

# 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	

### REVISION NOTICE

October 02, 2023 Rev1:

- The Warranty Information, Parts Information, and Repair Procedure sections have been updated.

Any previous printed versions of this bulletin should be discarded.

### SUPERSESSION 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 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-#####*	91	99
Combo A	2016 – 2018	Reprogram ECU	0.3			
Combo B		R & R Master Cylinder Reservoir	1.2			

\*Warranty claim MUST be submitted with the correct 10-digit OFP. Choose the correct OFP for the vehicle being repaired by searching for the parts in the Electronic Parts Catalog using the VIN filter.

#### 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 2019 – 2022 model year RX 450h and RX 450hL vehicles equipped with a California Certified Emission Control System that are registered and operated in California or ANY state that adopts California emission warranty — California Emission Long-Term Defect Warranty is in effect for 7 years or 70,000 miles from the vehicle's in-service date, whichever occurs first. (Please reference Policy 4.7, and/or the Owner's Warranty & Maintenance Guide for additional information).

#### For Mexico Market

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

\*Warranty claim MUST be submitted with the correct 10-digit OFP. Choose the correct OFP for the vehicle being repaired by searching for the parts in the Electronic Parts Catalog using the VIN filter.

#### 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

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### Parts Information

#### For USA and Mexico Markets

PART NUMBER		PART NAME	QTY
PREVIOUS	NEW		
47220-48270	47220-48271	Reservoir Assy, Master Cylinder	1
44050-#####		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

**NOTE**

The skid control ECU should NOT be replaced as part of the Repair Procedure.

## 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 2023.03.002.02 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 GTS+ or an approved J2534 interface to perform flash reprogramming updates. Visit [techinfo.toyota.com](http://techinfo.toyota.com) for more information regarding J2534 reprogramming.

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
Battery Diagnostic Tool*	<a href="#">DCA-8000P T</a>	1
Hose Plug No. 2**	<a href="#">09053-1C220</a>	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

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### Calibration Information

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

### Repair Procedure

1. 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.
  
2. 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.
  
3. Is the vehicle a 2016 – 2018 model year RX 450h?
  - **YES** — Continue to step 4.
  - **NO** — Go to step 7.
  
4. Use GTS+ to confirm if the skid control ECU calibration has been updated.  
 Is the calibration ID listed in GTS+ the latest skid control ECU calibration?
  - **YES** — Go to step 7.
  - **NO** — Continue to step 5.

## Brake Squawk/Knock Noise

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### 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](#), *GTS+ Techstream ECU Flash Reprogramming Procedure*, and flash the skid control ECU with the NEW calibration file update.

6. Is the vehicle a 2016 – 2018 model year RX 450h or a 2018 model year RX 450hL?
  - **YES** — Continue to step 7.
  - **NO** — Go to step 8.

7. 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](#)”

8. 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

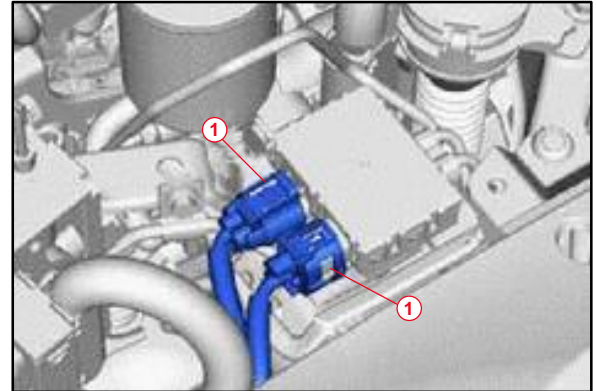
### Repair Procedure (continued)

9. 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**

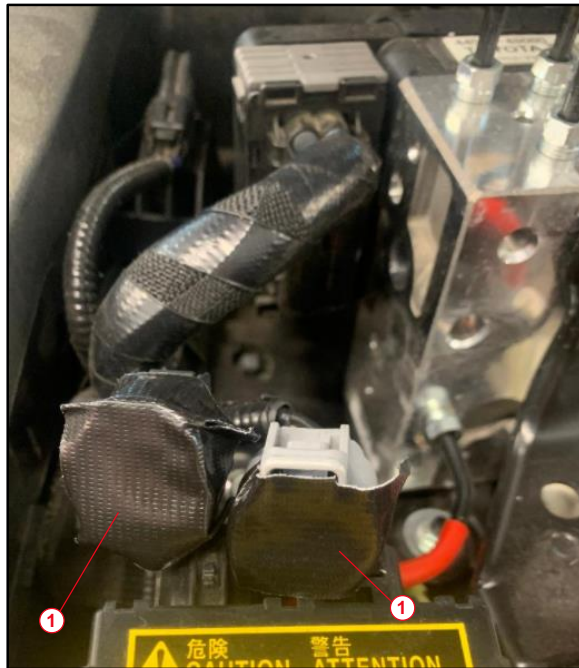
- Using GTS+ to perform accumulator pressure zero down causes the pressurized brake fluid in the accumulator to be returned to the brake master cylinder reservoir assembly.
- Taping the connectors will prevent fluid from contaminating the connectors.

**Figure 1.**



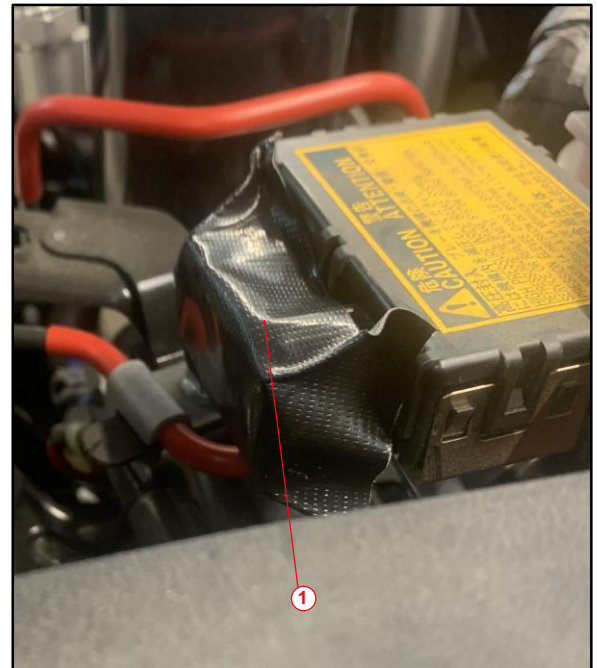
1	Brake Booster Pump Connector
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**Figure 2.**



1	Tape Covering Brake Booster Pump Connectors
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**Figure 3.**



1	Tape Covering Brake Booster Pump Connectors
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## Brake Squawk/Knock Noise

### Repair Procedure (continued)

B. Perform the accumulator pressure zero down.

**NOTE**

Using GTS+ 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 GTS+ 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.

