

Knocking Noise From Vacuum Pump at Idle

Service Category Engine/Hybrid System

Section Engine Mechanical **Market** USA and Mexico

Toyota Supports
ASE Certification 

Applicability

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

REVISION NOTICE

March 06, 2023 Rev1:

- Applicability has been updated to exclude 2016 – 2023 model year Tacoma vehicles.
- Any previous printed versions of this bulletin should be discarded.

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, and 2020 Sienna 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Service Bulletin No. T-SB-0316-17 is obsolete and any printed versions should be discarded.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, and 2017 – 2020 model year Sienna 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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Warranty Information

For USA Market

OP CODE	MODEL	MODEL YEAR	DESCRIPTION	TIME	OFP	T1	T2
BR1702	Avalon	2019 – 2022	R & R 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			

*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 (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	OFP	T1	T2
BR1702	Avalon	2019 – 2022	R & R 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			

*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 (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.

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Parts Information

For USA and Mexico Markets

PART NUMBER		MODEL	PART NAME	QTY
PREVIOUS	NEW			
29300-0P010 29300-0P011	29300-31040	Avalon, Camry, Highlander, Sienna	Pump Assy, Vacuum	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.
- 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
Analogue Vacuum Gauge*	—	1
Stethoscope*	—	1
Picoscope Automotive Pressure Transducer Kit (Optional)	PIOKP355	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. 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](#)

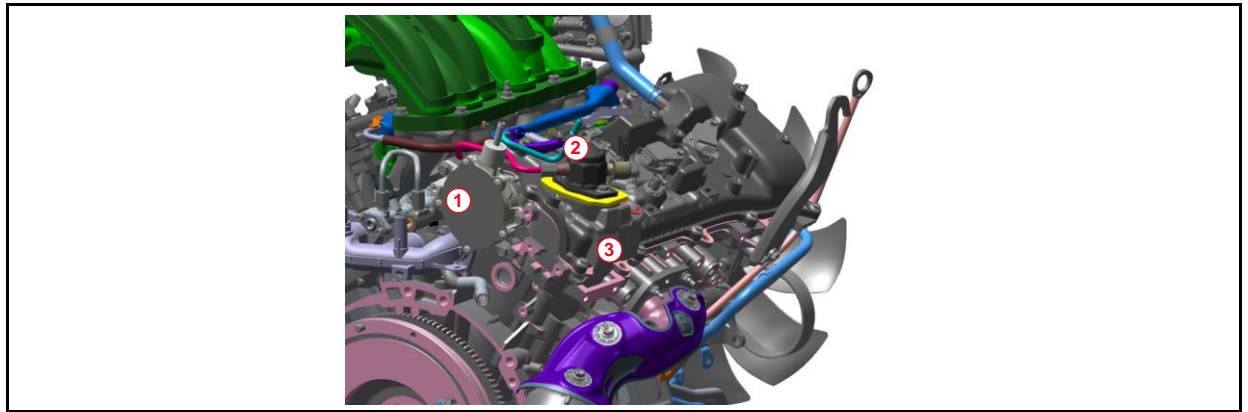
Can a knocking noise be heard from the vacuum pump at idle?

- **YES** — Continue to step 2.
- **NO** — This bulletin does NOT apply.
Continue diagnosis using the applicable Repair Manual.

2. 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 3.
- **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

Figure 1.



1	Vacuum Pump
2	High-pressure Fuel Pump
3	Noise Check Point

Knocking Noise From Vacuum Pump at Idle

Repair Procedure (continued)

3. 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

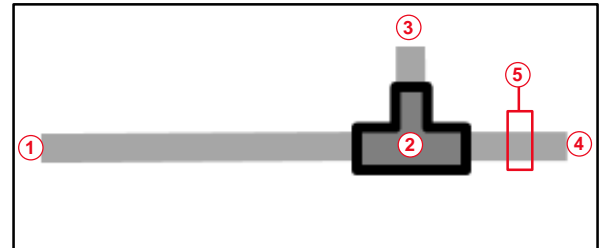
An additional hose may be helpful to install the vacuum gauge in-line.

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](#)”
- 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](#)”

- 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.

Figure 2.



1	Vacuum Pump
2	Vacuum Gauge With T-fitting
3	Vacuum Gauge
4	Brake Booster
5	Pinch Here

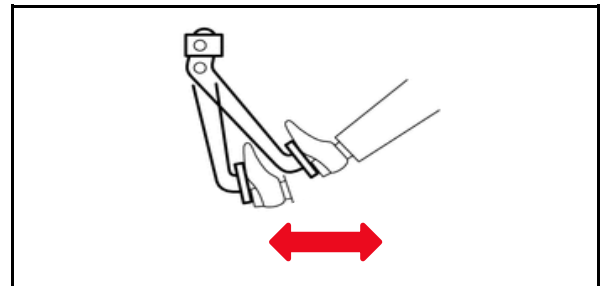
Knocking Noise From Vacuum Pump at Idle

Repair Procedure (continued)

- 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.

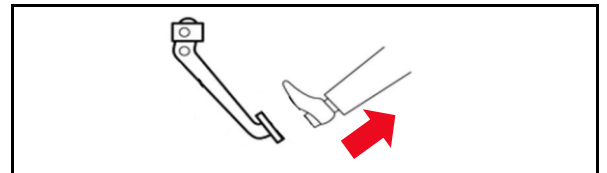
- F. Press the brake pedal to the end of the stroke three times to completely consume vacuum.

Figure 3. Press the Brake Pedal Three Times



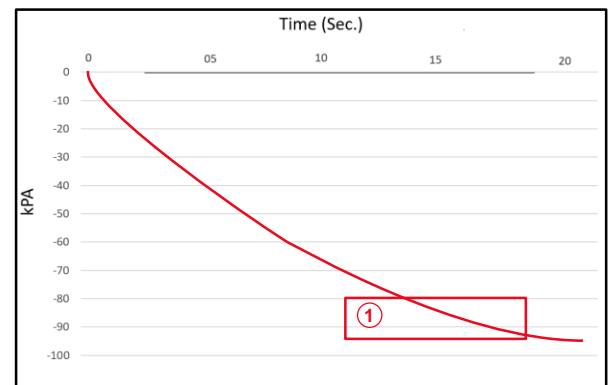
- G. Release the brake pedal and IMMEDIATELY monitor the vacuum level on the gauge.

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

Figure 5.



1 Noise Area

Knocking Noise From Vacuum Pump at Idle

Repair Procedure (continued)

4. 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](#)”

5. 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](#)”

6. Confirm the knocking noise has been reduced.