

Brake Squawk/Knock Noise

Service
Category Brake

Section Brake Control/Dynamic Control System

Market USA and
Mexico

Toyota Supports
ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2016 - 2022	RX450H	

SUPERSESION NOTICE

The information contained in this bulletin supersedes Service Bulletins L-SB-0004-19, L-SB-0005-21, and L-SB-0035-21.

- The market indicator has been updated to include the Mexico market.
- The Calibration Information section has been updated.

Service Bulletins L-SB-0004-19, L-SB-0005-21, and L-SB-0035-21 are obsolete, and any printed versions should be discarded.

Introduction

Some 2016 – 2022 model year RX 450h and 2018 – 2022 model year RX 450hL vehicles may exhibit a squawk/knock noise from the engine compartment when depressing and/or releasing the brake pedal. Follow the Repair Procedure in this bulletin to address this condition.

Brake Squawk/Knock Noise

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Brake Squawk/Knock Noise

Warranty Information

For USA Market

OP CODE	MODEL YEAR	DESCRIPTION	TIME	OFP	T1	T2
BR1919	2016 – 2022	Brake Actuator Replacement & Brake Bleed	3.8	44050-48320	91	99
Combo A	2016 – 2017	Reprogram ECU	0.3			
Combo B	2016 – 2018	R & R Master Cylinder Reservoir	1.2			

APPLICABLE WARRANTY

- This repair is covered under the Lexus Basic Warranty. This warranty is in effect for 48 months or 50,000 miles, whichever occurs first, from the vehicle's in-service date.
- Warranty application is limited to occurrence of the specified condition described in this bulletin.

For Mexico Market

OP CODE	MODEL YEAR	DESCRIPTION	TIME	OFP	T1	T2
BR1919	2016 – 2022	Brake Actuator Replacement & Brake Bleed	3.8	44050-48320	91	99
Combo A	2016 – 2017	Reprogram ECU	0.3			
Combo B	2016 – 2018	R & R Master Cylinder Reservoir	1.2			

APPLICABLE WARRANTY

- This repair is covered under the Lexus Basic Warranty. This warranty is in effect for 48 months or 80,000 kilometers, whichever occurs first, from the vehicle's in-service date.
- Warranty application is limited to occurrence of the specified condition described in this bulletin.

Brake Squawk/Knock Noise

Parts Information

For USA Market

PART NUMBER		PART NAME	QTY
PREVIOUS	NEW		
47220-48270	47220-48271	Reservoir Assy, Master Cylinder	1
44050-48320		Actuator Assy, Brake	1
895B0-48030 895B0-48031		Computer Assy, Skid Control ECU	–
00475-1BF03		Brake Fluid	5 – 10 bottles
31478-30010		Bleeder Plug Caps	1 (10 per pack)
44511-58010		Plugs Brake Actuator	1
00451-00001-LBL		Authorized Modifications Label	1

NOTE

- The skid control ECU should NOT be replaced as part of the Repair Procedure.
- Authorized Modifications Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) (portal.toyotamdc.com) under item No. 00451-0000-1LBL.

For Mexico Market

PART NUMBER		PART NAME	QTY
PREVIOUS	NEW		
47220-48270	47220-48271	Reservoir Assy, Master Cylinder	1
44050-48320		Actuator Assy, Brake	1
895B0-48030 895B0-48031		Computer Assy, Skid Control ECU	–
00475-1BF03		Brake Fluid	5 – 10 bottles
31478-30010		Bleeder Plug Caps	1 (10 per pack)
44511-58010		Plugs Brake Actuator	1
00451-00002-LBL-MEX		Authorized Modifications Label	1

NOTE

- The skid control ECU should NOT be replaced as part of the Repair Procedure.
- Authorized Modifications Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) (portal.toyotamdc.com) under item No. 00451-00002-MEX.

Brake Squawk/Knock Noise

Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream ADVI*	ADE	TSADVUNIT	1
Techstream 2.0		TS2UNIT	
Techstream Lite		TSLITEPDLR01	
Techstream Lite (Green Cable)		TSLP2DLR01	

*Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- GTS+ software version 2022.04.004.02 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787 (USA) or 01-55-50103041 (Mexico).
- Use Techstream or an approved J2534 interface to perform flash reprogramming updates. Visit techinfo.toyota.com for more information regarding J2534 reprogramming.

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
Battery Diagnostic Tool*	DCA-8000P T	1
Hose Plug No. 2**	09053-1C220	1 – 2***

*Essential SST.

**ONLY reuse the hose plugs if there is no debris on them, they have ONLY been used for brake fluid, they are thoroughly washed AFTER use, and they are stored once completely dry.

***Two plugs are required if replacing the master cylinder reservoir. If ONLY replacing the actuator, ONE plug is required.

NOTE

Additional SSTs may be ordered by calling 1-800-933-8335 (USA) or 01-800-504-5330 (Mexico).

Brake Squawk/Knock Noise

Calibration Information

MODEL	YEARS	CALIBRATION ID NUMBER	CALIBRATION ID	
			PREVIOUS	NEW
RX 450h	2016 – 2017	CID 1	F152648501	F152648G20 / F152648G30
			F152648502	
			F152648740	
		CID 2	F152648511	
			F152648512	
			F152648750	
	2018	CID 1	F152648504	F152648G40 / F152648G50
		CID 2	F152648514	

Repair Procedure

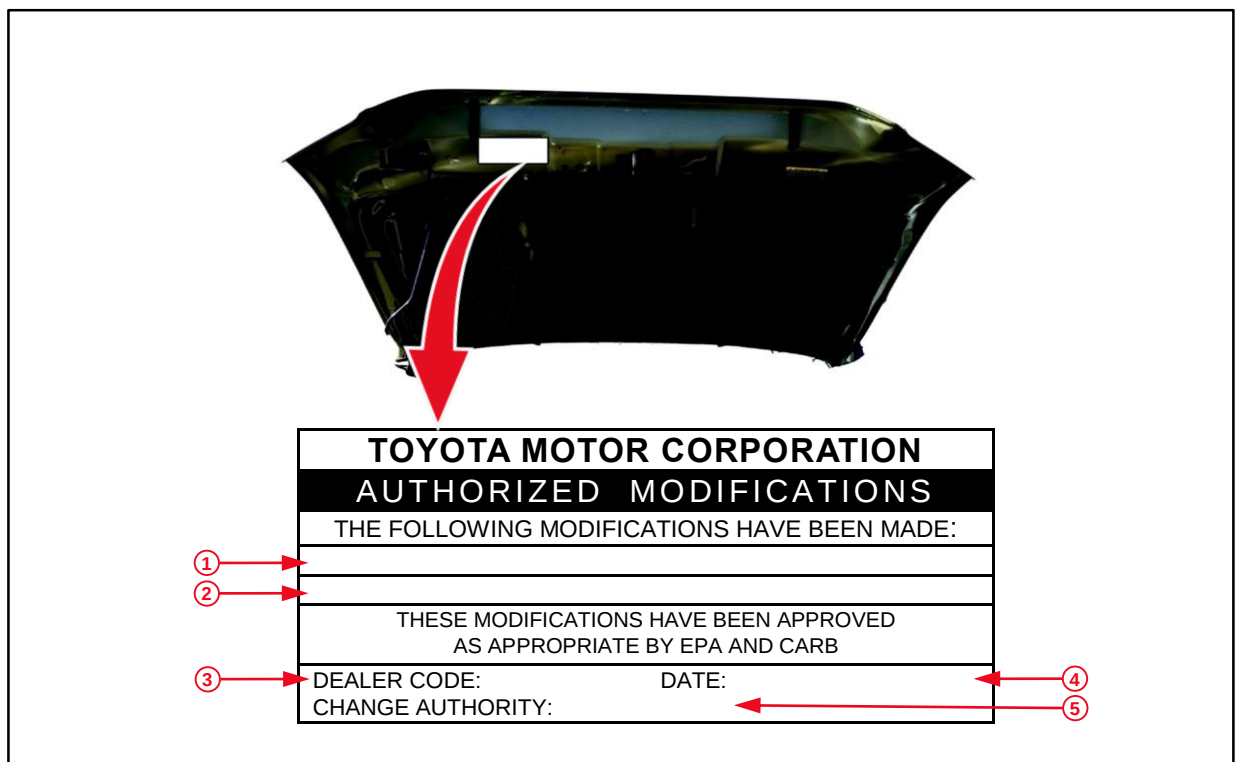
- Confirm the condition exists.
Is there a squawk/knock noise from the engine compartment when depressing and/or releasing the brake pedal?
 - YES** — Continue to step 2.
 - NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
- Are ANY DTCs stored related to a noise present during brake application?
 - YES** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
 - NO** — Continue to step 3.
- Is the vehicle a 2016 – 2017 model year RX 450h?
 - YES** — Continue to step 4.
 - NO** — Go to step 7.