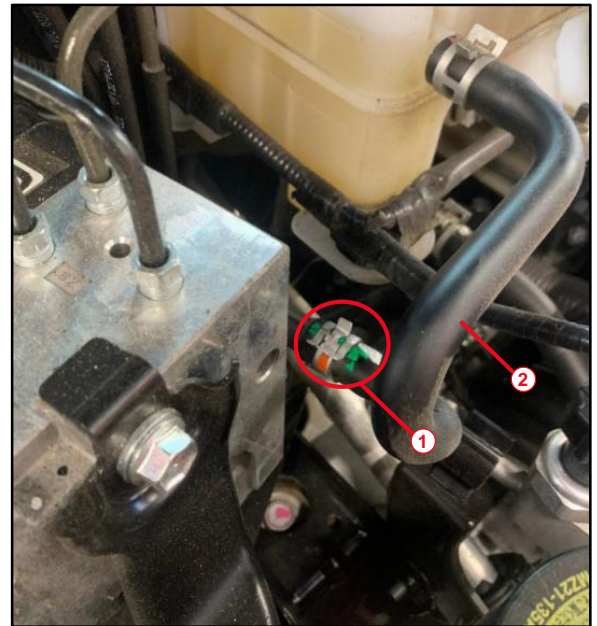
C. Separate the No. 1 reservoir hose.

- (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 4.**



<b>1</b>	<b>No. 1 Reservoir Hose Clip</b>
<b>2</b>	<b>The No. 1 Reservoir Hose</b>

## Brake Squawk/Knock Noise

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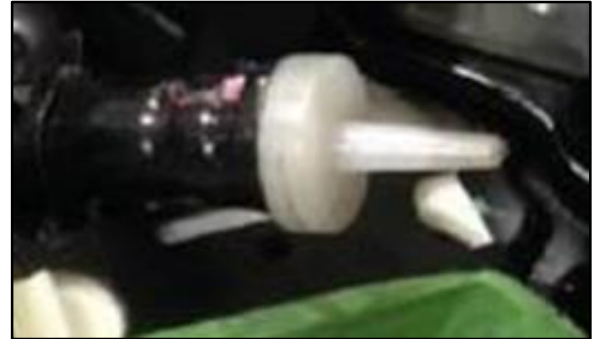
### Repair Procedure (continued)

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

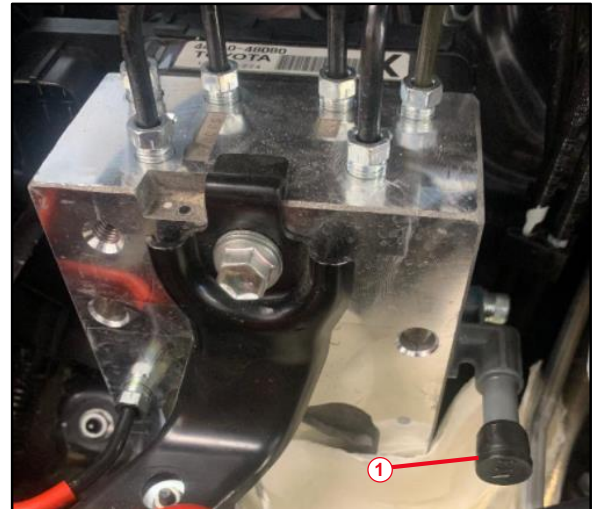
**CAUTION**

- 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 5. Hose Plug Installed**



**Figure 6. Actuator Plug Installed**



<b>1</b>	<b>Actuator Plug</b>
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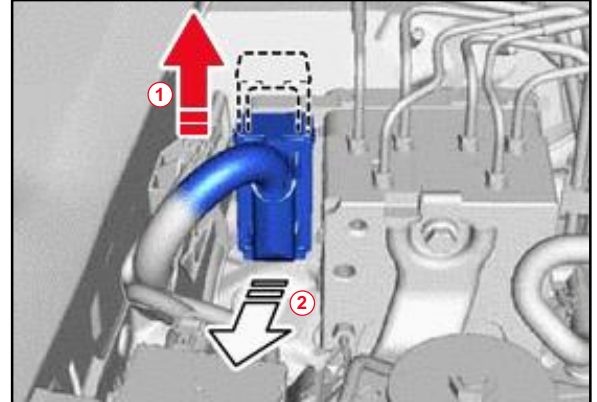
## Brake Squawk/Knock Noise

### 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 7.**



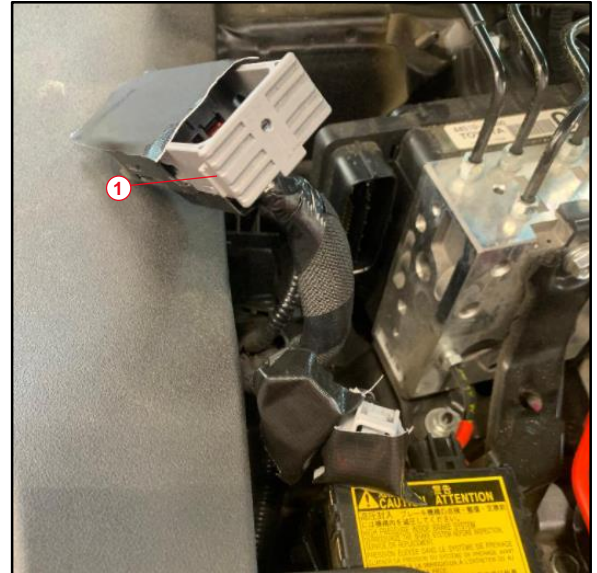
<b>1</b>	Release the Lock Lever
<b>2</b>	Disconnect the Electrical Connector

