# Squawk/Bark Type Noise from Brake Actuator

**Service Category** Brake

**Section** Brake Control/Dynamic Control System **Market** USA

Lexus Supports ASE Certification

## Applicability

| YEAR(S) | MODEL(S) | ADDITIONAL INFORMATION |
|---|---|---|
| 2007 – 2009 | LS460, LS600H | |

## Introduction

Small amounts of air in the brake system may cause a squawk or bark type noise from the brake actuator in some LS 460/460L and LS 600h vehicles. If present, this condition is most noticeable when the vehicle is not moving and the brake pedal is depressed, or when coming to an abrupt stop. Follow the procedures outlined in this bulletin to remove any residual air from the system that could contribute to this condition.

This procedure should also be followed anytime the brake actuator assembly is replaced.

Refer to the video link below for an example of the squawk/bark noise condition:

LS Squawk/Bark Noise Example

## Warranty Information

| OP CODE | DESCRIPTION | TIME | OFP | T1 | T2 |
|---|---|---|---|---|---|
| BR9002 | Special Brake Bleed Procedure | 1.0 | 44050-50130 | 91 | 99 |

**APPLICABLE WARRANTY**

- **This repair is covered under the Lexus Comprehensive 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 correction of a problem based upon a customer's specific complaint.**

# Squawk/Bark Type Noise from Brake Actuator

## Required Tools & Equipment

| REQUIRED MATERIALS | PART NUMBER | QTY |
|---|---|---|
| Brake Fluid | SAE J1703 or FMVSS No. 116 DOT 3 | As Needed |
| Vinyl Tube for Brake Bleeder | – | 1 |
| Clear Plastic Bottle (to Bleed Brake Fluid into) | – | 1 |

| REQUIRED EQUIPMENT | SUPPLIER | PART NUMBER | QTY |
|---|---|---|---|
| TIS Techstream*<br>NOTE: Software version 4.11.000 or later is required. | ADE | TSPKG1 | 1 |

* Essential SST.

**NOTE**

**Additional TIS Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.**

| SPECIAL SERVICE TOOLS (SST'S) | PART NUMBER | QTY |
|---|---|---|
| GR8 Battery Diagnostic Station* | 00002-MCGR8 | 1 |

* Essential SST.

**NOTE**

**Additional SSTs may be ordered by calling 1-800-933-8335.**

# Squawk/Bark Type Noise from Brake Actuator

**Repair Procedure Overview**

The brake bleed procedure consists of 5 main sections:

- **Section 1: Zero Down Accumulator Pressure (Zero Down)**

  This procedure is used to release the pressure from the accumulator prior to bleeding the brakes (or replacing the brake actuator). Techstream is used for this procedure.

- **Section 2: Disable Electronic Controlled Brakes (ECB Invalid)**

  This procedure, using Techstream, disables the ECB system temporarily to allow the front brakes to be bled manually. Using Techstream to disable brake control causes the master cylinder cut solenoid to turn OFF and the line from the master cylinder to front brake calipers to open, allowing manual bleeding of the front brakes.

- **Section 3: Front Brake Bleed — Manual Process**

  This is a two-man process in which one technician pumps and holds the brake pedal, while another technician opens the right front bleeder screw to remove air from the system. The same procedure is repeated for the left front.

- **Section 4: Rear Brake Bleed**

  - Right Rear Brake Line Air Bleed

    During this procedure, Techstream opens the solenoid for the right rear brake line and then the accumulator pump runs during this process to push fluid and air out of the right rear caliper bleeder valve. During this process, the brake pedal is NOT applied — the accumulator pump will automatically pump fluid out of the right rear caliper bleeder valve. This process bleeds the red brake line (suction line from the accumulator to the actuator) and passes air out through the right rear caliper bleeder.

  - Left Rear Brake Line Air Bleed

    The left rear brake line is bled using a combination of the brake pedal being pressed-and-held and the accumulator pump.

- **Section 5: Reset Memory and Linear Valve Offset Calibration**

  The purpose of this step is to erase all previously memorized brake actuator linear valve calibration values and to re-calibrate the brake actuator linear valves after all brake bleeding procedures are finished. This procedure resets the memory of the skid control computer and then performs the Linear Valve Offset Learning Process. During the Linear Valve Offset Learning Process, the skid control computer memorizes the characteristics of the actuator linear solenoids.

# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down)

**IMPORTANT**

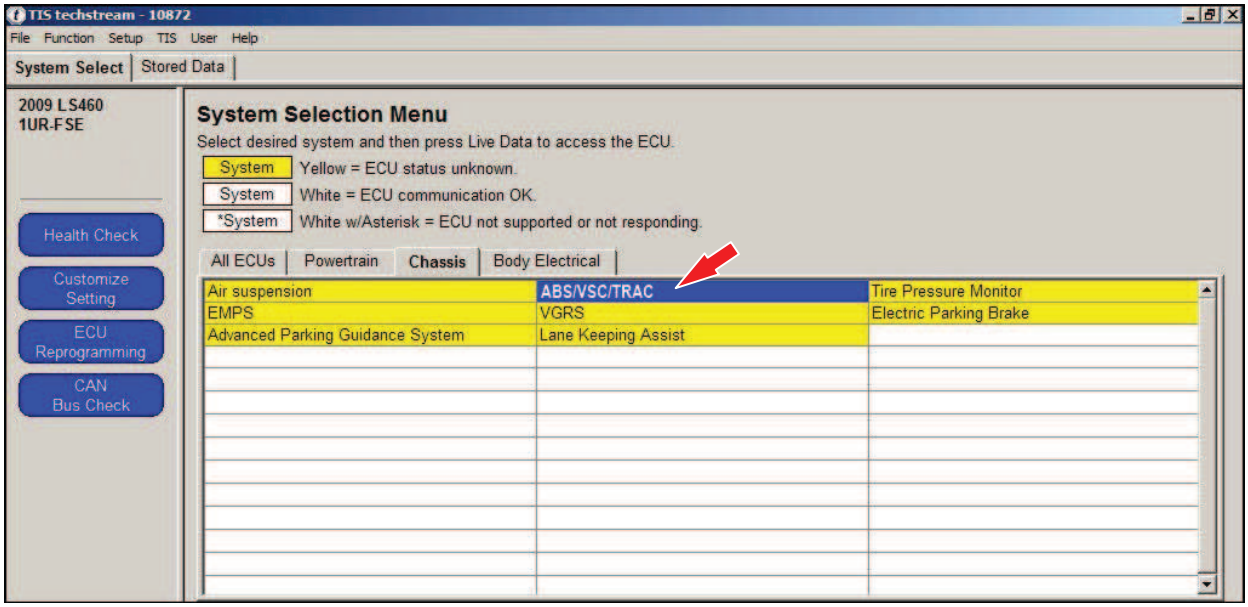
- **When the actuator is replaced, there is no pressure in the accumulator and the Zero Down procedure is NOT necessary.**
- **If the actuator has just been replaced and no bleeding has yet been performed, DO NOT connect accumulator connectors and press the "Engine Start/Stop" button to the ignition ON position. (If the connectors are plugged in and the ignition is turned "ON", pressure will be built up in the accumulator.)**

  **Press the "Engine Start/Stop" button to the ignition ON position, then start with *"Section 2: Disable Electronic Controlled Brakes (ECB Invalid)"*.**

This procedure releases pressure from the accumulator.

1. Connect a battery charger to maintain battery voltage.
2. Press the "Engine Start/Stop" button to the ignition ON position.
3. Using Techstream, navigate to the following menu:
   **ABS/VSC/TRAC**

   Figure 1.



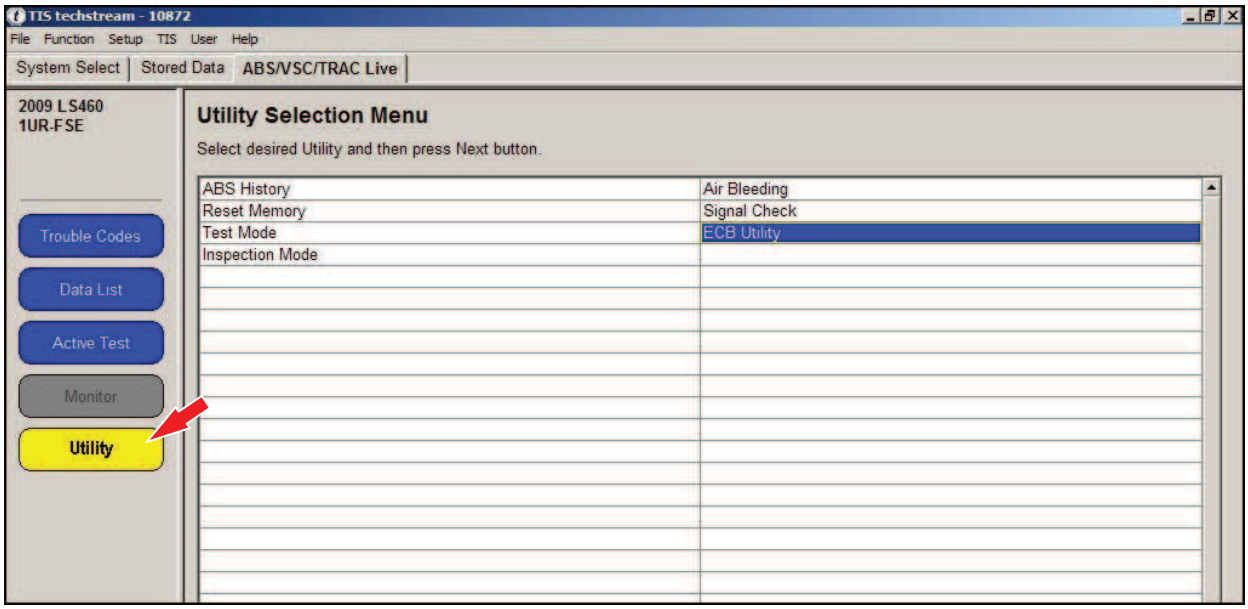
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

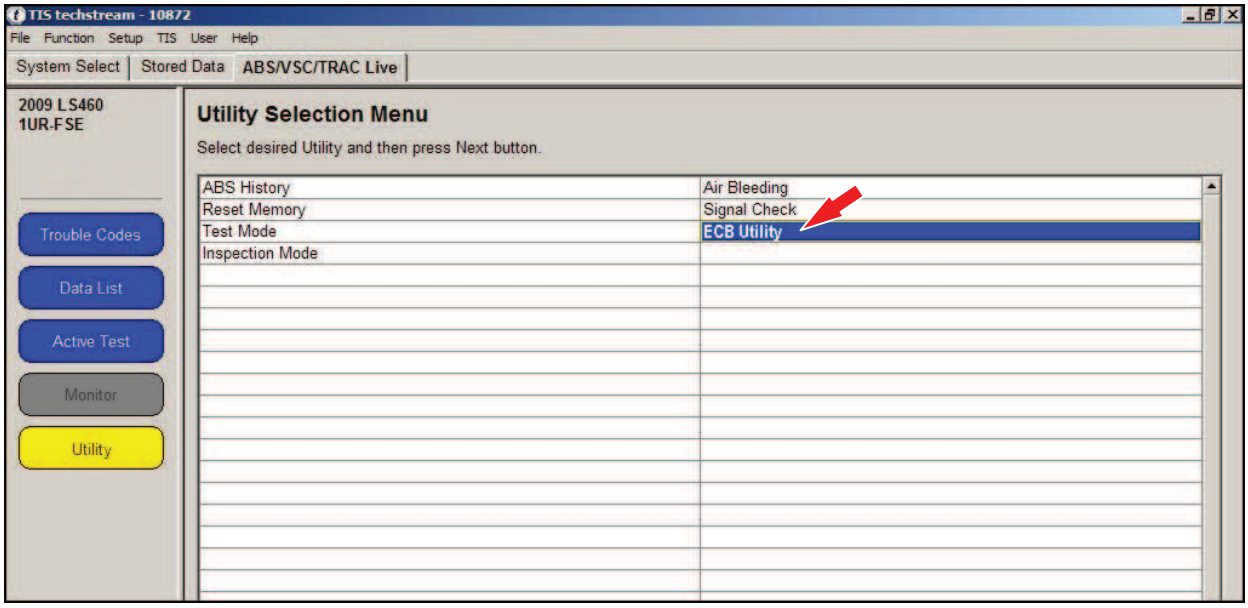
4. Select the “Utility” menu.