Brake Squawk/Knock Noise

Repair Procedure (continued)

4. Use Techstream to confirm if the skid control ECU calibration has been updated and check for the Authorized Modifications Label affixed to the vehicle in the location shown below.
Is the calibration ID listed in Techstream and on the label the latest skid control ECU calibration?
 - **YES** — Go to step 7.
 - **NO** — Continue to step 5.

Figure 1. Location of Authorized Modifications Label on 2016 – 2017 RX 450h



1	Replacement Skid Control Part Number (e.g., 895B0-48030 or 895B0-48031)
2	New Calibration ID (e.g., F152648G20)
3	Dealer Code

4	Date Completed
5	This SB Number

Brake Squawk/Knock Noise

Repair Procedure (continued)

5. Flash reprogram the skid control ECU.

NOTE

- The battery diagnostic tool **MUST** be used in Power Supply Mode to maintain battery voltage at 13.5V while flash reprogramming the vehicle.
- For details on how to use the battery diagnostic station, refer to the [DCA-8000 Instruction Manual](#) located at *TIS – Diagnostics – Tools & Equipment – Battery Diagnostics*.

Follow the procedures outlined in [L-SB-0001-18](#), *Techstream ECU Flash Reprogramming Procedure*, and flash the skid control ECU with the NEW calibration file update.

6. Prepare and install the Authorized Modifications Label.
 - A. Using a permanent marker, enter the following information on the label:
 - Skid control ECU part number [Refer to the **Parts Information** section for the **NEW PART NUMBER**]
 - Calibration ID(s) [Refer to the **Calibration Information** section for the **NEW CALIBRATION ID**]
 - Dealer Code
 - Repair Date
 - Change Authority [This bulletin number]
 - B. Install the Authorized Modifications Label onto the vehicle at the location shown in Figure 1. The Authorized Modifications Label is available through the MDC, P/N 00451-00001-LBL (USA) or 00451-00002-MEX (Mexico).
7. Is the vehicle a 2016 – 2018 model year RX 450h or a 2018 model year RX 450hL?
 - **YES** — Continue to step 8.
 - **NO** — Go to step 9.

Brake Squawk/Knock Noise

Repair Procedure (continued)

8. Replace the master cylinder reservoir assembly.

Refer to TIS, applicable model and model year Repair Manual:

- 2016 RX 450h:
Brake – Brake Control/Dynamic Control System – “Brake Control / Dynamic Control Systems: Brake Actuator: [Removal](#) / [Installation](#)”
- 2017 – 2018 RX 450h and 2018 RX 450hL:
Brake – Brake Control/Dynamic Control System – “Brake Control / Dynamic Control Systems: Brake Actuator: [Removal](#) / [Installation](#)”

9. For ALL model years, replace the brake actuator assembly using the following modified procedure. Refer to the applicable Repair Manual when directed.

NOTE

The necessary procedures (adjustment, calibration, initialization, or registration) that MUST be performed AFTER parts are removed, installed, or replaced during brake actuator assembly removal/installation are shown in the applicable Repair Manual.

CAUTION

While the auxiliary battery is connected, even if the power switch is OFF, the brake control system activates when the brake pedal is depressed, or ANY door courtesy switch is turned ON. Therefore, when servicing brake system components, do NOT depress the brake pedal or open/close the doors while the auxiliary battery is connected.

Brake Squawk/Knock Noise

Repair Procedure (continued)

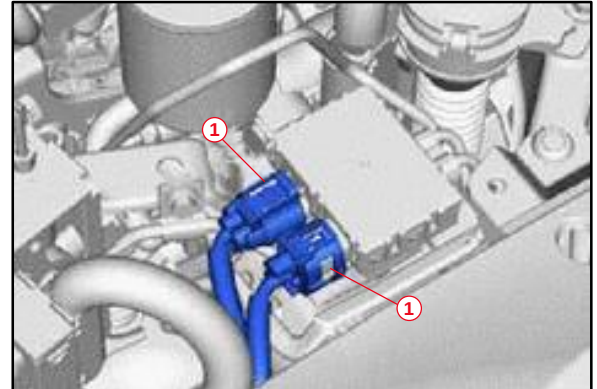
10. Remove the brake actuator assembly using the following modified procedure.

- A. With the ignition switch in the IG-OFF position, disconnect the two brake booster pump connectors and cover the ends of the connectors using tape.

CAUTION

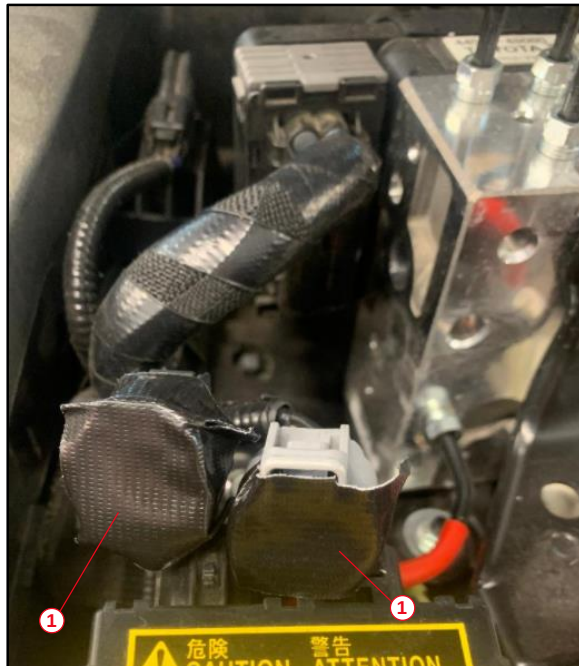
- Using Techstream to perform accumulator pressure zero down causes the pressurized brake fluid in the accumulator to be returned to the brake master cylinder reservoir assembly.
- Taping the connectors will prevent fluid from contaminating the connectors.

Figure 2.



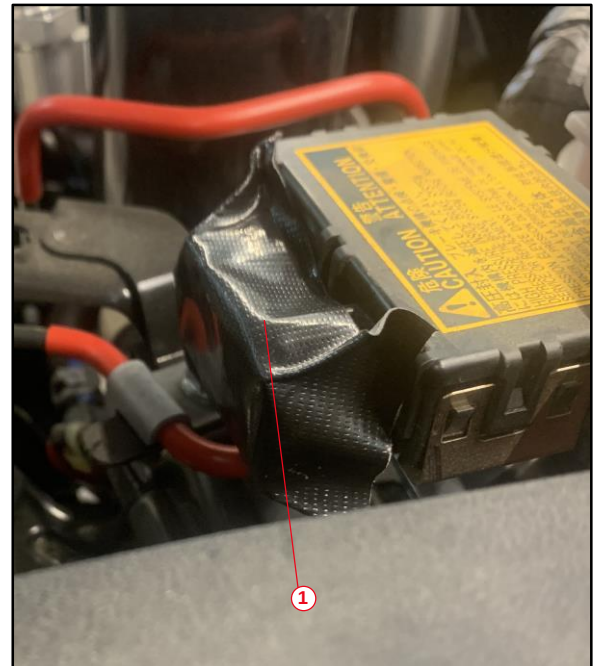
1 Brake Booster Pump Connector

Figure 3.



1 Tape Covering Brake Booster Pump Connectors

Figure 4.



1 Tape Covering Brake Booster Pump Connectors

Brake Squawk/Knock Noise

Repair Procedure (continued)

- B. Perform the accumulator pressure zero down.

NOTE

Using Techstream to perform accumulator pressure zero down causes the pressurized brake fluid in the accumulator to be returned to the brake master cylinder reservoir assembly.