- (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 8.**



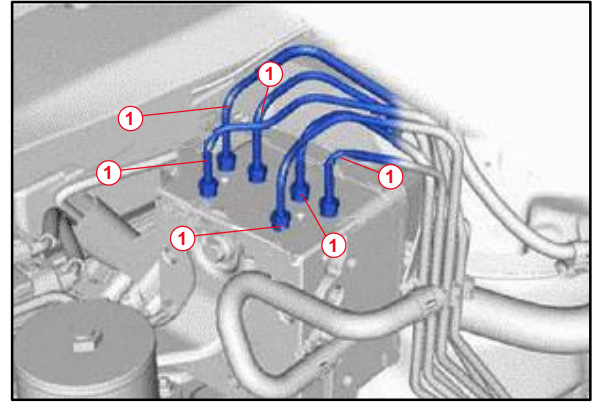
<b>1</b>	Electrical Connector
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## Brake Squawk/Knock Noise

### Repair Procedure (continued)

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

**Figure 9.**

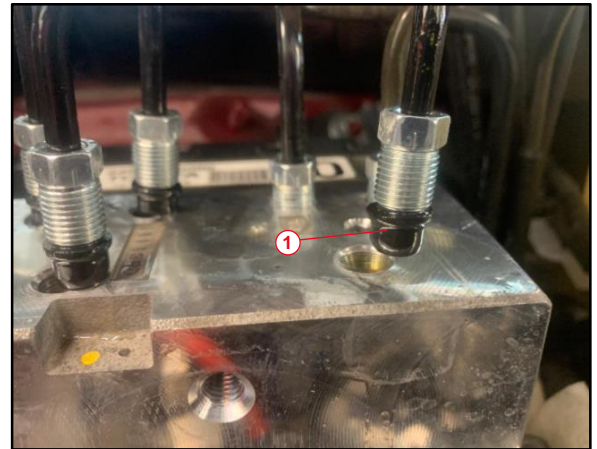


<b>1</b>	<b>Brake Line</b>
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- (4) As each line is disconnected, quickly attach each bleeder plug cap.

**CAUTION**  
 This will help prevent air from entering the system.

**Figure 10.**



<b>1</b>	<b>Cap Attached to Disconnected Line</b>
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## Brake Squawk/Knock Noise

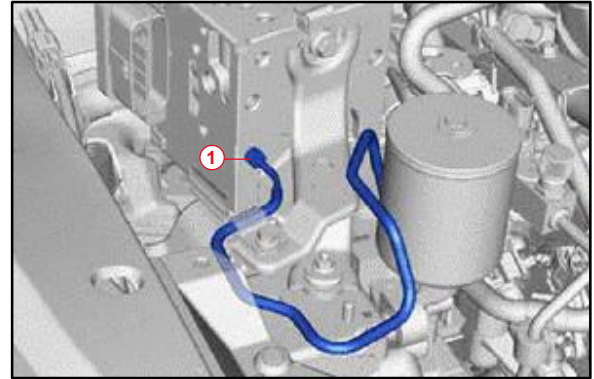
### Repair Procedure (continued)

- (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 11.**



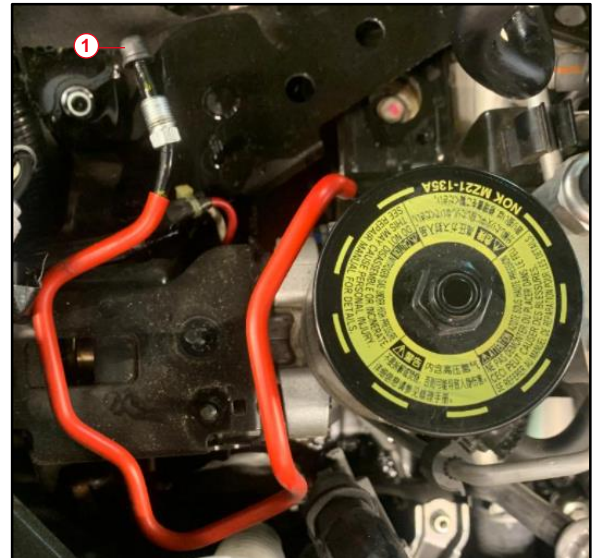
<b>1</b>	Point of Separation
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- (6) As each line is disconnected from the brake actuator assembly, quickly attach each cap.

**CAUTION**

This will help prevent air from entering the system.

**Figure 12.**



<b>1</b>	Attach Cap Here
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## Brake Squawk/Knock Noise

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### 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.

10. 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\*lbf)**
  - 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\*lbf)**

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

## Brake Squawk/Knock Noise

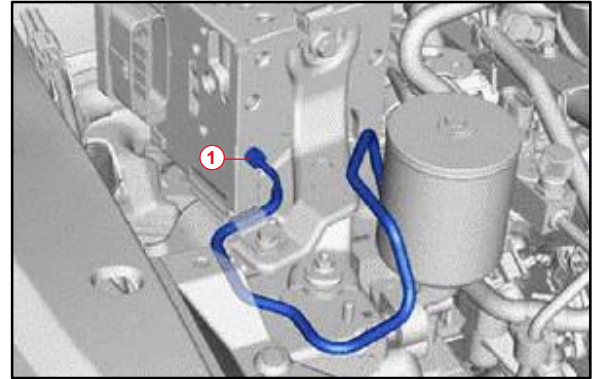
### Repair Procedure (continued)