**Figure 2.**




5. Select “ECB Utility”.

**Figure 3.**



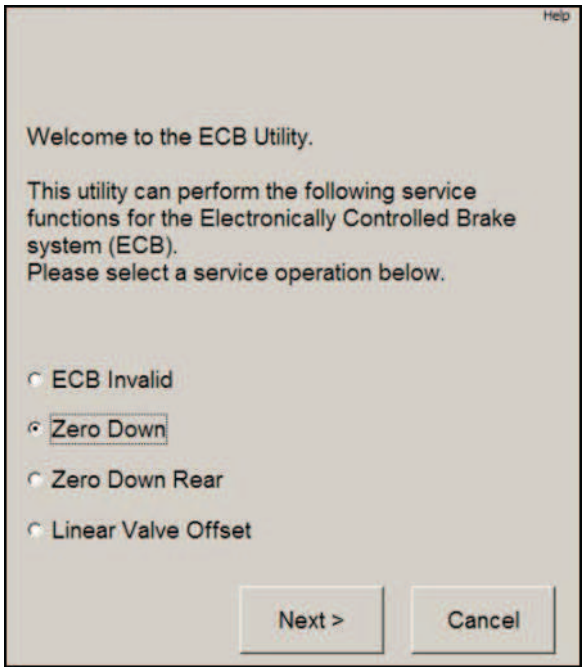
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

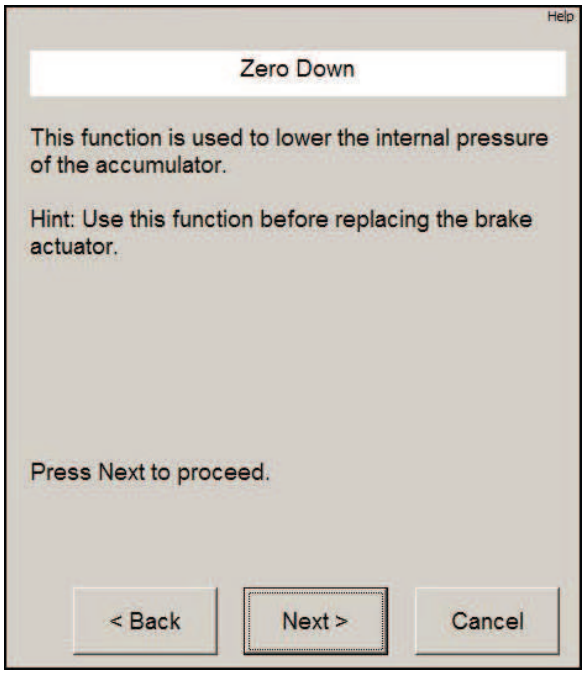
6. Select “Zero Down” from the ECB Utility screen and press “Next”.

Figure 4.




7. Press “Next” to proceed.

Figure 5.



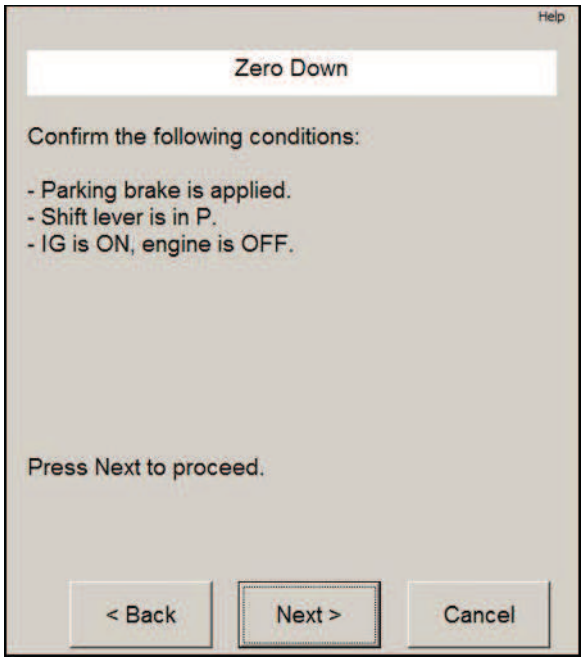
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

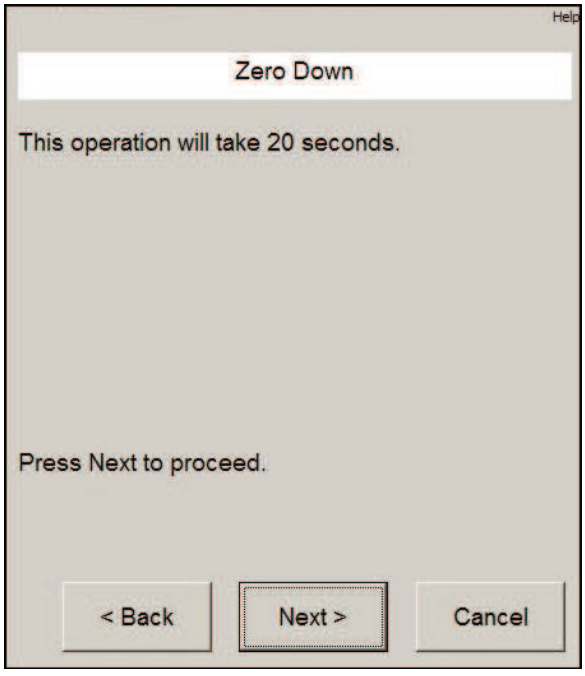
8. Confirm the conditions listed on Techstream and press “Next”.

Figure 6.




9. Press “Next” to proceed.

Figure 7.



# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

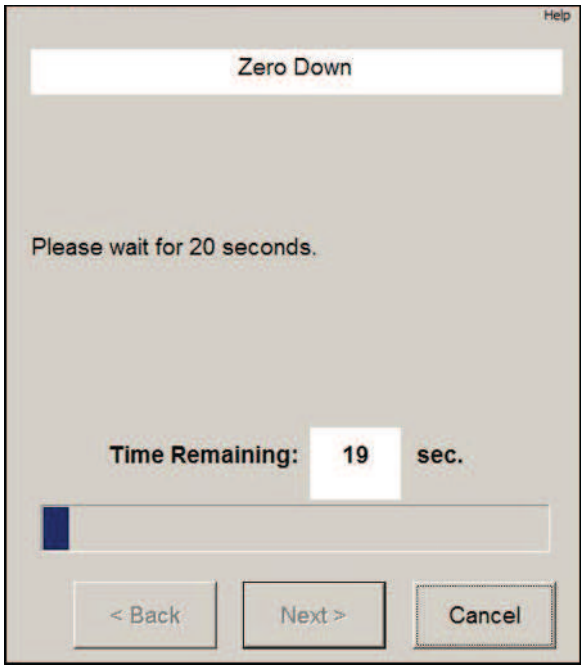
10. Wait for the Zero Down process to finish and press “Next”.

**NOTE**

**The Zero Down process will take 20 seconds to complete.**

The Low Pressure beeper will sound at the end of Zero Down to indicate the accumulator pressure is low. This is normal.

Figure 8.



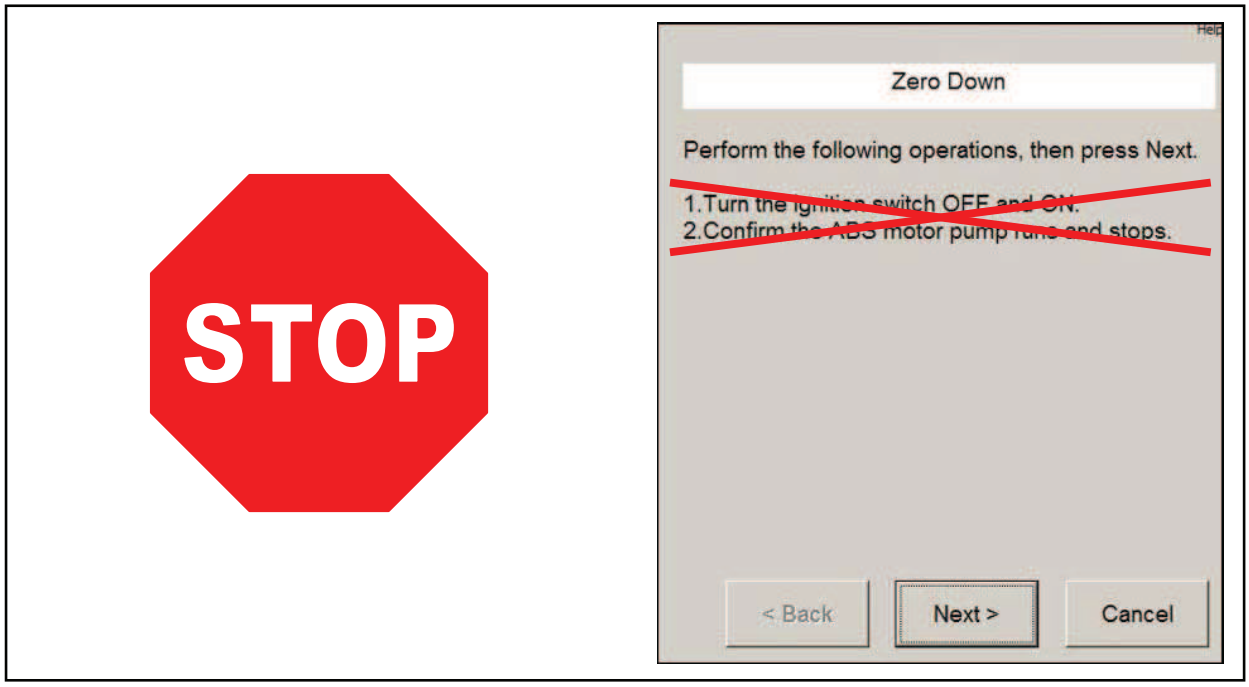
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

11. **STOP — DO NOT turn the ignition OFF and ON** as instructed by Techstream. Just press “Next”.

Figure 9.



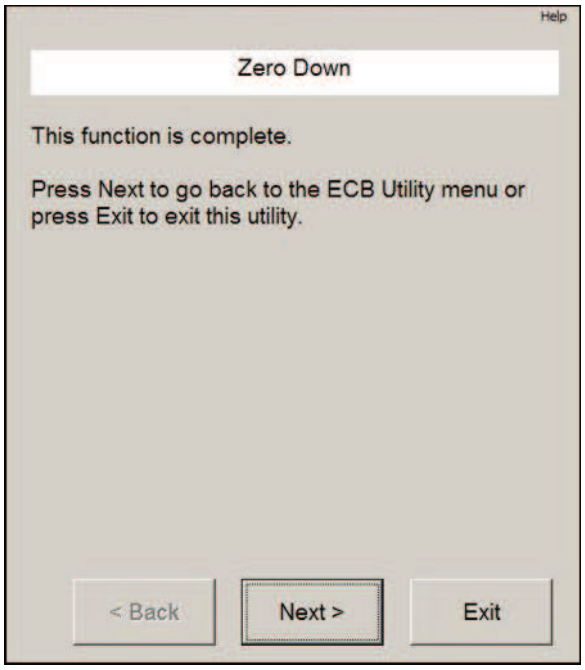
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

12. Once the “Zero Down” function is complete, press “Exit”.

Figure 10.



