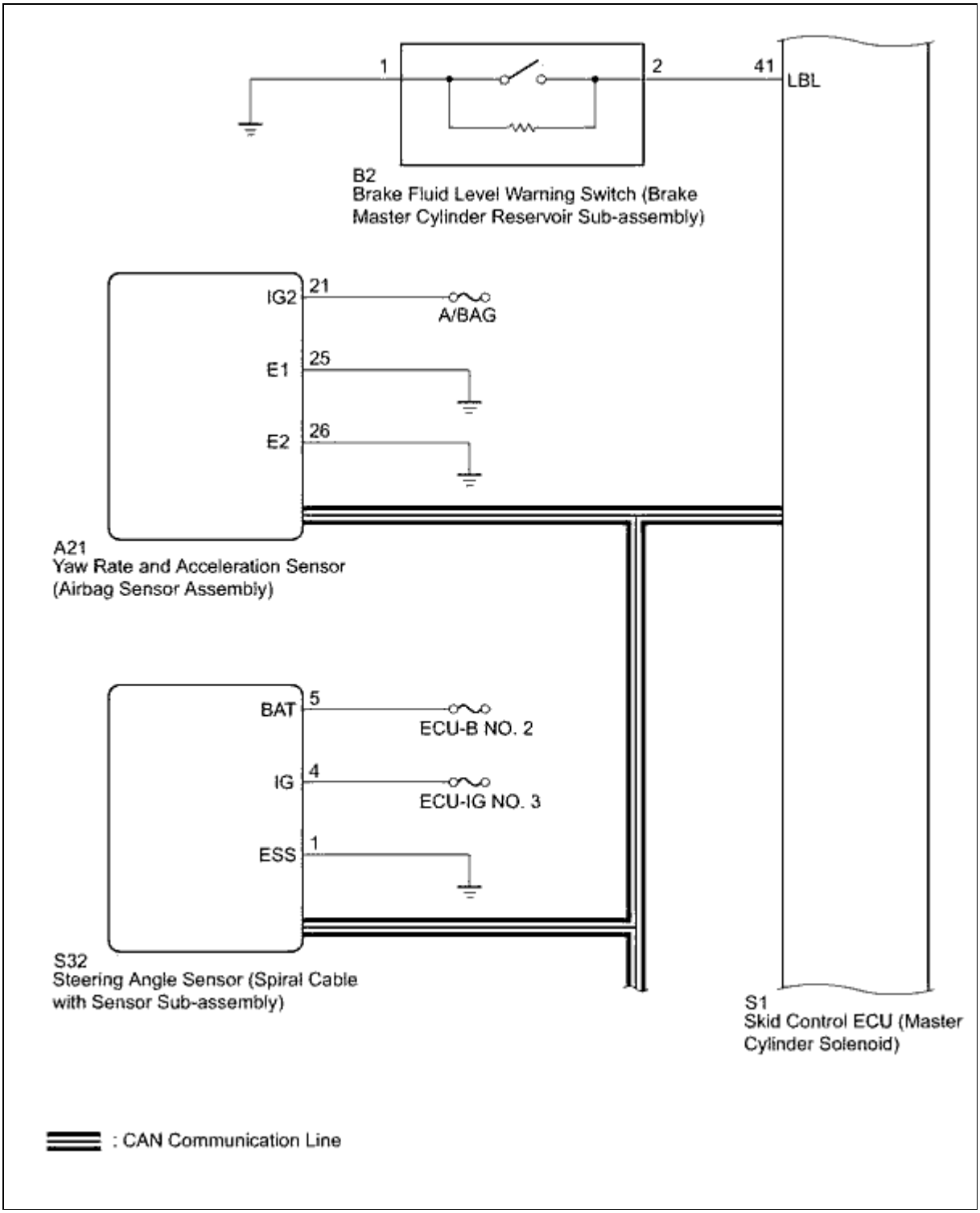
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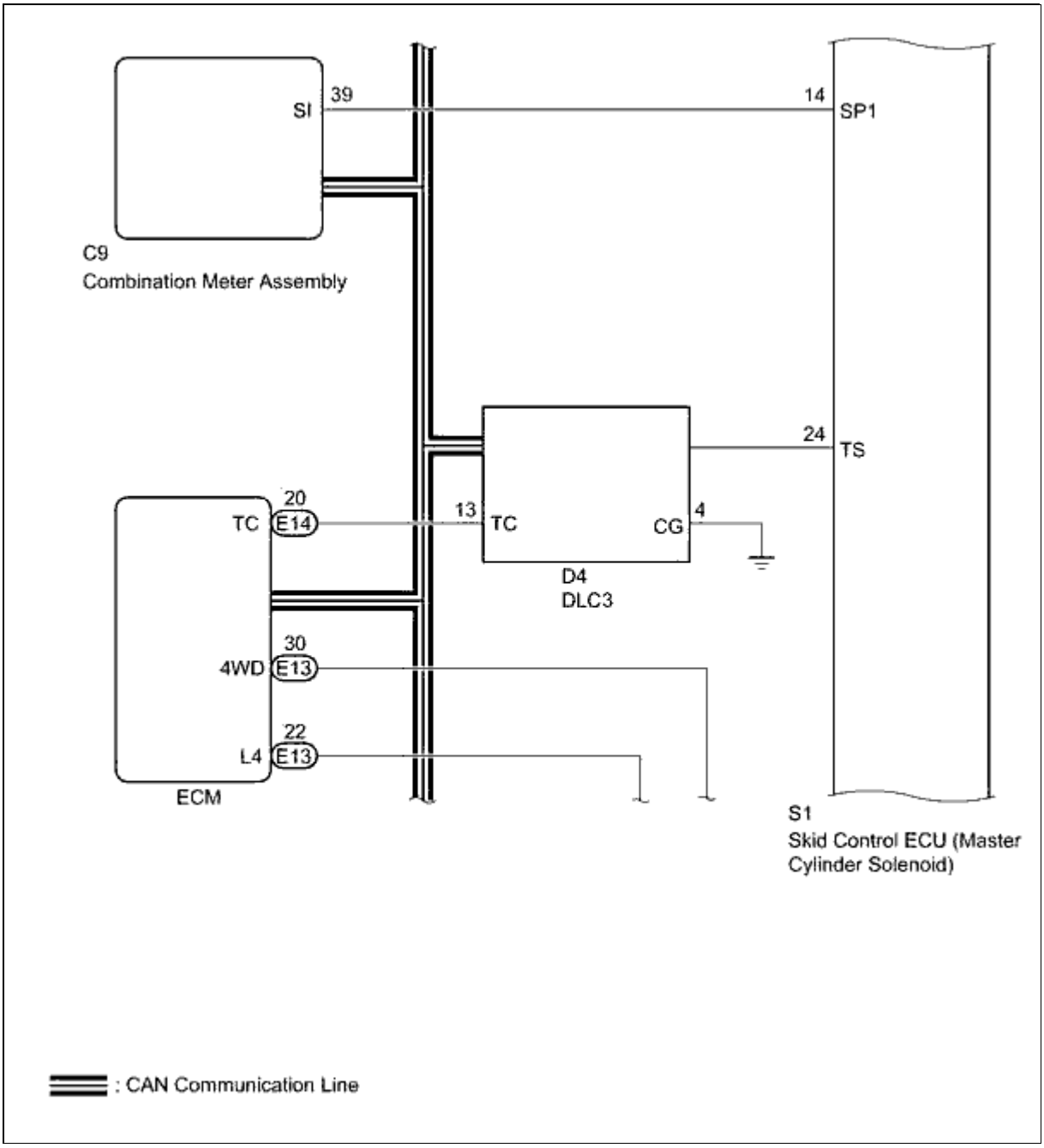
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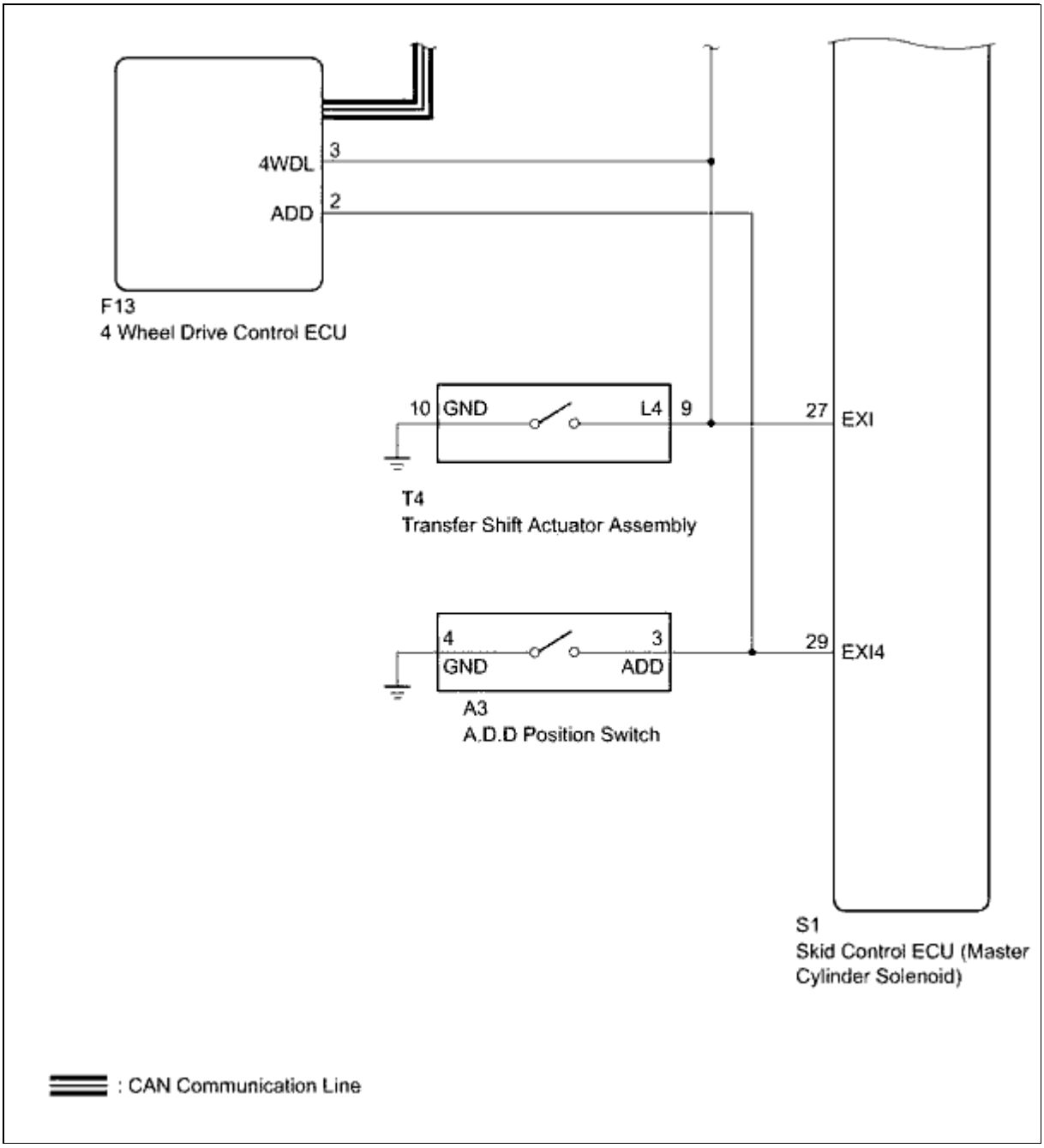
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TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU	SIGNALS	COMMUNICATION METHOD
ECM	Skid control ECU	• Throttle position signal • Engine speed signal • Accelerator pedal position signal • Intake air temperature signal • Ambient air temperature signal • Engine coolant temperature signal • Vehicle information	CAN communication system

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TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU	SIGNALS	COMMUNICATION METHOD
Yaw rate and acceleration sensor (Airbag sensor assembly)	Skid control ECU	Yaw rate and acceleration signal	CAN communication system
Steering angle sensor (spiral cable with sensor sub-assembly)	Skid control ECU	Steering angle signal	CAN communication system
Skid control ECU	ECM	Throttle opening angle request signal	CAN communication system
Skid control ECU	Combination meter assembly	• Warning/indicator light signal • Vehicle speed signal • Warning buzzer request signal	CAN communication system
4 wheel drive control ECU (for 4WD or w/ Rear Differential Lock)	Skid control ECU	• 4WD position signal (for 4WD) • L4 position signal (for 4WD) • Rear differential lock position signal (for w/ Rear Differential Lock)	CAN communication system





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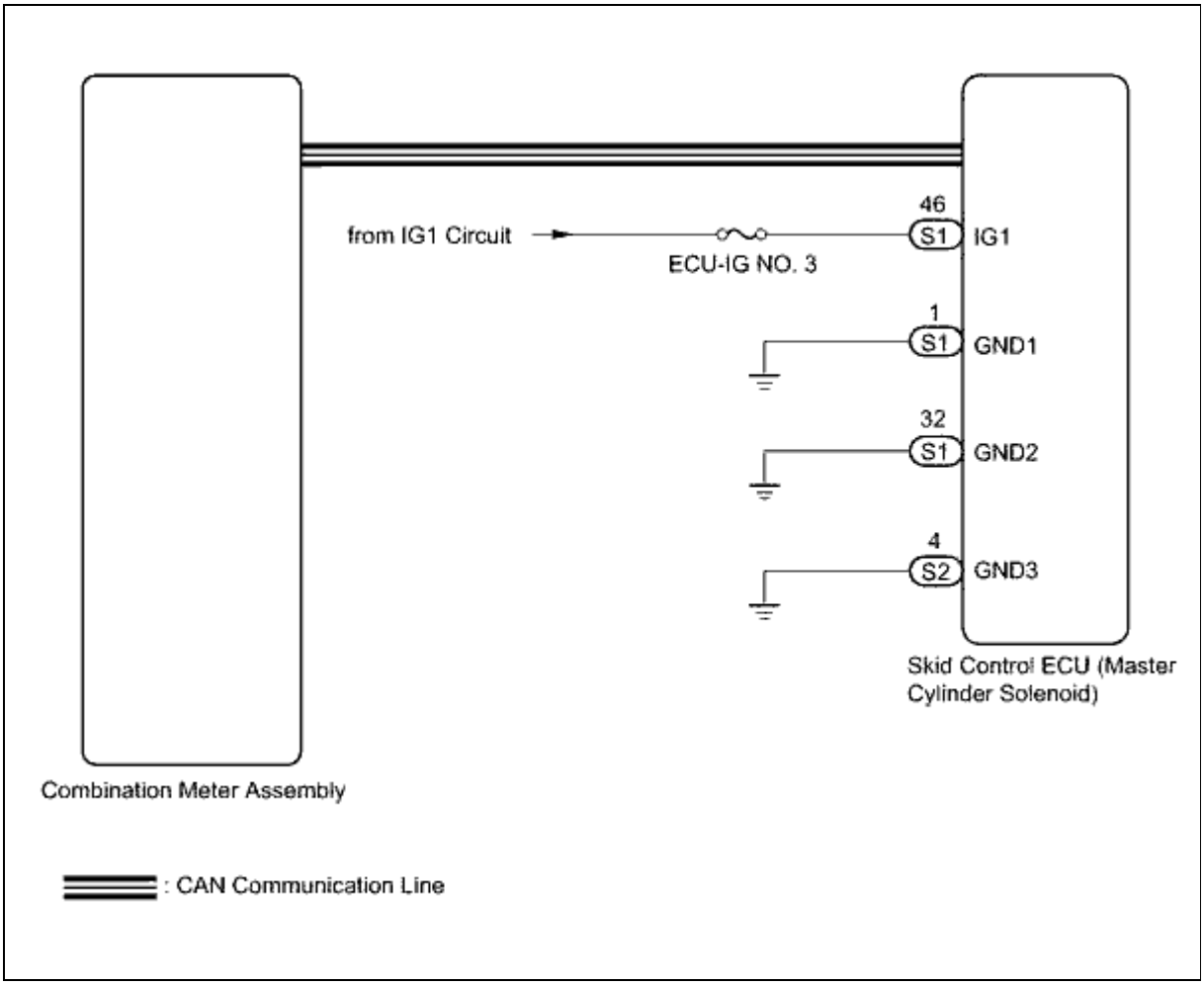
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451S01KX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Slip Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

Slip Indicator Light Remains ON

DESCRIPTION

The slip indicator light blinks during VSC or TRAC and AUTO LSD operation. When the system fails, the slip indicator light comes on to warn the driver.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

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1.	**CHECK THAT SKID CONTROL ECU CONNECTOR SECURELY CONNECTED**

(a) Check the skid control ECU (master cylinder solenoid) connector connection.

OK:
The connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO ECU CORRECTLY**

OK ▼

2.	**CHECK DTC**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▼

3.	**INSPECT BATTERY**

(a) Inspect the battery voltage INFO .

Standard voltage:
11 to 14 V

NG ▶ **CHECK CHARGING SYSTEM**

OK ▼

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4.	CHECK CAN COMMUNICATION SYSTEM

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:
CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

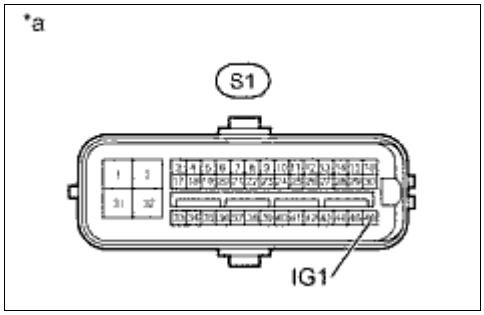
5.	CHECK HARNESS AND CONNECTOR (IG1 TERMINAL)

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-46 (IG1) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

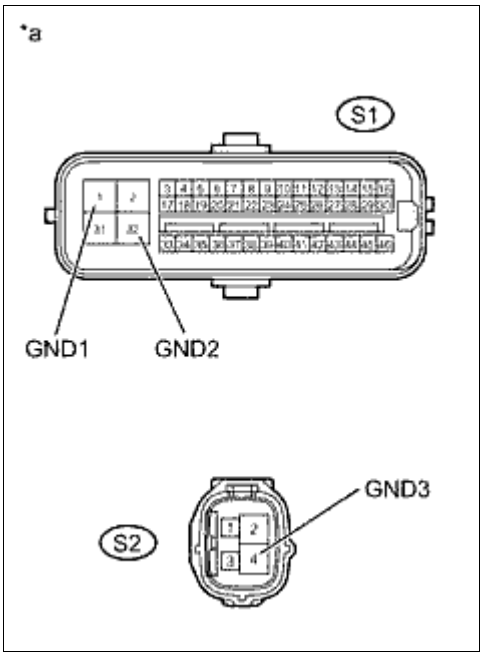
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6.	CHECK HARNESS AND CONNECTOR (GND TERMINAL)

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND1) - Body ground	Always	Below 1 Ω
S1-32 (GND2) - Body ground	Always	Below 1 Ω
S2-4 (GND3) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Master Cylinder Solenoid))

(b) Reconnect the skid control ECU (master cylinder solenoid) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

7.	READ VALUE USING TECHSTREAM (SLIP INDICATOR LIGHT)

(a) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Slip Indicator Light	Slip indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-

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(g) Check the Techstream display condition of the slip Indicator light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

A ▶ **GO TO METER / GAUGE SYSTEM**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451T01JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): Slip Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

Slip Indicator Light does not Come ON

DESCRIPTION

Refer to Slip Indicator Light Remains ON INFO .

WIRING DIAGRAM

Refer to Slip Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (SLIP INDICATOR LIGHT)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

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TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Slip Indicator Light	Slip indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped

(f) When performing the slip Warning Light Active Test, check slip indicator light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Slip Indicator Light	Slip indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-

Result

RESULT	PROCEED TO
Slip indicator light in the Data List does not change using the Active Test	A
Slip indicator light in the Data List turns ON/OFF using the Active Test	B

B ▶ **GO TO STEP 3**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

3.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:

The slip warning light turns on or off in accordance with the Techstream.

NG ▶ **GO TO METER / GAUGE SYSTEM**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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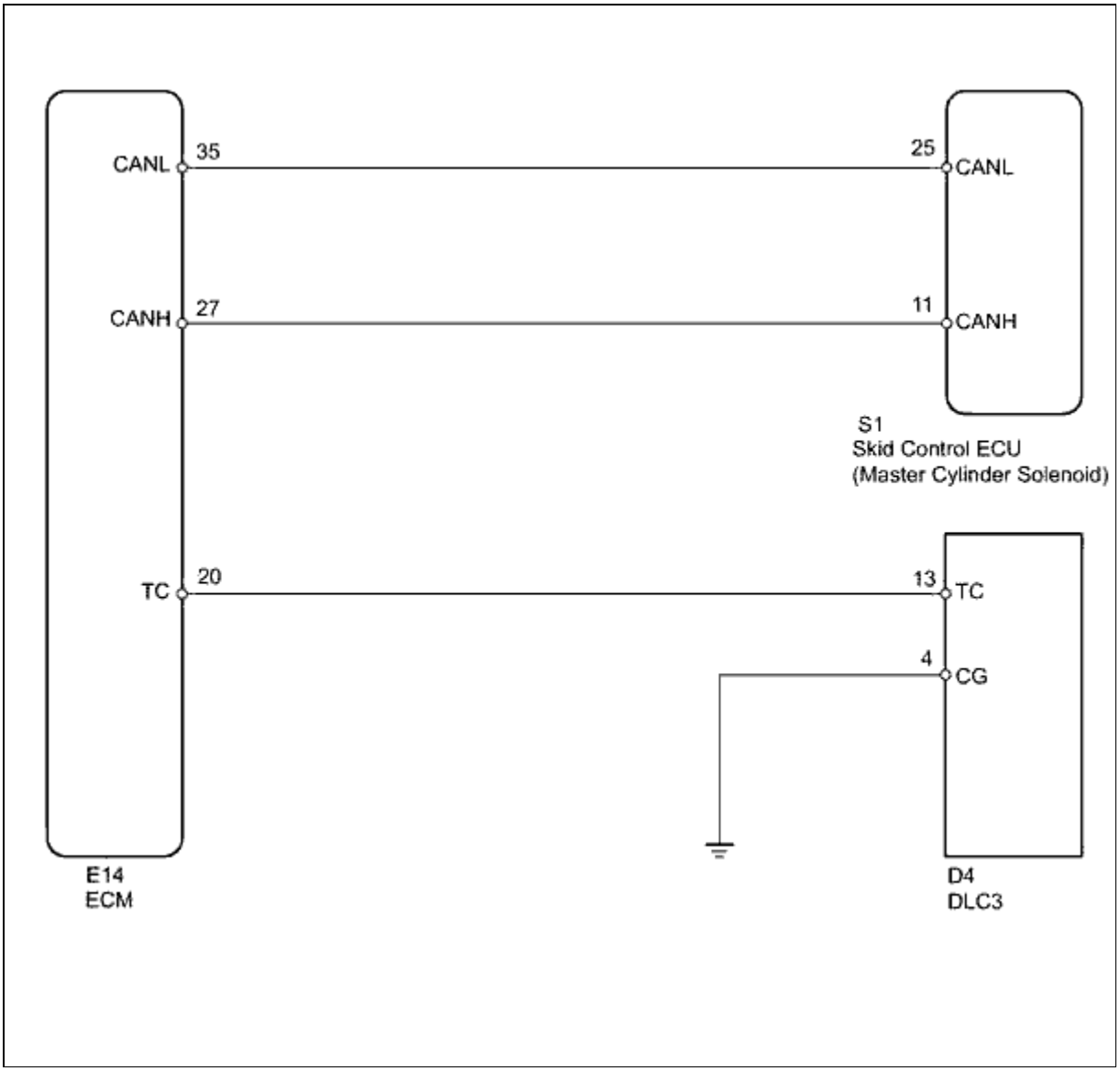
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001DXU03FX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): TC and CG Terminal Circuit; 2016 MY Tacoma [08/2015 -]		

TC and CG Terminal Circuit

DESCRIPTION

Connecting terminals TC and CG of the DLC3 causes the ECU to display 2-digit DTCs by blinking the ABS, VSC and TRAC warning lights.

WIRING DIAGRAM



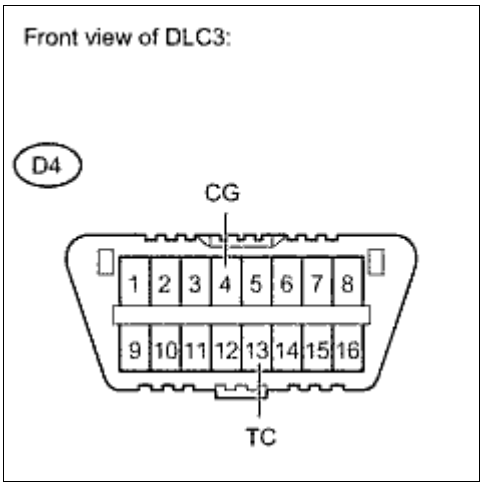
INSPECTION PROCEDURE

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PROCEDURE

1.	**INSPECT DLC3 (TC TERMINAL VOLTAGE)**

(a) Turn the ignition switch to ON.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
D4-13 (TC) - D4-4 (CG)	Ignition switch ON	11 to 14 V

(c) Turn the ignition switch off.

NG ▶ **GO TO STEP 3**

OK ▼

2.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if the CAN communication DTC is output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

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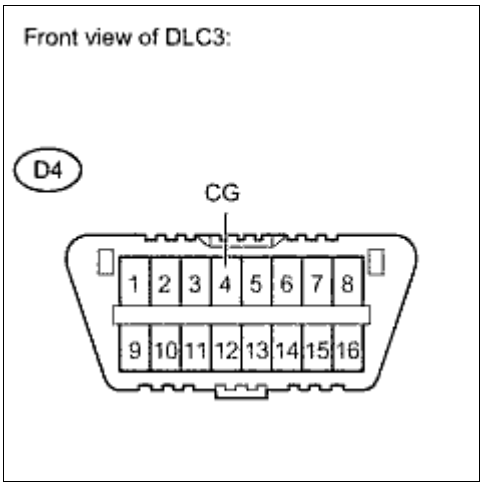
A ▶ REPLACE MASTER CYLINDER SOLENOID

3.	CHECK HARNESS AND CONNECTOR (DLC3 - BODY GROUND)

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D4-4 (CG) - Body ground	Always	Below 1 Ω



NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

4.	CHECK HARNESS AND CONNECTOR (ECM - DLC3)

(a) Disconnect the ECM connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D4-13 (TC) - E14-20 (TC)	Always	Below 1 Ω
D4-13 (TC) - Body ground	Always	10 kΩ or higher

(c) Reconnect the ECM connector.

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

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5.	**CHECK HARNESS AND CONNECTOR (ECM - SKID CONTROL ECU)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Disconnect the E14 ECM connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-25 (CANL) - E14-35 (CANL)	Always	Below 1 Ω
S1-11 (CANH) - E14-27 (CANH)	Always	Below 1 Ω

(d) Reconnect the ECM connector.

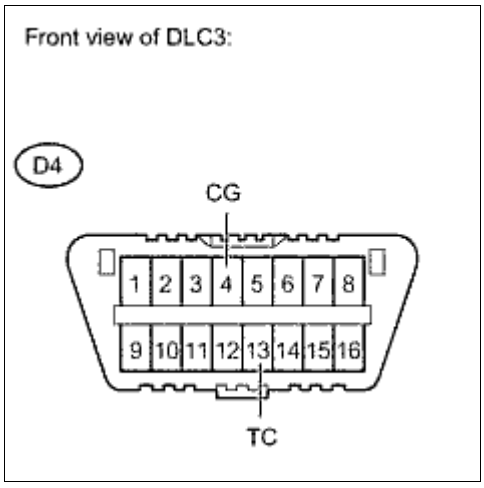
(e) Reconnect the skid control ECU (master cylinder solenoid) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

6.	**CHECK ECM (DLC3 (TC) INPUT)**

(a) Connect terminals TC and CG of DLC3.



(b) Turn the ignition switch to ON.

(c) Check if the ECM warning light is blinking.

OK:

ECM warning light is blinking.

(d) Turn the ignition switch off.

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(e) Disconnect the TC and CG terminals of DLC3.

NG ▶ **REPLACE ECM**

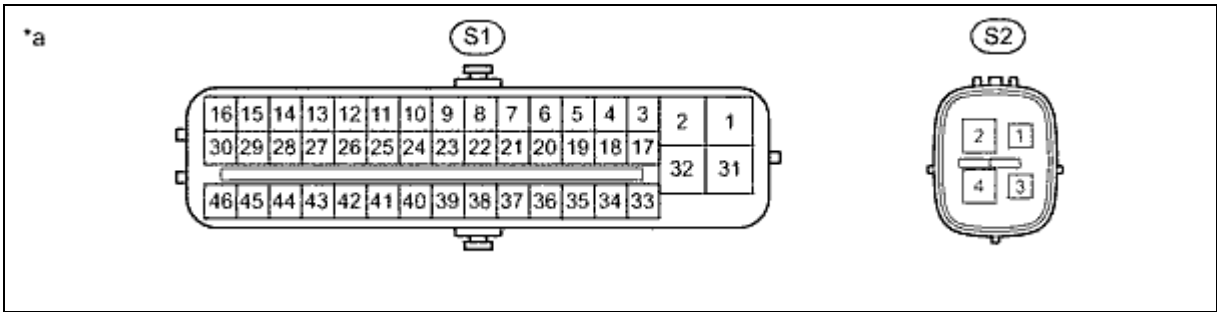
OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000001DWS02ZX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. TERMINALS OF ECU



Text in Illustration

*a	Component without harness connected (Skid Control ECU (Master Cylinder Solenoid))	-	-

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION
S1-1 (GND1)	Ground
S1-2 (+BM1)	Power supply for motor
S1-3 (FR+)	Front wheel speed sensor RH power supply output
S1-4 (FL-)	Front wheel speed LH signal input
S1-5 (RR+)	Rear wheel speed sensor RH power supply output
S1-6 (RL-)	Rear wheel speed LH signal input
S1-7 (STP)	Stop light switch input
S1-9 (CSW)	VSC OFF switch input
S1-11 (CANH)	CAN communication line H
S1-12 (SP1)	Speed signal output for speedometer
S1-13 (TRM3)	A-TRAC switch input*1 CRAWL speed selector switch*2
S1-16 (STPO)	Stop light operated relay output
S1-17 (FR-)	Front wheel speed sensor RH input
S1-18 (FL+)	Front wheel speed sensor LH power supply output
S1-19 (RR-)	Rear wheel speed sensor RH input
S1-20 (RL+)	Rear wheel speed sensor LH power supply output
S1-21 (TRM2)	CRAWL speed selector switch*2
S1-24 (TS)	Sensor test terminal (Sensor check switch) input

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TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION
S1-25 (CANL)	CAN communication line L
S1-27 (EXI)	L4 detection switch input
S1-28 (PKB)	MTS SET switch input
S1-29 (EXI4)	4WD detection switch input
S1-31 (+BS)	Power supply for solenoid
S1-32 (GND2)	Ground
S1-41 (LBL)	Brake fluid level warning switch input
S1-43 (TRS)	CRAWL ON/OFF switch*2
S1-44 (TRM1)	CRAWL speed selector switch*2
S1-45 (STP2)	Stop light switch input
S1-46 (IG1)	IG1 power supply
S2-1 (IG2)	IG2 power supply
S2-2 (+BM2)	Power supply for motor
S2-4 (GND3)	Ground

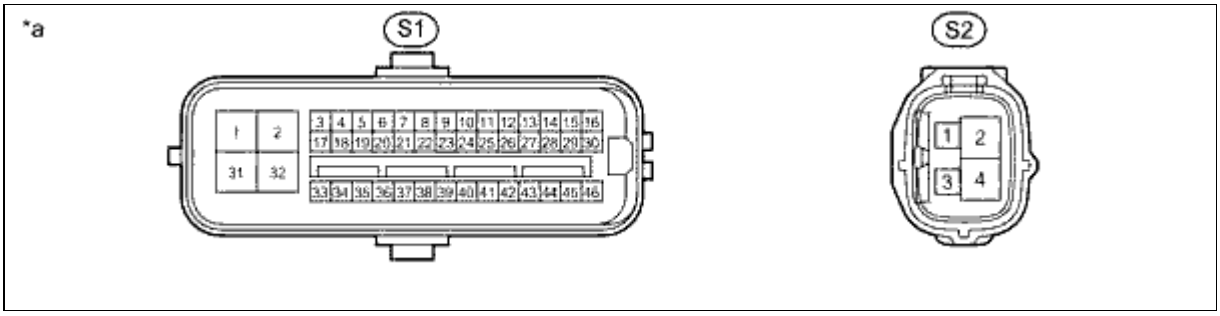
*1: for Manual Transmission
*2: for Automatic Transmission

2. TERMINAL INSPECTION

Disconnect the connector and measure the voltage or resistance on the wire harness side.

HINT:

Voltage cannot be measured with the connector connected to the skid control ECU (master cylinder solenoid) as the connector is water resistant.



Text in Illustration

*a	Front view of wire harness connector (Skid Control ECU (Master Cylinder Solenoid))	-	-

Standard

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND1) -	W-B - Body	Ground	Always	Below 1 Ω

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TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
Body ground	ground			
S1-2 (+BM1) - Body ground	B - Body ground	Power supply for motor from battery	Always	11 to 14 V
S1-7 (STP) - Body ground	SB - Body ground	Stop light switch input	Stop light switch off (Brake pedal released)	Below 1.5 V
			Stop light switch on (Brake pedal depressed)	8 to 14 V
S1-9 (CSW) - Body ground	GR - Body ground	VSC OFF switch input	VSC OFF switch off	10 kΩ or higher
			VSC OFF switch on and hold	Below 1 Ω
S1-16 (STPO) - Body ground	B - Body ground	Stop light operated relay output	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
S1-31 (+BS) - Body ground	R - Body ground	Power supply for solenoid from battery	Always	11 to 14 V
S1-32 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
S1-41 (LBL) - Body ground	V - Body ground	Brake fluid level warning switch input	Brake fluid level min. -5 mm	Below 1 Ω
			Brake fluid level max.	1.9 to 2.1 kΩ
S1-45 (STP2) - Body ground	L - Body ground	Stop light switch input	Stop light switch off (Brake pedal released)	Below 1.5 V
			Stop light switch on (Brake pedal depressed)	8 to 14 V
S1-46 (IG1) - Body ground	G - Body ground	IG1 power supply	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
S2-1 (IG2) - Body ground	BE - Body ground	IG2 power supply	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
S2-2 (+BM2) - Body ground	B - Body ground	Power supply for motor from battery	Always	11 to 14 V
S2-4 (GND3) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001DX300VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): TEST MODE PROCEDURE; 2016 MY Tacoma [08/2015 -]		

TEST MODE PROCEDURE

1. TEST MODE PROCEDURE (for Using Techstream)

HINT:

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

(a) Turn the ignition switch to off.

(b) Check that the steering wheel is in the straight-ahead position.

(c) for Automatic transmission: Check that the shift lever is in P and apply the parking brake.

for Manual transmission: Check that the shift lever is in neutral and apply the parking brake.

(d) Connect Techstream to the DLC3.

(e) Turn the ignition switch to ON.

(f) Switch the ECU to test mode using Techstream. Enter the following menu items: Chassis / ABS/VSC/TRAC / Utility / Signal Check.

(g) Check that the ABS warning light and slip indicator light blink at 0.125 second intervals (0.125 seconds on and 0.125 seconds off).

HINT:

If the ABS warning light and slip indicator light do not blink, inspect the TS and CG terminal circuit, the ABS warning light circuit and slip indicator light circuit.

TROUBLE AREA	SEE PAGE
ABS warning light circuit	INFO INFO
Slip indicator light circuit	INFO INFO
TS and CG terminal circuit	INFO

(h) Start the engine.

2. TEST MODE PROCEDURE (for Using SST Check Wire)

HINT:

- After replacing the yaw rate and acceleration sensor (airbag sensor assembly), be sure to clear the zero point calibration data in the skid control ECU (master cylinder solenoid) and perform zero point calibration.
- If the ignition switch is turned from the ON to the ACC or LOCK position during test mode, DTCs relating to the signal check function will be cleared.
- During test mode, the skid control ECU (master cylinder solenoid) records all DTCs relating to the signal check function. By performing the signal check, the codes are cleared if normality is confirmed. The remaining codes are those indicating where an abnormality was found.

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(a) Turn the ignition switch to off.

(b) Check that the steering wheel is in the straight-ahead position.

(c) for Automatic transmission: Check that the shift lever is in P and apply the parking brake.

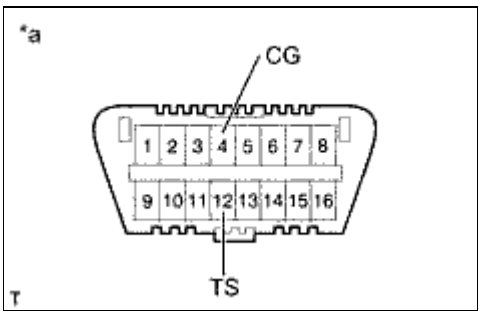
for Manual transmission: Check that the shift lever is in neutral and apply the parking brake.

(d) Using SST, connect terminals TS and CG of the DLC3.

SST: 09843-18040

Text in Illustration

*a	Front view of DLC3



(e) Turn the ignition switch to ON.

(f) Check that the ABS warning light and slip indicator light blink at 0.125 second intervals (0.125 seconds on and 0.125 seconds off).

HINT:

If the ABS warning light and slip indicator light do not blink, inspect the TS and CG terminal circuit, the ABS warning light circuit and slip indicator light circuit.

TROUBLE AREA	SEE PAGE
ABS warning light circuit	INFO INFO
Slip indicator light circuit	INFO INFO
TS and CG terminal circuit	INFO

(g) Start the engine.

3. ACCELERATION SENSOR SIGNAL CHECK

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

HINT:

Acceleration sensor check can be performed with the master cylinder pressure sensor check below.

4. MASTER CYLINDER PRESSURE SENSOR CHECK

(a) Keep the vehicle stationary and release the brake pedal for 1 second or more, and quickly depress the brake pedal with a force of 98 N (10 kgf) or more for 1 second or more.

- Keep the vehicle stationary and release the brake pedal for 1 second or more, and quickly depress the brake pedal with a force of 98 N (10 kgf) or more for 1 second or more.
- While the ABS warning light stays on, continue to depress the brake pedal with a force of 98 N (10 kgf) or more.
- The ABS warning light comes on for 3 seconds every time the above brake pedal operation is performed.

5. 4WD DETECTION SWITCH SIGNAL CHECK

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(a) Check the 4WD detection switch (4WD position).

(1) Push and turn the 4 wheel drive control switch to put the vehicle in 4WD mode.

(2) Push and turn the 4 wheel drive control switch to put the vehicle in 2WD mode.

6. SPEED SENSOR CHECK

(a) Check the speed sensor signal

(1) Drive the vehicle straight forward at a speed of 45 km/h (28 mph) or more for several seconds.

(2) Check that the ABS warning light goes off.

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

HINT:

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

(4) Check that the ABS warning light goes off.

HINT:

- The sensor check may not be completed if wheelspin occurs.
- The ABS warning light blinks when the sensor check has been completed and the brake pedal is depressed.
- The ABS warning light comes on immediately after a malfunction has been detected during the speed sensor check.

(5) Stop the vehicle.

NOTICE:

- Before performing the speed sensor signal check, complete the acceleration sensor, master cylinder pressure sensor and 4WD 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 45 km/h (28 mph), a signal check code will be stored again. Decelerate or stop the vehicle before the speed reaches 45 km/h (28 mph).
- 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 test mode while stationary.

7. END OF ABS SENSOR CHECK

(a) If the sensor check is completed, the ABS warning light blinks (Test Mode) when the vehicle stops and the ABS warning light is off while the vehicle is driving.

NOTICE:

- When the yaw rate and acceleration sensor, speed sensor, and master cylinder pressure sensor checks are completed, the sensor check is completed.
- If the sensor check is not completed, the ABS warning light blinks even while the vehicle is driving and the ABS does not operate.

8. READ DTC OF ABS SENSOR (for Using Techstream)

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

HINT:

Refer to Techstream operator's manual for further details.

9. READ DTC OF ABS SENSOR (for Using SST Check Wire)

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

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SST: 09843-18040

(b) Turn the ignition switch to ON.

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

HINT:

- When the system is operating correctly, each light will blink continuously in a pattern of 0.25 seconds on, then 0.25 seconds off.
- When one DTC is output, each light will output the same code at 4 second intervals. (For example, Code 21 would be output as 2 flashes, a 1.5 second pause, and then 1 flash)
- When 2 or more DTCs are output, each light will output a different code at 2.5 second intervals, and when all codes have been output, there will be a 4 second pause and the sequence will repeat.
- When multiple codes are set, they are output in order starting with the lowest DTC number.

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

(e) Turn the ignition switch to off.

10. MTS SET SWITCH SIGNAL CHECK (for Automatic transmission)

(a) Turn the 4 wheel drive control switch to the L position to put the vehicle in L4 mode.

(b) Press the MTS SET switch.

(c) Check that the MTS SET indicator light comes on.

(d) Press the MTS SET switch again to turn the MTS SET indicator light off.

HINT:

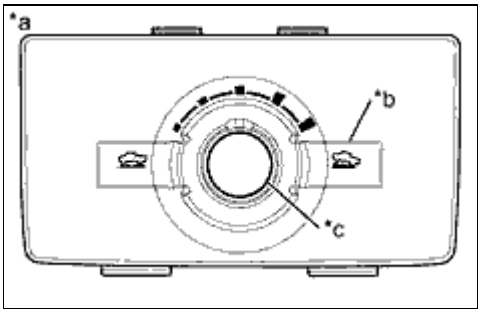
Move the vehicle either a little forward or a little backward to engage the L4 position.

11. CRAWL SWITCH CHECK (for Automatic transmission)

(a) Push the ON/OFF switch.

HINT:

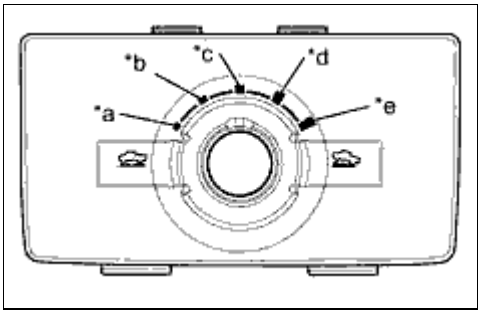
The CRAWL indicator light illuminates while the ON/OFF switch is pushed.



Text in Illustration

*a	Drive Monitor Switch
*b	ON/OFF Switch
*c	Speed Selector Switch

(b) Turn the speed selector switch to low.



Text in Illustration

*a	Low
*b	Medium-low
*c	Medium
*d	Medium-high
*e	High

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(c) Turn the speed selector switch to medium-low.

(d) Turn the speed selector switch to medium.

(e) Turn the speed selector switch to medium-high.

(f) Turn the speed selector switch to high.

(g) Turn the speed selector switch to low.

12. VSC OFF SWITCH CHECK

(a) Press the VSC OFF switch.

(b) Check that the AUTO LSD indicator light and VSC OFF indicator light come on.

(c) Press the VSC OFF switch again to turn the AUTO LSD indicator light and VSC OFF indicator light off.

13. END OF VSC SENSOR CHECK

(a) If the sensor check is completed, the slip indicator light blinks (Test Mode).

NOTICE:

If the sensor check is not completed, the slip indicator light blinks even while the vehicle is driving and the VSC and traction control function do not operate.

14. READ DTC OF VSC SENSOR (for Using Techstream)

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

- Refer to Techstream operator's manual for further details.

15. READ DTC OF VSC SENSOR (for Using SST Check Wire)

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

SST: 09843-18040

(b) Turn the ignition switch to ON.

(c) Read the number of blinks of the slip indicator light.

HINT:

- When the system is operating correctly, each light will blink continuously in a pattern of 0.25 seconds on, then 0.25 seconds off.
- When one DTC is output, each light will output the same code at 4 second intervals. (For example, Code 21 would be output as 2 flashes, a 1.5 second pause, and then 1 flash)
- When 2 or more DTCs are output, each light will output a different code at 2.5 second intervals, and when all codes have been output, there will be a 4 second pause and the sequence will repeat.
- When multiple codes are set, they are output in order starting with the lowest DTC number.

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

(e) Turn the ignition switch to off.

16. DTC OF SIGNAL CHECK FUNCTION

ABS Sensor

DTC NO.	DIAGNOSIS	TROUBLE AREA
C1271/71	Low output voltage of front speed sensor RH	• Front speed sensor RH • Sensor installation • Front speed sensor rotor RH (front axle with ABS rotor bearing assembly RH)

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DTC NO.	DIAGNOSIS	TROUBLE AREA
C1272/72	Low output voltage of front speed sensor LH	• Front speed sensor LH • Sensor installation • Front speed sensor rotor RH (front axle with ABS rotor bearing assembly LH)
C1273/73	Low output voltage of rear speed sensor RH	• Rear speed sensor RH • Sensor installation • Rear speed sensor rotor RH (rear axle hub and bearing assembly RH)
C1274/74	Low output voltage of rear speed sensor LH	• Rear speed sensor LH • Sensor installation • Rear speed sensor rotor LH (rear axle hub and bearing assembly LH)
C1275/75	Abnormal change in output voltage of front speed sensor RH	Front speed sensor rotor RH (front axle with ABS rotor bearing assembly RH)
C1276/76	Abnormal change in output voltage of front speed sensor LH	Front speed sensor rotor LH (front axle with ABS rotor bearing assembly LH)
C1277/77	Abnormal change in output voltage of rear speed sensor RH	Rear speed sensor rotor RH (rear axle hub and bearing assembly RH)
C1278/78	Abnormal change in output voltage of rear speed sensor LH	Rear speed sensor rotor LH (rear axle hub and bearing assembly LH)
C1279/79	Deceleration sensor faulty	• Yaw rate and acceleration sensor (airbag sensor assembly) • Sensor installation
C1281/81	Master cylinder pressure sensor output malfunction	• Master cylinder pressure sensor (hydraulic brake booster) • Skid control ECU (master cylinder solenoid) • Stop light switch circuit
C1282/82	4WD detection switch malfunction	4WD detection switch (differential vacuum actuator assembly)

VSC Sensor

DTC NO.	DIAGNOSIS	TROUBLE AREAS
C1379/74*	Malfunction in CRAWL switch	CRAWL switch

*: for Automatic Transmission

HINT:

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

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451U01VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): TRAC OFF Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

TRAC OFF Indicator Light Remains ON

DESCRIPTION

- In 2WD mode:

  Operation of the VSC OFF switch changes the vehicle between normal mode, TRAC OFF mode (AUTO LSD mode) and VSC OFF mode. During normal mode, pressing the VSC OFF switch for a short amount of time changes the vehicle to TRAC OFF mode (AUTO LSD mode), TRAC operation is prohibited, and the VSC OFF and AUTO LSD indicator lights turns on. However, if the vehicle speed exceeds 50 km/h, the indicator lights turns off.

  When the vehicle is stopped, pressing the VSC OFF switch for 3 seconds or more changes the vehicle to VSC OFF mode, TRAC and VSC operation are prohibited, and the TRAC OFF indicator and VSC OFF indicator lights turn on.
- In 4WD mode:

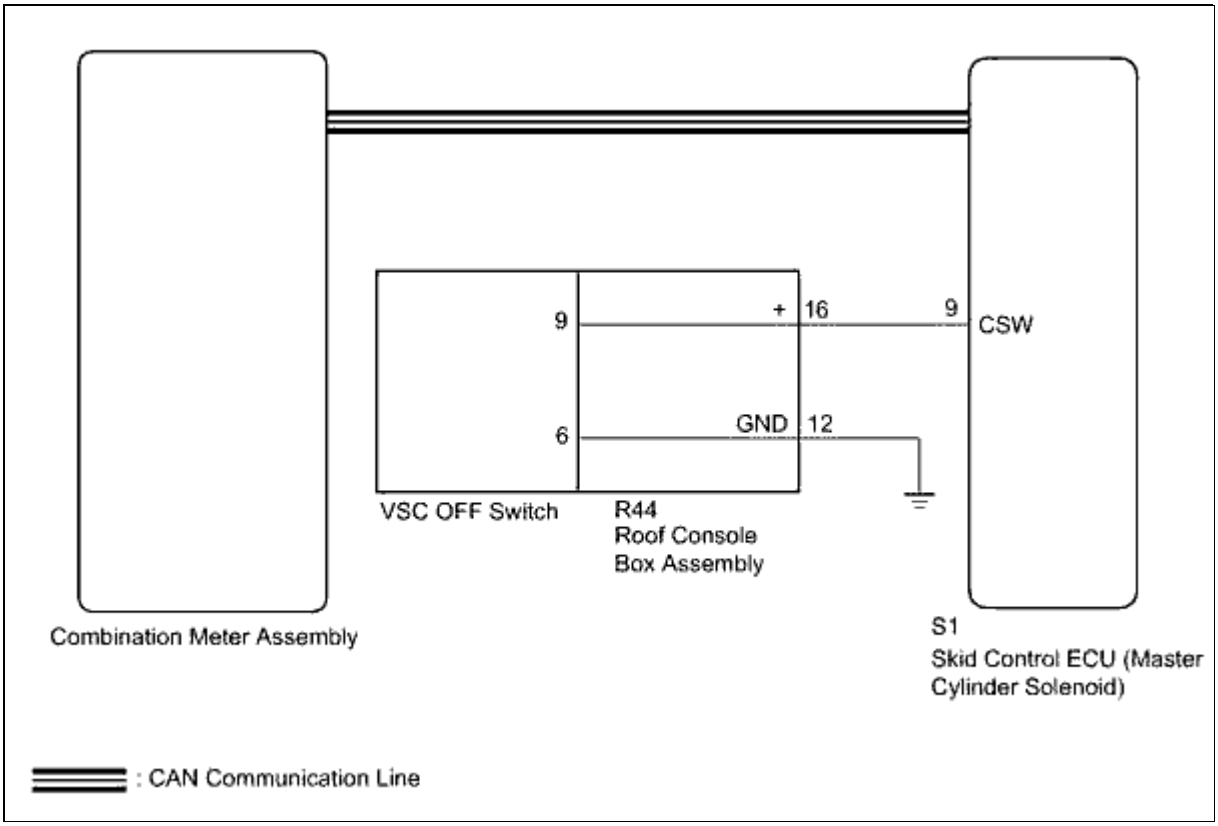
  Operation of the VSC OFF switch changes the vehicle between normal mode and VSC OFF mode. During normal mode, when the vehicle is stopped, pressing the VSC OFF switch for 3 seconds or more changes the vehicle to VSC OFF mode, TRAC and VSC operation are prohibited, and the TRAC OFF indicator and VSC OFF indicator lights turn on.

  - When the transfer is in L4, VSC is prohibited and the TRAC OFF indicator and VSC OFF indicator lights turn on.
  - When the rear differential is locked, VSC is prohibited and the TRAC OFF indicator and VSC OFF indicator lights turn on. At this time, ABS is also prohibited and the ABS warning light turns on.
- Fail Safe

  - When the temperature inside the hydraulic brake booster becomes too high, the TRAC OFF indicator light turns on and traction control is stopped until the temperature decreases.
  - If there is a malfunction in the SFI system, the TRAC system will be prohibited and the TRAC OFF indicator will turn on.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- As there may be malfunctions in the transfer system related to when the transfer operates in L4, check the transfer system first.

PROCEDURE

1.	**CHECK SFI SYSTEM**

(a) Check if SFI system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO SFI SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A

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2.	CHECK CAN COMMUNICATION SYSTEM

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK

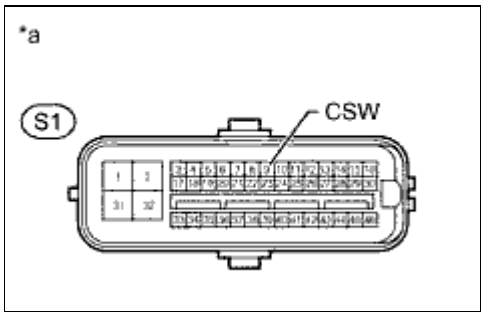
3.	INSPECT SKID CONTROL ECU (CSW TERMINAL)

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-9 (CSW) - Body ground	VSC OFF switch not pushed in	10 kΩ or higher
	VSC OFF switch pushed in	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU)

(c) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

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Result

RESULT	PROCEED TO
OK (w/ Rear Differential Lock)	A
OK (w/o Rear Differential Lock)	B
NG	C

B ▶ **GO TO STEP 5**

C ▶ **GO TO STEP 6**

A ▼

4.	**CHECK FOR DIFFERENTIAL SYSTEM**

(a) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.

(f) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO DIFFERENTIAL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A ▼

5.	**READ VALUE USING TECHSTREAM (TRAC/VSC OFF MODE)**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRC OFF, Unknown or VSC OFF	Normal: Normal mode TRC OFF: TRAC OFF mode VSC OFF: VSC OFF mode	-

(f) Check that the mode display changes according to VSC OFF switch operation.

OK:
Display changes according to switch operation.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **GO TO METER / GAUGE SYSTEM**

6.	**INSPECT VSC OFF SWITCH**

(a) Remove the VSC OFF switch INFO .

(b) Inspect the VSC OFF switch INFO .

NG ▶ **REPLACE VSC OFF SWITCH**

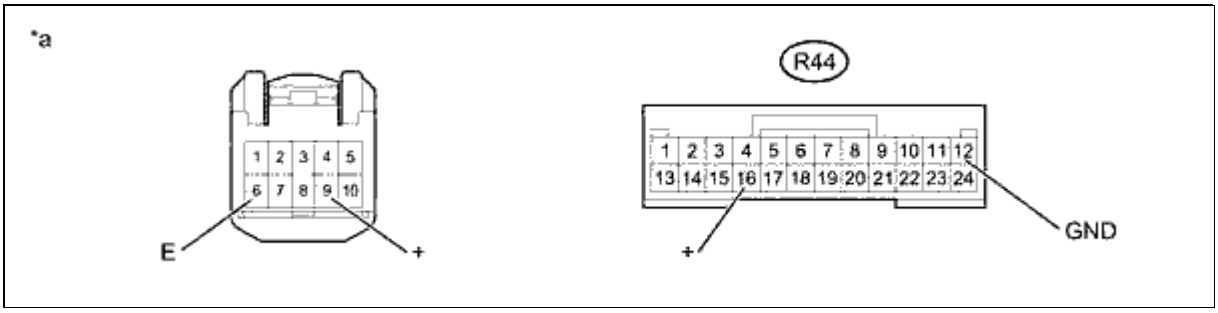
OK ▼

7.	**INSPECT ROOF CONSOLE BOX ASSEMBLY**

(a) Remove the roof console box assembly.

for Double Cab: INFO
for Access Cab: INFO

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Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-16 (+) - 9	Always	Below 1 Ω
R44-12 (GND) - 6 (E)	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451V01VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): TRAC OFF Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

TRAC OFF Indicator Light does not Come ON

DESCRIPTION

Refer to TRAC OFF Indicator Light Remains ON INFO .

WIRING DIAGRAM

Refer to TRAC OFF Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

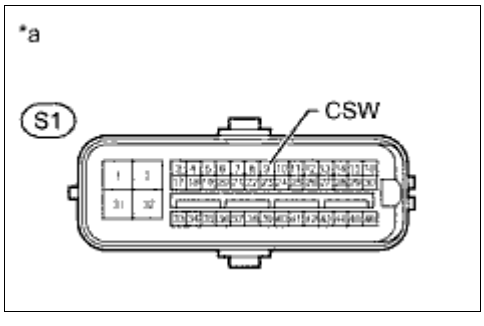
2.	**INSPECT SKID CONTROL ECU (CSW TERMINAL)**

(a) Disconnect the S1 skid control ECU (master cylinder solenoid) connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-9 (CSW) - Body	VSC OFF switch not	10 kΩ or higher



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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
ground	pushed in	
	VSC OFF switch pushed in	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU)

(c) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

NG ▶ **GO TO STEP 4**

OK ▼

3.	READ VALUE USING TECHSTREAM (TRAC/VSC OFF MODE)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRC OFF, Unknown or VSC OFF	Normal: Normal mode TRC OFF: TRAC OFF mode VSC OFF: VSC OFF mode	-

(f) Check that the mode display changes according to VSC OFF switch operation.

OK:

Display changes according to switch operation.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

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OK ▶ GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)

4.	INSPECT VSC OFF SWITCH INFO

NG ▶ REPLACE VSC OFF SWITCH

OK ▼

5.	INSPECT ROOF CONSOLE BOX ASSEMBLY (MASTER CYLINDER SOLENOID - VSC OFF SWITCH) INFO

B ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

C ▶ REPLACE ROOF CONSOLE BOX ASSEMBLY

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001DXV03YX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): TS and CG Terminal Circuit; 2016 MY Tacoma [08/2015 -]		

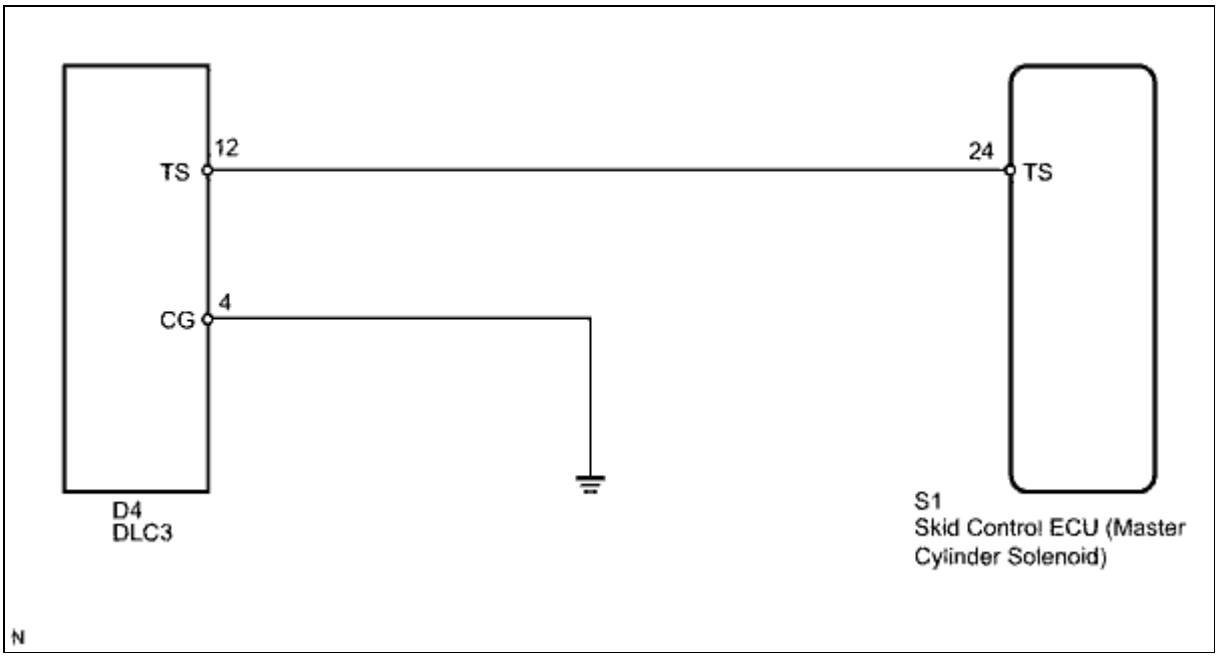
TS and CG Terminal Circuit

DESCRIPTION

In sensor check mode, malfunctions of the speed sensor that cannot be detected when the vehicle is stopped are detected while driving.

Transition to the sensor check mode can be performed by connecting terminals TS and CG of the DLC3 and turning the ignition switch from OFF to the ON position.

WIRING DIAGRAM



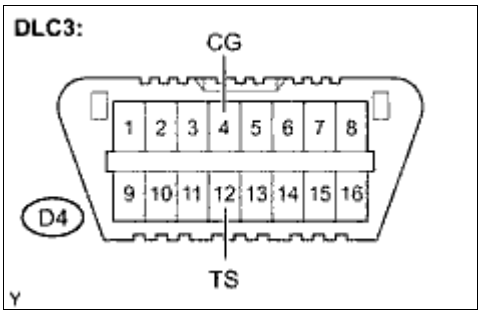
INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT DLC3 (TS TERMINAL VOLTAGE)**

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



(b) Measure the voltage.

Standard:

TESTER CONNECTION	SPECIFIED CONDITION
D4-12 (TS) - D4-4 (CG)	10 to 14 V

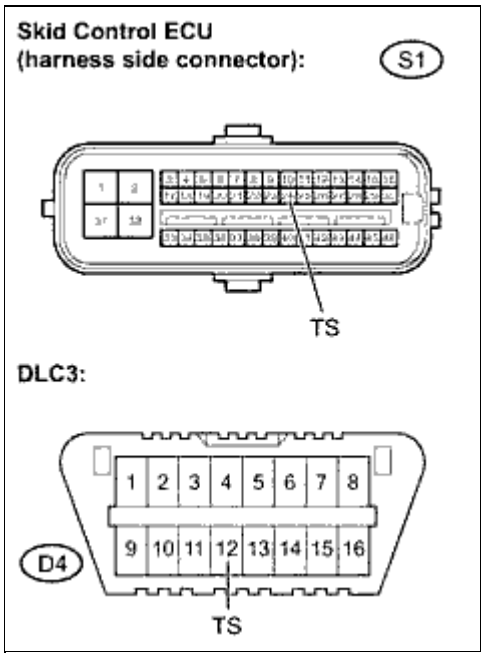
(c) Turn the ignition switch to OFF.

NG ▶ **GO TO STEP 3**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - DLC3)**

(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



(b) Measure the resistance.

Standard:

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TESTER CONNECTION	SPECIFIED CONDITION
S1-24 (TS) - D4-12 (TS)	Below 1 Ω

(c) Measure the resistance.

Standard:

TESTER CONNECTION	SPECIFIED CONDITION
S1-24 (TS) - Body ground	10 kΩ or higher

(d) Reconnect the skid control ECU (master cylinder solenoid) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

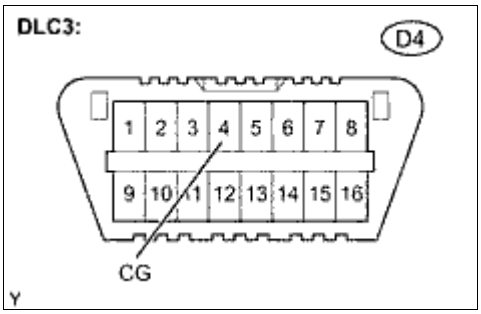
OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

3.	**CHECK HARNESS AND CONNECTOR (BODY GROUND - DLC3)**

(a) Measure the resistance.

Standard:

TESTER CONNECTION	SPECIFIED CONDITION
D4-4 (CG) - Body ground	Below 1 Ω



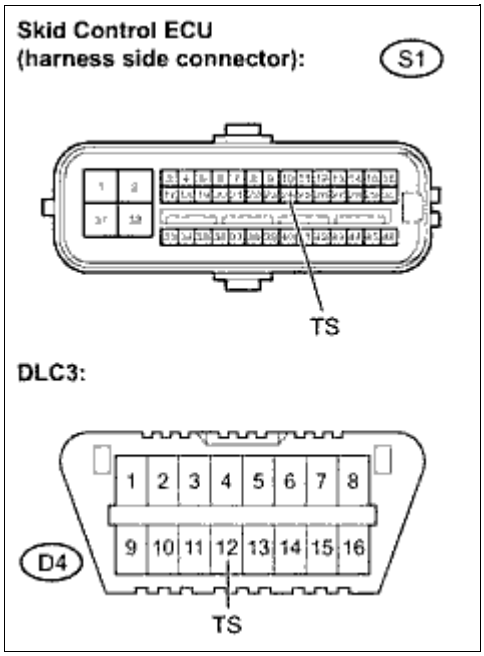
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - DLC3)**

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(a) Disconnect the skid control ECU (master cylinder solenoid) connector.



(b) Measure the resistance.

Standard:

TESTER CONNECTION	SPECIFIED CONDITION
S1-24 (TS) - D4-12 (TS)	Below 1 Ω

(c) Measure the resistance.

Standard:

TESTER CONNECTION	SPECIFIED CONDITION
S1-24 (TS) - Body ground	10 kΩ or higher

(d) Reconnect the skid control ECU (master cylinder solenoid) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000001EFD03MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): U0073,U0100,U0114,U0123,U0124,U0126; Control Module Communication Bus OFF; 2016 MY Tacoma [08/2015 -]		

DTC	**U0073**	**Control Module Communication Bus OFF**

DTC	**U0100**	**Lost Communication with ECM / PCM**

DTC	**U0114**	**Lost Communication with Four-Wheel Drive Clutch Control Module**

DTC	**U0123**	**Lost Communication with Yaw Rate Sensor Module**

DTC	**U0124**	**Lost Communication with Lateral Acceleration Sensor Module**

DTC	**U0126**	**Lost Communication with Steering Angle Sensor Module**

DESCRIPTION

The skid control ECU (master cylinder solenoid) receives the signals from the ECM, steering angle sensor (spiral cable with sensor sub-assembly), 4 wheel drive control ECU*, and yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

*: for 4WD or w/ Rear Differential Lock

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
U0073	When any of the following is detected: 1. With the IG1 terminal voltage is between 10 and 17.4 V, after the output of data from the skid control ECU is completed, the sending continues for 5 seconds or more. 2. The condition that bus OFF state occurs once or more within 0.1 seconds occurs 10 times in succession. (Sent signals cannot be received.) 3. With the IG1 terminal voltage is between 10 and 17.4 V, a delay in receiving data from the yaw rate and acceleration sensor and steering angle sensor continues for 1 second or more. 4. or more. 4. With the IG1 terminal voltage is between	CAN communication system

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DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
	10 and 17.4 V, the following occurs 10 times in succession. ○ The condition that a delay in receiving data from the yaw rate and acceleration sensor and steering angle sensor occurs more than once within 5 seconds.	
U0100	When either of the following is detected: 1. With the IG1 terminal voltage is between 10 and 17.4 V, and the vehicle speed 15 km/h (9 mph) or more, data cannot be sent to the ECM for 2 seconds or more. 2. The IG1 terminal voltage is between 10 and 17.4 V, and the vehicle speed 15 km/h (9 mph) or more for 2 seconds or more.	CAN communication system (Skid control ECU to ECM)
U0114	The CAN signal from the 4 wheel drive control ECU is lost or malfunctioning for 1.2 seconds.	CAN communication system (Skid control ECU to 4 wheel drive control ECU)
U0123	When either of the following is detected: 1. With the IG1 terminal voltage is between 10 and 17.4 V, data from the yaw rate sensor cannot be received for 1 second or more. 2. With the IG1 terminal voltage is between 10 and 17.4 V, the following occurs 10 times in succession. ○ The condition that data from the yaw rate sensor cannot be received occurs once or more within 5 seconds.	CAN communication system (Skid control ECU to yaw rate and acceleration sensor (airbag sensor assembly))
U0124	When either of the following is detected: 1. With the IG1 terminal voltage is between 10 and 17.4 V, data from the acceleration sensor cannot be received for 1 second or more. 2. With the IG1 terminal voltage is between 10 and 17.4 V, the following occurs 10 times in succession. ○ The condition that data from the acceleration sensor cannot be received occurs once or more within 5 seconds.	CAN communication system (Skid control ECU to yaw rate and acceleration sensor (airbag sensor assembly))
U0126	When either of the following is detected: 1. With the IG1 terminal voltage is between 10 and 17.4 V, data from the steering angle sensor cannot be received for 1 second or more. 2. With the IG1 terminal voltage is between 10 and 17.4 V, the following occurs 10 times in succession. ○ The condition that data from the steering angle sensor cannot be received occurs once	CAN communication system (Skid control ECU to steering angle sensor (spiral cable with sensor sub-assembly))

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DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
	or more within 5 seconds.	

INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to a DTC.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
EFI Communication Open	EFI communication open detection / Error or Normal	Error: Momentary interruption Normal: Normal	-
Yaw Rate Open	Yaw rate sensor open detection / Error or Normal	Error: Momentary interruption Normal: Normal	-
Steering Open	Steering sensor open detection / Error or Normal	Error: Momentary interruption Normal: Normal	-

Result

RESULT	PROCEED TO
There are momentary interruptions	A
There are no momentary interruptions	B
There is a constant open circuit	C

HINT:

Perform the above inspection before removing the sensor and connector.

B ▶ **GO TO STEP 3**

C ▶ **GO TO STEP 4**

A ▼

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2.	CHECK IF EACH SENSOR AND ECM CONNECTOR IS SECURELY CONNECTED

(a) Turn the ignition switch off.

(b) Check if each sensor or ECM connector is securely connected.

OK:
Each connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO EACH SENSOR OR ECM CORRECTLY**

OK ▼

3.	RECONFIRM DTC

(a) Clear the DTC(s) INFO .

(b) Record the output DTCs INFO for ABS, VSC, and INFO CAN communication).

HINT:

If the CAN communication system DTC and the relevant sensor DTCs are output simultaneously, troubleshoot the relevant sensor DTCs (for ABS and VSC) after the CAN communication system returns to normal.