- (1) Drain the brake fluid in the brake master cylinder reservoir assembly to near the MIN line.
- (2) Connect Techstream to the DLC3 with the power switch OFF.
- (3) Check that the parking brake is applied and turn the power switch to IG-ON.
- (4) Turn Techstream ON and select the following: *Chassis – ABS/VSC/TRAC – Utility / ECB (Electronically Controlled Brake System) Utility – Zero Down*.
- (5) When the buzzer sounds, turn the power switch to IG-OFF.
- (6) Turn Techstream OFF and disconnect Techstream from the DLC3.

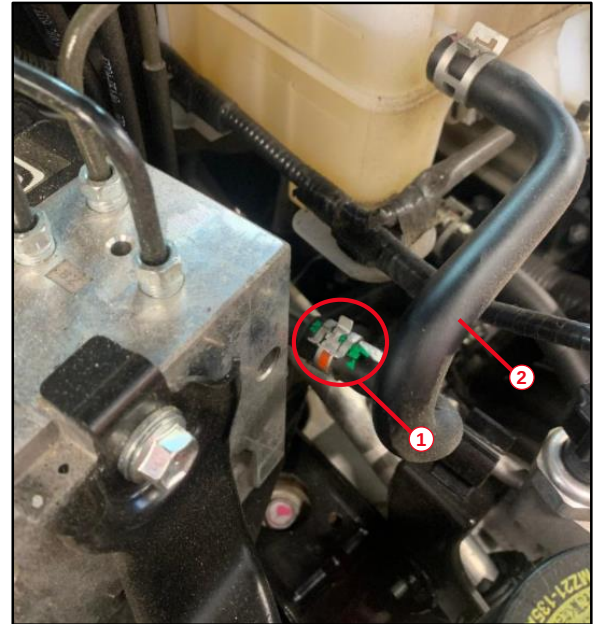
- C. Separate the No. 1 reservoir hose.

- (1) Slide the clip and disconnect the No. 1 reservoir hose from the reservoir tube.

NOTE

Do NOT disconnect the master cylinder reservoir side of the hose.

Figure 5.



1	No. 1 Reservoir Hose Clip
2	The No. 1 Reservoir Hose

Brake Squawk/Knock Noise

Repair Procedure (continued)

- (2) AFTER the No.1 reservoir hose is disconnected, quickly attach the hose plug and the actuator plug.

CAUTION

- The plugs and cap will prevent fluid from getting onto the vehicle.
- Do NOT clamp the hose. Clamping the hose may cause damage to the hose which could result in a leak.

Figure 6. Hose Plug Installed

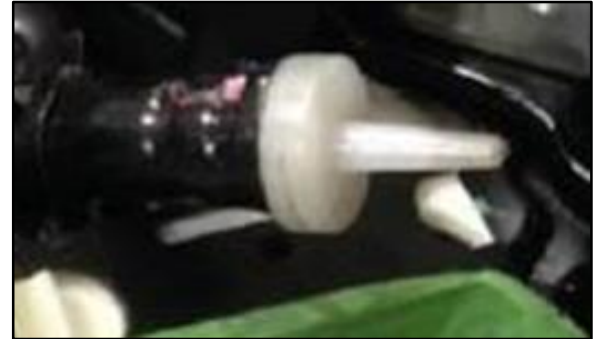
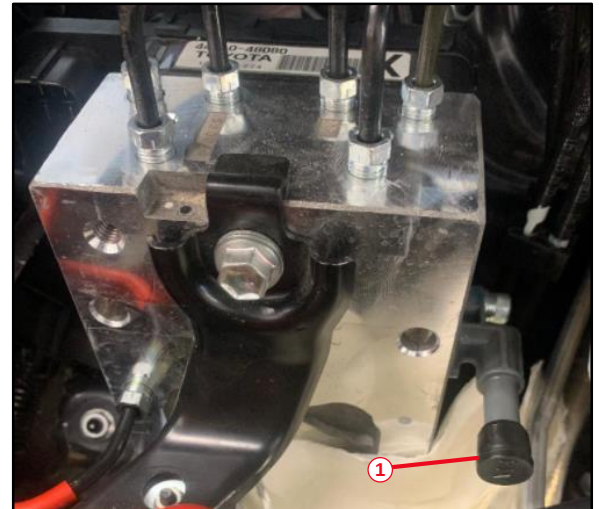


Figure 7. Actuator Plug Installed



1	Actuator Plug
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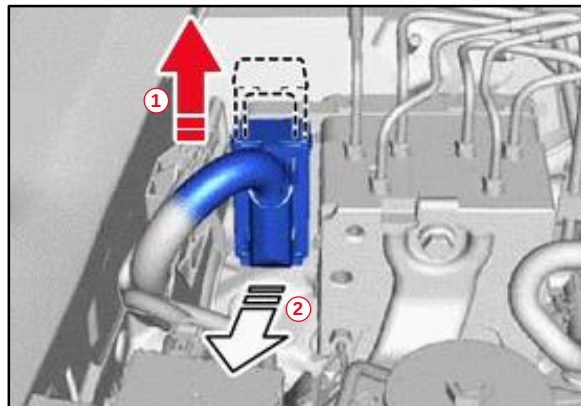
Brake Squawk/Knock Noise

Repair Procedure (continued)

D. Remove the brake actuator assembly with bracket.

- (1) Release the lock lever and disconnect the electrical connector from the brake actuator assembly.

Figure 8.



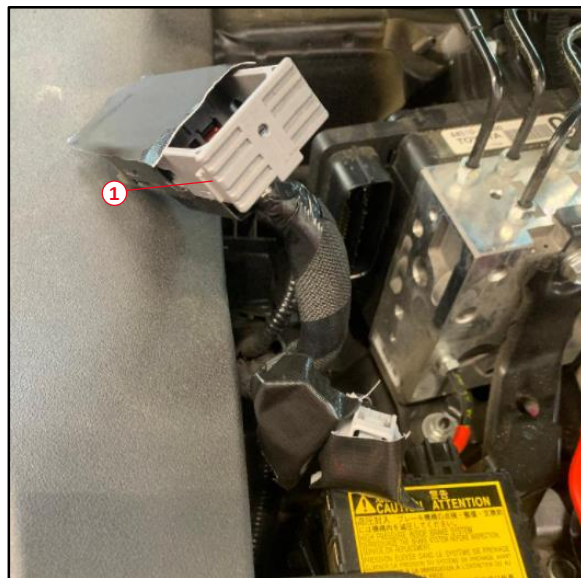
1	Release the Lock Lever
2	Disconnect the Electrical Connector

- (2) Cover the electrical connector with tape.

CAUTION

- Be careful NOT to allow ANY brake fluid to enter the connector.
- Taping the connector will prevent fluid from contaminating the connector.

Figure 9.



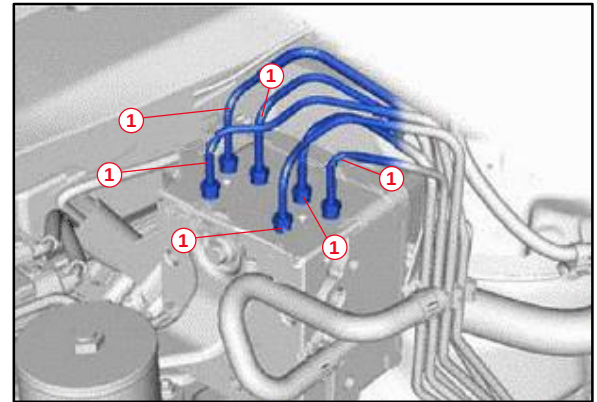
1	Electrical Connector
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Brake Squawk/Knock Noise

Repair Procedure (continued)

- (3) Using a union nut wrench, disconnect the six brake lines from the brake actuator assembly.

Figure 10.



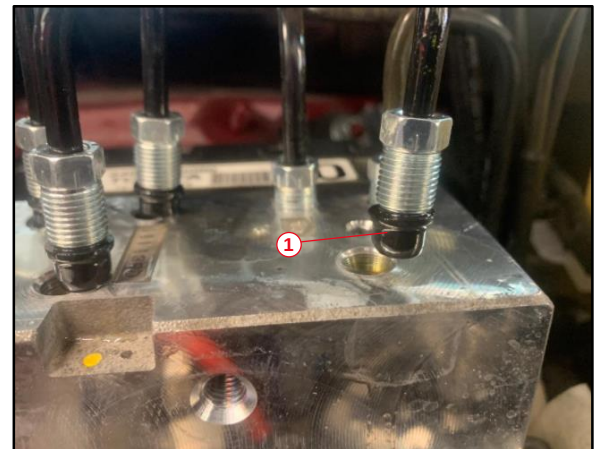
1	Brake Line
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- (4) As each line is disconnected, quickly attach each bleeder plug cap.