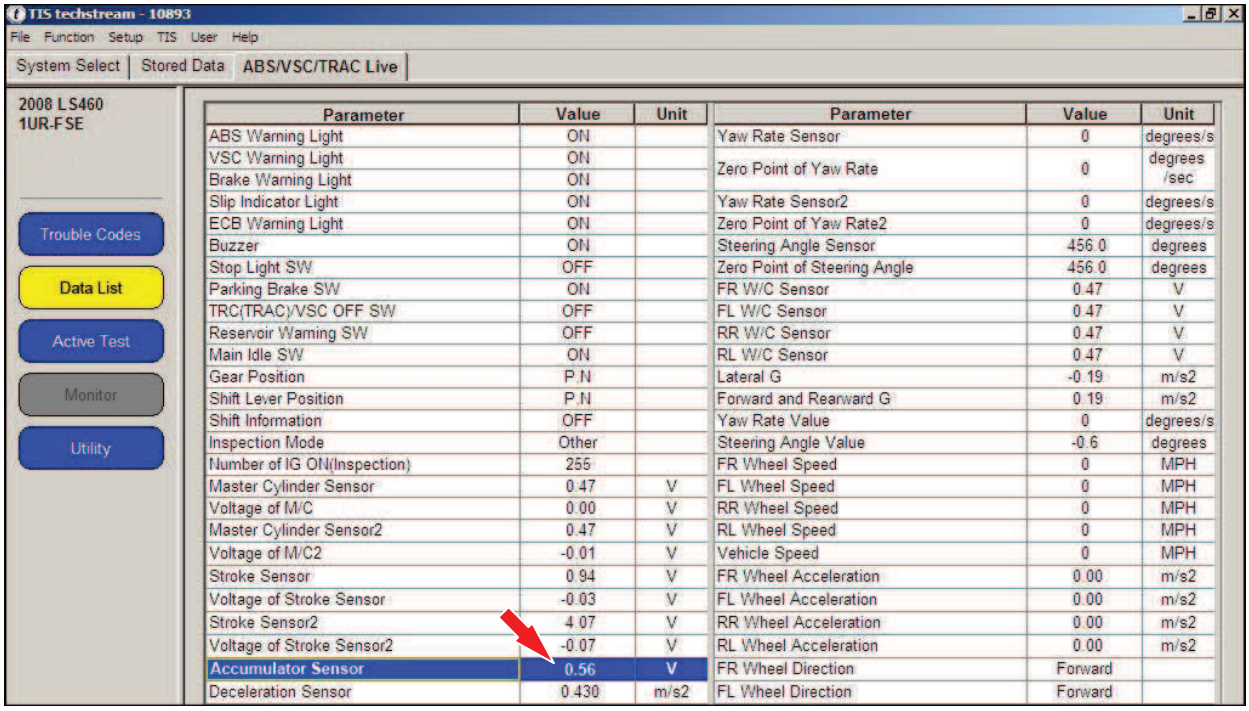
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

13. Navigate back to the ABS/VSC/TRAC utility menu, select “Data List”, then “Accumulator Sensor”, and check accumulator pressure. Pressure should be approximately 0.5 volts.

Figure 11.




| Parameter | Value | Unit | Parameter | Value | Unit |
|---|---|---|---|---|---|
| ABS Warning Light | ON | | Yaw Rate Sensor | 0 | degrees/s |
| VSC Warning Light | ON | | Zero Point of Yaw Rate | 0 | degrees /sec |
| Brake Warning Light | ON | | | | |
| Slip Indicator Light | ON | | Yaw Rate Sensor2 | 0 | degrees/s |
| ECB Warning Light | ON | | Zero Point of Yaw Rate2 | 0 | degrees/s |
| Buzzer | ON | | Steering Angle Sensor | 456.0 | degrees |
| Stop Light SW | OFF | | Zero Point of Steering Angle | 456.0 | degrees |
| Parking Brake SW | ON | | FR W/C Sensor | 0.47 | V |
| TRC(TRAC)/VSC OFF SW | OFF | | FL W/C Sensor | 0.47 | V |
| Reservoir Warning SW | OFF | | RR W/C Sensor | 0.47 | V |
| Main Idle SW | ON | | RL W/C Sensor | 0.47 | V |
| Gear Position | P,N | | Lateral G | -0.19 | m/s2 |
| Shift Lever Position | P,N | | Forward and Rearward G | 0.19 | m/s2 |
| Shift Information | OFF | | Yaw Rate Value | 0 | degrees/s |
| Inspection Mode | Other | | Steering Angle Value | -0.6 | degrees |
| Number of IG ON(Inspection) | 255 | | FR Wheel Speed | 0 | MPH |
| Master Cylinder Sensor | 0.47 | V | FL Wheel Speed | 0 | MPH |
| Voltage of M/C | 0.00 | V | RR Wheel Speed | 0 | MPH |
| Master Cylinder Sensor2 | 0.47 | V | RL Wheel Speed | 0 | MPH |
| Voltage of M/C2 | -0.01 | V | Vehicle Speed | 0 | MPH |
| Stroke Sensor | 0.94 | V | FR Wheel Acceleration | 0.00 | m/s2 |
| Voltage of Stroke Sensor | -0.03 | V | FL Wheel Acceleration | 0.00 | m/s2 |
| Stroke Sensor2 | 4.07 | V | RR Wheel Acceleration | 0.00 | m/s2 |
| Voltage of Stroke Sensor2 | -0.07 | V | RL Wheel Acceleration | 0.00 | m/s2 |
| Accumulator Sensor | 0.56 | V | FR Wheel Direction | Forward | |
| Deceleration Sensor | 0.430 | m/s2 | FL Wheel Direction | Forward | |

14. Press the "Engine Start/Stop" button to the ignition OFF position.

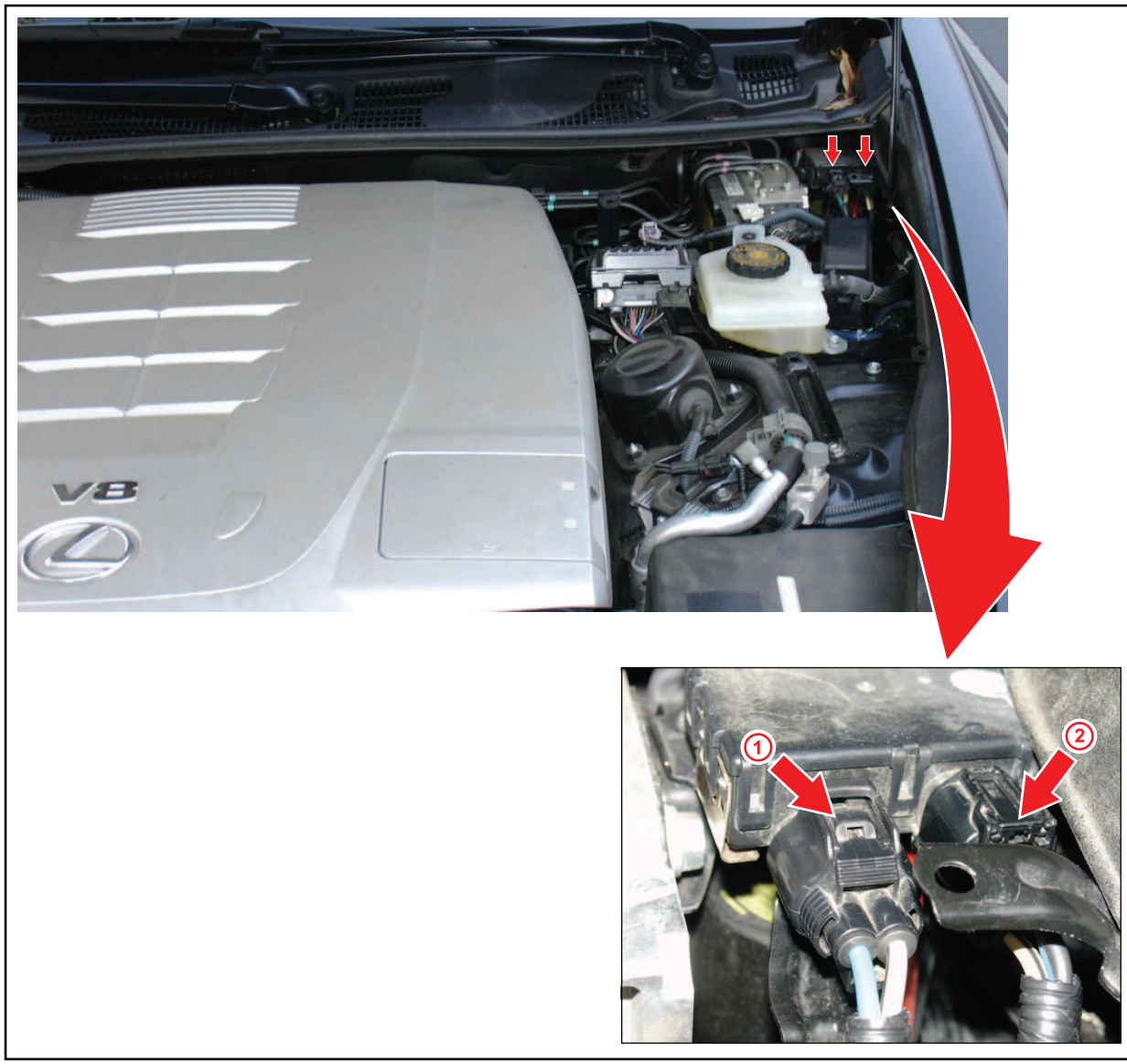
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 1: Zero Down Accumulator Pressure (Zero Down) (Continued)

15. Disconnect both accumulator pump electrical connectors.

Figure 12.




| | |
|---|---|
| 1 | Push Here to Disconnect LH Connector |
| 2 | Push Here to Disconnect RH Connector |

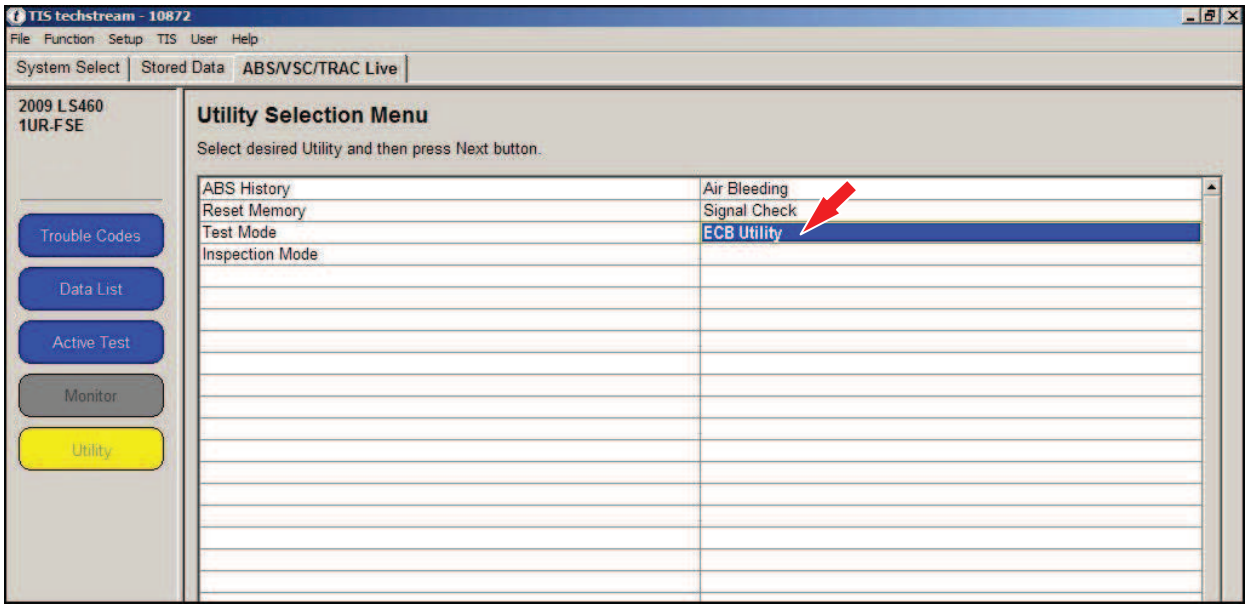
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure (Continued)

### Section 2: Disable Electronic Controlled Brakes (ECB Invalid)

1. Press the "Engine Start/Stop" button to the ignition ON position.
2. Select “ECB Utility” from the Utility menu screen.

Figure 13.