Result

RESULT	PROCEED TO
DTC is output (relating to CAN communication system)	A
DTC is output (relating to ABS and/or VSC system)	B
DTC is not output	C

B ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

C ▶ **CHECK USE SIMULATION METHOD TO CHECK**

A ▶ **CHECK CAN COMMUNICATION SYSTEM**

4.	REPAIR OR REPLACE HARNESS OR CONNECTOR

(a) Turn the ignition switch off.

(b) Repair or replace the harness or connector.

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(c) Check for any momentary interruption between the skid control ECU (master cylinder solenoid) and each sensor or ECM INFO .

(d) Check that there is no momentary interruption.

NEXT

5.	**RECONFIRM DTC**

(a) Turn the ignition switch off.

(b) Clear the DTC INFO .

(c) Start the engine.

(d) Drive the vehicle and turn the steering wheel to the right and left at a speed of 15 km/h (9 mph) or more.

(e) Check that no CAN communication system DTC is output INFO .

(f) If ABS and VSC DTCs are output, record them.

Result

RESULT	PROCEED TO
DTC is output (relating to CAN communication system)	A
DTC is output (relating to ABS and/or VSC system)	B
DTC is not output	C

HINT:

The CAN communication system must be normal when repairing each sensor DTC (for ABS and VSC).

B ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

C ▶ **END**

A ▶ **CHECK CAN COMMUNICATION SYSTEM**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001DXP034X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): VSC Buzzer Circuit; 2016 MY Tacoma [08/2015 -]		

VSC Buzzer Circuit

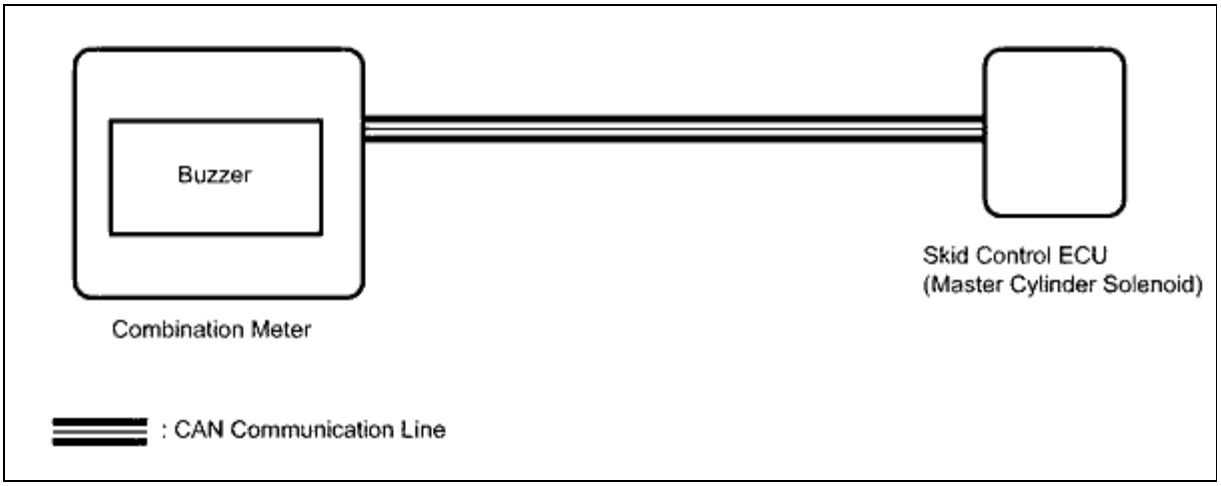
DESCRIPTION

The skid control ECU (master cylinder solenoid) is connected to the combination meter via CAN communication.

The combination meter has a built-in VSC warning buzzer:

- Sounds intermittently to inform the driver if the temperature of hydraulic brake booster has increased excessively due to continuous operation of TRAC, A-TRAC and AUTO LSD.
- Sounds intermittently to inform the driver that the VSC is operating.
- Sounds continuously to alert the driver that the hydraulic pressure of accumulator in the hydraulic brake booster has decreased.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (master cylinder solenoid), perform the zero point calibration INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

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(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the tester, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Buzzer	VSC warning buzzer	Buzzer OFF/ON	The buzzer can be heard

(f) Check that the buzzer sounds or stops in accordance with the Techstream.

Result

RESULT	PROCEED TO
Buzzer does not sound or stop	A
Buzzer sounds and stops	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▼

3.	**REPLACE COMBINATION METER ASSEMBLY**

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(a) Turn the ignition switch off.

(b) Replace the combination meter INFO .

NEXT

4.	**PERFORM ACTIVE TEST USING TECHSTREAM (BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the tester, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Buzzer	VSC warning buzzer	Buzzer OFF/ON	The buzzer can be heard

(f) Check that the buzzer sounds or stops in accordance with the Techstream.

Result

RESULT	PROCEED TO
Buzzer does not sound or stop	A
Buzzer sounds and stops	B

B ▶ **END**

A ▶ **REPLACE MASTER CYLINDER SOLENOID**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451U01UX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): VSC OFF Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

VSC OFF Indicator Light Remains ON

DESCRIPTION

- In 2WD mode:

  Operation of the VSC OFF switch changes the vehicle between normal mode, TRAC OFF mode (AUTO LSD mode) and VSC OFF mode. During normal mode, pressing the VSC OFF switch for a short amount of time changes the vehicle to TRAC OFF mode (AUTO LSD mode), TRAC operation is prohibited, and the VSC OFF and AUTO LSD indicator lights turns on. However, if the vehicle speed exceeds 50 km/h, the indicator lights turns off.

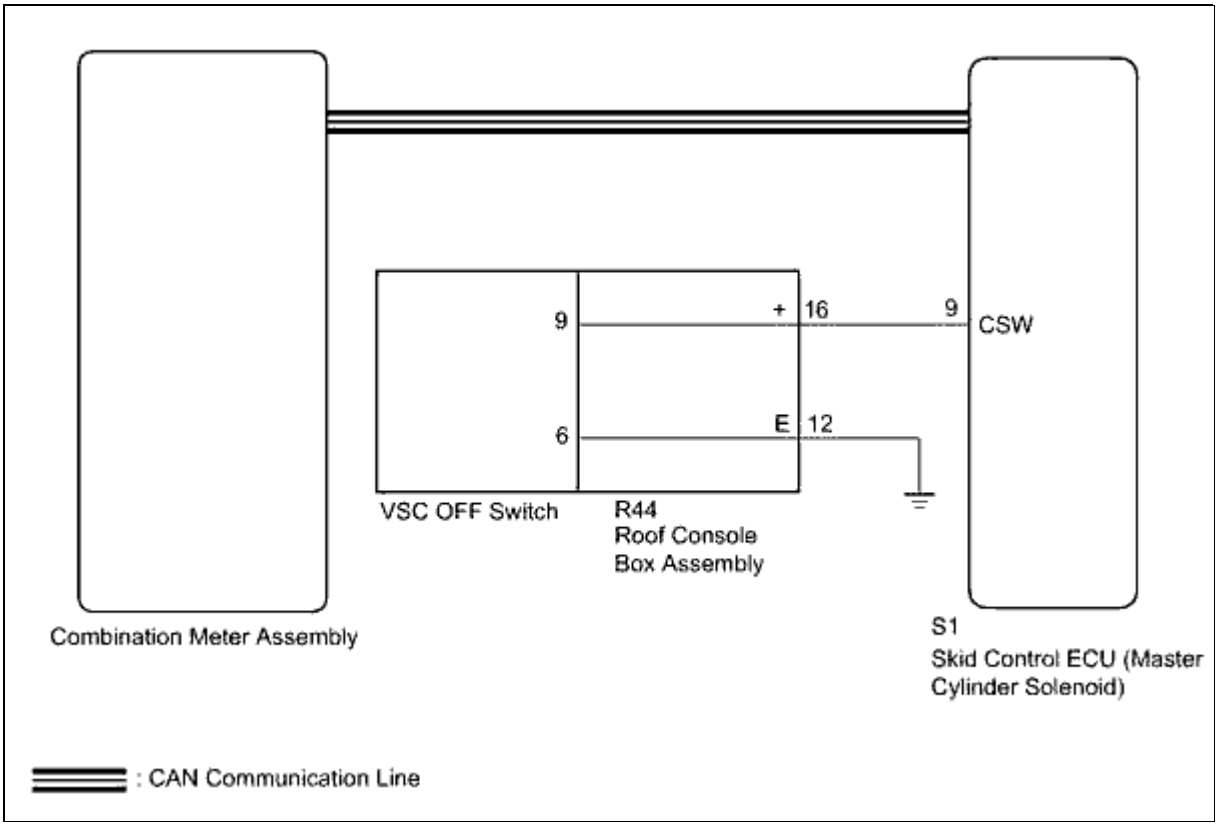
  When the vehicle is stopped, pressing the VSC OFF switch for 3 seconds or more changes the vehicle to VSC OFF mode, TRAC and VSC operation are prohibited, and the TRAC OFF indicator and VSC OFF indicator lights turn on.
- In 4WD mode:

  Operation of the VSC OFF switch changes the vehicle between normal mode and VSC OFF mode. During normal mode, when the vehicle is stopped, pressing the VSC OFF switch for 3 seconds or more changes the vehicle to VSC OFF mode, TRAC and VSC operation are prohibited, and the TRAC OFF indicator and VSC OFF indicator lights turn on.

  - When the transfer is in L4, VSC is prohibited and the TRAC OFF indicator and VSC OFF indicator lights turn on.
  - When the rear differential is locked, VSC is prohibited and the TRAC OFF indicator and VSC OFF indicator lights turn on. At this time, ABS is also prohibited and the ABS warning light turns on.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- As there may be malfunctions in the transfer system related to when the transfer operates in L4, check the transfer system first.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

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OK

2.	**INSPECT SKID CONTROL ECU (CSW TERMINAL)** INFO

B ▶ **GO TO STEP 4**

C ▶ **GO TO STEP 5**

A

3.	**CHECK FOR DIFFERENTIAL SYSTEM**

(a) Reconnect the S1 skid control ECU (master cylinder solenoid) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.

(f) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are not output	B

B ▶ **GO TO DIFFERENTIAL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A

4.	**READ VALUE USING TECHSTREAM (TRAC/VSC OFF MODE)**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRC OFF, Unknown or VSC OFF	Normal: Normal mode TRC OFF: TRAC OFF mode VSC OFF: VSC OFF mode	-

(f) Check that the mode display changes according to VSC OFF switch operation.

OK:
Display changes according to switch operation.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **GO TO METER / GAUGE SYSTEM**

5.	**INSPECT VSC OFF SWITCH** INFO

NG ▶ **REPLACE VSC OFF SWITCH**

OK ▼

6.	**INSPECT ROOF CONSOLE BOX ASSEMBLY** INFO

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE BOX ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451V01UX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Brake Booster): VSC OFF Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

VSC OFF Indicator Light does not Come ON

DESCRIPTION

Refer to VSC OFF Indicator Light Remains ON INFO .

WIRING DIAGRAM

Refer to VSC OFF Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (master cylinder solenoid), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM** INFO

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**INSPECT SKID CONTROL ECU (CSW TERMINAL)** INFO

NG ▶ **GO TO STEP 4**

OK ▼

3.	**READ VALUE USING TECHSTREAM (TRAC/VSC OFF MODE)**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRC OFF, Unknown or VSC OFF	Normal: Normal mode TRC OFF: TRAC OFF mode VSC OFF: VSC OFF mode	-

(f) Check that the mode display changes according to VSC OFF switch operation.

OK:
Display changes according to switch operation.

NG ▶ **REPLACE MASTER CYLINDER SOLENOID**

OK ▶ **GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

4.	**INSPECT VSC OFF SWITCH** INFO

NG ▶ **REPLACE VSC OFF SWITCH**

OK ▼

5.	**INSPECT ROOF CONSOLE BOX ASSEMBLY (MASTER CYLINDER SOLENOID - VSC OFF SWITCH)** INFO

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (MASTER CYLINDER SOLENOID - ROOF CONSOLE**

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BOX ASSEMBLY)

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VAI000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): ABS Warning Light Remains ON; 2016 MY Tacoma [08/2015 -]		

ABS Warning Light Remains ON

DESCRIPTION

The skid control ECU (brake actuator assembly) is connected to the combination meter assembly via CAN communication.

If any of the following is detected, the ABS warning light remains on:

- The skid control ECU (brake actuator assembly) connectors are disconnected from the skid control ECU (brake actuator assembly).
- There is a malfunction in the skid control ECU (brake actuator assembly) internal circuit.
- There is an open in the harness between the combination meter assembly and the skid control ECU (brake actuator assembly).
- The ABS control system is defective.
- w/ Rear Differential Lock:

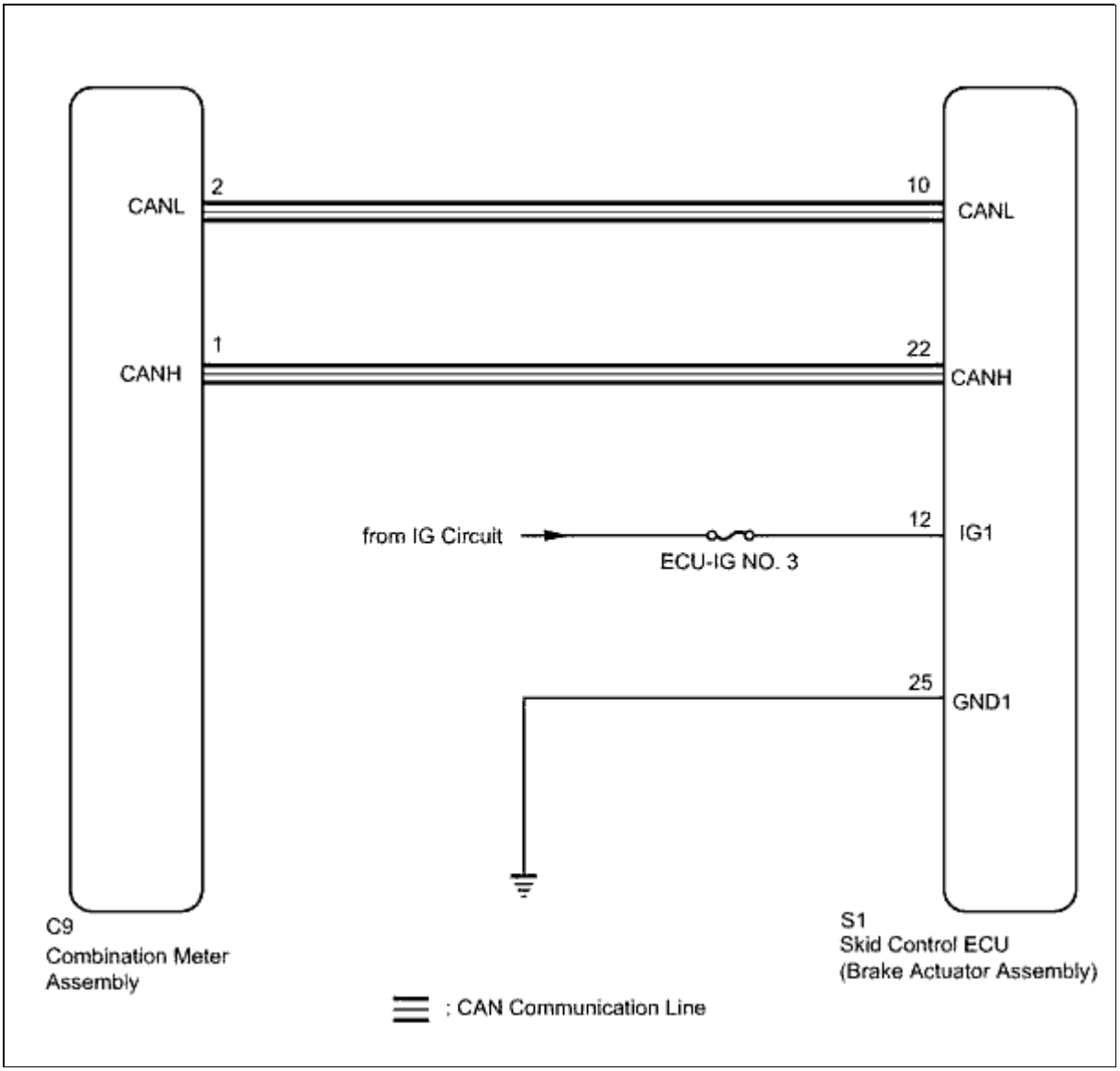
  The rear differential is locked.

HINT:

In some cases, the Techstream cannot be used when the skid control ECU (brake actuator assembly) is abnormal.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A

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RESULT	PROCEED TO
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A

▼

2.	CHECK IF BRAKE ACTUATOR ASSEMBLY CONNECTOR IS SECURELY CONNECTED

(a) Check if the skid control ECU (brake actuator assembly) connector is securely connected.

OK:

The connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO BRAKE ACTUATOR ASSEMBLY CORRECTLY**

OK

▼

3.	INSPECT BATTERY

(a) Check the battery voltage.

Standard voltage:

11 to 14 V

NG ▶ **CHECK OR REPLACE CHARGING SYSTEM OR BATTERY**

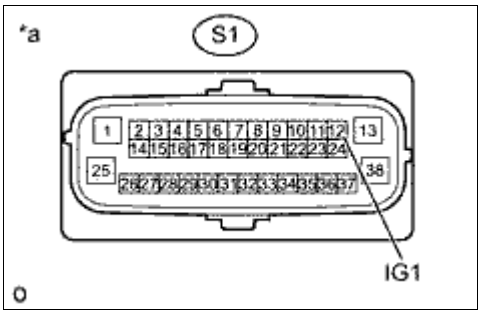
OK

▼

4.	CHECK TERMINAL VOLTAGE (IG1 TERMINAL)

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(a) Disconnect the S1 skid control ECU (brake actuator assembly) connector.



(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-12 (IG1) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IG1 CIRCUIT)**

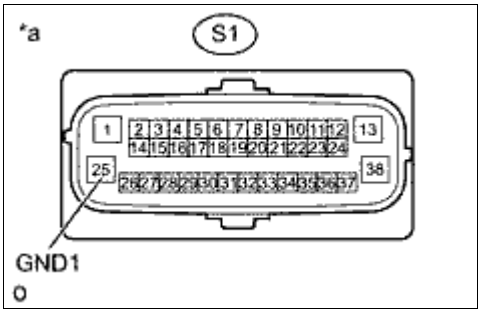
OK ▼

5.	**CHECK HARNESS AND CONNECTOR (GND1 TERMINAL)**

(a) Turn the ignition switch off.

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-25 (GND1) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

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Result

RESULT	PROCEED TO
OK (w/ Rear Differential Lock)	A
OK (w/o Rear Differential Lock)	B
NG	C

B ▶ **GO TO STEP 7**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND1 CIRCUIT)**

A ▼

6.	**CHECK FOR DIFFERENTIAL SYSTEM**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.

(f) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO DIFFERENTIAL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A ▼

7.	**READ VALUE USING TECHSTREAM (ABS WARNING LIGHT)**

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(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light	OFF or ON	OFF: Warning light off ON: Warning light on	-

(g) Check the Techstream display condition of the ABS warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **INSPECT METER / GAUGE SYSTEM**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VAJ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): ABS Warning Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

ABS Warning Light does not Come ON

DESCRIPTION

The skid control ECU (brake actuator assembly) is connected to the combination meter assembly via CAN communication.

WIRING DIAGRAM

Refer to ABS Warning Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (ABS WARNING LIGHT)**

(a) Connect the Techstream to the DLC3.

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(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light	Warning light OFF/ON	Observe combination meter Vehicle condition: Vehicle stopped

(f) When performing the ABS Warning Light Active Test, check ABS Warning Light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light	ABS warning light	OFF: Warning light off ON: Warning light on	-

Result

RESULT	PROCEED TO
ABS warning light in the Data List does not change using the Active Test	A
ABS warning light in the Data List turns ON/OFF using the Active Test	B

B ▶ **GO TO STEP 3**

A ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

3.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:
The ABS warning light turns on or off in accordance with the Techstream.

NG ▶ **INSPECT METER / GAUGE SYSTEM**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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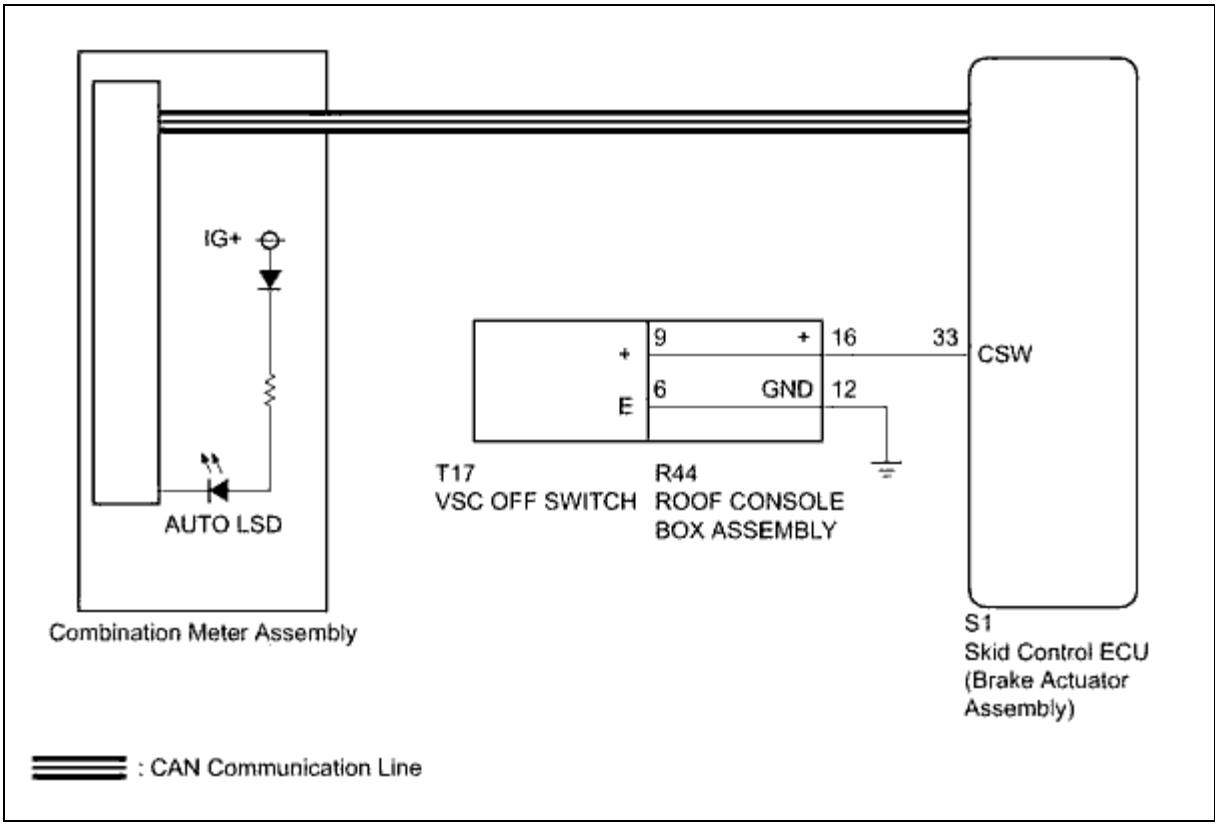
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451Y00RX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): AUTO LSD Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

AUTO LSD Indicator Light Remains ON

DESCRIPTION

During normal mode, pressing the VSC OFF switch for a short amount of time changes vehicle to AUTO LSD mode.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the brake actuator assembly, perform calibration INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION LINE**

(a) Turn the ignition switch off.

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(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (Indicat. Auto LSD)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Combination Meter / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Indicat. Auto LSD	AUTO LSD indicator light	OFF/ON	Perform the test with the vehicle stopped and the engine idling

(g) Check that the AUTO LSD indicator light on the combination meter assembly turns on or off in accordance with the Techstream operation.

OK:

The AUTO LSD indicator light turns on or off in accordance with the Techstream operation.

NG ▶ **GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

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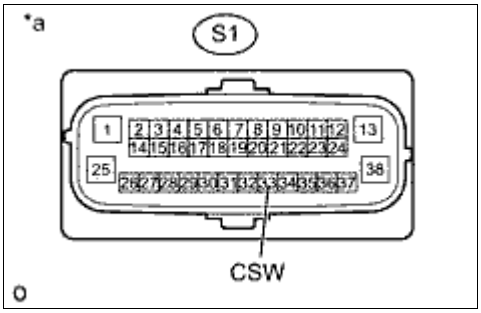
3.	CHECK HARNESS AND CONNECTOR (CSW TERMINAL)

(a) Disconnect the S1 skid control ECU connector.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-33 (CSW) - Body ground	VSC OFF switch not pushed in	10 kΩ or higher
	VSC OFF switch pushed in	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU)

(c) Reconnect the S1 skid control ECU connector.

NG ▶ **GO TO STEP 4**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

4.	INSPECT VSC OFF SWITCH

(a) Turn the ignition switch off.

(b) Remove the VSC OFF switch INFO .

(c) Inspect the VSC OFF switch INFO .

OK:

The VSC OFF switch operates normally.

NG ▶ **REPLACE VSC OFF SWITCH**

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM00000451Z00RX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): AUTO LSD Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

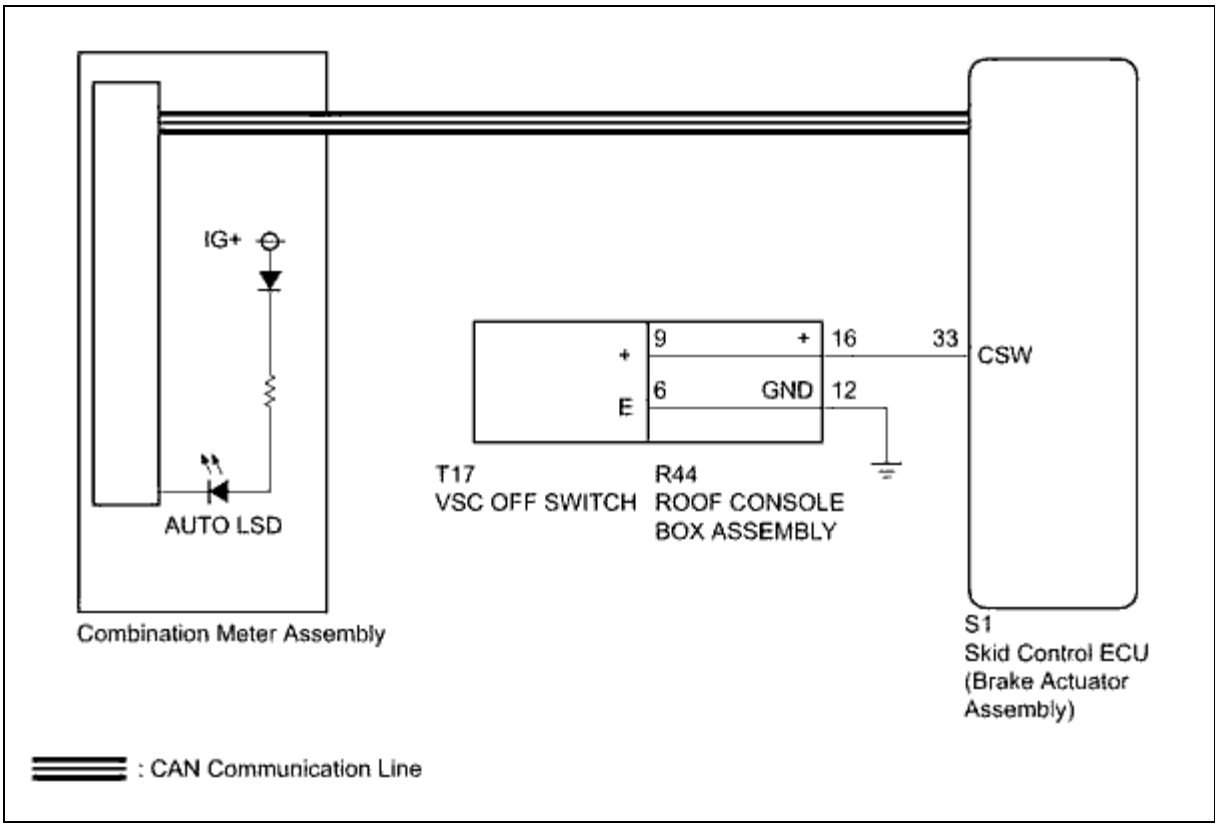
AUTO LSD Indicator Light does not Come ON

DESCRIPTION

The AUTO LSD does not operate even if the VSC OFF switch is pressed under the following conditions:

- The brake system is faulty.
- The temperature inside the hydraulic brake booster increases and the AUTO LSD operation is suspended.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the brake actuator assembly, perform calibration INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION LINE**

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(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**INSPECT VSC OFF SWITCH**

(a) Turn the ignition switch off.

(b) Remove the VSC OFF switch INFO .

(c) Inspect the VSC OFF switch INFO .

OK:

The VSC OFF switch operates normally.

NG ▶ **REPLACE VSC OFF SWITCH**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - VSC OFF SWITCH)**

(a) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-33 (CSW) - R44-16	Always	Below 1 Ω
S1-33 (CSW) or R44-16 -Body ground	Always	10 kΩ or higher

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-12 - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	READ VALUE USING TECHSTREAM (AUTO LSD INDICATOR LIGHT)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Auto LSD Indicator Light	Auto LSD indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-

(f) When performing the Auto LSD Indicator Light Active Test, check Auto LSD Indicator Light in the Data List INFO .

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Auto LSD Indicator Light	Auto LSD indicator light	Indicator light ON/OFF	Observe the combination meter.

RESULT		PROCEED TO
DATA LIST DISPLAY	DATA LIST DISPLAY WHEN PERFORMING ACTIVE TEST ON/OFF OPERATION	
ON	Does not change between ON and OFF	A
	Changes between ON and OFF	B
OFF	Does not change between ON and OFF	A
	Changes between ON and OFF	B

B ▶ **GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

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A ▶ REPLACE MASTER CYLINDER SOLENOID

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VAK000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): Brake Warning Light Remains ON; 2016 MY Tacoma [08/2015 -]		

Brake Warning Light Remains ON

DESCRIPTION

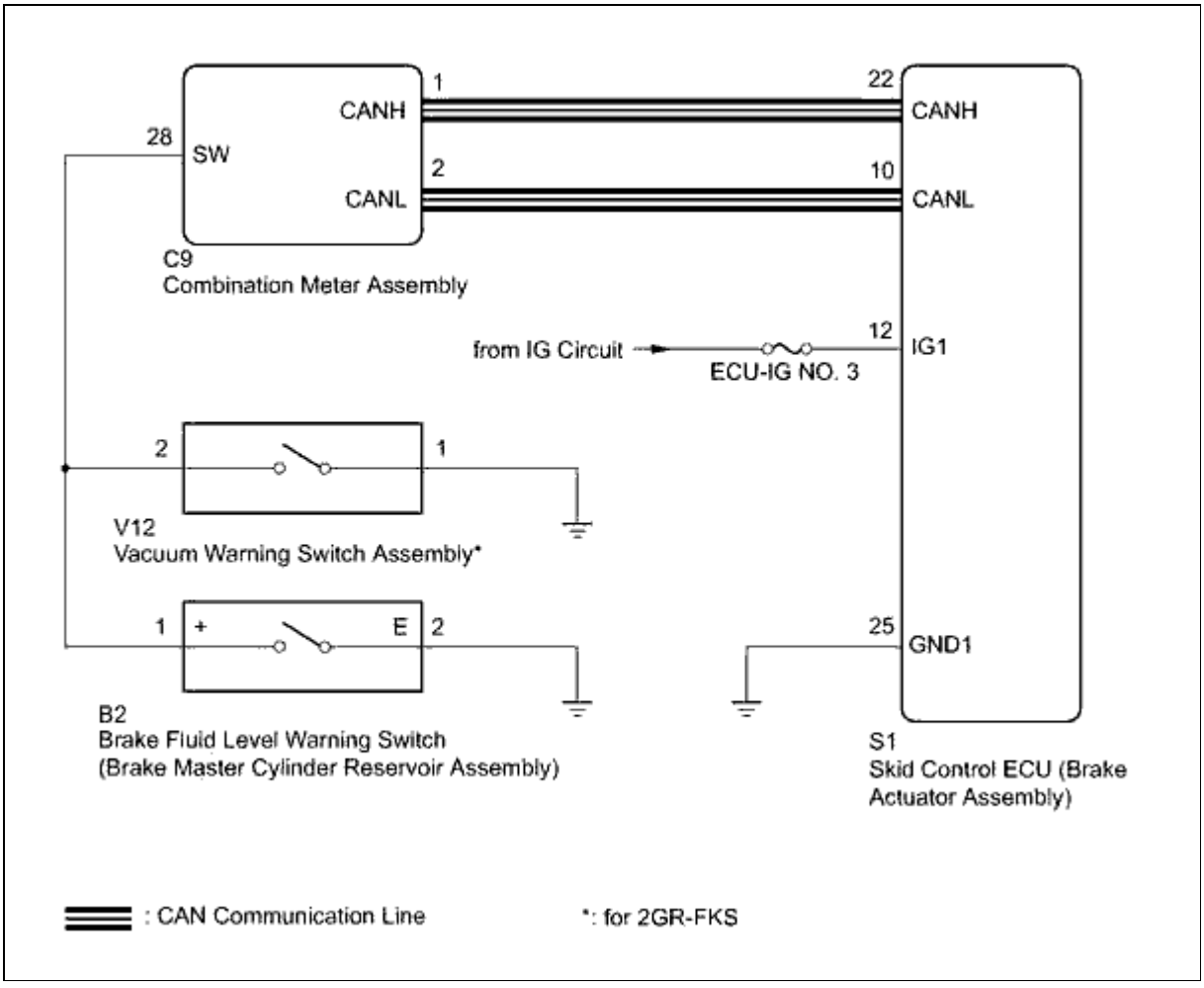
The skid control ECU (brake actuator assembly) is connected to the combination meter assembly via CAN communication.

If any of the following is detected, the brake warning light remains on:

- The skid control ECU (brake actuator assembly) connector is disconnected from the skid control ECU (brake actuator assembly).
- The brake fluid level is insufficient.
- EBD operation is not possible.
- The vacuum inside the brake booster decreases.*

*: for 2GR-FKS

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▼

2.	**CHECK IF BRAKE ACTUATOR ASSEMBLY CONNECTOR IS SECURELY CONNECTED**

(a) Check if the skid control ECU (brake actuator assembly) connector is securely connected.

OK:

The connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO BRAKE ACTUATOR ASSEMBLY CORRECTLY**

OK ▼

3.	**INSPECT BATTERY**

(a) Check the battery voltage.

Standard voltage:

11 to 14 V

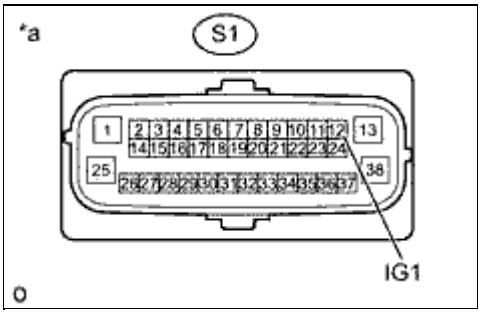
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NG ▶ **CHECK OR REPLACE CHARGING SYSTEM OR BATTERY**

OK ▼

4.	**CHECK TERMINAL VOLTAGE (IG1 TERMINAL)**

(a) Disconnect the skid control ECU (brake actuator assembly) connector.



(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-12 (IG1) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IG1 CIRCUIT)**

OK ▼

5.	**CHECK HARNESS AND CONNECTOR (GND1 TERMINAL)**

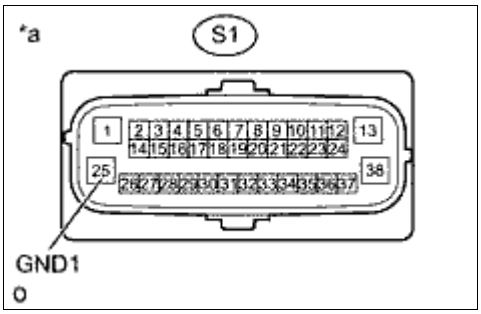
(a) Turn the ignition switch off.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-25 (GND1) - Body ground	Always	Below 1 Ω



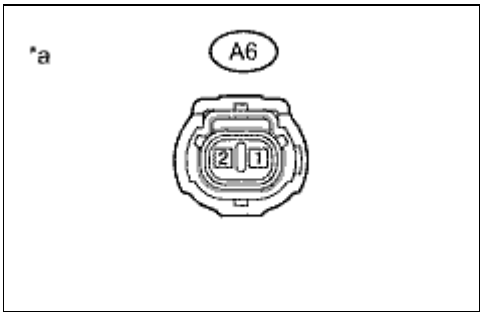
Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND1 CIRCUIT)**

OK ▼

6.	INSPECT BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY



(a) Turn the ignition switch off.

(b) Remove the reservoir filler cap and strainer.

(c) Disconnect the A6 brake fluid level warning switch (brake master cylinder reservoir assembly) connector.

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

HINT:

A float is located inside the reservoir. Its position can be changed by increasing or decreasing the level of brake fluid.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Switch off (Float up)	10 kΩ or higher

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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
	Switch on (Float down)	Below 1 Ω

Text in Illustration

*a	Component without harness connected (Brake Fluid Level Warning Switch [Brake Master Cylinder Reservoir Assembly])

HINT:

If there is no problem after finishing the above check, adjust the brake fluid level to the MAX level.

NG ▶ **REPLACE BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY**

OK ▼

7.	**CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY)**

(a) Disconnect the C9 combination meter assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-28 (SW) - B2-1 (+)	Always	Below 1 Ω
B2-2 (E) - Body ground	Always	10 kΩ or higher
C9-28 (SW) or B2-1 (+) - Body ground	Always	10 kΩ or higher

Result

RESULT	PROCEED TO
OK (for 2GR-FKS)	A
OK (for 2TR-FE)	B
NG	C

B ▶ **GO TO STEP 10**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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A

8.	INSPECT VACUUM WARNING SWITCH ASSEMBLY

(a) Remove the vacuum warning switch assembly INFO .

(b) Inspect the vacuum warning switch assembly INFO .

OK:

The vacuum warning switch assembly is normal.

NG ▶ **REPLACE VACUUM WARNING SWITCH ASSEMBLY**

OK

9.	CHECK HARNESS AND CONNECTOR (BRAKE WARNING LIGHT CIRCUIT)

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-28 (SW) - V12-2	Always	Below 1 Ω
V12-1 - Body ground	Always	Below 1 Ω
C9-9 (SW) or V12-2 - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

10.	READ VALUE USING TECHSTREAM (BRAKE WARNING LIGHT)

(a) Reinstall the reservoir filler cap and strainer.

(b) for 2GR-FKS

Reinstall the vacuum warning switch assembly.

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(c) Reconnect the C9 combination meter assembly connector, S1 skid control ECU (brake actuator assembly) connector and the A6 brake fluid level warning switch (brake master cylinder reservoir assembly) connector.

(d) for 2GR-FKS

Reconnect the V12 vacuum warning switch assembly connector.

(e) Connect the Techstream to the DLC3.

(f) Turn the ignition switch to ON.

(g) Turn the Techstream on.

(h) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(i) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Brake Warning Light	Brake warning light	OFF or ON	OFF: Warning light off ON: Warning light on	-

(j) Check the Techstream display condition of the brake warning light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **INSPECT METER / GAUGE SYSTEM**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VAO000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): Brake Warning Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

Brake Warning Light does not Come ON

DESCRIPTION

The skid control ECU (brake actuator assembly) is connected to the combination meter assembly via CAN communication.

WIRING DIAGRAM

Refer to Brake Warning Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (BRAKE WARNING LIGHT)**

(a) Turn the ignition switch off.

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(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Brake Warning Light	Brake warning light	Warning light OFF/ON	Observe combination meter Vehicle condition: Vehicle stopped

(g) When performing the Brake Warning Light Active Test, check Brake Warning Light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Brake Warning Light	Brake warning light	OFF or ON	OFF: Warning light off ON: Warning light on	-

Result

RESULT	PROCEED TO
Brake warning light in the Data List turns ON/OFF using the Active Test	A
Brake warning light in the Data List does not change using the Active Test	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▼

3.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:

The brake warning light turns on or off in accordance with the Techstream.

NG ▶ **INSPECT METER / GAUGE SYSTEM**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAC000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1201; Engine Control System Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1201**	**Engine Control System Malfunction**

DESCRIPTION

If a malfunction in the engine control system is detected, VSC and TRAC operations are prohibited by the fail-safe function.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1201	Engine Control System Malfunction	A malfunction signal is received from the ECM.	Engine control system

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK DTC (ENGINE CONTROL SYSTEM)**

(a) Check if any engine control system DTC is output.

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **GO TO ENGINE CONTROL (DIAGNOSTIC TROUBLE CODE CHART)**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAD000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1203; ECM Communication Circuit Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1203**	**ECM Communication Circuit Malfunction**

DESCRIPTION

The circuit is used to send TRAC and VSC control information from the skid control ECU (brake actuator assembly) to the ECM, and engine control information from the ECM to the skid control ECU (brake actuator assembly) through the CAN communication system.

for 4WD or w/ Rear Differential Lock:

The rear differential lock identification signal is sent from the 4 wheel drive control ECU to the skid control ECU (brake actuator assembly) via the CAN communication system.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1203	ECM Communication Circuit Malfunction	Any of the following is detected: • Engine model information sent from the ECM does not match the information stored in the skid control ECU. • The rear differential lock identification signal sent from the 4 wheel drive control ECU does not match the information stored in the skid control ECU.* • No system information stored in the skid control ECU. • Incorrect installation of the skid control ECU, 4 wheel drive control ECU* or ECM.	• ECM malfunction or ECM with incorrect part number installed • 4 wheel drive control ECU malfunction or 4 wheel drive control ECU with incorrect part number installed* • Skid control ECU (Brake actuator assembly)

*: for 4WD or w/ Rear Differential Lock

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

HINT:

When DTC C1203, inspect and repair the trouble areas indicated.

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PROCEDURE

1.	**CHECK PART NUMBER (ECM)**

(a) Check that the proper ECM is installed.

Result

RESULT	PROCEED TO
Proper ECM is installed (for 4WD or w/ Rear Differential Lock)	A
Proper ECM is installed (except 4WD or w/o Rear Differential Lock)	B
Proper ECM are not installed	C

B ▶ **GO TO STEP 3**

C ▶ **CHECK OR REPLACE CHARGING SYSTEM OR BATTERY**

A ▼

2.	**CHECK PART NUMBER (4 WHEEL DRIVE CONTROL ECU)**

(a) Check that a proper 4 wheel drive control ECU is installed.

Result

RESULT	PROCEED TO
Proper 4 wheel drive control ECU is installed	A
Proper 4 wheel drive control ECU are not installed	B

B ▶ **REPLACE 4 WHEEL DRIVE CONTROL ECU**

A ▼

3.	**CHECK BRAKE ACTUATOR ASSEMBLY**

(a) Check if the brake actuator assembly had been replaced before the DTC was recorded.

Result

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RESULT	PROCEED TO
The brake actuator assembly is not replaced	A
The brake actuator assembly is replaced	B

B ▶ **GO TO STEP 5**

A ▼

4.	**RECONFIRM DTC**

(a) Clear the DTC INFO .

(b) Turn the ignition switch off.

(c) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1203 is not output	A
DTC C1203 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

5.	**PERFORM INITIALIZATION AND CALIBRATION**

(a) Perform initialization and calibration INFO .

NEXT ▼

6.	**RECONFIRM DTC**

(a) Clear the DTC INFO .

(b) Turn the ignition switch off.

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(c) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1203 is not output	A
DTC C1203 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAH000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C120B; IG Supply Voltage Low; 2016 MY Tacoma [08/2015 -]		

DTC	**C120B**	**IG Supply Voltage Low**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C120B	IG Supply Voltage Low	Master cylinder pressure sensor power supply voltage decrease occurs or history of voltage decrease exists, and defective master cylinder pressure sensor output continues for 1 second or more.	• Master cylinder pressure sensor output defective • Skid control ECU (Brake actuator assembly) • ABS NO. 2 fuse

WIRING DIAGRAM

Refer to DTC C1417 INFO .

INSPECTION PROCEDURE

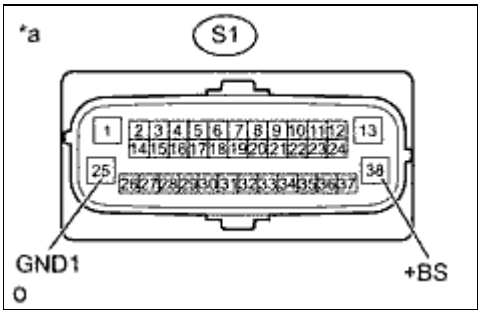
NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (+BS TERMINAL)**

(a) Make sure that there is no looseness at the locking part and the connecting part of the connector.



(b) Disconnect the skid control ECU (brake actuator assembly) connector.

(c) Measure the voltage according to the value(s) in the table below.

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Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-38 (+BS) - Body ground	Always	11 to 14 V
S1-38 (+BS) - S1-25 (GND1)	Always	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (+BS CIRCUIT)**

OK ▼

2.	**RECONFIRM DTC**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTCs INFO .

(c) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C120B is not output.	A
DTC C120B is output.	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAA000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1210,C1336; Zero Point Calibration of Yaw Rate Sensor Undone; 2016 MY Tacoma [08/2015 -]		

DTC	**C1210**	**Zero Point Calibration of Yaw Rate Sensor Undone**

DTC	**C1336**	**Zero Point Calibration of Acceleration Sensor Undone**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle condition. If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, the DTC U0124 (Lost Communication with Lateral Acceleration Sensor Module) is output.

The DTCs are also output when the calibration has not been completed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1210	Zero Point Calibration of Yaw Rate Sensor Undone	Zero point calibration of yaw rate sensor undone.	• Sensor installation • Yaw rate sensor (Airbag sensor assembly) • Skid control ECU (Brake actuator assembly)
C1336	Zero Point Calibration of Acceleration Sensor Undone	Zero Point Calibration of Acceleration Sensor Undone.	• Sensor installation • Yaw rate sensor (Airbag sensor assembly) • Skid control ECU (Brake actuator assembly)

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration and store system information INFO .

HINT:

When U0124 and/or U0126 is output along with C1210 and/or C1336, inspect and repair trouble areas indicated by U0124 and/or U0126 first INFO .

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PROCEDURE

1.	**PERFORM ZERO POINT CALIBRATION OF YAW RATE AND ACCELERATION SENSOR**

(a) Perform zero point calibration of the yaw rate and acceleration sensor INFO .

NEXT

2.	**PERFORM TEST MODE (SIGNAL CHECK)**

(a) Turn the ignition switch off.

(b) Using the Techstream, perform a Test Mode (signal check) inspection sensor check and check that all Test Mode (signal check) inspection items change from incomplete to complete INFO .

OK:

All Test Mode (signal check) inspection items change from incomplete to complete

HINT:

If troubleshooting has been carried out according to Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **GO TO STEP 3**

OK ▶ **END**

3.	**CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION**

(a) Turn the ignition switch off.

(b) Check that the airbag sensor assembly has been installed properly INFO .

OK:

The sensor should be tightened to the specified torque.

The sensor is not installed in a tilted position.

NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY CORRECTLY**

OK

4.	**READ VALUE USING TECHSTREAM (YAW RATE AND ACCELERATION SENSOR)**

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(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(e) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
Deceleration Sensor	Deceleration sensor reading/ Min.: -18.525 m/s2, Max.: 18.387 m/s2	-	During deceleration/ acceleration: Changes continuously
Deceleration Sensor2	Deceleration sensor 2 reading/ Min.: -18.525 m/s2, Max.: 18.387 m/s2	-	During deceleration/ acceleration: Changes continuously
Yaw Rate Sensor	Yaw rate and deceleration sensor1/ Min.: -128°/s, Max.: 127°/s	Vehicle stopped: 0°/s Turning right: -128 to 0°/s Turning left: 0 to 127°/s	-

(f) Check the yaw rate and acceleration sensor (airbag sensor assembly) output value displayed on the Techstream.

OK:

The yaw rate and acceleration sensor (airbag sensor assembly) output value is normal.

NG ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA7000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1225,C1468,C1469,C146A,C146B; SM Solenoid Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1225**	**SM Solenoid Circuit**

DTC	**C1468**	**SFR Solenoid Circuit**

DTC	**C1469**	**SFL Solenoid Circuit**

DTC	**C146A**	**SRR Solenoid Circuit**

DTC	**C146B**	**SRL Solenoid Circuit**

DESCRIPTION

These solenoids turn on when signals are received from the skid control ECU (brake actuator assembly) and they control the pressure acting on the wheel cylinders to control the braking force.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1225	SM Solenoid Circuit	Any of the following is detected: • While master cylinder cut solenoid outputs ON, overcurrent continues for 0.1 seconds or more. • While master cylinder cut solenoid outputs OFF, open circuit continues for 0.05 seconds or more. • While master cylinder cut solenoid outputs ON, open circuit continues for 0.05 seconds or more. • While master cylinder cut solenoid outputs OFF, current is maintained for 0.05 seconds or more. • Difference in master cylinder cut solenoid output accuracy continues for 0.2 seconds or more.	Brake actuator assembly
C1468	SFR Solenoid Circuit	Any of the following is detected: • Open or short circuit in decompression solenoid continues for 0.05 seconds or more. • While holding solenoid outputs OFF, open circuit continues for 0.05 seconds or more. • While holding solenoid outputs OFF, current is maintained for 0.05 seconds or more. • While holding solenoid outputs ON, overcurrent	Brake actuator assembly

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
		continues for 0.1 seconds or more. • While holding solenoid outputs ON, open circuit continues for 0.05 seconds or more. • Difference in holding solenoid LH and RH accuracy continues for 0.2 seconds or more.	
C1469	SFL Solenoid Circuit	Any of the following is detected: • Open or short circuit in decompression solenoid continues for 0.05 seconds or more. • While holding solenoid outputs OFF, open circuit continues for 0.05 seconds or more. • While holding solenoid outputs OFF, current is maintained for 0.05 seconds or more. • While holding solenoid outputs ON, overcurrent continues for 0.1 seconds or more. • While holding solenoid outputs ON, open circuit continues for 0.05 seconds or more. • Difference in holding solenoid LH and RH accuracy continues for 0.2 seconds or more.	Brake actuator assembly
C146A	SRR Solenoid Circuit	Any of the following is detected: • Open or short circuit in decompression solenoid continues for 0.05 seconds or more. • While holding solenoid outputs OFF, open circuit continues for 0.05 seconds or more. • While holding solenoid outputs OFF, current is maintained for 0.05 seconds or more. • While holding solenoid outputs ON, overcurrent continues for 0.1 seconds or more. • While holding solenoid outputs ON, open circuit continues for 0.05 seconds or more. • Difference in holding solenoid LH and RH accuracy continues for 0.2 seconds or more.	Brake actuator assembly
C146B	SRL Solenoid Circuit	Any of the following is detected: • Open or short circuit in decompression solenoid continues for 0.05 seconds or more. • While holding solenoid outputs OFF, open circuit continues for 0.05 seconds or more. • While holding solenoid outputs OFF, current is maintained for 0.05 seconds or more. • While holding solenoid outputs ON, overcurrent continues for 0.1 seconds or more. • While holding solenoid outputs ON, open circuit continues for 0.05 seconds or more. • Difference in holding solenoid LH and RH accuracy continues for 0.2 seconds or more.	Brake actuator assembly

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HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**RECONFIRM DTC**

HINT:

These codes are detected when a problem is determined in the skid control ECU (brake actuator assembly).

The solenoid circuits are in the skid control ECU (brake actuator assembly).

Therefore, solenoid circuit inspection and solenoid unit inspection cannot be performed. Be sure to check if any DTCs are output before replacing the skid control ECU (brake actuator assembly).

(a) Clear the DTC INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 20 km/h (12 mph) or more for 30 seconds or more.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

HINT:

- If a speed signal of 6 km/h (4 mph) or more is input to the skid control ECU (brake actuator assembly), with the ignition switch to ON and the stop light switch off, the ECU performs self diagnosis of the motor and solenoid circuits.
- If the normal system code is output (the trouble code is not output), slightly jiggle the connectors, wire harness, and fuses of the skid control ECU (brake actuator assembly). Make sure that no DTCs are output.
- If any DTCs are output while jiggling a connector or wire harness from the skid control ECU (brake actuator assembly), inspect and repair the connector or wire harness.
- The DTCs were probably output due to a bad connection of the connector terminal.

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA9000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1232,C1243,C1245; Acceleration Sensor Stuck Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1232**	**Acceleration Sensor Stuck Malfunction**

DTC	**C1243**	**Acceleration Sensor Stuck Malfunction**

DTC	**C1245**	**Acceleration Sensor Output Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in acceleration sensor and detects the vehicle condition.

If there is trouble in the bus lines between the yaw rate and acceleration sensor (airbag sensor assembly) and the CAN communication system, the DTC U0124 (malfunction in CAN communication with the acceleration sensor) is output.

These DTCs are also output when calibration has not been completed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1232	Acceleration Sensor Stuck Malfunction	At a vehicle speed of 10 km/h (6 mph) or more, the acceleration sensor output value does not change for 30 seconds or more.	• Acceleration sensor (Airbag sensor assembly) • Acceleration sensor (Airbag sensor assembly) circuit • Sensor installation
C1243	Acceleration Sensor Stuck Malfunction	Any of the following is detected: • Output values of the acceleration sensor do not change 16 times or more while vehicle speed decreases from 30 km/h (19 mph) to 0 km/h (0 mph). • Output values of the acceleration sensor are outside permitted output range for 60 seconds or more. • Left and right output values of the acceleration sensor are outside permitted output range for 60 seconds or more.	• Acceleration sensor (Airbag sensor assembly) • Acceleration sensor (Airbag sensor assembly) circuit • Sensor installation

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HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration and store system information INFO .

HINT:

When U0124 and/or U0126 is output together with C1232, C1243 and/or C1245, inspect and repair the trouble areas indicated by U0124 and/or U0126 first INFO .

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTC INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) At a speed of 30 km/h (19 mph) or more, drive the vehicle, turn the steering wheel, and decelerate (depress the brake pedal) the vehicle.

(e) Check that no CAN communication system DTC is output INFO .

(f) Check if DTCs for zero point calibration of the yaw rate sensor undone (C1210) or for zero point calibration of the acceleration sensor undone (C1336) are output INFO .

Result

RESULT	PROCEED TO
DTC (relating to yaw rate and acceleration sensor) is output	A
DTC (relating to CAN communication system) is output	B
DTC (C1210 and/or C1336) are output	C

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

C ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

A ▼

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2.	**CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION**

(a) Turn the ignition switch off.

(b) Check that the airbag sensor assembly has been installed properly INFO .

OK:

The sensor should be tightened to the specified torque.

The sensor should not be tilted position.

NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY CORRECTLY**

OK ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA1000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1241; Low Power Supply Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1241**	**Low Power Supply Voltage Malfunction**

DESCRIPTION

If a malfunction is detected in the power supply circuit, the skid control ECU (brake actuator assembly) stores this DTC and the fail-safe function prohibits ABS operation.

This DTC is stored when the +BS terminal voltage deviates from the DTC detection condition due to a malfunction in the power supply or charging circuit such as the battery or generator circuit, etc.

The DTC is canceled when the +BS terminal voltage returns to normal.

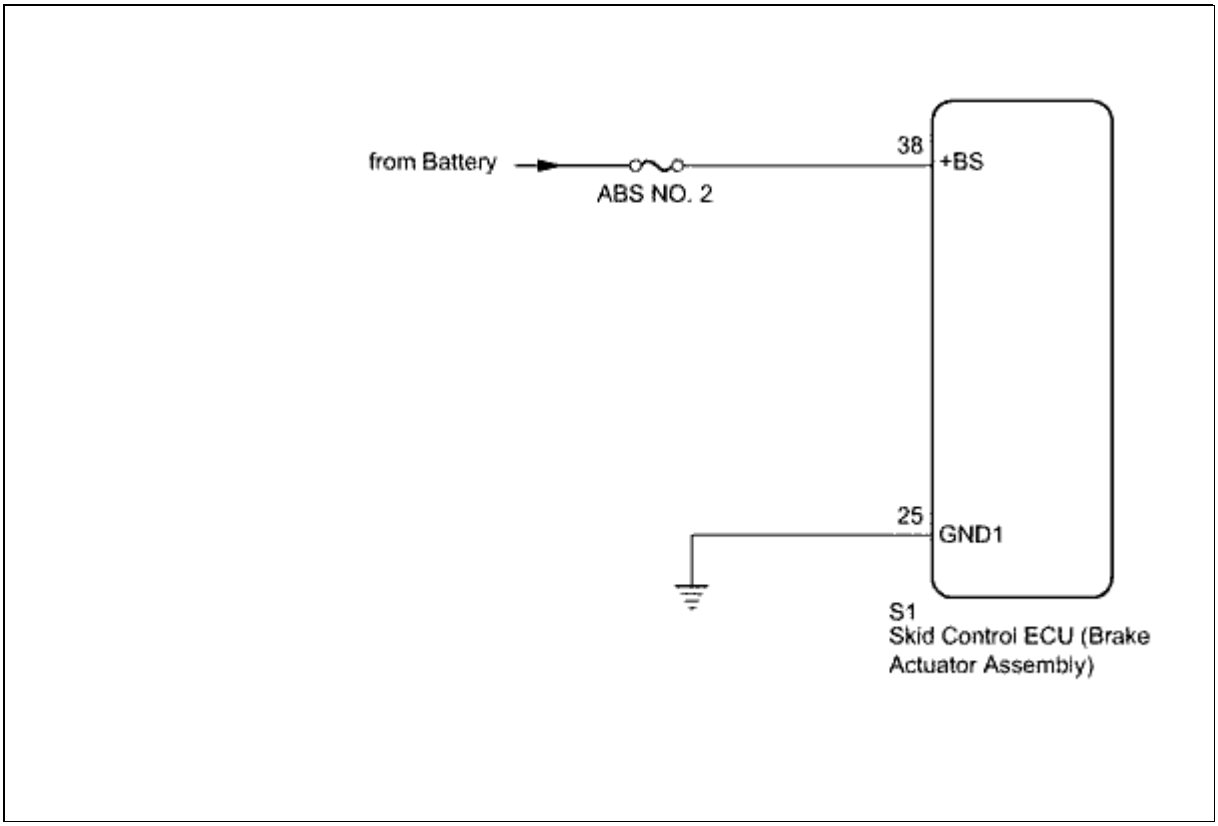
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1241	Low Power Supply Voltage Malfunction	Any of the following is detected: • When vehicle speed is 3 km/h (2 mph) or more, +BS terminal voltage is continuously below 9.5 V for 10 seconds or more. • When solenoid relay is on, +BS terminal voltage is below 9.5 V and relay contact is off for 0.22 seconds or more. • When +BS terminal voltage is below 9.5 V, power supply voltage of vehicle speed sensor is continuously low for 60 seconds or more. • When fail-safe motor relay is on and +BS terminal voltage is below 9.5 V, fail-safe motor relay overcurrent continues for 0.05 seconds or more.	• ABS NO. 2 fuse • Battery • Charging system • Wire harness or connector • Skid control ECU (Brake actuator assembly)

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**INSPECT BATTERY**

(a) Check the battery voltage.

Standard voltage:
11 to 14 V

NG ▶ **CHECK OR REPLACE CHARGING SYSTEM OR BATTERY**

OK ▼

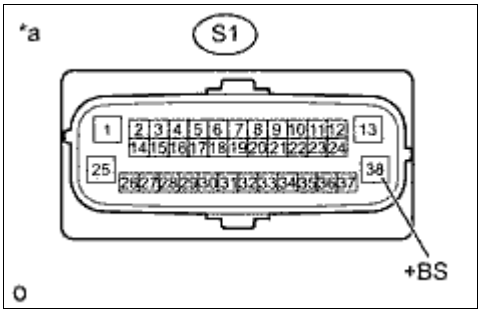
2.	**CHECK TERMINAL VOLTAGE (+BS TERMINAL)**

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(a) Turn the ignition switch off.

(b) Make sure that there is no looseness in the locking part and connecting part of the connectors.

(c) Disconnect the skid control ECU (brake actuator assembly) connector.



(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-38 (+BS) - Body ground	Always	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (+BS CIRCUIT)**

OK ▼

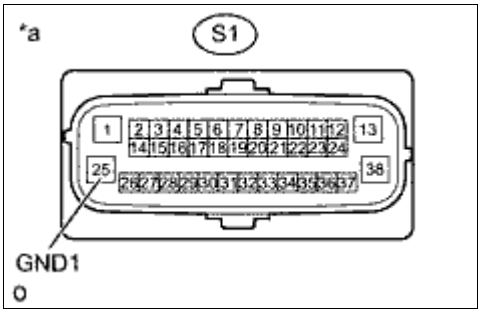
3.	**CHECK HARNESS AND CONNECTOR (GND1 TERMINAL)**

(a) Turn the ignition switch off.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-25 (GND1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector

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	(to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND1 CIRCUIT)**

OK ▼

4.	**RECONFIRM DTC**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTC INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Drive the vehicle at a speed of 20 km/h (12 mph) or more for 30 seconds or more.

(f) Check if the same DTC is recorded INFO .

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

Result

RESULT	PROCEED TO
DTC C1241 is not output	A
DTC C1241 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAG000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1268; Transfer L4 Position Switch Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1268**	**Transfer L4 Position Switch Circuit**

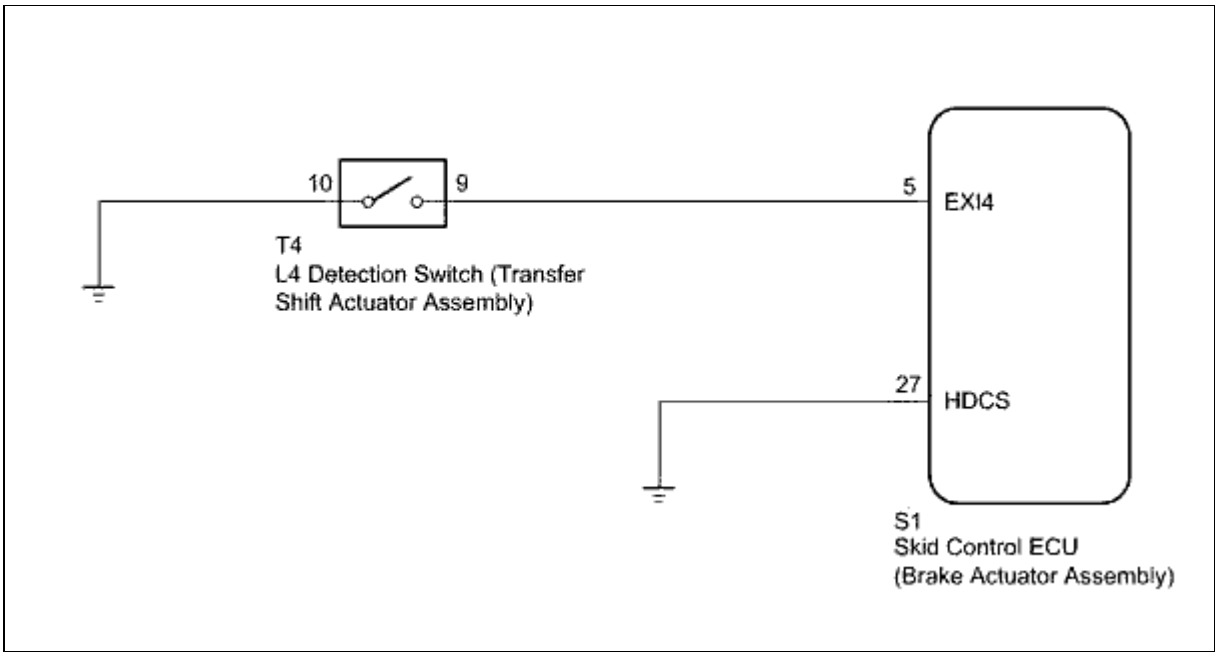
DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1268	Transfer L4 Position Switch Circuit	Either of the following is detected: • The skid control ECU (brake actuator assembly) detects an L4 detection switch (Transfer shift actuator assembly) open circuit. • The skid control ECU (brake actuator assembly) receives an L4 abnormal status signal from the HDCS terminal.	• L4 detection switch (Transfer shift actuator assembly) • L4 detection switch circuit • Skid control ECU (Brake actuator assembly)

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store

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system information INFO .

PROCEDURE

1.	**INSPECT L4 DETECTION SWITCH (TRANSFER SHIFT ACTUATOR ASSEMBLY)**

(a) Inspect the transfer shift actuator assembly INFO .

OK:

The transfer shift actuator assembly is normal.

NG ▶ **REPLACE TRANSFER SHIFT ACTUATOR ASSEMBLY**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - L4 DETECTION SWITCH)**

(a) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Disconnect the T4 L4 detection switch (Transfer shift actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-5 (EXI4) - T4-9	Always	Below 1 Ω
S1-5 (EXI4) - Body ground	Always	10 kΩ or higher
T4-10 - Body ground	Always	Below 1 Ω

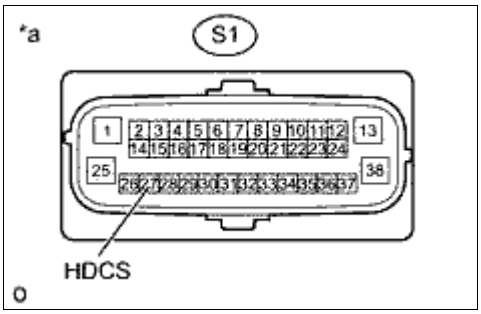
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (L4 DETECTION SWITCH CIRCUIT)**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (HDCS TERMINAL)**

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(a) Disconnect the skid control ECU (brake actuator assembly) connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-27 (HDCS) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Brake Actuator Assembly))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTC INFO .

(b) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA8000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1290; Steering Angle Sensor Zero Point Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1290**	**Steering Angle Sensor Zero Point Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) acquires steering angle sensor zero point every time the ignition switch is turned ON and the vehicle is driven at 35 km/h (22 mph) or more for approximately 5 seconds. The ECU also stores the previous zero point.

If front wheel alignment or steering wheel position is adjusted without disconnecting the negative battery terminal, or if yaw rate and acceleration sensor zero point is not acquired after the adjustments have been completed, the skid control ECU (brake actuator assembly) detects the difference between the previous zero point and newly acquired zero point and outputs this DTC to indicate a poor adjustment.

The steering angle sensor zero point malfunction warning will be canceled by turning the ignition switch off.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1290	Steering Angle Sensor Zero Point Malfunction	The steering angle sensor zero point calibration position vastly differs from the recorded value.	• Yaw rate and acceleration sensor zero point calibration incomplete • Poor adjustment of the centered position of the steering wheel • Poor adjustment of front wheel alignment

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**PERFORM ZERO POINT CALIBRATION OF YAW RATE AND ACCELERATION SENSOR**

(a) Perform zero point calibration of the yaw rate and acceleration sensor INFO .

HINT:

- When the stored zero point of the yaw rate and acceleration sensor is cleared, the steering angle sensor zero point will also be cleared.
- If the zero point and output value of the yaw rate and acceleration sensor and the output value of the speed sensors are not normal, steering angle sensor zero point cannot be acquired normally even if the

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vehicle is driven straight ahead at 35 km/h (22 mph) or more.

NEXT

2.	**PERFORM STEERING ANGLE SENSOR ZERO POINT CALIBRATION**

(a) Drive the vehicle straight ahead at 35 km/h (22 mph) or more for at least 5 seconds.

(b) Check that the centered position of the steering wheel is correctly set while driving straight ahead.

HINT:

If front wheel alignment and steering position are adjusted as a result of abnormal centered position of the steering wheel, acquire the yaw rate and acceleration sensor zero point again after the adjustments are completed.

OK:

The centered position of the steering wheel is correctly set.

NG ▶ **ADJUST FRONT WHEEL ALIGNMENT OR STEERING POSITION**

OK ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAE000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1337; Diameter of the Tire is not Uniform; 2016 MY Tacoma [08/2015 -]		

DTC	**C1337**	**Diameter of the Tire is not Uniform**

DESCRIPTION

The skid control ECU (brake actuator assembly) measures the speed of each wheel by receiving signals from the speed sensors. These signals are used for recognizing whether all 4 wheels are operating properly. Therefore, all wheel signals must indicate the same speed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1337	Diameter of the Tire is not Uniform	The following occurs in 3 consecutive trips: At a vehicle speed of 20 km/h (12 mph) or more, there is a difference of 20% or more in the average speed between the front wheels and rear wheels for 20 seconds or more.	• Tire and wheel size • Tire deformation • Skid control rotor • Speed sensor • Speed sensor circuit • Skid control ECU (Brake actuator assembly)

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK DTC**

(a) Check if any DTCs relating to the speed sensor circuit are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

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A

2.	**CHECK TIRE SIZE**

(a) Check the tire size and condition of all 4 wheels.