- (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 13.**



<b>1</b>	Remove Cap Here
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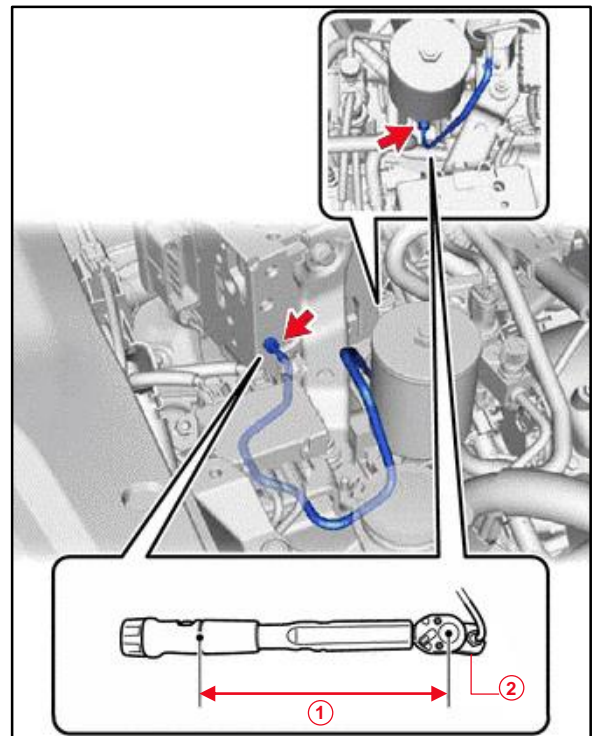
- (5) Install the No. 1 brake tube clamp with the bolt to secure the No. 1 brake actuator tube to the No. 1 brake actuator bracket.
- (6) Using a union nut wrench, fully tighten the No. 1 brake actuator tube.

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

**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\*lbf).

**Figure 14.**



<b>1</b>	Torque Wrench Fulcrum Length
<b>2</b>	Union Nut Wrench

## Brake Squawk/Knock Noise

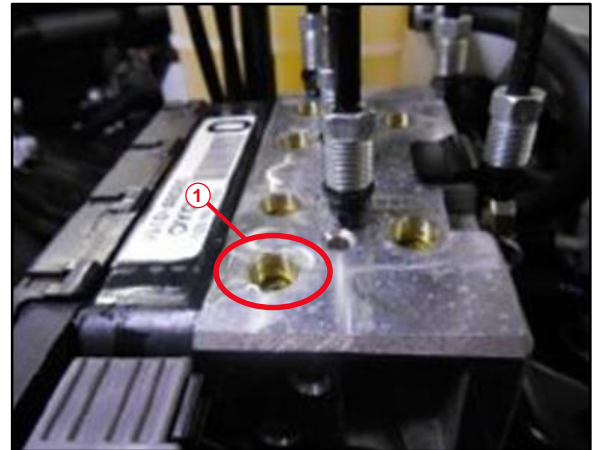
### Repair Procedure (continued)

- (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 15.**



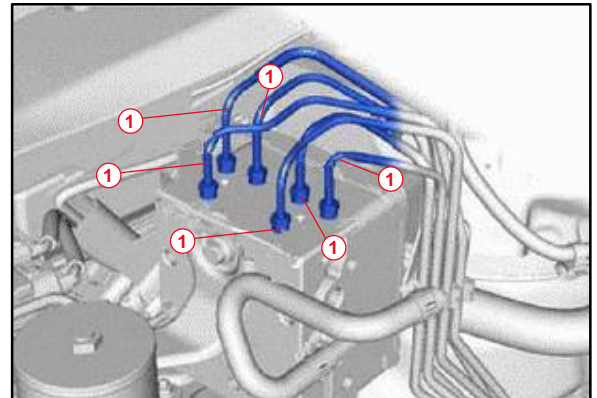
**1** Brake Actuator Port

- (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 16.**



**1** Brake Line



## Brake Squawk/Knock Noise

### Repair Procedure (continued)

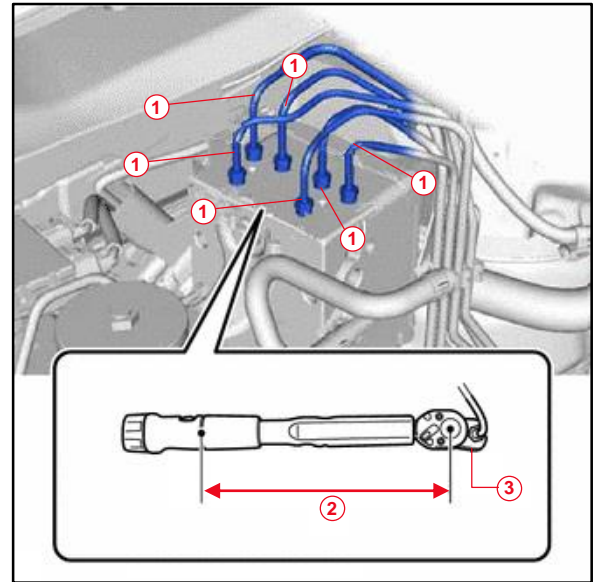
- (12) Using a union nut wrench, fully tighten each brake line.

**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 17.**



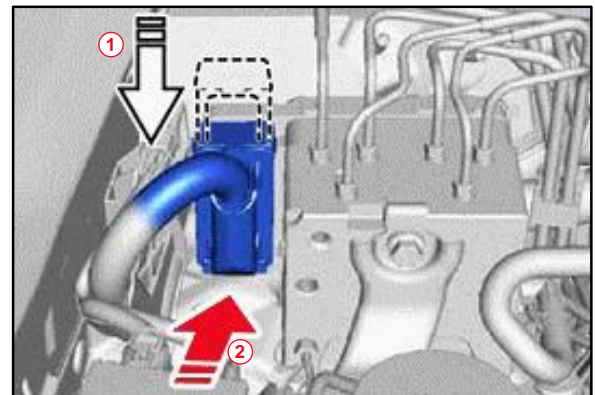
1	Brake Line
2	Torque Wrench Fulcrum Length
3	Union Nut Wrench

- (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 18.**



1	Lock the Lock Lever
2	Connect the Electrical Connector

## Brake Squawk/Knock Noise

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### 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.

