

# Knocking Noise From Vacuum Pump at Idle

**Service Category** Engine/Hybrid System

**Section** Engine Mechanical **Market** USA and Mexico



## Applicability

| YEAR(S)     | MODEL(S)   | ADDITIONAL INFORMATION |
|-------------|------------|------------------------|
| 2019 - 2022 | Avalon     |                        |
| 2018 - 2023 | Camry      |                        |
| 2017 - 2022 | Highlander |                        |
| 2017 - 2020 | Sienna     |                        |
| 2016 - 2023 | Tacoma     |                        |

### **SUPERSESSION NOTICE**

The information contained in this bulletin supersedes Service Bulletin No. T-SB-0316-17.

- Applicability has been updated to include 2019 – 2022 model year Avalon, 2020 – 2023 Camry, 2020 – 2022 Highlander, 2020 Sienna, and 2020 – 2023 Tacoma vehicles.
- The market indicator has been updated to include the Mexico market.
- The Warranty Information and Repair Procedure sections have been updated.

Service Bulletin No. T-SB-0316-17 is obsolete and any printed versions should be discarded.

## Introduction

Some 2019 – 2022 model year Avalon, 2018 – 2023 model year Camry, 2017 – 2022 model year Highlander, 2017 – 2020 model year Sienna, and 2016 – 2023 model year Tacoma vehicles equipped with a 2GR-FKS engine may exhibit a knocking noise from the vacuum pump at idle. Follow the Repair Procedure in this bulletin to address this condition.

## Knocking Noise From Vacuum Pump at Idle

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## Knocking Noise From Vacuum Pump at Idle

### Warranty Information

#### For USA Market

| OP CODE | MODEL      | MODEL YEAR  | DESCRIPTION          | TIME | OFF          | T1 | T2 |
|---------|------------|-------------|----------------------|------|--------------|----|----|
| BR1702  | Avalon     | 2019 – 2022 | R & R<br>Vacuum Pump | 1.8  | 29300-#####* | 91 | 99 |
|         | Camry      | 2018 – 2023 |                      | 1.8  |              |    |    |
|         | Highlander | 2017 – 2019 |                      | 2.4  |              |    |    |
|         |            | 2020 – 2022 |                      | 1.5  |              |    |    |
|         | Sienna     | 2017 – 2020 |                      | 1.7  |              |    |    |
|         | Tacoma     | 2016 – 2023 |                      | 1.8  |              |    |    |

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

#### APPLICABLE WARRANTY (USA)

- This repair is covered under the Toyota Basic Warranty. This warranty is in effect for 36 months or 36,000 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      | MODEL YEAR  | DESCRIPTION          | TIME | OFF          | T1 | T2 |
|---------|------------|-------------|----------------------|------|--------------|----|----|
| BR1702  | Avalon     | 2019 – 2022 | R & R<br>Vacuum Pump | 1.8  | 29300-#####* | 91 | 99 |
|         | Camry      | 2018 – 2023 |                      | 1.8  |              |    |    |
|         | Highlander | 2017 – 2019 |                      | 2.4  |              |    |    |
|         |            | 2020 – 2022 |                      | 1.5  |              |    |    |
|         | Sienna     | 2017 – 2020 |                      | 1.7  |              |    |    |
|         | Tacoma     | 2016 – 2023 |                      | 1.8  |              |    |    |

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

#### APPLICABLE WARRANTY (MEXICO)

- This repair is covered under the Toyota Basic Warranty. This warranty is in effect for 36 months or 60,000 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.

## Knocking Noise From Vacuum Pump at Idle

### Parts Information

For USA and Mexico Markets

| PART NUMBER                |             | MODEL                                | PART NAME         | QTY |
|----------------------------|-------------|--------------------------------------|-------------------|-----|
| PREVIOUS                   | NEW         |                                      |                   |     |
| 29300-0P010<br>29300-0P011 | 29300-31040 | Avalon, Camry,<br>Highlander, Sienna | Pump Assy, Vacuum | 1   |
| 29300-0P020<br>29300-0P021 | 29300-31050 | Tacoma                               |                   | 1   |

### 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.
- Software version 17.30.011 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](http://techinfo.toyota.com) for more information regarding J2534 reprogramming.

| SPECIAL SERVICE TOOLS (SST)                             | PART NUMBER              | QTY |
|---|--------------------------|-----|
| Analogue Vacuum Gauge*                                  | –                        | 1   |
| Stethoscope*  | –                        | 1   |
| Picoscope Automotive Pressure Transducer Kit (Optional) | <a href="#">PIOKP355</a> | 1   |

\*Essential SST.