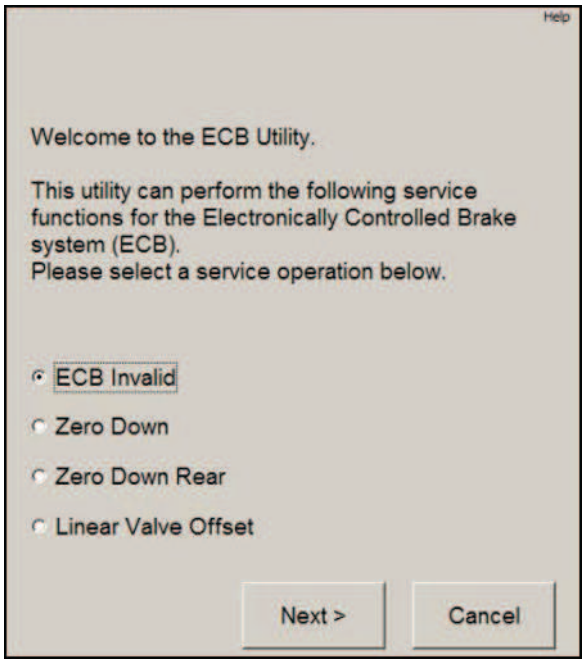
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 2: Disable Electronic Controlled Brakes (ECB Invalid) (Continued)

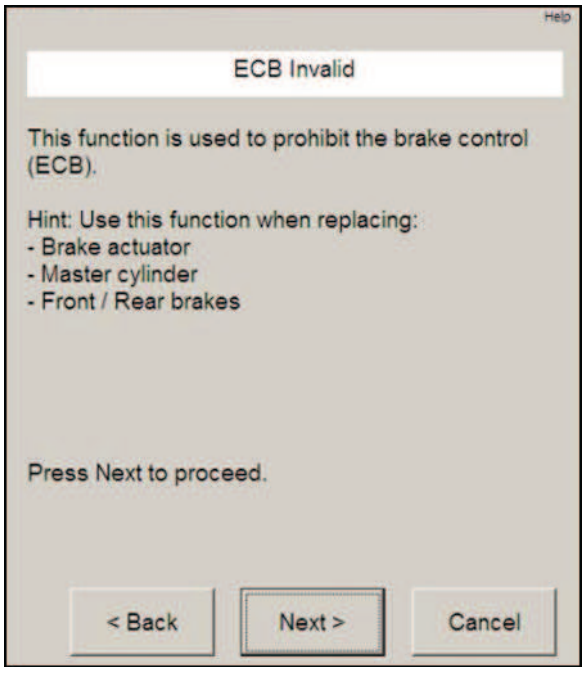
3. Select “ECB invalid” from the ECB Utility screen, and press “Next”.

Figure 14.




4. Press “Next” to proceed.

Figure 15.



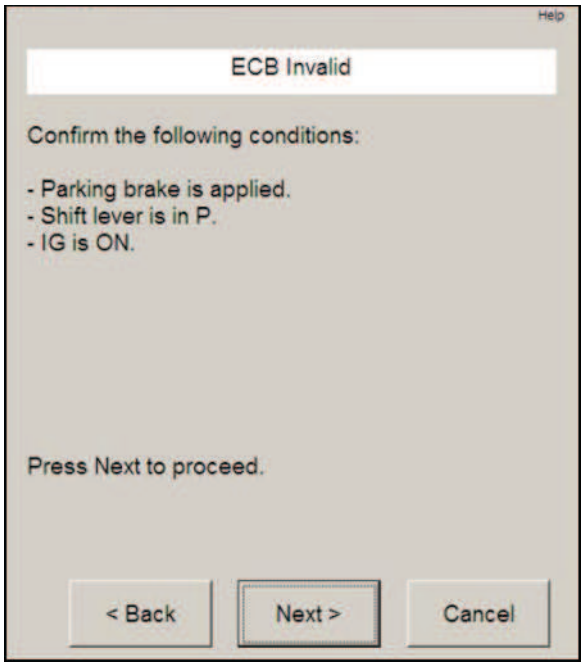
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 2: Disable Electronic Controlled Brakes (ECB Invalid) (Continued)

5. Confirm the conditions listed on Techstream and press “Next”.

Figure 16.



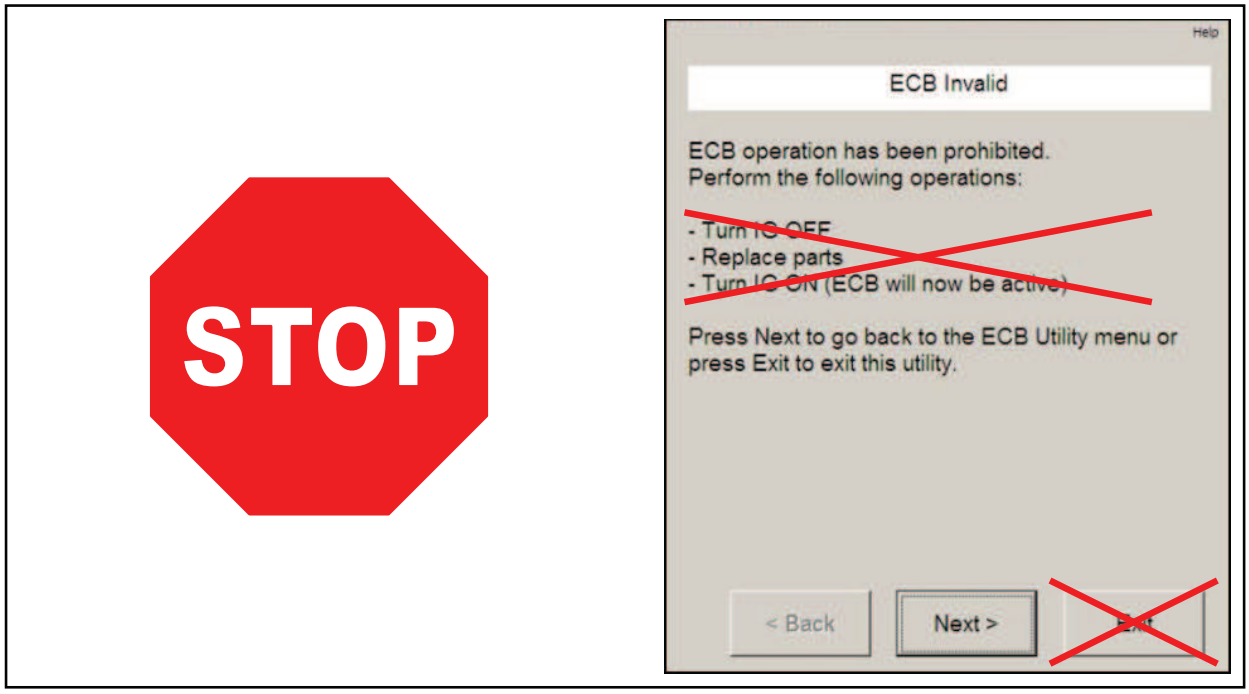
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 2: Disable Electronic Controlled Brakes (ECB Invalid) (Continued)

6. **STOP — DO NOT turn the ignition OFF** as instructed by Techstream. Press “Next” — **DO NOT PRESS “Exit”.**

Figure 17.



# Squawk/Bark Type Noise from Brake Actuator

**Repair Procedure (Continued)**

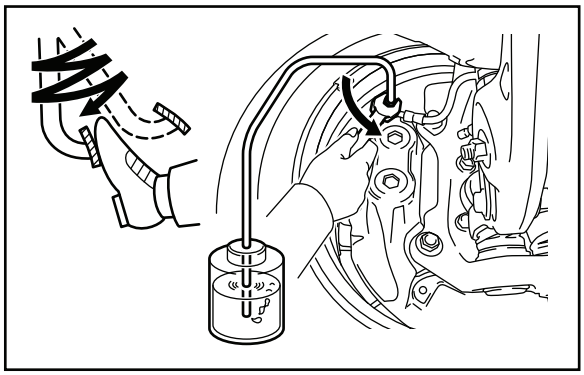
**Section 3: Front Brake Bleed — Manual Process**

**NOTE**

- **Keep doors closed during bleeding.**
- **Ignition must be ON before starting this procedure.**

1. Connect a clear vinyl tube to the FR (Front Right) bleeder screw.

Figure 18.



2. Pump and hold pressure on the brake pedal while an assistant opens the bleeder screw.

**NOTE**

**Make sure fluid level in reservoir does NOT fall below the low mark during this procedure.**

3. When fluid/air bubbles stop coming out, tighten the bleeder screw and then release the brake pedal.
4. Repeat steps 2 and 3 until all air is removed from the FR line.
5. Connect a vinyl tube to the FL (Front Left) bleeder screw.
6. Repeat steps 2 and 3 until all air is removed from the FL line.
7. Press the "Engine Start/Stop" button to the ignition OFF position.

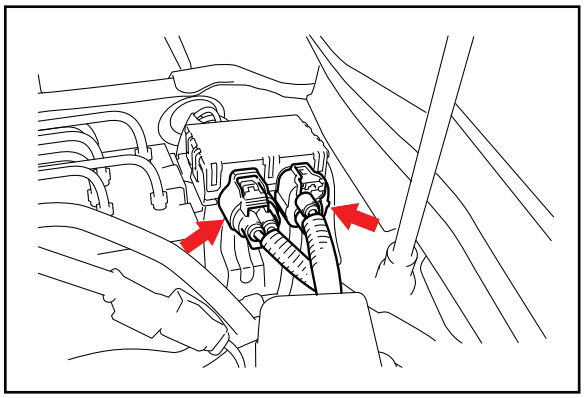
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 3: Front Brake Bleed — Manual Process (Continued)

8. Connect the accumulator pump electrical connectors.

Figure 19.



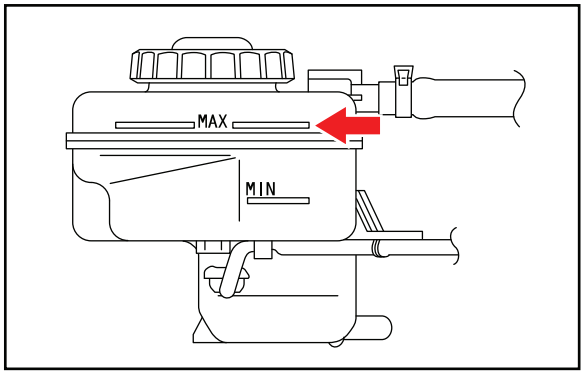
9. Press the "Engine Start/Stop" button to the ignition ON position.

**IMPORTANT**

- **Accumulator pressure must be approximately 0.5 volts before starting the rear brake bleed procedure.**
- **You should NOT hear the accumulator pump motor run after the ignition is turned ON. If the accumulator pump runs after ignition is turned ON, return to "*Section 1: Zero Down Accumulator Pressure*".**

10. Check and adjust the brake fluid level to MAX.

Figure 20.



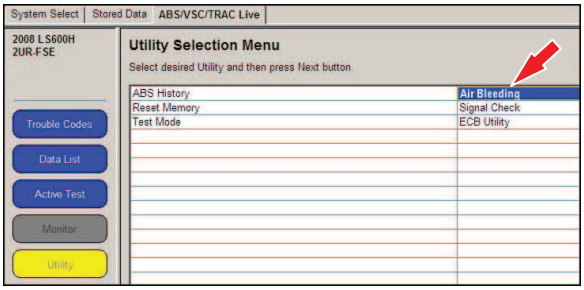
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure (Continued)

### Section 4: Rear Brake Bleed

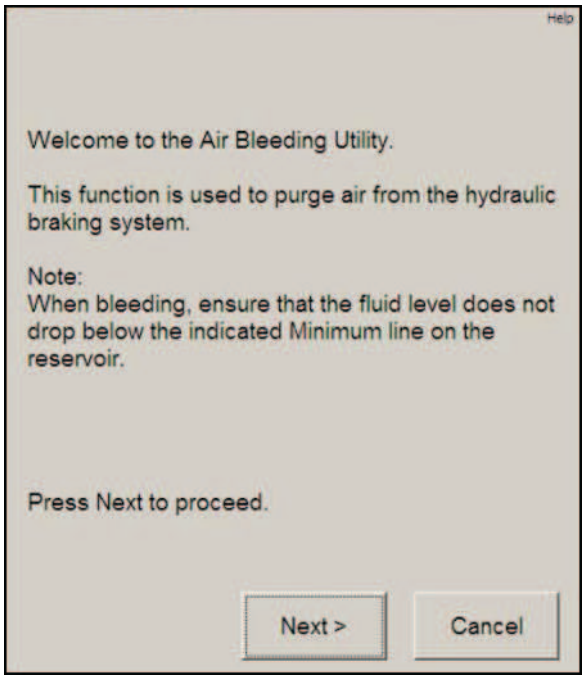
1. Select “Air Bleeding” from the Utility menu screen.

Figure 21.




2. Press “Next” from the Air Bleeding Utility screen.

Figure 22.