11. Using GTS+, perform the following modified air bleeding procedure.

#### CAUTION

**GTS+ MUST be used for air bleeding. If GTS+ 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

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### 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 GTS+ 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 GTS+ ON and select the following: *Chassis – ABS/VSC/TRAC – Reset Memory*.

- G. Perform the steps as instructed in GTS+.

**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 GTS+:  
*Chassis – ABS-VSC-TRAC – Utility – Air Bleeding*.

## Brake Squawk/Knock Noise

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### Repair Procedure (continued)

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

#### 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 GTS+.
- Perform reset memory in GTS+.
- Restart the bleeding procedure from the beginning and follow the instructions in GTS+ in step 11.J.

## Brake Squawk/Knock Noise

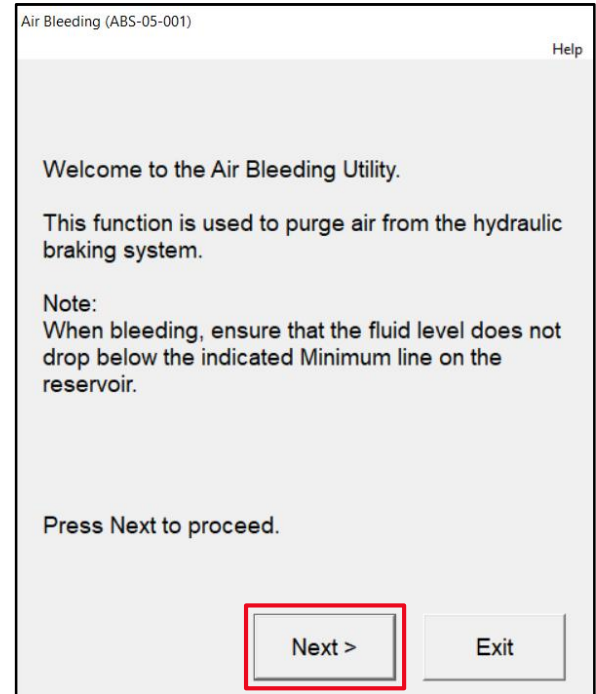
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### Repair Procedure (continued)

J. Perform air bleeding per the GTS+ instructions below.

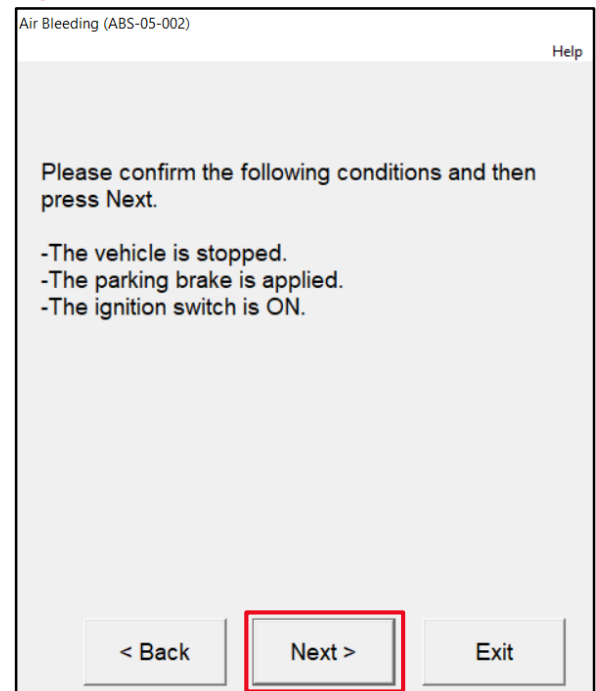
- (1) On the “Welcome to the Air Bleeding Utility” screen, click Next.

**Figure 19.**



- (2) Confirm the conditions shown in Figure 20 and click Next.

**Figure 20.**



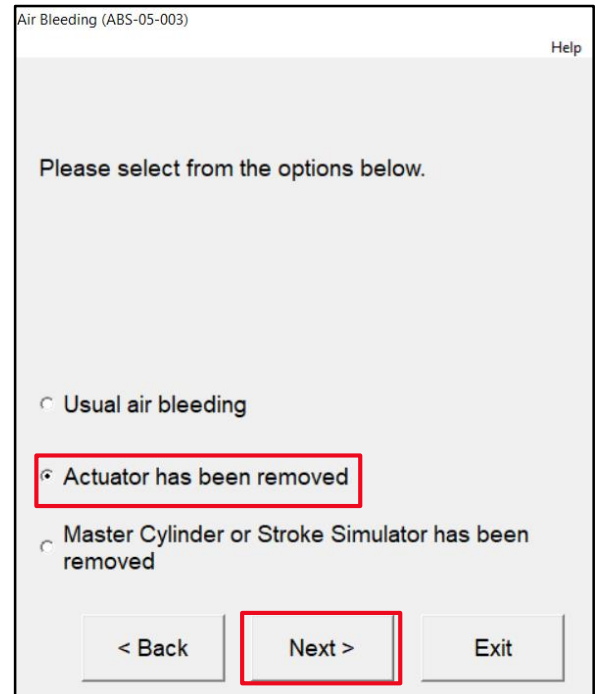
## Brake Squawk/Knock Noise

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### Repair Procedure (continued)

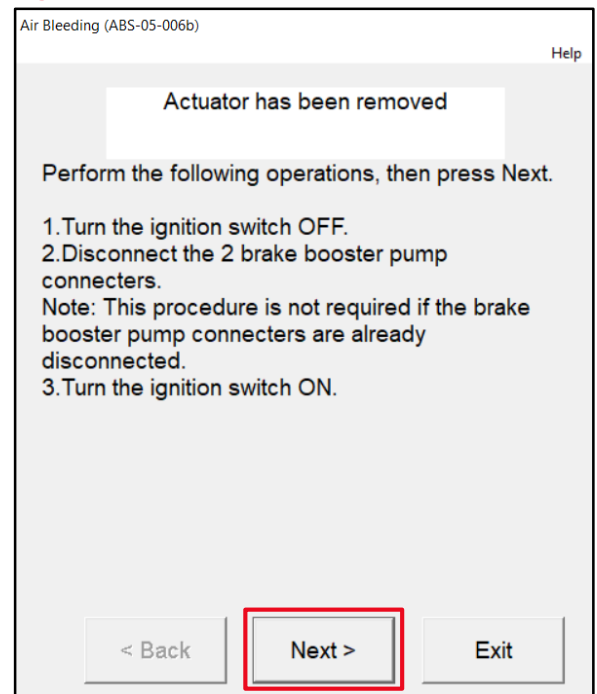
- (3) Select "Actuator has been removed" and click Next.