CAUTION

This will help prevent air from entering the system.

Figure 11.



1	Cap Attached to Disconnected Line
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Brake Squawk/Knock Noise

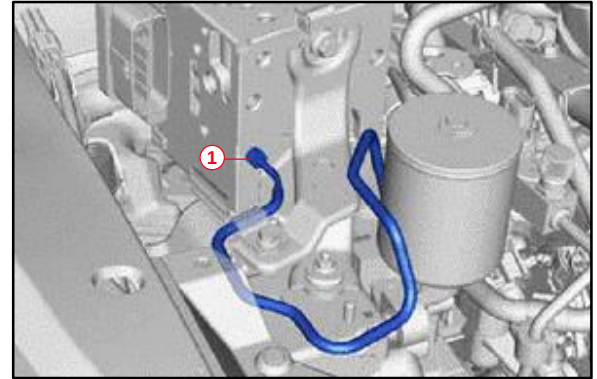
Repair Procedure (continued)

- (5) Using a union nut wrench, separate the No. 1 brake actuator tube from the brake actuator assembly.

CAUTION

- Do NOT remove the brake actuator tube from the brake booster pump assembly ONLY remove this from the brake actuator assembly.
- This will help prevent air from entering the system.
- If the line is removed completely, you MUST pre-fill the tube with brake fluid BEFORE re-installing.
- Do NOT kink or damage the No. 1 brake actuator tube.
- Do NOT allow ANY foreign matter such as dirt or dust to enter the No. 1 brake actuator tube from the connecting parts.

Figure 12.



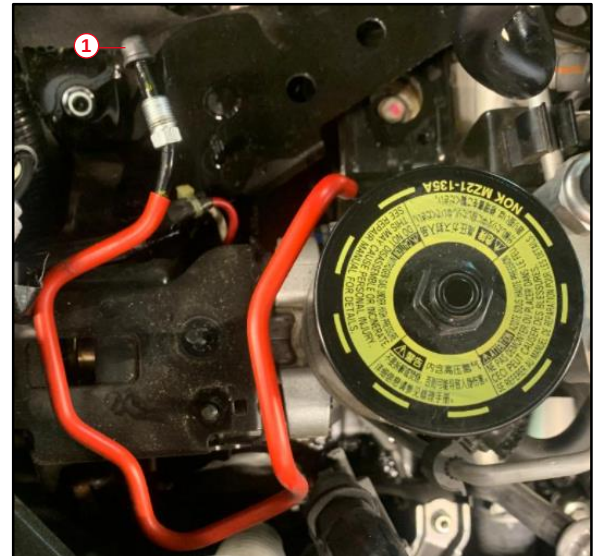
1 Point of Separation

- (6) As each line is disconnected from the brake actuator assembly, quickly attach each cap.

CAUTION

This will help prevent air from entering the system.

Figure 13.



1 Attach Cap Here

Brake Squawk/Knock Noise

Repair Procedure (continued)

- (7) Remove the bolt and No. 1 brake tube clamp to separate the No. 1 brake actuator tube from the No. 1 brake actuator bracket.
- (8) Remove the bolt, nut, and No. 1 brake actuator bracket.
- (9) Remove the brake actuator bracket spacer and brake actuator bracket cushion from the No. 1 brake actuator bracket assembly.
- (10) Remove the two nuts and brake actuator assembly with bracket.

CAUTION

- Do NOT kink or damage the brake lines.
- Do NOT hold the brake actuator assembly with bracket by the connector, hose, or union.
- Do NOT allow ANY foreign matter such as dirt or dust to enter the brake lines from the connecting parts.
- Remove the brake actuator assembly with bracket while avoiding the brake lines.

11. Install the NEW brake actuator assembly.

A. Install the brake actuator assembly to the brake actuator bracket.

- (1) Install the two brake actuator bracket cushions and two brake actuator bracket spacers to the brake actuator bracket assembly.
- (2) Install the brake actuator assembly to the brake actuator bracket assembly with the three bolts.

Torque: 9.3 N*m (95 kgf*cm, 82 in*lb)

B. Install the brake actuator with the bracket.

- (1) Install the brake actuator with bracket with the two nuts.

Torque: 8.0 N*m (82 kgf*cm, 71 in*lb)

CAUTION

- Do NOT kink or damage the brake lines.
- Do NOT hold the brake actuator with bracket by the connector, hose, or union.
- Do NOT allow any foreign matter such as dirt or dust to enter the brake lines from the connecting parts.
- Do NOT drop the brake actuator assembly. Do NOT use parts that have been dropped.
- Install the brake actuator with bracket while avoiding the brake lines.

- (2) Install the brake actuator bracket cushion and brake actuator bracket spacer to the No. 1 brake actuator bracket.
- (3) Install the No. 1 brake actuator bracket assembly with the bolt and nut.

Torque:

Bolt: 19 N*m (194 kgf*cm, 14 ft*lb)

Nut: 8.0 N*m (82 kgf*cm, 71 in*lb)

Brake Squawk/Knock Noise

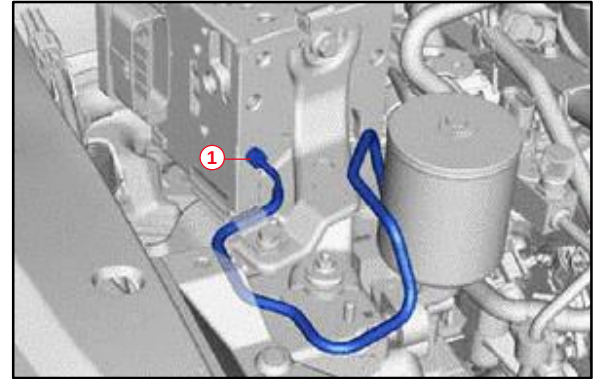
Repair Procedure (continued)

- (4) Remove the cap from the No. 1 brake actuator tube and quickly install it to the brake actuator assembly.

CAUTION

- This will help prevent air from entering the system.
- The No. 1 brake actuator tube should NOT have been removed from the brake booster pump assembly.
- If the No. 1 brake actuator tube was removed from the brake booster pump assembly and the actuator, it must be pre-filled before re-installing to prevent air from entering the system.

Figure 14.



1 Remove Cap Here

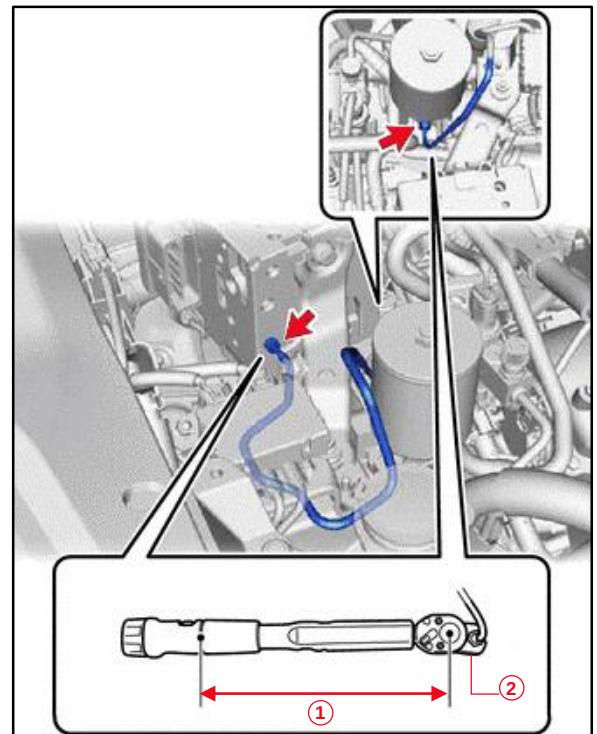
- (5) Install the No. 1 brake tube clamp with the bolt to secure the No. 1 brake actuator tube to the No. 1 brake actuator bracket.
- (6) Using a union nut wrench, fully tighten the No. 1 brake actuator tube.