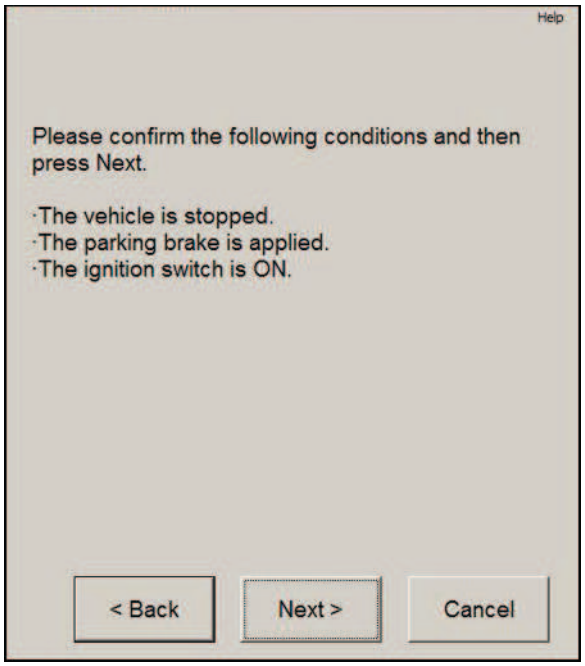
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

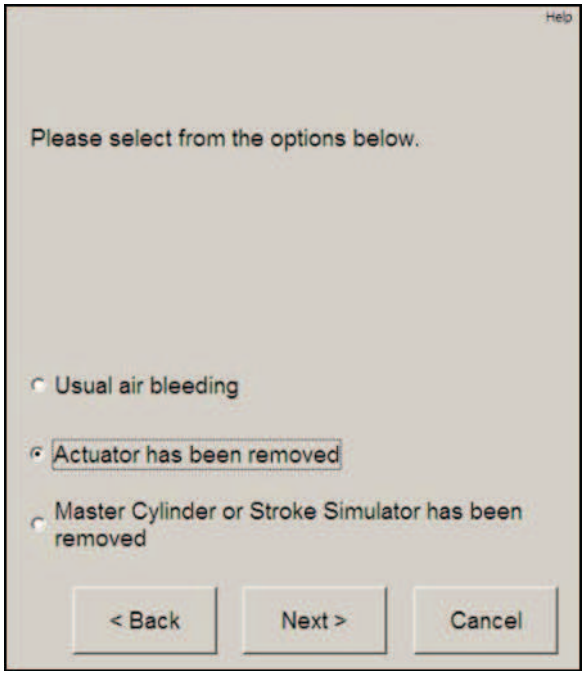
3. Confirm the conditions listed on Techstream and press “Next”.

Figure 23.




4. Select “Actuator has been removed” and press “Next”.

Figure 24.



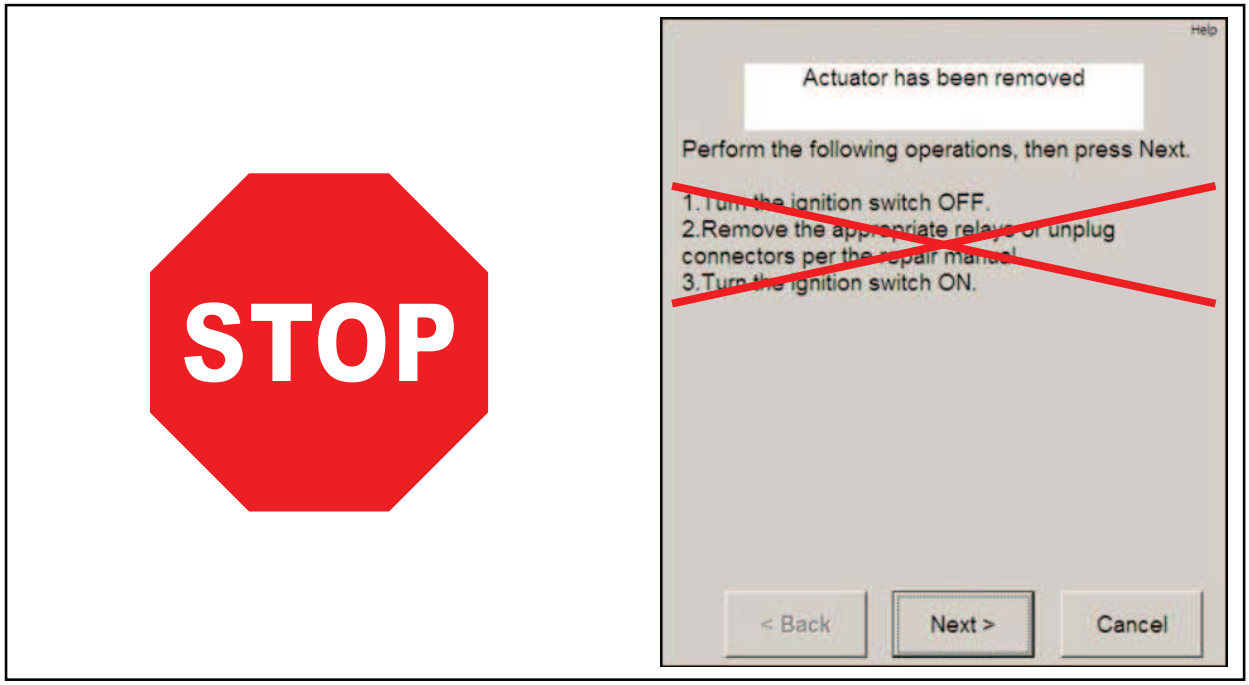
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

5. **STOP — DO NOT turn the ignition OFF** as instructed by Techstream.
   **DO NOT** unplug relays or disconnect accumulator connectors. Select “Next” — But **DO NOT** turn the ignition OFF.

**Figure 25.**



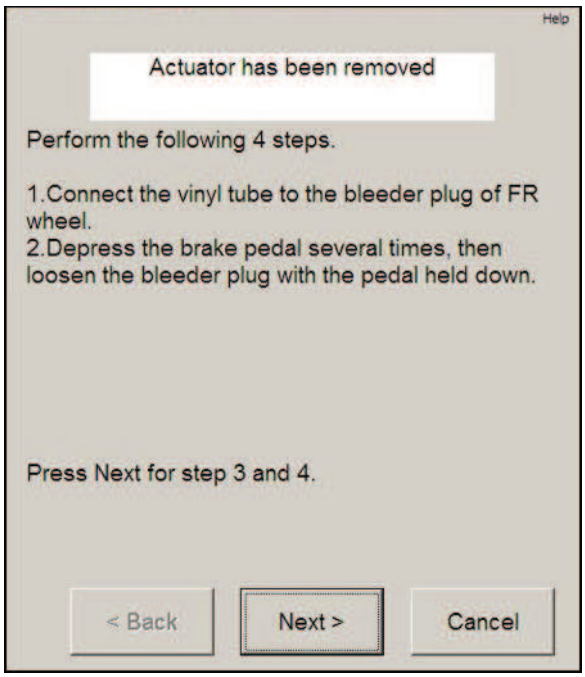
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

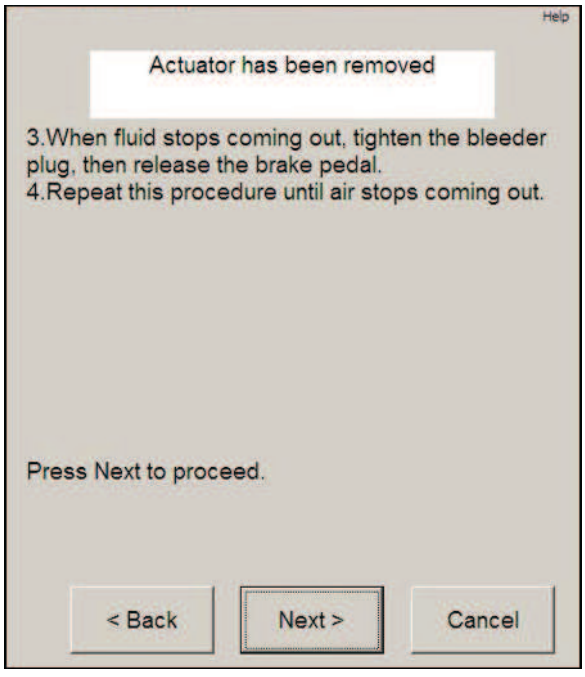
6. Press “Next” through the Techstream screens concerning front brake bleed — front brakes have already been manually bled in section 3.

Figure 26.




7. Press “Next” through the FR (Front Right) and FL (Front Left) brake bleed Techstream screens.

Figure 27.



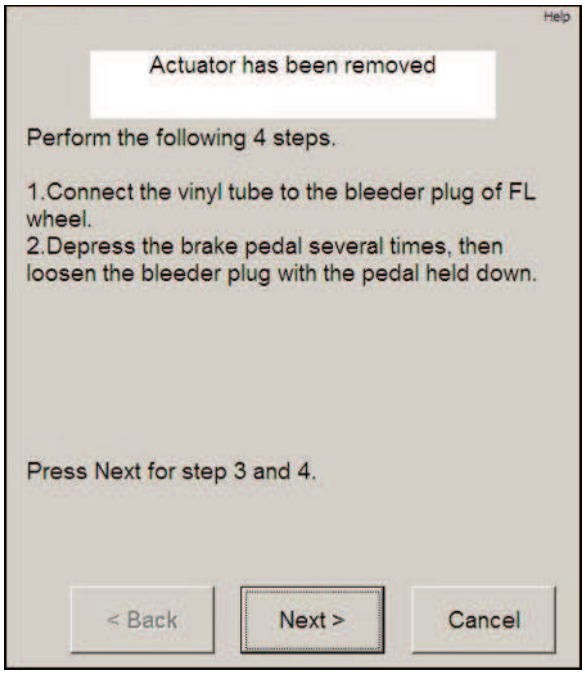
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

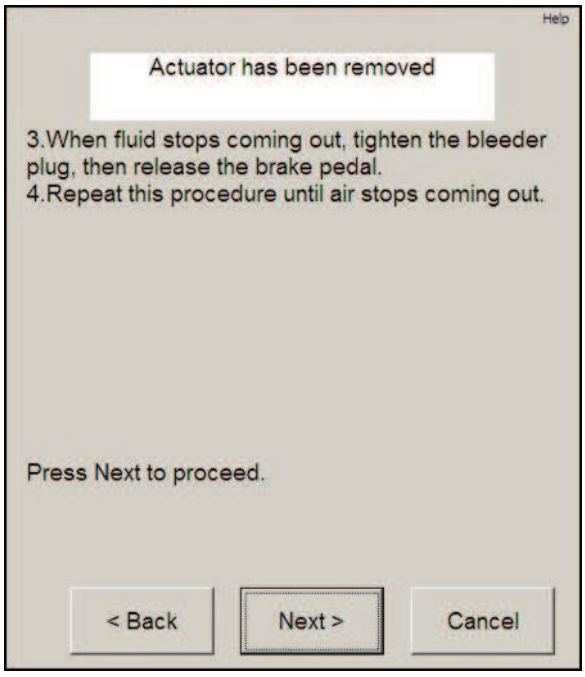
8. Press “Next” through the FL brake bleed Techstream screens.

Figure 28.




9. Press “Next” at this screen since front brakes have already been manually bled.

Figure 29.



# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

10. Follow the instructions on Techstream and press "Next".

**IMPORTANT**

**DO NOT press the brake pedal at this time.**

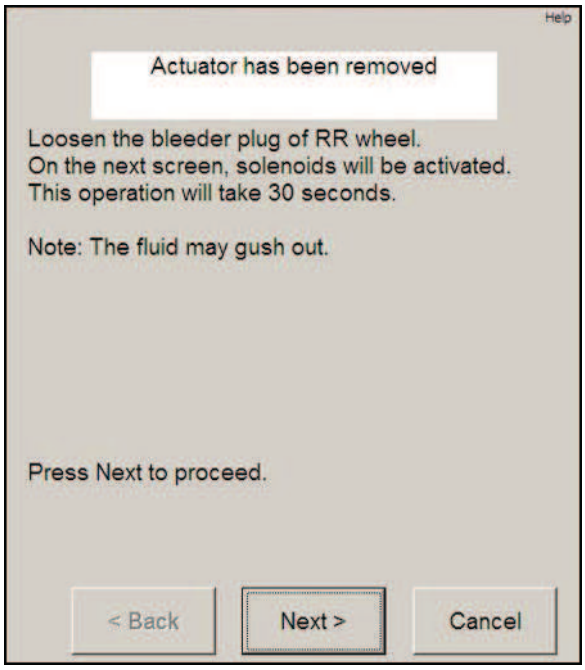
A. Attach the vinyl tube and bottle.