OK:

All 4 tires are the same size and in the same condition.

NG ▶ **REPLACE TIRES SO THAT ALL 4 TIRES ARE SAME SIZE AND IN THE SAME CONDITION**

OK

3.	**RECONFIRM DTC**

(a) Clear the DTC INFO .

(b) Turn the ignition switch off.

(c) Perform the following 3 times:

Turn the ignition switch to ON and start the engine, drive the vehicle at a speed of 30 km/h (19 mph) or more for at least 30 seconds, and then stop the vehicle and turn the ignition switch off.

(d) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAB000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1380; Stop Light Control Relay Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1380**	**Stop Light Control Relay Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) inputs the stop light switch signal and detect the status of the brake operation.

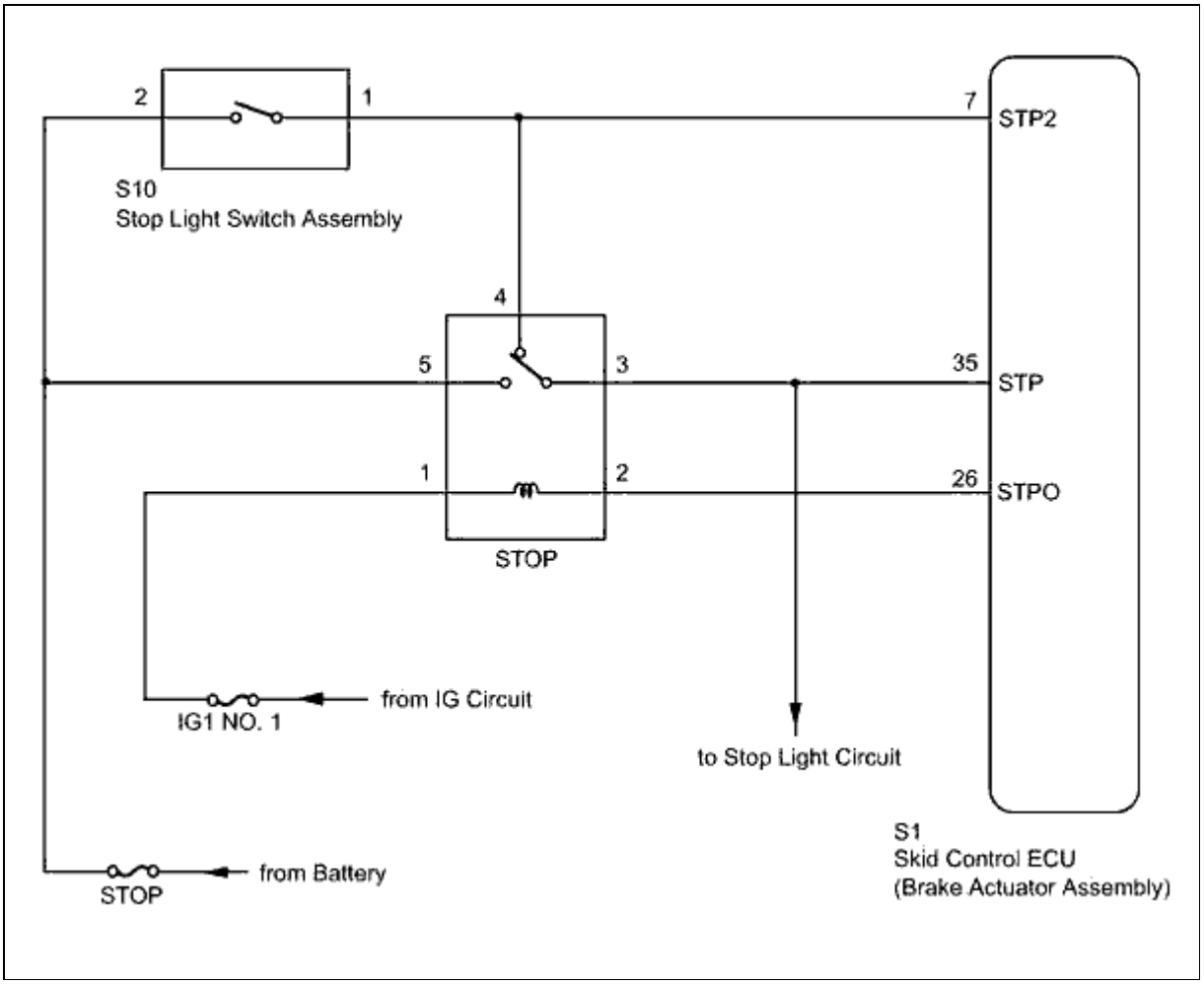
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1380	Stop Light Control Relay Malfunction	Either of the following is detected: • When the voltage at the +BS terminal is 9.5 V or higher and the stop light control relay drive output (STPO) is on, a signal has not been input to the STP terminal for 2 seconds or more. • When the voltage at the +BS terminal is 9.5 V or higher and the stop light control relay drive output (STPO) is off, the signal at the STP is different from the input signal at the STP2 for 2 seconds or more.	• IG NO. 1 fuse • STOP fuse • Stop light switch circuit • STOP Relay • Stop light control relay circuit • Skid control ECU (Brake actuator assembly)

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform calibration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

When DTC C1425 is output together with DTC C1380, inspect and repair the trouble areas indicated by DTC C1425 first INFO .

PROCEDURE

1.	**CHECK STOP LIGHT OPERATION**

(a) Check that the stop lights come on when the brake pedal is depressed and go off when the brake pedal is released.

OK:

CONDITION	ILLUMINATION CONDITION
Brake pedal depressed.	On
Brake pedal released.	Off

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NG ▶ **INSPECT STOP LIGHT CIRCUIT**

OK
▼

2.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)**

(a) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

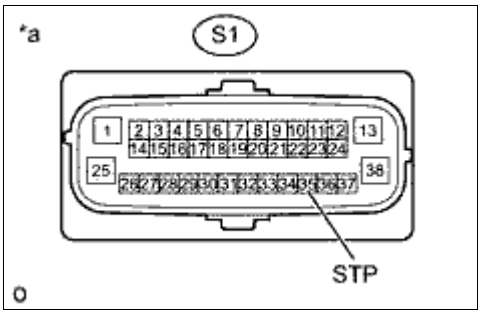
(b) Turn the ignition switch off.

(c) Disconnect the skid control ECU (brake actuator assembly) connector.

(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-35 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	8 to 14 V
	Stop light switch assembly off (Brake pedal released)	Below 1.5 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP CIRCUIT)**

OK
▼

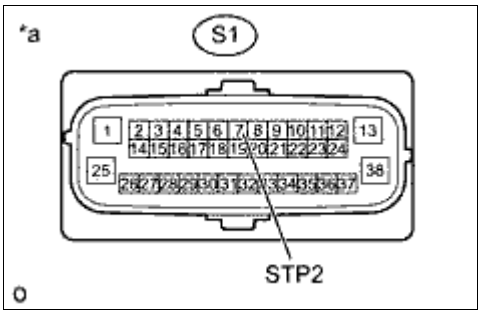
3.	**CHECK HARNESS AND CONNECTOR (STP2 TERMINAL)**

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-7 (STP2) - Body ground	Stop light switch assembly on (Brake pedal depressed)	8 to 14 V
	Stop light switch assembly off (Brake pedal released)	Below 1.5 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP2 CIRCUIT)**

OK ▼

4.	**PERFORM ACTIVE TEST USING TECHSTREAM (STOP LIGHT RELAY)**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Stop Light Relay	Stop Light Relay	Relay ON/OFF	Stop lights come on Vehicle condition: Vehicle stopped

(f) While performing the Active Test, check the illumination condition of the stop lights and "Stop Light Relay Output" in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE

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TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
Stop Light Relay	Stop Light Relay	OFF: Relay output off (Stop lights off) ON: Relay output on (Stop lights on)	-

Result

RESULT	PROCEED TO
When Active Test performed, Data List item changes between ON and OFF and stop lights turn on and off	A
When Active Test performed, Data List item changes between ON and OFF, but stop lights do not turn on	B

B ▶ **GO TO STEP 6**

A ▼

5.	**RECONFIRM DTC**

(a) Turn the ignition switch off.

(b) Clear the DTCs INFO .

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is output INFO .

Result

RESULT	PROCEED TO
DTC C1380 is not output	A
DTC C1380 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

6.	**INSPECT STOP LIGHT CONTROL RELAY (STOP RELAY)**

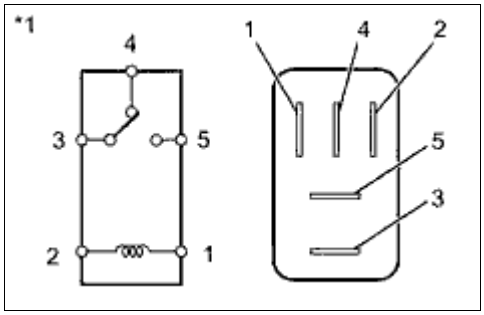
(a) Remove the STOP relay from the engine room relay block.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	CONDITION
3 - 4	Battery voltage not applied	Below 1 Ω
	Battery voltage applied to terminal 1 and 2	10 kΩ or higher
3 - 5	Battery voltage not applied	10 kΩ or higher
	Battery voltage applied to terminal 1 and 2	Below 1 Ω



Text in Illustration

*1	STOP Relay

NG ▶ **REPLACE STOP LIGHT CONTROL RELAY (STOP RELAY)**

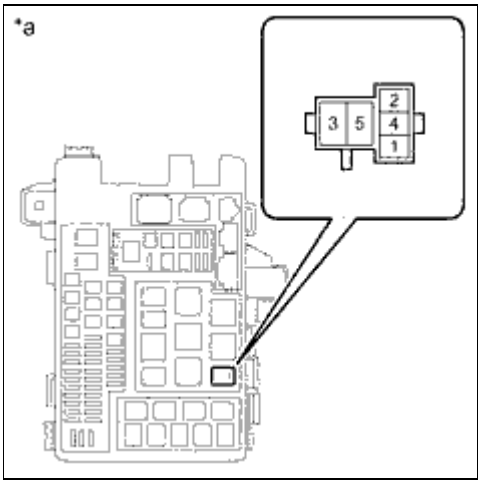
OK ▼

7.	**CHECK TERMINAL VOLTAGE (STOP LIGHT POWER SOURCE TERMINAL)**

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
5 - Body ground	Always	11 to 14 V
1 - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Component without Stop Light Control Relay (STOP Relay) (Engine Room Relay Block and Junction Block)

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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OK

8.	CHECK HARNESS AND CONNECTOR (STPO TERMINAL)

(a) Install the stop light control relay (STOP Relay).

(b) Make sure that there is no looseness in the locking part and connecting part of the connector.

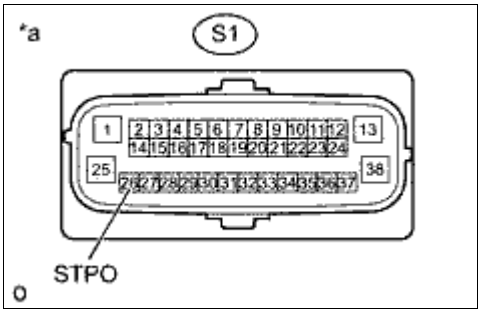
(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

(d) Turn the ignition switch to ON.

(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-26 (STPO) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STPO CIRCUIT)**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAF000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1381; Acceleration Sensor Power Supply Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1381**	**Acceleration Sensor Power Supply Voltage Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in acceleration sensor and detects the vehicle condition.

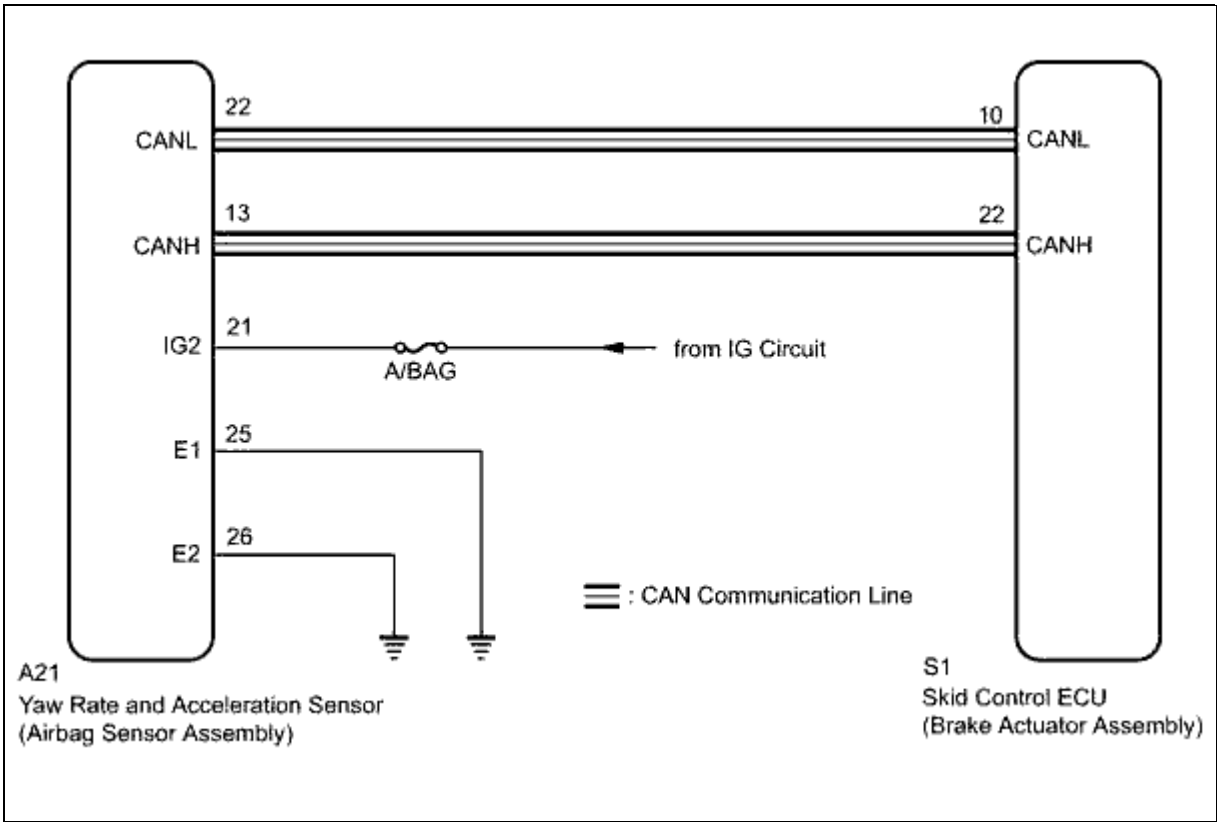
If there is trouble in the bus lines between the acceleration sensor (airbag sensor assembly) and the CAN communication system, the DTC U0124 (Lost Communication with Lateral Acceleration Sensor Module) is output.

These DTCs are also output when calibration has not been completed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1381	Acceleration Sensor Power Supply Voltage Malfunction	At a vehicle speed of more than 3 km/h (2 mph), the acceleration sensor power source malfunction signal is received for 10 seconds or more.	• A/BAG fuse • Acceleration sensor (Airbag sensor assembly) • Wire harness or connector

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK TERMINAL VOLTAGE (IG2 TERMINAL)**

NOTICE:

- After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work INFO .
- When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO .

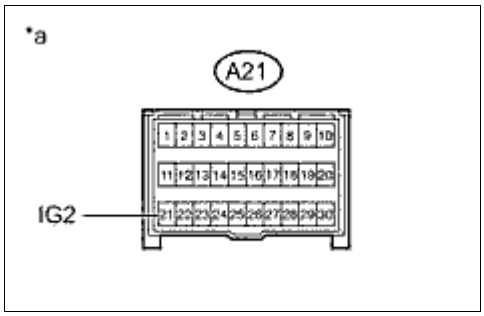
(a) Turn the ignition switch off.

(b) Disconnect the cable from the negative (-) battery terminal, and wait for at least 90 seconds.

(c) Make sure that there is no looseness at the locking part and the connecting part of the connector.

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(d) Disconnect the A21 yaw rate and acceleration sensor (airbag sensor assembly) connector.



(e) Connect the cable to the negative (-) battery terminal, and wait for at least 2 seconds.

(f) Turn the ignition switch to ON.

(g) Operate all the components of the electrical system (defogger, wipers, headlights, heater blower, etc.).

(h) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A21-21 (IG2) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Yaw Rate and Acceleration Sensor [Airbag Sensor Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IG2 CIRCUIT)**

OK ▼

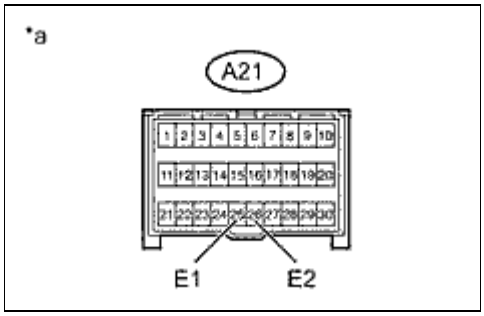
2.	**CHECK HARNESS AND CONNECTOR (GND TERMINAL)**

(a) Turn the ignition switch off.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A21-25 (E1) - Body ground	Always	Below 1 Ω
A21-26 (E2) - Body ground	Always	Below 1 Ω



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Text in Illustration

*a	Front view of wire harness connector (to Yaw Rate and Acceleration Sensor [Airbag Sensor Assembly])

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND CIRCUIT)**

OK ▼

3.	**RECONFIRM DTC**

(a) Reconnect the A21 yaw rate and acceleration sensor (airbag sensor assembly) connector.

(b) Clear the DTC INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Perform a road test.

(f) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1381 is not output	A
DTC C1381 is output	B

B ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA2000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1401,C1402; Front Speed Sensor RH Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1401**	**Front Speed Sensor RH Malfunction**

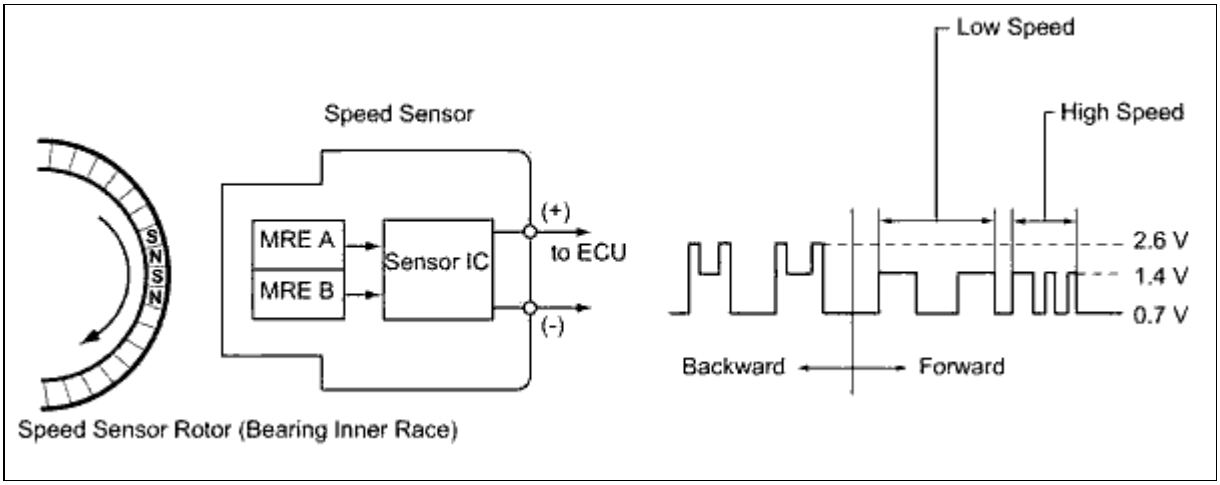
DTC	**C1402**	**Front Speed Sensor LH Malfunction**

DESCRIPTION

The speed sensor detects wheel speed and sends the appropriate signals to the skid control ECU (brake actuator assembly). These signals are used for brake control.

The speed sensor rotors have rows of alternating N and S magnetic poles and their magnetic fields change when the rotors turn.

Each speed sensor detects that magnetic change and sends a pulse signal to the skid control ECU (brake actuator assembly).



DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1401	Front Speed Sensor RH Malfunction	Any of the following is detected: • At a vehicle speed of 10 km/h (6 mph) or more, output voltage from one of the speed sensors is less than that from the other sensors for 15 seconds or more. • At a vehicle speed less than 10 km/h (6 mph), output from one of the speed sensors is 0 km/h (0 mph) for 1 second or more. • At a vehicle speed of 10 km/h (6 mph) or more, outputs from both front speed sensors are 0 km/h (0 mph) for 15 seconds or more.	• Front speed sensor RH • Front axle with ABS rotor bearing assembly RH • Sensor installation

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
		(except both rear speed sensors are 0 km/h (0 mph))	
C1402	Front Speed Sensor LH Malfunction	Any of the following is detected: • At a vehicle speed of 10 km/h (6 mph) or more, output voltage from one of the speed sensors is less than that from the other sensors for 15 seconds or more. • At a vehicle speed less than 10 km/h (6 mph), output from one of the speed sensors is 0 km/h (0 mph) for 1 second or more. • At a vehicle speed of 10 km/h (6 mph) or more, outputs from both front speed sensors are 0 km/h (0 mph) for 15 seconds or more. (except both rear speed sensors are 0 km/h (0 mph))	• Front speed sensor LH • Front axle with ABS rotor bearing assembly LH • Sensor installation

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK FRONT SPEED SENSOR INSTALLATION**

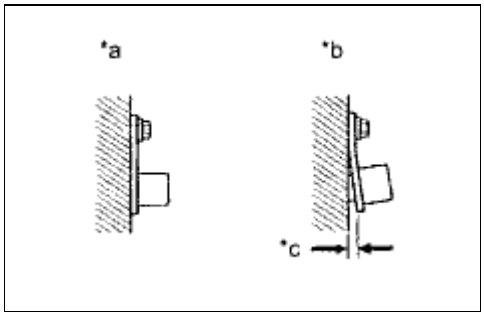
(a) Turn the ignition switch off.

(b) Check the speed sensor installation INFO .

OK:

There is no clearance between the sensor and the front steering knuckle.

The installation bolt is tightened properly.



Text in Illustration

*a	Normal
*b	Abnormal
*c	Clearance

NG ▶ **INSTALL FRONT SPEED SENSOR CORRECTLY**

OK

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2.	**INSPECT FRONT SPEED SENSOR TIP**

(a) Remove the front speed sensor INFO .

(b) Check the speed sensor tip.

OK:

No scratches, oil, or foreign matter on the sensor tip.

NOTICE:

- If no damage to the speed sensor tip is found during this inspection, do not replace the speed sensor.
- If there is iron powder sticking to the rotor, this will result in a malfunction, so confirm that the rotor is not contaminated with foreign material before replacing the sensor.
- Check the speed sensor signal after cleaning or replacement INFO .

Result

PROCEED TO
OK
NG

NG ▶ **CLEAN OR REPLACE FRONT SPEED SENSOR**

OK

3.	**INSPECT FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY**

(a) Remove the front axle hub inner bearing INFO .

(b) Check the front skid control rotor.

OK:

No scratches, oil, or foreign matter on the rotors.

NOTICE:

Check the speed sensor signal after cleaning or replacement INFO .

HINT:

- The front skid control rotor is incorporated into the front axle hub inner bearing.
- If the skid control rotor needs to be replaced, replace it together with the front axle hub inner bearing.

(c) Reinstall the front speed sensor and the front axle hub inner bearing.

for the front speed sensor: INFO

for the front axle hub inner bearing: INFO

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NG ▶ **CLEAN OR REPLACE FRONT AXLE HUB INNER BEARING**

OK ▼

4.	READ VALUE USING TECHSTREAM (FRONT SPEED SENSOR)

(a) Connect the Techstream to the DLC3.

(b) Start the engine.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(e) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

(f) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **GO TO STEP 5**

OK ▶ **USE SIMULATION METHOD TO CHECK**

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5.	REPLACE FRONT SPEED SENSOR

(a) Turn the ignition switch off.

(b) Replace the front speed sensor INFO .

NOTICE:

After replacing the speed sensor, perform a Test Mode (signal check) inspection sensor check INFO .

NEXT

6.	RECONFIRM DTC

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTCs C1401 and C1402 are not output	A
DTCs C1401 and/or C1402 are output	B

NOTICE:

Check the speed sensor signal after replacement INFO .

HINT:

- The front skid control rotor is incorporated into the front axle hub inner bearing.
- If the front skid control rotor needs to be replaced, replace it together with the front axle hub inner bearing.

B ▶ **REPLACE FRONT AXLE HUB INNER BEARING**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA3000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1403,C1404; Rear Speed Sensor RH Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1403**	**Rear Speed Sensor RH Malfunction**

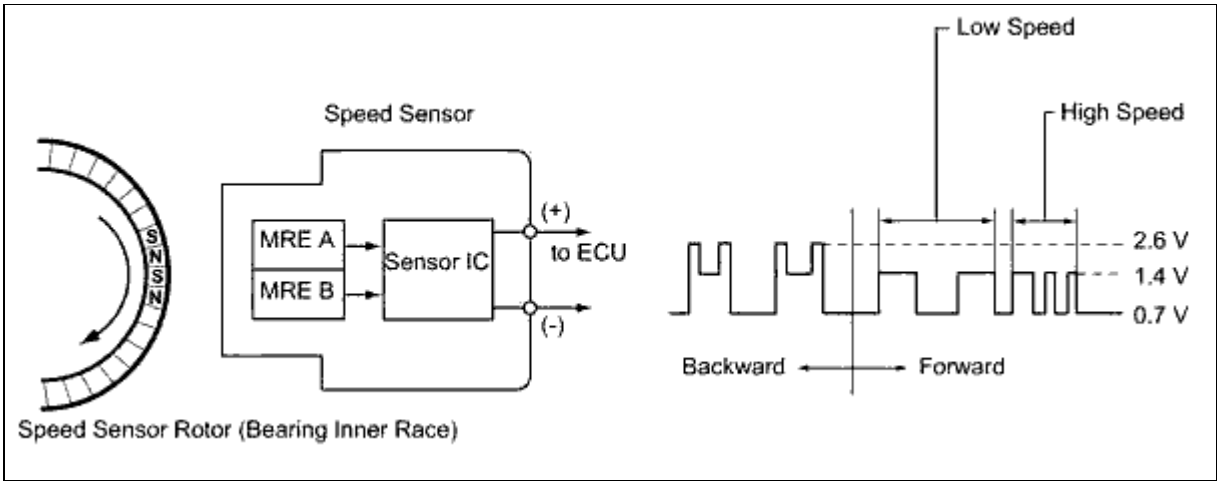
DTC	**C1404**	**Rear Speed Sensor LH Malfunction**

DESCRIPTION

The speed sensor detects wheel speed and sends the appropriate signals to the skid control ECU (brake actuator assembly). These signals are used for brake control.

The speed sensor rotors have rows of alternating N and S magnetic poles and their magnetic fields change when the rotors turn.

Each speed sensor detects that magnetic change and sends a pulse signal to the skid control ECU (brake actuator assembly).



DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1403	Rear Speed Sensor RH Malfunction	Any of the following is detected: • At a vehicle speed of 10 km/h (6 mph) or more, output voltage from one of the speed sensors is less than that from the other sensors for 15 seconds or more. • At a vehicle speed less than 10 km/h (6 mph), output from one of the speed sensors is 0 km/h (0 mph) for 1 second or more. • At a vehicle speed of less than 10 km/h	• Rear speed sensor RH • Sensor installation • Rear axle hub and bearing assembly RH (rear axle hub and bearing assembly RH)

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
		(6 mph), the outputs from both rear speed sensors are 0 km/h (0 mph) for a cumulative time of 200 seconds.	
C1404	Rear Speed Sensor LH Malfunction	Any of the following is detected: • At a vehicle speed of 10 km/h (6 mph) or more, output voltage from one of the speed sensors is less than that from the other sensors for 15 seconds or more. • At a vehicle speed less than 10 km/h (6 mph), output from one of the speed sensors is 0 km/h (0 mph) for 1 second or more. • At a vehicle speed of less than 10 km/h (6 mph), the outputs from both rear speed sensors are 0 km/h (0 mph) for a cumulative time of 200 seconds.	• Rear speed sensor LH • Sensor installation • Rear axle hub and bearing assembly LH (rear axle hub and bearing assembly LH)

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

PROCEDURE

1.	CHECK REAR SPEED SENSOR INSTALLATION

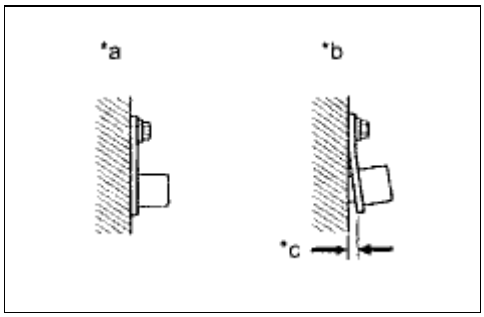
(a) Turn the ignition switch off.

(b) Check the rear speed sensor installation INFO .

OK:

There is no clearance between the sensor and the rear axle housing.

The installation bolt is tightened properly.



Text in Illustration

*a	Normal
*b	Abnormal
*c	Clearance

NG ▶ INSTALL REAR SPEED SENSOR CORRECTLY

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OK

2.	INSPECT REAR SPEED SENSOR TIP

(a) Remove the rear speed sensor INFO .

(b) Check the speed sensor tip.

OK:

No scratches, oil, or foreign matter on the sensor tip.

NOTICE:

- If no damage to the speed sensor tip is found during this inspection, do not replace the speed sensor.
- If there is iron powder sticking to the rotor, this will result in a malfunction, so confirm that the rotor is not contaminated with foreign material before replacing the sensor.
- Check the speed sensor signal after cleaning or replacement INFO .

NG ▶ **CLEAN OR REPLACE REAR SPEED SENSOR**

OK

3.	INSPECT REAR AXLE SHAFT BEARING

(a) Remove the rear axle shaft bearing INFO .

(b) Check the rear skid control rotor.

OK:

No scratches, oil, or foreign matter on the rotors.

NOTICE:

Check the speed sensor signal after cleaning or replacement INFO .

HINT:

- The rear skid control rotor is incorporated into the rear axle shaft bearing.
- If the rear skid control rotor needs to be replaced, replace it together with the rear axle shaft bearing.

(c) Reinstall the rear axle shaft bearing.

for the rear speed sensor: INFO .

for the rear axle shaft bearing: INFO .

NG ▶ **CLEAN OR REPLACE REAR AXLE SHAFT BEARING**

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OK

4.	**READ VALUE USING TECHSTREAM (REAR SPEED SENSOR)**

(a) Connect the Techstream to the DLC3.

(b) Start the engine.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(e) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

(f) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NOTICE:

Check the speed sensor signal after replacement INFO .

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **GO TO STEP 5**

OK ▶ **USE SIMULATION METHOD TO CHECK**

5.	**REPLACE REAR SPEED SENSOR**

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(a) Turn the ignition switch off.

(b) Replace the rear speed sensor INFO .

NOTICE:

After replacing the speed sensor, perform a Test Mode (signal check) inspection sensor check INFO .

NEXT

6.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 40 km/h (25 mph) or more for at least 60 seconds.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTCs C1403 and C1404 are not output	A
DTCs C1403 and/or C1404 are output	B

NOTICE:

Check the speed sensor signal after replacement INFO .

HINT:

- The rear skid control rotor is incorporated into the rear axle shaft bearing.
- If the rear skid control rotor needs to be replaced, replace it together with the rear axle shaft bearing.

B ▶ **REPLACE REAR AXLE SHAFT BEARING**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA4000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1405,C1406; Open or Short in Front Speed Sensor RH Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1405**	**Open or Short in Front Speed Sensor RH Circuit**

DTC	**C1406**	**Open or Short in Front Speed Sensor LH Circuit**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

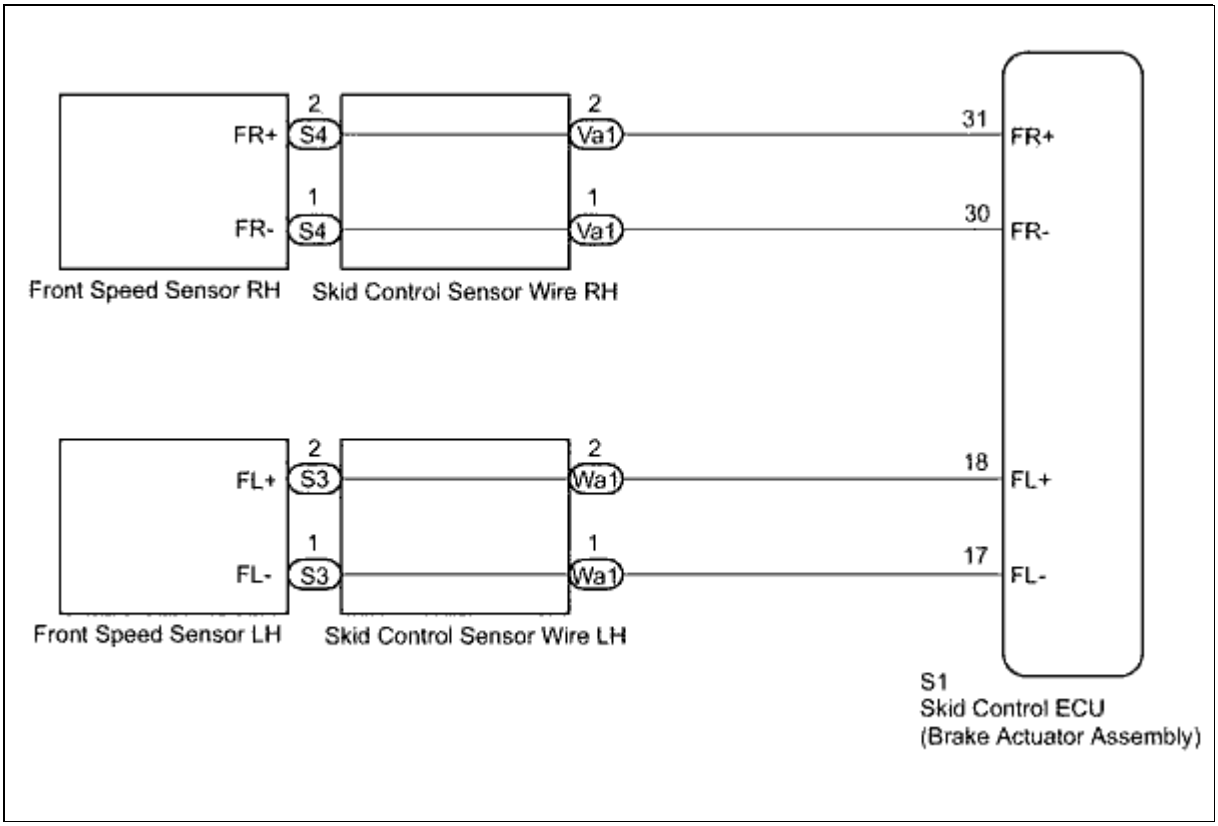
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1405	Open or Short in Front Speed Sensor RH Circuit	Either of the following is detected: • An open in the speed sensor signal circuit continues for 0.5 seconds or more. • With the +BS terminal voltage at 9.5 V or higher, the sensor power supply voltage decreases for 0.5 seconds or more.	• Front speed sensor RH • Skid control ECU (Brake actuator assembly) • Wire harness or connector
C1406	Open or Short in Front Speed Sensor LH Circuit	Either of the following is detected: • An open in the speed sensor signal circuit continues for 0.5 seconds or more. • With the +BS terminal voltage at 9.5 V or higher, the sensor power supply voltage decreases for 0.5 seconds or more.	• Front speed sensor LH • Skid control ECU (Brake actuator assembly) • Wire harness or connector

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Speed Open	Front speed sensor RH open circuit detection/ Error or Normal	Normal	Error: Momentary interruption
FL Speed Open	Front speed sensor LH open circuit detection/ Error or Normal	Normal	Error: Momentary interruption

OK:

Normal (There are no momentary interruptions.)

HINT:

Perform the above inspection before removing the sensor and connector.

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NG ▶ GO TO STEP 5

OK
▼

2.	READ VALUE USING TECHSTREAM (FRONT SPEED SENSOR)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

(g) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ GO TO STEP 5

OK

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3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTCs C1405 and C1406 are not output	A
DTCs C1405 and/or C1406 are output	B

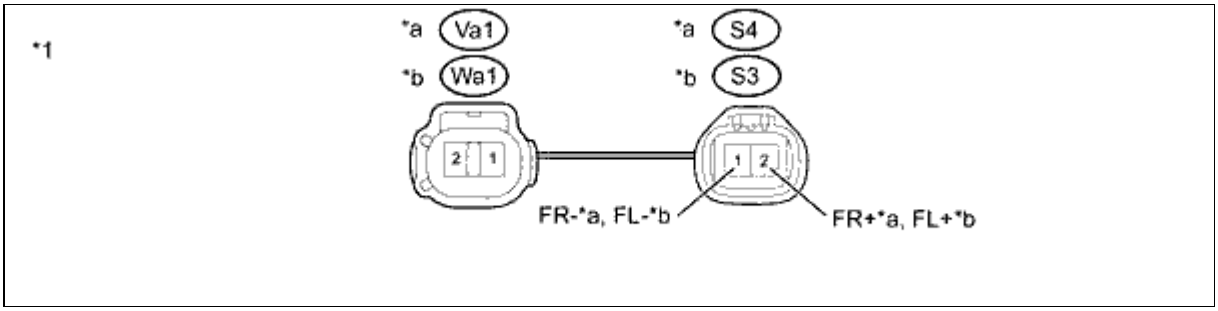
B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

4.	**INSPECT SKID CONTROL SENSOR WIRE**

(a) Remove the skid control sensor wire.

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



Text in Illustration

*1	Skid Control Sensor Wire	-	-
*a	for RH	*b	for LH

Standard Resistance:

for RH

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Va1-1 - S4-1 (FR-)	Always	Below 1 Ω
Va1-2 - S4-2 (FR+)	Always	Below 1 Ω
Va1-1 - Va1-2	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Wa1-1 - S3-1 (FL-)	Always	Below 1 Ω
Wa1-2 - S3-2 (FL+)	Always	Below 1 Ω
Wa1-1 - Wa1-2	Always	10 kΩ or higher

NG ▶ **REPLACE SKID CONTROL SENSOR WIRE**

OK ▼

5.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - FRONT SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector and the S4 and/or S3 front speed sensor connector.

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

Standard Resistance:

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-31 (FR+) - S4-2 (FR+)	Always	Below 1 Ω
S1-30 (FR-) - S4-1 (FR-)	Always	Below 1 Ω
S1-31 (FR+) or S4-2 (FR+) - Body ground	Always	10 kΩ or higher
S1-30 (FR-) or S4-1 (FR-) - Body ground	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-18 (FL+) - S3-2 (FL+)	Always	Below 1 Ω
S1-17 (FL-) - S3-1 (FL-)	Always	Below 1 Ω

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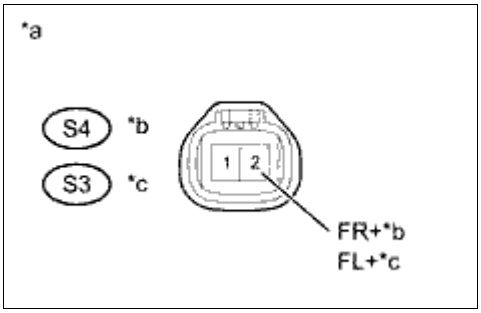
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-18 (FL+) or S3-2 (FL+) - Body ground	Always	10 kΩ or higher
S1-17 (FL-) or S3-1 (FL-) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

6.	**INSPECT BRAKE ACTUATOR ASSEMBLY (SENSOR OUTPUT)**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.



(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S4-2 (FR+) - Body ground	Ignition switch ON	8 to 14 V

for LH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S3-2 (FL+) - Body ground	Ignition switch ON	8 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Front Speed Sensor)
*b	for RH
*c	for LH

NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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OK ▶ REPLACE FRONT SPEED SENSOR

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VA6000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1407,C1408; Open or Short in Rear Speed Sensor RH Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1407**	**Open or Short in Rear Speed Sensor RH Circuit**

DTC	**C1408**	**Open or Short in Rear Speed Sensor LH Circuit**

DESCRIPTION

Refer to DTCs C1403 and C1404 INFO .

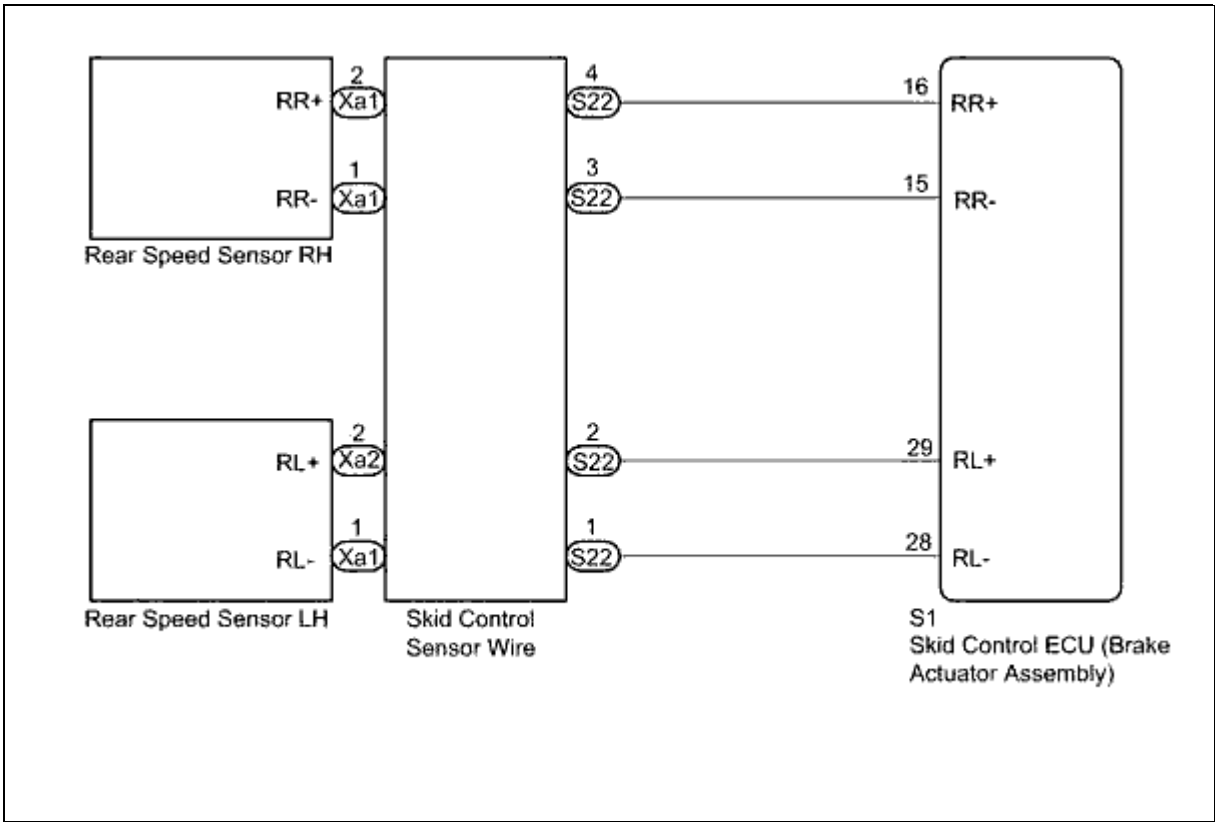
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1407	Open or Short in Rear Speed Sensor RH Circuit	Either of the following is detected: • An open in the speed sensor signal circuit continues for 0.5 seconds or more. • With the +BS terminal voltage at 9.5 V or higher, the sensor power supply voltage decreases for 0.5 seconds or more.	• Rear speed sensor RH • Wire harness or connector • Skid control ECU (Brake actuator assembly)
C1408	Open or Short in Rear Speed Sensor LH Circuit	Either of the following is detected: • An open in the speed sensor signal circuit continues for 0.5 seconds or more. • With the +BS terminal voltage at 9.5 V or higher, the sensor power supply voltage decreases for 0.5 seconds or more.	• Rear speed sensor LH • Wire harness or connector • Skid control ECU (Brake actuator assembly)

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Speed Open	Rear speed sensor RH open circuit detection/ Error or Normal	Normal	Error: Momentary interruption
RL Speed Open	Rear speed sensor LH open circuit detection/ Error or Normal	Normal	Error: Momentary interruption

OK:

Normal (There are no momentary interruptions.)

HINT:

Perform the above inspection before removing the sensor and connector.

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NG ▶ GO TO STEP 5

OK ▼

2.	READ VALUE USING TECHSTREAM (REAR SPEED SENSOR)

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

(g) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NOTICE:

Check the speed sensor signal after replacement INFO .

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ GO TO STEP 5

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OK

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is recorded INFO .

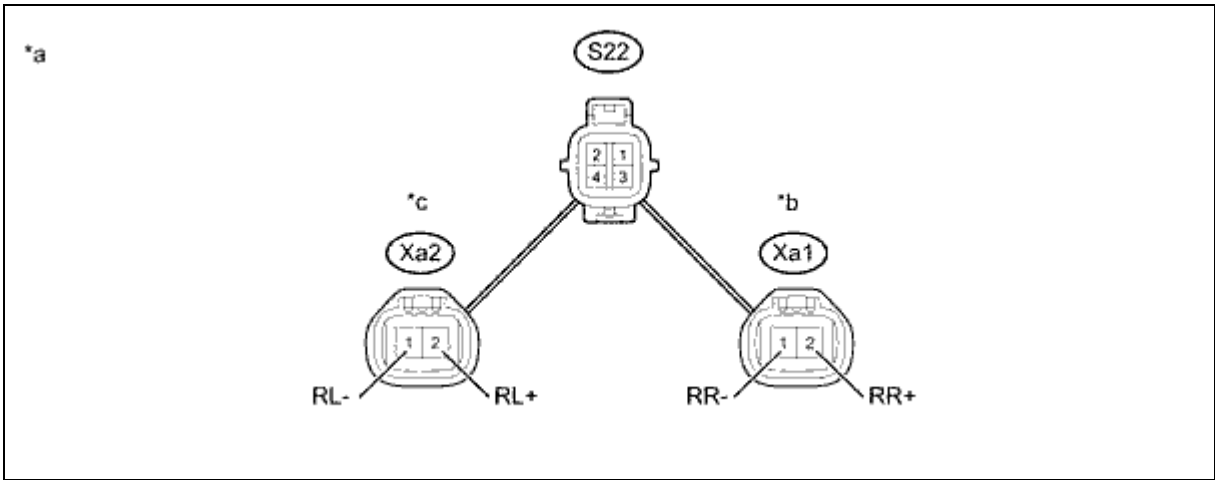
Result

RESULT	PROCEED TO
DTCs C1407 and C1408 are not output	A
DTCs C1407 and/or C1408 are output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

4.	**INSPECT SKID CONTROL SENSOR WIRE**



Text in Illustration

*a	Skid Control Sensor Wire	-	-
*b	for RH	*c	for LH

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(a) Remove the skid control sensor wire INFO .

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

Standard Resistance:

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S22-4 - Xa1-2 (RR+)	Always	Below 1 Ω
S22-3 - Xa1-1 (RR-)	Always	Below 1 Ω
S22-4 - S22-3	Always	10 kΩ or higher
S22-4 - S22-1	Always	10 kΩ or higher
S22-4 - S22-2	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S22-2 - Xa2-2 (RL+)	Always	Below 1 Ω
S22-1 - Xa2-1 (RL-)	Always	Below 1 Ω
S22-2 - S22-1	Always	10 kΩ or higher
S22-2 - S22-3	Always	10 kΩ or higher
S22-2 - S22-4	Always	10 kΩ or higher

NG ▶ **REPLACE SKID CONTROL SENSOR WIRE**

OK ▼

5.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - REAR SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector and the O3 and/or O4 rear speed sensor connector.

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

Standard Resistance:

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-16 (RR+) - Xa1-2 (RR+)	Always	Below 1 Ω
S1-15 (RR-) - Xa1-1 (RR-)	Always	Below 1 Ω
S1-16 (RR+) or Xa1-2 (RR+) - Body ground	Always	10 kΩ or higher
S1-15 (RR-) or Xa1-1 (RR-) - Body ground	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-29 (RL+) - Xa2-2 (RL+)	Always	Below 1 Ω
S1-28 (RL-) - Xa2-1 (RL-)	Always	Below 1 Ω
S1-29 (RL+) or Xa2-2 (RL+) - Body ground	Always	10 kΩ or higher
S1-28 (RL-) or Xa2-1 (RL-) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

6.	**INSPECT BRAKE ACTUATOR ASSEMBLY (SENSOR INPUT)**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

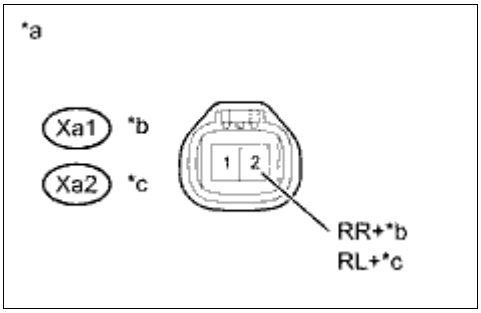
(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Xa1-2 (RR+) - Body ground	Ignition switch ON	8 to 14 V



for LH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Xa2-2 (RL+) - Body ground	Ignition switch ON	8 to 14 V

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Text in Illustration

*A	for RH
*B	for LH
*a	Front view of wire harness connector (to Rear Speed Sensor)

NOTICE:

Check the speed sensor signal after replacement INFO .

NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK ▶ **REPLACE REAR SPEED SENSOR**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAT000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1413,C1414; Front Speed Sensor RH Output Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1413**	**Front Speed Sensor RH Output Malfunction**

DTC	**C1414**	**Front Speed Sensor LH Output Malfunction**

DESCRIPTION

Refer to DTCs C1401 and C1402 INFO .

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1413	Front Speed Sensor RH Output Malfunction	Any of the following is detected: • An open in the sensor signal circuit of a malfunctioning area occurs 255 times or more. • At a vehicle speed of 20 km/h (12 mph) or more, noise occurs in the sensor signals of a malfunctioning wheel 75 times or more within 5 seconds. • At a vehicle speed of 10 km/h (6 mph) or more, noise occurs once per rotor rotation for 15 seconds or more.	• Front speed sensor RH • Front skid control rotor RH (Front axle hub inner bearing RH) • Sensor installation • Skid control ECU (Brake actuator assembly) • Wire harness or connector
C1414	Front Speed Sensor LH Output Malfunction	Any of the following is detected: • An open in the sensor signal circuit of a malfunctioning area occurs 255 times or more. • At a vehicle speed of 20 km/h (12 mph) or more, noise occurs in the sensor signals of a malfunctioning wheel 75 times or more within 5 seconds. • At a vehicle speed of 10 km/h (6 mph) or more, noise occurs once per rotor rotation for 15 seconds or more.	• Front speed sensor LH • Front skid control rotor LH (Front axle hub inner bearing LH) • Sensor installation • Skid control ECU (Brake actuator assembly) • Wire harness or connector

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

WIRING DIAGRAM

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Refer to DTCs C1405 and C1406 INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Speed Open	Front speed sensor RH open detection	Normal or Error	Normal	Error: Momentary interruption
FL Speed Open	Front speed sensor LH open detection	Normal or Error	Normal	Error: Momentary interruption

OK:

Normal (There are no momentary interruptions.)

HINT:

Perform the above inspection before removing the sensor and connector.

NG ▶ **GO TO STEP 4**

OK ▼

2.	**READ VALUE USING TECHSTREAM (FRONT SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

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ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Front wheel speed sensor RH reading	Min.: 0 km/h (0 mph) Max.: 326.4 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations
FL Wheel Speed	Front wheel speed sensor LH reading	Min.: 0 km/h (0 mph) Max.: 326.4 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

(g) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **GO TO STEP 4**

OK ▼

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO

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RESULT	PROCEED TO
DTCs C1413 and C1414 are not output	A
DTCs C1413 and/or C1414 are output	B

** ▶ REPLACE BRAKE ACTUATOR ASSEMBLY

A ▶ USE SIMULATION METHOD TO CHECK

4.	CHECK FRONT SPEED SENSOR INSTALLATION

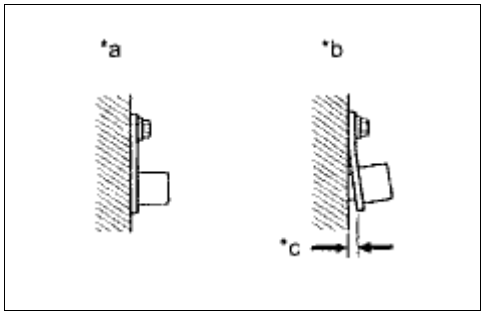
(a) Turn the ignition switch off.

(b) Check the speed sensor installation INFO .

OK:

There is no clearance between the sensor and the front steering knuckle.

The installation bolt is tightened properly.



Text in Illustration

*a	Normal
*b	Abnormal
*c	Clearance

NG ▶ INSTALL FRONT SPEED SENSOR CORRECTLY

OK ▼

5.	INSPECT FRONT SPEED SENSOR TIP

(a) Remove the front speed sensor INFO .

(b) Check the speed sensor tip.

OK:

No scratches, oil, or foreign matter on the sensor tip.

NOTICE:

- If no damage to the speed sensor tip is found during this inspection, do not replace the speed sensor.
- If there is iron powder sticking to the rotor, this will result in a malfunction, so confirm that the rotor is not contaminated with foreign material before replacing the sensor.
- Check the speed sensor signal after cleaning or replacement INFO .

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Result

PROCEED TO
OK
NG

NG ▶ **CLEAN OR REPLACE FRONT SPEED SENSOR**

OK ▼

6.	INSPECT FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY

(a) Remove the front axle hub inner bearing INFO .

(b) Check the front skid control rotor.

OK:

No scratches, oil, or foreign matter on the rotors.

NOTICE:

Check the speed sensor signal after cleaning or replacement INFO .

HINT:

- The front skid control rotor is incorporated into the front axle hub inner bearing.
- If the skid control rotor needs to be replaced, replace it together with the front axle hub inner bearing.

(c) Reinstall the front speed sensor and the front axle hub inner bearing.

for the front speed sensor: INFO

for the front axle hub inner bearing: INFO

OK ▶ **GO TO STEP 8**

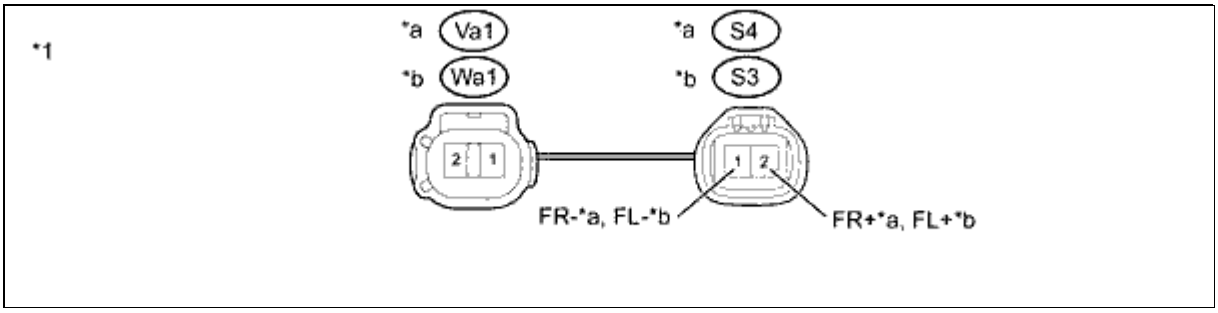
NG ▶ **CLEAN OR REPLACE FRONT AXLE HUB INNER BEARING**

7.	INSPECT SKID CONTROL SENSOR WIRE

(a) Remove the skid control sensor wire.

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

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Standard Resistance:

Text in Illustration

*a	for RH	*b	for LH
*1	Skid Control Sensor Wire	-	-

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Va1-1 - S4-1 (FR-)	Always	Below 1 Ω
Va1-2 - S4-2 (FR+)	Always	Below 1 Ω
Va1-1 - Va1-2	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Wa1-1 - S3-1 (FL-)	Always	Below 1 Ω
Wa1-2 - S3-2 (FL+)	Always	Below 1 Ω
Wa1-1 - Wa1-2	Always	10 kΩ or higher

NG ▶ CLEAN OR REPLACE SKID CONTROL SENSOR WIRE

OK ▼

8.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - FRONT SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector and the A8 and/or A9 front speed sensor connector.

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

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Standard Resistance:

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-31 (FR+) - S4-2 (FR+)	Always	Below 1 Ω
S1-30 (FR-) - S4-1 (FR-)	Always	Below 1 Ω
S1-31 (FR+) or S4-2 (FR+) - Body ground	Always	10 kΩ or higher
S1-30 (FR-) or S4-1 (FR-) - Body ground	Always	10 kΩ or higher

for LH

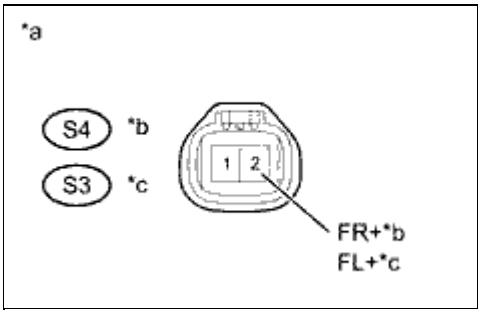
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-18 (FL+) - S3-2 (FL+)	Always	Below 1 Ω
S1-17 (FL-) - S3-1 (FL-)	Always	Below 1 Ω
S1-18 (FL+) or S3-2 (FL+) - Body ground	Always	10 kΩ or higher
S1-17 (FL-) or S3-1 (FL-) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

9.	**INSPECT BRAKE ACTUATOR ASSEMBLY (SENSOR OUTPUT)**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.



(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S4-2 (FR+) - Body ground	Ignition switch ON	8 to 14 V

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for LH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S3-2 (FL+) - Body ground	Ignition switch ON	8 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Front Speed Sensor)
*b	for RH
*c	for LH

NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK ▶ **REPLACE FRONT SPEED SENSOR**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAU000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1415,C1416; Rear Speed Sensor RH Output Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1415**	**Rear Speed Sensor RH Output Malfunction**

DTC	**C1416**	**Rear Speed Sensor LH Output Malfunction**

DESCRIPTION

Refer to DTCs C1403 and C1404 INFO .

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1415	Rear Speed Sensor RH Output Malfunction	Any of the following is detected: • An open in the sensor signal circuit of a malfunctioning area occurs 255 times or more. • At a vehicle speed of 20 km/h (12 mph) or more, noise occurs in the sensor signals of a malfunctioning wheel 75 times or more within 5 seconds. • At a vehicle speed of 10 km/h (6 mph) or more, noise occurs once per rotor rotation for 15 seconds or more.	• Rear speed sensor RH • Rear skid control rotor LH (rear axle hub and bearing assembly LH) • Sensor installation • Skid control ECU (Brake actuator assembly) • Wire harness or connector
C1416	Rear Speed Sensor LH Output Malfunction	Any of the following is detected: • An open in the sensor signal circuit of a malfunctioning area occurs 255 times or more. • At a vehicle speed of 20 km/h (12 mph) or more, noise occurs in the sensor signals of a malfunctioning wheel 75 times or more within 5 seconds. • At a vehicle speed of 10 km/h (6 mph) or more, noise occurs once per rotor rotation for 15 seconds or more.	• Rear speed sensor LH • Rear skid control rotor RH (rear axle hub and bearing assembly RH) • Sensor installation • Skid control ECU (Brake actuator assembly) • Wire harness or connector

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

WIRING DIAGRAM

Refer to DTCs C1407 and C1408 INFO .

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INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Speed Open	Rear speed sensor RH open detection	Normal or Error	Normal	Error: Momentary interruption
RL Speed Open	Rear speed sensor LH open detection	Normal or Error	Normal	Error: Momentary interruption

HINT:

Perform the above inspection before removing the sensor and connector.

OK:

Normal (There are no momentary interruptions.)

NG ▶ **GO TO STEP 4**

OK ▼

2.	**READ VALUE USING TECHSTREAM (REAR SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Start the engine.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

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TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Wheel Speed	Rear wheel speed sensor RH reading	Min.: 0 km/h (0 mph) Max.: 326.4 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations
RL Wheel Speed	Rear wheel speed sensor LH reading	Min.: 0 km/h (0 mph) Max.: 326.4 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

(g) Check that there is no difference between the speed value output from the speed sensor displayed on the Techstream and the speed value displayed on the speedometer when driving the vehicle.

HINT:

Factors that affect the indicated vehicle speed include tire size, tire inflation and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart INFO .

OK:

The speed value output from the speed sensor displayed on the Techstream is the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NOTICE:

Check the speed sensor signal after replacement INFO .

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **GO TO STEP 4**

OK ▼

3.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is recorded INFO .

Result

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RESULT	PROCEED TO
DTCs C1415 and C1416 are not output	A
DTCs C1415 and/or C1416 are output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

4.	CHECK REAR SPEED SENSOR INSTALLATION

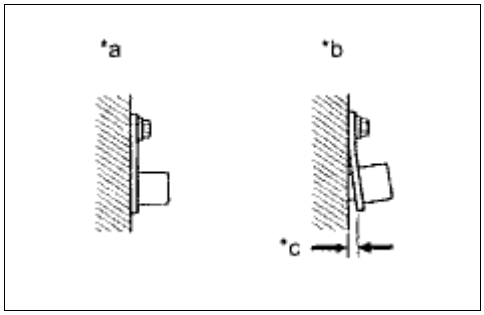
(a) Turn the ignition switch off.

(b) Check the rear speed sensor installation INFO .

OK:

There is no clearance between the sensor and the rear axle housing.

The installation bolt is tightened properly.



Text in Illustration

*a	Normal
*b	Abnormal
*c	Clearance

NG ▶ **INSTALL REAR SPEED SENSOR CORRECTLY**

OK ▼

5.	INSPECT REAR SPEED SENSOR TIP

(a) Remove the rear speed sensor INFO .

(b) Check the speed sensor tip.

OK:

No scratches, oil, or foreign matter on the sensor tip.

NOTICE:

- If no damage to the speed sensor tip is found during this inspection, do not replace the speed sensor.
- If there is iron powder sticking to the rotor, this will result in a malfunction, so confirm that the rotor is not contaminated with foreign material before replacing the sensor.
- Check the speed sensor signal after cleaning or replacement INFO .

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NG ▶ CLEAN OR REPLACE REAR SPEED SENSOR

OK ▼

6.	INSPECT REAR AXLE SHAFT BEARING

(a) Remove the rear axle shaft bearing INFO .

(b) Check the rear skid control rotor.

OK:

No scratches, oil, or foreign matter on the rotors.

NOTICE:

Check the speed sensor signal after cleaning or replacement INFO .

HINT:

- The rear skid control rotor is incorporated into the rear axle shaft bearing.
- If the rear skid control rotor needs to be replaced, replace it together with the rear axle shaft bearing.

(c) Reinstall the rear speed sensor and rear axle shaft bearing.

for the rear speed sensor: INFO

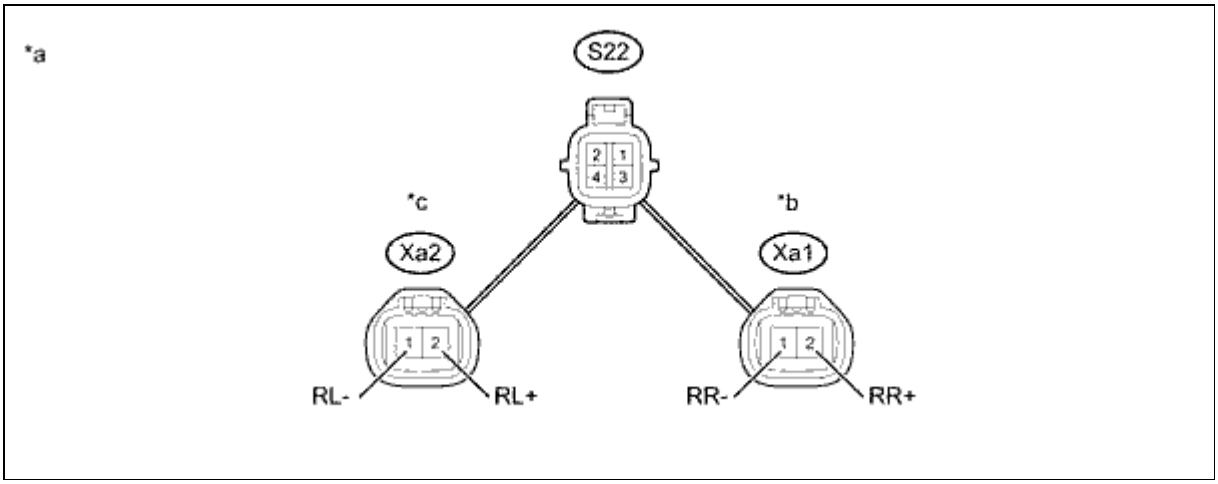
for the rear axle shaft bearing: INFO

NG ▶ CLEAN OR REPLACE REAR AXLE SHAFT BEARING

OK ▼

7.	INSPECT SKID CONTROL SENSOR WIRE

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Text in Illustration

*a	Skid Control Sensor Wire	*b	for RH
*c	for LH	-	-

(a) Remove the skid control sensor wire INFO .

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

Standard Resistance:

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S22-4 - Xa1-2 (RR+)	Always	Below 1 Ω
S22-3 - Xa1-1 (RR-)	Always	Below 1 Ω
S22-4 - S22-3	Always	10 kΩ or higher
S22-4 - S22-1	Always	10 kΩ or higher
S22-4 - S22-2	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S22-2 - Xa2-2 (RL+)	Always	Below 1 Ω
S22-1 - Xa2-1 (RL-)	Always	Below 1 Ω
S22-2 - S22-1	Always	10 kΩ or higher
S22-2 - S22-3	Always	10 kΩ or higher
S22-2 - S22-4	Always	10 kΩ or higher

NG ▶ **REPLACE SKID CONTROL SENSOR WIRE**

OK

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8.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - REAR SPEED SENSOR)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector and the O3 and/or O4 rear speed sensor connector.

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

Standard Resistance:

for RH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-16 (RR+) - Xa1-2 (RR+)	Always	Below 1 Ω
S1-15 (RR-) - Xa1-1 (RR-)	Always	Below 1 Ω
S1-16 (RR+) or Xa1-2 (RR+) - Body ground	Always	10 kΩ or higher
S1-15 (RR-) or Xa1-1 (RR-) - Body ground	Always	10 kΩ or higher

for LH

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-29 (RL+) - Xa2-2 (RL+)	Always	Below 1 Ω
S1-28 (RL-) - Xa2-1 (RL-)	Always	Below 1 Ω
S1-29 (RL+) or Xa2-2 (RL+) - Body ground	Always	10 kΩ or higher
S1-28 (RL-) or Xa2-1 (RL-) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

9.	**INSPECT BRAKE ACTUATOR (SENSOR INPUT)**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Turn the ignition switch to ON.

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(c) Measure the voltage according to the value(s) in the table below.

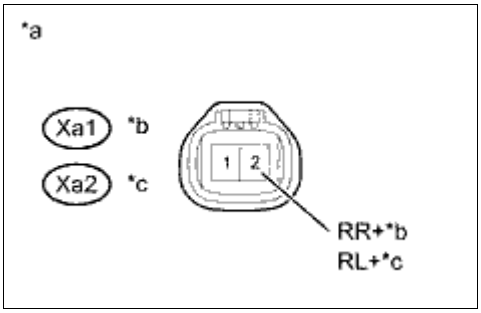
Standard Voltage:

for RH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Xa1-2 (RR+) - Body ground	Ignition switch ON	8 to 14 V

for LH

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Xa2-2 (RL+) - Body ground	Ignition switch ON	8 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Rear Speed Sensor)
*b	for RH
*c	for LH

NOTICE:

Check the speed sensor signal after replacement INFO .

NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK ▶ **REPLACE REAR SPEED SENSOR**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB4000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1417; High Power Supply Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1417**	**High Power Supply Voltage Malfunction**

DESCRIPTION

If a malfunction is detected in the power supply circuit, the skid control ECU (brake actuator assembly) stores this DTC and the fail-safe function prohibits ABS operation.

This DTC is stored when the +BS terminal voltage deviates from the DTC detection condition due to a malfunction in the power supply or charging circuit such as the battery or generator circuit, etc.

The DTC is canceled when the +BS terminal voltage returns to normal.