Torque: 15.2 N*m (155 kgf*cm, 11 ft*lb)

CAUTION

- Do NOT kink or damage the No. 1 brake actuator tube.
- Do NOT allow the No. 1 brake actuator tube to twist or interfere with other parts or the vehicle body during tightening.
- Do NOT allow any foreign matter such as dirt or dust to enter the No. 1 brake actuator tube from the connecting parts.
- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench. Refer to the applicable Repair Manual.
- When using a union nut wrench (fulcrum length of 22 mm [0.866 in.]) + torque wrench (fulcrum length of 162 mm [6.38 in.]): 13.38 N*m (136 kgf*cm, 10 ft*lb).

Figure 15.



1 Torque Wrench Fulcrum Length

2 Union Nut Wrench

Brake Squawk/Knock Noise

Repair Procedure (continued)

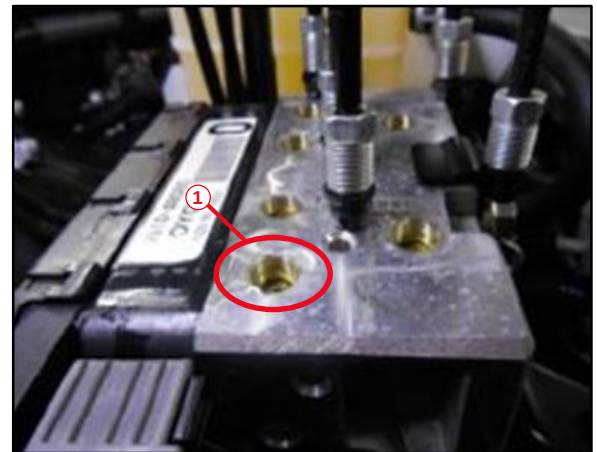
- (7) Fully tighten the bolt.
Torque: 7.0 N*m (71 kgf*cm, 62 in*lbf)
- (8) Install the nut to secure the connector box.
Torque: 8.0 N*m (82 kgf*cm, 71 in*lbf)
- (9) Install the brake tube clamp to the vehicle body with the bolt.
Torque: 4.9 N*m (50 kgf*cm, 43 in*lbf)

- (10) Pre-fill the six brake actuator ports with brake fluid before re-installing the line.

CAUTION

This will help prevent air from entering the system.

Figure 16.



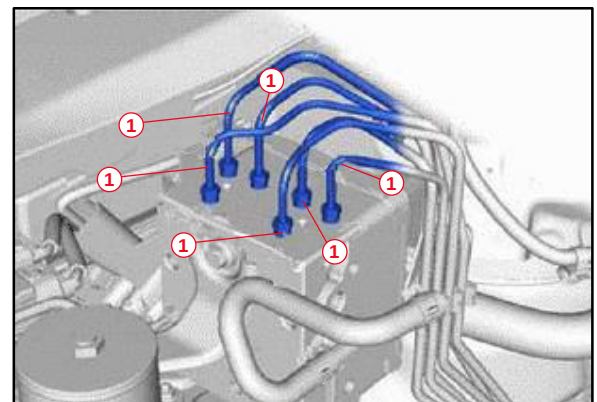
1 Brake Actuator Port

- (11) AFTER removing each cap, quickly tighten each brake line (BEFORE removing another cap) to the correct position on the brake actuator assembly.

CAUTION

This will help prevent air from entering the system.

Figure 17.



1 Brake Line

Brake Squawk/Knock Noise

Repair Procedure (continued)

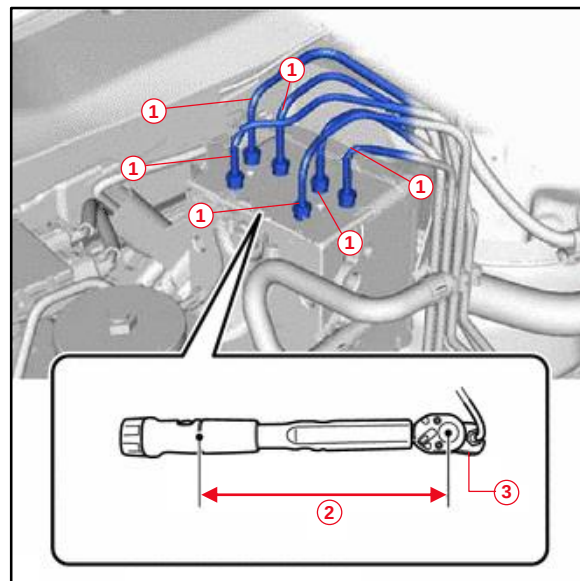
- (12) Using a union nut wrench, fully tighten each brake line.

Torque: 15.2 N*m (155 kgf*cm, 11 ft*lbf)

CAUTION

- Do NOT kink or damage the brake lines.
- Do NOT allow the brake lines to twist or interfere with other parts or the vehicle body during tightening.
- Do NOT allow any foreign matter such as dirt or dust to enter the brake lines from the connecting parts.
- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench. Refer to the applicable Repair Manual.
- When using a union nut wrench (fulcrum length of 22 mm [0.866 in.]) + torque wrench (fulcrum length of 162 mm [6.38 in.]): 13.38 N*m (136 kgf*cm, 10 ft*lbf)

Figure 18.



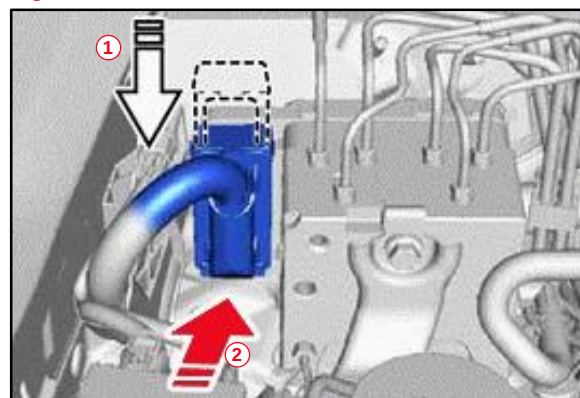
1	Brake Line
2	Torque Wrench Fulcrum Length
3	Union Nut Wrench

- (13) Remove the tape and connect the connector to the brake actuator assembly and lock the lock lever.

CAUTION

- Make sure that the connector is locked securely.
- Make sure that the actuator connector can be connected smoothly. Do NOT allow water, oil, or dirt to enter the connector.
- DO NOT re-connect the brake booster pump connectors.

Figure 19.



1	Lock the Lock Lever
2	Connect the Electrical Connector

Brake Squawk/Knock Noise

Repair Procedure (continued)

- C. Install the reservoir bracket.
 - (1) Install the reservoir bracket with the bolt and two nuts.
Torque: 19 N*m (194 kgf*cm, 14 ft*lbf)
 - (2) Engage the clamp to install the wire harness to the reservoir bracket.
 - D. Install the No. 1 reservoir hose.
 - (1) Remove the hose plug and quickly connect the No. 1 reservoir hose to the reservoir tube and slide the clip to secure it.
12. Using Techstream, perform the following modified air bleeding procedure.

CAUTION

Techstream **MUST** be used for air bleeding. If Techstream is **NOT** used, the bleeding procedure will be incomplete, which is hazardous and may lead to an accident.

NOTICE

- Adjust the brake fluid level so that the brake fluid level is at the MAX line with the ignition ON.
- Perform air bleeding with the shift lever in (P) Park and the parking brake applied.
- As brake fluid may overflow when bleeding, do NOT place the brake fluid can on the brake master cylinder reservoir assembly filler opening.
- Perform air bleeding while maintaining the brake fluid level between the MAX and MIN lines on the brake master cylinder reservoir assembly.
- Air bleeding will be difficult if the following occurs:
 - The No. 2 brake actuator hose (the hose between the brake booster pump assembly and brake master cylinder reservoir assembly) is higher than the brake fluid level and air enters the No. 2 brake actuator hose.
 - During the bleeding procedure, air enters the brake booster pump assembly while it is operating.
- With the auxiliary battery connected, the brake control system operates when a door courtesy switch or brake pedal is operated even with the power switch OFF. Therefore, if performing ANY work where it is possible for air to become trapped inside the brake actuator hose, disconnect the two brake booster pump connectors **BEFORE** work.
- While performing air bleeding, the accumulator pressure drop may cause a buzzer to sound. As there is no problem, continue with air bleeding.
- During air bleeding, DTCs for pressure sensor malfunctions, etc., may be stored. **AFTER** air bleeding and if instructed in the procedures, clear the DTCs.
- Do NOT allow brake fluid on ANY painted vehicle body surface. If brake fluid leaks onto ANY painted surface, wash it OFF immediately.