**NOTE**

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

## Knocking Noise From Vacuum Pump at Idle

### Repair Procedure

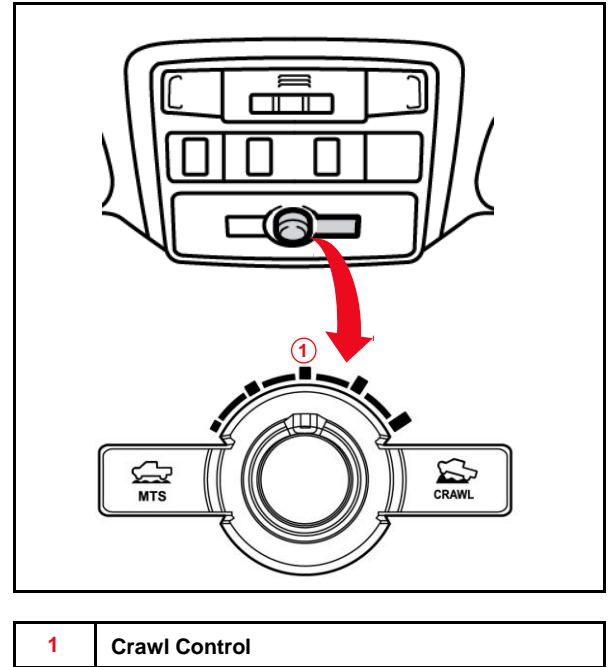
1. Is the vehicle a 2016 – 2023 model year Tacoma vehicle?
  - **YES** — Continue to step 2.
  - **NO** — Go to step 3.
  
2. Is the vehicle equipped with crawl control?
  - **YES** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
  - **NO** — Continue to step 3.
  
3. Confirm a knocking noise can be heard from the vacuum pump at idle. Refer to the audio link below for an example of the knocking noise condition:
 

[Knocking Noise Example](#)

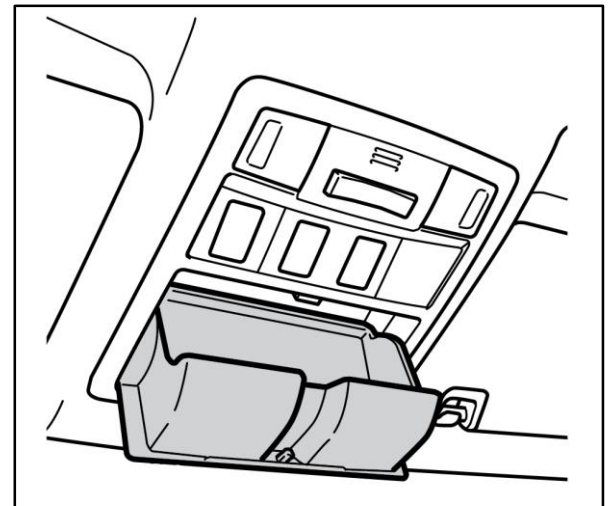
Can a knocking noise be heard from the vacuum pump at idle?

  - **YES** — Continue to step 4.
  - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