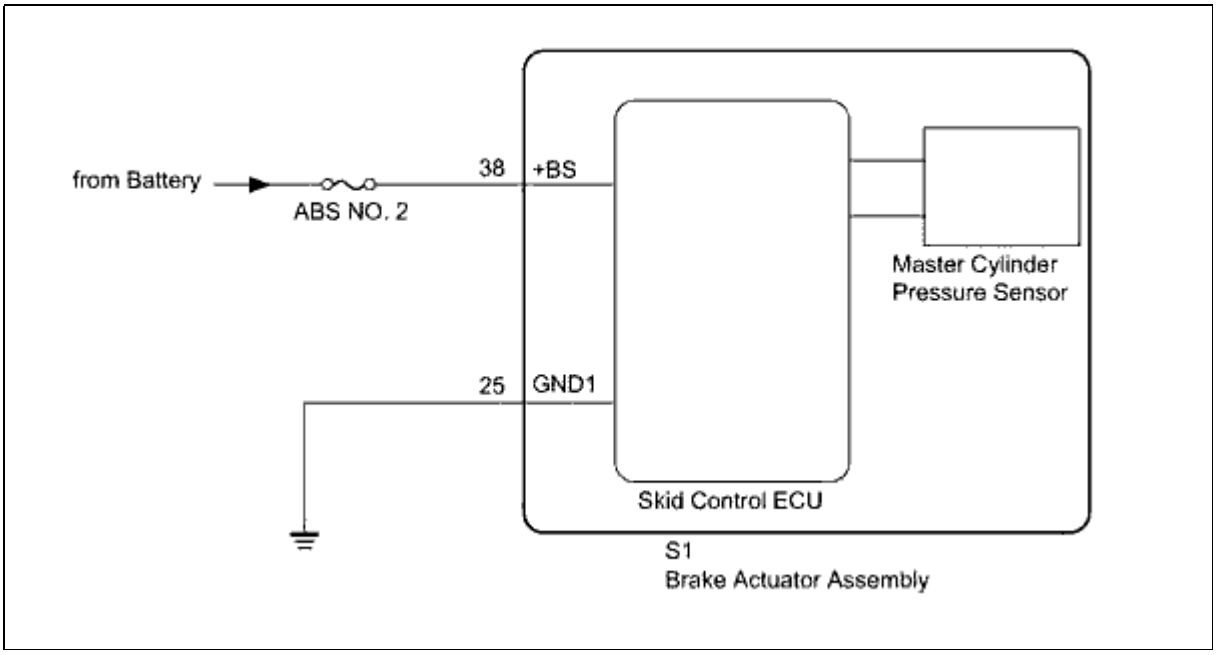
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1417	High Power Supply Voltage Malfunction	Either of the following is detected: • The +BS terminal voltage is 17.4 V or more for 0.8 seconds or more. • When voltage at terminal +BS is 17.4 V or higher, power supply voltage of master cylinder pressure sensor is cut for 0.2 seconds or more.	• Charging system • Skid control ECU (Brake actuator assembly) • Wire harness or connector • ABS NO. 2 fuse • Battery

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**INSPECT BATTERY**

(a) Check the battery voltage.

Standard voltage:
11 to 14 V

NG ▶ **CHECK OR REPLACE CHARGING SYSTEM OR BATTERY**

OK ▼

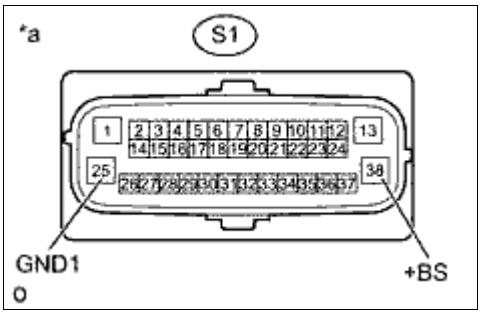
2.	**CHECK TERMINAL VOLTAGE (+BS, GND1 TERMINAL)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

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(c) Disconnect the skid control ECU (brake actuator assembly) connector.



(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-38 (+BS) - Body ground	Always	11 to 14 V
S1-38 (+BS) - S1-25 (GND1)	Always	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (+BS, GND1 CIRCUIT)**

OK ▼

3.	**RECONFIRM DTC**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTCs INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Perform a road test.

(f) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1417 is not output	A
DTC C1417 is output	B

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B ▶ REPLACE BRAKE ACTUATOR ASSEMBLY

A ▶ USE SIMULATION METHOD TO CHECK

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAX000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1419,C1435; Acceleration Sensor Internal Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1419**	**Acceleration Sensor Internal Circuit**

DTC	**C1435**	**Yaw Rate Sensor Internal Circuit**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate and acceleration sensor and detects the vehicle condition.

If there is trouble in the bus lines between the acceleration sensor (airbag sensor assembly) and the CAN communication system, DTCs U0124 (Lost Communication with Lateral Acceleration Sensor Module) are set.

These DTCs are also output when calibration has not been completed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1419	Acceleration Sensor Internal Circuit	A data malfunction signal is received from the acceleration sensor.	Acceleration sensor (Airbag sensor assembly)
C1435	Yaw Rate Sensor Internal Circuit	A data malfunction signal is received from the yaw rate sensor.	Yaw rate sensor (Airbag sensor assembly)

INSPECTION PROCEDURE

NOTICE:

When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration and store system information INFO .

HINT:

When U0124 and/or U0126 is output together with C1419 and/or C1435, inspect and repair the trouble areas indicated by U0124 and/or U0126 first INFO .

PROCEDURE

1.	**REPLACE AIRBAG SENSOR ASSEMBLY**

(a) Replace the airbag sensor assembly INFO .

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB5000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1421,C1423,C1424,C142A,C1449; Open or Short in Master Cylinder Pressure Sensor; 2016 MY Tacoma [08/2015 -]		

DTC	**C1421**	**Open or Short in Master Cylinder Pressure Sensor**

DTC	**C1423**	**Master Cylinder Pressure Sensor Zero Point Low Malfunction**

DTC	**C1424**	**Master Cylinder Pressure Sensor Output Malfunction**

DTC	**C142A**	**Master Cylinder Pressure Sensor Internal Malfunction**

DTC	**C1449**	**Master Cylinder Output Value Malfunction**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1421	Open or Short in Master Cylinder Pressure Sensor	Any of the following is detected: • When voltage at terminal +BS is 9.5 V or higher, power supply voltage of master cylinder pressure sensor is continuously low for 1 second or more. • When master cylinder pressure sensor power supply voltage has risen, master cylinder pressure sensor has overheated or overcurrent of master cylinder pressure sensor continues for 0.1 seconds or more. • When +BS terminal voltage is 9.5 to 17.4 V, there is no communication with master cylinder pressure sensor continuously for 0.1 seconds or more.	Brake actuator assembly (Master cylinder pressure sensor)
C1423	Master Cylinder Pressure Sensor Zero Point Low Malfunction	Master cylinder pressure is below -0.744 MPa (-7.6 kgf/cm ^{2} , -107 psi) for 5 seconds or more.	Brake actuator assembly (Master cylinder pressure sensor)
C1424	Master Cylinder Pressure Sensor Output Malfunction	Any of the following is detected: • When vehicle speed is 7 km/h (4.3 mph) or more and master cylinder pressure exceeds 1.764 MPa (18.0	Brake actuator assembly (Master cylinder

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
		kgf/cm ^{2} , 255 psi), master cylinder pressure does not increase 0.048 MPa (0.5 kgf/cm ^{2} , 6.9 psi) or more continuously for 60 seconds. • When vehicle speed is 7 km/h (4.3 mph) and master cylinder pressure is 2.45 MPa (25.0 kgf/cm ^{2} , 355 psi) or more, master cylinder pressure does not increase 0.048 MPa (0.5 kgf/cm ^{2} , 6.9 psi) or more continuously for 30 seconds. • Master cylinder pressure does not increase 0.048 MPa (0.5 kgf/cm ^{2} , 6.9 psi) or more 5 times or more while vehicle speed decreases from 40 km/h (25 mph) to 0 km/h (0 mph). • When vehicle speed is 10 km/h (6 mph) or more, noise in master cylinder pressure value occurs 7 times or more in 5 seconds. • When vehicle speed is 7 km/h (4.3 mph) or more, braking is performed (stop light switch assembly is ON) and master cylinder pressure differential value is below 20 MPa/s, difference between master cylinder pressure estimated from vehicle deceleration and master cylinder pressure sensor input value is large for 1 second or more 5 times or more.	pressure sensor)
C142A	Master Cylinder Pressure Sensor Internal Malfunction	Any of the following is detected: • Master cylinder pressure is 23.328 MPa (237.8 kgf/cm ^{2} , 3382 psi) or more continuously for 0.1 seconds. • Master cylinder temperature is 150°C (302°F) or more continuously for 0.1 seconds.	Brake actuator assembly (Master cylinder pressure sensor)
C1449	Master Cylinder Output Value Malfunction	Master cylinder pressure sensor invalid condition continues for 0.2 seconds or more.	Brake actuator assembly (Master cylinder pressure sensor)

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**REPLACE BRAKE ACTUATOR ASSEMBLY**

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(a) Replace the brake actuator assembly (master cylinder pressure sensor) INFO .

NEXT END

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB6000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1422; Master Cylinder Pressure Sensor Zero Point High Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1422**	**Master Cylinder Pressure Sensor Zero Point High Malfunction**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1422	Master Cylinder Pressure Sensor Zero Point High Malfunction	When vehicle speed is 3 km/h (2 mph) or more and stop light switch assembly is OFF, master cylinder pressure continuously exceeds 1.764 MPa (18.0 kgf/cm ^{2} , 255 psi) for 5 seconds or more.	• STOP fuse • Stop light switch assembly • Wire harness or connector • Skid control ECU (Brake actuator assembly) • Brake actuator assembly (Master cylinder pressure sensor)

WIRING DIAGRAM

Refer to DTC C1380 INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check for DTCs INFO .

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Result

RESULT	PROCEED TO
DTC C1422 is output	A
DTCs C1422 and C1380 are output	B
DTCs C1422 and C1425 are output	C

B ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

C ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A
▼

2.	**READ VALUE USING TECHSTREAM (STOP LIGHT SWITCH ASSEMBLY)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(e) In accordance with the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Stop Light SW	Stop light switch assembly	ON or OFF	OFF: Brake pedal released ON: Brake pedal depressed	-

(f) Check that the stop light switch assembly condition observed on the Techstream changes according to brake pedal operation.

OK:

The Techstream displays ON or OFF according to brake pedal operation.

NG ▶ **GO TO STEP 5**

OK
▼

3.	**READ VALUE USING TECHSTREAM (MASTER CYLINDER PRESSURE SENSOR)**

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(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(e) In accordance with the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Master Cylinder Pressure	Master cylinder pressure sensor pressure	Min.: 0.00 MPa Max.: 23.28 MPa	Brake pedal operated: Proportional to pedal force Brake Brake pedal released: 0.00 to 1.76 MPa	-

OK:
Data List pressure is within standard range.

NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK ▼

4.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1422 is not output	A
DTC C1422 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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5.	**CHECK BRAKE PEDAL AND STOP LIGHT SWITCH ASSEMBLY INSTALLATION**

(a) Turn the ignition switch off.

(b) Check the brake pedal height and stop light switch assembly installation INFO .

OK:

The brake pedal height and stop light switch assembly installation are normal.

NG ▶ **ADJUST BRAKE PEDAL OR STOP LIGHT SWITCH ASSEMBLY**

OK ▼

6.	**INSPECT STOP LIGHT SWITCH ASSEMBLY**

(a) Remove the stop light switch assembly INFO .

(b) Inspect the stop light switch assembly INFO .

OK:

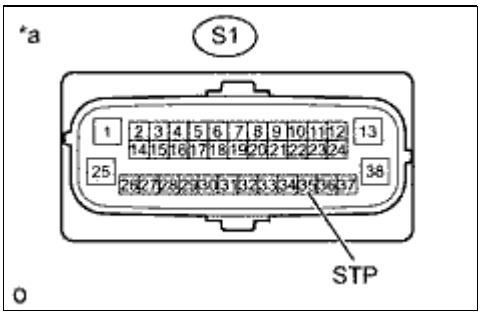
The stop light switch assembly is normal.

NG ▶ **REPLACE STOP LIGHT SWITCH ASSEMBLY**

OK ▼

7.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)**

(a) Turn the ignition switch off.



(b) Make sure that there is no looseness at the locking part and the connecting part of the connector.

(c) Disconnect the skid control ECU (brake actuator assembly) connector.

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(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-35 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	8 to 14 V
	Stop light switch assembly off (Brake pedal released)	Below 1.5 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP CIRCUIT)**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB7000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1425; Open in Stop Light Switch Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1425**	**Open in Stop Light Switch Circuit**

DESCRIPTION

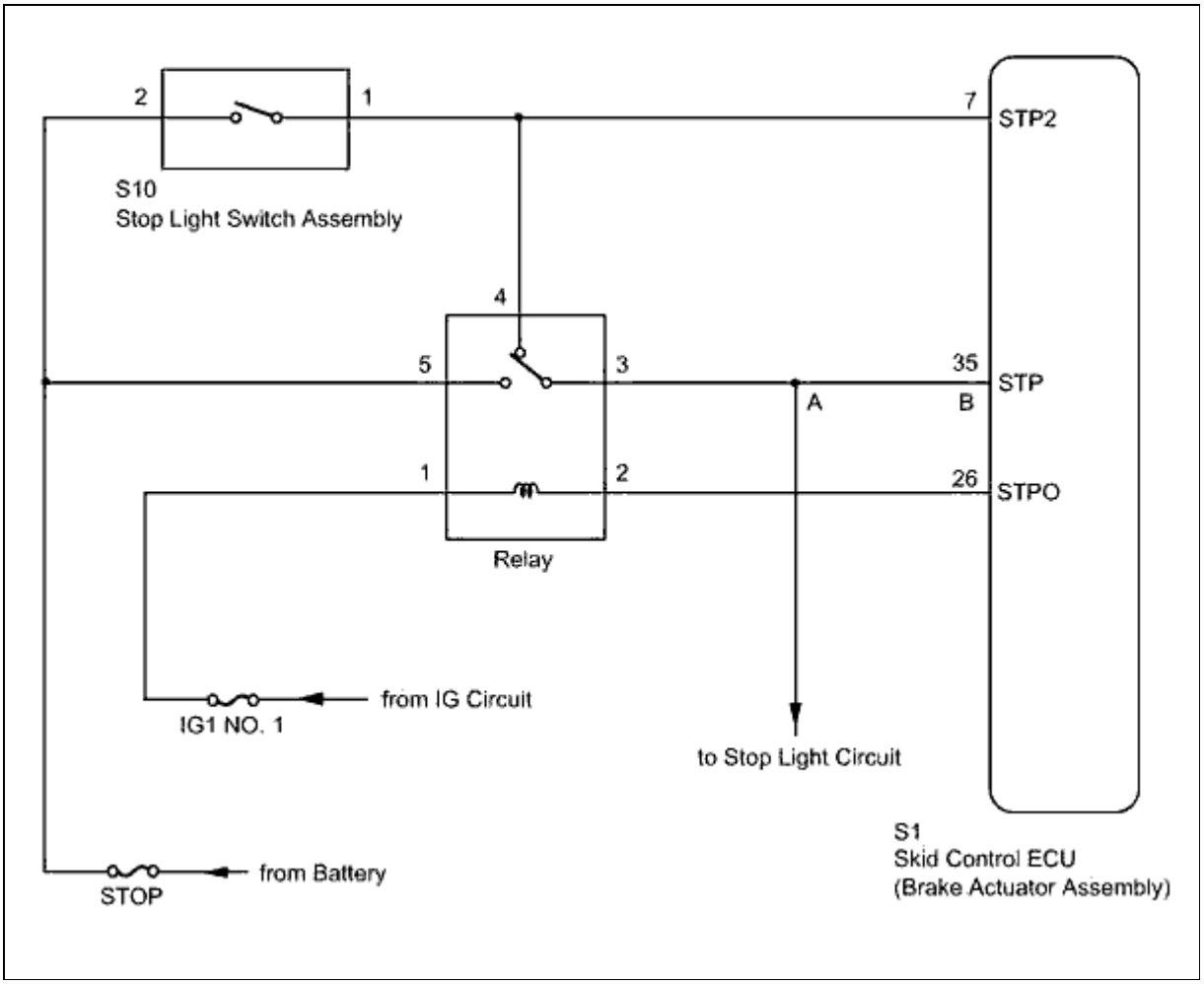
The skid control ECU (brake actuator assembly) detects the brake operating conditions through a signal transmitted by the stop light switch.

The skid control ECU incorporates a circuit to detect an open circuit. This DTC is output when an open circuit is detected in the stop light signal input line.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1425	Open in Stop Light Switch Circuit	When voltage at terminal +BS is 9.5 to 17.4 V, open circuit occurs between STP terminal circuits A and B for 0.3 seconds or more.	• Wire harness or connector • Skid control ECU (Brake actuator assembly)

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK STOP LIGHT OPERATION**

(a) Check that all stop lights come on when the brake pedal is depressed, and go off when the brake pedal is released.

OK:

CONDITION	ILLUMINATION CONDITION
Brake pedal depressed	ON
Brake pedal released	OFF

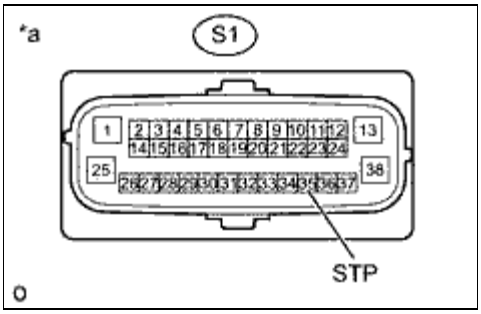
NG ▶ **CHECK STOP LIGHT CIRCUIT**

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OK

2.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)**

(a) Turn the ignition switch off.



(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-35 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	8 to 14 V
	Stop light switch assembly off (Brake pedal released)	Below 1.5 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (BRAKE ACTUATOR ASSEMBLY - STOP LIGHT CIRCUIT)**

OK

3.	**RECONFIRM DTC**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTCs INFO .

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(c) Turn the ignition switch off.

(d) Start the engine.

(e) Depress the brake pedal several times to test the stop light circuit.

(f) Check if the same DTC is recorded INFO .

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

Result

RESULT	PROCEED TO
DTC C1425 is not output	A
DTC C1425 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB3000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1426; Stop Light Switch OFF Stuck Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1426**	**Stop Light Switch OFF Stuck Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) inputs the stop light signal and brake operation condition. When the brake pedal is depressed and the stop light switch signal is not input, C1426 is output.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1426	Stop Light Switch OFF Stuck Malfunction	When voltage at terminal +BS is 9.5 V or higher, vehicle is driven and brake pedal is operated, stop light switch signal is not input.	• Wire harness or connector • STOP fuse • Stop light switch assembly • Skid Control ECU (Brake actuator assembly)

WIRING DIAGRAM

Refer to DTC C1380 INFO .

INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK BRAKE PEDAL AND STOP LIGHT SWITCH INSTALLATION**

(a) Check the brake pedal height installation INFO .

(b) Check the stop light switch assembly installation INFO .

OK:

The brake pedal height and stop light switch assembly installation are normal.

HINT:

If the on/off status of the stop light switch assembly and pressure increase information from the master cylinder pressure sensor do not match due to an improperly installed brake pedal or stop light switch

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assembly, this DTC may be stored. Therefore, be sure to check the installation condition of the pedal and switch before inspecting the input signals and other related parts.

NG ▶ **ADJUST BRAKE PEDAL OR STOP LIGHT SWITCH ASSEMBLY**

OK ▼

2.	**CHECK STOP LIGHT OPERATION**

(a) Check that all stop lights come on when the brake pedal is depressed, and go off when the brake pedal is released.

OK:

CONDITION	ILLUMINATION CONDITION
Brake pedal depressed.	On
Brake pedal released.	Off

NG ▶ **GO TO STEP 5**

OK ▼

3.	**READ VALUE USING TECHSTREAM (STOP LIGHT SWITCH ASSEMBLY)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Select the Data List using the Techstream INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Stop Light SW	Stop light switch	ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-

(d) Check that the stop light switch display observed on the Techstream changes according to brake pedal operation.

OK:

The Techstream displays ON or OFF according to brake pedal operation.

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NG ▶ GO TO STEP 8

OK ▼

4.	RECONFIRM DTC

(a) Turn the ignition switch off.

(b) Clear the DTCs INFO .

(c) Start the engine.

(d) Depress the brake pedal several times to test the stop light circuit.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1426 is not output.	A
DTC C1426 is output.	B

HINT:

If troubleshooting has been carried out according to Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

B ▶ REPLACE BRAKE ACTUATOR ASSEMBLY

A ▶ USE SIMULATION METHOD TO CHECK

5.	INSPECT STOP LIGHT SWITCH ASSEMBLY

(a) Check the stop light switch assembly INFO .

OK:

The stop light switch assembly is normal.

NG ▶ REPLACE STOP LIGHT SWITCH ASSEMBLY

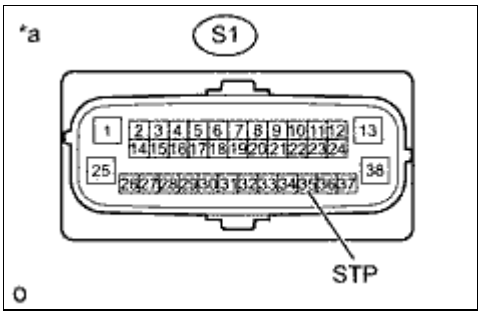
OK ▼

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6.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connector.



(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-35 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	8 to 14 V
	Stop light switch assembly off (Brake pedal released)	Below 1.5 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Brake Actuator Assembly))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP CIRCUIT)**

OK ▼

7.	**RECONFIRM DTC**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTCs INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Depress the brake pedal several times to test the stop light circuit.

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(f) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1426 is not output.	A
DTC C1426 is output.	B

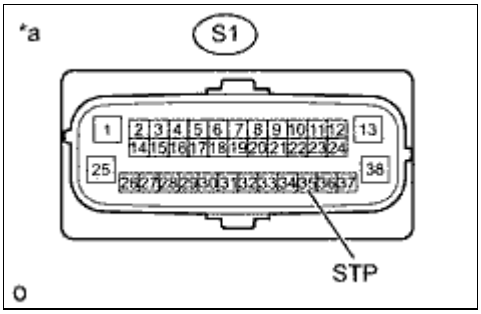
B ▶ **INSPECT LIGHTING SYSTEM (STOP LIGHT CIRCUIT)**

A ▶ **USE SIMULATION METHOD TO CHECK**

8.	**CHECK HARNESS AND CONNECTOR (STP TERMINAL)**

(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connector.



(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-35 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	8 to 14 V
	Stop light switch assembly off (Brake pedal released)	Below 1.5 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU (Brake Actuator Assembly))

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (STP CIRCUIT)**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAV000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1427; Motor Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1427**	**Motor Malfunction**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1427	Motor Malfunction	Actuator pump motor does not operate properly.	• Brake actuator assembly (Ground circuit) • Brake actuator assembly (Motor circuit) • Wire harness or connector

WIRING DIAGRAM

Refer to DTCs C142B, C146C and C146D INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**PERFORM ACTIVE TEST USING TECHSTREAM (MOTOR RELAY)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Motor Relay	Motor relay	Relay ON / OFF	Operating sound of motor can be heard. Vehicle condition: Vehicle stopped

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(f) Check the operating sound of the motor relay when operating it with the Techstream.

Result

RESULT	PROCEED TO
The operating sound is not heard	A
The operating sound is heard	B

B ▶ **GO TO STEP 3**

A ▼

2.	**CHECK HARNESS AND CONNECTOR (GND2 TERMINAL)**

(a) Turn the ignition switch off.

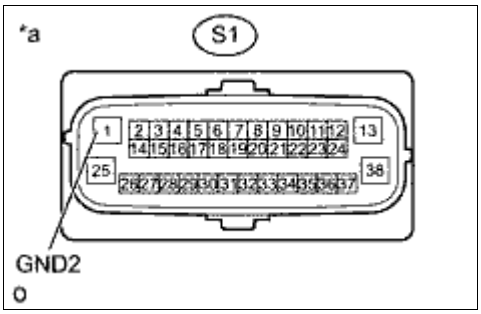
(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND2) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND2 CIRCUIT)**

OK ▼

3.	**RECONFIRM DTC**

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HINT:

This code is detected when a problem is identified in the brake actuator assembly. The motor relay is in the brake actuator assembly.

Therefore, motor relay unit inspection cannot be performed. Be sure to check if the DTC is output before replacing the brake actuator assembly.

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTCs INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Drive the vehicle at a speed of 20 km/h (12 mph) or more for 30 seconds or more.

(f) Check if the same DTC is recorded INFO .

HINT:

- If a speed signal of 6 km/h (4 mph) or more is input to the skid control ECU (brake actuator assembly) with the ignition switch to ON and the stop light switch off, the ECU performs self diagnosis of the motor and solenoid circuits.
- If the normal system code is output (no trouble codes are output), slightly jiggle the connectors, wire harness, and fuses of the brake actuator assembly. Make sure that no DTCs are output.
- If any DTCs are output while jiggling a connector or wire harness of the skid control ECU (brake actuator assembly), inspect and repair the connector or wire harness.
- The DTCs were probably output due to a bad connection of the connector terminal.

Result

RESULT	PROCEED TO
DTC C1427 is not output	A
DTC C1427 is output	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAW000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1428; Motor Circuit Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1428**	**Motor Circuit Malfunction**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1428	Motor Circuit Malfunction	With the motor relay and motor fail-safe relay OFF, open or short in motor circuit continues for 2 seconds or more.	Brake actuator assembly (Motor circuit)

WIRING DIAGRAM

Refer to DTCs C142B, C146C and C146D INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (GND2 TERMINAL)**

(a) Turn the ignition switch off.

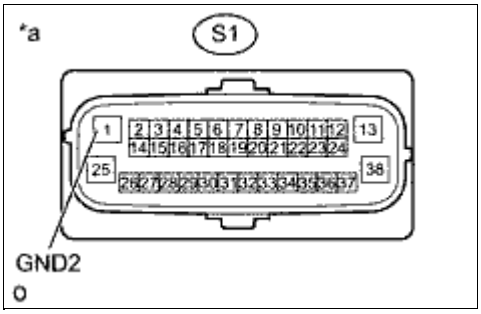
(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND2) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

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NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GND2 CIRCUIT)

OK ▶ REPLACE BRAKE ACTUATOR ASSEMBLY

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VBD000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C142B-C146D; Motor Power Supply Voltage Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C142B**	**Motor Power Supply Voltage Circuit**

DTC	**C146C**	**Open in ABS Motor Relay Circuit**

DTC	**C146D**	**Short in ABS Motor Relay Circuit**

DESCRIPTION

The motor relay and motor fail-safe relay are built into the brake actuator assembly.

During ABS, TRAC, VSC, or brake assist operation, the skid control ECU (brake actuator assembly) turns on the motor relay to run the pump motor in the brake actuator assembly.

When a motor system DTC is stored, the motor fail-safe relay cuts the power source supply to the motor relay for fail-safe operation.

These DTCs may be stored when the voltage to the motor relay power source (BM terminal) is lower than the DTC detection condition due to low output from the battery or alternator.

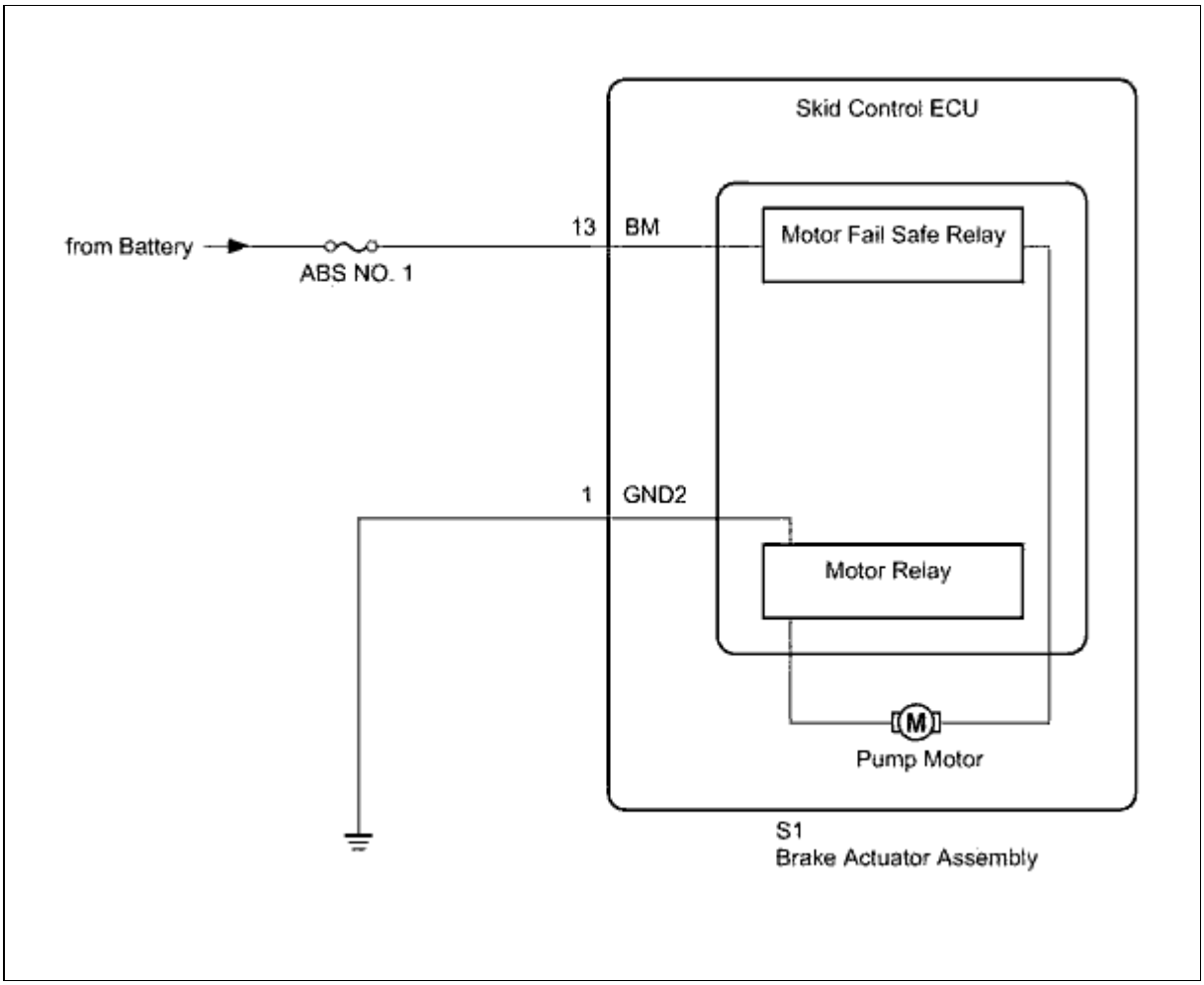
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C142B	Motor Power Supply Voltage Circuit	When voltage at +BS terminal is 9.5 V or higher, open in BM terminal continues for 1 second or more.	• ABS NO. 1 fuse • Skid Control ECU (Brake actuator assembly) • Wire harness or connector
C146C	Open in ABS Motor Relay Circuit	When voltage at +BS terminal is 9.5 V or higher and motor relay ON while control operates, relay contact OFF condition continues for 0.12 seconds or more.	• ABS NO. 1 fuse • Skid Control ECU (Brake actuator assembly) • Wire harness or connector
C146D	Short in ABS Motor Relay Circuit	Either of the following is detected: • Overcurrent in motor relay and motor fail-safe relay continues for 0.05 seconds or more. • Motor relay gate voltage malfunction continues for 0.12 seconds or more.	• Brake actuator assembly (Motor relay) • Wire harness or connector

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HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

When C1241 and/or C1417 is output together with C142B, C146C and/or C146D inspect and repair the trouble areas indicated by C1241 and/or C1417 first.

for C1241: INFO
for C1417: INFO

PROCEDURE

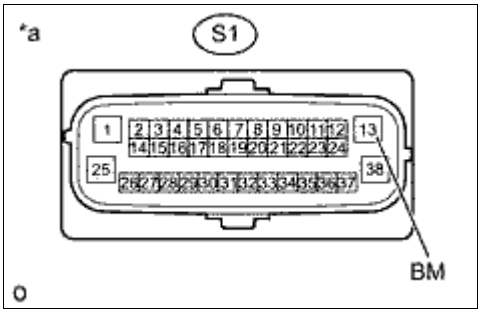
1.	**CHECK TERMINAL VOLTAGE (BM TERMINAL)**

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(a) Turn the ignition switch off.

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.



(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-13 (BM) - Body ground	Always	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (BM CIRCUIT)**

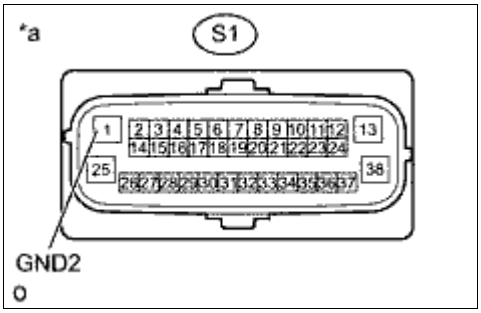
OK ▼

2.	**CHECK HARNESS AND CONNECTOR (GND2 TERMINAL)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND2) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

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NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND2 CIRCUIT)**

OK ▼

3.	**RECONFIRM DTC**

HINT:

These codes are stored when a problem is identified in the skid control ECU (brake actuator assembly). The motor relay is in the skid control ECU (brake actuator assembly). Therefore, motor relay inspections and motor relay unit inspections cannot be performed. Be sure to check if any DTCs are output before replacing the brake actuator assembly.

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTC INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Drive the vehicle at a speed of 20 km/h (12 mph) or more for 30 seconds or more.

(f) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTCs C142B, C146C and C146D are not output	A
DTCs C142B, C146C and/or C146D are output	B

HINT:

- If a speed signal of 6 km/h (4 mph) or more is input to the skid control ECU (brake actuator assembly), with the ignition switch to ON and the stop light switch off, the ECU performs self diagnosis of the motor and solenoid circuits.
- If the normal system code is output (the trouble code is not output), slightly jiggle the connectors, wire harness, and fuses of the skid control ECU (brake actuator assembly). Make sure that no DTCs are output.
- If any DTCs are output while jiggling a connector or wire harness from the skid control ECU (brake actuator assembly), inspect and repair the connector or wire harness.
- The DTCs were probably output due to a bad connection of the connector terminal.

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAY000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1432; Steering Angle Sensor Power Source Voltage Malfunction; 2016 MY Tacoma [08/2015 -]		

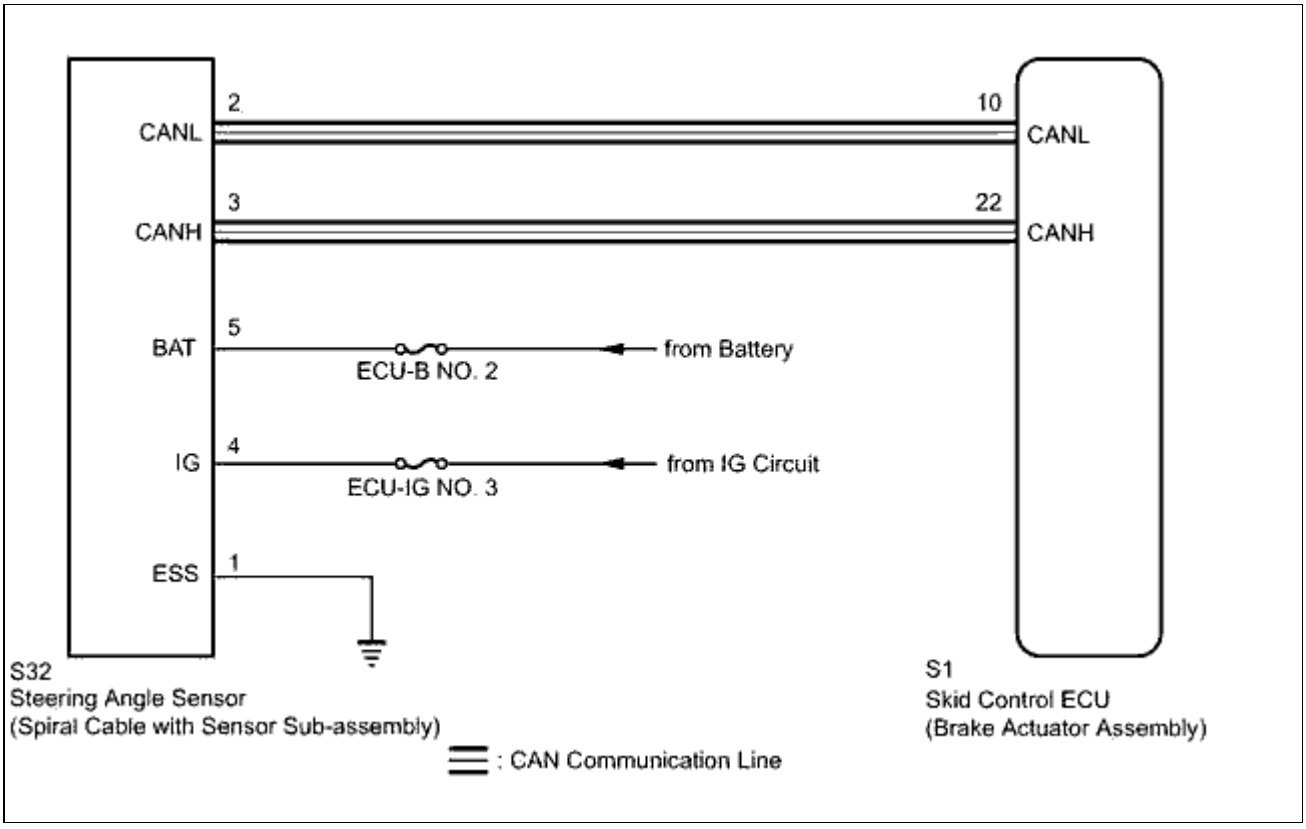
DTC	**C1432**	**Steering Angle Sensor Power Source Voltage Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) outputs this DTC when it receives a sensor power source malfunction signal from the steering angle sensor.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1432	Steering Angle Sensor Power Source Voltage Malfunction	Steering angle sensor power supply malfunction signal is received from steering angle sensor.	• ECU-B NO. 2 fuse • ECU-IG NO. 3 fuse • Steering angle sensor (Spiral cable with sensor sub-assembly) • Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

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NOTICE:

- Do not remove the steering angle sensor from the spiral cable with sensor sub-assembly.
- When replacing the steering angle sensor (spiral cable with sensor sub-assembly), confirm that the replacement part is of the correct specification.
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

- When U0073, U0124 and/or U0126 is output together with C1432, inspect and repair the trouble areas indicated by U0073, U0124 and/or U0126 first INFO .
- When the speed sensor or the yaw rate sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be output even when the steering angle sensor is normal. When DTCs for the speed sensor or yaw rate sensor (airbag sensor assembly) are output together with DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

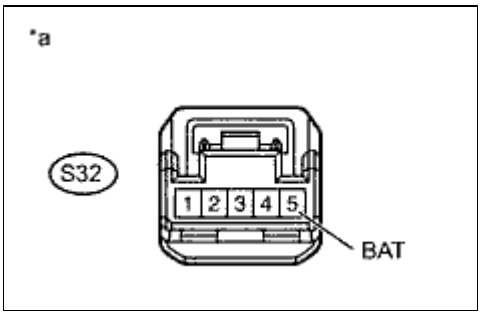
PROCEDURE

1.	**CHECK TERMINAL VOLTAGE (BAT TERMINAL)**

(a) Turn the ignition switch off.

(b) Remove the steering wheel and the column cover lower INFO .

(c) Make sure that there is no looseness at the locking part and the connecting part of the connectors.



(d) Disconnect the S32 steering angle sensor (spiral cable with sensor sub-assembly) connector.

(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S32-5 (BAT) - Body ground	Always	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Steering Angle Sensor [Spiral Cable with Sensor Sub-assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (BAT CIRCUIT)**

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OK

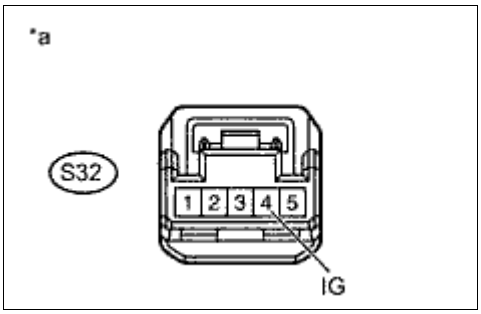
2.	CHECK TERMINAL VOLTAGE (IG TERMINAL)

(a) Turn the ignition switch to ON.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S32-4 (IG) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Steering Angle Sensor [Spiral Cable with Sensor Sub-assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IG CIRCUIT)**

OK

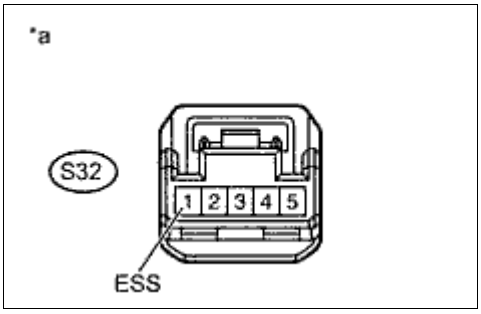
3.	CHECK HARNESS AND CONNECTOR (ESS TERMINAL)

(a) Turn the ignition switch off.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S32-1 (ESS) - Body ground	Always	Below 1 Ω



Text in Illustration

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*a	Front view of wire harness connector (to Steering Angle Sensor [Spiral Cable with Sensor Sub-assembly])

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (ESS CIRCUIT)**

OK ▶ **REPLACE SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAZ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1433; Steering Angle Sensor Internal Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C1433**	**Steering Angle Sensor Internal Circuit**

DESCRIPTION

The skid control ECU (brake actuator assembly) outputs this DTC when it receives an internal malfunction signal from the steering angle sensor.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1433	Steering Angle Sensor Internal Circuit	With the +BS terminal voltage 9.5 to 17.4 V, the skid control ECU receives an error signal from the steering angle sensor.	Steering angle sensor (Spiral cable with sensor sub-assembly)

INSPECTION PROCEDURE

HINT:

- When U0073, U0124 and/or U0126 is output together with C1433, inspect and repair the trouble areas indicated by U0073, U0124 and/or U0126 first INFO .
- When any of the speed sensors or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be output even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensors or yaw rate and acceleration sensor (airbag sensor assembly) are output together with DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**REPLACE SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY**

(a) Replace the spiral cable with sensor sub-assembly INFO .

NOTICE:

- Do not remove the steering angle sensor from the spiral cable with sensor sub-assembly.
- When replacing the spiral cable with sensor sub-assembly, confirm that the replacement part is of the correct specification.

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NEXT **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB0000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1434; Steering Angle Sensor Output Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1434**	**Steering Angle Sensor Output Malfunction**

DESCRIPTION

Steering angle sensor signals are input to the skid control ECU (brake actuator assembly) via the CAN communication system.

HINT:

When a malfunction occurs in the communication line to the steering angle sensor, U0126 is output. If a DTC related to the CAN communication line is output, first troubleshoot the CAN communication line.

DTCs may be stored if one of the following occurs:

- Steering angle sensor zero point malfunction
- Steering angle sensor signal malfunction

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1434	Steering Angle Sensor Output Malfunction	Normal communication between the skid control ECU and the steering angle sensor and abnormal steering angle sensor zero point.	• ECU-B NO. 2 fuse • ECU-IG NO. 3 fuse • Steering angle sensor (Spiral cable with sensor sub-assembly) • Skid control ECU (Brake actuator assembly) • Wire harness or connector

WIRING DIAGRAM

Refer to DTC C1432 INFO .

INSPECTION PROCEDURE

NOTICE:

- Do not remove the steering angle sensor from the spiral cable with sensor sub-assembly.
- When replacing the steering angle sensor (spiral cable with sensor sub-assembly), confirm that the replacement part is of the correct specification.
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

- When U0073, U0124 and/or U0126 is output together with C1434, inspect and repair the trouble areas indicated by U0073, U0124 and/or U0126 first INFO .
- When any of the speed sensors or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be output even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensors or yaw rate and acceleration sensor (airbag sensor assembly) are output together with DTCs

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for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Turn the ignition switch to ON again and check that no CAN communication system DTC is output INFO .

(d) Start the engine.

(e) Drive the vehicle at a speed of 35 km/h (22 mph) and turn the steering wheel to the right and left to check that no speed sensor or yaw rate and acceleration sensor DTCs are output INFO .

HINT:

- If there is a malfunction in any of the speed sensors or the yaw rate and acceleration sensor (airbag sensor assembly), an abnormal value may be output although the steering angle sensor (spiral cable with sensor sub-assembly) sensor is normal.
- If speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) DTCs are output simultaneously, repair these two sensors first and inspect the steering angle sensor (spiral cable with sensor sub-assembly).

Result

RESULT	PROCEED TO
No CAN communication system, speed sensor, or yaw rate and acceleration sensor DTCs are output	A
CAN communication system DTC is output	B
Speed sensor or yaw rate and acceleration sensor DTC is output	C

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

C ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

A ▼

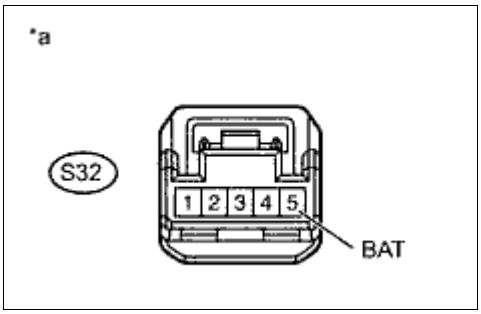
2.	**CHECK TERMINAL VOLTAGE (BAT TERMINAL)**

(a) Turn the ignition switch off.

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(b) Remove the steering wheel and the column cover lower INFO .

(c) Make sure that there is no looseness at the locking part and the connecting part of the connectors.



(d) Disconnect the S32 steering angle sensor (spiral cable with sensor sub-assembly) connector.

(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S32-5 (BAT) - Body ground	Always	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Steering Angle Sensor [Spiral Cable with Sensor Sub-assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (BAT CIRCUIT)**

OK ▼

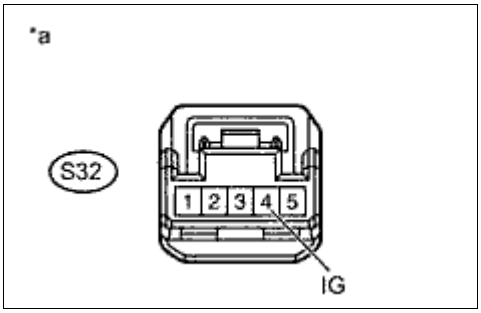
3.	**CHECK TERMINAL VOLTAGE (IG TERMINAL)**

(a) Turn the ignition switch to ON.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S32-4 (IG) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

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*a	Front view of wire harness connector (to Steering Angle Sensor [Spiral Cable with Sensor Sub-assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IG CIRCUIT)**

OK ▼

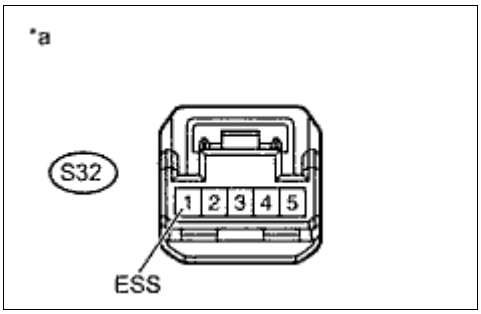
4.	**CHECK HARNESS AND CONNECTOR (ESS TERMINAL)**

(a) Turn the ignition switch off.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S32-1 (ESS) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Steering Angle Sensor [Spiral Cable with Sensor Sub-assembly])

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (ESS CIRCUIT)**

OK ▶ **REPLACE SPIRAL CABLE WITH SENSOR SUB-ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB1000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1436; Yaw Rate Sensor Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**C1436**	**Yaw Rate Sensor Malfunction**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

The airbag sensor assembly has a built-in yaw rate sensor and detects the vehicle condition.

If there is trouble in the bus lines between the acceleration sensor (airbag sensor assembly) and the CAN communication system, DTC U0124 (Lost Communication with Lateral Acceleration Sensor Module) is set.

These DTCs are also output when calibration has not been completed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1436	Yaw Rate Sensor Malfunction	Either of the following is detected: • With the vehicle stationary, the yaw rate and acceleration sensor output value is not 0 deg/s. • Abnormal comparison value.	• Improper yaw rate sensor (Airbag sensor assembly) installation • Yaw rate sensor (Airbag sensor assembly)

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

INSPECTION PROCEDURE

NOTICE:

When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration and store system information INFO .

HINT:

When U0124 and/or U0126 is output together with C1436, inspect and repair the trouble areas indicated by U0124 and/or U0126 first INFO .

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (YAW RATE SENSOR)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

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(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(e) According to the display on the Techstream, read the Data List.

(f) Check that the yaw rate sensor output value displayed on the Techstream.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Yaw Rate Sensor	Yaw rate sensor	Min.: -128°/s Max.: 127°/s	Vehicle stopped: 0°/s Turning right: -128 to 0°/s Turning left: 0 to 127°/s	-

HINT:

If troubleshooting has been carried out according to the Problem Symptoms Table, refer back to the table and proceed to the next step INFO .

Result

RESULT	PROCEED TO
NG (The yaw rate sensor (airbag sensor assembly) output value is 0 deg/s when the vehicle is stationary, but the value fluctuates when turning)	A
NG (The yaw rate sensor (airbag sensor assembly) output value is not 0 deg/s when the vehicle is stationary)	B
OK	C

B ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

C ▶ **USE SIMULATION METHOD TO CHECK**

A ▼

2.	**CHECK AIRBAG SENSOR ASSEMBLY INSTALLATION**

(a) Turn the ignition switch off.

(b) Check that the airbag sensor assembly has been installed properly INFO .

OK:

The sensor should be tightened to the specified torque.

The sensor should not be installed in a tilted position.

NG ▶ **INSTALL AIRBAG SENSOR ASSEMBLY**

OK ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB8000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1437; Lost Communication with ECM; 2016 MY Tacoma [08/2015 -]		

DTC	**C1437**	**Lost Communication with ECM**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives signals from the ECM via the CAN communication system.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1437	Lost Communication with ECM	When voltage at terminal +BS is 10 to 17.4 V and vehicle speed is 15 km/h (9 mph) or more, data cannot be sent to ECM continuously for 2 seconds or more.	• CAN communication system (skid control ECU to ECM) • Skid control ECU (brake actuator assembly) • ECM

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to the DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
EFI Communication Open	EFI communication open detection	Normal or Error	Normal	Error: Momentary interruption
EFI Communication Invalid	ECM communication invalid detection	Normal or Error	Normal	Error: Invalid

HINT:

Perform the above inspection before removing the sensor and connector.

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OK:

Normal (There are no momentary interruptions.)

NG ▶ **CHECK CAN COMMUNICATION SYSTEM**

OK ▼

2.	**RECONFIRM DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Drive the vehicle at a speed of 15 km/h (9 mph) or more for 10 seconds or more.

(e) Check that no CAN communication system DTC is output INFO .

(f) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1437 is not output	A
DTC C1437 is output	B
CAN communication system DTC is output	C

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

C ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VB9000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1439,C1445; Steering Angle Sensor Initialization Incomplete; 2016 MY Tacoma [08/2015 -]		

DTC	**C1439**	**Steering Angle Sensor Initialization Incomplete**

DTC	**C1445**	**Vehicle Driven with Steering Angle Sensor not Initialized**

DESCRIPTION

The skid control ECU (brake actuator assembly) acquires steering angle sensor zero point every time the ignition switch is turned ON and the vehicle is driven at 35 km/h (22 mph) or more for approximately 5 seconds. The ECU also stores the previous zero point.

The steering angle sensor zero point malfunction warning is canceled by turning the ignition switch off.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1439	Steering Angle Sensor Initialization Incomplete	After the steering angle sensor zero point calibration is cleared due to, for example, fluctuations in the power source, the steering angle zero point calibration cannot be obtained for 0.048 seconds of continuous driving.	• Steering angle sensor (Spiral cable with sensor sub-assembly) • Yaw rate and acceleration sensor (Airbag sensor assembly)
C1445	Vehicle Driven with Steering Angle Sensor not Initialized	Steering angle sensor zero point calibration cannot be obtained when the vehicle is driven without a record of steering angle sensor zero point calibration at a speed of 35 km/h (22 mph) or more for 30 seconds or more without the brake pedal being depressed.	• Steering angle sensor (Spiral cable with sensor sub-assembly) • Yaw rate and acceleration sensor (Airbag sensor assembly)

INSPECTION PROCEDURE

NOTICE:

Before proceeding with the inspection, explain to the customer that the output DTC is related to temporary loss of the steering angle zero point calibration, such as when the power voltage drops when the battery is removed, and confirm that this condition occurred.

HINT:

- When DTC U0073, U0124 or U0126 is output together with DTC C1439 and/or C1445, inspect and repair the trouble areas indicated by DTC U0073, U0124 or U0126 first INFO .
- When the speed sensor or the yaw rate and acceleration sensor (airbag sensor assembly) has trouble, DTCs for the steering angle sensor (spiral cable with sensor sub-assembly) may be stored even when the steering angle sensor (spiral cable with sensor sub-assembly) is normal. When DTCs for the speed sensor

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or yaw rate and acceleration sensor (airbag sensor assembly) are output together with other DTCs for the steering angle sensor (spiral cable with sensor sub-assembly), inspect and repair the speed sensor and yaw rate and acceleration sensor (airbag sensor assembly) first, and then inspect and repair the steering angle sensor (spiral cable with sensor sub-assembly).

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Turn the ignition switch to ON again and check that no CAN communication system DTC is output INFO .

(d) Drive the vehicle at a speed of 35 km/h (22 mph) or more and turn the steering wheel to the right and left and check that no speed sensor or yaw rate and acceleration sensor DTCs are output INFO .

HINT:

- If there is a malfunction in the speed sensor or the yaw rate and acceleration sensor (airbag sensor assembly), an abnormal value may be output although the steering angle sensor (spiral cable with sensor sub-assembly) is normal.
- If the speed sensor and the yaw rate and acceleration sensor (airbag sensor assembly) DTCs are output simultaneously, repair the sensors and inspect the steering angle sensor (spiral cable with sensor sub-assembly).
- If DTC C1439 or C1445 is not output again, the DTC may have been stored due to a temporary loss of the steering angle zero point calibration, such as when the power voltage drops.

Result

RESULT		PROCEED TO
DTC is output	C1439 and/or C1445	A
	Relating to CAN communication system	B
	Relating to speed sensor or yaw rate and acceleration sensor (airbag sensor assembly)	C
DTC is not output		D

B ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

C ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

D ▶ **USE SIMULATION METHOD TO CHECK**

A ▼

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2.	PERFORM STEERING ANGLE SENSOR ZERO POINT CALIBRATION

(a) Drive the vehicle straight ahead at 35 km/h (22 mph) or more for at least 5 seconds.

(b) Check that the centered position of the steering wheel is correctly set while driving straight ahead.

HINT:

If the front wheel alignment and steering position are adjusted as a result of an abnormal centered position of the steering wheel, acquire the yaw rate and acceleration sensor zero point again after the adjustments are completed.

OK:

The centered position of the steering wheel is correctly set.

NG ▶ **ADJUST FRONT WHEEL ALIGNMENT OR STEERING POSITION**

OK ▼

3.	RECONFIRM DTC

(a) Turn the ignition switch off.

(b) Clear the DTCs INFO .

(c) Start the engine.

(d) Drive the vehicle at a speed of 35 km/h (22 mph) or more and turn the steering wheel to the right and left.

(e) Check if the same DTC is recorded INFO .

HINT:

If DTC C1439 or C1445 is not output again, the DTC may have been stored due to a temporary loss of the steering angle zero point calibration, such as when the power voltage drops.

Result

RESULT	PROCEED TO
DTCs C1439 and C1445 are not output	A
Yaw rate and acceleration sensor and/or steering angle sensor DTC is output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VBB000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1440; Unusual Bank Angle Detected; 2016 MY Tacoma [08/2015 -]		

DTC	**C1440**	**Unusual Bank Angle Detected**

DESCRIPTION

If the skid control ECU (brake actuator assembly) determines that the vehicle is being driven at a steep bank angle, the skid control ECU (brake actuator assembly) stores DTC C1440 while VSC operation is temporarily disabled.

This is not a malfunction if the system and sensor circuits are normal and normal VSC operation resumes.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1440	Steering Angle Sensor Unusual Bank Angle Detected	Driving at a steep bank angle	Yaw rate and acceleration sensor (Airbag sensor assembly)

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine.

(d) Perform a road test.

(e) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C1440 is output	A
DTC C1440 is not output	B
Yaw rate and acceleration sensor DTC is output	C

B ▶ **END**

C ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

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A

2.	**CLEAR DTC**

(a) Clear the DTCs INFO .

HINT:

- If the skid control ECU (brake actuator assembly) determines that the vehicle is being driven at a steep bank angle, the skid control ECU (brake actuator assembly) stores DTC C1440 while VSC operation is temporarily disabled.
- It is not a malfunction if the system and sensor circuits are normal and if the normal VSC operation resumes, which automatically clears DTC C1440, after the vehicle is returned to a normal position.

NEXT END

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VBA000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C1442,C1443; Invalid Data Received from Acceleration Sensor; 2016 MY Tacoma [08/2015 -]		

DTC	**C1442**	**Invalid Data Received from Acceleration Sensor**

DTC	**C1443**	**Invalid Data Received from Yaw Rate Sensor**

DESCRIPTION

The airbag sensor assembly has a built-in yaw rate and acceleration sensor.

The skid control ECU (brake actuator assembly) receives signals from the yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C1442	Invalid Data Received from Acceleration Sensor	When voltage at terminal +BS is 9.5 to 17.4 V, sensor invalid information received from acceleration sensor is ON continuously for 10 seconds or more.	Acceleration sensor (Airbag sensor assembly)
C1443	Invalid Data Received from Yaw Rate Sensor	When voltage at terminal +BS is 9.5 to 17.4 V, sensor invalid information received from yaw rate sensor is ON continuously for 10 seconds or more.	Yaw rate sensor (Airbag sensor assembly)

INSPECTION PROCEDURE

NOTICE:

When replacing the yaw rate and acceleration sensor (airbag sensor assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK DTC**

(a) Clear the DTCs INFO .

(b) Turn the ignition switch off.

(c) Start the engine and idle it for 60 seconds, and then stop the engine.

(d) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO

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RESULT	PROCEED TO
DTCs C1442 and/or C1443 are output	A
DTCs C1442 and C1443 are not output	B

B ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **REPLACE AIRBAG SENSOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VBC000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): C146E,C146F; Open in ABS Solenoid Relay Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**C146E**	**Open in ABS Solenoid Relay Circuit**

DTC	**C146F**	**Short in ABS Solenoid Relay Circuit**

DESCRIPTION

The ABS solenoid relay supplies power to the ABS solenoid and TRAC solenoid.

The solenoid relay is turned on 1.5 seconds after the ignition switch is turned ON, and is turned off if an open or short in the solenoid is detected by the self diagnosis performed when the engine starts running.

The ABS solenoid relay is housed in the skid control ECU in the actuator assembly.

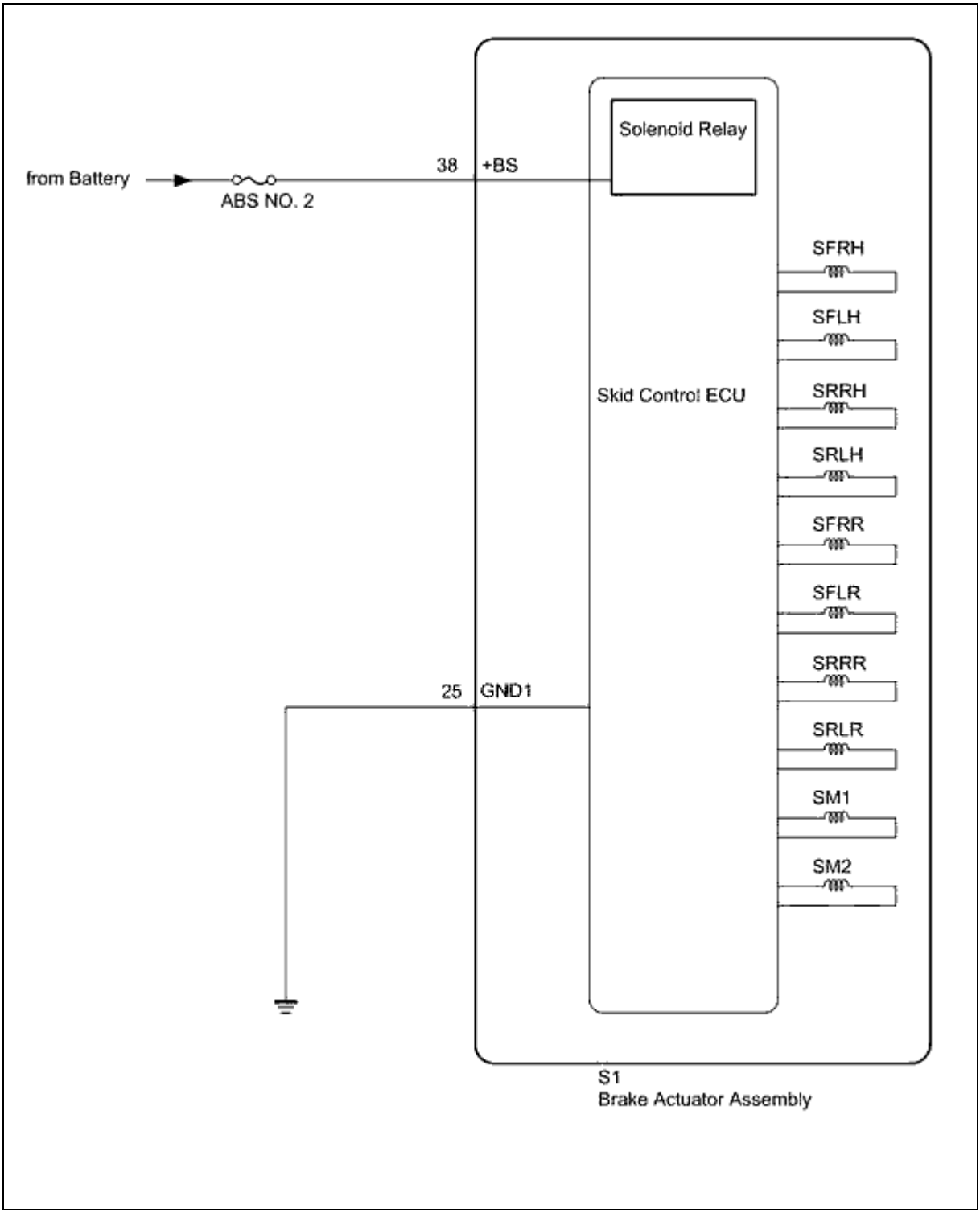
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
C146E	Open in ABS Solenoid Relay Circuit	Either of the following is detected: • When voltage at terminal +BS is 9.5 V or higher and solenoid relay is ON, relay contact is OFF continuously for 0.22 seconds or more. • When solenoid relay is turned on and voltage at +BS terminal is below 9.5 V, relay contact does not turn on after 0.22 seconds or more.	• ABS NO. 2 fuse • Wire harness or connector • Skid control ECU (Brake actuator assembly)
C146F	Short in ABS Solenoid Relay Circuit	Immediately after ignition switch turned ON and solenoid relay is OFF, relay contact is ON continuously for 4.5 seconds or more.	Skid control ECU (Brake actuator assembly)

HINT:

DTC will be output when conditions for either of the patterns in the table above are met.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

HINT:

When C1241 and/or C1417 is output together with C146E and/or C146F, inspect and repair the trouble areas indicated by C1241 and/or C1417 first.

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for C1241: INFO
for C1417: INFO

PROCEDURE

1.	**CHECK TERMINAL VOLTAGE (+BS TERMINAL)**

(a) Turn the ignition switch off.

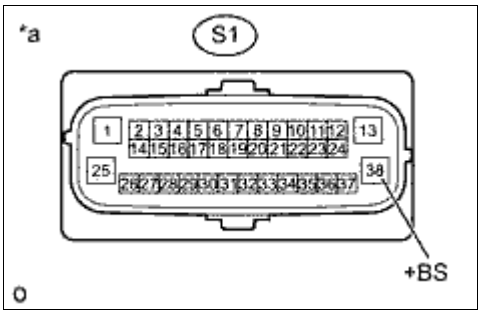
(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

(c) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

(d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-38 (+BS) - Body ground	Always	11 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (+BS CIRCUIT)**

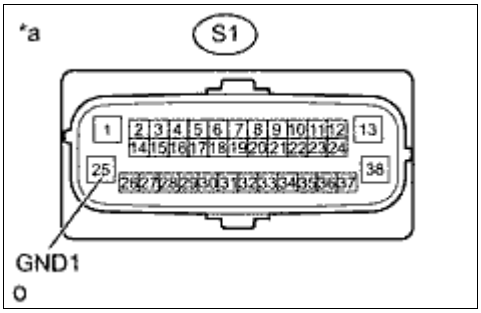
OK ▼

2.	**CHECK HARNESS AND CONNECTOR (GND1 TERMINAL)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-25 (GND1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector

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	(to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND1 CIRCUIT)**

OK ▼

3.	**RECONFIRM DTC**

HINT:

These codes are detected when a problem is determined in the skid control ECU (brake actuator assembly).

The solenoid circuits are in the skid control ECU (brake actuator assembly).

Therefore, solenoid circuit inspection and solenoid unit inspection cannot be performed.

Be sure to check if any DTCs are output before replacing the skid control ECU (brake actuator assembly).

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Clear the DTCs INFO .

(c) Turn the ignition switch off.

(d) Start the engine.

(e) Drive the vehicle at a speed of 20 km/h (12 mph) or more for 30 seconds or more.

(f) Check if the same DTC is recorded INFO .

Result

RESULT	PROCEED TO
DTC C146E and/or C146F are not output	A
DTC C146E and C146F are output	B

HINT:

- If a speed signal of 6 km/h (4 mph) or more is input to the skid control ECU (brake actuator assembly), with the ignition switch to ON and the stop light switch off, the ECU performs self diagnosis of the motor and solenoid circuits.
- If the normal system code is output (the trouble code is not output), slightly jiggle the connectors, wire harness, and fuses of the skid control ECU (brake actuator assembly). Make sure that no DTCs are output.
- If any DTCs are output while jiggling a connector or wire harness from the skid control ECU (brake actuator assembly), inspect and repair the connector or wire harness.
- The DTCs were probably output due to a bad connection of the connector terminal.

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **USE SIMULATION METHOD TO CHECK**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005V9W000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): CALIBRATION; 2016 MY Tacoma [08/2015 -]		

CALIBRATION

1. DESCRIPTION

(a) After replacing any VSC related components or performing wheel alignment adjustment, clear and read the sensor calibration data.

Refer to the table below and then perform the necessary operation according to the part to be replaced in order to perform calibration.

PARTS TO BE REPLACED / OPERATION	NECESSARY OPERATION
Skid control ECU (brake actuator assembly)	Perform yaw rate and acceleration sensor zero point calibration and store system information.
Yaw rate and acceleration sensor (airbag sensor assembly)	• Clear zero point calibration data and store system information. • Perform yaw rate and acceleration sensor zero point calibration and store system information.
Wheel alignment adjustment	• Clear zero point calibration data and store system information. • Perform yaw rate and acceleration sensor zero point calibration and store system information.

2. PERFORM YAW RATE AND ACCELERATION SENSOR ZERO POINT CALIBRATION AND STORE SYSTEM INFORMATION (When Using Techstream)

NOTICE:

- Stored system information cannot be overwritten unless it is cleared. Clear the stored information and then store new system information.
- While obtaining the zero points, keep the vehicle stationary and do not vibrate, tilt, move, or shake it (do not start the engine).
- Be sure to perform this procedure on a level surface (with an inclination of less than 1 degree).

(a) Clear the zero point calibration data and store system information.

NOTICE:

Performing the following procedure will clear the zero points of the yaw rate and acceleration sensor and system information simultaneously.

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) for Manual Transmission:

Check that the shift lever is in neutral and apply the parking brake.

for Automatic Transmission:

Check that the shift lever is in P and apply the parking brake.

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(4) Connect the Techstream to the DLC3.

(5) Turn the ignition switch to ON.

(6) Turn the Techstream on.

(7) Select the skid control ECU (brake actuator assembly) to clear the zero point calibration data using the Techstream.

Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Reset Memory.

(8) Check that the slip indicator light comes on.

(9) Turn the ignition switch off.

NOTICE:

If the ignition switch is turned ON for more than 15 seconds with the parking brake applied*1 or shift lever in P*2 after the zero point of the yaw rate and acceleration sensor has been cleared, only the zero point of the yaw rate sensor will be stored. If the vehicle is driven under these conditions, the skid control ECU (brake actuator assembly) will store the zero point calibration for the acceleration sensor as not being completed. The skid control ECU (brake actuator assembly) will then also indicate this as a malfunction of the VSC system using the indicator light.