Brake Squawk/Knock Noise

Repair Procedure (continued)

- A. Connect the battery diagnostic tool and check the battery.

NOTE

If brake battery voltage is less than 12.6 volts, the brake bleed procedure in Techstream may fail.

- B. Turn the ignition ON.
- C. Shift to the (P) Park position.
- D. Ensure the parking brake is ON.
- E. Connect Techstream to the DLC3.
- F. Turn Techstream ON and select the following: *Chassis – ABS/VSC/TRAC – Reset Memory*.
- G. Perform the steps as instructed in Techstream.

CAUTION

- Once “Delete the Back-Up Memory” is complete, the zero-point memory for the yaw-rate sensor and G sensor will also be deleted. Make sure to perform a zero-point acquisition for the yaw-rate sensor and G sensor.
- AFTER the zero-point memory for the yaw-rate sensor and G sensor have been deleted, and if 15 seconds pass while the shift position is at “P” and the ignition is ON, ONLY the yaw-rate sensor zero-point will be stored. If a vehicle is operated under this condition, Non-Corrected G Sensor zero-point Malfunction will be stored, and its DTC will be output. Ensure the ignition is turned OFF AFTER the zero-point memory for the yaw-rate sensor and G sensor have been deleted to prevent this from occurring.

- H. Select the following in Techstream:
Chassis – ABS-VSC-TRAC – Utility – Air Bleeding.

Brake Squawk/Knock Noise

Repair Procedure (continued)

- I. Select "Actuator has been removed" and bleed the brake system by following the instructions on Techstream.

CAUTION

Add brake fluid so that the fluid level in the brake master cylinder reservoir assembly does NOT go below the MIN level.

NOTE

If this procedure fails at ANY point, confirm the battery voltage is above 12.6 volts and perform the following:

- Run a Health Check and clear codes.
- Disconnect the negative battery terminal.
- Disconnect the skid control ECU connector.
- Disconnect the brake booster pump connectors.
- Wait 10 minutes.
- Perform battery boost charge using the battery diagnostic tool.
- Reconnect the skid control ECU connector.
- Reconnect the negative battery terminal.
- Do NOT reconnect the brake booster pump connectors (Techstream instructs to do this during the air bleeding procedure).
- Run a Health Check and clear codes.
- Perform accumulator zero down in Techstream.
- Perform reset memory in Techstream.
- Restart the bleeding procedure from the beginning and follow the instructions in Techstream in step 12.J.

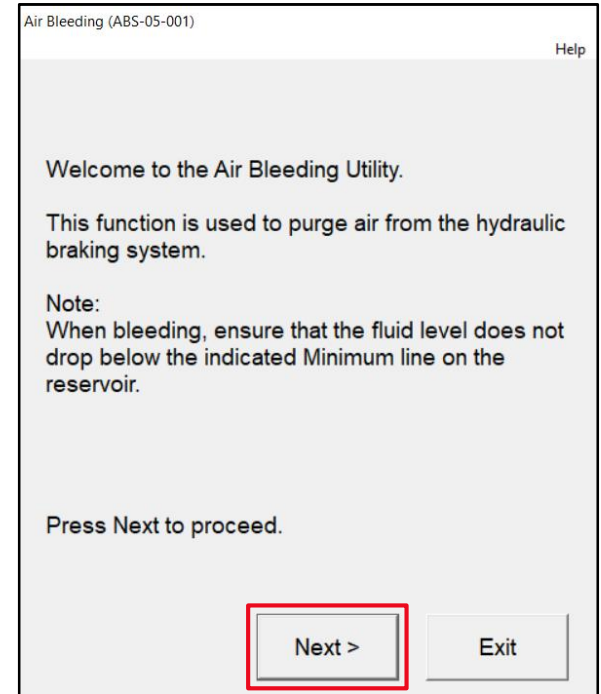
Brake Squawk/Knock Noise

Repair Procedure (continued)

J. Perform air bleeding per the Techstream instructions below.

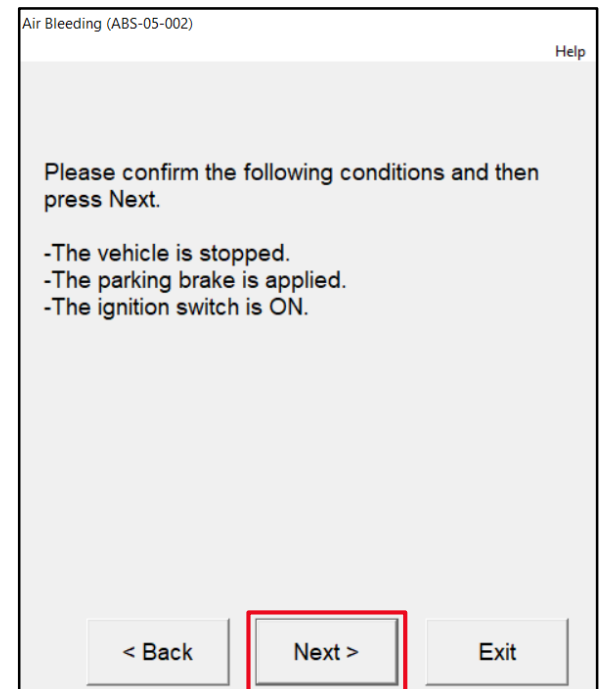
- (1) On the “Welcome to the Air Bleeding Utility” screen, click Next.

Figure 20.



- (2) Confirm the conditions shown in Figure 21 and click Next.

Figure 21.



Brake Squawk/Knock Noise

Repair Procedure (continued)

- (3) Select "Actuator has been removed" and click Next.

Figure 22.

Air Bleeding (ABS-05-003) Help

Please select from the options below.

☐ Usual air bleeding

☒ Actuator has been removed

☐ Master Cylinder or Stroke Simulator has been removed

< Back Next > Exit

- (4) Perform the instructions shown in Figure 23 and click Next.

Figure 23.

Air Bleeding (ABS-05-006b) Help

Actuator has been removed

Perform the following operations, then press Next.

1. Turn the ignition switch OFF.
2. Disconnect the 2 brake booster pump connectors.
3. Turn the ignition switch ON.

Note: This procedure is not required if the brake booster pump connectors are already disconnected.

< Back Next > Exit

Brake Squawk/Knock Noise

Repair Procedure (continued)

- (5) Loosen the right front bleeder plug and pump the brake pedal until the brake fluid level in the reservoir tank is at MIN level.
- (6) Fasten the bleeder plug and add the fluid until the fluid level in the reservoir tank reaches MAX level.
- (7) Repeat sub steps (5) and (6) twice.

CAUTION

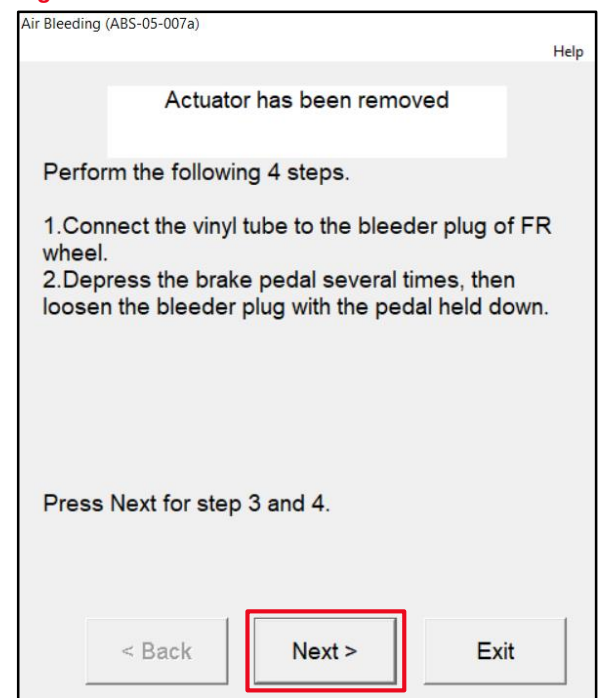
- This **MUST** be done **BEFORE** proceeding with the instructions in Techstream.
- Sub steps (5) and (6) are **ONLY** done on the right front wheel.
- This may require pressing the brake pedal approximately 100 or more times.
- If this is **NOT** done, air may be trapped in the system.

