

MIL ON DTC P219A and P119F

Service**Category** Engine/Hybrid System**Section** Engine Mechanical**Market** USAToyota Supports
ASE Certification **Applicability**

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2017 - 2019	86	WMI(s): JF1 Plant Code(s): 9

Introduction

Some 2017 – 2019 model year 86 vehicles may exhibit a MIL ON condition with Diagnostic Trouble Codes (DTCs) P219A and P119F. The Engine Control Module/ECM (SAE Term: Powertrain Control Module/PCM) logic has been updated, in addition to valve adjustment to prevent this condition. Follow the Repair Procedure in this bulletin to address this condition.

Production Change Information

This bulletin applies to vehicles produced **BEFORE** the Production Change Effective VINs shown below.

MODEL	PLANT	DRIVETRAIN	PRODUCTION CHANGE DESCRIPTION	PRODUCTION CHANGE EFFECTIVE VIN
86	Gunma	FA20/6MT	Engine Valve Clearance	JF1ZNAA18K#700414
			Engine ECU Calibration	JF1ZNAE12K#702972

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Warranty Information

OP CODE	DESCRIPTION	TIME	MODEL YEAR	OFP ENGINE ECU	T1	T2
EG1819	Reprogram ECU & Inspect/Adjust Valve Clearance	12.2	2017	SU003-06409	8A	74
			2018	SU003-07641		
EG1820	Reprogram ECU	0.4	2019	SU003-07934		

APPLICABLE WARRANTY

- This repair is covered under the Toyota Federal Emission Warranty. This warranty is in effect for 96 months or 80,000 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.

Parts Information

MODEL	MODEL YEAR	ENGINE	TRANS-MISSION	PART NUMBER		PART NAME	QTY
				PREVIOUS	NEW		
86	2017	FA20	6MT	SU003-06409	SU003-08190	Computer, Engine Control (ECM/PCM)	-
	2018			SU003-07641	SU003-08191		
	2019			SU003-07934	SU003-08068		
	2017– 2019			0041-00001-LBL		Authorized Modifications Labels	1

NOTE

- The ECM (PCM) should NOT be replaced as part of the Repair Procedure.
- Authorized Modifications Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) through *Dealer Daily – Parts – Dealer Support Materials Orders*.

Required Tools & Equipment

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

* Essential SST.

NOTE

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

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Required Tools & Equipment (continued)

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

* Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 13.20.018 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.
- Use Techstream or an approved J2534 interface to perform flash reprogramming updates. Visit techinfo.toyota.com for more information regarding J2534 reprogramming.

Calibration Information

MODEL	ENGINE	TRANSMISSION	MODEL YEAR	CALIBRATION ID	
				PREVIOUS	NEW
86	FA20	6MT	2017	ZA1JK00C	ZA1JK10C
			2018	ZA1JN00C	ZA1JN20C
				ZA1JN10C	
			2019	ZA1JS00C	ZA1JS10C

Repair Procedure

- Using Techstream, check for the following stored DTCs.
 P219A – Bank 1 Air-Fuel Ratio Imbalance.
 P119F – Bank 1 Air-Fuel Ratio Imbalance for Direct Injection.
 Are the DTCs (either P219A alone or both P219A and P119F) present?
 - **YES** — Continue to step 2.
 - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

NOTE

This condition typically occurs within the first 14,000 miles.

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Repair Procedure (continued)

2. Are DTCs P219A and P119F present with ANY other DTCs?
 - **YES** — Troubleshoot the DTCs using the applicable Repair Manual.
 - **NO** — Continue to step 3.

3. Confirm the vehicle VIN using the following information.
 Was the vehicle produced BEFORE VIN JF1ZNAA1#K#700414?
 - **YES** — Continue to step 4.
 - **NO** — If the vehicle was produced between VINs JF1ZNAA1#K8700414 – JF1ZNAE1#K9702972, go to step 6.