B. Loosen the RR (Rear Right) bleeder screw.

**NOTE**

**This step removes air from the RR (Rear Right) line and actuator.**

Figure 30.

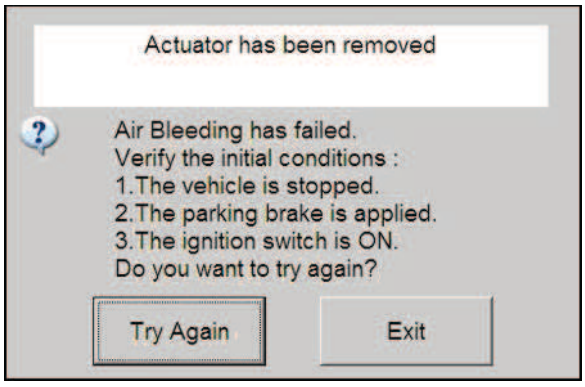



**"Air Bleeding has failed" MESSAGE DISPLAYED**

**If Techstream displays the message shown in Figure 31:**

- **Repeat *"Section 1: Zero Down Accumulator Pressure".***
- **Repeat *"Section 2: Disable Electronic Controlled Brakes".***
- **Repeat *"Section 3: Front Brake Bleed"*, except for manually bleeding front brake circuits.**
- **Repeat *"Section 4: Rear Brake Bleed".***

Figure 31.



# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

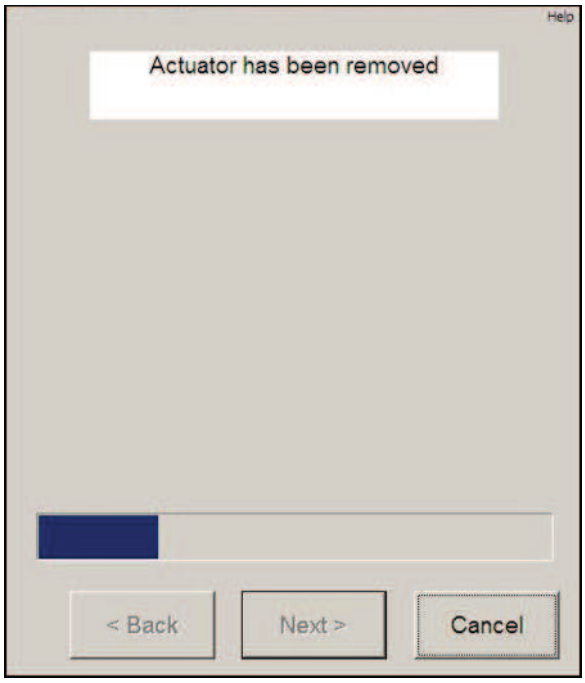
11. **DO NOT** press the brake pedal.

    During this step, Techstream opens the solenoid in the actuator for the RR line and then runs the accumulator pump.

    **NOTE**

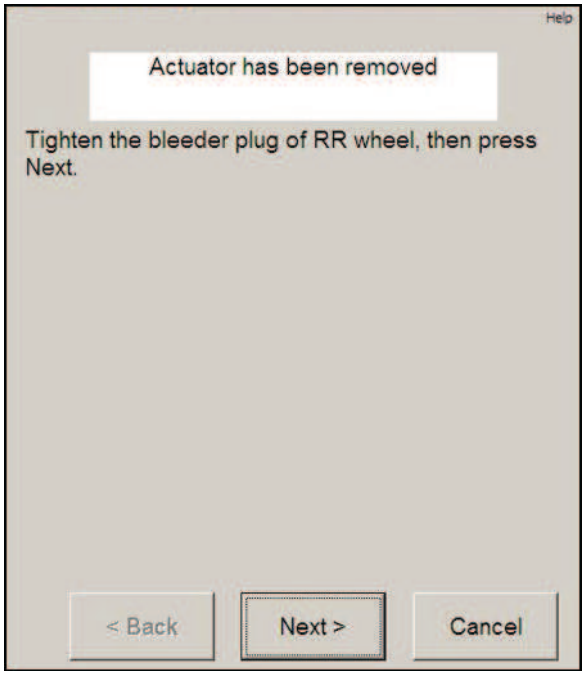
    **This step takes 30 seconds.**

Figure 32.




12. Tighten the bleeder screw and press “Next”.

Figure 33.



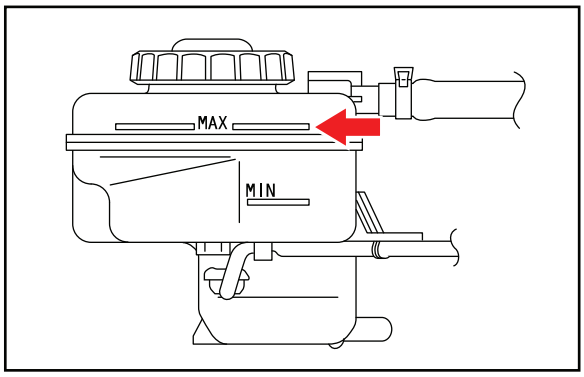
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

13. Adjust the brake fluid level to MAX before bleeding RL (Rear Left).

Figure 34.

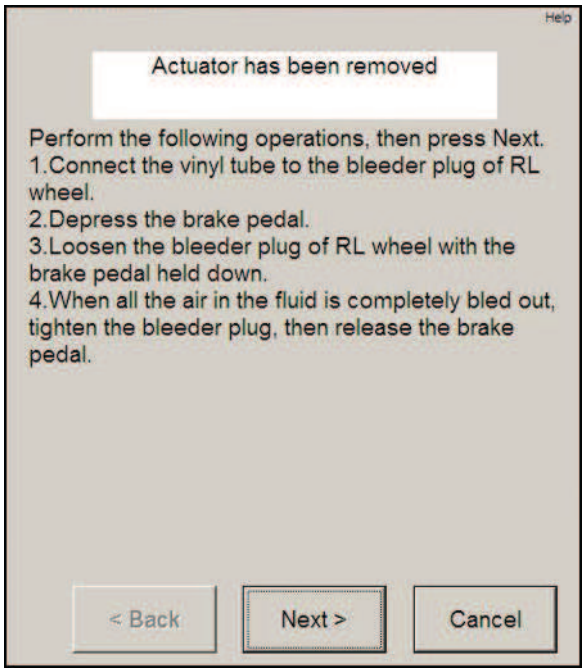



14. Follow instructions on Techstream for RL (Rear Left) brake, then press “Next”.

**NOTE**

- **Press and hold the brake pedal during RL (Rear Left) brake bleeding.**
- **The accumulator pump will run when the RL brake bleeder screw is opened.**

Figure 35.



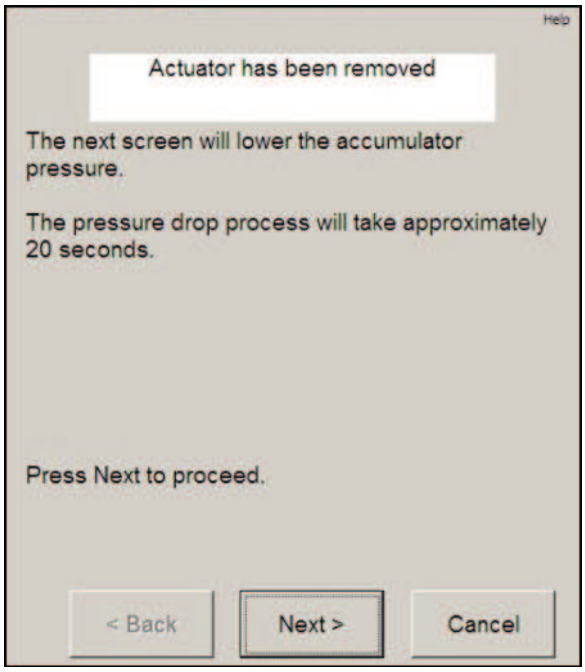
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

15. Wait for completion of operations listed on Techstream, then press “Next”.

Figure 36.

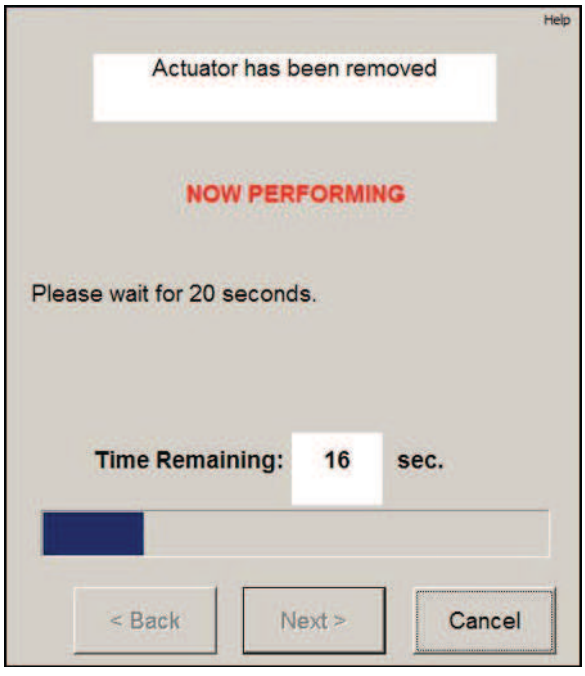



16. Wait for completion of operations listed on Techstream, then press “Next”.

**NOTE**

**Lowering accumulator pressure takes 20 seconds.**

Figure 37.



# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

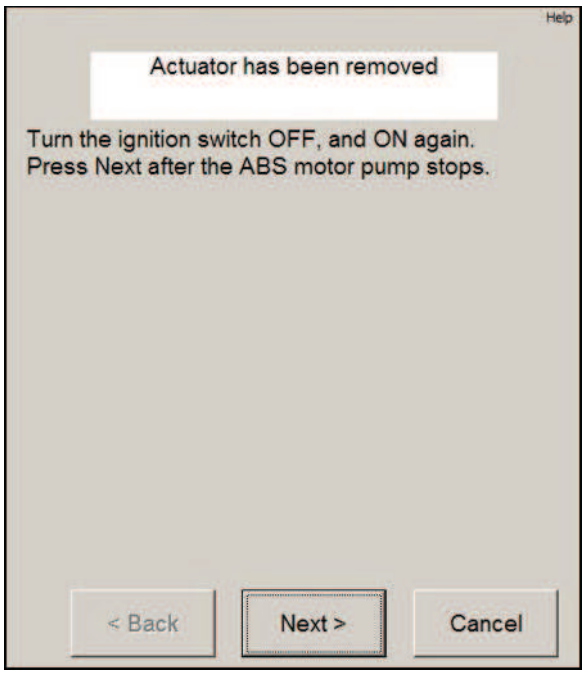
### Section 4: Rear Brake Bleed (Continued)

17. Follow instructions on Techstream and press “Next”.

**NOTE**

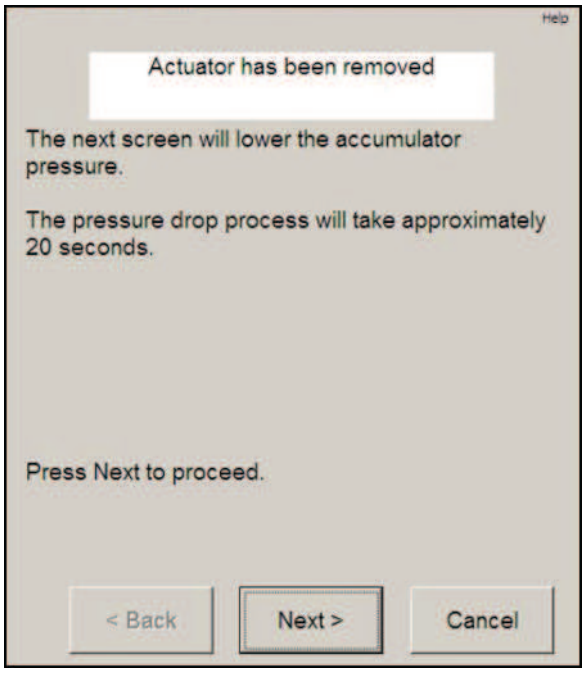
**Techstream will instruct you to perform the accumulator Zero Down procedure 4 times.**

Figure 38.