- (8) Perform the two steps shown in Figure 24 and click Next.
- (9) Have you drained the fluid in the master cylinder reservoir twice as described in substeps (5) and (6)?
 - **YES** — Continue to substep (10).
 - **NO** — Return to substeps (5) and (6).
- (10) Pump the brake pedal (depress the pedal a few times), loosen the front right bleeder plug with the brake pedal depressed, and release the pedal **AFTER** the plug is fastened. Repeat this substep 20 times.

NOTE

Techstream states, "Disconnect the 2 brake booster pump connectors." The brake booster pump connectors should already be disconnected. The connectors were disconnected during actuator replacement and should **NOT** have been re-connected.

Figure 24.



Brake Squawk/Knock Noise

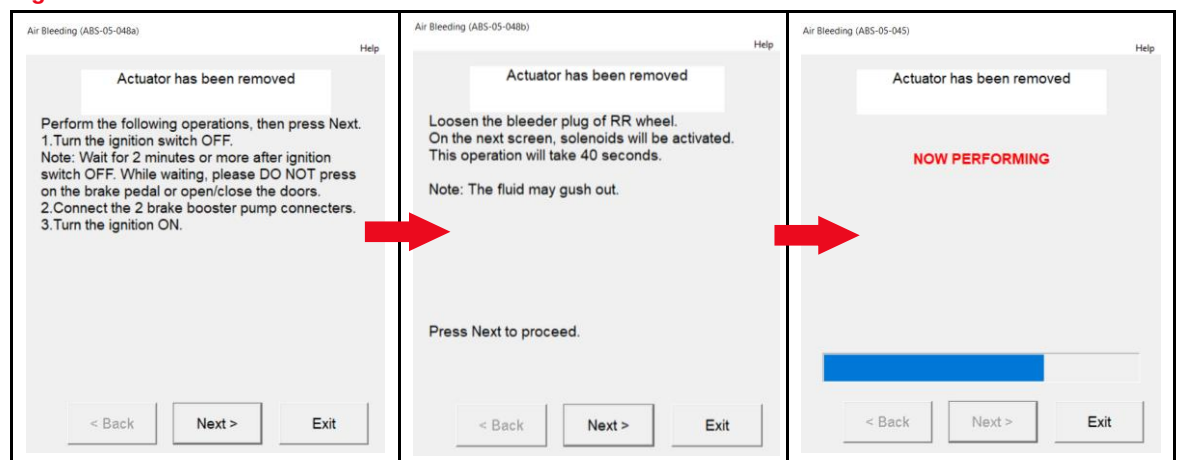
Repair Procedure (continued)

- K. Once bleeding the front right and front left is completed select Next and follow the steps in the figure below for the right rear caliper bleeder plug.

CAUTION

BEFORE this step, add brake fluid so that the fluid level in the brake master cylinder reservoir assembly does NOT go below the MIN level.

Figure 25.



NOTE

If this procedure fails at ANY point, confirm the battery voltage is above 12.6 volts and perform the following:

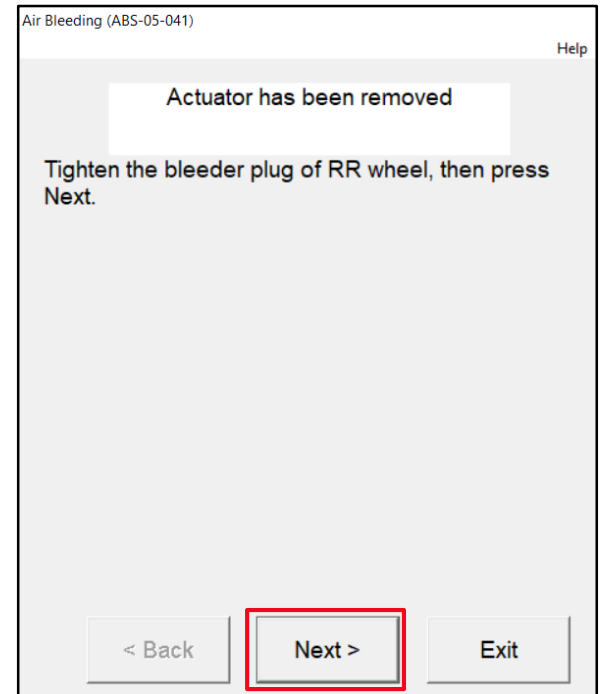
- Run Health Check and clear codes.
- Disconnect the negative battery terminal.
- Disconnect the skid control ECU connector.
- Disconnect the brake booster pump connectors.
- Wait 10 minutes.
- Perform battery boost charge using the battery diagnostic tool.
- Reconnect the skid control ECU connector.
- Reconnect the negative battery terminal.
- Do NOT reconnect the brake booster pump connectors (Techstream instructs the tech to do so during the air bleeding procedure).
- Perform a Health Check and clear codes.
- Perform accumulator zero down in Techstream.
- Perform reset memory in Techstream.
- Restart the bleeding procedure from the beginning and follow the instructions in Techstream in step 12.J.

Brake Squawk/Knock Noise

Repair Procedure (continued)

- L. AFTER the solenoid is moved for 40 seconds to discharge brake fluid, fasten the right rear bleeder plug, release the brake pedal, and select Next.
- M. Add brake fluid so that the fluid level in the brake master cylinder reservoir assembly does NOT go below the MIN level.

Figure 26.



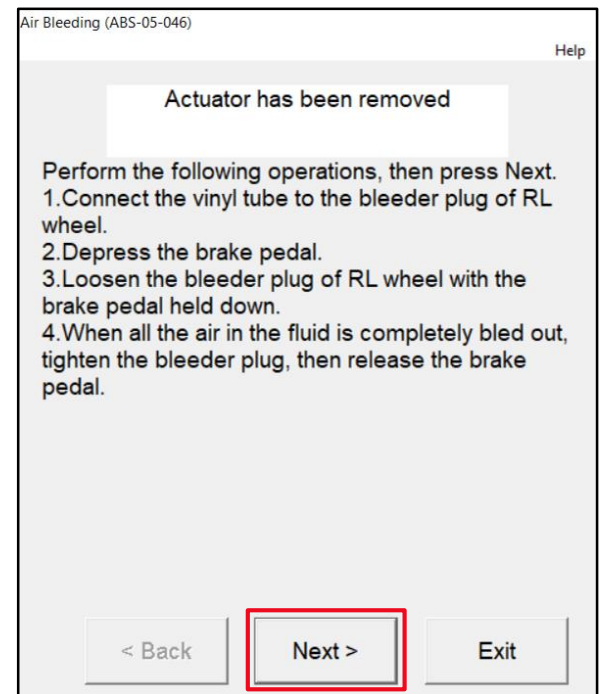
- N. Follow the steps in Figure 27 for the rear left bleeder plug.

NOTE

The bleeder should be left open for 30 seconds.

- O. When complete, select Next.

Figure 27.



Brake Squawk/Knock Noise

Repair Procedure (continued)

P. Add brake fluid so that the fluid level in the brake master cylinder reservoir assembly does NOT go below the MIN level.

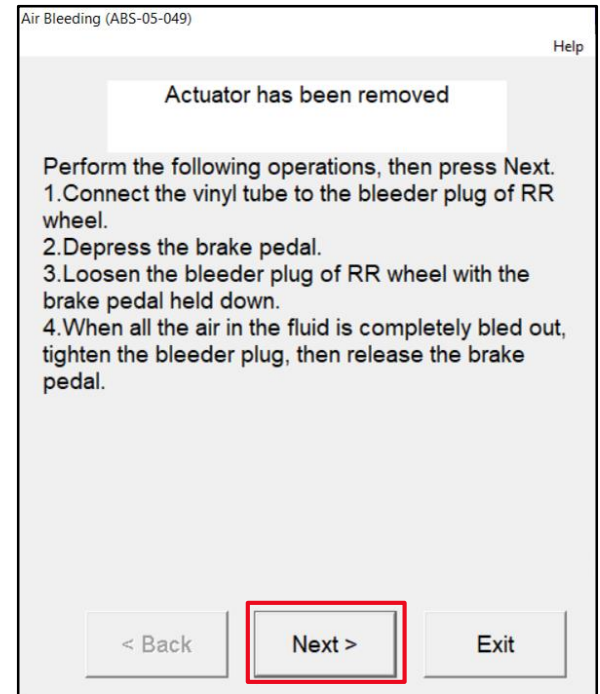
Q. Follow the steps in Figure 28 for the rear right bleeder plug.