*1: for Manual Transmission
*2: for Automatic Transmission

(b) Perform the yaw rate and acceleration sensor zero point calibration and store system information.

NOTICE:

Performing the following procedure will perform the yaw rate and acceleration sensor zero point calibration and store system information simultaneously.

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) for Manual Transmission:

Check that the shift lever is in neutral and apply the parking brake.

for Automatic Transmission:

Check that the shift lever is in P and apply the parking brake.

NOTICE:

- When Test Mode is selected with the parking brake is not applied*1 or shift lever not in P*2, the yaw rate and acceleration sensor zero point calibration incomplete DTC is stored.
  *1: for Manual Transmission
  *2: for Automatic Transmission
- When the vehicle is driven with the zero point cleared, the yaw rate and acceleration sensor zero point calibration incomplete DTC is stored.
- If a DTC is stored that indicates zero point calibration is incomplete, repeat the procedure starting at the step for clearing the zero point calibration data and system information.

(4) Connect the Techstream to the DLC3.

(5) Turn the ignition switch to ON.

(6) Turn the Techstream on.

(7) Switch the skid control ECU (brake actuator assembly) to Test Mode using the Techstream.

Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Test Mode.

(8) After the Test Mode has been entered, keep the vehicle stationary on a level surface for 5 seconds or more.

(9) Check that the slip indicator light comes on for several seconds and then blinks in the Test Mode

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pattern.

HINT:

- If the slip indicator light does not blink, perform zero point calibration again.
- The zero point calibration is performed only once after the system enters the Test Mode.
- Calibration cannot be performed again until the stored data is cleared.

(10) Turn the ignition switch off and disconnect the Techstream.

3. PERFORM YAW RATE AND ACCELERATION SENSOR ZERO POINT CALIBRATION AND STORE SYSTEM INFORMATION (When Using SST Check Wire)

NOTICE:

- Stored system information cannot be overwritten unless it is cleared. Clear the stored information and then store new system information.
- While obtaining the zero points, keep the vehicle stationary and do not vibrate, tilt, move, or shake it (do not start the engine).
- Be sure to perform this procedure on a level surface (with an inclination of less than 1 degree).

(a) Clear the zero point calibration data and store system information.

NOTICE:

Performing the following procedure will clear the zero points of the yaw rate and acceleration sensor and system information simultaneously.

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) for Manual Transmission:

Check that the shift lever is in neutral and apply the parking brake.

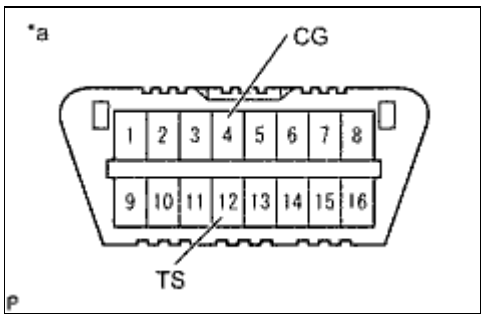
for Automatic Transmission:

Check that the shift lever is in P and apply the parking brake.

(4) Turn the ignition switch to ON.

(5) Using SST, connect and disconnect terminals 12 (TS) and 4 (CG) of the DLC3 4 times or more within 8 seconds.

SST: 09843-18040



Text in Illustration

*a	Front view of DLC3

(6) Check that the slip indicator light comes on.

NOTICE:

- If the vehicle is driven after the zero point of the yaw rate and acceleration sensor and system information are cleared, DTCs will be stored.
- If the ignition switch is turned ON for more than 15 seconds with the parking brake applied*1 or shift lever in P*2 after the zero point of the yaw rate and acceleration sensor has been cleared, only the zero point of the yaw rate sensor will be stored. If the vehicle is driven under these conditions, the skid control ECU (brake actuator assembly) will store the zero point calibration for the acceleration sensor as not being completed. The skid control ECU (brake actuator assembly) will then also indicate this as a malfunction of the VSC system using the indicator light.
  *1: for Manual Transmission
  *2: for Automatic Transmission

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(7) Turn the ignition switch off.

(b) Perform the yaw rate and acceleration sensor zero point calibration and store system information.

NOTICE:

Performing the following procedure will perform the yaw rate and acceleration sensor zero point calibration, and also store system information simultaneously.

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) for Manual Transmission:

Check that the shift lever is in neutral and apply the parking brake.

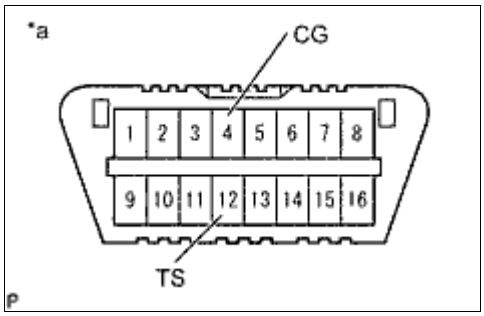
for Automatic Transmission:

Check that the shift lever is in P and apply the parking brake.

NOTICE:

- When Test Mode is selected with the parking brake is not applied*1 or shift lever not in P*2, the yaw rate and acceleration sensor zero point calibration incomplete DTC is stored.
  *1: for Manual Transmission
  *2: for Automatic Transmission
- When the vehicle is driven with the zero point cleared, the yaw rate and acceleration sensor zero point calibration incomplete DTC is stored.

(4) Using SST, connect terminals 12 (TS) and 4 (CG) of the DLC3.



Text in Illustration

*a	Front view of DLC3

(5) Turn the ignition switch to ON.

(6) After Test Mode has been entered, keep the vehicle stationary on a level surface for 5 seconds or more.

(7) Check that the slip indicator light comes on for several seconds and then blinks in the Test Mode pattern.

HINT:

- If the slip indicator light does not blink, perform zero point calibration again.
- The zero point calibration is performed only once after the system enters the Test Mode.
- Calibration cannot be performed again until the stored data is cleared.

(8) Turn the ignition switch off and disconnect SST from the DLC3.

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005V9Y000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): CHECK FOR INTERMITTENT PROBLEMS; 2016 MY Tacoma [08/2015 -]		

CHECK FOR INTERMITTENT PROBLEMS

1. CHECK FOR INTERMITTENT PROBLEMS

HINT:

A momentary interruption (open circuit) in the connectors and/or wire harnesses between the sensors and ECUs can be detected using the ECU Data List function of the Techstream.

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Follow the directions on the Techstream to display the Data List and select areas where momentary interruptions should be monitored.

HINT:

- A momentary interruption (open circuit) cannot be detected for 3 seconds after the ignition switch is turned ON (initial check).
- If the Error display remains displayed, measure the resistance between the ECUs and sensors, or between ECUs.
- The Error display on the Techstream will remain displayed for 1 second after the harness signal changes from momentary interruption (open circuit) to the normal condition.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Speed Open	Front speed sensor RH open circuit detection/ Error or Normal	Normal	-
FL Speed Open	Front speed sensor LH open circuit detection/ Error or Normal	Normal	-
RR Speed Open	Rear speed sensor RH open circuit detection/ Error or Normal	Normal	-
RL Speed Open	Rear speed sensor LH open circuit detection/ Error or Normal	Normal	-
EFI Communication Open	ECM communication open circuit detection/ Error or Normal	Normal	-
Yaw Rate Open	Yaw rate and acceleration sensor open circuit detection/ Error or Normal	Normal	-
Deceleration Open	Deceleration sensor open circuit detection/ Error or Normal	Normal	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Steering Open	Steering angle sensor open circuit detection/ Error or Normal	Normal	-
Master Cylinder Open	Master cylinder pressure sensor open circuit detection/ Error or Normal	Normal	-
IG Voltage Value Decreased	IG1 voltage value decreased detection/ Error or Normal	Normal	-
IG Voltage Value Increased	IG1 voltage value increased detection/ Error or Normal	Normal	-
FR Speed Sensor Voltage Open	Front speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
FL Speed Sensor Voltage Open	Front speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
RR Speed Sensor Voltage Open	Rear speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
RL Speed Sensor Voltage Open	Rear speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
M/C Pressure Sensor Noise	Master cylinder pressure sensor noise detection/ Error or Normal	Normal	-
Yaw Rate Sensor Voltage Open	Yaw rate and acceleration sensor voltage open circuit detection/ Error or Normal	Normal	-
EFI Communication Invalid	ECM communication invalid detection/ Error or Normal	Normal	-

(f) While observing the screen, gently jiggle the connector or wire harness between the ECU and sensors, or between ECUs.

OK:

Normal is displayed.

HINT:

If the display changes, the connector and/or the wire harness has caused a momentary interruption of the circuit. Repair or replace the connector and/or wire harness as one of them is faulty.

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000005V9V000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

(a) Warm up the engine.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light/ ON or OFF	OFF	-
Brake Warning Light	Brake warning light/ ON or OFF	OFF	-
Downhill Assist Control Light	Downhill assist control indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	Item is displayed on tester but not used.
Buzzer	VSC warning buzzer/ ON or OFF	ON: Buzzer on OFF: Buzzer off	-
Stop Light SW	Stop light switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
Parking Brake SW	Parking brake switch/ ON or OFF	ON: Parking brake applied OFF: Parking brake released	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Reservoir Warning SW	Brake fluid level warning switch/ ON or OFF	OFF	-
Main Idle SW	Main idle switch/ ON or OFF	ON: Accelerator pedal released OFF: Accelerator pedal depressed	-
Gear Position	Gear position/ Fail, 1st-8th, P, N, R, Not R	Actual gear position	-
Shift Lever Position	Shift lever position/ Fail, 1st-6th/B, D/M, P, N, R	Actual shift lever position	-
Shift Information	Shift information/ ON or OFF	ON: During gear change OFF: Not during gear change	-
Inspection Mode	Inspection mode/ Other or Inspect	Other: Normal mode Inspect: Inspection mode	-
Number of IG ON (Inspection)	Number of times ignition switch turned ON after entering inspection mode/ Min.: 0, Max.: 255	-	-
Master Cylinder Sensor	Master cylinder pressure sensor reading/ Min.: 0.00 V, Max.: 5.00 V	0.3 to 0.9 V: When brake pedal released	The value increases when the brake pedal is depressed.
Zero Point of M/C	Memorized zero value/ Min.: -12.50 Mpa, Max.: 12.40 Mpa	-	-
Accumulator Sensor	Accumulator pressure sensor reading/ Min.: 0.00 V, Max.: 5.00 V	3.58 to 5 V	If the value is constant regardless of the pump operation, an accumulator pressure sensor malfunction is suspected.
Deceleration Sensor	Deceleration sensor reading/ Min.: -18.525 m/s^2 , Max.: 18.387 m/s^2	-	Changes continuously during acceleration/deceleration.
Zero Point of Decele	Memorized zero value/ Min.: -25.10 m/s^2 , Max.: 24.90 m/s^2	-	-
Deceleration Sensor2	Deceleration sensor 2 reading/ Min.: -18.525 m/s^2 , Max.: 18.387 m/s^2	-	Changes continuously during acceleration/deceleration.

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Zero Point of Decele2	Memorized zero value/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	-
Yaw Rate Sensor	Yaw rate and deceleration sensor 1/ Min.: -128°/s, Max.: 127°/s	0°/s: Vehicle stationary -128 to 0°/s: Right turn 0 to 127°/s: Left turn	-
Zero Point of Yaw Rate	Memorized zero value/ Min.: -128°, Max.: 127°	-	-
Zero Point of Yaw Rate 2	Memorized zero value/ Min.: -128°, Max.: 127°	-	-
Steering Angle Sensor	Steering angle sensor/ Min.: -3276.8°, Max.: 3276.7°	Left turn: Increases Right turn: Decreases	-
Zero Point of Steering Angle	Memorized zero value/ Min.: -3276.8°, Max.: 3276.7°	-	-
Lateral G	Lateral G/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	Changes in proportion with acceleration during turning.
Forward and Rearward G	Forward and rearward G/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	Changes in proportion with acceleration during acceleration/deceleration.
Yaw Rate Value	Yaw rate value/ Min.: -128°/s, Max.: 127°/s	-	Changes in proportion with yaw during turning.
Steering Angle Value	Steering angle value/ Min.: -3276.8°, Max.: 3276.7°	-	Changes in proportion with the amount of steering wheel rotation during steering operation.
Stop Light Relay	Stop light control relay (STOP LP)/ ON or OFF	ON: Relay on OFF: Relay off	-
Crawl Control Light*2	Crawl indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	Item is displayed on tester but not used.
Slip Indicator Light	Slip indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-
Rear Diff Lock Switch	Rear differential lock detection switch/ ON or OFF	ON: Rear differential lock detection switch on OFF: Rear differential lock detection switch off	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Automatic Disconnect Diff SW	A.D.D. actuator 4WD detection switch/ ON or OFF	ON: 4WD OFF: 2WD	-
L4 Switch	Transfer L4 detection switch/ ON or OFF	ON: L4 OFF: except L4	-
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual wheel speed	No large fluctuations when driving at a constant speed.
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Actual vehicle speed	No large fluctuations when driving at a constant speed.
FR Wheel Acceleration	Front wheel acceleration RH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
FL Wheel Acceleration	Front wheel acceleration LH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
RR Wheel Acceleration	Rear wheel acceleration RH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
RL Wheel Acceleration	Rear wheel acceleration LH/ Min.: -200.84 m/s^2 , Max.: 199.27 m/s^2	-	Changes continuously during acceleration/deceleration.
FR Wheel Direction	Front wheel direction RH/ Forward or Back	Forward: Forward Back: Backward	-
FL Wheel Direction	Front wheel direction LH/ Forward or Back	Forward: Forward Back: Backward	-
RR Wheel Direction	Rear wheel direction RH/ Forward or Back	Forward: Forward Back: Backward	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RL Wheel Direction	Rear wheel direction LH/ Forward or Back	Forward: Forward Back: Backward	-
Stop Light Relay Output	Stop light control relay (STOP LP) output/ ON or OFF	ON: Relay on (Stop light on) OFF: Relay off (Stop light off)	-
Crawl Control Switch*2	Crawl speed selector switch status/ LOW, MIDLOW, MID, MIDHIGH or HIGH	Actual crawl speed selector switch position	Item is displayed on tester but not used.
Auto LSD Indicator Light	Auto LSD indicator light/ ON or OFF	ON: Indicator light on OFF: Indicator light off	-
FR Wheel ABS Ctrl Status	Front wheel RH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
FL Wheel ABS Ctrl Status	Front wheel LH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
RR Wheel ABS Ctrl Status	Rear wheel RH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
RL Wheel ABS Ctrl Status	Rear wheel LH ABS control status/ ON or OFF	ON: During control OFF: Not during control	-
RR Wheel EBD Ctrl Status	Rear wheel RH EBD control status/ ON or OFF	ON: During control OFF: Not during control	-
RL Wheel EBD Ctrl Status	Rear wheel LH EBD control status/ ON or OFF	ON: During control OFF: Not during control	-
BA Ctrl Status	BA control status/ ON or OFF	ON: During control OFF: Not during control	-
TRC (TRAC) Ctrl Status	Traction control status/ ON or OFF	ON: During control OFF: Not during control	-
TRC (TRAC) Engine Ctrl Status	Traction control (engine control) status/ ON or OFF	ON: During control OFF: Not during control	-
TRC (TRAC) Brake Ctrl Status	Traction control (brake control) status/ ON or OFF	ON: During control OFF: Not during control	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel VSC Ctrl Status	Front wheel RH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
FL Wheel VSC Ctrl Status	Front wheel LH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
RR Wheel VSC Ctrl Status	Rear wheel RH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
RL Wheel VSC Ctrl Status	Rear wheel LH VSC control status/ ON or OFF	ON: During control OFF: Not during control	-
Engine Revolutions	Engine speed/ Min.: 0 rpm, Max.: 65535 rpm	Actual engine speed	-
Real Engine Torque	Actual engine torque/ Min.: -1024.0 Nm, Max.: 1023.0 Nm	-	-
Accelerator Opening Angle %	Percentage of accelerator pedal opening angle/ Min.: 0.0%, Max.: 128.0%	0%: When accelerator pedal released	Changes in proportion with the movement of the pedal during accelerator pedal operation.
Solenoid Relay	Solenoid relay/ ON or OFF	ON: Solenoid relay on OFF: Solenoid relay off	-
ECB (Electronically Controlled Brake system) Motor Relay	ECB (Electronically Controlled Brake) motor relay/ ON or OFF	ON: Motor relay on OFF: Motor relay off	-
TR(A)C/VSC Solenoid (SRM2)	TRAC/VSC solenoid (STR)/ ON or OFF	ON: Operating OFF: Not operating	-
TR(A)C/VSC Solenoid (SRM1)	TRAC/VSC solenoid (SREC)/ ON or OFF	ON: Operating OFF: Not operating	-
TR(A)C/VSC Solenoid (SRC2)	TRAC/VSC solenoid (SREA)/ ON or OFF	ON: Operating OFF: Not operating	-
TR(A)C/VSC Solenoid (SRC1)	TRAC/VSC solenoid (SMCF)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SFRH)	ABS solenoid (SFRH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SFRR)	ABS solenoid (SFRR)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SFLH)	ABS solenoid (SFLH)/ ON or OFF	ON: Operating OFF: Not operating	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ABS Solenoid (SFLR)	ABS solenoid (SFLR)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRRH)	ABS solenoid (SRRH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRRR)	ABS solenoid (SRRR)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRLH)	ABS solenoid (SRLH)/ ON or OFF	ON: Operating OFF: Not operating	-
ABS Solenoid (SRLR)	ABS solenoid (SRLR)/ ON or OFF	ON: Operating OFF: Not operating	-
FR Speed Open	Front speed sensor RH open circuit detection/ Error or Normal	Normal	-
FL Speed Open	Front speed sensor LH open circuit detection/ Error or Normal	Normal	-
RR Speed Open	Rear speed sensor RH open circuit detection/ Error or Normal	Normal	-
RL Speed Open	Rear speed sensor LH open circuit detection/ Error or Normal	Normal	-
EFI Communication Open	ECM communication open circuit detection/ Error or Normal	Normal	-
Yaw Rate Open	Yaw rate and deceleration sensor open circuit detection/ Error or Normal	Normal	-
Deceleration Open	Deceleration sensor open circuit detection/ Error or Normal	Normal	-
Steering Open	Steering angle sensor open circuit detection/ Error or Normal	Normal	-
Master Cylinder Open	Master cylinder pressure sensor open circuit detection/ Error or Normal	Normal	-
IG1 Voltage Value	IG1 voltage value/ Min.: 0.00 V, Max.: 20.00 V	11 to 14 V	Changes in proportion to battery voltage
IG2 Voltage Value	IG2 voltage value/ Min.: 0.00 V, Max.: 20.00 V	11 to 14 V	Changes in proportion to battery voltage

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRAC OFF, Unknown or VSC OFF	Normal: Normal TRAC OFF: TRAC OFF mode VSC OFF: VSC OFF mode	-
Number of DTC	Number of DTCs/ Min.: 0, Max.: 255	0	-
IG Voltage Value Decreased	IG1 voltage value decreased/ Error or Normal	Normal	-
IG Voltage Value Increased	IG1 voltage value increased/ Error or Normal	Normal	-
FR Speed Sensor Voltage Open	Front speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
FL Speed Sensor Voltage Open	Front speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
RR Speed Sensor Voltage Open	Rear speed sensor RH voltage open circuit detection/ Error or Normal	Normal	-
RL Speed Sensor Voltage Open	Rear speed sensor LH voltage open circuit detection/ Error or Normal	Normal	-
M/C Pressure Sensor Noise	Master cylinder pressure sensor noise detection/ Error or Normal	Normal	-
Yaw Rate Sensor Voltage Open	Yaw rate and deceleration sensor voltage open circuit detection/ Error or Normal	Normal	-
EFI Communication Invalid	ECM communication invalid detection/ Error or Normal	Normal	-
Operation History of IG OFF while Vehicle is moving	History of ignition switch turned off when vehicle is in motion/ON or OFF	OFF: No history ON: History of ignition switch turned off with vehicle speed 3 km/h (2 mph) or higher	-

*1: for Manual transmission
*2: for Automatic transmission

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2. ACTIVE TEST

HINT:

Using the Techstream to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

(a) Warm up the engine.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
ABS Warning Light	ABS warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Brake Warning Light	BRAKE warning light	Warning light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Buzzer	VSC warning buzzer	Buzzer OFF/ON	The buzzer can be heard. [Vehicle condition] Vehicle stopped
Solenoid Relay	Solenoid relay	Relay OFF/ON	An operating sound of the solenoid (clicking sound) can be heard. [Vehicle condition] Vehicle stopped
Motor Relay	Motor relay	Relay OFF/ON	An operating sound of the motor can be heard (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped
Stop Light Relay	Stop light control relay (STOP LP CTRL)	Relay OFF/ON	Observe the stop light (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped
ABS Solenoid (SRLR)	ABS solenoid (SRLR)	Solenoid OFF/ON	An operating sound of the solenoid (clicking sound) can be heard (does not come on for 2 to 5 seconds).
ABS Solenoid (SRLH)	ABS solenoid (SRLH)	Solenoid OFF/ON	

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TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
ABS Solenoid (SRRR)	ABS solenoid (SRRR)	Solenoid OFF/ON	[Vehicle condition] Vehicle stopped Parking brake applied Shift lever is in P (neutral)
ABS Solenoid (SRRH)	ABS solenoid (SRRH)	Solenoid OFF/ON	
ABS Solenoid (SFLR)	ABS solenoid (SFLR)	Solenoid OFF/ON	
ABS Solenoid (SFLH)	ABS solenoid (SFLH)	Solenoid OFF/ON	
ABS Solenoid (SFRR)	ABS solenoid (SFRR)	Solenoid OFF/ON	
ABS Solenoid (SFRH)	ABS solenoid (SFRH)	Solenoid OFF/ON	
VSC/TRAC Solenoid (SRMR)	VSC/TRAC solenoid (STR)	Solenoid OFF/ON	An operating sound of the solenoid (clicking sound) can be heard (does not come on for 2 to 5 seconds). [Vehicle condition] Vehicle stopped Parking brake applied Shift lever is in P (neutral)
VSC/TRAC Solenoid (SRMF)	VSC/TRAC solenoid (SREC)	Solenoid OFF/ON	
VSC/TRAC Solenoid (SRCR)	VSC/TRAC solenoid (SREA)	Solenoid OFF/ON	
VSC/TRAC Solenoid (SRCF)	VSC/TRAC solenoid (SMCF)	Solenoid OFF/ON	
Crawl Control Light	CRAWL indicator light	Indicator light OFF/ON	Item is displayed on tester but not used.
TRC(TRAC) OFF Indicator Light	TRAC OFF indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
VSC OFF Indicator Light	VSC OFF indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Slip Indicator Light	Slip indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
Auto LSD Indicator Light	Auto LSD indicator light	Indicator light OFF/ON	Observe the combination meter. [Vehicle condition] Vehicle stopped
ABS Solenoid	Selection of multiple holding solenoids (SFRH, SFLH, SRRH and SRLH) and pressure reduction solenoids (SFRR, SFLR, SRRR and SRLR) possible	Start/Stop	An operating sound of the solenoid (clicking sound) can be heard (does not come on for 2 to 5 seconds).

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TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
VSC/TRAC Solenoid	Selection of multiple VSC/TRAC solenoids [SRCF (SMCF), SRCR (SREA), SRMF (SREC) and SRMR (STR)] possible	Start/Stop	[Vehicle condition] Vehicle stopped Parking brake applied Shift lever is in P (neutral)





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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DESCRIPTION

When troubleshooting a vehicle with the diagnosis system, the only difference from the usual troubleshooting procedure is connecting the Techstream to the vehicle and reading various data output from the vehicle's skid control ECU (brake actuator assembly).

The skid control ECU (brake actuator assembly) records DTCs when the ECU detects a malfunction in the ECU itself or in its circuits.

To check the DTCs, connect the Techstream to the DLC3 on the vehicle. The Techstream enables you to clear the DTCs, activate the various actuators, and check the Freeze Frame Data and Data List.

(a) Check the battery voltage.

Standard voltage:
11 to 14 V

If the voltage is below 11 V, recharge the battery before proceeding to the next step.

(b) Check the DLC3 INFO .

2. DIAGNOSIS

(a) If the skid control ECU (brake actuator assembly) detects a malfunction, the ABS warning, brake warning and/or slip indicator lights will come on in order to warn the driver.

(b) The DTCs are simultaneously stored in memory. The DTCs can be read by connecting SST between terminals TC and CG of the DLC3 and observing the blinking pattern of the ABS warning and slip indicator lights, or by connecting the Techstream INFO .

(c) This system has a Test Mode (signal check) function INFO .

3. WARNING LIGHT AND INDICATOR LIGHT INITIAL CHECK

(a) When the ignition switch is turned to ON, check that the ABS warning, brake warning, and slip indicator lights come on for approximately 3 seconds.

HINT:

- When the brake fluid level is low, the brake warning light comes on.
- If any of the indicators remains on or does not come on, proceed to troubleshooting for the light circuits listed below.

TROUBLE AREA	SEE PROCEDURE
ABS warning light circuit (Remains on)	INFO
ABS warning light circuit (Does not come on)	INFO
Brake warning light circuit (Remains on)	INFO
Brake warning light circuit (Does not come on)	INFO
Slip indicator light circuit (Remains on)	INFO

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TROUBLE AREA	SEE PROCEDURE
Slip indicator light circuit (Does not come on)	INFO

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Last Modified: 11-13-2015	6.6 S	**Doc ID:** RM000005V9N000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

VSC System

DTC CODE	DETECTION ITEM	SEE PAGE
C1201	Engine Control System Malfunction	INFO
C1203	ECM Communication Circuit Malfunction	INFO
C120B	IG Supply Voltage Low	INFO
C1210	Zero Point Calibration of Yaw Rate Sensor Undone	INFO
C1225	SM Solenoid Circuit	INFO
C1232	Acceleration Sensor Stuck Malfunction	INFO
C1241	Low Power Supply Voltage Malfunction	INFO
C1243	Acceleration Sensor Stuck Malfunction	INFO
C1245	Acceleration Sensor Output Malfunction	INFO
C1268	Transfer L4 Position Switch Circuit	INFO
C1290	Steering Angle Sensor Zero Point Malfunction	INFO
C1336	Zero Point Calibration of Acceleration Sensor Undone	INFO
C1337	Diameter of the Tire is not Uniform	INFO
C1380	Stop Light Control Relay Malfunction	INFO
C1381	Acceleration Sensor Power Supply Voltage Malfunction	INFO
C1401	Front Speed Sensor RH Malfunction	INFO
C1402	Front Speed Sensor LH Malfunction	INFO
C1403	Rear Speed Sensor RH Malfunction	INFO
C1404	Rear Speed Sensor LH Malfunction	INFO
C1405	Open or Short in Front Speed Sensor RH Circuit	INFO
C1406	Open or Short in Front Speed Sensor LH Circuit	INFO
C1407	Open or Short in Rear Speed Sensor RH Circuit	INFO
C1408	Open or Short in Rear Speed Sensor LH Circuit	INFO
C1413	Front Speed Sensor RH Output Malfunction	INFO
C1414	Front Speed Sensor LH Output Malfunction	INFO
C1415	Rear Speed Sensor RH Output Malfunction	INFO
C1416	Rear Speed Sensor LH Output Malfunction	INFO

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DTC CODE	DETECTION ITEM	SEE PAGE
C1417	High Power Supply Voltage Malfunction	INFO
C1419	Acceleration Sensor Internal Circuit	INFO
C1421	Open or Short in Master Cylinder Pressure Sensor	INFO
C1422	Master Cylinder Pressure Sensor Zero Point High Malfunction	INFO
C1423	Master Cylinder Pressure Sensor Zero Point Low Malfunction	INFO
C1424	Master Cylinder Pressure Sensor Output Malfunction	INFO
C1425	Open in Stop Light Switch Circuit	INFO
C1426	Stop Light Switch OFF Stuck Malfunction	INFO
C1427	Motor Malfunction	INFO
C1428	Motor Circuit Malfunction	INFO
C142A	Master Cylinder Pressure Sensor Internal Malfunction	INFO
C142B	Motor Power Supply Voltage Circuit	INFO
C1432	Steering Angle Sensor Power Source Voltage Malfunction	INFO
C1433	Steering Angle Sensor Internal Circuit	INFO
C1434	Steering Angle Sensor Output Malfunction	INFO
C1435	Yaw Rate Sensor Internal Circuit	INFO
C1436	Yaw Rate Sensor Malfunction	INFO
C1437	Lost Communication with ECM	INFO
C1439	Steering Angle Sensor Initialization Incomplete	INFO
C1440	Unusual Bank Angle Detected	INFO
C1442	Invalid Data Received from Acceleration Sensor	INFO
C1443	Invalid Data Received from Yaw Rate Sensor	INFO
C1445	Vehicle Driven with Steering Angle Sensor not Initialized	INFO
C1449	Master Cylinder Output Value Malfunction	INFO
C1468	SFR Solenoid Circuit	INFO
C1469	SFL Solenoid Circuit	INFO
C146A	SRR Solenoid Circuit	INFO
C146B	SRL Solenoid Circuit	INFO
C146C	Open in ABS Motor Relay Circuit	INFO
C146D	Short in ABS Motor Relay Circuit	INFO
C146E	Open in ABS Solenoid Relay Circuit	INFO
C146F	Short in ABS Solenoid Relay Circuit	INFO
U0073	Control Module Communication Bus OFF	INFO
U0100	Lost Communication with ECM	INFO

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DTC CODE	DETECTION ITEM	SEE PAGE
U0124	Lost Communication with Lateral Acceleration Sensor Module	INFO
U0126	Lost Communication With Steering Angle Sensor Module	INFO

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. DTC CHECK/CLEAR (When Using Techstream)

(a) Check the DTC.

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Read the DTCs following the prompts on the Techstream screen. Enter the following menus: Chassis / ABS/VSC/TRAC / Trouble Codes.

(6) Check the details of the DTCs INFO .

(b) Clear the DTC.

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Operate the Techstream to clear the codes. Enter the following menus: Chassis / ABS/VSC/TRAC / Trouble Codes.

(6) Clear the DTCs by following the prompts on the Techstream.

HINT:

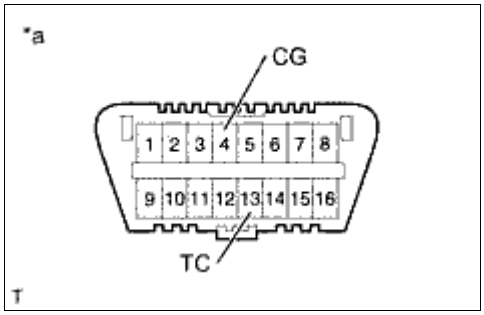
Refer to the Techstream operator's manual for further details.

2. DTC CHECK/CLEAR (When Using SST Check Wire)

(a) Check the DTC.

(1) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040



Text in Illustration

*a	Front view of DLC3

(2) Turn the ignition switch to ON.

(3) Observe the blinking pattern of the ABS warning and slip indicator lights in order to identify the DTC.

HINT:

If no code appears, inspect the TC and CG terminal circuit, and ABS warning and slip indicator lights circuits.

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TROUBLE AREA	SEE PROCEDURE
TC and CG terminal circuit	INFO
ABS warning light circuit (Remains on)	INFO
ABS warning light circuit (Does not come on)	INFO
Slip indicator light circuit (Remains on)	INFO
Slip indicator light circuit (Does not come on)	INFO

(4) Count the number of blinks of the ABS warning and slip indicator lights.

HINT:

- When the system is operating correctly, each light will blink continuously in a pattern of 0.25 seconds on, and then 0.25 seconds off.
- When one DTC is output, each light will output the same code at 4 second intervals (for example, code 21 would be output as 2 blinks, a 1.5 second pause, and then 1 blink).
- When 2 or more DTCs are output, each light will output a different code at 2.5 second intervals, and when all codes have been output, there will be a 4 second pause and the sequence will repeat.
- When multiple codes are stored, they are output in order starting with the lowest DTC number.

(5) Check the details of the DTCs.

ABS DTC

WARNING LIGHT DISPLAY	TECHSTREAM DISPLAY
11	C146E
12	C146F
13	C142B
	C146C
14	C146D
21	C1468
22	C1469
23	C146A
24	C146B
25	C1225
31	C1401
	C1405
32	C1402
	C1406
33	C1403
	C1407
34	C1404
	C1408
35	C1413
36	C1414

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WARNING LIGHT DISPLAY	TECHSTREAM DISPLAY
37	C1337
38	C1415
39	C1416
41	C120B
	C1241
	C1417
43	C1232
	C1243
44	C1419
	C1442
45	C1245
46	C1421
	C1422
	C1423
	C1424
	C142A
	C1449
49	C1425
	C1426
51	C1427
	C1428
59	C1203
68	C1268
94	U0073
95	U0124
97	C1381
98	C1336

VSC DTC

WARNING LIGHT DISPLAY	TECHSTREAM DISPLAY
31	C1432
	C1433
	C1434
34	C1435
	C1436

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WARNING LIGHT DISPLAY	TECHSTREAM DISPLAY
	C1443
36	C1210
51	C1201
63	U0126
64	C1380
65	C1437
	U0100
66	C1290
	C1439
	C1445
98	C1440

(6) After completing the check, disconnect terminals TC and CG of the DLC3 to turn off the display.

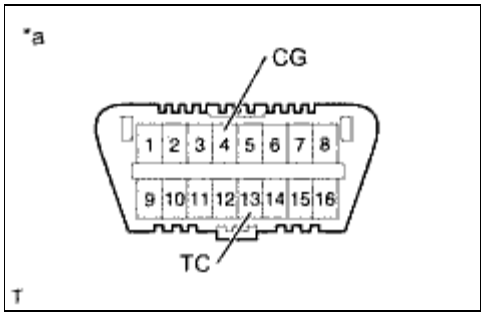
HINT:

If 2 or more DTCs are detected at the same time, the DTCs will be displayed in ascending order.

(b) Clear the DTC.

(1) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040



Text in Illustration

*a	Front view of DLC3

(2) Turn the ignition switch to ON.

(3) Clear the DTCs stored in the ECU by depressing the brake pedal 8 times or more within 5 seconds.

(4) Check that the warning light indicates a normal system code.

(5) Remove SST from the terminals of the DLC3.

HINT:

The DTCs cannot be cleared by disconnecting the battery terminal or the ECU-IG NO. 3 fuse.

3. END OF DTC CHECK/CLEAR

(a) Turn the ignition switch to ON.

(b) Check that the ABS warning and slip indicator lights go off within approximately 3 seconds after turning the ignition switch to ON.

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): FAIL-SAFE CHART; 2016 MY Tacoma [08/2015 -]		

FAIL-SAFE CHART

- If there is a problem with sensor signals or actuator systems, the skid control ECU prohibits power supply to the brake actuator assembly and informs the ECM of a VSC system malfunction.

  The brake actuator assembly turns off the solenoids and the ECM stops its VSC control according to signals from the skid control ECU. The vehicle will operate in a manner similar to a vehicle that is not equipped with ABS, TRAC and VSC systems.

  ABS control will be prohibited, but EBD control will continue to the extent that EBD control is possible. If EBD control is impossible, the brake warning light will come on to warn the driver INFO .
- If a VSC system component malfunctions before VSC control begins, VSC control will be prohibited.

  If a system component malfunctions during VSC control, the system will gradually stop performing control so as not to trigger a sudden change in vehicle operation.

  If it is impossible for control to continue, the warning light comes on to inform the driver of system control termination INFO .

ABS, EBD and BA Systems

MALFUNCTION AREA	CONTROL METHOD
ABS system	ABS, BA, TRAC and VSC control prohibited
BA system	ABS, BA, TRAC and VSC control prohibited
EBD system	ABS, EBD, BA, TRAC and VSC control prohibited

TRAC and VSC Systems

MALFUNCTION AREA	CONTROL METHOD
Engine control system (TRAC system)	Before control: Disables control During control: Uses only the brakes to perform control
Brake control system (VSC system)	Before control: Disables control During control: Uses only the engine to perform control
Brake control system (TRAC system)	Before control: Disables control During control: Disables control (by gradually ending control)

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): FREEZE FRAME DATA; 2016 MY Tacoma [08/2015 -]		

FREEZE FRAME DATA

1. FREEZE FRAME DATA

(a) Using the Techstream, check the vehicle condition (ECU, sensor) when the brake system operates or a DTC is output.

2. CHECK FREEZE FRAME DATA WHEN BRAKE SYSTEM OPERATES

(a) Freeze frame data is stored when the brake system operates. The freeze frame data is updated each time the system operates.

(b) Once freeze frame data is stored when the system operates, it is not cleared until the DTC is cleared.

(c) The number of times (maximum: 31) the ignition switch has been turned from off to ON since the last time the system was activated can be stored and displayed.

HINT:

- When the vehicle is stopped (vehicle speed below 7 km/h (4.3 mph)), turning the ignition switch from off to ON does not cause the value to increase.
- The value "31" is displayed when the ignition switch was turned ON more than 31 times.

(d) Check freeze frame data when the system operates

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3 and turn the ignition switch to ON.

(3) Enter the following menus: Chassis / ABS/VSC/TRAC / Utility.

(4) Select "ABS History".

(5) Check the freeze frame data when the system operates.

3. CHECK FREEZE FRAME DATA WHEN DTC WAS STORED

(a) Freeze frame data is stored when a DTC is output.

(b) Once freeze frame data is stored when a DTC is output, it is not updated or cleared until the DTC is cleared.

(c) The number of times (maximum: 31) the ignition switch has been turned from off to ON since a DTC was output can be stored and displayed.

HINT:

The value "31" is displayed when the ignition switch was turned ON more than 31 times.

(d) Check freeze frame data when DTC is output

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3 and turn the ignition switch to ON.

(3) Enter the following menus: Chassis / ABS/VSC/TRAC / Trouble Codes.

(4) Select a DTC to display the freeze frame data.

(5) Check the freeze frame data for the output DTC.

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Elapsed Time after Freeze Trigger	Elapsed time after freeze trigger/ Min.: 0 msec, Max.: 500 msec	-	-
Number of IG ON	Number of times ignition switch turned to ON after storing freeze frame data/ 0 to 31	-	-
Buzzer	VSC warning buzzer/ ON or OFF	ON: Buzzer on OFF: Buzzer off	-
Stop Light SW	Stop light switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
Parking Brake SW	Parking brake switch/ ON or OFF	ON: Parking brake applied OFF: Parking brake released	-
Reservoir Warning SW	Brake fluid level warning switch/ ON or OFF	OFF	-
Gear Position	Gear position information/ P/N, R, 1st-8th, Fail or Not R	Actual gear position	-
Shift Lever Position	Shift lever position information/ P/N, R, D/M, 1st-6th/B or Fail	Actual shift lever position	-
Operated System	Operated system status/ ABS, VSC, TRAC, BA, HAB, Fail, Sys or Non	-	ABS: ABS is activated. VSC: VSC is activated. TRAC: TRAC is activated. BA: BA is activated. HAB: HAB is activated. Fail: Fail safe mode is activated. Sys: System prohibit is activated. Non: No operation is activated.
Master Cylinder Sensor	Master cylinder pressure sensor reading/ Min.: 0.00 V, Max.: 5.00 V	0.3 to 0.9 V: When brake pedal released	The value increases when the brake pedal is depressed.
M/C Sensor Grade	Master cylinder pressure sensor change/ Min.: -30 MPa/s, Max.: 225 MPa/s	0 MPa/s: When brake pedal released or pedal held at constant position	Changes in proportion with the pedal movement speed when the brake pedal is being operated.
Yaw Rate Sensor	Yaw rate and deceleration sensor/ Min.: -128°/s, Max.: 127°/s	0°/s: Vehicle stopped -128 to 0°/s: Turning right 0 to 127°/s: Turning left	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Lateral G	Lateral G/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	Changes in proportion with the pedal movement speed when the brake pedal is being operated.
Forward and Rearward G	Forward and backward G/ Min.: - 25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	-	Changes in proportion with acceleration during acceleration/deceleration.
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	0 km/h (0 mph): Vehicle stopped	No large fluctuations when driving at a constant speed.
Vehicle Speed Grade	Vehicle acceleration/ Min.: -25.10 m/s ^{2} , Max.: 24.90 m/s ^{2}	0 m/s ^{2} : Vehicle stopped	Changes in proportion with the vehicle acceleration/deceleration during driving.
FR Wheel Direction	Front wheel RH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
FL Wheel Direction	Front wheel LH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
RR Wheel Direction	Rear wheel RH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
RL Wheel Direction	Rear wheel LH direction signal/ Forward or Back	Forward: Forward Back: Backward	-
Real Engine Torque	Actual engine torque/ Min.: -1024.0 Nm, Max.: 1023.0 Nm	-	-
Accelerator Opening Angle %	Throttle valve opening amount/ Min.: 0.0%, Max.: 128.0%	0%: When accelerator pedal released	Changes in proportion with the movement of the pedal during accelerator pedal operation.

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Inspection Mode	Inspection mode/ Other or Inspect	Other: Normal mode Inspect: Inspection mode	-
Steering Angle Sensor	Steering angle sensor/ Min.: -3276.8°, Max.: 3276.7°	Left turn: Increase Right turn: Decrease	-
TRAC/VSC Off Mode	TRAC/VSC off mode/ Normal, TRAC OFF or VSC OFF	Normal: Normal mode TRAC OFF: TRAC off mode VSC OFF: VSC off mode	-

4. CLEAR FREEZE FRAME DATA

NOTICE:

Clearing the DTC will also clear the Freeze Frame Data.

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Clear the DTC and Freeze Frame Data INFO .

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Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- The vehicle stability control system troubleshooting procedures are based on the premise that the CAN communication system is functioning normally. Check the CAN communication system first before troubleshooting the vehicle stability control system.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**CUSTOMER PROBLEM ANALYSIS**

(a) Interview the customer and confirm the trouble INFO .

NEXT

3.	**CHECK DTC AND FREEZE FRAME DATA***

(a) Check and record DTC and Freeze Frame Data.

for DTC Check/Clear: INFO
for Freeze Frame Data: INFO

(b) Clear the DTC and Freeze Frame Data INFO .

(c) Reconfirm the DTC.

(1) Reconfirm the DTC based on the recorded DTC and Freeze Frame Data.

for DTC Check/Clear: INFO
for Freeze Frame Data: INFO

HINT:

- If DTC U0100, U0124 or U0126 is output together with a CAN communication DTC, first check the appropriate sensor for a momentary open circuit INFO .
- If there is no response from the skid control ECU (brake actuator assembly), inspect the +BS circuit of the

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skid control ECU (brake actuator assembly) INFO .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output (Problem symptom does not occur)	B
DTC is not output (Problem symptom occurs)	C

B go to Step 5

C go to Step 6

A

4.	**DIAGNOSTIC TROUBLE CODE CHART**

(a) Proceed to Diagnostic Trouble Code Chart INFO .

NEXT go to Step 7

5.	**SYMPTOM SIMULATION**

(a) Proceed to Check for Intermittent Problems INFO .

NEXT

6.	**PROBLEM SYMPTOMS TABLE**

(a) Proceed to Problem Symptoms Table INFO .

NEXT

7.	**CIRCUIT INSPECTION***

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NEXT

8.	IDENTIFICATION OF PROBLEM

NEXT

9.	REPAIR OR REPLACE

NEXT

10.	CONFIRMATION TEST

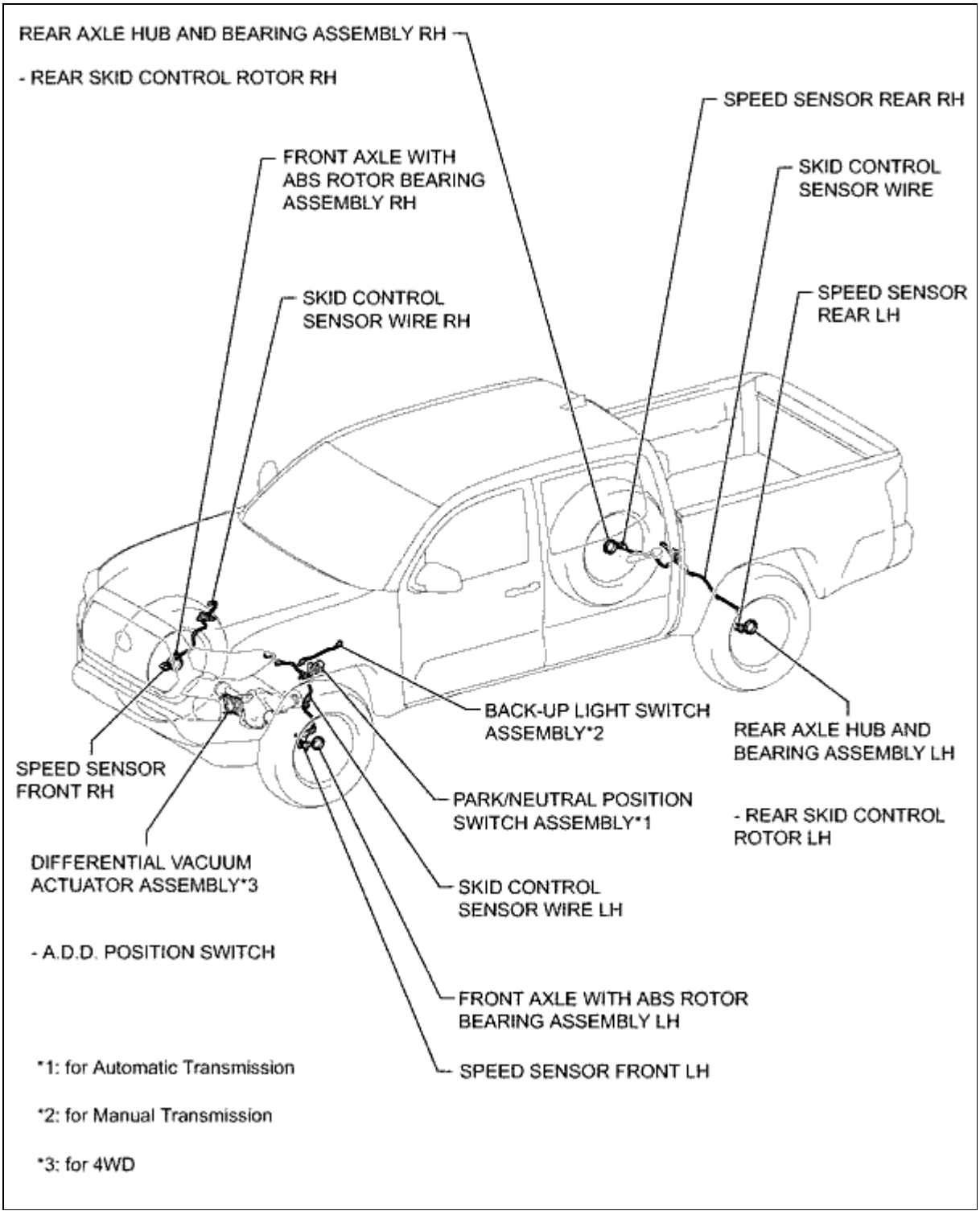
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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

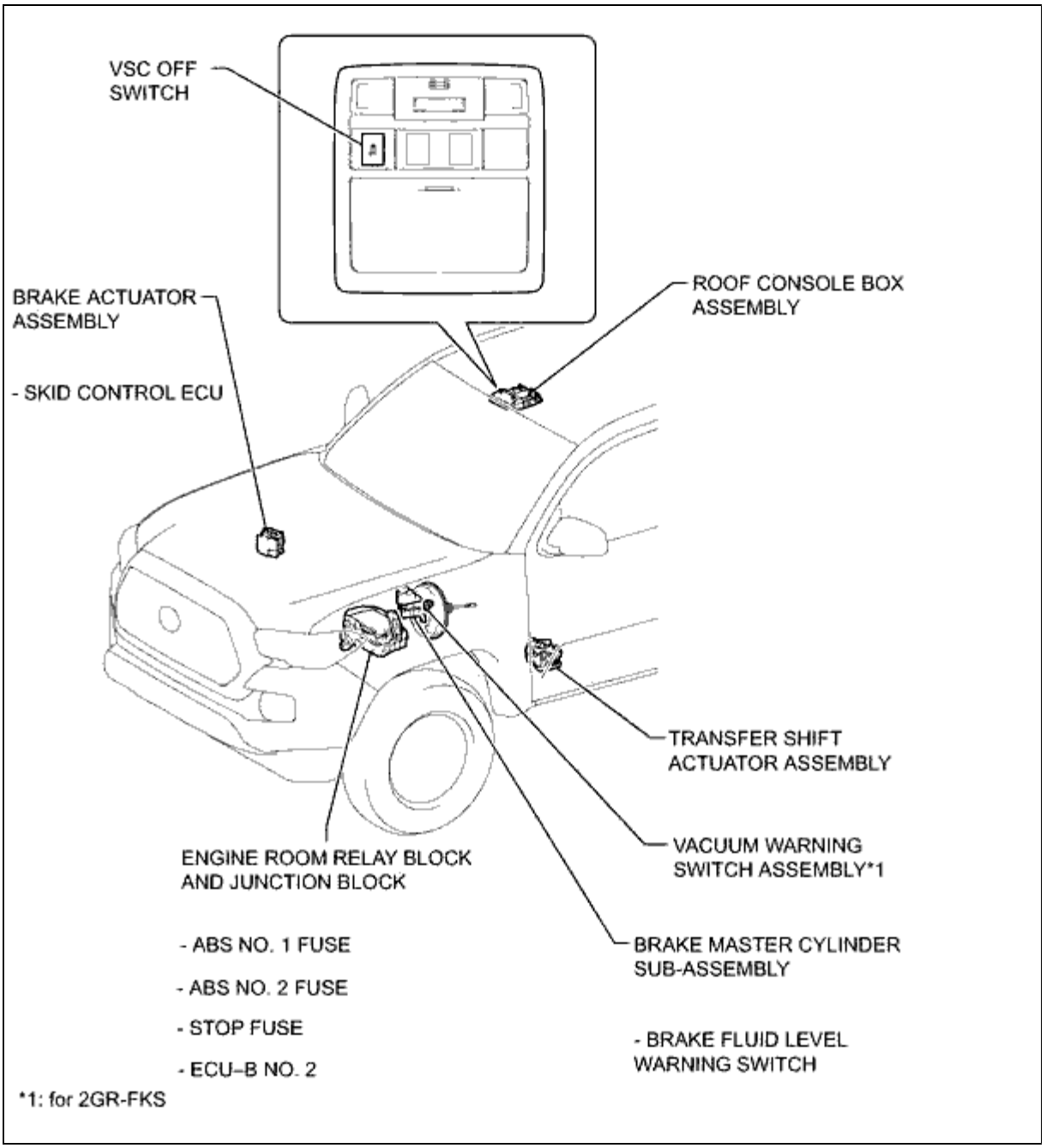
PARTS LOCATION

ILLUSTRATION



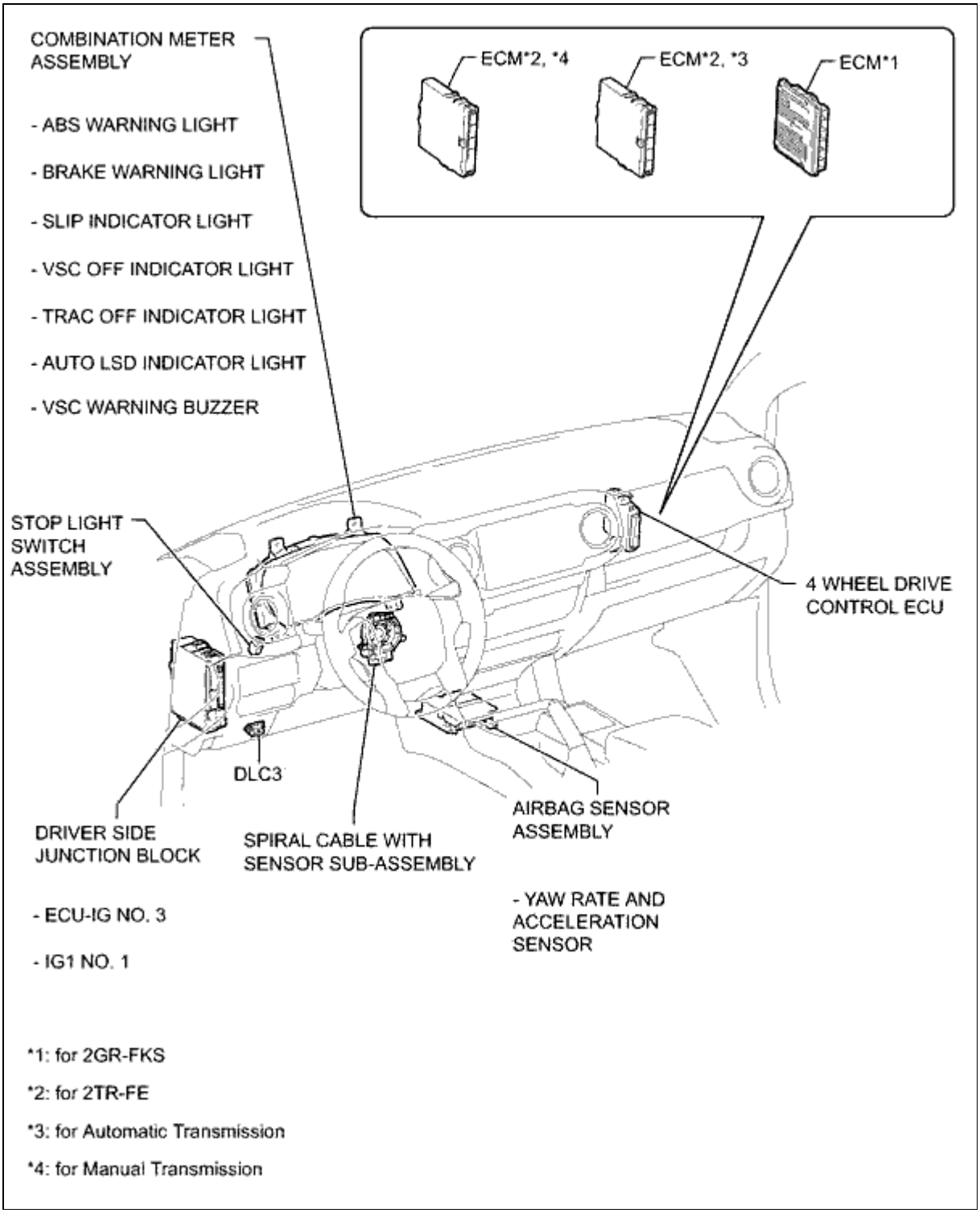
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ILLUSTRATION



ILLUSTRATION

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. IGNITION SWITCH EXPRESSION

(a) The type of ignition switch used on this model differs depending on the specifications of the vehicle.

The expressions listed in the table below are used in this section.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	LOCK	Off (Lock)
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	On (Start)

2. TROUBLESHOOTING PRECAUTIONS

(a) When there are malfunctions with terminal contact points or part installation problems, removal and installation of the suspected problem parts may return the system to the normal condition either completely or temporarily.

(b) In order to determine the malfunctioning area, check the conditions at the time the malfunction occurred, such as DTC output and the Freeze Frame Data, and record them before disconnecting each connector or removing and installing parts.

(c) Since the system may be influenced by malfunctions in systems other than the VSC system, be sure to check for DTCs in other systems.

3. HANDLING PRECAUTIONS

(a) Do not remove or install VSC parts such as the steering angle sensor (spiral cable with sensor sub-assembly) or yaw rate and acceleration sensor (airbag sensor assembly) except when required, as they cannot be adjusted correctly after removal or installation.

(b) Be sure to perform preparation before work and confirmation after work is completed by following the directions in the repair manual, when working on the VSC system.

(c) Be sure to remove and install the ECU, brake actuator and each sensor, etc. with the ignition switch off unless otherwise specified in the inspection procedure.

(d) If the ECU, brake actuator or a sensor has been removed and installed, it is necessary to check the system for problems after the parts have been reassembled. Check for DTCs using the Techstream, and also check that system functions and signals received by the ECU are normal using Test Mode (signal check).

(e) If replacing the skid control ECU (brake actuator assembly), always replace it with a new one (if the skid control ECU (brake actuator assembly) is not replaced with a new one, DTCs may be stored).

NOTICE:

Do not use a skid control ECU (brake actuator assembly) from another vehicle (a vehicle display model, etc.).

4. DTC PRECAUTION

(a) Some DTCs cannot be cleared only by repairing the malfunctioning parts. If the DTC is output after repair

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work, turn the ignition switch off to clear the DTC.

NOTICE:

If a part is still malfunctioning even after the DTC is cleared, the DTC will be stored again.

5. CHASSIS DYNAMOMETER PRECAUTION

When testing with a drum tester such as a speedometer tester, combination tester for the speedometer and brakes, or chassis dynamometer, or when jacking up the front wheels and turning the wheels, perform the following procedure to enter Inspection Mode and disable the TRAC and VSC systems.

NOTICE:

Secure the vehicle with lock chains for safety.

HINT:

- If Inspection Mode is not used, the vehicle may unexpectedly move off the dynamometer because of TRAC and VSC operation.
- The VSC OFF switch must not be used to disable TRAC and VSC operation when the vehicle is to be operated on a dynamometer. Pressing the VSC OFF switch does not disable TRAC and VSC operation completely.

(a) Activating Inspection Mode (When Using the Techstream)

(1) Ensure that the ignition switch is off and the engine is stopped.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Inspection Mode.

(6) Check that the TRAC OFF and VSC OFF indicator lights come on.

HINT:

- If the TRAC OFF and VSC OFF indicator lights in the combination meter do not come on, repeat the steps above.
- Using the Techstream to cancel Inspection Mode causes the system to enter normal mode.

(b) Activating Inspection Mode (By Manual Operation)

HINT:

Perform steps "C" to "G" within 30 seconds.

(1) Ensure that the ignition switch is off and the engine is stopped (Step "A").

(2) Release the parking brake (Step "B").

(3) With the brake pedal depressed, start the engine (Step "C").

(4) While holding the brake pedal down, apply the parking brake (Step "D").

(5) With the parking brake applied, release and depress the brake pedal twice (Step "E").

(6) While holding the brake pedal down, release and apply the parking brake twice (Step "F").

(7) With the parking brake applied, release and depress the brake pedal twice (Step "G").

(8) Check that the TRAC OFF and VSC OFF indicator lights come on (Step "H").

NOTICE:

Turn the ignition switch off when 60 seconds or more have elapsed since inspection mode was entered. If the ignition switch is turned off before 60 seconds or more elapse, inspection mode continues when the ignition switch is turned ON.

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HINT:

- If the TRAC OFF and VSC OFF indicator lights do not come on in step "H", repeat steps "A" to "H".
- Turning the ignition switch off ends Inspection Mode.

6. CAN COMMUNICATION SYSTEM PRECAUTIONS

(a) The CAN communication system is used for data communication among the skid control ECU (brake actuator assembly), 4 wheel drive control ECU*, the steering angle sensor (spiral cable with sensor sub-assembly), the yaw rate and acceleration sensor (airbag sensor assembly) and other ECUs. If there is trouble in the CAN communication line, corresponding communication line DTCs are output.

*: for 4WD or w/ Rear Differential Lock

(b) If any CAN communication line DTC is output, repair the malfunction in the communication line and troubleshoot the VSC system after data communication becomes normal.

(c) In order to enable CAN communication, a specific type of wiring is used for the CAN communication lines. The wiring used for each communication line is a twisted pair of wires of equal length. A bypass wire should not be used because the data being transmitted will be corrupted.

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), sensor, etc., turn the ignition switch off.

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Vehicle Stability Control System

SYMPTOM	SUSPECTED AREA	SEE PAGE
ABS, BA and/or EBD does not operate efficiently	Check for DTCs again and make sure that the normal system code is output.	INFO
	Power source circuit (low power supply voltage malfunction)	INFO
	Power source circuit (high power supply voltage malfunction)	INFO
	Front speed sensor circuit (comparison malfunction)	INFO
	Front speed sensor circuit (open or short malfunction)	INFO
	Front speed sensor circuit (output malfunction)	INFO
	Rear speed sensor circuit (comparison malfunction)	INFO
	Rear speed sensor circuit (open or short malfunction)	INFO
	Rear speed sensor circuit (output malfunction)	INFO
	Check the skid control ECU (brake actuator assembly) with the Techstream. (Check skid control ECU (brake actuator assembly) operation using the Active Test function.) If abnormal, check the hydraulic circuit for leaks.	INFO
	If the symptoms still occur even after the above circuits in suspected areas have been inspected and proved to be normal, replace the skid control ECU (brake actuator assembly).	INFO
ABS, BA and/or EBD does not operate efficiently	Check for DTCs again and make sure that the normal system code is output.	INFO
	Front speed sensor circuit (comparison malfunction)	INFO
	Front speed sensor circuit (open or short malfunction)	INFO
	Front speed sensor circuit (output malfunction)	INFO
	Rear speed sensor circuit (comparison malfunction)	INFO
	Rear speed sensor circuit (open or short malfunction)	INFO
	Rear speed sensor circuit (output malfunction)	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Stop light switch circuit	INFO
	Check the skid control ECU (brake actuator assembly) with the Techstream. (Check skid control ECU (brake actuator assembly) operation using the Active Test function.) If abnormal, check the hydraulic circuit for leaks.	INFO
	If the symptoms still occur even after the above circuits in suspected areas have been inspected and proved to be normal, replace the skid control ECU (brake actuator assembly).	INFO
ABS sensor DTC check cannot be done	Check for DTCs again and make sure that the normal system code is output.	INFO
	TC and CG terminal circuit	INFO
	If the symptoms still occur even after the above circuit in the suspected area has been inspected and proved to be normal, replace the skid control ECU (brake actuator assembly).	INFO
ABS warning light abnormal (Remains on)	ABS warning light circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
ABS warning light abnormal (Does not come on)	ABS warning light circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
Brake warning light abnormal (Remains on)	Brake warning light circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
Brake warning light abnormal (Does not come on)	Brake warning light circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
VSC and/or TRAC does not operate	Check for DTCs again and make sure that the normal system code is output.	INFO
	Power source circuit (low power supply voltage malfunction)	INFO
	Power source circuit (high power supply voltage malfunction)	INFO
	Check the hydraulic circuit for leaks.	-
	Front speed sensor circuit (comparison malfunction)	INFO
	Front speed sensor circuit (open or short malfunction)	INFO
	Front speed sensor circuit (output malfunction)	INFO
	Rear speed sensor circuit (comparison malfunction)	INFO
	Rear speed sensor circuit (open or short malfunction)	INFO
	Rear speed sensor circuit (output malfunction)	INFO
	Yaw rate and acceleration sensor (airbag sensor assembly) circuit (zero point malfunction)	INFO
	Yaw rate and acceleration sensor (airbag sensor assembly) circuit (power supply malfunction)	INFO
	Acceleration sensor (airbag sensor assembly) circuit (comparison malfunction)	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Yaw rate sensor (airbag sensor assembly) circuit (comparison malfunction)	INFO
	Yaw rate and acceleration sensor (airbag sensor assembly) circuit (stuck or output malfunction)	INFO
	Yaw rate and acceleration sensor (airbag sensor assembly) circuit (internal malfunction)	INFO
	Steering angle sensor (Spiral cable with sensor sub-assembly) circuit (zero point malfunction)	INFO
	Steering sensor (Spiral cable with sensor sub-assembly) circuit (Zero point initialization or calibration malfunction)	INFO
	Steering angle sensor (Spiral cable with sensor sub-assembly) circuit (power supply malfunction)	INFO
	Steering angle sensor (Spiral cable with sensor sub-assembly) circuit (output malfunction)	INFO
	Steering angle sensor (Spiral cable with sensor sub-assembly) circuit (internal malfunction)	INFO
	If the symptoms still occur even after the above circuit in suspected areas have been inspected and proved to be normal, replace the skid control ECU (brake actuator assembly).	INFO
VSC sensor DTC check cannot be done	Check for DTCs again and make sure that the normal system code is output.	INFO
	TC and CG terminal circuit	INFO
	If the symptoms still occur even after the above circuit in suspected areas has been inspected and proved to be normal, replace the skid control ECU (brake actuator assembly).	INFO
VSC OFF switch abnormal	VSC OFF switch circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
AUTO LSD indicator light abnormal (Remains on)	AUTO LSD indicator circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
AUTO LSD indicator light abnormal (Does not come on)	AUTO LSD indicator circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
Slip indicator light abnormal (Remains on)	Slip indicator light circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
	The rear differential lock indicator light blinks when the rear differential cannot be unlocked for 2 consecutive trips.*1	INFO
Slip indicator light abnormal (Does not come on)	Slip indicator light circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO
Sensor check cannot be done	TS and CG terminal circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
VSC warning buzzer abnormal	VSC warning buzzer circuit	INFO
	Skid control ECU (brake actuator assembly)	INFO

*1: w/ Rear Differential Lock

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Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. FUNCTION DESCRIPTION

(a) ABS (Anti-lock Brake System)

(1) The ABS helps prevent the wheels from locking when the brakes are applied firmly or when braking on a slippery surface.

(b) EBD (Electronic Brake force Distribution)

(1) The EBD control utilizes ABS, and performs proper brake force distribution between the front and rear wheels in accordance with driving conditions. When braking while cornering, it also controls the brake forces of the right and left wheels, helping to maintain vehicle stability.

(c) BA (Brake Assist)

(1) The primary purpose of the brake assist system is to provide auxiliary brake force to assist the driver if the driver cannot generate a large enough brake force during emergency braking, thus helping to maximize the brake performance of the vehicle.

(d) TRAC (Traction Control)

(1) The TRAC system helps prevent the drive wheels from slipping when the driver depresses the accelerator pedal excessively when starting off or accelerating on a slippery surface.

(e) VSC (Vehicle Stability Control)

(1) The VSC system helps prevent the vehicle from slipping sideways as a result of strong front or rear wheel skid during cornering.

(f) AUTO-LSD (Auto Limited Slip Differential)

When the vehicle is in H2 (2WD) mode, the AUTO LSD will operate with the VSC OFF switch on (TRAC OFF mode (AUTO LSD control)) and the accelerator pedal depressed.

the AUTO LSD will operate with the VSC OFF switch on (TRAC OFF mode (AUTO LSD control)) and the accelerator pedal depressed. The AUTO LSD system is used to apply brake pressure and limit differential slippage, thus transmitting drive torque to the other drive wheel to ensure traction when starting under the following conditions:

- One of the drive wheels spins, for example, when one drive wheel is driven off of the pavement.
- One of the drive wheels slips on snow/ice when starting on a slope.

HINT:

The AUTO LSD system operates when H2 (2WD) mode is selected.

(g) Hill-start Assist Control

(1) When starting uphill, this control maintains the brake hydraulic pressure to the 4 wheels, in order to momentarily help to prevent the vehicle from descending backward.

(h) Trailer Sway Control

(1) If the vehicle is towing a trailer with an inappropriate hitch load, trailer sway could be caused by crosswinds, imbalance caused by the load, or the driver's steering. Trailer sway control reduces trailer sway by controlling the engine output and the braking of each wheel.

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2. FUNCTION OF COMPONENTS

COMPONENT		FUNCTION
Brake Actuator Assembly	Skid Control ECU	Judges the vehicle driving condition based on the signals from each sensor, and sends the brake control signals to the brake actuator assembly.
	Master Cylinder Pressure Sensor	Assembled in the brake actuator assembly, detects the master cylinder pressure.
	Pump Motor	Drives the pumps inside the brake actuator assembly.
	Solenoid Valves	• The hydraulic circuit has 2 master cylinder cut solenoid valves, 4 pressure holding solenoid valves and 4 pressure reduction solenoid valves. • Change the fluid path based on the signals from the skid control ECU during the operation of the brake control system functions, in order to control the fluid pressure applied to the wheel cylinders.
Skid Control ECU	Motor Relay	Supplies power to the pump motor.
	Solenoid Relay	Supplies power to the solenoid valves.
Speed Sensor		Detects the wheel speed of each of the 4 wheels.
VSC OFF Switch		Switches off the TRAC and VSC operation.
Stop Light Switch Assembly		Detects the brake pedal depressing signal.
ECM		• Sends the throttle position signal, accelerator pedal position signal and engine speed signal to the skid control ECU. • Controls the engine output based on the signals received from the skid control ECU.
Airbag Sensor Assembly	Yaw Rate and Acceleration Sensor	• Detects the vehicle's yaw rate. • Detects the vehicle's acceleration in the forward, rearward and lateral directions.
Spiral cable with sensor sub-assembly	Steering Angle Sensor	Detects the steering direction and angle of the steering wheel.
Combination Meter Assembly	ABS Warning Light	• Illuminates to alert the driver when the skid control ECU detects a malfunction in the ABS. • When the rear differential lock is in the lock state, the ABS is also prohibited and the ABS warning light turns on.*2
	Brake Warning Light	• Illuminates to alert the driver when the skid control ECU detects a malfunction in the EBD or brake system. • Illuminates to alert the driver when the brake fluid level is low.
	TRAC OFF indicator light	• Illuminates to inform the driver when TRAC off mode is selected.