**Figure 1. Overhead Console in Vehicle With Crawl Control**



**Figure 2. Overhead Console in Vehicle Not Equipped With Crawl Control**

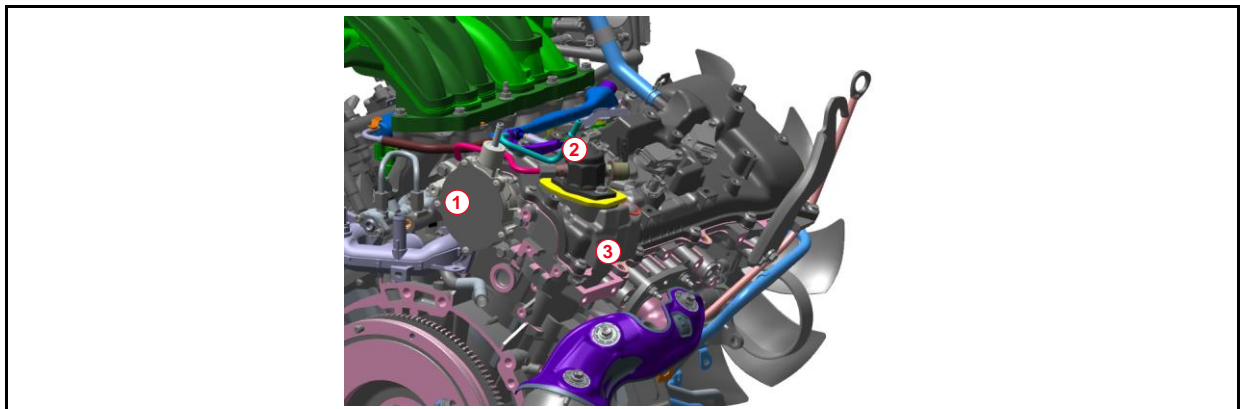


## Knocking Noise From Vacuum Pump at Idle

### Repair Procedure (continued)

4. Using a stethoscope, check for the source of the noise with the vehicle hood open. Is the noise loudest at the bank 1 head cover near the high-pressure fuel pump?
  - **YES** — Continue to step 5.
  - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

**Figure 3.**



|          |                                |
|----------|--------------------------------|
| <b>1</b> | <b>Vacuum Pump</b>             |
| <b>2</b> | <b>High-pressure Fuel Pump</b> |
| <b>3</b> | <b>Noise Check Point</b>       |

5. Check for ANY vacuum leaks.
  - A. Disconnect a vacuum hose between the vacuum pump and brake booster.
  - B. Install a vacuum gauge with T-fitting in-line to measure the system vacuum.

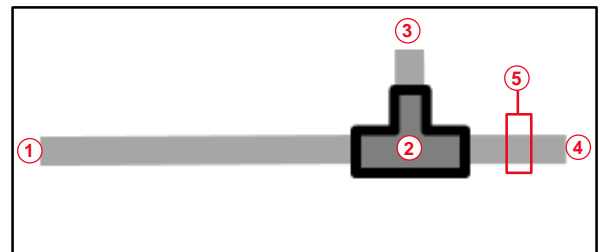
**NOTE**

An additional hose may be helpful to install the vacuum gauge in-line.

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

- 2019 – 2022 Avalon:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump \(for 2GR-FKS\): On-vehicle Inspection](#)”

**Figure 4.**



|          |                                    |
|----------|------------------------------------|
| <b>1</b> | <b>Vacuum Pump</b>                 |
| <b>2</b> | <b>Vacuum Gauge With T-fitting</b> |
| <b>3</b> | <b>Vacuum Gauge</b>                |
| <b>4</b> | <b>Brake Booster</b>               |
| <b>5</b> | <b>Pinch Here</b>                  |

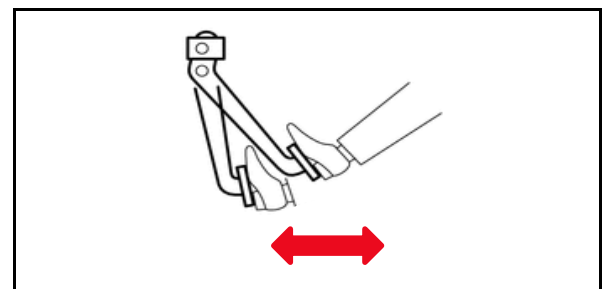
## Knocking Noise From Vacuum Pump at Idle

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### Repair Procedure (continued)

- 2018 – 2023 Camry:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump \(for 2GR-FKS\): On-vehicle Inspection](#)”
  - 2017 – 2019 Highlander:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump: On-vehicle Inspection](#)”
  - 2020 – 2022 Highlander:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump: On-vehicle Inspection](#)”
  - 2017 – 2020 Sienna:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump: On-vehicle Inspection](#)”
  - 2016 – 2023 Tacoma:  
*Brake – Brake System* – “[Brake: Vacuum Pump: On-vehicle Inspection](#)”
- C. Connect the vehicle to Techstream.
- D. With the engine running and the coolant temperature between 14 – 140°F (-10 – 60°C), pinch or plug the booster side to confirm vacuum operation.  
Does the reading measure AT LEAST -86.7 kPa (-25.60 in. Hg)?
- **YES** — Continue to substep E.
  - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
- E. Remove the pinch/plug and measure the vacuum of the entire system.  
Does the reading on the gauge measure AT LEAST -86.7 kPa (-25.60 in. Hg)?
- **YES** — Continue to substep F.
  - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
- F. Press the brake pedal to the end of the stroke three times to completely consume vacuum.