**Figure 21.**



- (4) Perform the instructions shown in Figure 22 and click Next.

**Figure 22.**



## 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**

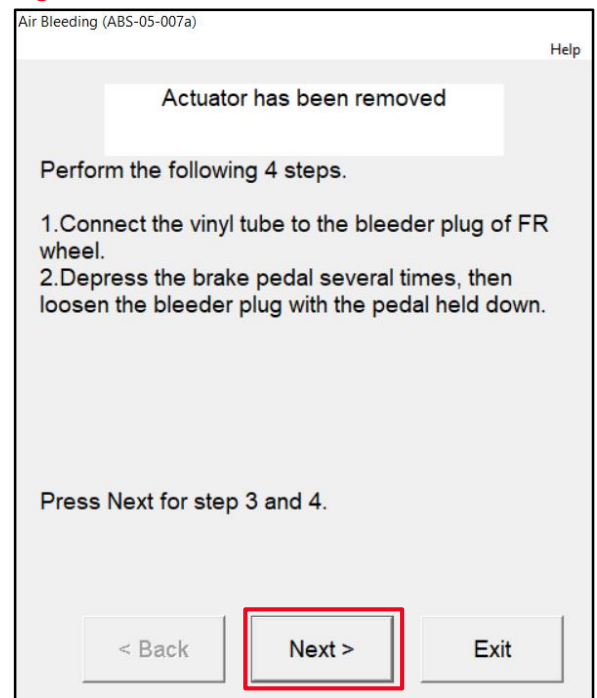
- This **MUST** be done **BEFORE** proceeding with the instructions in GTS+.
- Sub steps (5) and (6) are **ONLY** done on the right front wheel.
- This may require pressing the brake pedal approximately 100 or more times.
- If this is **NOT** done, air may be trapped in the system.

- (8) Perform the two steps shown in Figure 23 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**

GTS+ 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 23.**



## Brake Squawk/Knock Noise

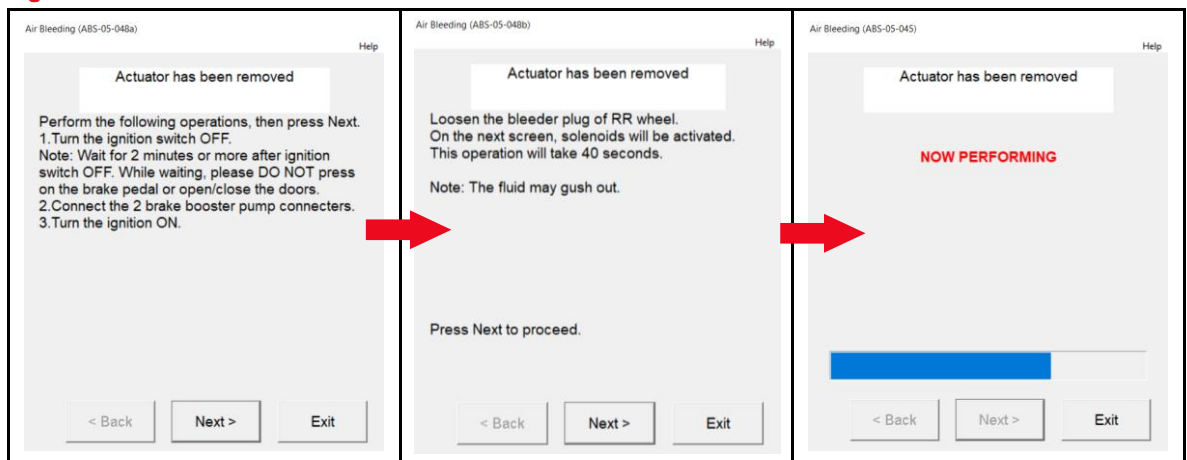
### Repair Procedure (continued)

- 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 24.



#### 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 (GTS+ instructs the tech to do so during the air bleeding procedure).
- Perform a Health Check and clear codes.
- Perform accumulator zero down in GTS+.
- Perform reset memory in GTS+.
- Restart the bleeding procedure from the beginning and follow the instructions in GTS+ in step 11.J.