4. Check the camshaft to valve clearance.
 Refer to TIS, applicable model and model year Repair Manual:
 - 2017 – 2019 86:
Engine/Hybrid System – Engine Mechanical – [“FA20 Engine Mechanical: Valve Clearance: Adjustment”](#)

- A. Adjust the valve clearance as close to the center of the specification as possible.

Table 1.

STANDARD VALVE CLEARANCE (COLD)	
Intake	0.10 – 0.15 mm (0.00394 – 0.00591 in.)
Exhaust	0.20 – 0.24 mm (0.00787 – 0.00945 in.)

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Repair Procedure (continued)

- B. Calculate the thickness of the valve adjusting shim using the calculation below. Select a NEW lifter shim with a thickness as close to the center of the specification as possible.

Intake side:

$$A = B + [C - 0.13 \text{ mm (0.00512 in.)}] \times 1.69$$

Exhaust side:

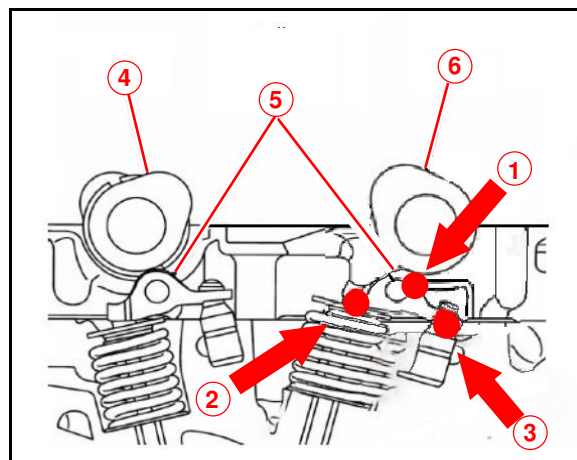
$$A = B + [C - 0.22 \text{ mm (0.00866 in.)}] \times 1.87$$

A: Required valve adjusting shim thickness

B: Removed valve adjusting shim thickness

C: Measured valve clearance

Figure 1.



1	Measurement Point
2	Shim Thickness Adjustment Point
3	Pivot
4	Exhaust
5	Roller Rocker Arm
6	Intake

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Repair Procedure (continued)