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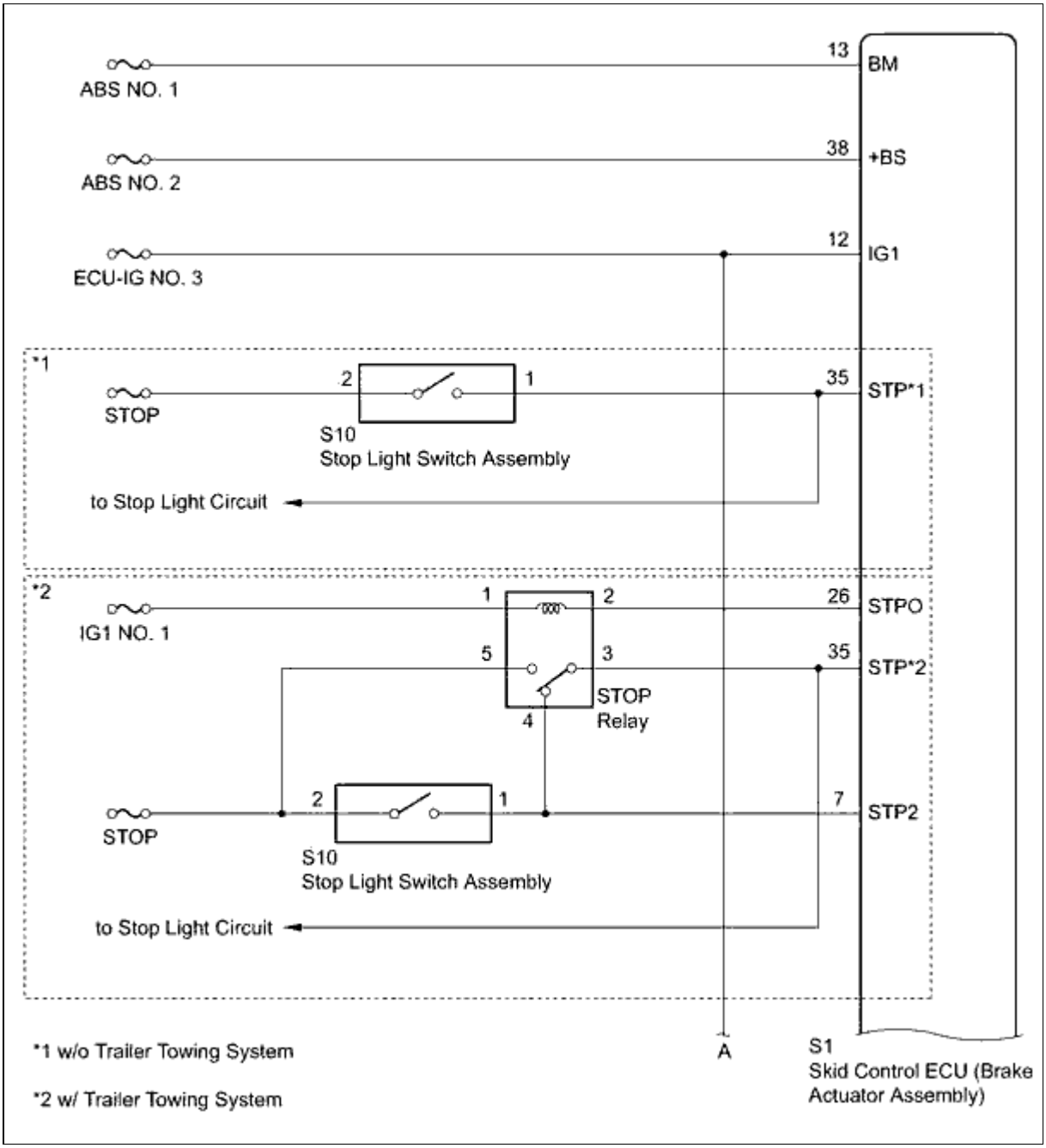
COMPONENT		FUNCTION
		• When the rear differential lock is in the lock state, the TRAC is also prohibited and the TRAC OFF message is displayed.*2
	VSC OFF Indicator Light	• Illuminates to inform the driver when VSC off mode is selected. • When the rear differential lock is in the lock state, the VSC is also prohibited and the VSC OFF indicator light turns on.*2 • When the 4WD control switch (transfer position switch) set to L4, the VSC is also prohibited and the VSC OFF indicator light turns on.*1
	Slip Indicator Light	• Blinks to inform the driver when the TRAC and/or VSC system, A-TRC (active traction control)*1, trailer sway control or is performing control. • Illuminates to alert the driver when the skid control ECU detects a malfunction in the TRAC and/or VSC system, hill-start assist control, trailer sway control. • Illuminates to inform the driver when the rear differential cannot be unlocked for 2 consecutive trips.*2
	AUTO LSD indicator light	Illuminates to inform the driver that AUTO LSD is ready to operate.
	VSC Warning Buzzer	• Housed in the combination meter assembly • Sounds intermittently to inform the driver if the temperature of brake actuator assembly has increased excessively due to continuous operation of AUTO LSD.
Brake Master Cylinder Reservoir Assembly	Brake Fluid Level Warning Switch	Detects the brake fluid level.

*1: for 4WD
*2: w/ Rear Differential Lock

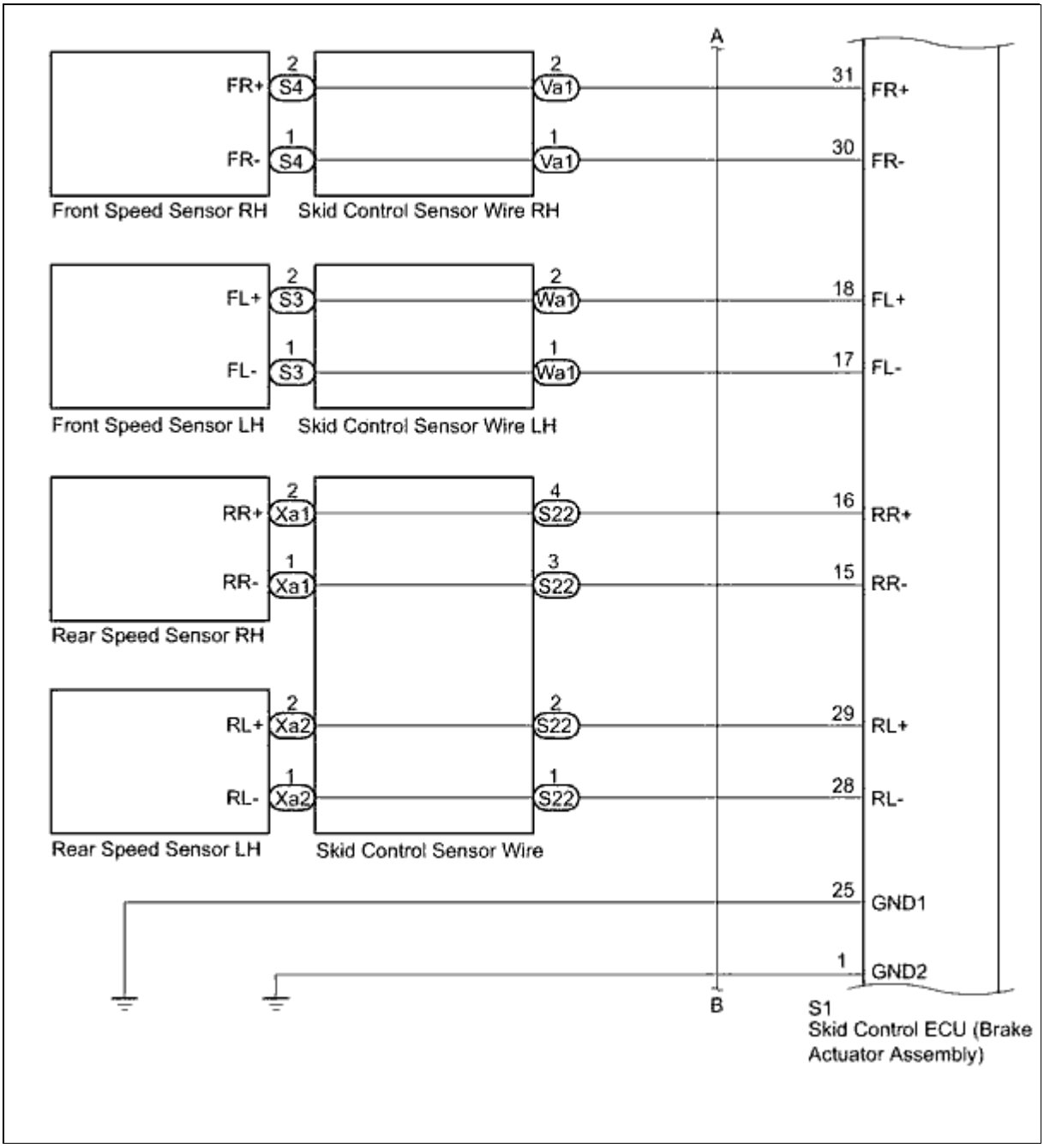
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Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

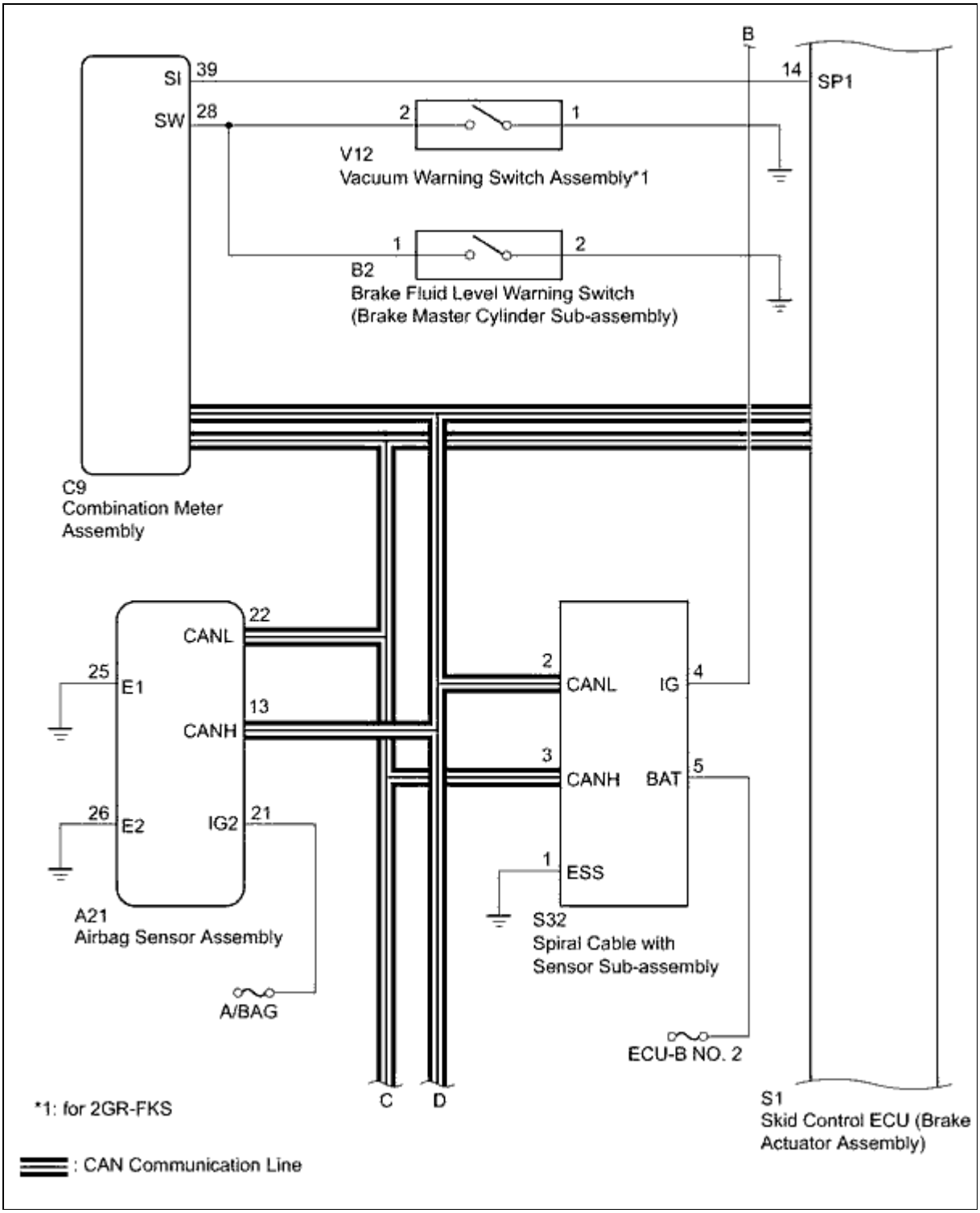
SYSTEM DIAGRAM



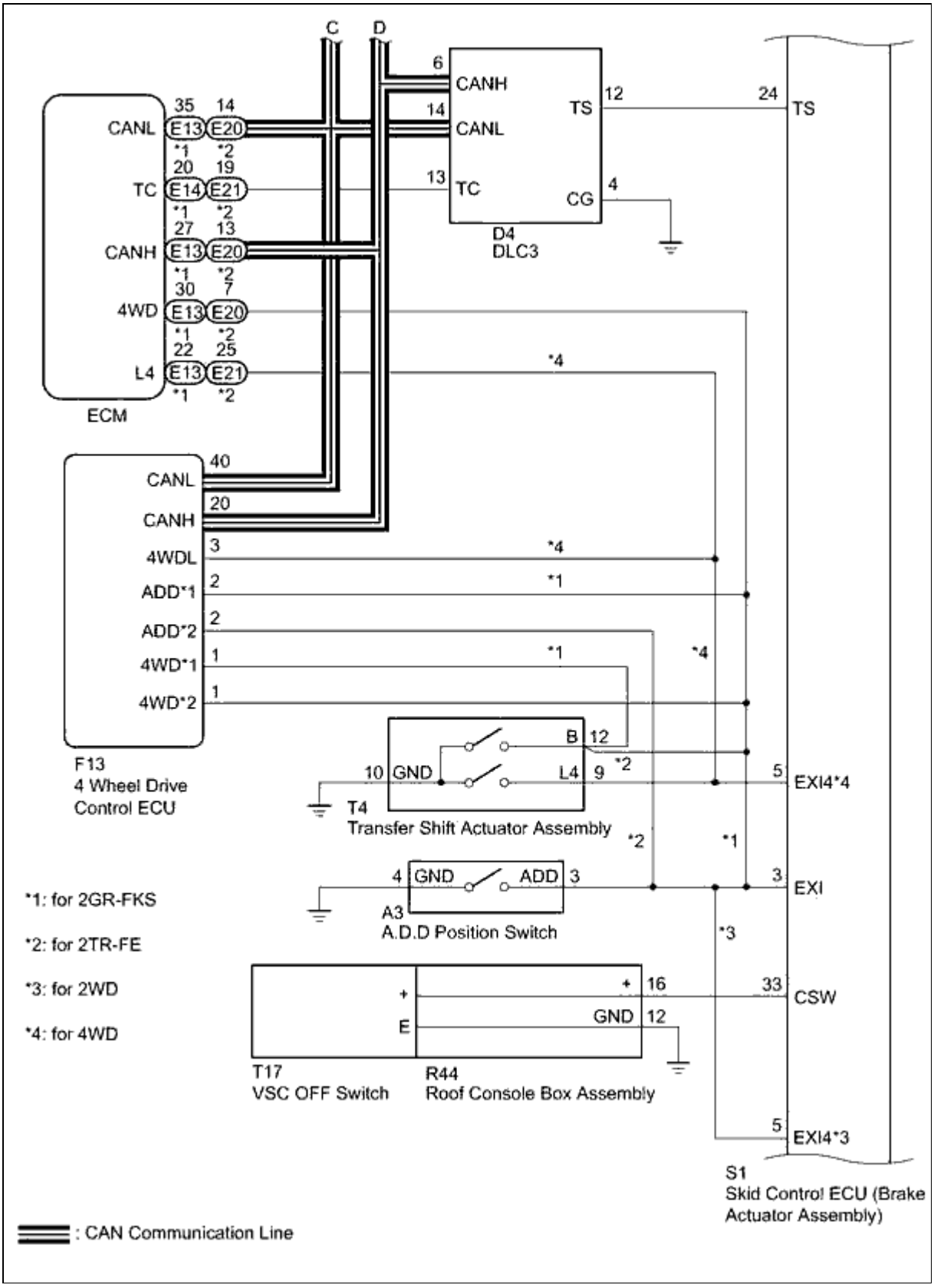
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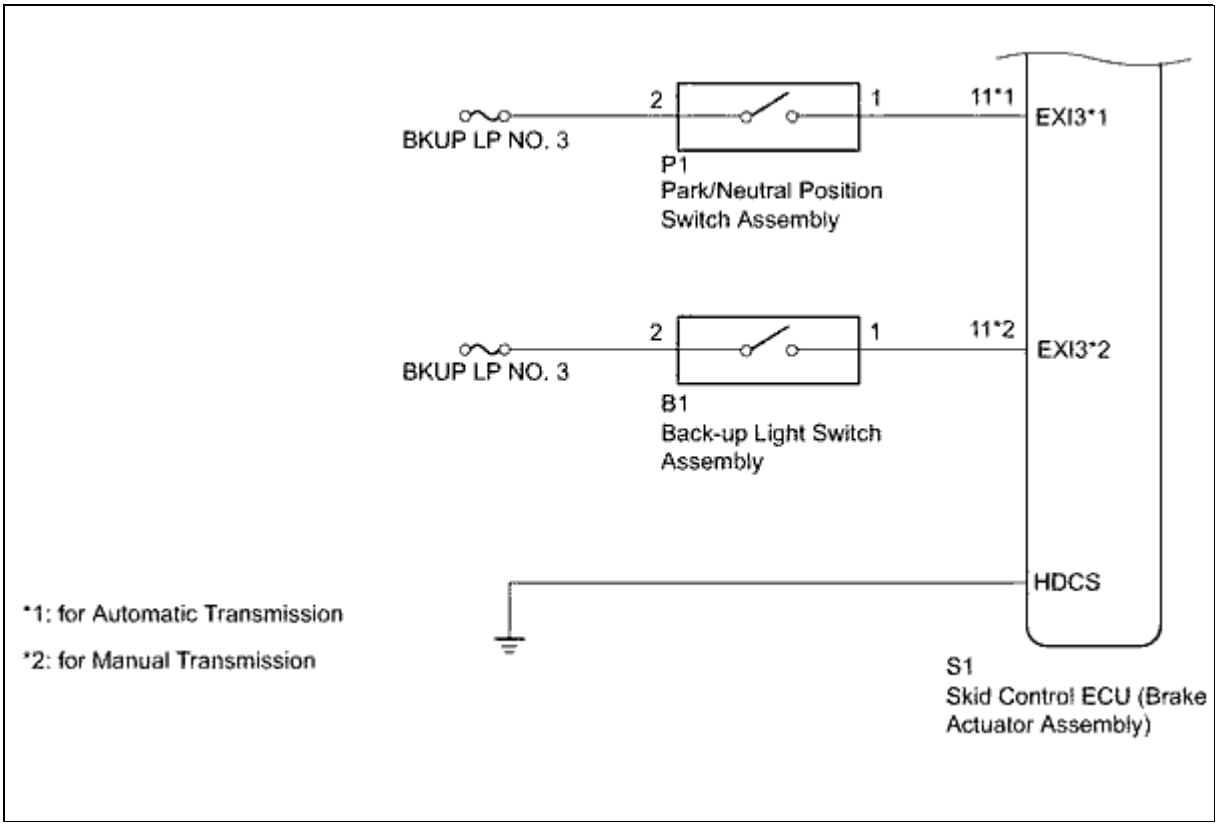
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TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU	SIGNAL	COMMUNICATION METHOD
Skid control ECU (Brake actuator assembly)	Steering angle sensor (Spiral cable with sensor sub-assembly)	Steering angle sensor request signal	CAN communication system
Steering angle sensor (Spiral cable with sensor sub-assembly)	Skid control ECU (Brake actuator assembly)	Steering angle sensor signal	CAN communication system
Skid control ECU (Brake actuator assembly)	Yaw rate and acceleration sensor (Airbag sensor assembly)	Yaw rate and acceleration request signal	CAN communication system
Yaw rate and acceleration sensor (Airbag sensor assembly)	Skid control ECU (Brake actuator assembly)	Yaw rate and acceleration signal	CAN communication system
Skid control ECU (Brake actuator assembly)	ECM	• Wheel speed signal • VSC data signal	CAN communication system
ECM	Skid control ECU (Brake actuator assembly)	• Shift position signal • Throttle position signal • Engine speed signal • Intake air temperature signal • Engine torque request signal	CAN communication system

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TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU	SIGNAL	COMMUNICATION METHOD
		• Accelerator pedal position signal • Diagnosis (TC terminal) signal	
Skid control ECU (Brake actuator assembly)	Combination meter assembly	• ABS warning light signal • Brake warning light signal • VSC OFF indicator light signal • Slip indicator light signal • TRAC OFF indicator light	CAN communication system
		Wheel speed signal	Serial communication
4 wheel drive control ECU*3	Skid control ECU (Brake actuator assembly)	• 4WD position signal*1 • L4 position signal*1 • Rear differential lock position signal*2	CAN communication system

*1: for 4WD
*2: w/ Rear Differential Lock
*3: for 4WD or w/ Rear Differential Lock

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): Slip Indicator Light Remains ON; 2016 MY Tacoma [08/2015 -]		

Slip Indicator Light Remains ON

DESCRIPTION

The skid control ECU (brake actuator assembly) is connected to the combination meter assembly via CAN communication.

The slip indicator light blinks during VSC and/or TRAC operation.

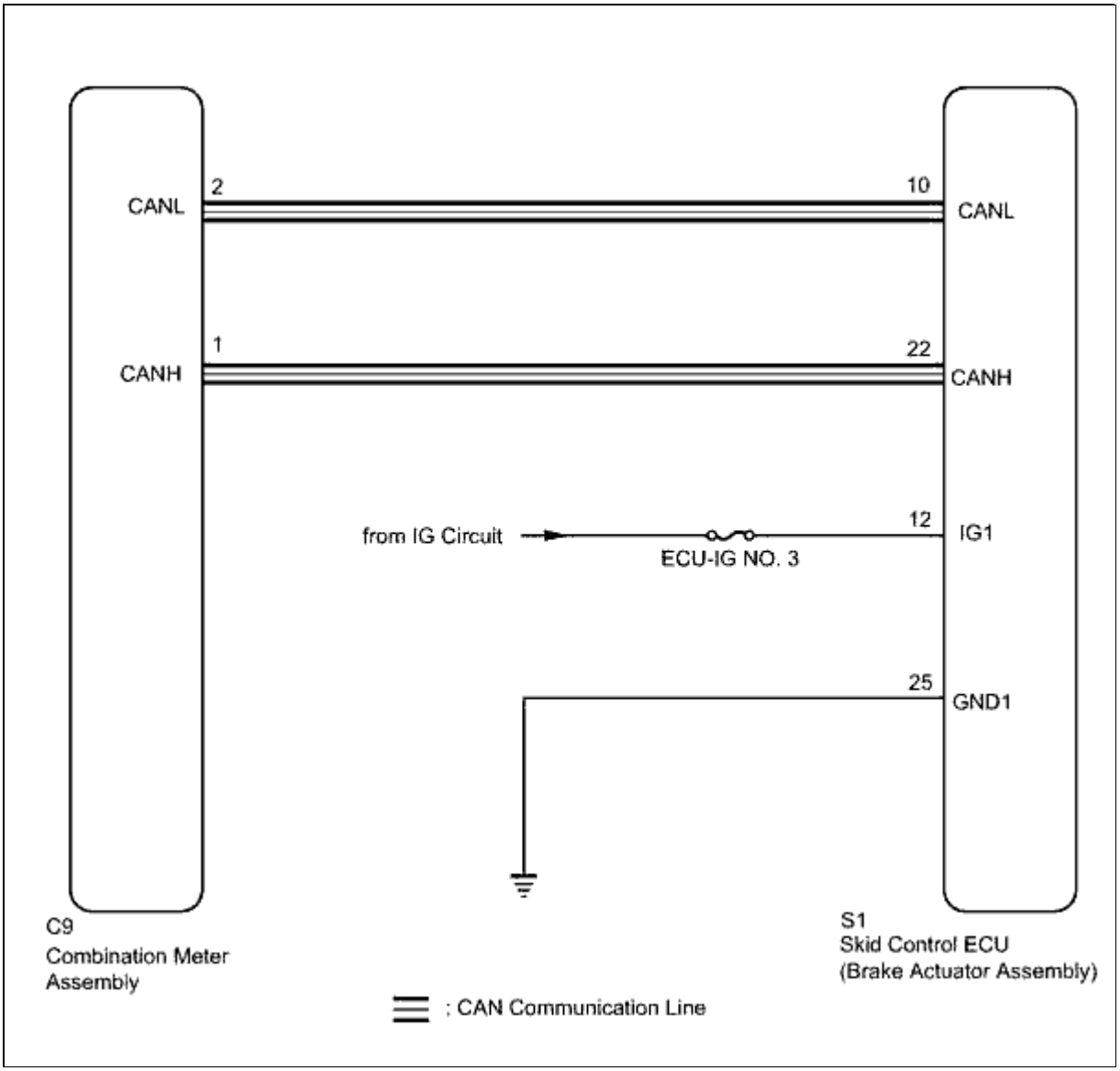
If a malfunction is detected, the slip indicator light comes on to warn the driver INFO .

w/ Rear Differential Lock:

When the rear differential cannot be unlocked for 2 consecutive trips, the slip indicator light illuminates.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- w/ Rear Differential Lock:

  As there may be malfunctions in the differential system related to when the system operates with the rear differential locked, check the differential system first INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

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RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A
▼

2.	**CHECK IF SKID CONTROL ECU CONNECTOR IS SECURELY CONNECTED**

(a) Check if the skid control ECU (brake actuator assembly) connector is securely connected.

OK:
The connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO ECU CORRECTLY**

OK
▼

3.	**INSPECT BATTERY**

(a) Check the battery voltage.

Standard voltage:
11 to 14 V

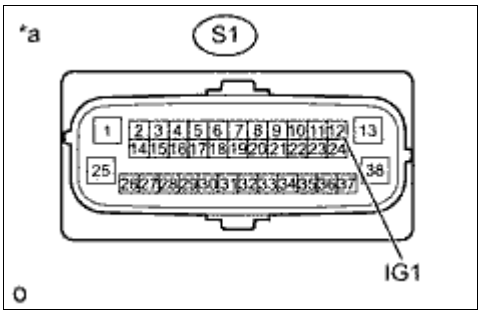
NG ▶ **CHECK OR REPLACE CHARGING SYSTEM OR BATTERY**

OK
▼

4.	**CHECK TERMINAL VOLTAGE (IG1 TERMINAL)**

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(a) Disconnect the S1 skid control ECU (brake actuator assembly) connector.



(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
S1-12 (IG1) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*A	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (IG1 CIRCUIT)**

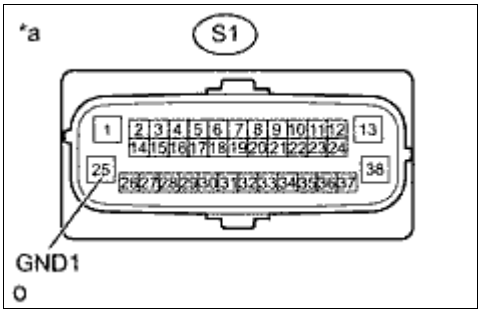
OK ▼

5.	**CHECK HARNESS AND CONNECTOR (GND1 TERMINAL)**

(a) Turn the ignition switch off.

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-25 (GND1) - Body ground	Always	Below 1 Ω

Text in Illustration

*A	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])

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NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (GND1 CIRCUIT)**

OK ▼

6.	READ VALUE USING TECHSTREAM (SLIP INDICATOR LIGHT)

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.

(f) According to the display on the Techstream, read the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Slip Indicator Light	SLIP indicator light	OFF or ON	OFF: Indicator light off ON: Indicator light on	-

(g) Check the Techstream display condition of the slip indicator light.

Result

RESULT	PROCEED TO
Display of the Data List remains OFF	A
Display of the Data List remains ON	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▶ **INSPECT METER / GAUGE SYSTEM**

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): Slip Indicator Light does not Come ON; 2016 MY Tacoma [08/2015 -]		

Slip Indicator Light does not Come ON

DESCRIPTION

Refer to Slip Indicator Light Remains ON INFO .

WIRING DIAGRAM

Refer to Slip Indicator Light Remains ON INFO .

INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (SLIP INDICATOR LIGHT)**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

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(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(f) According to the display on the Techstream, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Slip Indicator Light	Slip indicator light	Indicator light OFF/ON	Observe combination meter Vehicle condition: Vehicle stopped

(g) When performing the Slip Indicator Light Active Test, check Slip Indicator Light in the Data List.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Slip Indicator Light	Slip indicator light	OFF or ON	OFF: Indicator light off ON: Indicator light on	-

Result

RESULT	PROCEED TO
Slip indicator light in the Data List turns ON/OFF using the Active Test	A
Slip indicator light in the Data List does not change using the Active Test	B

B ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

A ▼

3.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:

The slip indicator light turns on or off in accordance with the Techstream.

NG ▶ **INSPECT METER / GAUGE SYSTEM**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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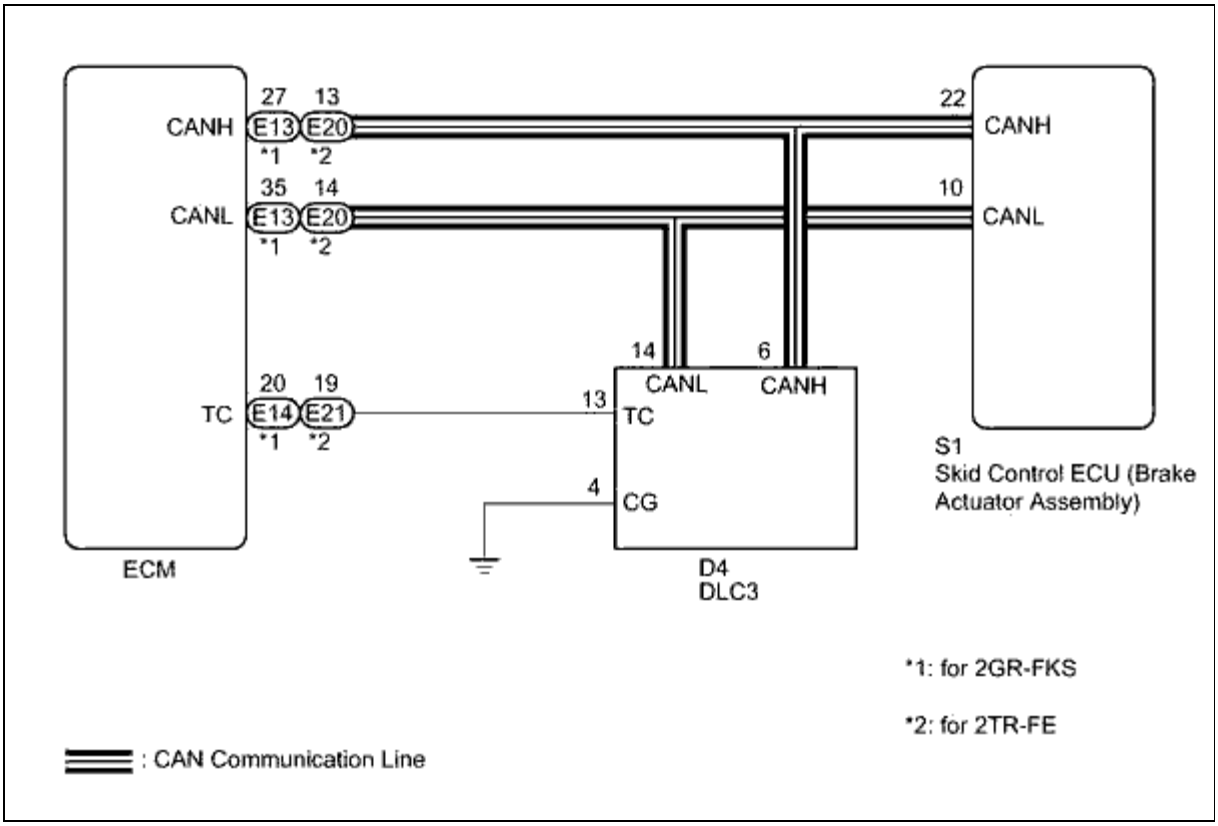
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VAL000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): TC and CG Terminal Circuit; 2016 MY Tacoma [08/2015 -]		

TC and CG Terminal Circuit

DESCRIPTION

Connecting terminals TC and CG of the DLC3 causes the ECU to display the DTC by blinking the ABS warning light and slip indicator light.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

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(a) Check if CAN communication system DTCs are output INFO .

Result

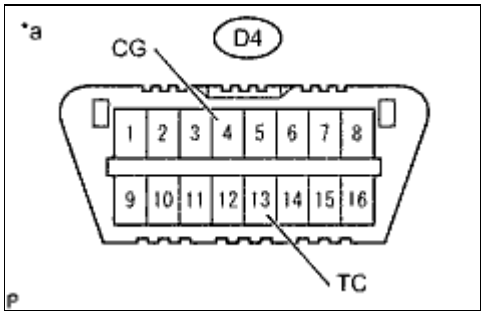
RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▼

2.	**INSPECT DLC3**

(a) Turn the ignition switch to ON.



(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
D4-13 (TC) - D4-4 (CG)	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of DLC3

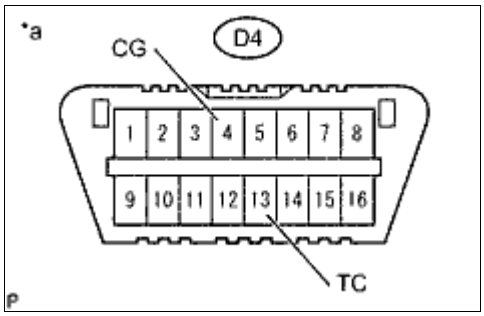
NG ▶ **GO TO STEP 4**

OK ▼

3.	**REPLACE ECM**

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(a) Turn the ignition switch off.



(b) Replace the ECM.

for 2GR-FKS: INFO
for 2TR-FE: INFO

(c) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040

(d) Check that the ABS warning and slip indicator lights are blinking.

OK:

The ABS warning and slip indicator lights are blinking.

Text in Illustration

*a	Front view of DLC3

NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK ▶ **END**

4.	**CHECK HARNESS AND CONNECTOR (TC of DLC3 - ECM)**

(a) Turn the ignition switch off.

(b) Disconnect the E13*1, E21*2 ECM connector.

*1: for 2GR-FKS
*2: for 2TR-FE

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

Standard Resistance:

for 2GR-FKS:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D4-13 (TC) - E14-20 (TC)	Always	Below 1 Ω
D4-13 (TC) or E14-20 (TC) - Body ground	Always	10 kΩ or higher

for 2TR-FE:

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D4-13 (TC) - E21-19 (TC)	Always	Below 1 Ω
D4-13 (TC) or E21-19 (TC) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

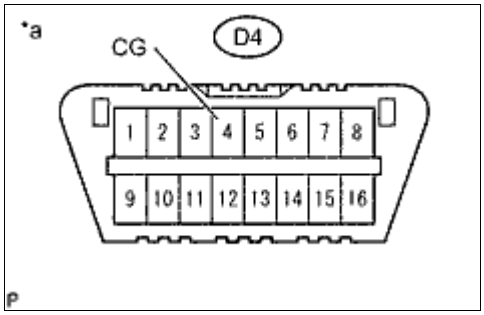
OK ▼

5.	CHECK HARNESS AND CONNECTOR (CG of DLC3 - BODY GROUND)

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D4-4 (CG) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of DLC3

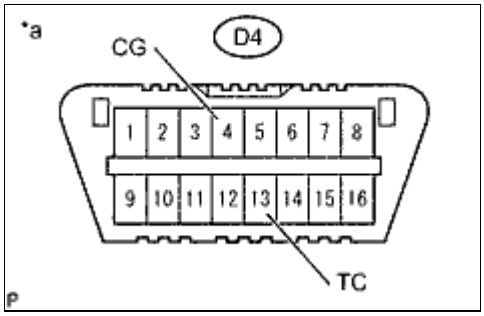
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

6.	REPLACE ECM

(a) Replace the ECM.

for 2GR-FKS: INFO
for 2TR-FE: INFO



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(b) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040

(c) Check that the ABS warning and slip indicator lights are blinking.

OK:

The ABS warning and slip indicator lights are blinking.

Text in Illustration

*a	Front view of DLC3

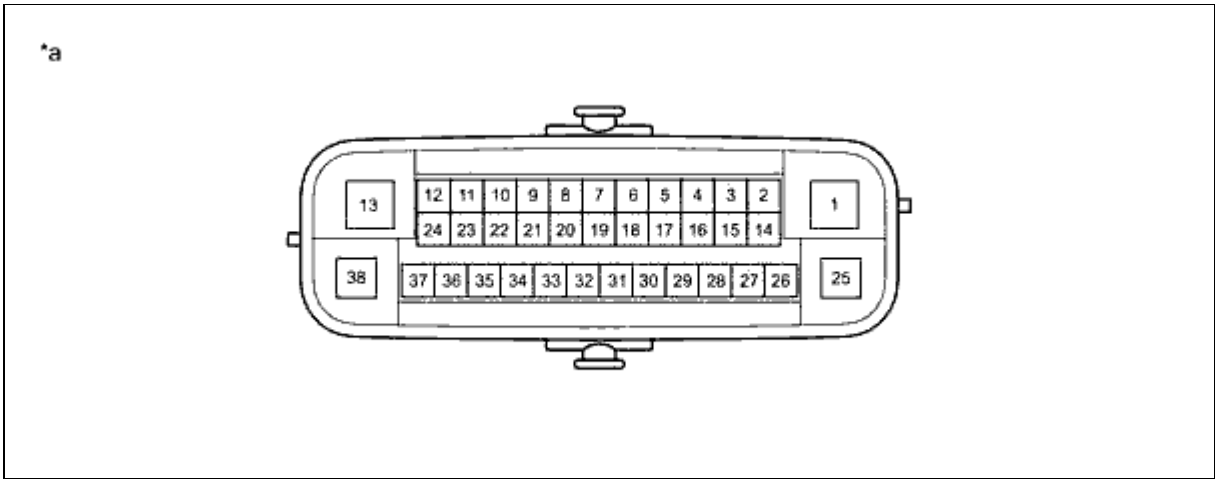
NG ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK ▶ **END**

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000005V9P000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU



Text in Illustration

*a	Component without harness connected (Skid Control ECU [Brake Actuator Assembly])	-	-

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION
1 (GND2)	Pump motor ground
2	- (Not used)
3 (EXI)*1	4WD detection switch (Transfer shift actuator assembly) input
	A.D.D. position switch (Differential motor actuator assembly) signal input
4	- (Not used)
5 (EXI4)*1	L4 detection switch (Transfer shift actuator assembly) input
6	- (Not used)
7 (STP2)*3	Stop light switch assembly input
8	- (Not used)
9	- (Not used)
10 (CANL)	CAN communication line L
11 (EXI3)	Back up light sw input
12 (IG1)	ECU power supply input
13 (BM)	Motor relay power supply
14 (SP1)	Speed signal output for speedometer
15 (RR-)	Rear wheel speed RH (-) signal input

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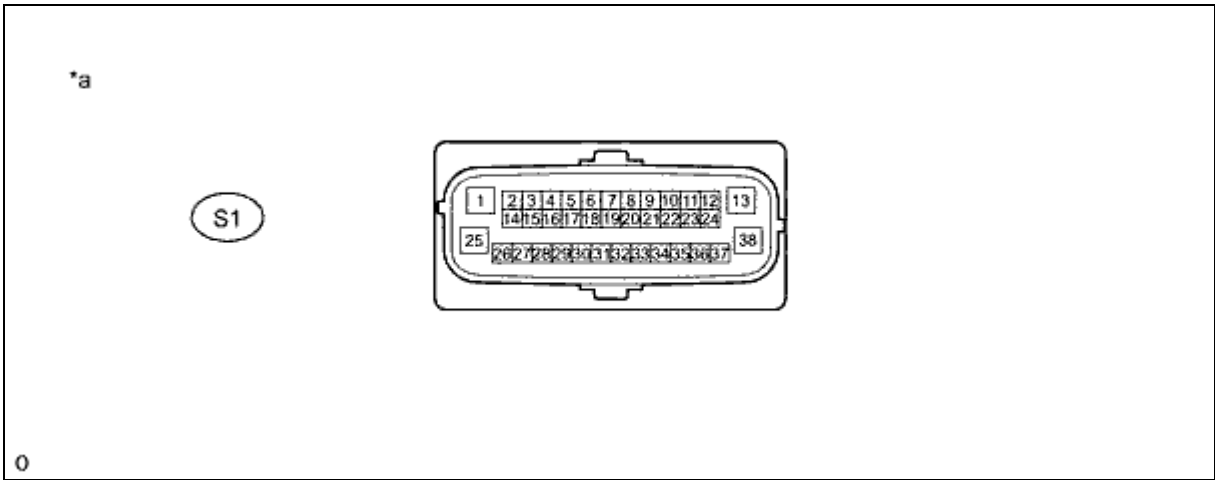
TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION
16 (RR+)	Rear wheel speed RH (+) power supply output
17 (FL-)	Front wheel speed LH (-) signal input
18 (FL+)	Front wheel speed LH (+) power supply output
19	- (Not used)
20	- (Not used)
21	- (Not used)
22 (CANH)	CAN communication line H
23	- (Not used)
24 (TS)	Sensor check input
25 (GND1)	Skid control ECU (Brake actuator assembly) ground
26 (STPO)*2	STOP Relay output
27 (HDCS)	4WD identification signal input*1
28 (RL-)	Rear wheel speed LH (-) signal input
29 (RL+)	Rear wheel speed LH (+) power supply output
30 (FR-)	Front wheel speed RH (-) signal input
31 (FR+)	Front wheel speed RH (+) power supply output
32	- (Not used)
33 (CSW)	VSC OFF switch input
34	- (Not used)
35 (STP)	STOP Relay input
36	- (Not used)
37	- (Not used)
38 (+BS)	Solenoid relay power supply

*1: for 4WD
*2: w/ Trailer Towing

1. TERMINAL INSPECTION

(a) Disconnect the connector and measure the voltage or resistance on the wire harness side.

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Text in Illustration

*a	Front view of wire harness connector (to Skid Control ECU [Brake Actuator Assembly])	-	-

HINT:

Voltage cannot be measured with the connector connected to the skid control (brake actuator assembly) as the connector is watertight.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
S1-1 (GND2) - Body ground	W-B - Body ground	Pump motor ground	Always	Below 1 Ω
S1-3 (EXI) - Body ground*1	LG - Body ground	4WD detection switch (Transfer shift actuator assembly) input	• Ignition switch ON • 4WD control switch (Transfer position switch) set to H2	11 to 14 V
		A.D.D. position switch (Differential motor actuator assembly) signal input	• Ignition switch ON • 4WD control switch (Transfer position switch) not set to L4	11 to 14 V
S1-5 (EXI4) - Body ground*1	GR - Body ground	L4 detection switch (Transfer shift actuator assembly) input	• Ignition switch ON • 4WD control switch (Transfer position switch) not set to L4	11 to 14 V
S1-7 (STP2) - Body ground	L - Body ground	Stop light switch assembly input	Stop light switch assembly on → off (Brake pedal depressed → released)	8 to 14 V → Below 1.5 V
S1-12 (IG1) - Body ground	G - Body ground	ECU power supply input	Ignition switch ON	11 to 14 V

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TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
S1-13 (BM) - Body ground	B - Body ground	Motor relay power supply	Always	11 to 14 V
S1-14 (SP1) - Body ground	G - Body ground	Speed signal output for speedometer	Ignition switch ON	11 to 14 V
S1-25 (GND1) - Body ground	W-B - Body ground	Skid control ECU (Brake actuator assembly) ground	Always	Below 1 Ω
S1-26 (STPO) - Body ground	B - Body ground	STOP Relay output	Ignition switch ON	11 to 14 V
S1-33 (CSW) - Body ground	GR - Body ground	VSC OFF switch input	VSC OFF switch pressed and held → released	Below 1 Ω → 10 kΩ or higher
S1-35 (STP) - Body ground	SB - Body ground	STOP Relay input	Stop light switch assembly on → off (Brake pedal depressed → released)	8 to 14 V → Below 1.5 V
S1-38 (+BS) - Body ground	R - Body ground	Solenoid relay power supply	Always	11 to 14 V

*1: for 4WD

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005VA0000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): TEST MODE PROCEDURE; 2016 MY Tacoma [08/2015 -]		

TEST MODE PROCEDURE

1. WARNING LIGHT AND INDICATOR LIGHT INITIAL CHECK

(a) When the ignition switch is turned ON, check that the ABS warning, brake warning, and slip indicator lights come on for approximately 3 seconds.

HINT:

- When the brake fluid level is low, the brake warning light comes on.
- If the skid control ECU (brake actuator assembly) stores any DTCs, the ABS warning and slip indicator lights will come on.
- If any of the indicators remain on or do not come on, proceed to troubleshooting for the light circuits listed below.

TROUBLE AREA	SEE PROCEDURE
ABS warning light circuit (Remains on)	INFO
ABS warning light circuit (Does not come on)	INFO
Brake warning light circuit (Remains on)	INFO
Brake warning light circuit (Does not come on)	INFO
Slip indicator light circuit (Remains on)	INFO
Slip indicator light circuit (Does not come on)	INFO

2. ACTIVATE TEST MODE (SIGNAL CHECK) (When Using Techstream)

HINT:

- VSC does not operate in Test Mode (signal check), regardless of whether the sensor check is normal or abnormal.
- When a malfunction occurs in an ABS system sensor, the ABS warning light illuminates.
- When a malfunction occurs in a VSC system sensor, the slip indicator light illuminates.

(a) Procedure to enter Test Mode (signal check).

(1) Turn the ignition switch to ON.

(2) for Manual Transmission:

Check that the shift lever is in neutral and apply the parking brake.

for Automatic Transmission:

Check that the shift lever is in P and apply the parking brake.

(3) Put the steering wheel in the neutral position.

(4) Turn the ignition switch off and connect the Techstream to the DLC3.

(5) Turn the ignition switch to ON and turn the Techstream on.

(6) Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Signal Check.

HINT:

Signals related to the VSC system can be inspected by performing a Test Mode (signal check) inspection.

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During the inspection, the display of items determined normal by the skid control ECU (brake actuator assembly) changes from incomplete to complete.

Test Mode (Signal Check) Inspection Item Chart

ITEM NAME	RANGE	JUDGMENT DESCRIPTION	TROUBLE AREA
Output Signal of Front Speed Sensor RH	Incomplete/complete	Check for foreign matter, evaluate the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in sensor system wire harness • Defective connector contact or increased terminal resistance • Speed sensor installation defect • Sensor rotor system malfunction
Output Signal of Front Speed Sensor LH	Incomplete/complete	Check for foreign matter, evaluate the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in sensor system wire harness • Defective connector contact or increased terminal resistance • Speed sensor installation defect • Sensor rotor system malfunction
Output Signal of Rear Speed Sensor RH	Incomplete/complete	Check for foreign matter, evaluate the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in sensor system wire harness • Defective connector contact or increased terminal resistance • Speed sensor installation defect • Sensor rotor system malfunction
Output Signal of Rear Speed Sensor LH	Incomplete/complete	Check for foreign matter, evaluate the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in sensor system wire harness • Defective connector contact or increased terminal resistance • Speed sensor installation defect

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ITEM NAME	RANGE	JUDGMENT DESCRIPTION	TROUBLE AREA
			• Sensor rotor system malfunction
Change in Output Signal of Front Speed Sensor RH	Incomplete/complete	• Evaluate the stability of the sensor input waveform • Evaluate the straight ahead / reverse signal inputs	• Foreign object attached to speed sensor • Sensor rotor system malfunction
Change in Output Signal of Front Speed Sensor LH	Incomplete/complete	• Evaluate the stability of the sensor input waveform • Evaluate the straight ahead / reverse signal inputs	• Foreign object attached to speed sensor • Sensor rotor system malfunction
Change in Output Signal of Rear Speed Sensor RH	Incomplete/complete	• Evaluate the stability of the sensor input waveform • Evaluate the straight ahead / reverse signal inputs	• Foreign object attached to speed sensor • Sensor rotor system malfunction
Change in Output Signal of Rear Speed Sensor LH	Incomplete/complete	• Evaluate the stability of the sensor input waveform • Evaluate the straight ahead / reverse signal inputs	• Foreign object attached to speed sensor • Sensor rotor system malfunction
Output Voltage in Deceleration Sensor	Incomplete/complete	Evaluate the acceleration sensor output voltage	• Acceleration sensor zero point stored incorrectly • Acceleration sensor (airbag sensor assembly) connector connection malfunction • Acceleration sensor (airbag sensor assembly) internally stuck • Defective acceleration sensor (airbag sensor assembly) installation
Memory of System Information	Incomplete/complete	Evaluate stored system information (skid control ECU (brake actuator assembly)) against vehicle specification	• ECM incorrectly installed • Brake actuator assembly incorrectly installed

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ITEM NAME	RANGE	JUDGMENT DESCRIPTION	TROUBLE AREA
			• CAN communication between ECM and skid control ECU (brake actuator assembly)
Output in Master Cylinder Pressure Sensor	Incomplete/complete	• Evaluate the master cylinder pressure sensor zero point voltage • Check that the sensitivity of the master cylinder pressure sensor is normal	• Open circuit or short in master cylinder pressure sensor circuit • Open or short in stop light switch assembly circuit or defective connector connection • Stop light switch assembly stuck OFF

3. ACTIVATE TEST MODE (SIGNAL CHECK) (When Using SST Check Wire)

HINT:

- VSC does not operate in Test Mode (signal check), regardless of whether the sensor check is normal or abnormal.
- When a malfunction occurs in an ABS system sensor, the ABS warning light illuminates.
- When a malfunction occurs in a VSC system sensor, the slip indicator light illuminates.

(a) Procedure to enter Test Mode (signal check).

(1) Turn the ignition switch to ON.

(2) for Manual Transmission:

Check that the shift lever is in neutral and apply the parking brake.

for Automatic Transmission:

Check that the shift lever is in P and apply the parking brake.

(3) Put the steering wheel in the neutral position.

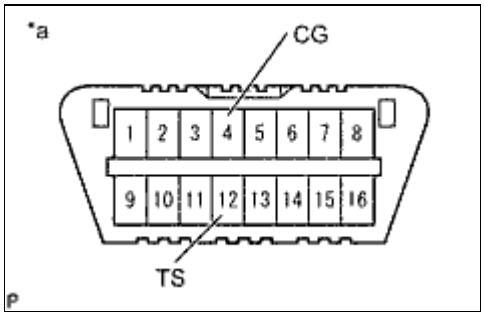
(4) Turn the ignition switch off.

(5) Using SST, connect terminals 12 (TS) and 4 (CG) of the DLC3.

SST: 09843-18040

Text in Illustration

*a	Front view of DLC3



(6) Turn the ignition switch to ON.

(7) Check that the ABS warning and slip indicator lights come on for several seconds and then blink in Test Mode (signal check).

HINT:

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

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TROUBLE AREA	SEE PROCEDURE
TS and CG terminal circuit	INFO
ABS warning light circuit (Remains on)	INFO
ABS warning light circuit (Does not come on)	INFO
Slip indicator light circuit (Remains on)	INFO
Slip indicator light circuit (Does not come on)	INFO

4. ACCELERATION SENSOR CHECK

(a) Enter Test Mode (signal check).

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

HINT:

The acceleration sensor check can be performed with the master cylinder pressure sensor check below.

5. MASTER CYLINDER PRESSURE SENSOR CHECK

(a) Enter Test Mode (signal check).

(b) Start the engine.

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

(d) Check that the ABS warning light stays on for 3 seconds.

HINT:

- Ensure that the ABS warning light comes on.
- 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.
- If the master cylinder pressure sensor check is not completed, depressing the brake pedal causes further decreases in vacuum in the brake booster, making the sensor check difficult to complete.
- If the vacuum is insufficient, the master cylinder pressure sensor check may not be completed. In this case, run the engine at idle to obtain sufficient vacuum.
- If the brake pedal is strongly depressed when the vacuum is insufficient, the brake warning light may come on in accordance with booster pressure control. In this case, run the engine at idle to obtain sufficient vacuum.

6. SPEED SENSOR CHECK

NOTICE:

Before performing the speed sensor signal check, complete the acceleration sensor and master cylinder pressure sensor checks.

(a) Enter Test Mode (signal check).

(b) Start the engine.

(c) Drive the vehicle straight ahead.

Accelerate the vehicle to a speed of 45 km/h (28 mph) or more for several seconds and check that the ABS warning light goes off.

- The sensor check may not be completed if wheelspin occurs.
- The ABS warning light blinks when the sensor check has been completed and the brake pedal is depressed.
- The ABS warning light comes on immediately after a malfunction has been detected during the speed sensor check.

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(d) Stop the vehicle.

NOTICE:

- The speed sensor check may not be completed if the sensor check is started with the steering wheel turned or one or more wheels spinning.
- After the ABS warning light goes off and if the vehicle speed exceeds 80 km/h (50 mph), a sensor check code will be stored again. Decelerate or stop the vehicle before the speed reaches 80 km/h (50 mph).
- If the sensor check has not been completed, the ABS warning light blinks during driving and the ABS system does not operate.

HINT:

When the sensor check has been completed, the ABS warning light remains off during driving and blinks in the Test Mode (signal check) pattern while the vehicle is stationary.

7. END OF SENSOR CHECK

(a) If the sensor check is completed, the ABS warning light and slip indicator light blink (Test Mode (signal check)) when the vehicle stops and the ABS warning light is off while the vehicle is being driven.

NOTICE:

- When Test Mode (signal check) is started with the Techstream and all items display complete, the sensor check ends.
- If the sensor check is not complete, the ABS warning light blinks when the vehicle is in motion and the ABS does not operate.
- If a DTC is detected in Test Mode (signal check), the ABS warning light or slip indicator light illuminates.

8. END OF TEST MODE (SIGNAL CHECK)

(a) End Test Mode (signal check) using the Techstream

(1) Turn the ignition switch off and enter normal mode.

(2) Remove the Techstream.

(b) End Test Mode (signal check) by connecting DLC3 terminals

(1) Turn the ignition switch off and disconnect terminals 13 (TC), 12 (TS) and 4 (CG) of the DLC3.

(2) Turn the ignition switch to ON.

HINT:

- Test Mode (signal check) is continued if 12 (TS) and 4 (CG) are disconnected while the ignition switch to ON.
- If the ignition switch is turned ON with terminals 12 (TS) and 4 (CG) connected, the previous Test Mode (signal check) is maintained.

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VAM000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): TS and CG Terminal Circuit; 2016 MY Tacoma [08/2015 -]		

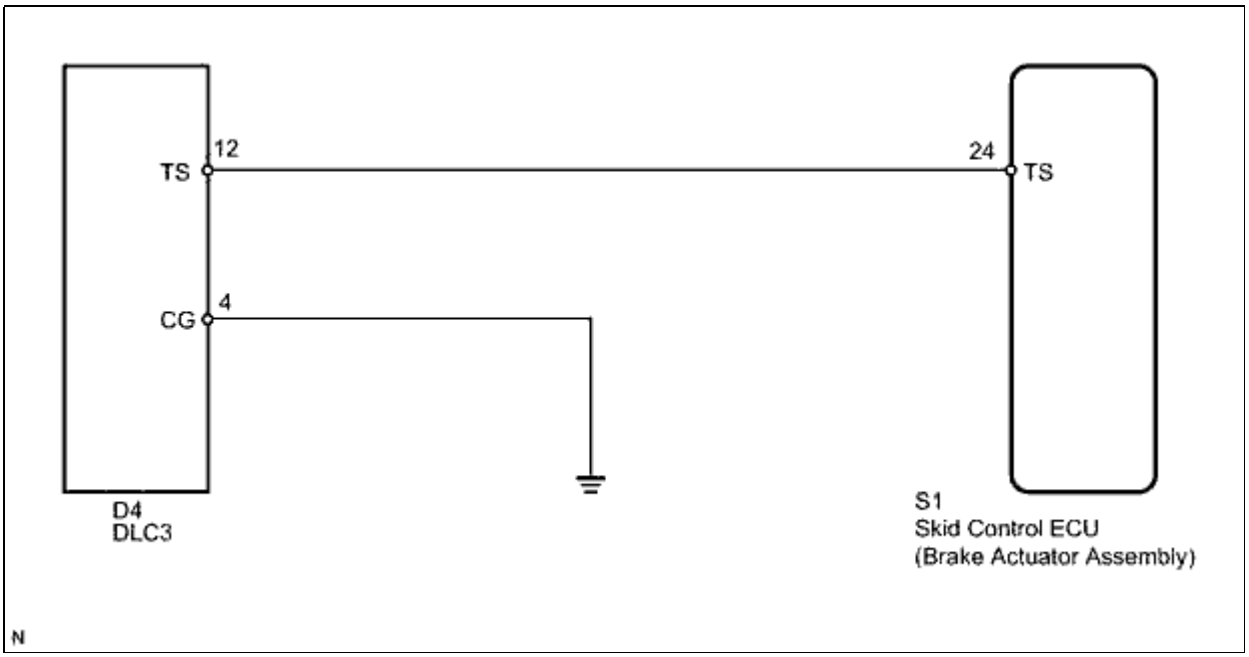
TS and CG Terminal Circuit

DESCRIPTION

In Test Mode (signal check), a malfunction in the speed sensor that cannot be detected when the vehicle is stopped can be detected while driving.

Sensor check mode can be entered by connecting terminals TS and CG of the DLC3 and turning the ignition switch from off to ON.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - TS of DLC3)**

(a) Turn the ignition switch off.

(b) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-24 (TS) - D4-12 (TS)	Always	Below 1 Ω
S1-24 (TS) or D4-12 (TS) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

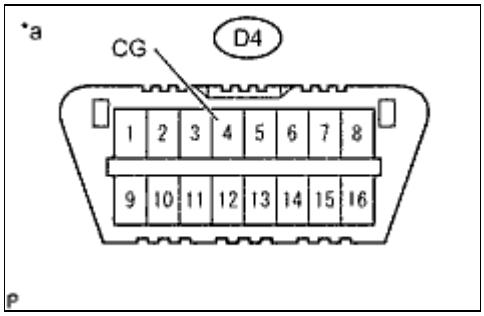
OK ▼

2.	**CHECK HARNESS AND CONNECTOR (CG of DLC3 - BODY GROUND)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D4-4 (CG) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of DLC3

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005VAN000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): U0073,U0100,U0124,U0126; Control Module Communication Bus OFF; 2016 MY Tacoma [08/2015 -]		

DTC	**U0073**	**Control Module Communication Bus OFF**

DTC	**U0100**	**Lost Communication with ECM**

DTC	**U0124**	**Lost Communication with Lateral Acceleration Sensor Module**

DTC	**U0126**	**Lost Communication With Steering Angle Sensor Module**

DESCRIPTION

The skid control ECU (brake actuator assembly) receives the signals from the ECM, steering angle sensor (spiral cable with sensor sub-assembly), 4 wheel drive control ECU*, and yaw rate and acceleration sensor (airbag sensor assembly) via the CAN communication system.

*: for 4WD or w/ Rear Differential Lock

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
U0073	Control Module Communication Bus OFF	Any of the following is detected: • A bus OFF state occurs once or more within 0.1 seconds, 10 times in succession. (Sent signals cannot be received.) • When the +BS terminal voltage is between 10 and 17.4 V, a delay in receiving data from the yaw rate sensor and steering angle sensor continues for 1 second or more. • When the +BS terminal voltage is between 10 and 17.4 V, the following occurs 10 times in succession within 60 seconds. ○ The condition that a delay in receiving data from the yaw rate sensor and steering angle sensor occurs more than once within 5 seconds.	CAN communication system

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
U0100	Lost Communication with ECM	When the +BS terminal voltage is between 10 and 17.4 V, and the vehicle speed is 15 km/h (9 mph) or more, data cannot be received from the ECM for 2 seconds or more.	• CAN communication system • Skid control ECU (Brake actuator assembly) • ECM
U0124	Lost Communication with Lateral Acceleration Sensor Module	Any of the following is detected: • When the +BS terminal voltage is between 10 and 17.4 V, and the vehicle speed is 7 km/h or more, data from the acceleration sensor cannot be received for 1 second or more. • When the +BS terminal voltage is between 10 and 17.4 V, the following occurs 10 times in succession within 60 seconds. ○ The condition that data from the acceleration sensor cannot be received occurs once or more within 5 seconds.	• CAN communication system • Skid control ECU (Brake actuator assembly) • Acceleration sensor (Airbag sensor assembly)
U0126	Lost Communication with Steering Angle Sensor Module	Any of the following is detected: • When the +BS terminal voltage is between 10 and 17.4 V, data from the steering angle sensor cannot be received for 1 second or more. • When the +BS terminal voltage is between 10 and 17.4 V, the following occurs 10 times in succession. ○ The condition that data from the steering angle sensor cannot be received occurs once or more within 5 seconds.	• CAN communication system • Skid control ECU (Brake actuator assembly) • Steering angle sensor (Spiral cable sensor with sub-assembly)

HINT:

DTC will be output when conditions for any of the patterns in the table above are met.

INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (MOMENTARY INTERRUPTION)**

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(a) Using the Techstream, check for any momentary interruption in the wire harness and connector corresponding to a DTC INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
EFI Communication Open	ECM communication open detection	Normal or Error	Normal	Error: Momentary interruption
Yaw Rate Open	Yaw rate sensor open detection	Normal or Error	Normal	Error: Momentary interruption
Deceleration Open	Acceleration sensor open detection	Error or Normal	Normal	Error: Momentary interruption
Steering Open	Steering angle sensor open detection	Normal or Error	Normal	Error: Momentary interruption

HINT:

Perform the above inspection before removing the sensor and connector.

Result

RESULT	PROCEED TO
There is a constant open circuit	A
There are no momentary interruptions	B
There are momentary interruptions	C

B ▶ **GO TO STEP 3**

C ▶ **GO TO STEP 4**

A ▼

2.	**CHECK IF EACH SENSOR AND ECM CONNECTOR IS SECURELY CONNECTED**

(a) Turn the ignition switch off.

(b) Check if each sensor, 4 wheel drive control ECU* or ECM connector is securely connected.

*: for 4WD or w/ Rear Differential Lock

OK:

Each connector is securely connected.

NG ▶ **CONNECT CONNECTOR TO EACH SENSOR OR ECM CORRECTLY**

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OK

3.	RECONFIRM DTC

(a) Turn the ignition switch off.

(b) Record the output DTCs (for VSC system and/or CAN communication system).

for VSC system: INFO
for CAN communication system: INFO

HINT:

If the CAN communication system DTC and the relevant sensor DTCs are output simultaneously, troubleshoot the relevant sensor DTCs (for VSC system) after the CAN communication system returns to normal.

Result

RESULT	PROCEED TO
DTC (relating to CAN communication system) is output	A
DTC (relating to VSC system) is output	B
DTC is not output	C

B ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

C ▶ **USE SIMULATION METHOD TO CHECK**

A ▶ **CHECK CAN COMMUNICATION SYSTEM**

4.	REPAIR OR REPLACE HARNESS OR CONNECTOR

(a) Turn the ignition switch off.

(b) Repair or replace the harness or connector.

(c) Check for any momentary interruption between the skid control ECU (brake actuator assembly) and each sensor or ECM INFO .

(d) Check that there is no momentary interruption.

NEXT

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5.	**RECONFIRM DTC**

(a) Turn the ignition switch off.

(b) Clear the DTCs INFO .

(c) Start the engine.

(d) Drive the vehicle at a speed of 15 km/h (9 mph) or more and turn the steering wheel to the right and left.

(e) Check that no CAN communication system DTC is output INFO .

(f) If VSC system DTCs are output, record them INFO .

HINT:

The CAN communication system must be normal when repairing each sensor DTC (for VSC system).

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output (relating to VSC system)	B
DTC is output (relating to CAN communication system)	C

B ▶ **REPAIR CIRCUIT INDICATED BY OUTPUT DTC**

C ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001DXP038X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): VSC Buzzer Circuit; 2016 MY Tacoma [08/2015 -]		

VSC Buzzer Circuit

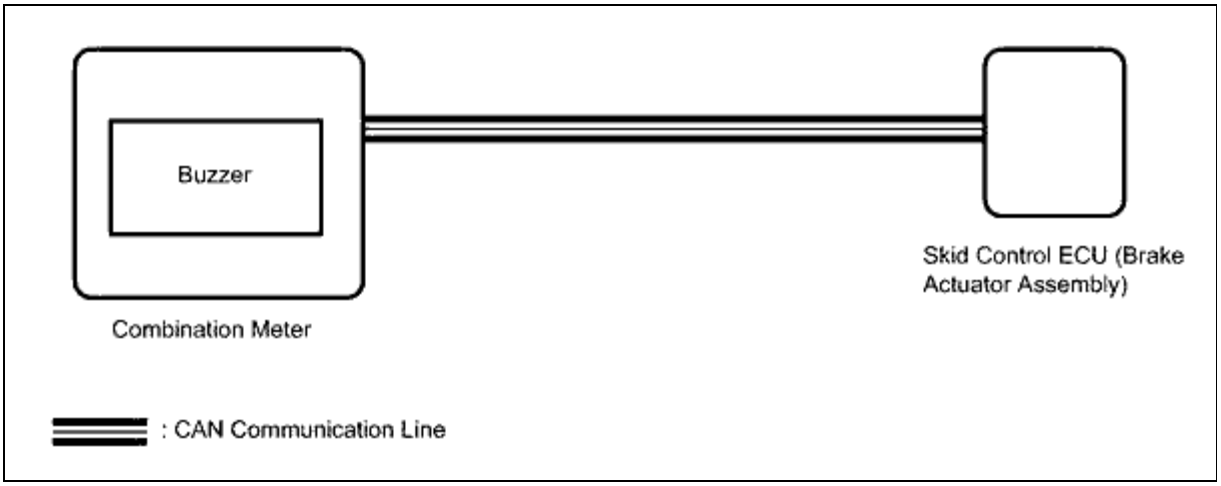
DESCRIPTION

The skid control ECU (brake actuator assembly) is connected to the combination meter via CAN communication.

The combination meter has a built-in VSC warning buzzer:

- Sounds intermittently to inform the driver if the temperature of brake actuator assembly has increased excessively due to continuous operation of AUTO LSD.
- Sounds intermittently to inform the driver that the VSC is operating.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

When replacing the skid control ECU (brake actuator assembly), perform the zero point calibration INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION LINE**

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

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(e) Select CAN Bus Check from the System Selection Menu screen and follow the prompts on the screen to inspect the CAN bus INFO .

OK:

CAN Bus Check indicates no malfunctions in CAN communication.

NG ▶ **GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

OK ▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM (BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the tester, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Buzzer	VSC warning buzzer	Buzzer OFF/ON	The buzzer can be heard

(f) Check that the buzzer sounds or stops in accordance with the Techstream.

Result

RESULT	PROCEED TO
Buzzer does not sound or stop	A
Buzzer sounds and stops	B

B ▶ **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION)**

A ▼

3.	**REPLACE COMBINATION METER ASSEMBLY**

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(a) Turn the ignition switch off.

(b) Replace the combination meter INFO .

NEXT

4.	**PERFORM ACTIVE TEST USING TECHSTREAM (BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Active Test.

(e) According to the display on the tester, perform the Active Test.

ABS/VSC/TRAC

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Buzzer	VSC warning buzzer	Buzzer OFF/ON	The buzzer can be heard

(f) Check that the buzzer sounds or stops in accordance with the Techstream.

Result

RESULT	PROCEED TO
Buzzer does not sound or stop	A
Buzzer sounds and stops	B

B ▶ **END**

A ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005VB2000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Brake Booster): VSC OFF Switch Circuit; 2016 MY Tacoma [08/2015 -]		

VSC OFF Switch Circuit

DESCRIPTION

The skid control ECU assembly is connected to the combination meter assembly via CAN communication.

Pressing the VSC OFF switch turns off TRAC operation, and pressing and holding this switch turns off TRAC and VSC operation.

If TRAC and VSC operations are turned off, the TRAC OFF indicator and the VSC OFF indicator lights come on.