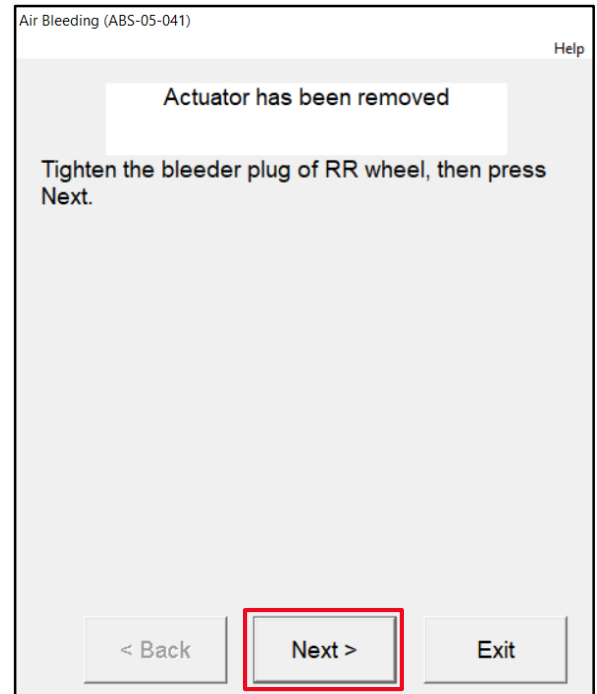


## Brake Squawk/Knock Noise

### 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 25.**



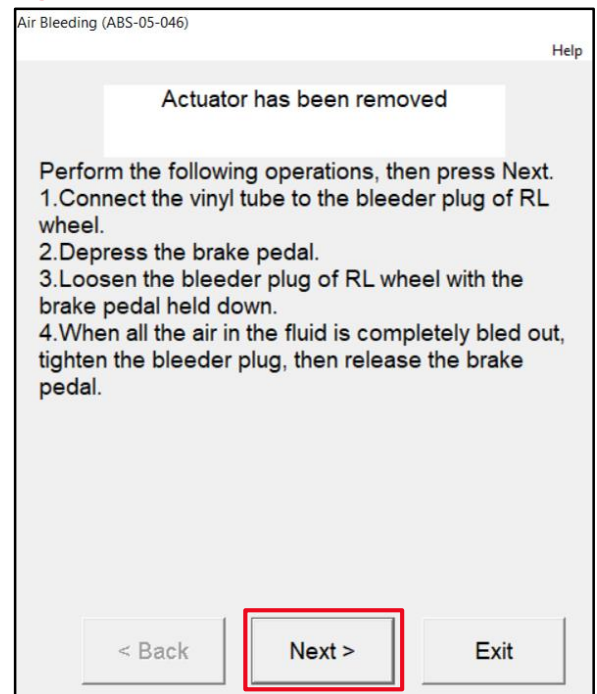
- N. Follow the steps in Figure 26 for the rear left bleeder plug.

**NOTE**

The bleeder should be left open for 30 seconds.

- O. When complete, select Next.

**Figure 26.**



## Brake Squawk/Knock Noise

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### 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.

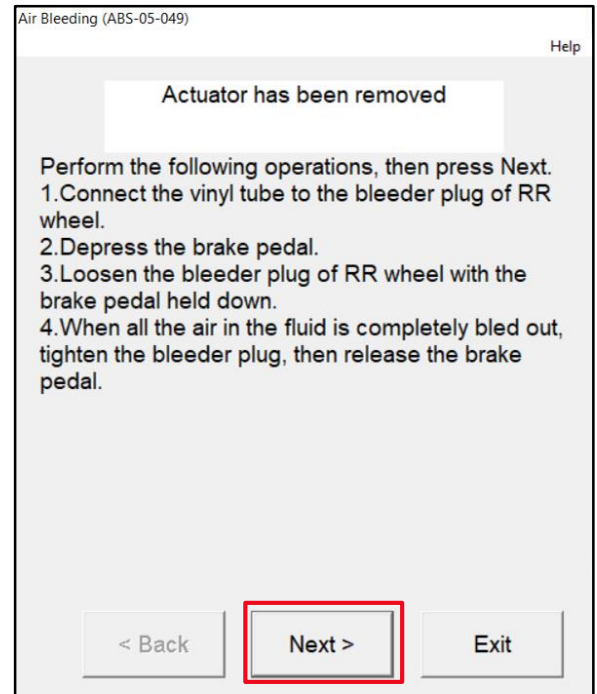
Q. Follow the steps in Figure 27 for the rear right bleeder plug.

**NOTE**

The bleeder should be left open for 30 seconds.

R. When complete, select Next.

**Figure 27.**



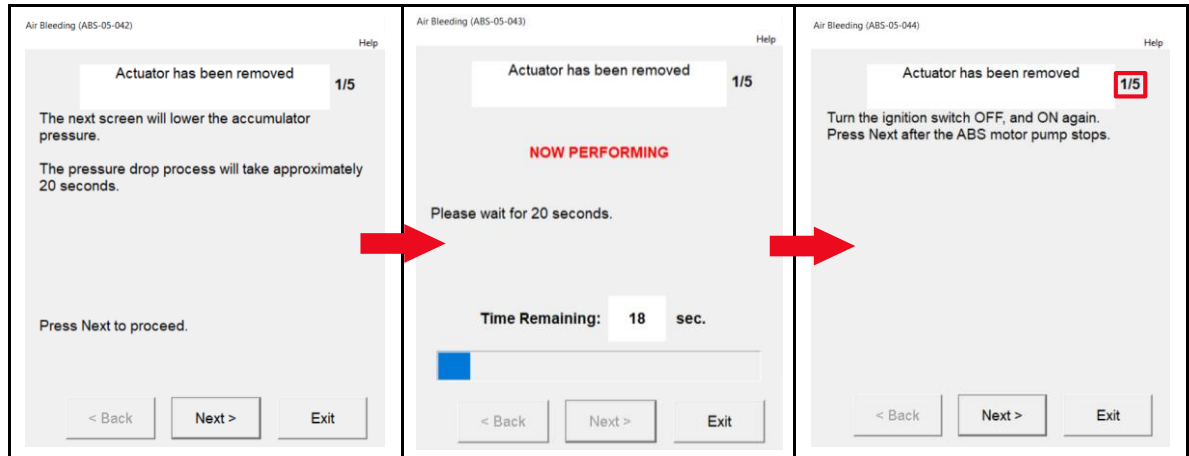
## Brake Squawk/Knock Noise

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### Repair Procedure (continued)

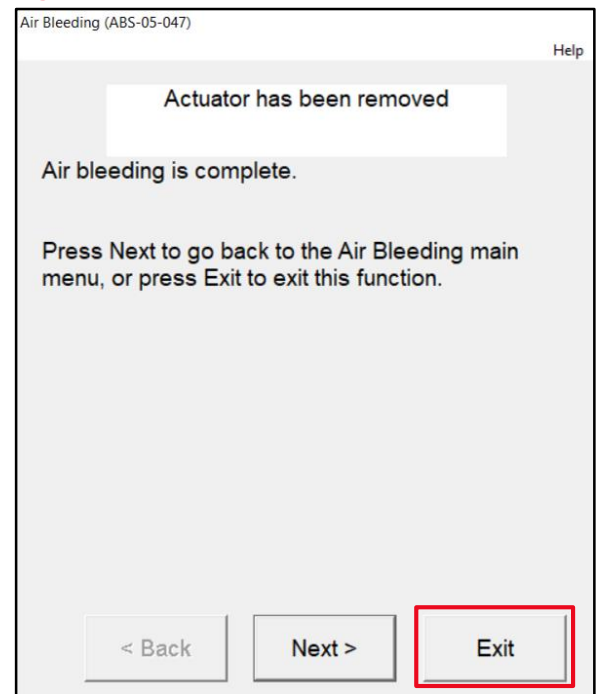
- S. Depressurize the accumulator by repeating five times the steps in Figure 28.