NOTE

The bleeder should be left open for 30 seconds.

R. When complete, select Next.

Figure 28.

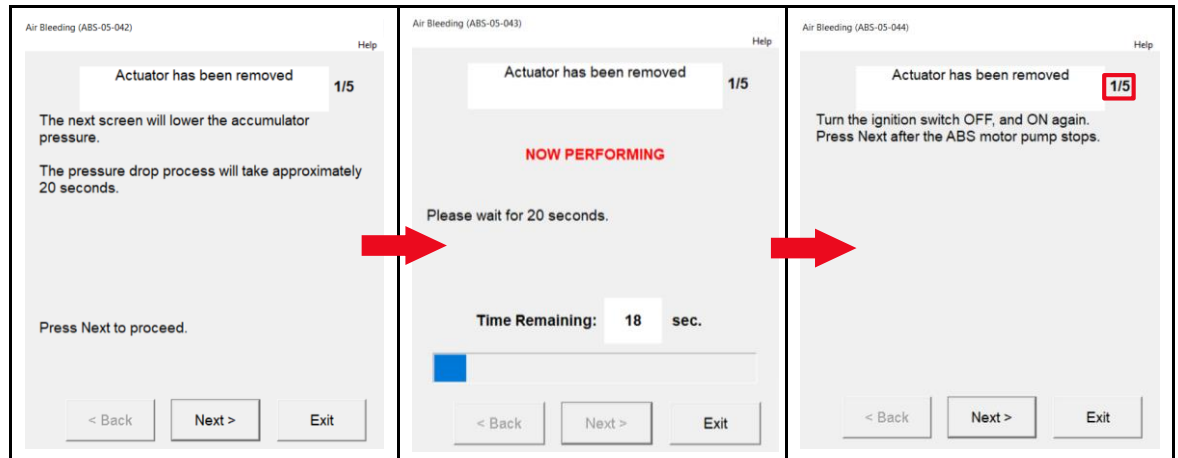


Brake Squawk/Knock Noise

Repair Procedure (continued)

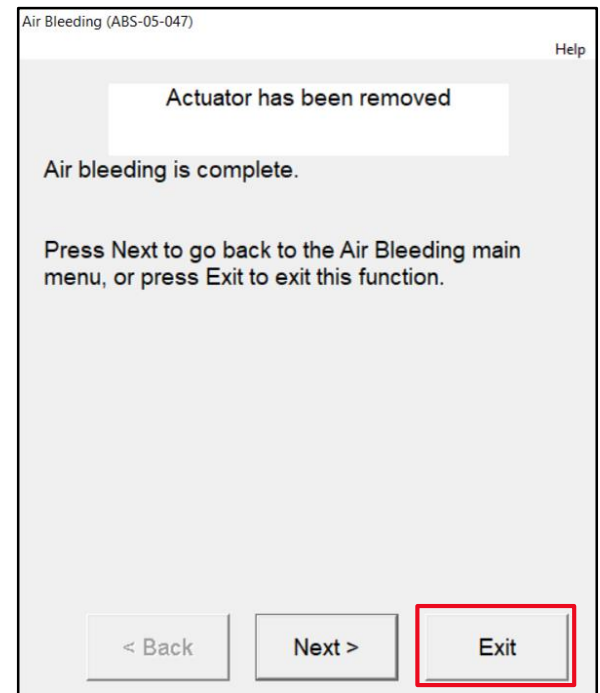
- S. Depressurize the accumulator by repeating five times the steps in Figure 29.

Figure 29.



- T. Select Exit to complete the air bleeding.

Figure 30.



Brake Squawk/Knock Noise

Repair Procedure (continued)

13. Perform the Techstream Active Test “Actuator Air Bleeding Pattern” to forcefully move the valve in the actuator to complete air bleeding by selecting the following in Techstream:
Chassis – ABS-VSC-TRC – Active Test – Actuator Air Bleeding Pattern

Figure 31. Techstream Screen Image (Actuator Air Bleeding Pattern)

Active Test Selection (S307-01)

Select desired Active Test from the List.

ECB Control Invalid
Accumulator Zero Down
Stroke Simulator Cut Valve Pattern
Actuator Air Bleeding Pattern
Power Supply Air Bleeding Pattern1
Power Supply Air Bleeding Pattern2
RL Wheel Air Bleeding Pattern
RR Wheel Air Bleeding Pattern
Pump Check Pattern
Drain System Air Bleeding Pattern
ECB Solenoid (SLRRL)
ECB Solenoid (SLARL)
ECB Solenoid (SLRRR)
ECB Solenoid (SLARR)
ECB Solenoid (SLRFL)
ECB Solenoid (SLAFL)
ECB Solenoid (SLRFR)
ECB Solenoid (SLAFR)

Description:

This test will activate the Actuator Air Bleeding Pattern.

Available commands & expected results:

OFF:Stop
ON:Activate

Execute condition:

Confirm that the Vehicle is stopped. This operation will take about 70 seconds. Please refer to the repair manual of the correct Air Bleeding process.

☐ Check if you want to execute the active test on the Dual Data List screen.

TIS Keyword

OK Cancel

Refer to TIS, applicable model and model year Repair Manual:

- 2016 – 2018 RX 450h and 2018 RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Brake Actuator: On-Vehicle Inspection](#)”
- 2019 – 2022 RX 450h and RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Brake Actuator: On-Vehicle Inspection](#)”

Brake Squawk/Knock Noise

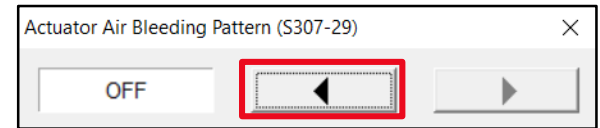
Repair Procedure (continued)

14. Turn ON the Actuator Air Bleeding Pattern by selecting the arrow in the Actuator Air Bleeding Pattern popup window.

NOTE

- Perform the above operation five times.
- This operation takes approximately one minute to complete each time it is performed.

Figure 32.



15. In Techstream select the following: *Chassis – ABS/VSC/TRAC – Reset Memory* and perform the steps as instructed in Techstream.
16. Ensure the parking brake is OFF.

NOTICE

If the parking brake is NOT OFF, the initialization and calibration of the linear solenoid valve will fail.

17. Perform initialization and calibration of the linear solenoid valve and the yaw rate sensor.

NOTE

BEFORE air bleeding, the linear valve offset learning and brake pedal stroke sensor zero-point value memories were deleted. ONLY the linear valve offset learning and brake pedal stroke sensor zero-point learning should be performed.

Refer to TIS, applicable model and model year Repair Manual:

- 2016 – 2018 RX 450h and 2018 RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Electronically Controlled Brake System: Initialization](#)”
- 2019 RX 450h and RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Electronically Controlled Brake System: Initialization](#)”
- 2020 – 2022 RX 450h and RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Electronically Controlled Brake System: Initialization](#)”

Brake Squawk/Knock Noise

Repair Procedure (continued)

18. Check and clear ANY DTCs.

Refer to TIS, applicable model and model year Repair Manual:

- 2016 – 2018 RX 450h and 2018 RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Electronically Controlled Brake System: DTC Check / Clear](#)”
- 2019 RX 450h and RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Electronically Controlled Brake System: DTC Check / Clear](#)”
- 2020 – 2022 RX 450h and RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake Control / Dynamic Control Systems: Electronically Controlled Brake System: DTC Check / Clear](#)”

19. Turn the ignition OFF.

20. Disconnect the Techstream from the DLC3.

21. Inspect for brake fluid leakage.

22. Inspect and adjust the amount of the brake fluid.

Refer to TIS, applicable model and model year Repair Manual:

- 2016 – 2022 RX 450h and 2018 – 2022 RX 450hL:
Brake – Brake Control/Dynamic Control System – “[Brake System \(Other\): Brake Fluid: On-Vehicle Inspection](#)”

23. Install the brake master cylinder reservoir filler cap assembly.

24. Test-drive the vehicle to confirm the squawk/knock noise is no longer present.