Table 2. Intake Shim Size

Shim Size	Measured Clearance (mm)																																								
Removed Shim Size (mm)	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35						
1.80													1.80	1.82	1.84	1.86	1.88	1.88	1.90	1.92	1.94	1.96	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.15	2.17						
1.82												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.17	2.19							
1.84											1.80	1.82	1.84	1.86	1.88	1.90	1.90	1.92	1.94	1.96	1.98	2.00	2.00	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.14	2.16	2.18	2.19	2.21						
1.86											1.80	1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.02	2.04	2.06	2.08	2.10	2.11	2.13	2.15	2.16	2.18	2.20	2.21	2.23					
1.88											1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.04	2.06	2.08	2.10	2.12	2.13	2.15	2.17	2.18	2.20	2.22	2.23	2.25					
1.90											1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.15	2.17	2.19	2.20	2.22	2.24	2.25	2.27				
1.92											1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.17	2.19	2.21	2.22	2.24	2.26	2.27	2.29			
1.94											1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.00	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.14	2.16	2.18	2.19	2.21	2.23	2.24	2.26	2.28	2.29	2.31	
1.96											1.80	1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.11	2.13	2.15	2.16	2.18	2.20	2.21	2.23	2.25	2.26	2.28	2.30	2.31	2.33
1.98											1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.13	2.15	2.17	2.18	2.20	2.22	2.23	2.25	2.27	2.28	2.30	2.32	2.33	2.35
2.00	1.80	1.82	1.84	1.84	1.86	1.88	1.90	1.92	1.94	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.08	2.10	2.12	2.14	2.15	2.17	2.19	2.20	2.22	2.24	2.25	2.27	2.29	2.30	2.32	2.34	2.35	2.37	2.39	2.41	2.43	2.45		
2.02	1.82	1.84	1.86	1.86	1.88	1.90	1.92	1.94	1.96	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.16	2.17	2.19	2.21	2.22	2.24	2.26	2.27	2.29	2.31	2.32	2.34	2.36	2.37	2.39	2.41	2.43	2.45			
2.04	1.84	1.86	1.88	1.88	1.90	1.92	1.94	1.96	1.98	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.18	2.19	2.21	2.23	2.24	2.26	2.28	2.29	2.31	2.33	2.34	2.36	2.38	2.39	2.41	2.43	2.45				
2.06	1.86	1.88	1.90	1.90	1.92	1.94	1.96	1.98	2.00	2.00	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.14	2.16	2.18	2.20	2.21	2.23	2.25	2.26	2.28	2.30	2.31	2.33	2.35	2.36	2.38	2.40	2.41	2.43	2.45					
2.07	1.86	1.88	1.90	1.92	1.94	1.96	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.15	2.17	2.19	2.21	2.22	2.24	2.26	2.27	2.29	2.31	2.32	2.34	2.36	2.37	2.39	2.41	2.42	2.44	2.46					
2.08	1.88	1.90	1.92	1.92	1.94	1.96	1.98	2.00	2.02	2.02	2.04	2.06	2.08	2.10	2.11	2.13	2.15	2.16	2.18	2.20	2.22	2.23	2.25	2.27	2.28	2.30	2.32	2.33	2.35	2.37	2.38	2.40	2.42	2.43	2.45	2.47					
2.09	1.88	1.90	1.92	1.94	1.96	1.98	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.17	2.19	2.21	2.23	2.24	2.26	2.28	2.29	2.31	2.33	2.34	2.36	2.38	2.39	2.41	2.43	2.44	2.46	2.48					