**Figure 28.**



- T. Select Exit to complete the air bleeding.

**Figure 29.**

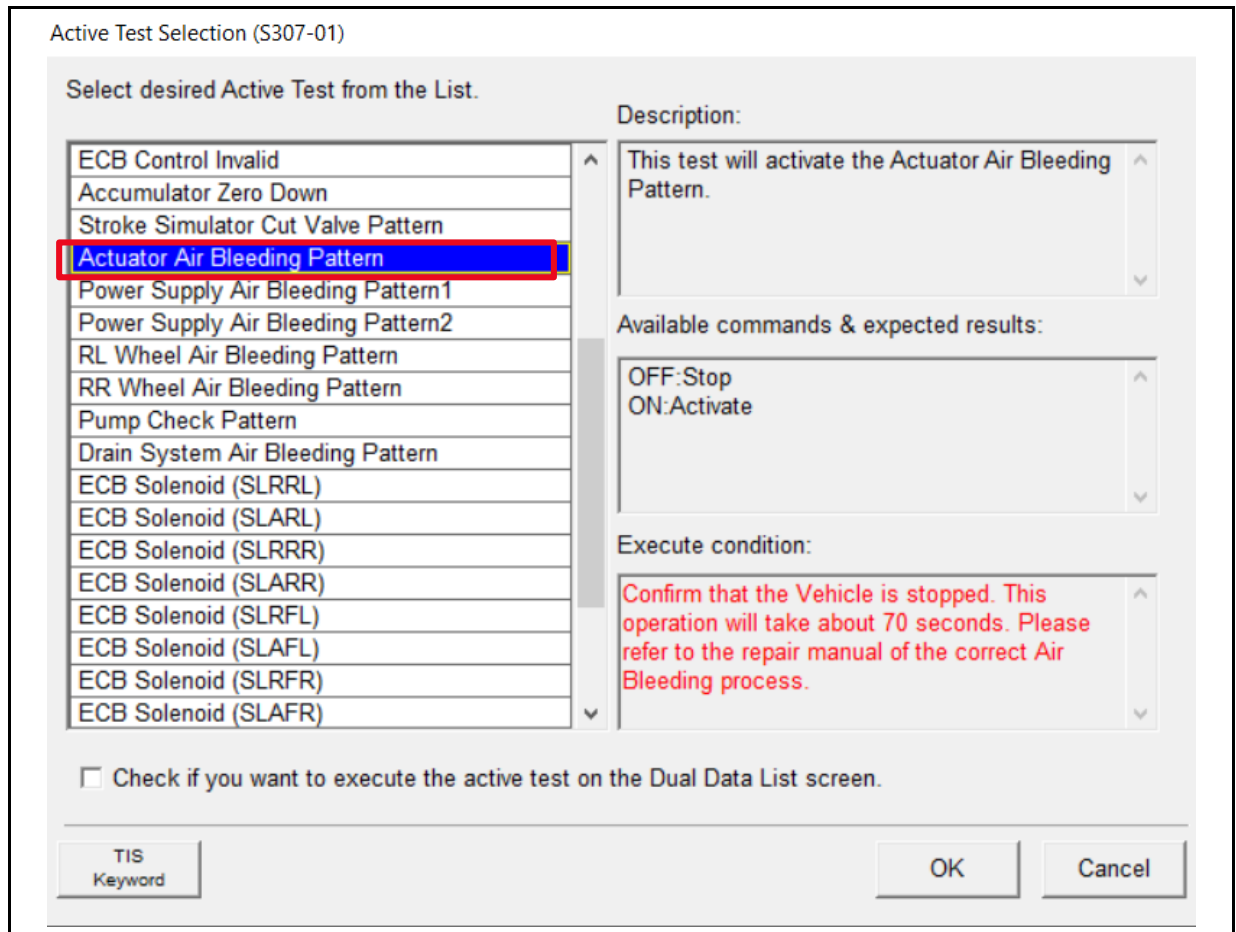


## Brake Squawk/Knock Noise

### Repair Procedure (continued)

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

**Figure 30. GTS+ Screen Image (Actuator Air Bleeding Pattern)**



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

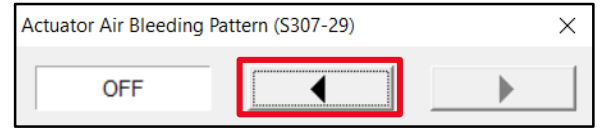
- 2016 – 2018 RX 450h and 2018 RX 450hL:  
*Brake – Brake Control/Dynamic Control System – [“Brake Control / Dynamic Control Systems: Brake Actuator: On-Vehicle Inspection”](#)*
- 2019 – 2022 RX 450h and RX 450hL:  
*Brake – Brake Control/Dynamic Control System – [“Brake Control / Dynamic Control Systems: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

## Brake Squawk/Knock Noise

### Repair Procedure (continued)

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

**Figure 31.**



**NOTE**

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

- In GTS+ select the following: *Chassis – ABS/VSC/TRAC – Reset Memory* and perform the steps as instructed in GTS+.
- 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.**

- 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

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### Repair Procedure (continued)

17. 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](#)”*

18. Turn the ignition OFF.

19. Disconnect the Techstream from the DLC3.

20. Inspect for brake fluid leakage.

21. 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](#)”*

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

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