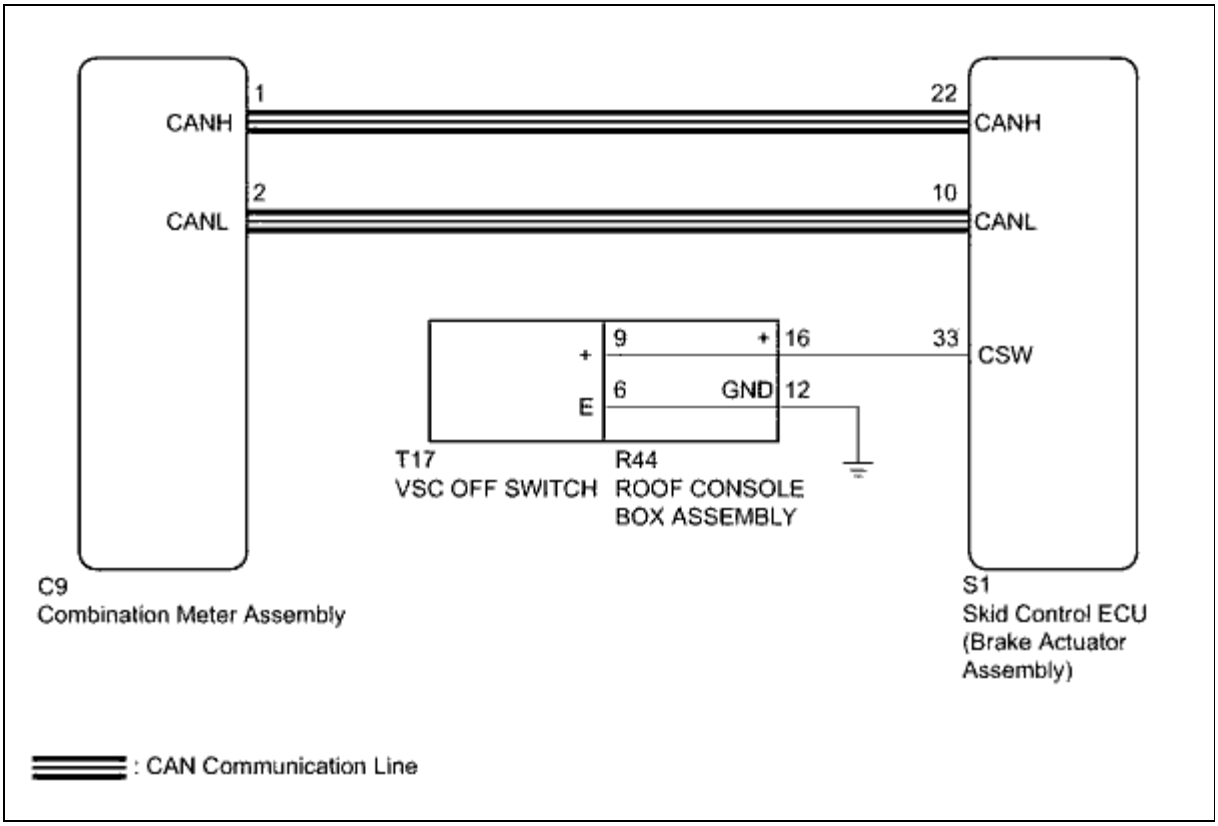
for 4WD:

When the 4WD control switch (transfer position switch) set to L4, VSC is prohibited and the VSC OFF indicator light turns on.

w/ Rear Differential Lock:

When the rear differential is locked, VSC is prohibited, the VSC OFF indicator turns on and the TRAC OFF message is displayed.

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- When replacing the skid control ECU (brake actuator assembly), perform zero point calibration and store system information INFO .
- for 4WD:

  As there may be malfunctions in the touch select 2-4 and high-low system related to when the transfer operates in L4, check the touch select 2-4 and high-low system first INFO .

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Check if CAN communication system DTCs are output INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **CHECK CAN COMMUNICATION SYSTEM**

A ▼

2.	**CHECK IF SKID CONTROL ECU ASSEMBLY CONNECTOR IS SECURELY CONNECTED**

(a) Check if the skid control ECU assembly (brake actuator assembly) connector is securely connected.

OK:

The connector is securely connected.

Result

RESULT	PROCEED TO
OK (w/ Rear Differential Lock)	A
OK (w/o Rear Differential Lock)	B
NG	C

B ▶ **GO TO STEP 4**

C ▶ **CONNECT CONNECTOR TO SKID CONTROL ECU ASSEMBLY CORRECTLY**

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A

3.	**CHECK FOR DIFFERENTIAL SYSTEM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.

(e) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B **GO TO DIFFERENTIAL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART)**

A

4.	**READ VALUE USING TECHSTREAM (TRAC/VSC OFF MODE)**

(a) Reconnect the S1 skid control ECU (brake actuator assembly) connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Select the Data List on the Techstream INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
TRC/VSC Off Mode	TRAC/VSC off mode	Normal, TRAC OFF, Unknown or VSC OFF	Normal: Normal mode TRAC OFF: TRAC off mode	Unknown: Unspecified

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TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
			VSC OFF: VSC off mode	

(e) Check that the indicator light and mode condition on the Techstream change according to VSC OFF switch operation.

Standard:

SWITCH OPERATION	MODE CONDITION DISPLAY	TRAC OFF INDICATOR LIGHT	VSC OFF INDICATOR LIGHT
Not pressed	Normal	Not displayed	Does not come on
Pressing the VSC OFF switch	TRAC OFF	Comes on	Does not come on
Pressing and holding the VSC OFF switch	VSC OFF	Comes on	Comes on

Result

RESULT	PROCEED TO
Indicator light and mode condition display do not change.	A
Mode condition display is normal, but indicator light does not change.	B
Indicator light and mode condition display are normal.	C

B ▶ **INSPECT METER / GAUGE SYSTEM**

C ▶ **USE SIMULATION METHOD TO CHECK**

A ▼

5.	**PERFORM ACTIVE TEST USING TECHSTREAM (TRC (TRAC) OFF INDICATOR LIGHT AND VSC OFF INDICATOR LIGHT)**

(a) Select the Active Test on the Techstream INFO .

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
TRC(TRAC) OFF Indicator Light	TRAC OFF indicator light	Indicator light ON/OFF	Observe combination meter assembly Vehicle condition: Vehicle stopped

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TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
VSC OFF Indicator Light	VSC OFF indicator light	Indicator light ON/OFF	Observe combination meter assembly Vehicle condition: Vehicle stopped

(b) Check the TRAC OFF indicator light and VSC OFF indicator light on the combination meter assembly turn ON or OFF in accordance with the Techstream operation.

OK:

The TRAC OFF indicator light and VSC OFF indicator light turn ON or OFF in accordance with the Techstream operation.

NG ▶ **GO TO STEP 9**

OK ▼

6.	**INSPECT VSC OFF SWITCH**

(a) Turn the ignition switch off.

(b) Remove the VSC OFF switch INFO .

(c) Inspect the VSC OFF switch INFO .

OK:

The VSC OFF switch operates normally.

NG ▶ **REPLACE VSC OFF SWITCH**

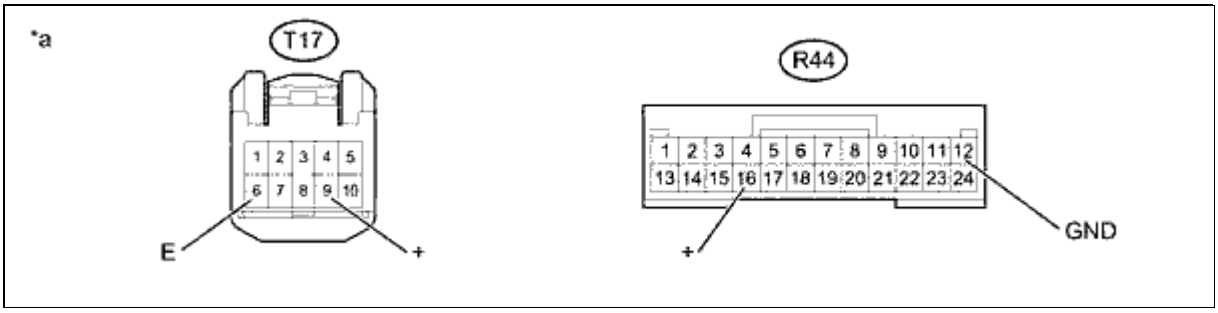
OK ▼

7.	**INSPECT ROOF CONSOLE BOX ASSEMBLY**

(a) Remove the roof console box assembly.

for Double Cab: INFO
for Access Cab: INFO

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Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-16 (+) - T17-9 (+)	Always	Below 1 Ω
R44-12 (GND) - T17-6 (E)	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

C ▶ **REPLACE ROOF CONSOLE BOX ASSEMBLY**

A ▼

8.	**CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - VSC OFF SWITCH)**

(a) Disconnect the S1 skid control ECU (brake actuator assembly) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-33 (CSW) - R44-16 (+)	Always	Below 1 Ω
S1-33 (CSW) or R44-16 (+) - Body groundd	Always	10 kΩ or higher
R44-12 (GND) - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

9.	**INSPECT COMBINATION METER ASSEMBLY**

(a) Turn the ignition switch off.

(b) Perform the Active Test of the combination meter assembly using the Techstream INFO .

(c) Check the combination meter assembly.

OK:

The TRAC OFF indicator light turns on or off in accordance with the Techstream.

NG ▶ **INSPECT METER / GAUGE SYSTEM**

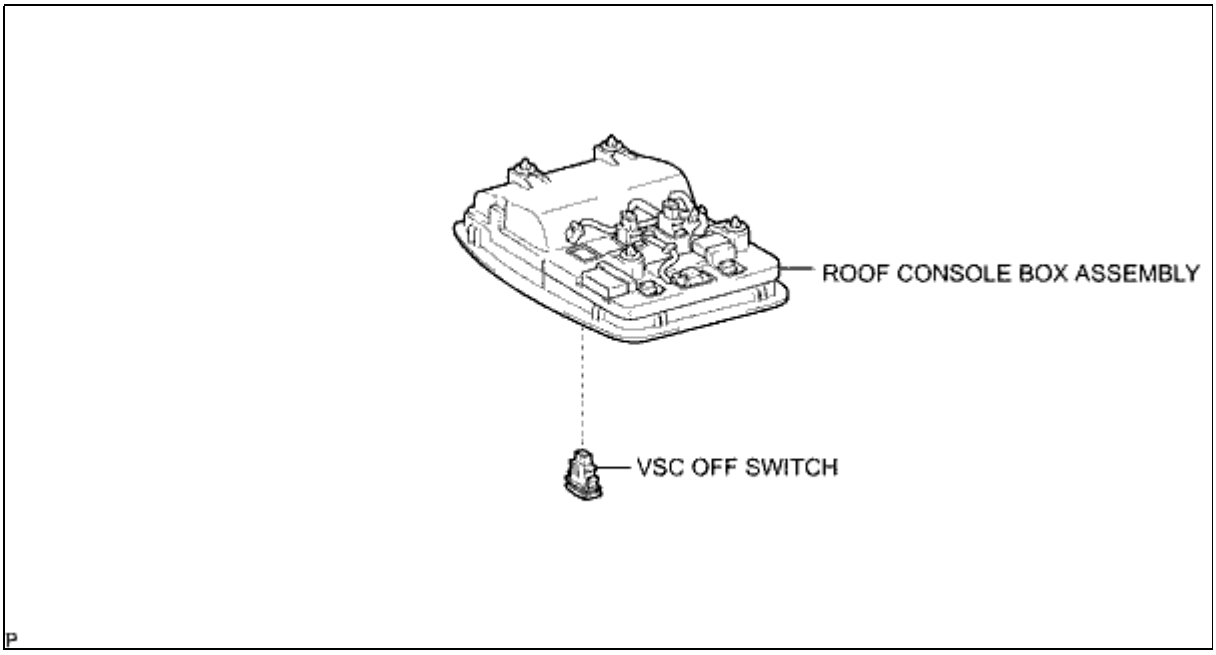
OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY**

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000001WZ104LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VSC OFF SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000001WZ004VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VSC OFF SWITCH: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

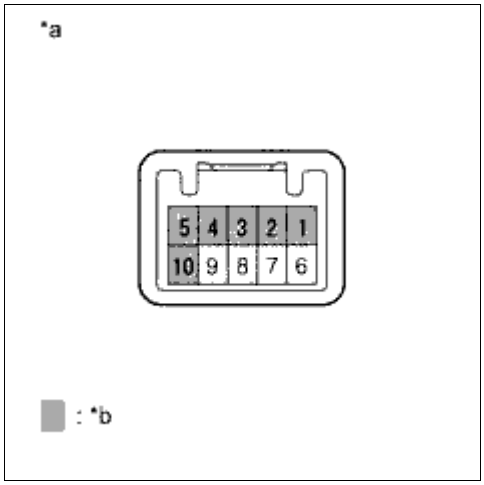
1. INSPECT VSC OFF SWITCH

(a) Check the resistance.

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

Text in Illustration

*a	Component without harness connected (VSC Off Switch)
*b	No Pin



Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
6 - 9	Pressed	Below 1 Ω
	Not pressed	10 kΩ or higher

If the value is not as specified, replace the VSC off switch.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000001WYZ05BX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VSC OFF SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL VSC OFF SWITCH

(a) Engage the 2 claws to install the VSC off switch into the roof console box assembly.

(b) Connect the VSC off switch connector.

2. INSTALL ROOF CONSOLE BOX ASSEMBLY

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000001WZ205BX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE CONTROL: VSC OFF SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

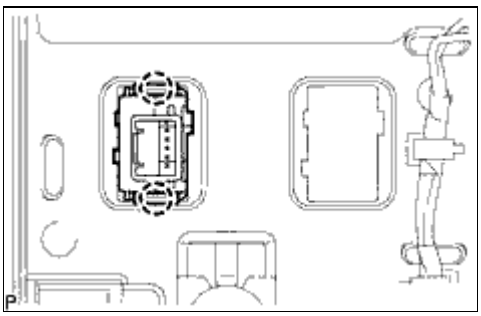
1. REMOVE ROOF CONSOLE BOX ASSEMBLY

INFO

2. REMOVE VSC OFF SWITCH

(a) Disconnect the VSC off switch connector.

(b) Disengage the 2 claws and remove the VSC off switch from the roof console box assembly.

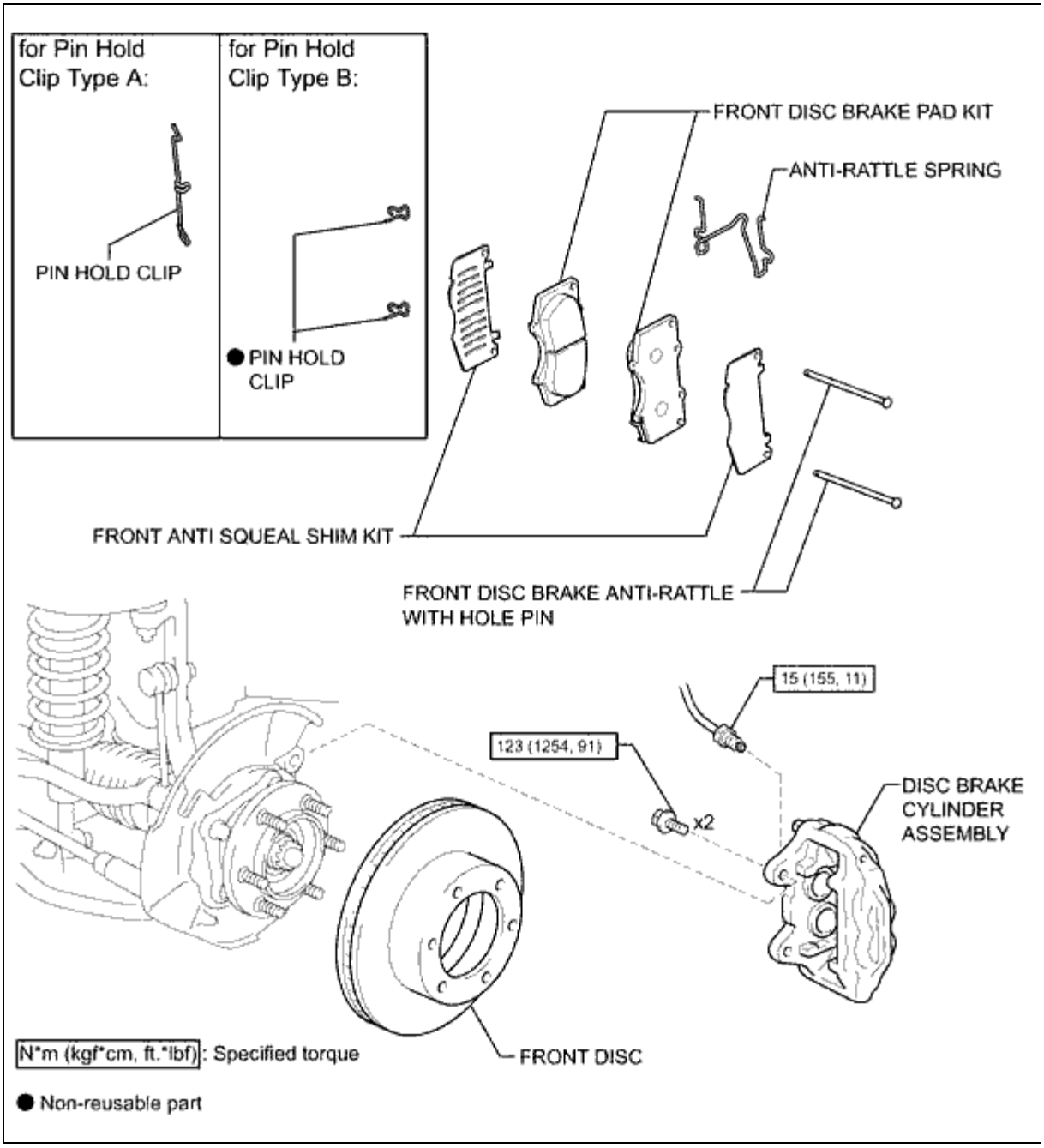


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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM00000171G00JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: FRONT BRAKE: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

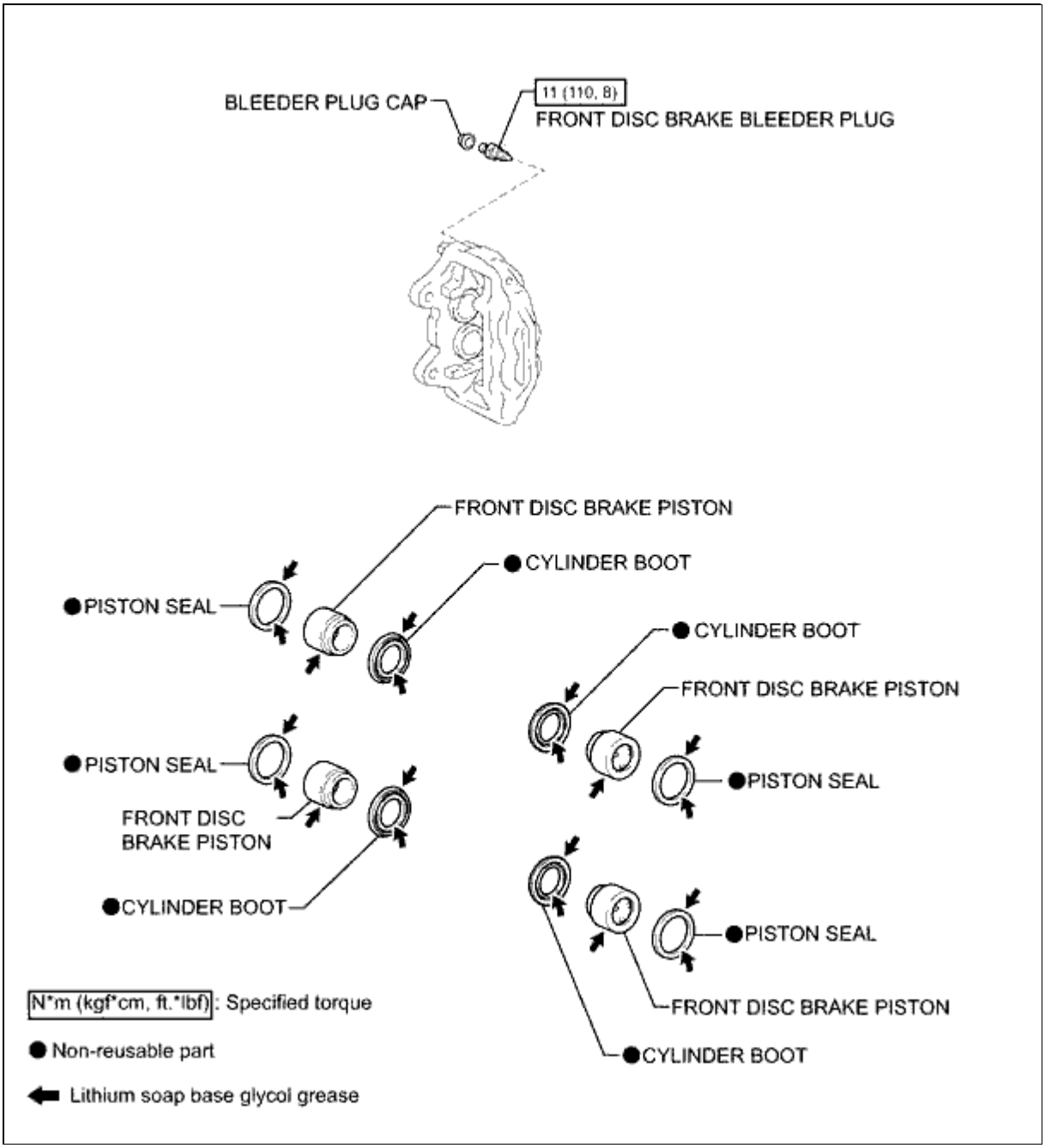
COMPONENTS

ILLUSTRATION



ILLUSTRATION

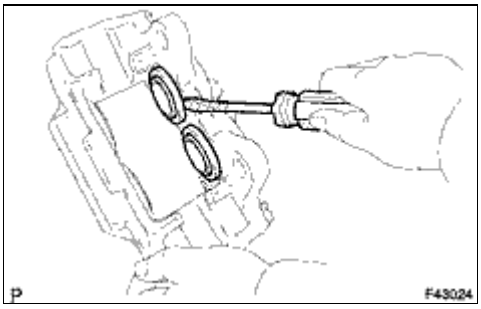
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM0000171I00JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: FRONT BRAKE: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

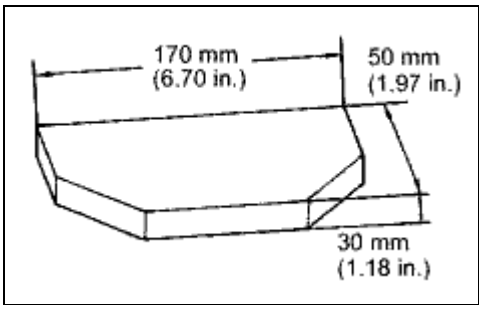
DISASSEMBLY



1. REMOVE CYLINDER BOOT

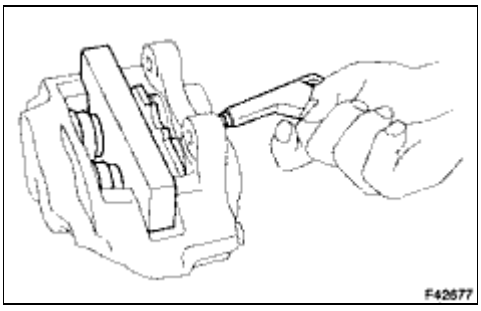
(a) Using a screwdriver, remove the 4 cylinder boots from the caliper.

2. REMOVE FRONT DISC BRAKE PISTON



(a) Prepare a wooden plate to hold the pistons.

(b) Place the plate between the pistons and insert a pad into one side.



(c) Use compressed air and remove the pistons one side at a time from the cylinder.

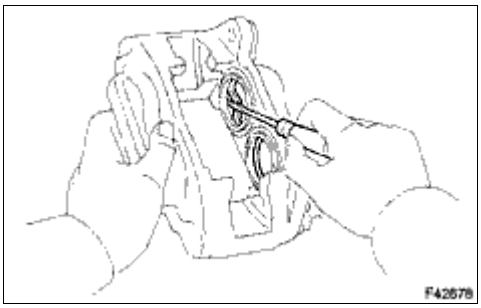
CAUTION:

Do not place your fingers in front of the pistons when using compressed air.

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3. REMOVE PISTON SEAL

(a) Using a screwdriver, remove the 4 piston seals from the cylinder.



4. REMOVE FRONT DISC BRAKE BLEEDER PLUG

(a) Remove the bleeder plug cap and bleeder plug from the disc brake cylinder.

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000171F00JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: FRONT BRAKE: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

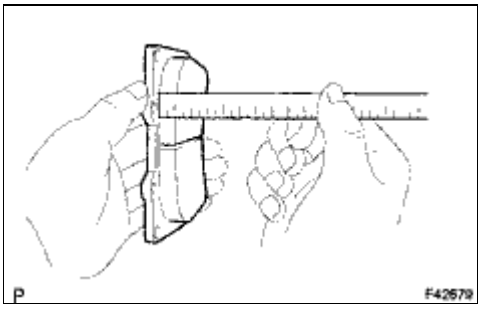
1. INSPECT BRAKE CYLINDER AND PISTON

(a) Check the cylinder bore and piston for rust and scoring.

2. INSPECT PAD LINING THICKNESS

(a) Using a ruler, measure the pad lining thickness.

Standard thickness:
11.5 mm (0.453 in.)
Minimum thickness:
1.0 mm (0.0394 in.)



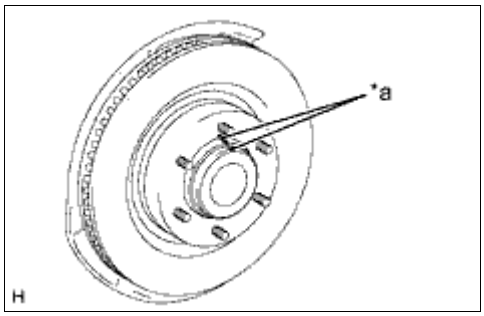
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171E00JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: FRONT BRAKE: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL FRONT DISC

(a) Align the matchmarks of the front disc and the front axle hub and install the front disc.



Text in Illustration

*a	Matchmark

HINT:

When replacing the disc with a new one, select the installation position where the disc has the minimum runout.

2. INSPECT DISC RUNOUT

(a) Temporarily install the front disc with the hub nuts.

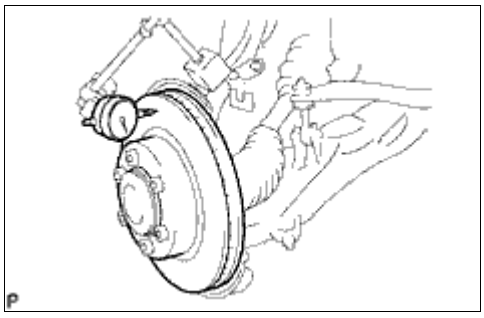
Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

(b) Using a dial indicator, measure the disc runout 10 mm (0.394 in.) away from the outer edge of the front disc.

Maximum disc runout:
0.05 mm (0.00197 in.)

If the disc runout is the maximum value or greater, check the bearing play in the axial direction and check the axle hub runout INFO . If the bearing play and axle hub runout are normal, adjust the disc runout or grind it on an on-car brake lathe.



3. INSTALL DISC BRAKE CYLINDER ASSEMBLY

(a) Install the disc brake cylinder assembly with the 2 bolts.

Torque:

123 N·m {1254 kgf·cm, 91ft·lbf}

(b) Using a union nut wrench 10 mm, install the brake tube to the disc brake cylinder assembly.

Torque:

15 N·m {155 kgf·cm, 11ft·lbf}

NOTICE:

Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench INFO .

4. INSTALL FRONT ANTI SQUEAL SHIM KIT

(a) Install the 2 front anti squeal shims onto each of the front disc brake pads.

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NOTICE:

If necessary, replace the anti-squeal shim kit when replacing the brake pad.

5. INSTALL FRONT DISC BRAKE PAD KIT

(a) Install the 2 front disc brake pads with front anti-squeal shim onto the disc brake cylinder assembly.

NOTICE:

There should be no oil or grease on the friction surfaces of the brake pads and the front disc.

6. INSTALL FRONT DISC BRAKE ANTI-RATTLE WITH HOLE PIN

(a) for Pin Hold Clip Type A:

(1) Install the anti-rattle spring to the front disc brake pad.

NOTICE:

The anti-rattle spring can be used again if it has sufficient rebound; no deformation, cracks or wear; and has had all rust, dirt and foreign matter cleaned off.

(2) Install the 2 front disc brake anti-rattle with hole pins to the disc brake cylinder assembly.

(3) Install the pin hold clip to the 2 front disc brake anti-rattle with hole pins.

NOTICE:

The pin hold clip can be used again if it has sufficient rebound; no deformation or wear; and has had all rust, dirt and foreign matter cleaned off.

(b) for Pin Hold Clip Type B:

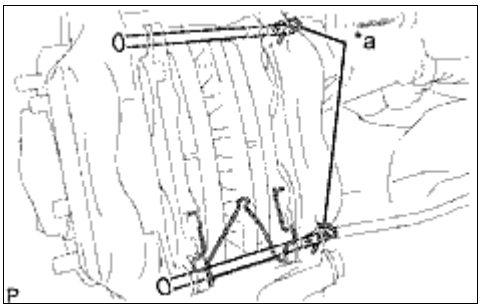
(1) Install the anti-rattle spring to the front disc brake pad.

NOTICE:

The anti-rattle spring can be used again if it has sufficient rebound; no deformation, cracks or wear; and has had all rust, dirt and foreign matter cleaned off.

(2) Install the 2 front disc brake anti-rattle with hole pins to the disc brake cylinder assembly.

(3) Install 2 new pin hold clips to the 2 front disc brake anti-rattle with hole pins.



Text in Illustration

*a	Handle

NOTICE:

Be sure to install the pin hold clip with the handle facing to the vehicle center.

7. FILL RESERVOIR WITH BRAKE FLUID (for Hydraulic Brake Booster) INFO

8. FILL RESERVOIR WITH BRAKE FLUID (for Vacuum Brake Booster) INFO

9. BLEED BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY (for Hydraulic Brake Booster) INFO

10. BLEED MASTER CYLINDER (for Vacuum Brake Booster) INFO

11. BLEED BRAKE LINE (for Hydraulic Brake Booster) INFO

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12. BLEED BRAKE LINE (for Vacuum Brake Booster) INFO

13. BLEED MASTER CYLINDER SOLENOID (for Hydraulic Brake Booster) INFO

14. BLEED BRAKE ACTUATOR (for Vacuum Brake Booster) INFO

15. INSPECT FLUID LEVEL IN RESERVOIR (for Hydraulic Brake Booster) INFO

16. INSPECT FLUID LEVEL IN RESERVOIR (for Vacuum Brake Booster) INFO

17. INSPECT FOR BRAKE FLUID LEAK

18. INSTALL FRONT WHEEL

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM0000171J00JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: FRONT BRAKE: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

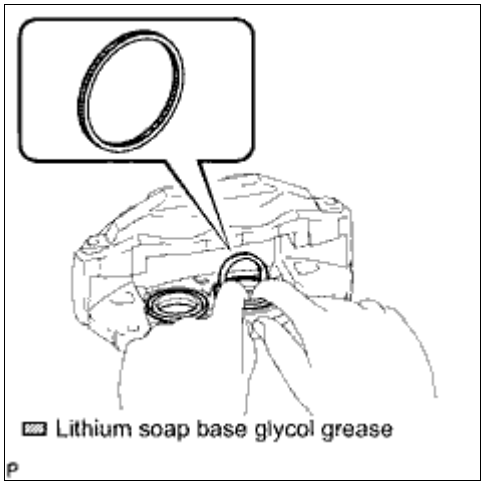
1. TEMPORARILY TIGHTEN FRONT DISC BRAKE BLEEDER PLUG

(a) Provisionally tighten the bleeder plug to the disc brake cylinder.

(b) Install the bleeder plug cap onto the bleeder plug.

2. INSTALL PISTON SEAL

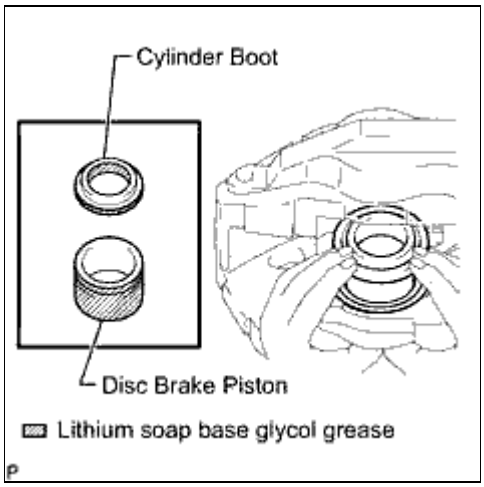
(a) Apply lithium soap base glycol grease to 4 new piston seals.



(b) Install the 4 piston seals onto the disc brake cylinder.

3. INSTALL FRONT DISC BRAKE PISTON

(a) Apply lithium soap base glycol grease to the 4 disc brake pistons and a new 4 cylinder boots.



(b) Install the 4 disc brake pistons onto the disc brake cylinder.

NOTICE:

Do not install the disc brake piston into the disc brake cylinder forcibly.

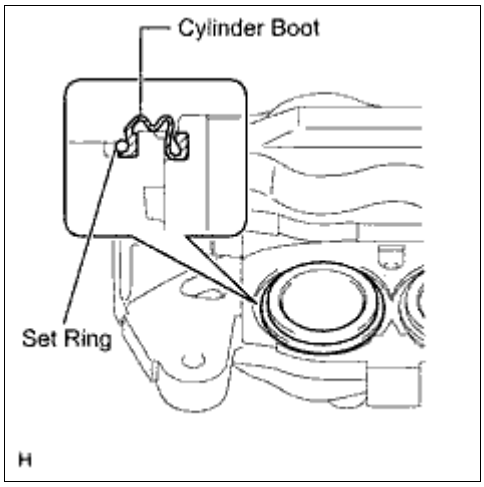
4. INSTALL CYLINDER BOOT

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(a) Install the 4 cylinder boots onto the disc brake cylinder.

HINT:

Install the cylinder boot securely onto the grooves of the disc brake cylinder and piston.



(b) Install the 4 cylinder boot set rings.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171H00JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: FRONT BRAKE: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

HINT:

- Use the same procedure for the LH side and RH side.
- The following procedure listed is for the LH side.

1. REMOVE FRONT WHEEL

2. DRAIN BRAKE FLUID

NOTICE:

Immediately wash off any brake fluid that comes into contact with any painted surfaces.

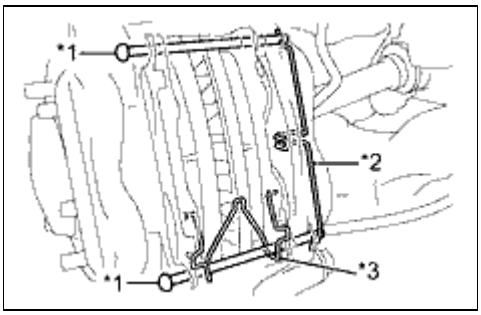
3. REMOVE FRONT DISC BRAKE ANTI-RATTLE WITH HOLE PIN

(a) for Pin Hold Clip Type A:

(1) Remove the pin hold clip from the 2 front disc brake anti-rattle with hole pins.

Text in Illustration

*1	Front Disc Brake Anti-rattle with Hole Pin
*2	Pin Hold Clip
*3	Anti-rattle Spring



NOTICE:

The pin hold clip can be used again if it has sufficient rebound; no deformation or wear; and has had all rust, dirt and foreign matter cleaned off.

(2) Remove the 2 front disc brake anti-rattle with hole pins from the disc brake cylinder assembly.

(3) Remove the anti-rattle spring from the front disc brake pad.

NOTICE:

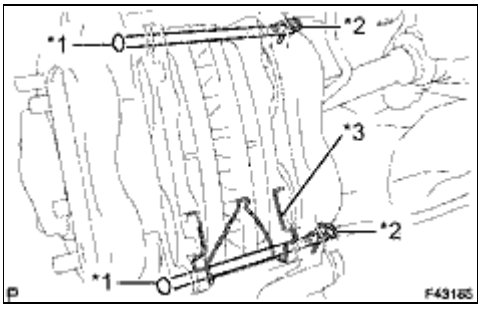
The anti-rattle spring can be used again if it has sufficient rebound; no deformation, cracks or wear; and has had all rust, dirt and foreign matter cleaned off.

(b) for Pin Hold Clip Type B:

(1) Remove the 2 pin hold clips from the 2 front disc brake anti-rattle with hole pins.

Text in Illustration

*1	Front Disc Brake Anti-rattle with Hole Pin
*2	Pin Hold Clip



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*3	Anti-rattle Spring

(2) Remove the 2 front disc brake anti-rattle with hole pins from the disc brake cylinder assembly.

(3) Remove the anti-rattle spring from the front disc brake pad.

NOTICE:

The anti-rattle spring can be used again if it has sufficient rebound; no deformation, cracks or wear; and has had all rust, dirt and foreign matter cleaned off.

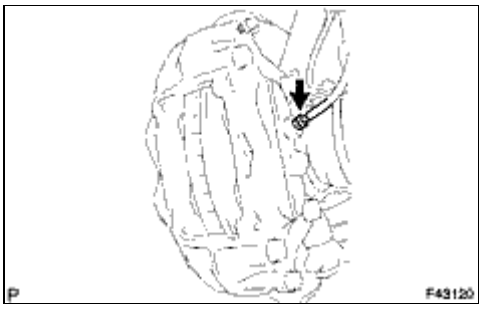
4. REMOVE FRONT DISC BRAKE PAD KIT

(a) Remove the 2 front disc brake pads with front anti squeal shim from the disc brake cylinder assembly.

5. REMOVE FRONT ANTI SQUEAL SHIM KIT

(a) Remove the 2 front anti squeal shims from each of the front disc brake pads.

6. REMOVE DISC BRAKE CYLINDER ASSEMBLY

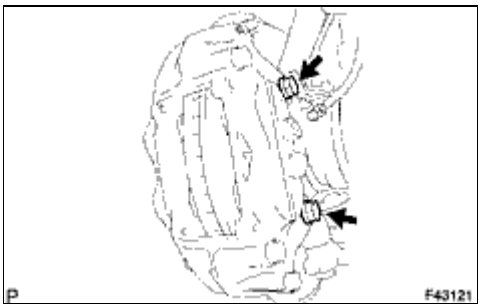


(a) Using a union nut wrench 10 mm, separate the brake tube from the disc brake cylinder assembly.

HINT:

Use a container to collect the brake fluid as it drains out.

(b) Remove the 2 bolts and the disc brake cylinder assembly.

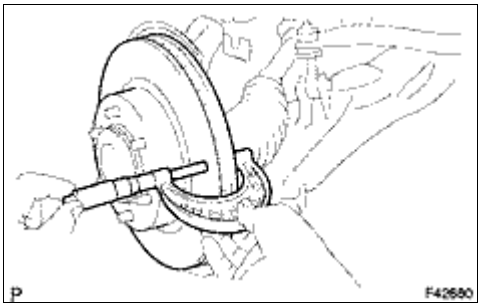


7. INSPECT DISC THICKNESS

(a) Using a micrometer, measure the disc thickness.

Standard thickness:
28.0 mm (1.10 in.)
Minimum thickness:
26.0 mm (1.03 in.)

If the disc thickness is less than the minimum, replace the front

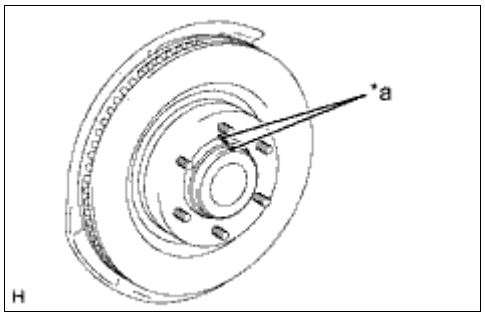


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disc.

8. REMOVE FRONT DISC

(a) Place matchmarks on the front disc and the front axle hub and remove the front disc.



Text in Illustration

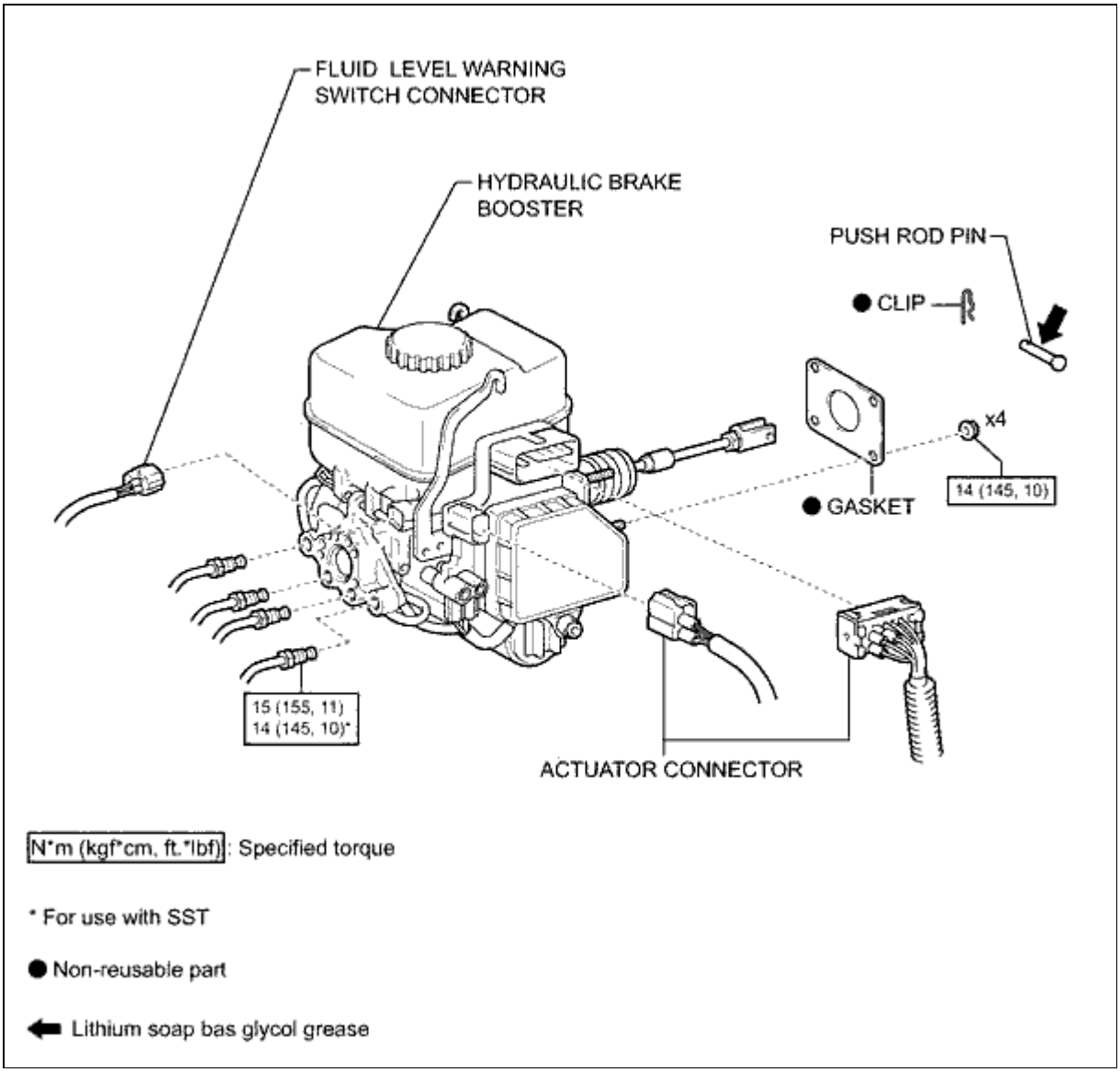
*a	Matchmark

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM00000171S02FX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

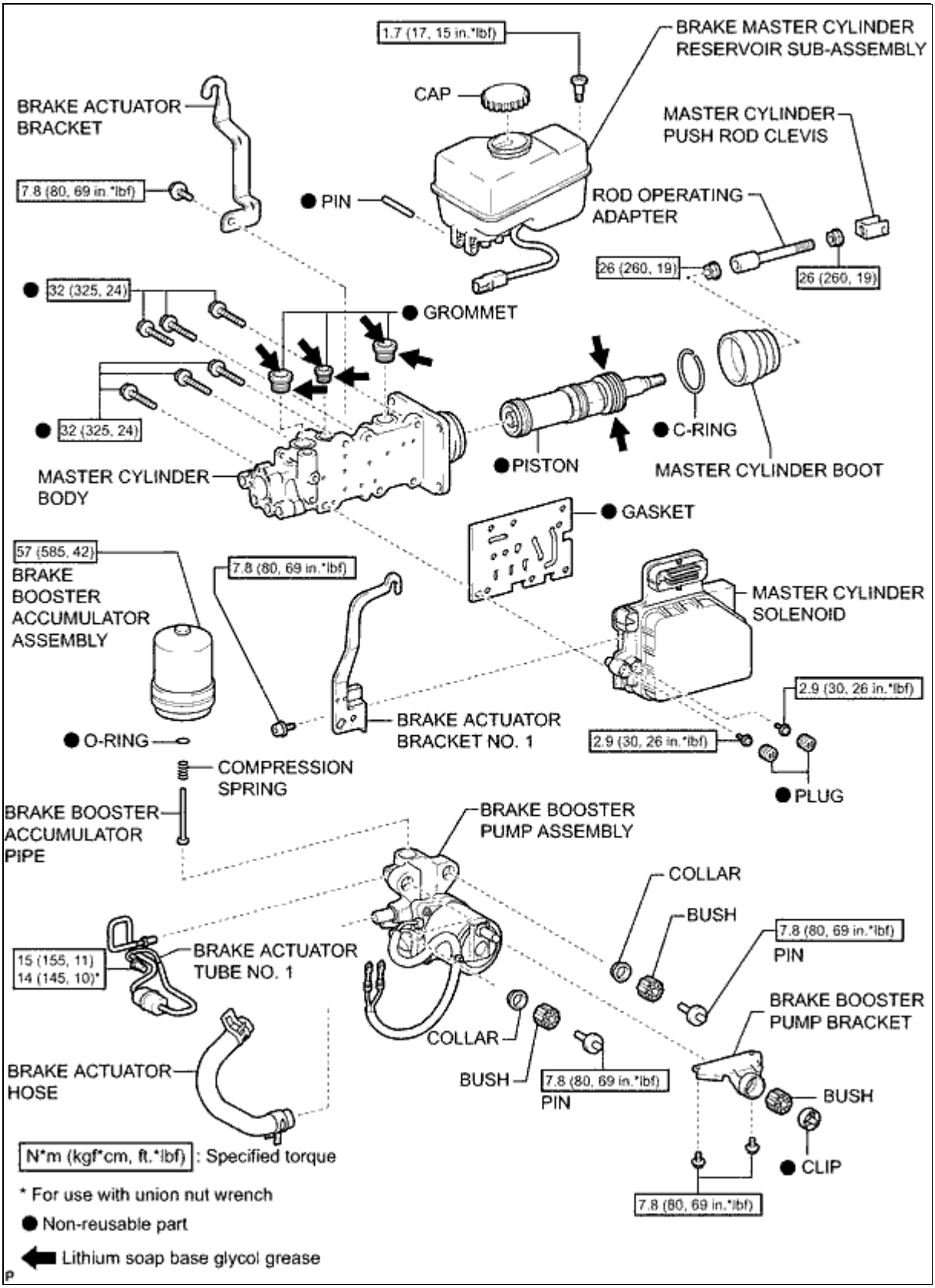
COMPONENTS

ILLUSTRATION



ILLUSTRATION

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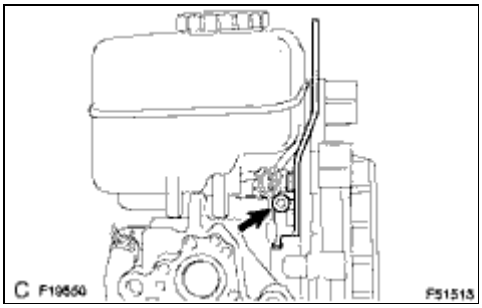


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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171U02HX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

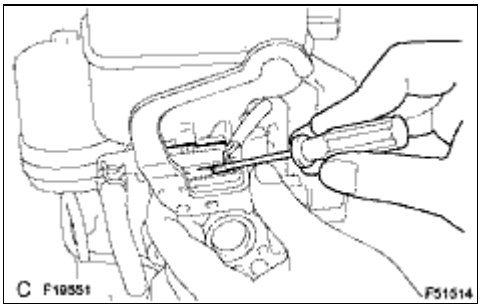
DISASSEMBLY

1. REMOVE BRAKE ACTUATOR BRACKET NO. 1

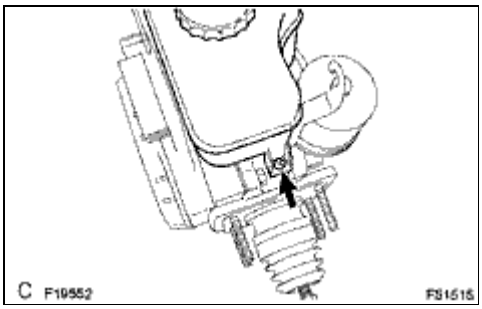


(a) Using a hexagon wrench (5 mm), remove the screw and brake actuator bracket No. 1.

(b) Using a screwdriver, remove the fluid level warning switch connector.

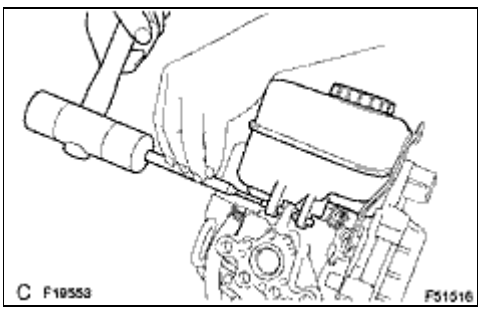


2. REMOVE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY



(a) Remove the screw from the master cylinder reservoir.

(b) Using a pin punch and hammer, remove the pin from the master cylinder reservoir.



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(c) Pull out the master cylinder reservoir.

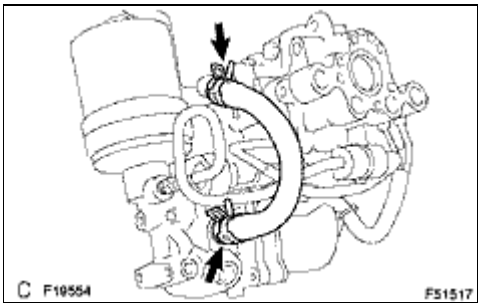
(d) Remove the 3 grommets.

(e) Remove the cap.

3. REMOVE BRAKE ACTUATOR HOSE NO. 1

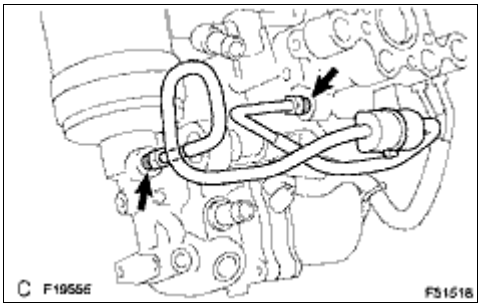
(a) Using needle-nose pliers, slide the 2 clips.

(b) Remove the brake actuator hose.

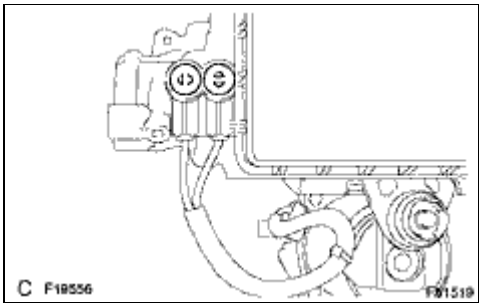


4. REMOVE BRAKE ACTUATOR TUBE NO. 1

(a) Using a union nut wrench, remove the brake actuator tube No. 1.

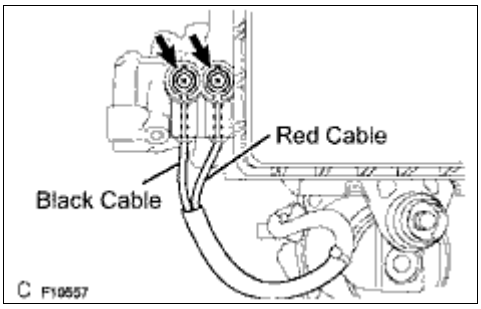


5. REMOVE BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY



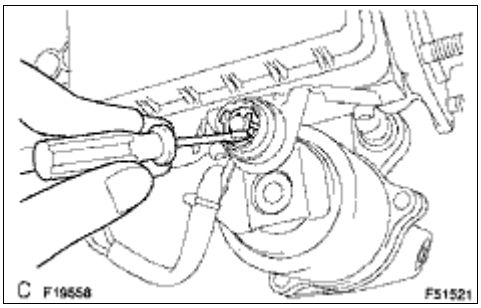
(a) Using a screwdriver, remove the 2 plugs.

(b) Remove the 2 screws and pull the wire harness.

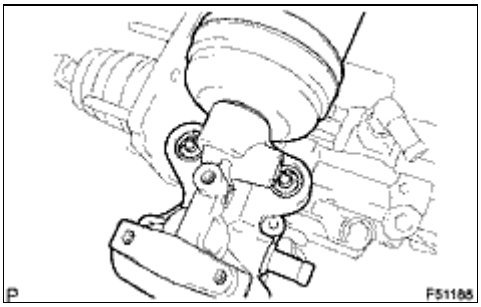


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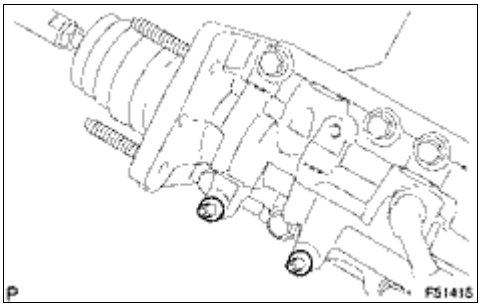
(c) Using a screwdriver, remove the clip.



(d) Remove the brake booster w/ accumulator pump assembly.



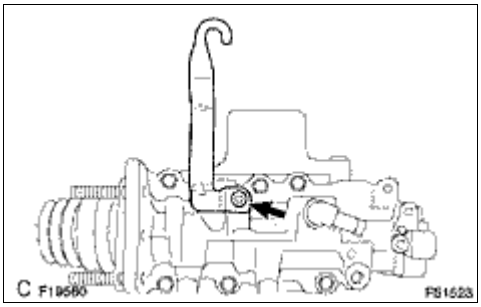
(e) Using a hexagon wrench (4 mm), remove the 2 pins.



(f) Remove the 2 bushes and 2 collars from the brake booster with accumulator pump assembly.

6. REMOVE BRAKE ACTUATOR BRACKET

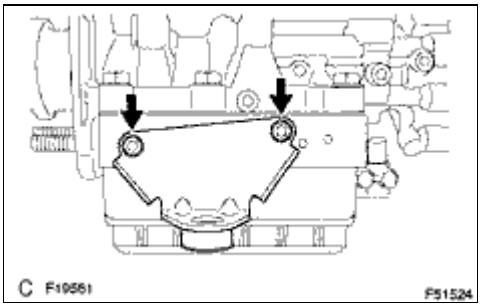
(a) Using a hexagon wrench (5 mm), remove the screw and brake actuator bracket.



7. REMOVE BRAKE BOOSTER PUMP BRACKET

(a) Using a hexagon wrench (5 mm), remove the 2 screws and brake booster pump bracket.

(b) Remove the bush from the brake booster pump bracket.



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8. REMOVE MASTER CYLINDER PUSH ROD CLEVIS

(a) Loosen the lock nut on the brake master cylinder side, and then remove the rod operating adapter and lock nut.

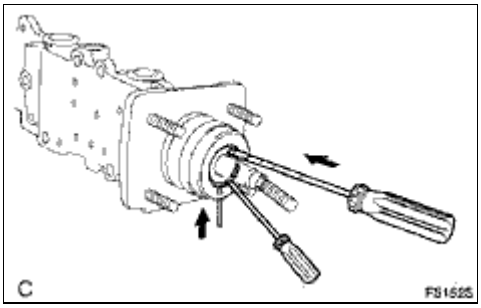
(b) Loosen the lock nut on the rod operating adapter, and then remove the push rod clevis and lock nut.

9. REMOVE MASTER CYLINDER BOOT

10. REMOVE PISTON

(a) Which pressing in the piston with a screwdriver, use a pin or equivalent to push the C-ring from the hole in the master cylinder body. Then remove the snap ring with another screwdriver.

(b) Remove the piston by pulling it straight out, not at an angle.



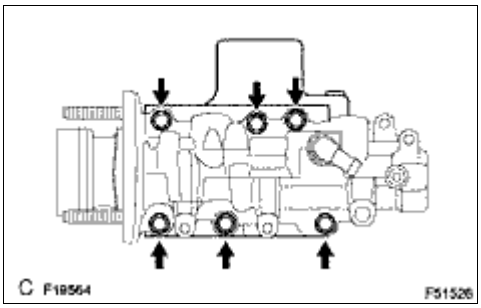
NOTICE:

- If the piston is pulled out at an angle, there is a possibility that the cylinder bore could be damaged.
- Be careful not to damage the rubber lips on the piston when reassembling.

11. REMOVE MASTER CYLINDER SOLENOID

(a) Remove the 6 bolts.

(b) Remove the master cylinder solenoid and the gasket.

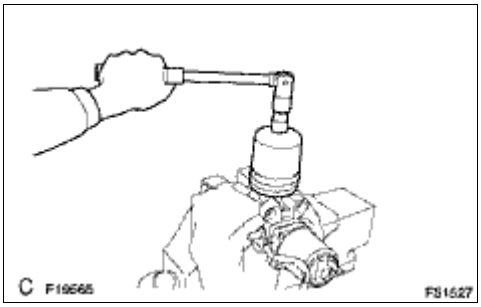


12. REMOVE BRAKE BOOSTER ACCUMULATOR ASSEMBLY

(a) Place the brake booster with accumulator pump assembly in a vise with a cloth.

(b) Using a socket wrench (17 mm), remove the brake booster accumulator.

(c) Remove the brake booster accumulator pipe, compression spring and O-ring.



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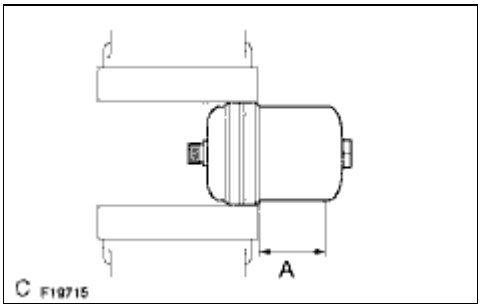
Last Modified: 11-13-2015	6.6 N	**Doc ID:** RM0000017CW02HX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: DISPOSAL; 2016 MY Tacoma [08/2015 -]		

DISPOSAL

1. DISPOSE OF BRAKE BOOSTER ACCUMULATOR ASSEMBLY

(a) Place the brake booster accumulator in a vise and cover it with a cloth.

(b) Slowly cut a hole on the brake booster accumulator side in the A portion shown in the illustration on the left. And discharge the gas and liquid inside.



NOTICE:

- As gas may spray out, cover the brake booster accumulator with a cloth when performing the operation.
- Work slowly and do not cut the hole too quickly or suddenly.
- Wear protective glasses during the operation.

(c) When the outer body of the brake booster accumulator is cut, gas and liquid discharge.

HINT:

- The gas is colorless, odorless and nonpoisonous nitrogen gas.
- The liquid is brake fluid.

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000171R02HX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

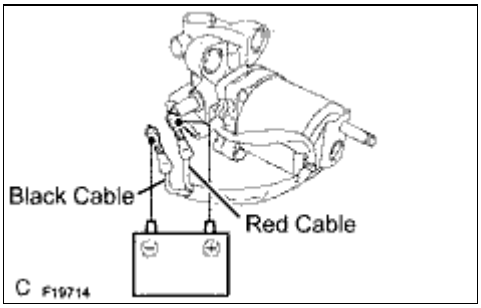
1. INSPECT BRAKE BOOSTER PUMP ASSEMBLY

(a) Connect the positive (+) lead from the battery to the red cable of the pump, and the negative (-) lead to the black cable.

(b) Check the brake booster pump operation.

OK:

Operation sound is heard.



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171Q037X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL HYDRAULIC BRAKE BOOSTER

(a) Install a new brake booster gasket onto the hydraulic brake booster.

(b) Install the hydraulic brake booster with the 4 nuts.

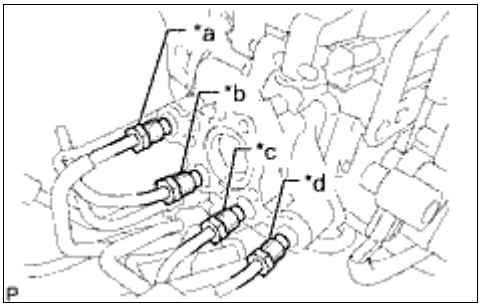
Torque:

14 N·m {145 kgf·cm, 10ft·lbf}

(c) Using a union nut wrench, connect the 4 brake lines to the correct positions of the hydraulic brake booster, as shown in the illustration.

Text in Illustration

*a	to Right Rear Wheel
*b	to Right Front Wheel
*c	to Left Front Wheel
*d	to Left Rear Wheel



Torque:

without union nut wrench -

15 N·m {155 kgf·cm, 11ft·lbf}

with union nut wrench -

14 N·m {145 kgf·cm, 10ft·lbf}

HINT:

- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 22 mm (0.866 in.) INFO .
- This torque value is effective when the union nut wrench is parallel to the torque wrench.

(d) Connect the 3 connectors.

2. INSTALL MASTER CYLINDER PUSH ROD CLEVIS INFO

3. INSTALL LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO

4. INSPECT BRAKE PEDAL HEIGHT INFO

5. INSPECT PEDAL FREE PLAY INFO

6. INSPECT PEDAL RESERVE DISTANCE INFO

7. FILL RESERVOIR WITH BRAKE FLUID INFO

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8. BLEED BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY INFO

9. BLEED BRAKE LINE INFO

10. BLEED MASTER CYLINDER SOLENOID INFO

11. INSPECT FLUID LEVEL IN RESERVOIR INFO

12. INSPECT FOR BRAKE FLUID LEAK

13. INSPECT BRAKE MASTER CYLINDER OPERATION INFO





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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000171W038X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT BRAKE MASTER CYLINDER FLUID PRESSURE CHANGE

(a) Inspect the battery positive voltage.

Battery positive voltage:
10 to 14 V

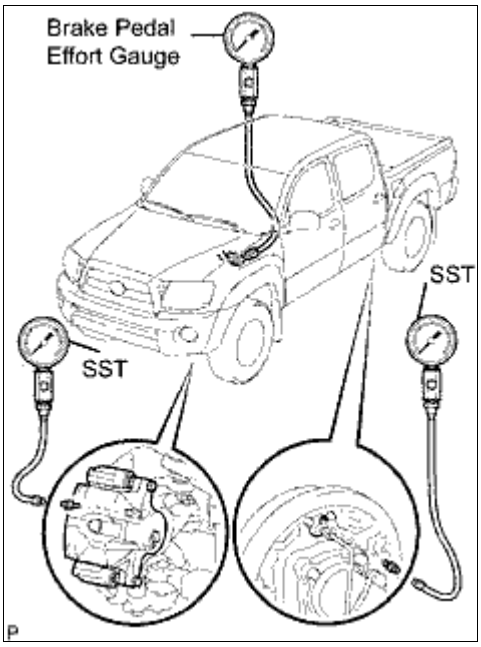
(b) Turn the ignition switch to OFF, and depress the brake pedal more than 20 times.

HINT:

When pressure in the accumulator is released, the reaction force becomes lighter and the stroke becomes longer.

(c) Install a LSPV gauge (SST) and brake pedal effort gauge, and bleed the air.

SST: 09709-29018



(d) When the booster does not operate:

(1) Depress the brake pedal and check the fluid pressure.

At 245 N (25 kgf, 55 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
1,840 kPa (18.8 kgf/cm ^{2} , 267 psi) or more	0 kPa (0 kgf/cm ^{2} , 0 psi)

At 343 N (35 kgf, 77 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
2,710 kPa (27.6 kgf/cm ^{2} , 393 psi) or more	0 kPa (0 kgf/cm ^{2} , 0 psi)

(e) When the booster operates:

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(1) Turn the ignition switch to ON, and wait until the pump motor has stopped (step A).

HINT:

Pump operating sound can be heard.

(2) Turn the ignition switch to OFF, and depress the brake pedal more than 20 times (step B).

HINT:

When pressure in the accumulator is released, the reaction force becomes lighter and the stroke becomes longer.

(3) Repeat step A and B 5 times (step C).

(4) Turn the ignition switch to ON, and check that the pump stops after approximately 8 to 14 seconds.

NOTICE:

If the pump does not stop, repeat step C again.

(5) Depress the brake pedal and check the fluid pressure.

At 49 N (5 kgf, 11 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
770 to 1,280 kPa (7.9 to 13.1 kgf/cm ^{2} , 112 to 186 psi)	800 to 1,330 kPa (8.2 to 13.6 kgf/cm ^{2} , 116 to 193 psi)

At 98 N (10 kgf, 22 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
2,650 to 3,590 kPa (27.0 to 36.6 kgf/cm ^{2} , 384 to 521 psi)	2,680 to 3,630 kPa (27.3 to 37.0 kgf/cm ^{2} , 389 to 526 psi)

At 147 N (15 kgf, 33 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
4,680 to 5,720 kPa (47.7 to 58.3 kgf/cm ^{2} , 679 to 830 psi)	4,710 to 5,760 kPa (48.0 to 58.7 kgf/cm ^{2} , 683 to 835 psi)

At 196 N (20 kgf, 44 lbf):

FRONT BRAKE PRESSURE	REAR BRAKE PRESSURE
6,610 to 7,680 kPa (67.4 to 78.3 kgf/cm ^{2} , 959 to 1,114 psi)	6,640 to 7,720 kPa (67.7 to 78.7 kgf/cm ^{2} , 963 to 1,120 psi)

2. INSPECT BRAKE MASTER CYLINDER OPERATION

(a) Inspect the battery positive voltage.

Battery positive voltage:

10 to 14 V

(b) Turn the ignition switch to OFF, and depress the brake pedal more than 20 times.

HINT:

When pressure in the accumulator is released, the reaction force becomes lighter and the stroke becomes longer.

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(c) Check that the brake pedal becomes easy to depress.

If the pedal does not become easy to depress, check and replace the brake line and hydraulic brake booster.

(d) Turn the ignition switch to ON and check the pump motor operation noise.

If the pump motor does not operate, check and replace the wire harness and pump motor INFO .

(e) Connect the Techstream.

(1) Connect the Techstream to the DLC3.

(2) Turn the ignition switch to ON.

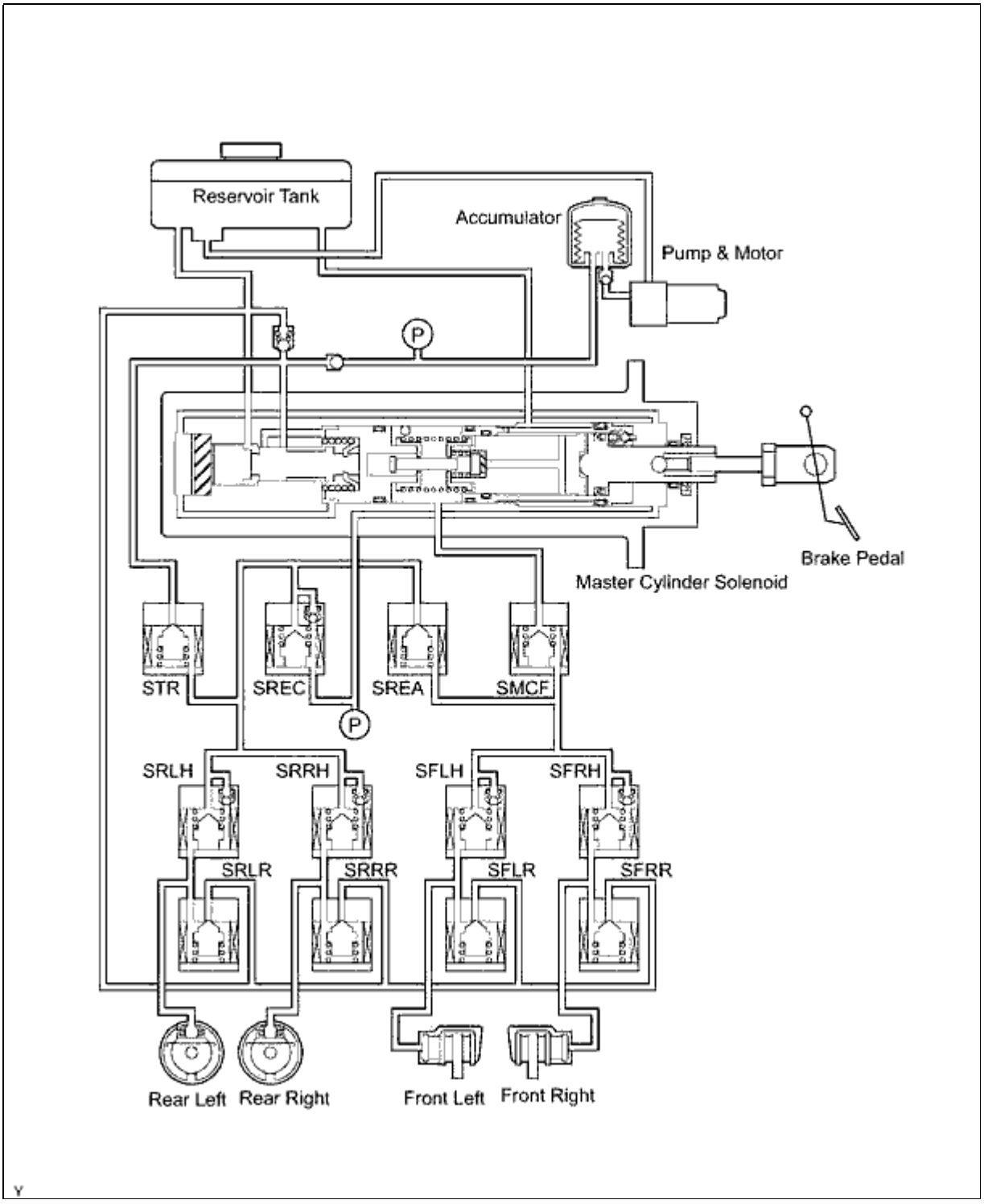
(3) Select "Active Test" mode on the Techstream.