2.10	1.90	1.92	1.94	1.94	1.96	1.98	2.00	2.02	2.04	2.04	2.07	2.08	2.10	2.12	2.13	2.15	2.17	2.18	2.20	2.22	2.24	2.25	2.27	2.29	2.30	2.32	2.34	2.35	2.37	2.39	2.40	2.42	2.44	2.45	2.47	2.49					
2.11	1.90	1.92	1.94	1.96	1.98	2.00	2.00	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.14	2.16	2.18	2.19	2.21	2.23	2.25	2.26	2.28	2.30	2.31	2.33	2.35	2.36	2.38	2.40	2.41	2.43	2.45	2.46	2.48	2.50					
2.12	1.92	1.94	1.96	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.15	2.17	2.19	2.20	2.22	2.24	2.26	2.27	2.29	2.31	2.32	2.34	2.36	2.37	2.39	2.41	2.42	2.44	2.46	2.47	2.49	2.51					
2.13	1.92	1.94	1.96	1.98	2.00	2.02	2.02	2.04	2.06	2.08	2.10	2.11	2.13	2.15	2.16	2.18	2.20	2.21	2.23	2.25	2.27	2.28	2.30	2.32	2.33	2.35	2.37	2.38	2.40	2.42	2.43	2.45	2.47	2.48	2.50	2.52					
2.14	1.94	1.96	1.98	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.17	2.19	2.21	2.22	2.24	2.26	2.28	2.29	2.31	2.33	2.34	2.36	2.38	2.39	2.41	2.43	2.44	2.46	2.48	2.49	2.51	2.53					
2.15	1.94	1.96	1.98	2.00	2.02	2.04	2.04	2.07	2.08	2.10	2.12	2.13	2.15	2.17	2.18	2.20	2.22	2.23	2.25	2.27	2.29	2.30	2.32	2.34	2.35	2.37	2.39	2.40	2.42	2.44	2.45	2.47	2.49	2.50	2.52	2.54					
2.16	1.96	1.98	2.00	2.00	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.14	2.16	2.18	2.19	2.21	2.23	2.24	2.26	2.28	2.30	2.31	2.33	2.35	2.36	2.38	2.40	2.41	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.55					
2.17	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.15	2.17	2.19	2.20	2.22	2.24	2.25	2.27	2.29	2.31	2.32	2.34	2.36	2.37	2.39	2.41	2.42	2.44	2.46	2.47	2.49	2.51	2.52	2.54	2.56					
2.18	1.98	2.00	2.02	2.02	2.04	2.06	2.08	2.10	2.11	2.13	2.15	2.16	2.18	2.20	2.21	2.23	2.25	2.26	2.28	2.30	2.32	2.33	2.35	2.37	2.38	2.40	2.42	2.43	2.45	2.47	2.48	2.50	2.52	2.53	2.55	2.57					
2.19	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.17	2.19	2.21	2.22	2.24	2.26	2.27	2.29	2.31	2.33	2.34	2.36	2.38	2.39	2.41	2.43	2.44	2.46	2.48	2.49	2.51	2.53	2.54	2.56						
2.20	2.00	2.02	2.04	2.04	2.06	2.08	2.10	2.12	2.13	2.15	2.17	2.18	2.20	2.22	2.23	2.25	2.27	2.28	2.30	2.32	2.34	2.35	2.37	2.39	2.40	2.42	2.44	2.45	2.47	2.49	2.50	2.52	2.54	2.55	2.57	2.59					
2.21	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.14	2.16	2.18	2.19	2.21	2.23	2.24	2.26	2.28	2.29	2.31	2.33	2.35	2.36	2.38	2.40	2.41	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.55	2.56	2.58	2.60					
2.22	2.02	2.04	2.06	2.07	2.08	2.10	2.12	2.14	2.15	2.17	2.19	2.20	2.22	2.24	2.25	2.27	2.29	2.30	2.32	2.34	2.36	2.37	2.39	2.41	2.42	2.44	2.46	2.47	2.49	2.51	2.52	2.54	2.56	2.57	2.59	2.61					
2.23	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.15	2.16	2.18	2.20	2.21	2.23	2.25	2.26	2.28	2.30	2.31	2.33	2.35	2.37	2.38	2.40	2.42	2.43	2.45	2.47	2.48	2.50	2.52	2.53	2.55	2.57	2.58	2.60						
2.24	2.04	2.06	2.07	2.09	2.10	2.12	2.14	2.16	2.																																