**Figure 5. Press the Brake Pedal Three Times**

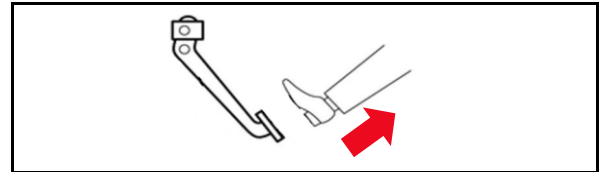


## Knocking Noise From Vacuum Pump at Idle

### Repair Procedure (continued)

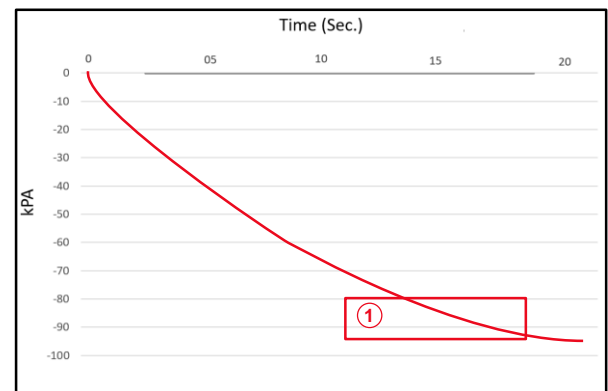
- G. Release the brake pedal and IMMEDIATELY monitor the vacuum level on the gauge.

**Figure 6. Release the Brake Pedal**



- H. Is the noise heard while the vacuum level is -80 through -95kPa (-23.6 through -28.05 in. Hg)?
- **YES** — Continue to step 6.
  - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

**Figure 7.**



|          |                   |
|----------|-------------------|
| <b>1</b> | <b>Noise Area</b> |
|----------|-------------------|

6. Remove the vacuum pump assembly.  
Refer to TIS, applicable model and model year Repair Manual:
- 2019 – 2022 Avalon:  
*Brake – Brake System* – [“Brake System \(Other\): Vacuum Pump \(for 2GR-FKS\): Removal”](#)
  - 2018 – 2023 Camry:  
*Brake – Brake System* – [“Brake System \(Other\): Vacuum Pump \(for 2GR-FKS\): Removal”](#)
  - 2017 – 2019 Highlander:  
*Brake – Brake System* – [“Brake System \(Other\): Vacuum Pump: Removal”](#)
  - 2020 – 2022 Highlander:  
*Brake – Brake System* – [“Brake System \(Other\): Vacuum Pump: Removal”](#)
  - 2017 – 2020 Sienna:  
*Brake – Brake System* – [“Brake System \(Other\): Vacuum Pump: Removal”](#)
  - 2016 – 2023 Tacoma:  
*Brake – Brake System* – [“Brake: Vacuum Pump: Removal”](#)



## Knocking Noise From Vacuum Pump at Idle

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### Repair Procedure (continued)

7. Install the NEW vacuum pump assembly.

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

- 2019 – 2022 Avalon:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump \(for 2GR-FKS\): Installation](#)”
- 2018 – 2023 Camry:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump \(for 2GR-FKS\): Installation](#)”
- 2017 – 2019 Highlander:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump: Installation](#)”
- 2020 – 2022 Highlander:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump: Installation](#)”
- 2017 – 2020 Sienna:  
*Brake – Brake System* – “[Brake System \(Other\): Vacuum Pump: Installation](#)”
- 2016 – 2023 Tacoma:  
*Brake – Brake System* – “[Brake: Vacuum Pump: Installation](#)”

8. Confirm that the knocking noise is reduced.