HINT:

- Refer to the Techstream operator manual for further details.
- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.

(f) Check the master cylinder solenoid operation.

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INSPECTION ORDER (STEP)	SOL SELECTED BY ACTIVE TEST	SOL TO BE ACTIVATED
D	TRAC Solenoid (SRCF)	SMCF
E	TRAC Solenoid (SRCF & SRCR)	SREA and SMCF
F	ABS Solenoid (SFRH)	SFRH
G	ABS Solenoid (SFLH)	SFLH
H	ABS Solenoid (SFRR & SFRH)	SFRR and SFRH

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INSPECTION ORDER (STEP)	SOL SELECTED BY ACTIVE TEST	SOL TO BE ACTIVATED
I	ABS Solenoid (SFLR & SFLH)	SFLR and SFLH
J	TRAC Solenoid (SRMF)	SREC
K	TRAC Solenoid (SRMF & SRMR)	STR and SREC
L	ABS Solenoid (SRRH)	SRRH
M	ABS Solenoid (SRLH)	SRLH
N	ABS Solenoid (SRRR & SRRH)	SRRR and SRRH
O	ABS Solenoid (SRLR & SRLH)	SRLR and SRLH

(g) Inspect front VSC solenoid (SMCF) operation (step D).

HINT:

- ON: Activate SMCF and check that the brake pedal cannot be depressed (the pedal feels tight).
- OFF: Deactivate SMCF and check that the brake pedal can be depressed.

(1) Select "TRAC Solenoid (SRCF)" on the Techstream.

(2) Turn the "TRAC Solenoid (SRCF)" on by the Techstream, then depress the brake pedal with stable force and check that the pedal cannot be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.

HINT:

To protect the solenoid, Techstream turns off automatically 2 seconds after every solenoid has been turned on.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(3) Release the brake pedal.

(4) When the solenoid is off, depress the brake pedal again and check that the brake pedal can be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.

(h) Prepare the vehicle.

(1) Jack up and support the vehicle.

(2) Release the parking brake pedal (lever).

(3) Shift the shift lever to the "N" position and check the rear wheels by rotating them by hand.

(i) Inspect front VSC solenoid (SREA) operation (step E).

HINT:

- ON: Activate SREA and SMCF, depress the brake pedal, and then check that the front wheels do not rotate.
- OFF: Deactivate SREA and SMCF. Reactivate SMCF, depress the brake pedal, and then check that the front wheels rotate.

(1) Select "TRAC Solenoid (SRCF & SRCR)" on the Techstream.

(2) Turn the "TRAC Solenoid (SRCF & SRCR)" on simultaneously by the Techstream, then depress the brake pedal with stable force.

(3) When the solenoids are on, check that the front wheels do not rotate by hand.

If the front wheels rotate, replace the brake master cylinder.

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HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheels fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheels as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoids are off, turn the "TRAC Solenoid (SRCF)" on again, then depress the brake pedal and check the front wheels by rotating them by hand.

If front wheels stop, replace the hydraulic brake booster.

(5) When the "TRAC Solenoid (SRCF)" is off, depress the brake pedal again and check that the brake pedal can be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.

(j) Inspect front ABS solenoid (SFRH) operation (step F).

HINT:

- ON: Activate SFRH, depress the brake pedal, and then check that the right front wheel rotates.
- OFF: Deactivate SFRH, depress the brake pedal, and then check that the front right wheel does not rotate.

(1) Select "ABS Solenoid (SFRH)" on the Techstream.

(2) Turn the "ABS Solenoid (SFRH)" on by the Techstream, then depress the brake pedal with stable force.

(3) When the solenoid is on, check the right front wheel by rotating it by hand.

If the right front wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoid, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoid is off, depress the brake pedal again and check that the right front wheel does not rotate by hand.

If the right front wheel rotates, replace the hydraulic brake booster.

(k) Inspect front ABS solenoid (SFLH) operation (step G).

HINT:

- ON: Activate SFLH, depress the brake pedal, and then check that the left front wheel rotates.
- OFF: Deactivate SFLH, depress the brake pedal, and then check that the front left wheel does not rotate.

(1) Select "ABS Solenoid (SFLH)" on the Techstream.

(2) Turn the "ABS Solenoid (SFLH)" on by the Techstream, then depress the brake pedal with stable force.

(3) When the solenoid is on, check the left front wheel by rotating it by hand.

If the left front wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoid, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

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NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoid is off, depress the brake pedal again and check that the left front wheel does not rotate by hand.

If the left front wheel rotates, replace the hydraulic brake booster.

(l) Inspect front ABS solenoid (SFRR) operation (step H).

HINT:

- ON: Depress the brake pedal, activate SFRR and SFRH, and then check that the right front wheel rotates.
- OFF: Deactivate SFRR and SFRH, depress the brake pedal, and then check that the right front wheel does not rotate.

(1) Select "ABS Solenoid (SFRR & SFRH)" on the Techstream.

(2) Depress the brake pedal with stable force, then turn the "ABS Solenoid (SFRR & SFRH)" on simultaneously by the Techstream.

(3) When the solenoids are on, check the right front wheel by rotating it by hand.

If the right front wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoids are off, depress the brake pedal again and check that the right front wheel does not rotate by hand.

If the right front wheel rotates, replace the hydraulic brake booster.

(m) Inspect front ABS solenoid (SFLR) operation (step I).

HINT:

- ON: Depress the brake pedal, activate SFLR and SFLH, and then check that the left front wheel rotates.
- OFF: Deactivate SFLR and SFLH, depress the brake pedal, and then check that the left front wheel does not rotate.

(1) Select "ABS Solenoid (SFLR & SFLH)" on the Techstream.

(2) Depress the brake pedal with stable force, then turn the "ABS Solenoid (SFLR & SFLH)" on simultaneously by the Techstream.

(3) When the solenoids are on, check the left front wheel by rotating it by hand.

If the left front wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoids are off, depress the brake pedal again and check that the left front wheel does not rotate by hand.

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If the left front wheel rotates, replace the hydraulic brake booster.

(n) Inspect rear VSC solenoid (SREC) operation (step J).

HINT:

- ON: Depress the brake pedal, activate SREC. Release the brake pedal and check that the rear wheels do not rotate.
- OFF: Deactivate SREC and check that the rear wheels rotate.

(1) Select "TRAC Solenoid (SRMF)" on the Techstream.

(2) Depress the brake pedal with stable force, then turn the "TRAC Solenoid (SRMF)" on by the Techstream.

(3) Release the brake pedal when the solenoid is on, and check that the rear wheels do not rotate by hand.

If the rear wheels rotate, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheels fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheels as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoid is off, check the rear wheels by rotating them by hand.

If the rear wheels stop, replace the hydraulic brake booster.

(o) Inspect rear VSC solenoid (STR) operation (step K).

HINT:

- ON: Activate STR and SREC, then check that the rear wheels do not rotate.
- OFF: Deactivate STR and SREC. Reactivate SREC and check that the rear wheels rotate.

(1) Select "TRAC Solenoid (SRMR)" on the Techstream.

(2) Turn the "TRAC Solenoid (SRMR)" on simultaneously by the Techstream.

(3) When the solenoids are on , check that the rear wheels do not rotate by hand.

If the rear wheels rotate, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheels fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheels as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoids are off, check the rear wheels by rotating them by hand.

If the rear wheels stop, replace the hydraulic brake booster.

(5) When the "TRAC Solenoid (SRMF)" is off, depress the brake pedal again and check that the rear wheels do not rotate by hand.

If the rear wheels rotate, replace the hydraulic brake booster.

(p) Inspect rear ABS solenoid (SRRH) operation (step L).

HINT:

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- ON: Activate SRRH, depress the brake pedal, and then check that the right rear wheel rotates.
- OFF: Deactivate SRRH, depress the brake pedal, and then check that the right rear wheel does not rotate.

(1) Select "ABS Solenoid (SRRH)" on the Techstream.

(2) Turn the "ABS Solenoid (SRRH)" on by the Techstream, then depress the brake pedal with stable force.

(3) When the solenoid is on, check the right rear wheel by rotating it by hand.

If the right rear wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoid is off, depress the brake pedal again and check that the right rear wheel does not rotate by hand.

If the right rear wheel rotates, replace the hydraulic brake booster.

(q) Inspect rear ABS solenoid (SRLH) operation (step M).

HINT:

- ON: Activate SRLH, depress the brake pedal, and then check that the left rear wheel rotates.
- OFF: Deactivate SRLH, depress the brake pedal, and then check that the left rear wheel does not rotate.

(1) Select "ABS Solenoid (SRLH)" on the Techstream.

(2) Turn the "ABS Solenoid (SRLH)" on by the Techstream, then depress the brake pedal with stable force.

(3) When the solenoid is on, check the left rear wheel by rotating it by hand.

If the left rear wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoid, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoid is off, depress the brake pedal again and check that the left rear wheel does not rotate by hand.

If the left rear wheel rotates, replace the hydraulic brake booster.

(r) Inspect rear ABS solenoid (SRRR) operation (step N).

HINT:

- ON: Depress the brake pedal, activate SRRR and SRRH, and then check that the right rear wheel rotates.
- OFF: Deactivate SRRR and SRRH, depress the brake pedal, and then check that the right rear wheel does not rotate.

(1) Select "ABS Solenoid (SRRR & SRRH)" on the Techstream.

(2) Depress the brake pedal with stable force, then turn the "ABS Solenoid (SRRR & SRRH)" on simultaneously by the Techstream.

(3) When the solenoids are on, check the right rear wheel by rotating it by hand.

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If the right rear wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoids are off, depress the brake pedal again and check that the right rear wheel does not rotate by hand.

If the right rear wheel rotates, replace the hydraulic brake booster.

(s) Inspect rear ABS solenoid (SRLR) operation (step O).

HINT:

- ON: Depress the brake pedal, activate SRLR and SRLH, and then check that the left rear wheel rotates.
- OFF: Deactivate SRLR and SRLH, depress the brake pedal, and then check that the left rear wheel does not rotate.

(1) Select "ABS Solenoid (SRLR & SRLH)" on the Techstream.

(2) Depress the brake pedal with stable force, then turn the "ABS Solenoid (SRLR & SRLH)" on simultaneously by the Techstream.

(3) When the solenoids are on, check the left rear wheel by rotating it by hand.

If the left rear wheel stops, replace the hydraulic brake booster.

HINT:

- To protect the solenoids, Techstream turns off automatically 2 seconds after every solenoid has been turned on.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

(4) When the solenoids are off, depress the brake pedal again and check that the left rear wheel does not rotate by hand.

If the left rear wheel rotates, replace the hydraulic brake booster.

(t) Lower the vehicle.

(u) Disconnect the Techstream.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171V02KX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

1. INSTALL BRAKE BOOSTER ACCUMULATOR ASSEMBLY

(a) Place the brake booster pump in a vise with a cloth.

(b) Install the brake booster accumulator pipe, compression spring and a new O-ring.

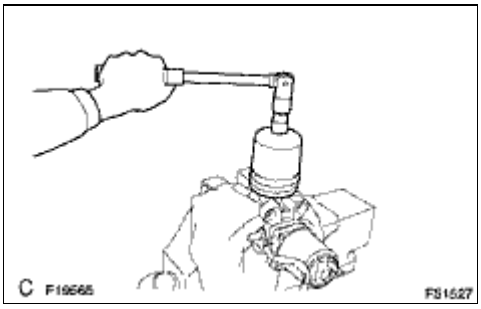
NOTICE:

Ensure that no foreign matter enters the pump.

(c) Using a socket wrench (17 mm), install the brake booster accumulator onto the brake booster pump.

Torque:

57 N·m {585 kgf·cm, 42ft·lbf}



2. INSTALL MASTER CYLINDER SOLENOID

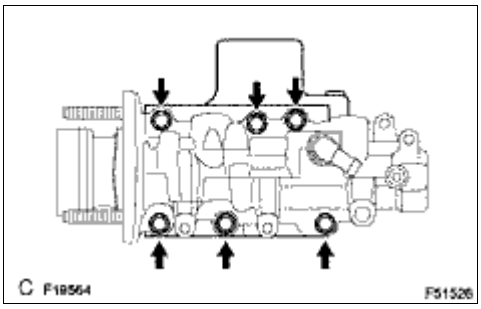
(a) Place a new gasket on the master cylinder solenoid and install them onto the master cylinder body with 6 new bolts.

Torque:

32 N·m {325 kgf·cm, 24ft·lbf}

NOTICE:

Do not let water, dust, and/or other objects attach to the surface and/or attaching surface of the master cylinder solenoid, master cylinder and body gasket.



3. INSTALL PISTON

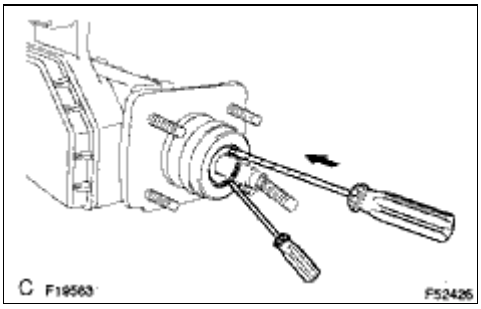
(a) Apply lithium soap base glycol grease to the new piston.

(b) Install the piston onto the master cylinder body.

(c) Using 2 screwdrivers, install a new C-ring while pressing the piston.

NOTICE:

- If the piston is pulled out at an angle, there is a possibility that the cylinder bore could be damaged.
- Be careful not to damage the rubber lips on the piston when reassembling.



4. INSTALL MASTER CYLINDER BOOT

5. INSTALL MASTER CYLINDER PUSH ROD CLEVIS

(a) Install the lock nut and master cylinder push rod clevis onto the rod operating adapter.

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(b) Install the hydraulic brake booster side lock nut and rod operating adapter onto the hydraulic brake booster.

Torque:

26 N·m {260 kgf·cm, 19ft·lbf}

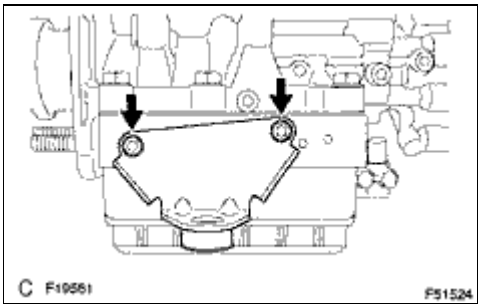
6. INSTALL BRAKE BOOSTER PUMP BRACKET

(a) Using a hexagon wrench (5 mm), install the brake booster pump bracket with the 2 screws.

Torque:

7.8 N·m {80 kgf·cm, 69in·lbf}

(b) Install the bush onto the brake booster pump bracket.

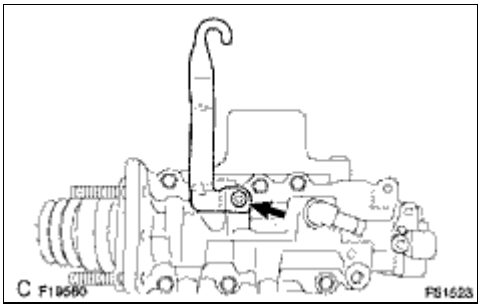


7. INSTALL BRAKE ACTUATOR BRACKET

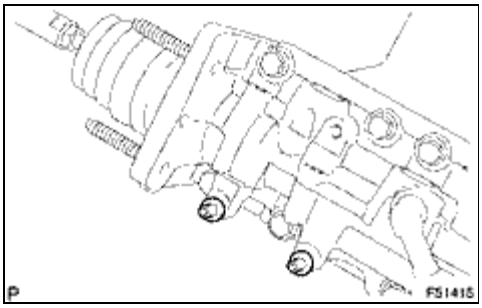
(a) Using a hexagon wrench (5 mm), install the brake actuator bracket with the screw.

Torque:

7.8 N·m {80 kgf·cm, 69in·lbf}



8. INSTALL BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY



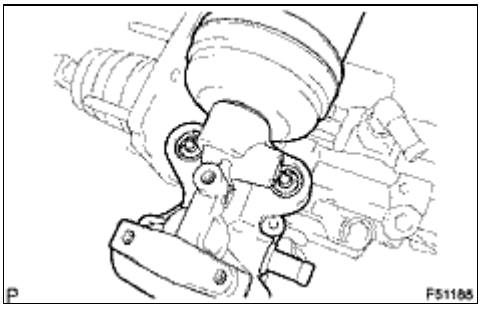
(a) Install the 2 collars and 2 bushes onto the brake booster w/ accumulator pump assembly.

(b) Using a hexagon wrench (4 mm), install the 2 pins.

Torque:

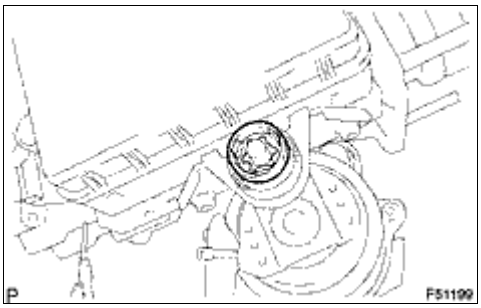
7.8 N·m {80 kgf·cm, 69in·lbf}

(c) Install the brake booster w/ accumulator pump assembly.



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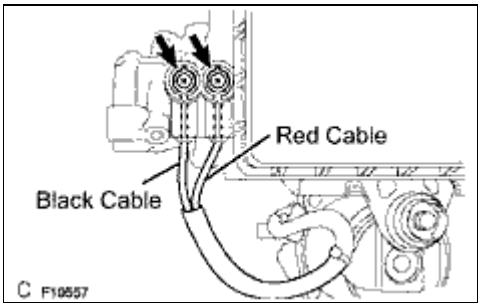
(d) Install a new clip.



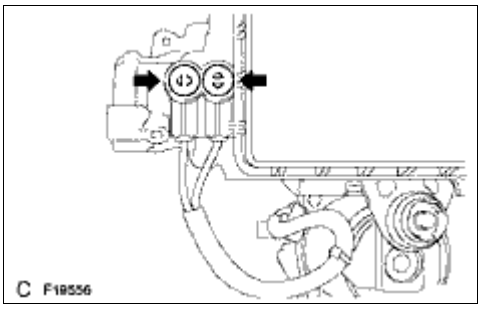
(e) Install the wire harness with the 2 screws.

Torque:

2.9 N·m {30 kgf·cm, 26in·lbf}



(f) Install the 2 new plugs.



9. INSTALL BRAKE ACTUATOR TUBE NO. 1

(a) Using a union nut wrench, install the brake actuator tube No. 1.

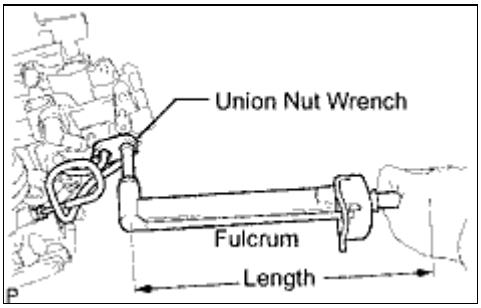
Torque:

without union nut wrench -

15 N·m {155 kgf·cm, 11ft·lbf}

with union nut wrench -

14 N·m {145 kgf·cm, 10ft·lbf}



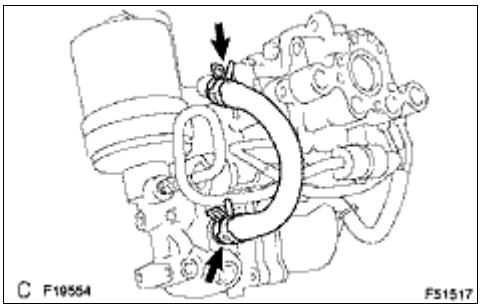
HINT:

- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 22 mm (0.866 in.) INFO .
- This torque value is effective when the union nut wrench is parallel to the torque wrench.

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10. INSTALL BRAKE ACTUATOR HOSE NO.1

(a) Using needle-nose pliers, install the brake actuator hose and 2 clips.



11. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY

(a) Install the cap.

(b) Apply lithium soap base glycol grease to the 3 new grommets.

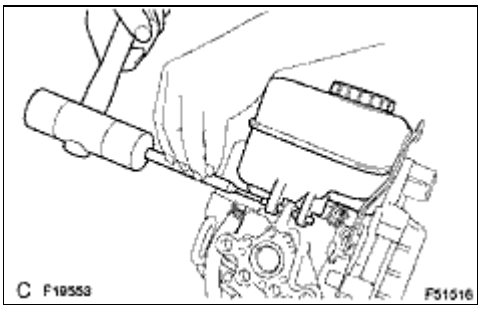
(c) Install the 3 grommets to the master cylinder body.

NOTICE:

Be careful of the size of each grommets.

(d) Install the master cylinder reservoir.

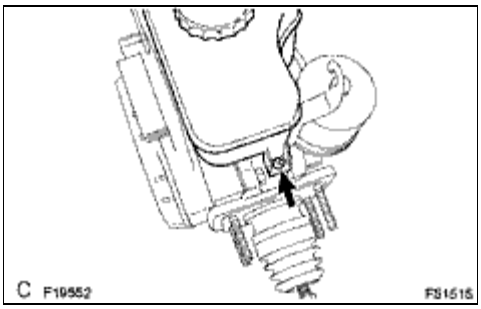
(e) Using a pin punch and hammer, install a new pin onto the master cylinder reservoir.



(f) Install the screw onto the master cylinder reservoir.

Torque:

1.7 N·m {17 kgf·cm, 15in·lbf}



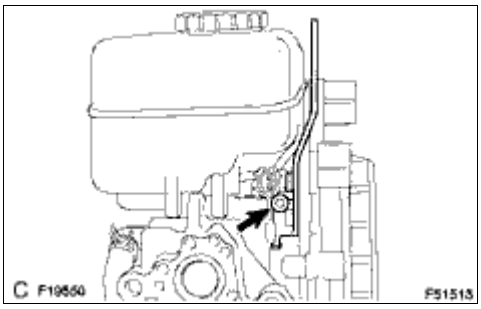
12. INSTALL BRAKE ACTUATOR BRACKET NO. 1

(a) Install the fluid level warning switch connector.

(b) Using a hexagon wrench (5 mm), install the brake actuator bracket No. 1 with the screw.

Torque:

7.8 N·m {80 kgf·cm, 69in·lbf}



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171T037X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: HYDRAULIC BRAKE BOOSTER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

NOTICE:

- Before starting the work, make sure that the ignition switch is off and depress the brake pedal more than 20 times.
- As high pressure is applied to the No. 1 brake actuator tube, never deform it.
- Do not turn the ignition switch to ON until the work is completed.

HINT:

When pressure in the accumulator is released, reaction force becomes lighter and stroke becomes longer.

1. DRAIN BRAKE FLUID

NOTICE:

Immediately wash off any brake fluid off immediately that comes into contact with a painted surface.

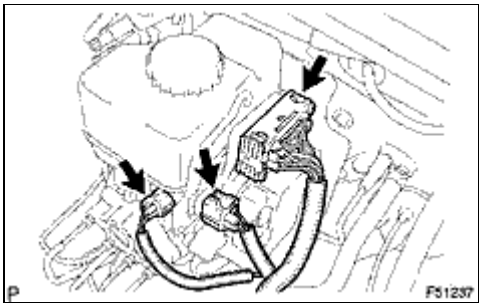
2. REMOVE LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO

3. SEPARATE DRIVER SIDE JUNCTION BLOCK

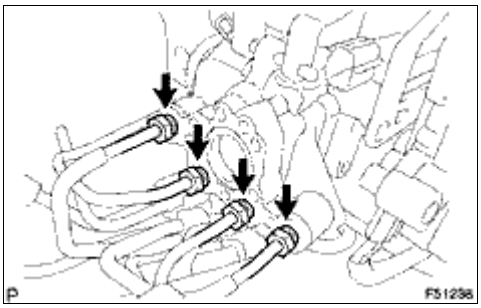
4. SEPARATE MASTER CYLINDER PUSH ROD CLEVIS INFO

5. REMOVE HYDRAULIC BRAKE BOOSTER



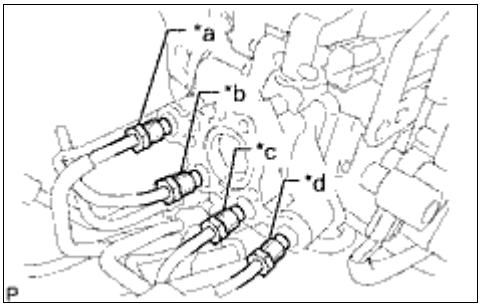
(a) Disconnect the 3 connectors from the hydraulic brake booster.

(b) Using a union nut wrench, disconnect the 4 brake lines from the hydraulic brake booster.



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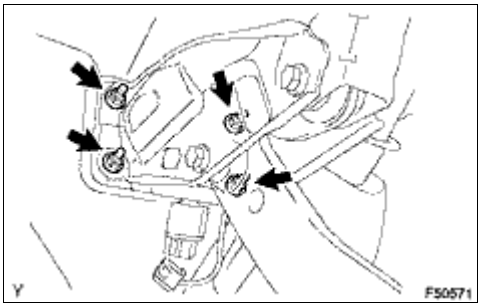
(c) Use tags or labels to identify the place to reconnect each line.



Text in Illustration

*a	to Right Rear Wheel
*b	to Right Fear Wheel
*c	to Left Front Wheel
*d	to Left Rear Wheel

(d) Remove the 4 nuts and pull out the hydraulic brake booster.



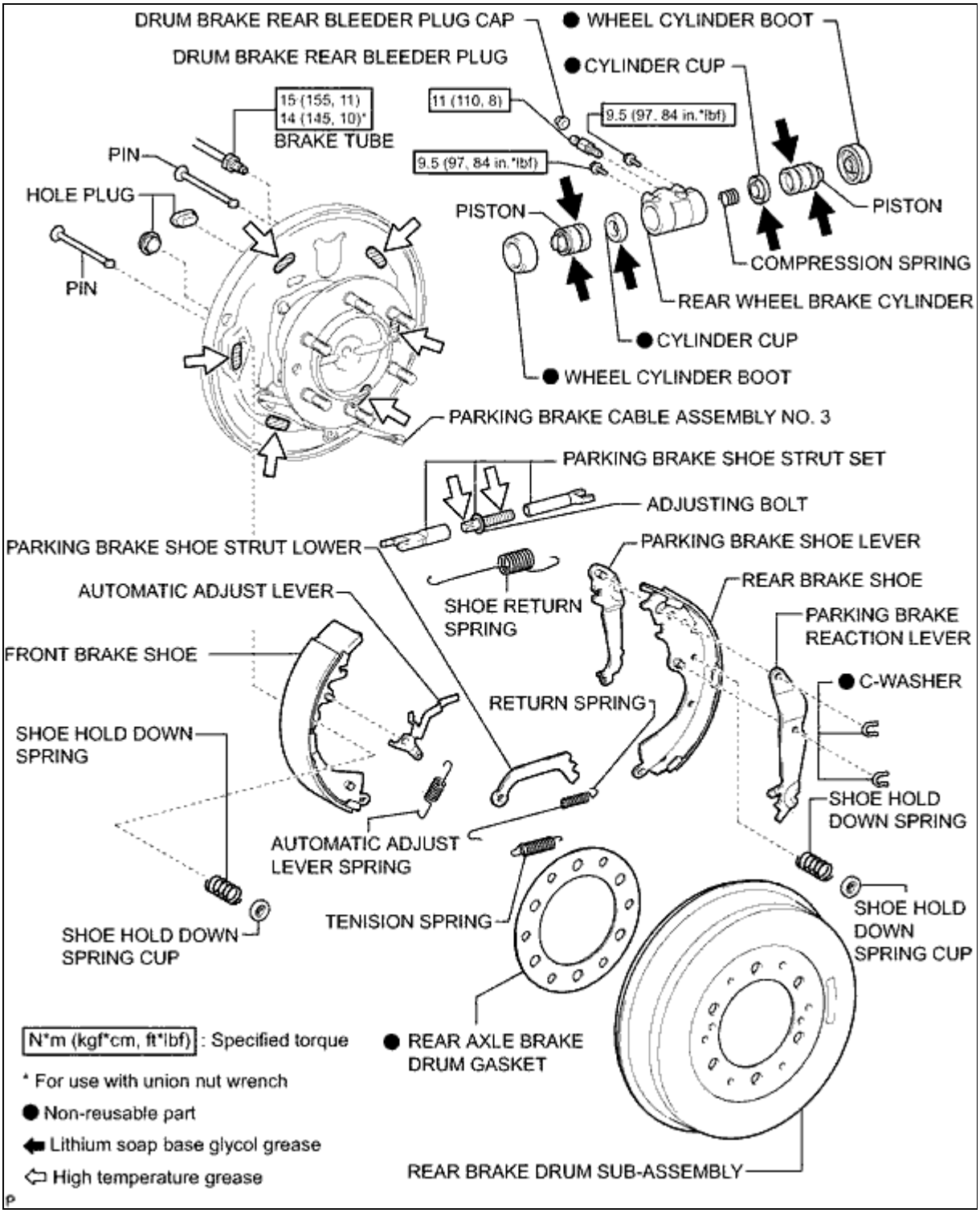
(e) Remove the brake booster gasket.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM00000171M00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: REAR BRAKE: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION

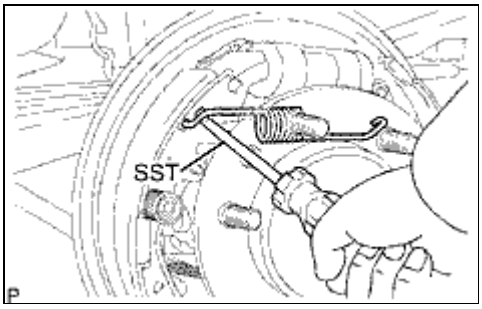


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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171O00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: REAR BRAKE: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

DISASSEMBLY

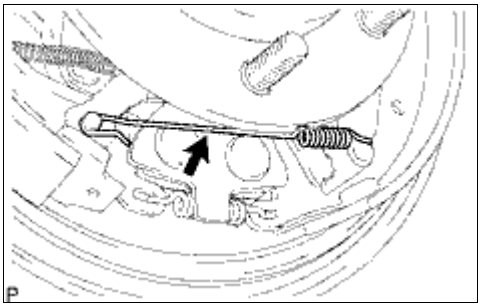
1. REMOVE FRONT BRAKE SHOE



(a) Using SST, remove the shoe return spring from the front brake shoe.

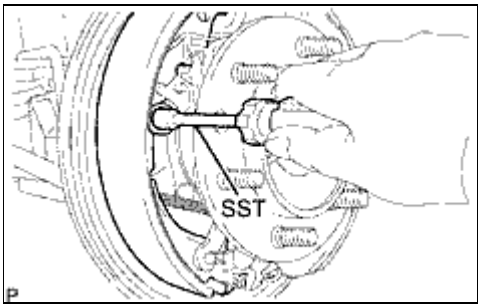
SST: 09921-00010

(b) Using needle-nose pliers, remove the return spring.



(c) Using SST, remove the shoe hold down spring cup, shoe hold down spring and pin.

SST: 09718-00010



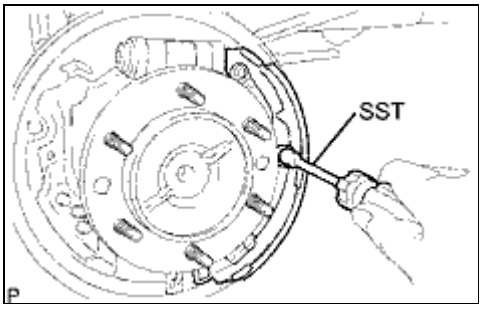
(d) Remove the parking brake shoe strut lower.

(e) Remove the tension spring and front brake shoe.

(f) Remove the automatic adjust lever spring and automatic adjust lever LH from the front brake shoe.

2. REMOVE REAR BRAKE SHOE

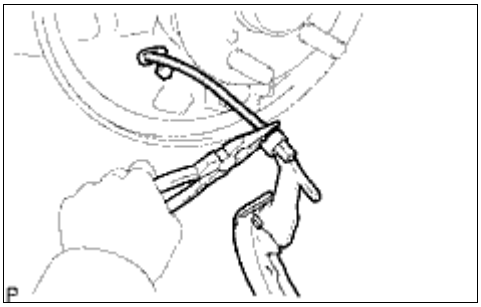
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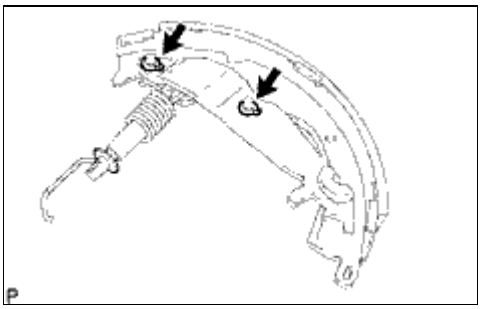
(a) Using SST, remove the shoe hold down spring cup, shoe hold down spring and pin.

SST: 09718-00010

(b) Using needle-nose pliers, disconnect the parking brake cable No. 3 and remove the rear brake shoe.



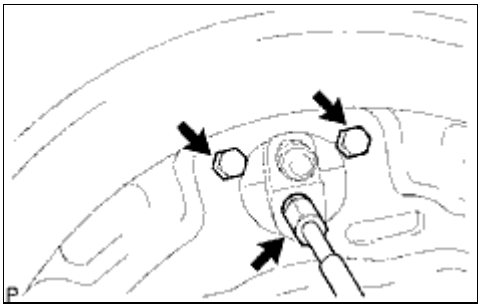
(c) Using a screwdriver, remove the 2 C-washers, parking brake shoe lever, parking brake reaction lever and parking brake shoe strut set.



3. REMOVE FRONT OR UPPER REAR WHEEL BRAKE CYLINDER ASSEMBLY

(a) Using a union nut wrench, disconnect the brake tube, and use a container to collect the brake fluid as it flows out.

(b) Remove the 2 bolts and rear wheel brake cylinder assembly.



4. REMOVE REAR WHEEL CYLINDER CUP KIT

(a) Remove the 2 wheel cylinder boots from the rear wheel brake cylinder.

(b) Remove the 2 pistons and compression spring.

(c) Remove the 2 cylinder cups from each piston.

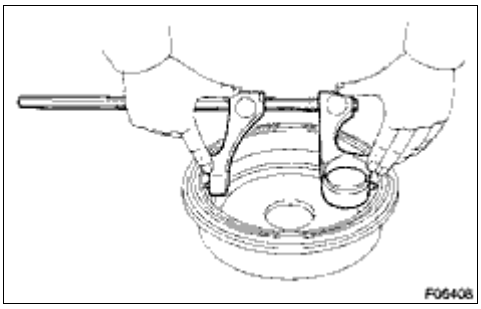
(d) Remove the bleeder plug cap and bleeder plug from the rear wheel brake cylinder.

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM00000171L00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: REAR BRAKE: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT BRAKE DRUM INSIDE DIAMETER

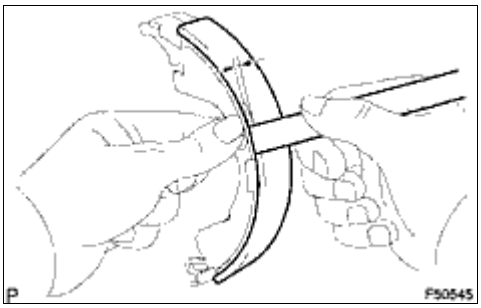


(a) Using a brake drum gauge or equivalent, measure the inside diameter of the drum.

Standard inside diameter:
254 mm (10.00 in.)
Maximum inside diameter:
256 mm (10.08 in.)

If the inside diameter is greater than the maximum, replace the brake drum.

2. INSPECT REAR DRUM BRAKE SHOE LINING THICKNESS

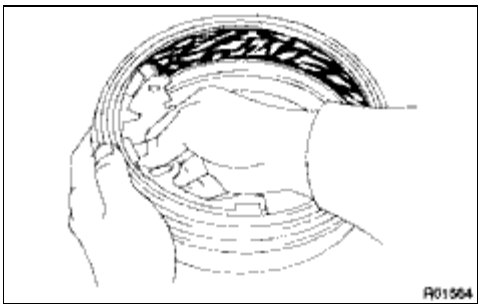


(a) Using a ruler, measure the thickness of the shoe lining.

Standard thickness:
5.0 mm (0.197 in.)
Minimum thickness:
1.0 mm (0.0394 in.)

If the lining thickness is the minimum value or less, or if there is any severe or uneven wear, replace the brake shoe.

3. INSPECT BRAKE DRUM AND REAR DRUM BRAKE SHOE LINING FOR PROPER CONTACT



(a) Apply chalk to the inside surface of the drum, then grind the brake shoe lining for proper fitting.

If the contact between the drum and the shoe lining is improper, repair it using a brake shoe grinder or replace the brake shoe assembly.

4. INSPECT REAR WHEEL BRAKE CYLINDER

(a) Check the cylinder bore and piston for rust and scoring.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171K00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: REAR BRAKE: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL REAR BRAKE DRUM SUB-ASSEMBLY

(a) Install a new drum gasket onto the rear brake drum.

(b) Install the rear brake drum.

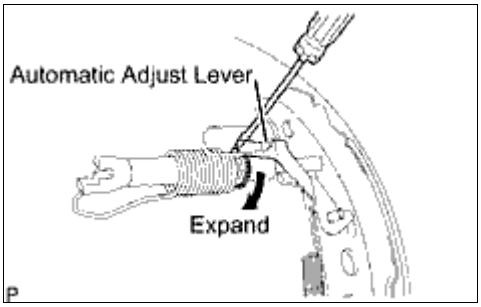
2. ADJUST REAR DRUM BRAKE SHOE CLEARANCE

(a) Provisionally install the hub nuts.

(b) Remove the hole plug, and turn the adjuster to expand the shoe until the drum locks.

(c) Using a screwdriver, release the adjuster 15 notches.

(d) Install the hole plug.



3. FILL RESERVOIR WITH BRAKE FLUID (for Hydraulic Brake Booster) INFO

4. FILL RESERVOIR WITH BRAKE FLUID (for Vacuum Brake Booster) INFO

5. BLEED BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY (for Hydraulic Brake Booster) INFO

6. BLEED MASTER CYLINDER (for Vacuum Brake Booster) INFO

7. BLEED BRAKE LINE (for Hydraulic Brake Booster) INFO

8. BLEED BRAKE LINE (for Vacuum Brake Booster) INFO

9. BLEED MASTER CYLINDER SOLENOID (for Hydraulic Brake Booster) INFO

10. BLEED BRAKE ACTUATOR (for Vacuum Brake Booster) INFO

11. INSPECT FLUID LEVEL IN RESERVOIR (for Hydraulic Brake Booster) INFO

12. INSPECT FLUID LEVEL IN RESERVOIR (for Vacuum Brake Booster) INFO

13. INSPECT FOR BRAKE FLUID LEAK

14. INSTALL REAR WHEEL

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

15. INSPECT PARKING BRAKE PEDAL TRAVEL INFO

16. ADJUST PARKING BRAKE PEDAL TRAVEL INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171P00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: REAR BRAKE: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

1. INSTALL REAR WHEEL CYLINDER CUP KIT

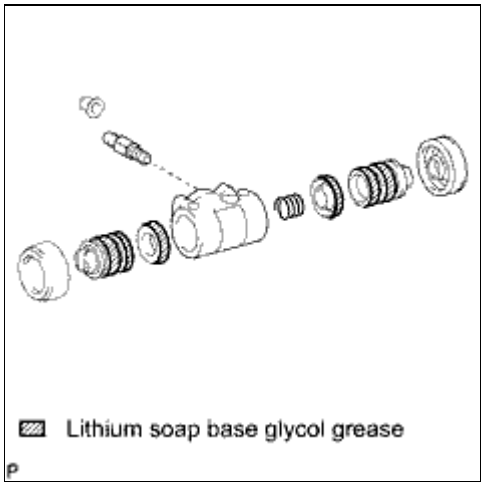
(a) Provisionally tighten the bleeder plug to the rear wheel brake cylinder, and install the bleeder plug cap.

(b) Apply lithium soap base glycol grease to 2 new cylinder cups and the 2 pistons.

(c) Install the cylinder cup onto each piston.

(d) Install the compression spring and 2 pistons onto the rear wheel brake cylinder.

(e) Install the 2 new wheel cylinder boots onto the rear wheel brake cylinder.



2. INSTALL FRONT OR UPPER REAR WHEEL BRAKE CYLINDER ASSEMBLY

(a) Install the rear wheel brake cylinder assembly with the 2 bolts.

Torque:

9.5 N·m {97 kgf·cm, 84in·lbf}

(b) Using a union nut wrench, connect the brake tube.

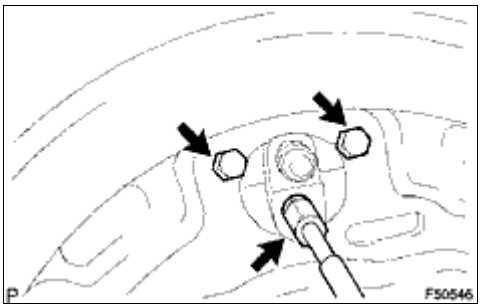
Torque:

without union nut wrench -

15 N·m {155 kgf·cm, 11ft·lbf}

with union nut wrench -

14 N·m {145 kgf·cm, 10ft·lbf}



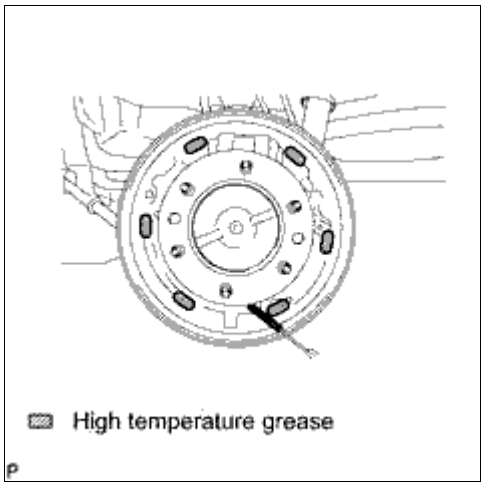
HINT:

- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 22 mm (0.866 in.) INFO .
- This torque value is effective when the union nut wrench is parallel to the torque wrench.

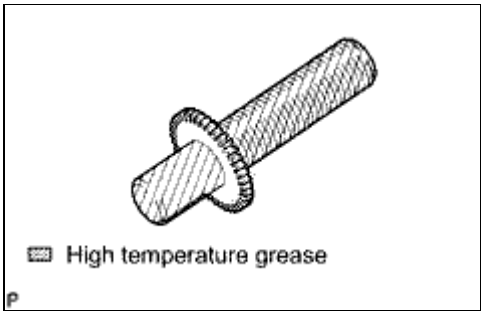
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3. APPLY HIGH TEMPERATURE GREASE

(a) Apply high temperature grease to the shoe attached surface of the backing plate.

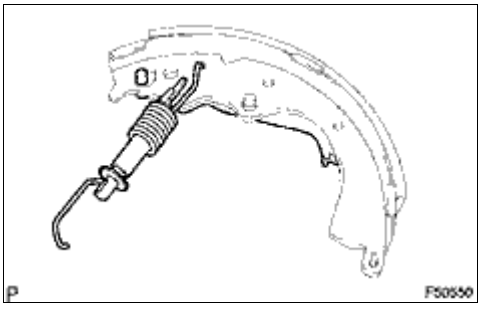


4. INSTALL REAR BRAKE SHOE

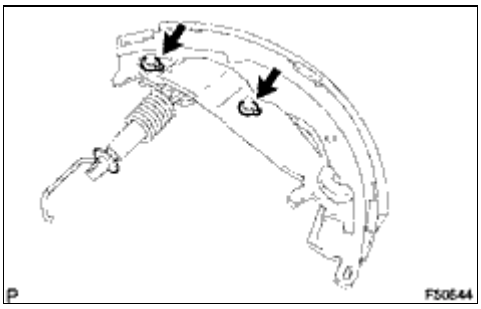


(a) Apply high temperature grease to the adjusting bolt.

(b) Install the parking brake shoe lever LH and parking brake shoe strut set with the shoe return spring onto the rear brake shoe.

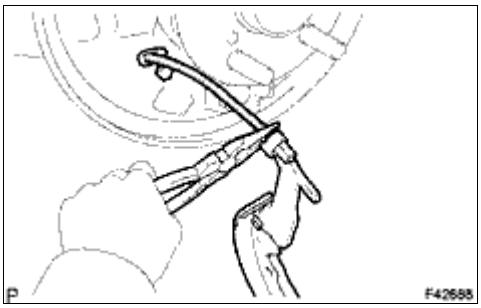


(c) Using pliers, install the parking brake shoe strut set, parking brake reaction lever and parking brake shoe lever LH with 2 new C-washers.



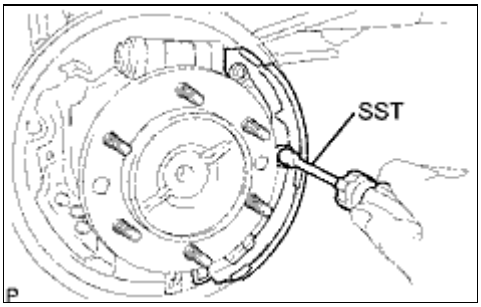
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(d) Using needle-nose pliers, connect the parking brake cable No. 3 to the parking brake shoe lever LH.



(e) Using SST, install the rear brake shoe, pin, shoe hold down spring and shoe hold down spring cup.

SST: 09718-00010

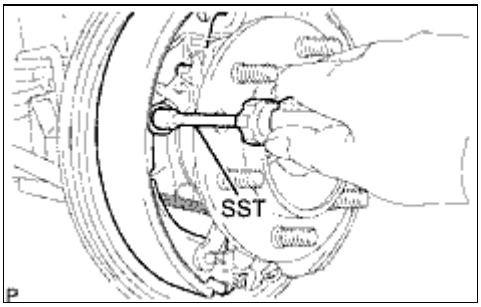


5. INSTALL FRONT BRAKE SHOE

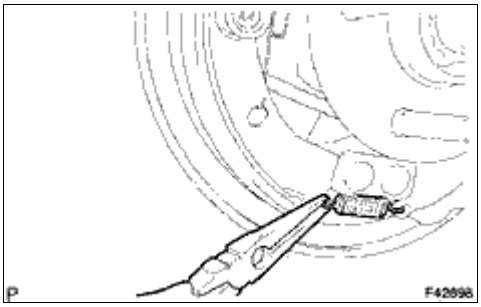
(a) Install the automatic adjust lever LH, automatic adjust lever spring and parking brake shoe strut lower onto the front brake shoe.

(b) Using SST, install the front brake shoe, pin, shoe hold down spring and shoe hold down spring cup.

SST: 09718-00010

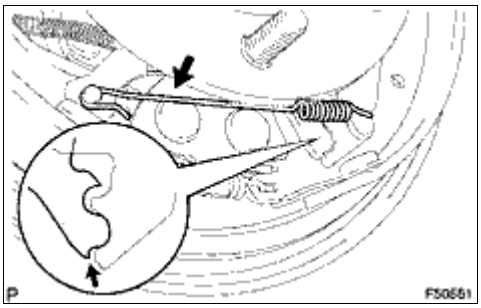


(c) Install the tension spring onto the front brake shoe and rear brake shoe.



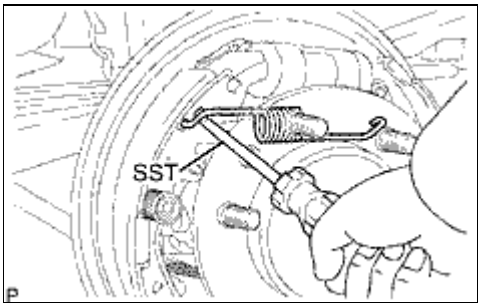
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(d) Using needle-nose pliers, install the return spring.



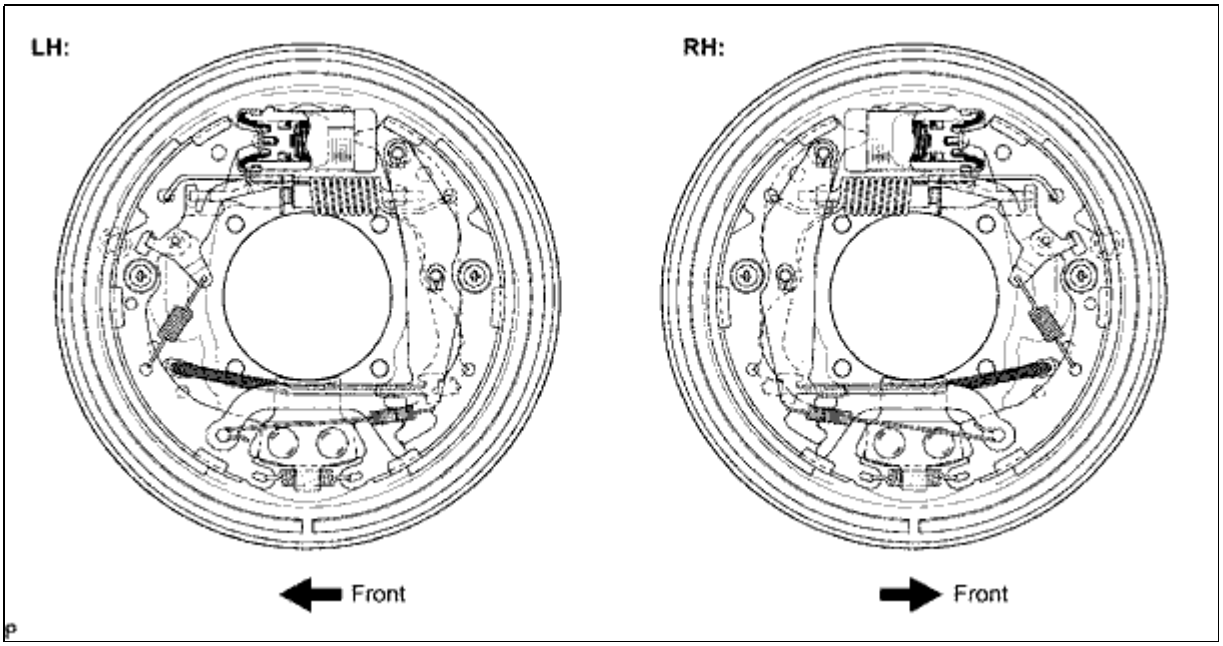
(e) Using SST, install the shoe return spring onto the front brake shoe.

SST: 09921-00010



6. INSPECT REAR DRUM BRAKE INSTALLATION

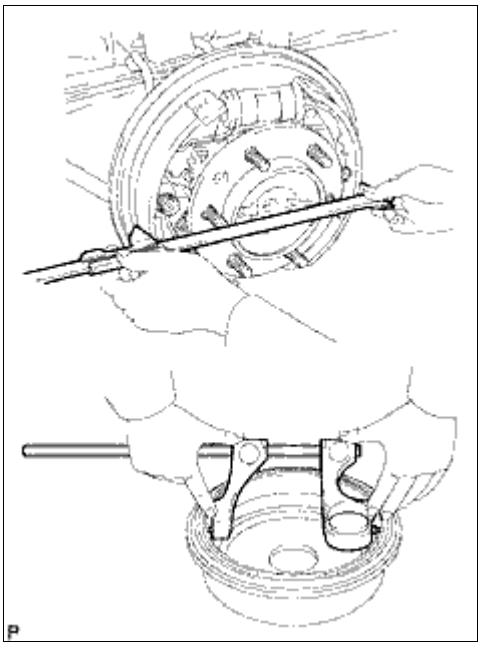
(a) Check that each part is installed properly.



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(b) Measure the brake drum inside diameter and the diameter of the brake shoes. Check that difference between the diameters is the specified shoe clearance.

Shoe clearance:
0.5 mm (0.0197 in.)



NOTICE:

There should be no oil or grease adhering to the friction surfaces of the shoe lining and the drum.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM00000171N00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: REAR BRAKE: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE REAR WHEEL

2. DRAIN BRAKE FLUID

HINT:

Immediately wash off any brake fluid that comes into contact with any painted surfaces.

3. REMOVE REAR BRAKE DRUM SUB-ASSEMBLY

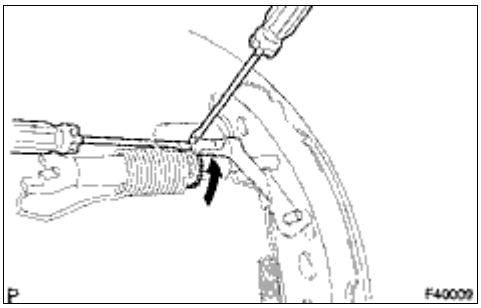
(a) Release the parking brake, and remove the rear brake drum.

If the rear brake drum cannot be removed easily, perform the following procedures.

(b) Remove the hole plug and insert a screwdriver through the hole into the backing plate, and hold the automatic adjusting lever away from the adjuster.

(c) Using another screwdriver, contract the brake shoe by turning the adjusting bolt.

(d) Remove the drum gasket from the rear brake drum.

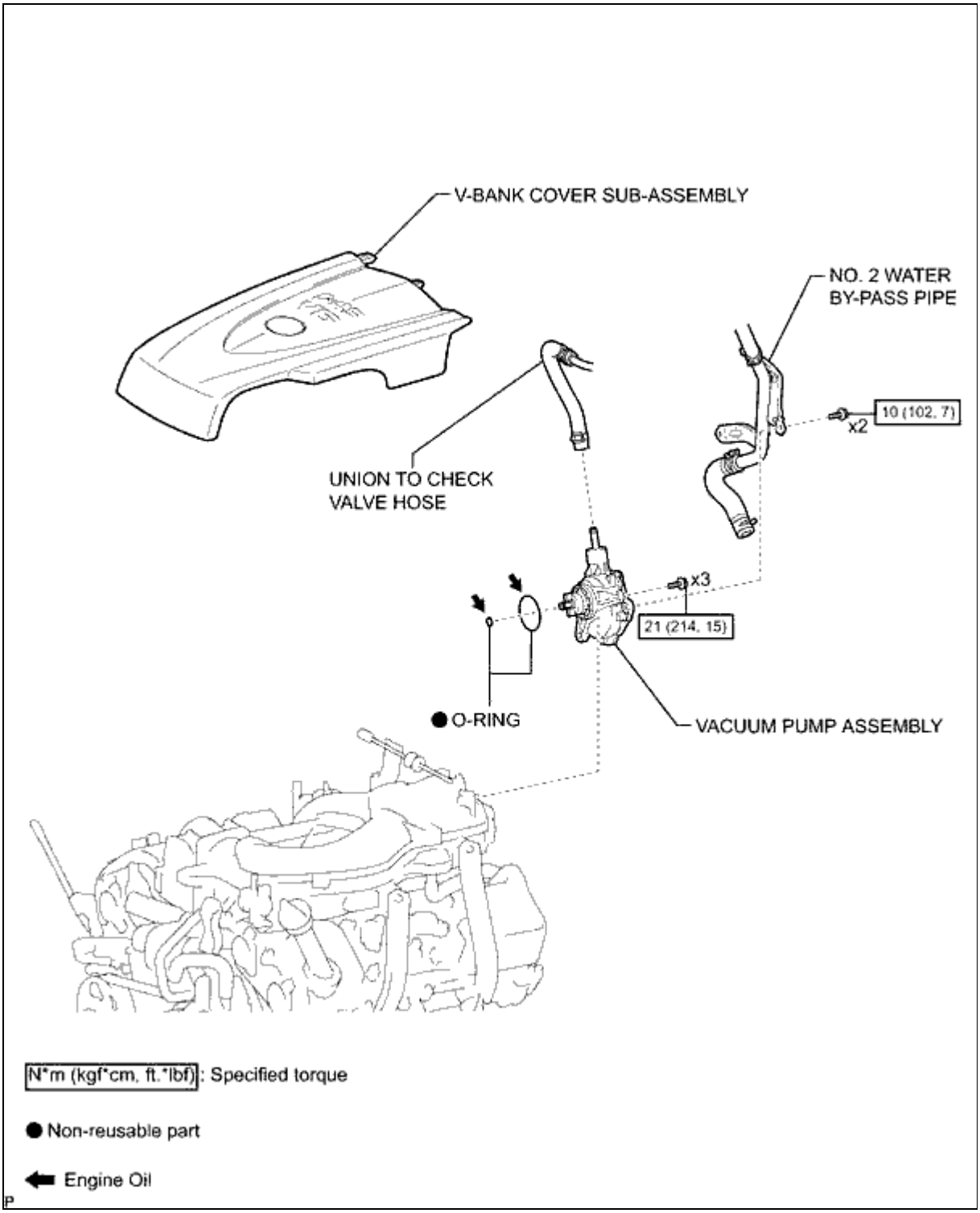


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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005VQR000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM PUMP: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VQQ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM PUMP: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL VACUUM PUMP ASSEMBLY

(a) Apply engine oil to the 2 O-rings on the vacuum pump assembly.

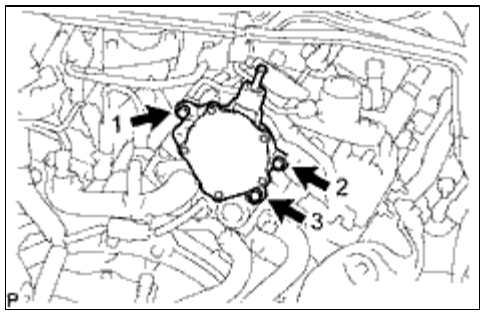
(b) Apply engine oil to the inner surface of the installation hole.

(c) Install the vacuum pump assembly so that the oil pipe engages with the hole of the camshaft and the coupling teeth with the grooves on the camshaft tip.

NOTICE:

- Ensure that the vacuum pump assembly is installed securely.
- Be careful not to pinch the O-ring.

(d) Install the vacuum pump assembly to the engine assembly with the 3 bolts in the order shown in the illustration.



Torque:

21 N·m {214 kgf·cm, 15ft·lbf}

NOTICE:

After installation, check that there are no gaps between the matching surfaces and that the vacuum pump assembly is no installed at an angle.

2. INSTALL NO. 2 WATER BY-PASS PIPE

(a) Install the No. 2 water by-pass pipe with the 2 bolts.

Torque:

10 N·m {102 kgf·cm, 7ft·lbf}

3. CONNECT UNION TO CHECK VALVE HOSE

(a) Connect the union to check valve hose and slide the clip to secure it.

4. INSTALL V-BANK COVER SUB-ASSEMBLY INFO

5. INSPECT VACUUM PUMP OPERATION INFO

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000005VQT000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM PUMP: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. OPERATION CHECK

(a) Remove the V-bank cover sub-assembly.

INFO

(b) Slide the clip and disconnect the union to check valve hose from the vacuum pump assembly.

(c) Connect the hose of the vacuum gauge to the vacuum pump assembly.

(d) Start the engine and warm it up for more than 2 minutes.

(e) With the engine idling, check the negative pressure of the vacuum pump.

Standard pressure:

More than 90.0 kPa (675 mmHg, 26.6 in.Hg)

HINT:

The vacuum pump assembly is listed as one of the 200000 km (124000 mile) maintenance parts. Make sure to disassemble and inspect it every 200000 km (124000 miles) and replace parts as necessary.

(f) Remove the vacuum gauge from the vacuum pump assembly.

(g) Connect the union to check valve hose to the vacuum pump assembly and slide the clip to secure it.

(h) Install the V-bank cover sub-assembly.

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VQS000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM PUMP: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

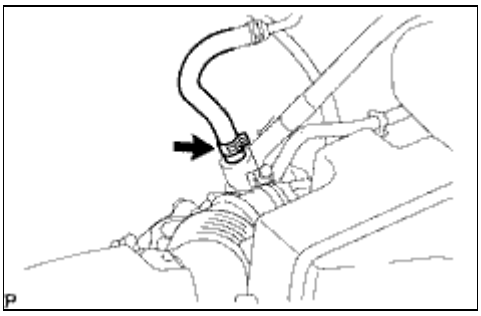
HINT:

The vacuum pump assembly is listed as one of the 200000 km (124000 mile) maintenance parts. Make sure to disassemble and inspect it every 200000 km (124000 miles) and replace parts as necessary.

1. REMOVE V-BANK COVER SUB-ASSEMBLY INFO

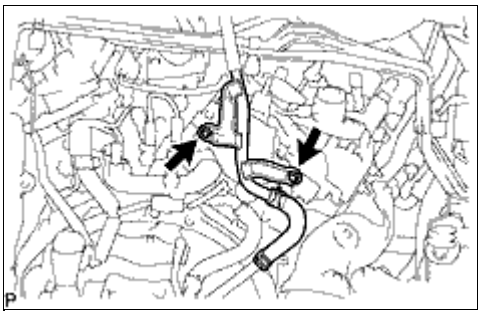
2. DISCONNECT UNION TO CHECK VALVE HOSE

(a) Slide the clip and disconnect the union to check valve hose.



3. SEPARATE NO. 2 WATER BY-PASS PIPE

(a) Remove the 2 bolts and separate the No. 2 water by-pass pipe.

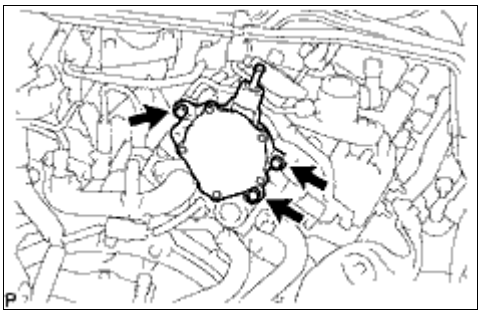


4. REMOVE VACUUM PUMP ASSEMBLY

(a) Remove the 3 bolts and vacuum pump assembly from the engine assembly.

HINT:

If there are any oil leaks or any O-ring is damaged, replace the vacuum pump assembly with a new one.

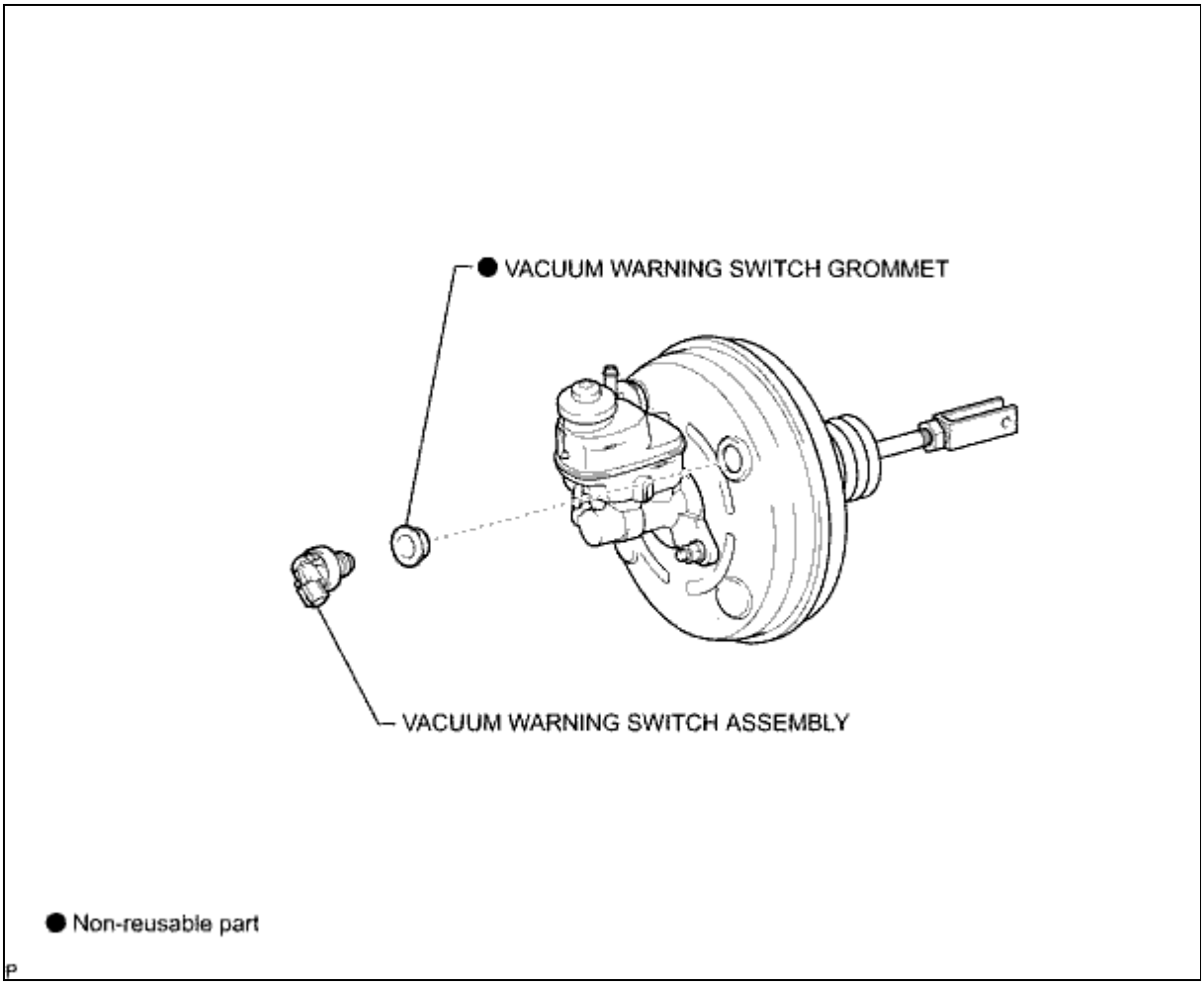


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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005VLI000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM WARNING SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VLH000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM WARNING SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

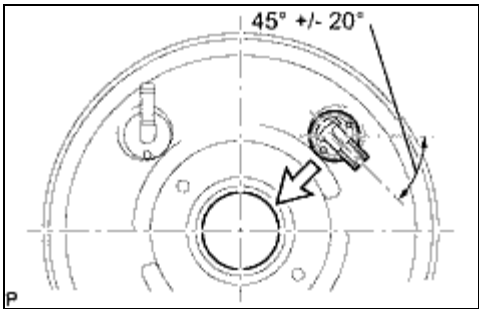
INSTALLATION

1. INSTALL VACUUM WARNING SWITCH GROMMET

(a) Install a new vacuum warning switch grommet to the brake booster assembly.

2. INSTALL VACUUM WARNING SWITCH ASSEMBLY

(a) Install the vacuum warning switch assembly to the brake booster assembly as shown in the illustration.



Text in Illustration

⇨	Center of the Brake Booster Assembly

(b) Connect the connector to the vacuum warning switch assembly.

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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000005VLK000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM WARNING SWITCH: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT BRAKE FLUID LEVEL IN RESERVOIR

2. INSPECT BRAKE BOOSTER ASSEMBLY INFO

3. INSPECT VACUUM WARNING SWITCH ASSEMBLY

(a) Start the engine and stop it after 1 or 2 minutes.

(b) Disconnect the connector from the vacuum warning switch assembly.

(c) Measure the resistance of the vacuum warning switch assembly.

Standard Resistance:
10 kΩ or higher

(d) With the engine stopped, depress the brake pedal several times to release vacuum from the brake booster assembly, and measure the resistance of the vacuum warning switch assembly.

Standard Resistance:
Below 1 Ω

(e) Connect the connector to the vacuum warning switch assembly.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VLJ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: BRAKE: VACUUM WARNING SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE VACUUM WARNING SWITCH ASSEMBLY

(a) Disconnect the connector from the vacuum warning switch assembly.

(b) Remove the vacuum warning switch assembly from the brake booster assembly.

2. REMOVE VACUUM WARNING SWITCH GROMMET

(a) Remove the vacuum warning switch grommet from the brake booster assembly.

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