18. Press “Next” to proceed.

Figure 39.



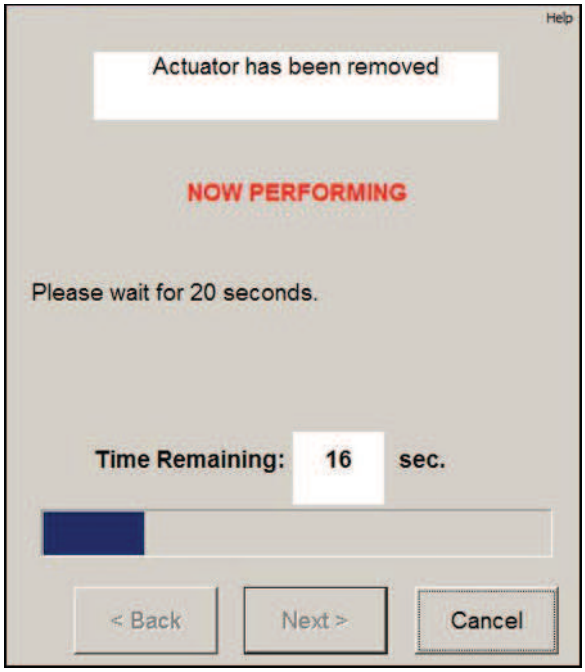
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

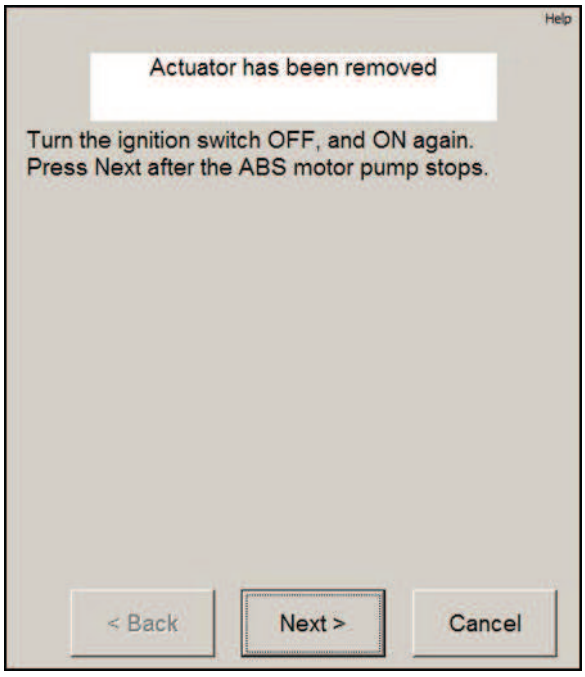
19. Follow instructions on Techstream and press “Next”.

Figure 40.




20. Press “Next” after cycling the ignition switch OFF and then ON. Press “Next” AFTER the pump motor stops running.

Figure 41.



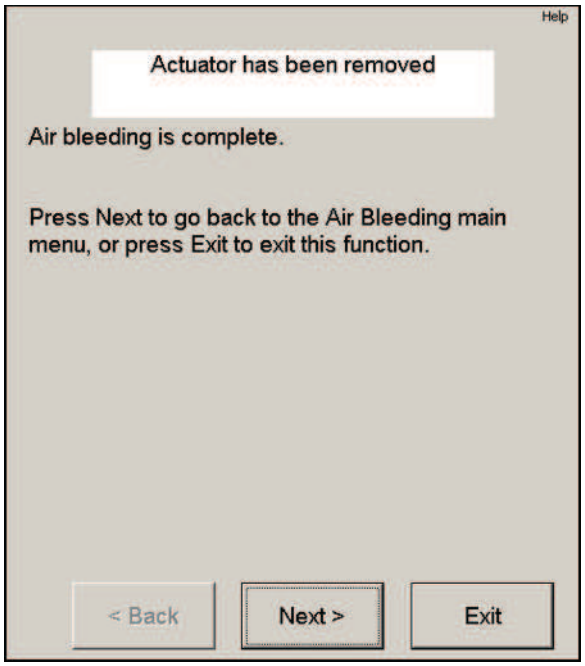
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 4: Rear Brake Bleed (Continued)

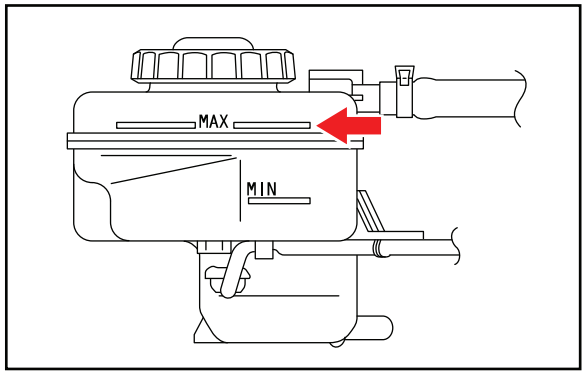
21. Perform the “Zero Down” procedure 4 times, per Techstream. At the end of the 4 “Zero Down” procedures, the “Air bleeding is complete” message will be displayed. Press “Exit”.

Figure 42.




22. Check and adjust the brake fluid level to MAX.

Figure 43.



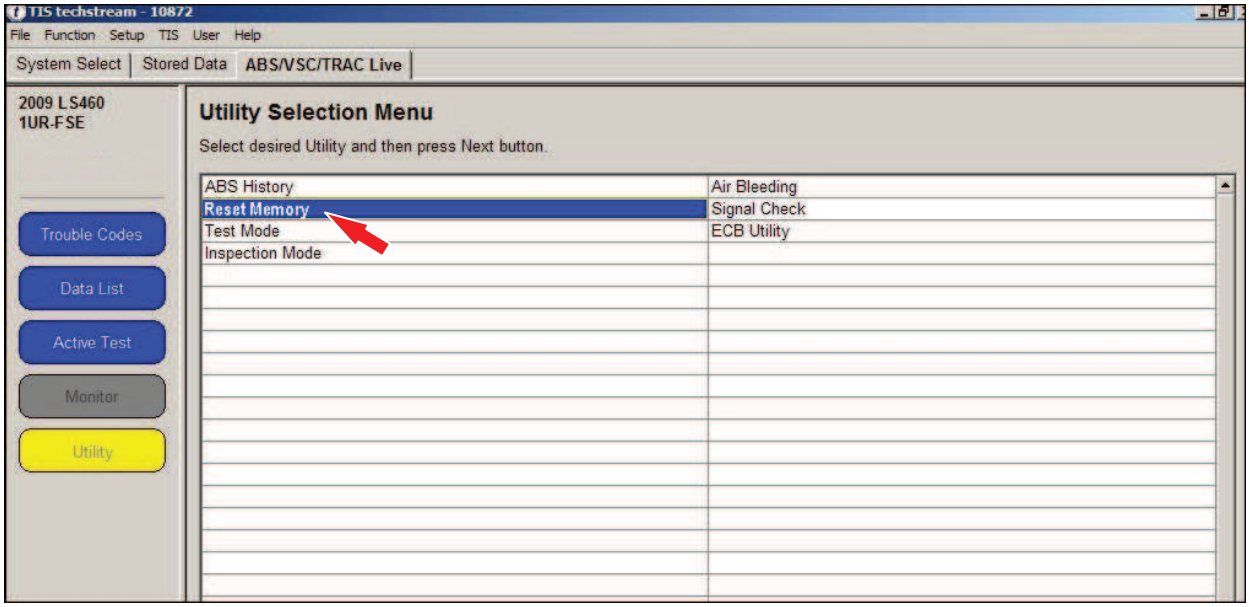
# Squawk/Bark Type Noise from Brake Actuator

**Repair Procedure (Continued)**

**Section 5: Reset Memory and Linear Valve Offset Calibration**

1. Select “Reset Memory” from the Utility menu screen.

**Figure 44.**



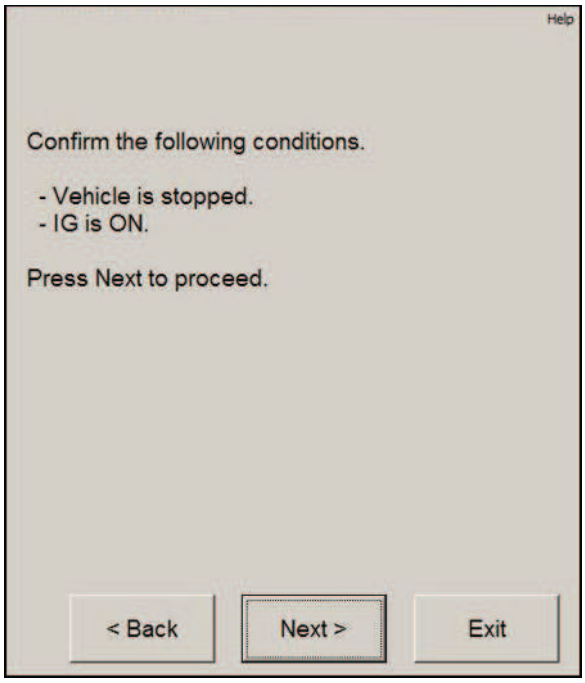
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 5: Reset Memory and Linear Valve Offset Calibration (Continued)

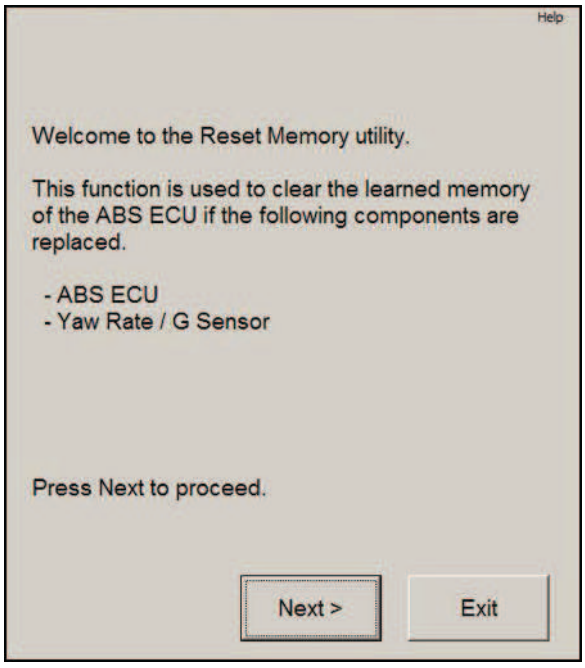
2. Confirm the conditions listed on Techstream and press “Next”.

Figure 45.




3. Press “Next” to proceed.

Figure 46.