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Repair Procedure (continued)

Table 2. Intake Shim Size (continued)

Shim Size	Measured Clearance (mm)																																		
Removed Shim Size (mm)	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70
1.80	2.19	2.21	2.22	2.24	2.26	2.27	2.29	2.31	2.32	2.34	2.36	2.37	2.39	2.41	2.43	2.44	2.46	2.48	2.49	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76	
1.82	2.21	2.23	2.24	2.26	2.28	2.29	2.31	2.33	2.34	2.36	2.38	2.39	2.41	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.55	2.56	2.58	2.60	2.61	2.64	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76	
1.84	2.23	2.25	2.26	2.28	2.30	2.31	2.33	2.35	2.36	2.38	2.40	2.41	2.43	2.45	2.47	2.48	2.50	2.52	2.53	2.55	2.57	2.58	2.60	2.62	2.64	2.66	2.66	2.68	2.70	2.72	2.74	2.76	2.76		
1.86	2.25	2.27	2.28	2.30	2.32	2.33	2.35	2.37	2.38	2.40	2.42	2.43	2.45	2.47	2.49	2.50	2.52	2.54	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.68	2.70	2.72	2.74	2.76				
1.88	2.27	2.29	2.30	2.32	2.34	2.35	2.37	2.39	2.40	2.42	2.44	2.45	2.47	2.49	2.51	2.52	2.54	2.56	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.70	2.72	2.74	2.76					
1.90	2.29	2.31	2.32	2.34	2.36	2.37	2.39	2.41	2.42	2.44	2.46	2.47	2.49	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.72	2.74	2.76						
1.92	2.31	2.33	2.34	2.36	2.38	2.39	2.41	2.43	2.44	2.46	2.48	2.49	2.51	2.53	2.55	2.56	2.58	2.60	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76							
1.94	2.33	2.35	2.36	2.38	2.40	2.41	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.55	2.57	2.58	2.60	2.62	2.64	2.64	2.66	2.68	2.70	2.72	2.74	2.76	2.76								
1.96	2.35	2.37	2.38	2.40	2.42	2.43	2.45	2.47	2.48	2.50	2.52	2.53	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.66	2.68	2.70	2.72	2.74	2.76										
1.98	2.37	2.39	2.40	2.42	2.44	2.45	2.47	2.49	2.50	2.52	2.54	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.68	2.70	2.72	2.74	2.76											
2.00	2.39	2.41	2.42	2.44	2.46	2.47	2.49	2.51	2.52	2.54	2.56	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76													
2.02	2.41	2.43	2.44	2.46	2.48	2.49	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.72	2.74	2.76													
2.04	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.55	2.56	2.58	2.60	2.61	2.64	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76														
2.06	2.45	2.47	2.48	2.50	2.52	2.53	2.55	2.57	2.58	2.60	2.62	2.64	2.66	2.66	2.68	2.70	2.72	2.74	2.76	2.76															
2.07	2.46	2.48	2.49	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.72	2.74	2.76																
2.08	2.47	2.49	2.50	2.52	2.54	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.68	2.70	2.72	2.74	2.76																	
2.09	2.48	2.50	2.51	2.53	2.55	2.56	2.58	2.60	2.61	2.64	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76																	
2.10	2.49	2.51	2.52	2.54	2.56	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.70	2.72	2.74	2.76																		
2.11	2.50	2.52	2.53	2.55	2.57	2.58	2.60	2.62	2.64	2.66	2.66	2.68	2.70	2.72	2.74	2.76	2.76																		
2.12	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.72	2.74	2.76																			
2.13	2.52	2.54	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.68	2.70	2.72	2.74	2.76																				
2.14	2.53	2.55	2.56	2.58	2.60	2.61	2.64	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76																				
2.15	2.54	2.56	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.70	2.72	2.74	2.76																					
2.16	2.55	2.57	2.58	2.60	2.62	2.64	2.66	2.66	2.68	2.70	2.72	2.74	2.76	2.76																					
2.17	2.56	2.58	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.72	2.74	2.76																						
2.18	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.68	2.70	2.72	2.74	2.76																							
2.19	2.58	2.60	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76																							
2.20	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.70	2.72	2.74	2.76																								
2.21	2.60	2.62	2.64	2.64	2.66	2.68	2.70	2.72	2.74	2.76	2.76																								
2.22	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.72	2.74	2.76																									
2.23	2.62	2.64	2.66	2.66	2.68	2.70	2.72	2.74	2.76																										
2.24	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.74	2.76																										
2.25	2.64	2.66	2.68	2.68	2.70	2.72	2.74	2.76																											
2.26	2.64	2.66	2.68	2.70	2.72	2.74	2.76	2.76																											
2.27	2.66	2.68	2.70	2.70	2.72	2.74	2.76																												
2.28	2.66	2.68	2.70	2.72	2.74	2.76																													
2.29	2.68	2.70	2.72	2.72	2.74	2.76																													
2.30	2.68	2.70	2.72	2.74	2.76																														
2.31	2.70	2.72	2.74	2.74	2.76																														
2.32	2.70	2.72	2.74	2.76																															
2.33	2.72	2.74	2.76	2.76																															
2.34	2.72	2.74	2.76																																
2.35	2.74	2.76																																	
2.36	2.74	2.76																																	
2.37	2.76																																		
2.38	2.76																																		

MIL ON DTC P219A and P119F

Repair Procedure (continued)

Table 3. Exhaust Shim Size

Shim Size	Measured Clearance (mm)																																				
	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35		
1.80																							1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08
1.82																						1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.10	
1.84																						1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	
1.86																					1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.10		
1.88																				1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10		
1.90																			1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12		
1.92																		1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	
1.94																	1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	
1.96																1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	
1.98															1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	
2.00														1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	
2.02													1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27
2.04												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.06												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.07												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.08												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.09												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.10												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.11												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.12												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.13												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.14												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.15												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.16												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.17												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29
2.18												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.14	2.16	2.18	2.20	2.22	2.24	2.26	2.28
2.19												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.12	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27
2.20												1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.14	2.16	2.18	2.20	2.22	2.24	2.26	2.28
2.21												1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.14	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29	2.31
2.22												1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.16	2.18	2.20	2.22	2.24	2.26	2.28	2.30
2.23												1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.14	2.16	2.17	2.19	2.21	2.23	2.25	2.27	2.29	2.31	
2.24												1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.18	2.20	2.22	2.24	2.26	2.28	2.30	
2.25												1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.14	2.16	2.18	2.19	2.21	2.23	2.25	2.27	2.29	2.31	2.32	
2.26												1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.20	2.22	2.24	2.26	2.28	2.30		
2.27												1.88	1.90	1.92	1.94	1.96	1.98	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.14	2.16	2.18	2.20	2.21	2.23	2.25	2.27	2.29	2.31		
2.28												1.88	1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.22	2.24	2.26	2.28	2.30	2.32		
2.29												1.90	1.92	1.94	1.96	1.98	2.00	2.00	2.02	2.04	2.07	2.08	2.10	2.12	2.14	2.16	2.18	2.20	2.22	2.23	2.25	2.27	2.29	2.31	2.33		
2.30												1.90	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.09	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.24	2.26	2.28	2.30	2.32	2.34		
2.31												1.92	1.94	1.96	1.98	2.00	2.02	2.02	2.04	2.07	2.09	2.10	2.12	2.14	2.16	2.18	2.20	2.22	2.24	2.25	2.27	2.29	2.31	2.33	2.35		
2.32												1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.11	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.26	2.28	2.30	2.32	2.34	2.36		
2.33												1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.11	2.12	2.14	2.16	2.18	2.20	2.22	2.24	2.26	2.27	2.29	2.31	2.33	2.35	2.37		
2.34												1.94	1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.13	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.28	2.30	2.32	2.34	2.36	2.38		
2.35												1.96	1.98	2.00	2.02	2.04	2.06	2.07	2.09	2.11	2.13	2.14	2.16	2.18	2.20	2.22	2.24	2.26	2.28	2.29	2.31	2.33	2.35	2.37	2.39	2.41	
2.36												1.96	1.98	2.00	2.02	2.04	2.06	2.08	2.10	2.12	2.14	2.15	2.17	2.19	2.21	2.23	2.25	2.27	2.29								

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Repair Procedure (continued)

Table 3. Exhaust Shim Size (continued)