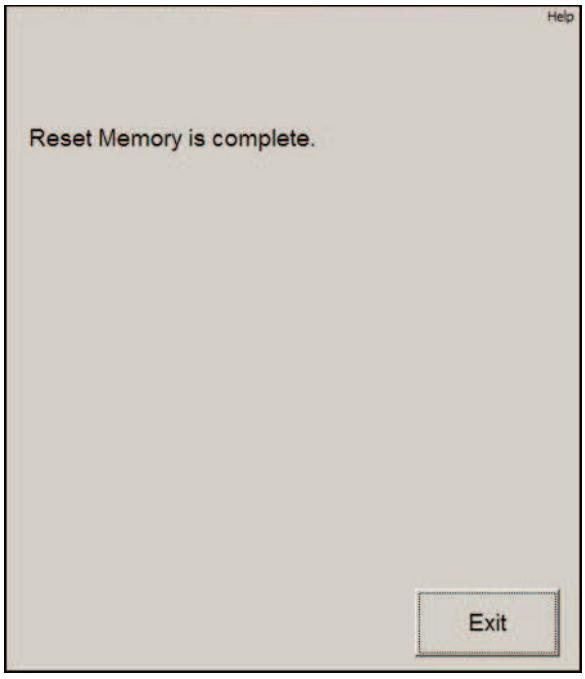
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 5: Reset Memory and Linear Valve Offset Calibration (Continued)

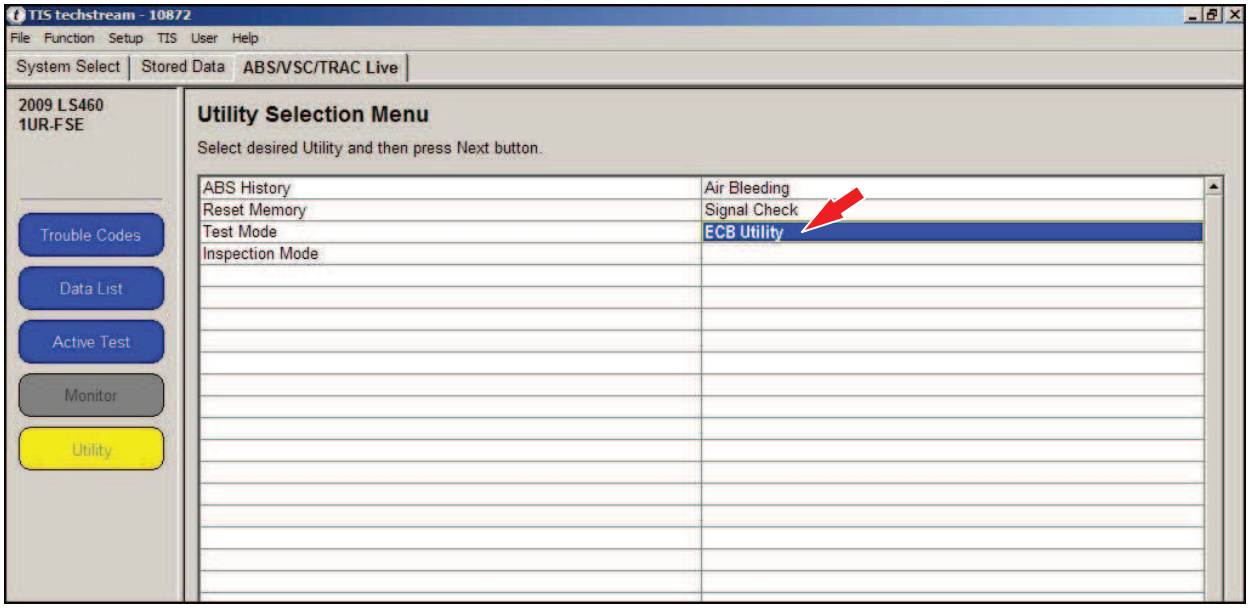
4. Press “Exit”.

Figure 47.




5. Select “ECB Utility” from the Utility menu screen.

Figure 48.



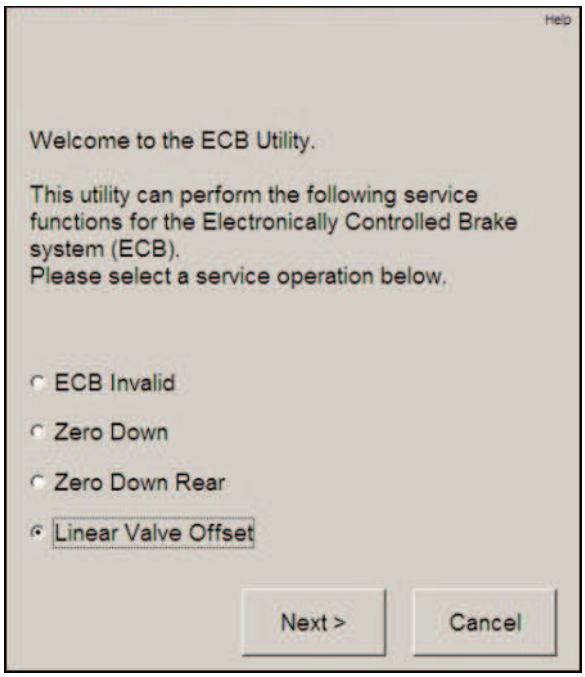
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 5: Reset Memory and Linear Valve Offset Calibration (Continued)

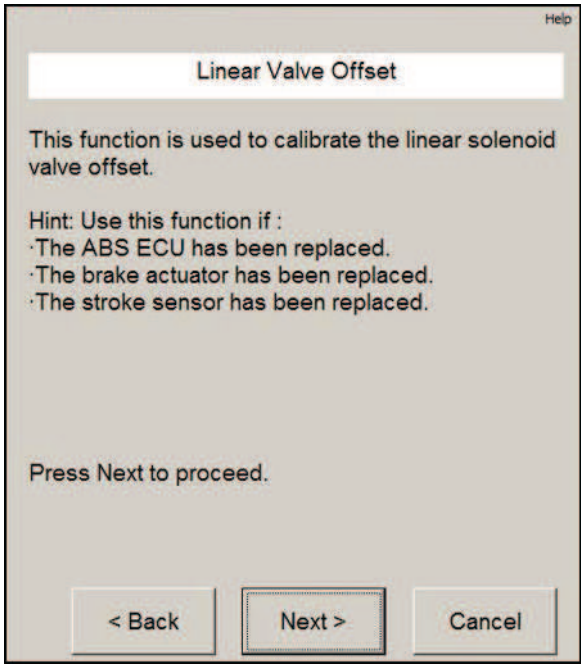
6. Select “Linear Valve Offset” from the ECB Utility screen and press “Next”.

Figure 49.




7. Press “Next” to proceed.

Figure 50.



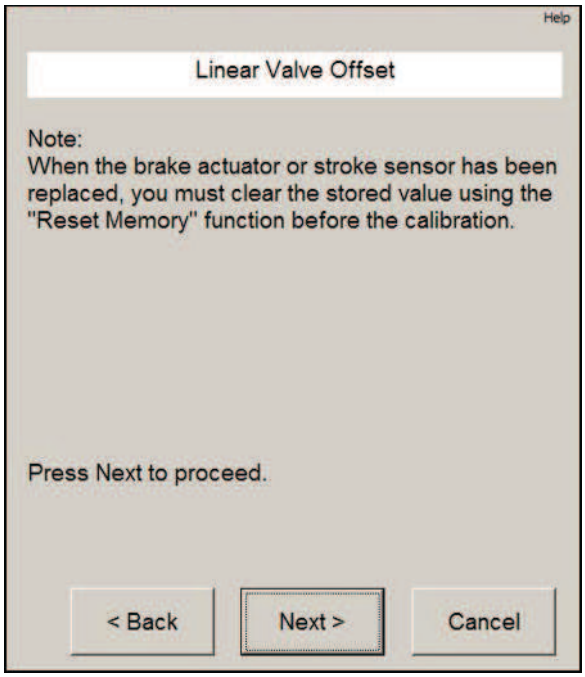
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 5: Reset Memory and Linear Valve Offset Calibration (Continued)

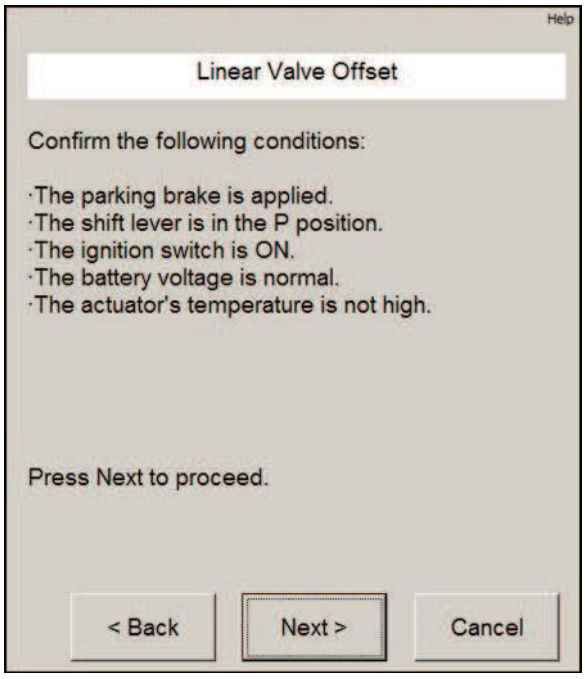
8. Press “Next” to proceed.

Figure 51.




9. Confirm the conditions listed on Techstream and press “Next”.

Figure 52.



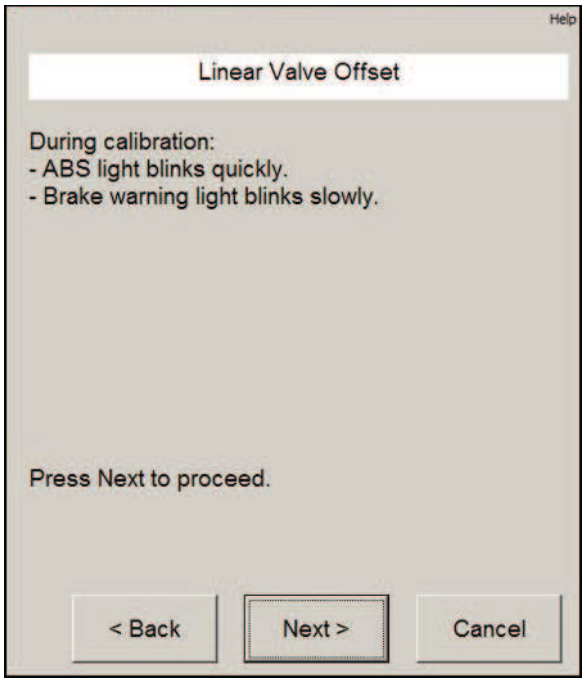
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 5: Reset Memory and Linear Valve Offset Calibration (Continued)

10. Press “Next” to proceed.

Figure 53.

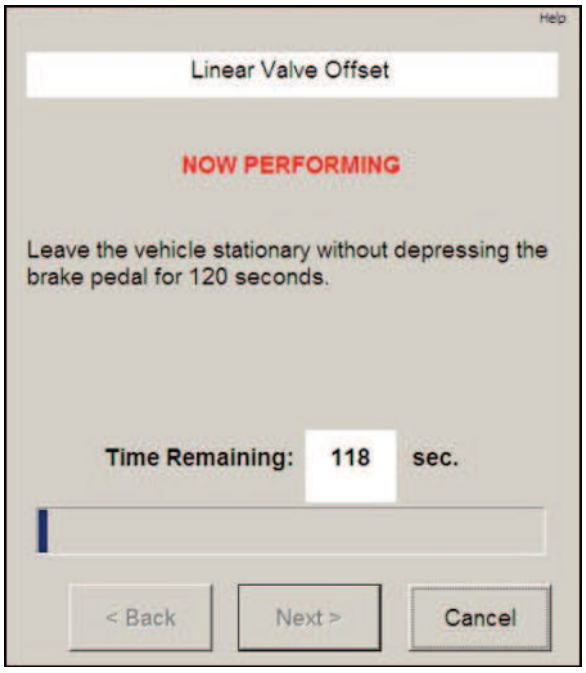



11. Techstream is now performing Linear Valve Offset.

**DO NOT depress the brake pedal at this time.**

> **NOTE**
> **This process takes 120 seconds.**

Figure 54.



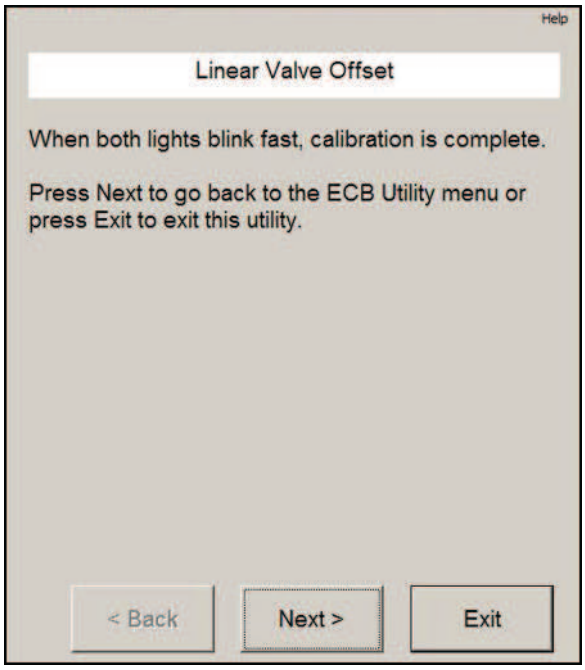
# Squawk/Bark Type Noise from Brake Actuator

## Repair Procedure

### Section 5: Reset Memory and Linear Valve Offset Calibration (Continued)

12. Press “Exit”.

Figure 55.




13. Clear all stored DTCs.
14. Test drive vehicle to confirm NO warning lights illuminate and there are NO abnormal brake concerns.
15. Verify the squawk/bark noise has been eliminated.