Shim Size	Measured Clearance (mm)																																					
Removed Shim Size (mm)	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73
1.8	2.06	2.08	2.10	2.12	2.14	2.16	2.17	2.19	2.21	2.23	2.25	2.27	2.29	2.30	2.32	2.34	2.36	2.38	2.40	2.42	2.44	2.45	2.47	2.49	2.51	2.53	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76
1.82	2.08	2.10	2.12	2.14	2.16	2.18	2.19	2.21	2.23	2.25	2.27	2.29	2.31	2.33	2.34	2.36	2.38	2.40	2.42	2.44	2.46	2.47	2.49	2.51	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76	
1.84	2.10	2.12	2.14	2.16	2.18	2.20	2.21	2.23	2.25	2.27	2.29	2.31	2.33	2.34	2.36	2.38	2.40	2.42	2.44	2.46	2.48	2.49	2.51	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76		
1.86	2.12	2.14	2.16	2.18	2.20	2.22	2.23	2.25	2.27	2.29	2.31	2.33	2.35	2.36	2.38	2.40	2.42	2.44	2.46	2.48	2.50	2.51	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76			
1.88	2.14	2.16	2.18	2.20	2.22	2.24	2.25	2.27	2.29	2.31	2.33	2.35	2.37	2.38	2.40	2.42	2.44	2.46	2.48	2.50	2.52	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76				
1.9	2.16	2.18	2.20	2.22	2.24	2.26	2.27	2.29	2.31	2.33	2.35	2.37	2.39	2.40	2.42	2.44	2.46	2.48	2.50	2.52	2.54	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76					
1.92	2.18	2.20	2.22	2.24	2.26	2.28	2.29	2.31	2.33	2.35	2.37	2.39	2.41	2.42	2.44	2.46	2.48	2.50	2.52	2.54	2.56	2.57	2.59	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76							
1.94	2.20	2.22	2.24	2.26	2.28	2.30	2.31	2.33	2.35	2.37	2.39	2.41	2.43	2.44	2.46	2.48	2.50	2.52	2.54	2.56	2.58	2.59	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76								
1.96	2.22	2.24	2.26	2.28	2.30	2.32	2.33	2.35	2.37	2.39	2.41	2.43	2.45	2.46	2.48	2.50	2.52	2.54	2.56	2.58	2.60	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76									
1.98	2.24	2.26	2.28	2.30	2.32	2.34	2.35	2.37	2.39	2.41	2.43	2.45	2.47	2.48	2.50	2.52	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76										
2	2.26	2.28	2.30	2.32	2.34	2.36	2.37	2.39	2.41	2.43	2.45	2.47	2.49	2.50	2.52	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76											
2.02	2.28	2.30	2.32	2.34	2.36	2.38	2.39	2.41	2.43	2.45	2.47	2.49	2.51	2.52	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76												
2.04	2.30	2.32	2.34	2.36	2.38	2.40	2.41	2.43	2.45	2.47	2.49	2.51	2.53	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76													
2.06	2.32	2.34	2.36	2.38	2.40	2.42	2.43	2.45	2.47	2.49	2.51	2.53	2.55	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76														
2.07	2.33	2.35	2.37	2.39	2.41	2.43	2.44	2.46	2.48	2.50	2.52	2.54	2.56	2.57	2.59	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76															
2.08	2.34	2.36	2.38	2.40	2.42	2.44	2.45	2.47	2.49	2.51	2.53	2.55	2.57	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76															
2.09	2.35	2.37	2.39	2.41	2.43	2.45	2.46	2.48	2.50	2.52	2.54	2.56	2.58	2.59	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76																
2.1	2.36	2.38	2.40	2.42	2.44	2.46	2.47	2.49	2.51	2.53	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																
2.11	2.37	2.39	2.41	2.43	2.45	2.47	2.48	2.50	2.52	2.54	2.56	2.58	2.60	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76																	
2.12	2.38	2.40	2.42	2.44	2.46	2.48	2.49	2.51	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																	
2.13	2.39	2.41	2.43	2.45	2.47	2.49	2.50	2.52	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																		
2.14	2.40	2.42	2.44	2.46	2.48	2.50	2.51	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																		
2.15	2.41	2.43	2.45	2.47	0.00	2.51	2.52	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																			
2.16	2.42	2.44	2.46	2.48	2.50	2.52	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																			
2.17	2.43	2.45	2.47	2.49	2.51	2.53	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																				
2.18	2.44	2.46	2.48	2.50	2.52	2.54	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																				
2.19	2.45	2.47	2.49	2.51	2.53	2.55	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																					
2.2	2.46	2.48	2.50	2.52	2.54	2.56	2.57	2.59	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76																						
2.21	2.47	2.49	2.51	2.53	2.55	2.57	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																						
2.22	2.48	2.50	2.52	2.54	2.56	2.58	2.59	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76																							
2.23	2.49	2.51	2.53	2.55	2.57	2.59	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																							
2.24	2.50	2.52	2.54	2.56	2.58	2.60	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76																								
2.25	2.51	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																								
2.26	2.52	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																									
2.27	2.53	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																									
2.28	2.54	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																										
2.29	2.55	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																										
2.3	2.56	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																											
2.31	2.57	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																											
2.32	2.58	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																												
2.33	2.59	2.61	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																												
2.34	2.60	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																													
2.35	2.61	2.64	2.66	2.68	2.70	2.72	2.74	2.76																														
2.36	2.62	2.64	2.66	2.68	2.70	2.72	2.74	2.76																														
2.37	2.64	2.66	2.68	2.70	2.72	2.74	2.76																															
2.38	2.64	2.66	2.68	2.70	2.72	2.74	2.76																															
2.39	2.66	2.68	2.70	2.72	2.74	2.76																																
2.4	2.66	2.68	2.70	2.72	2.74	2.76																																
2.41	2.68	2.70	2.72	2.74	2.76																																	
2.42	2.68	2.70	2.72	2.74	2.76																																	
2.43	2.70	2.72	2.74	2.76																																		
2.44	2.70	2.72	2.74	2.76																																		
2.45	2.72	2.74	2.76																																			
2.46	2.72	2.74	2.76																																			
2.47	2.74	2.76																																				
2.48	2.74	2.76																																				
2.49	2.76																																					
2.5	2.76																																					

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Repair Procedure (continued)

Table 4. Shim Size Reference

PART NUMBER	SHIM SIZE	PART NUMBER	SHIM SIZE	PART NUMBER	SHIM SIZE
SU003-04454	1.8	SU003-00229	2.23	SU003-00259	2.53
SU003-04455	1.82	SU003-00230	2.24	SU003-00260	2.54
SU003-04456	1.84	SU003-00231	2.25	SU003-00261	2.55
SU003-04457	1.86	SU003-00232	2.26	SU003-00262	2.56
SU003-04458	1.88	SU003-00233	2.27	SU003-00263	2.57
SU003-04459	1.9	SU003-00234	2.28	SU003-00264	2.58
SU003-00205	1.92	SU003-00235	2.29	SU003-00265	2.59
SU003-00206	1.94	SU003-00236	2.3	SU003-00266	2.6
SU003-00207	1.96	SU003-00237	2.31	SU003-00267	2.61
SU003-00208	1.98	SU003-00238	2.32	SU003-00268	2.62
SU003-00209	2.0	SU003-00239	2.33	SU003-00269	2.64
SU003-00210	2.02	SU003-00240	2.34	SU003-00270	2.66
SU003-00211	2.04	SU003-00241	2.35	SU003-00271	2.68
SU003-00212	2.06	SU003-00242	2.36	SU003-00272	2.7
SU003-00213	2.07	SU003-00243	2.37	SU003-00273	2.72
SU003-00214	2.08	SU003-00244	2.38	SU003-00274	2.74
SU003-00215	2.09	SU003-00245	2.39	SU003-00275	2.76
SU003-00216	2.1	SU003-00246	2.4	—	
SU003-00217	2.11	SU003-00247	2.41		
SU003-00218	2.12	SU003-00248	2.42		
SU003-00219	2.13	SU003-00249	2.43		
SU003-00220	2.14	SU003-00250	2.44		
SU003-00221	2.15	SU003-00251	2.45		
SU003-00222	2.16	SU003-00252	2.46		
SU003-00223	2.17	SU003-00253	2.47		
SU003-00224	2.18	SU003-00254	2.48		
SU003-00225	2.19	SU003-00255	2.49		
SU003-00226	2.2	SU003-00256	2.5		
SU003-00227	2.21	SU003-00257	2.51		
SU003-00228	2.22	SU003-00258	2.52		

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Repair Procedure (continued)

5. Confirm the valves are correctly adjusted.

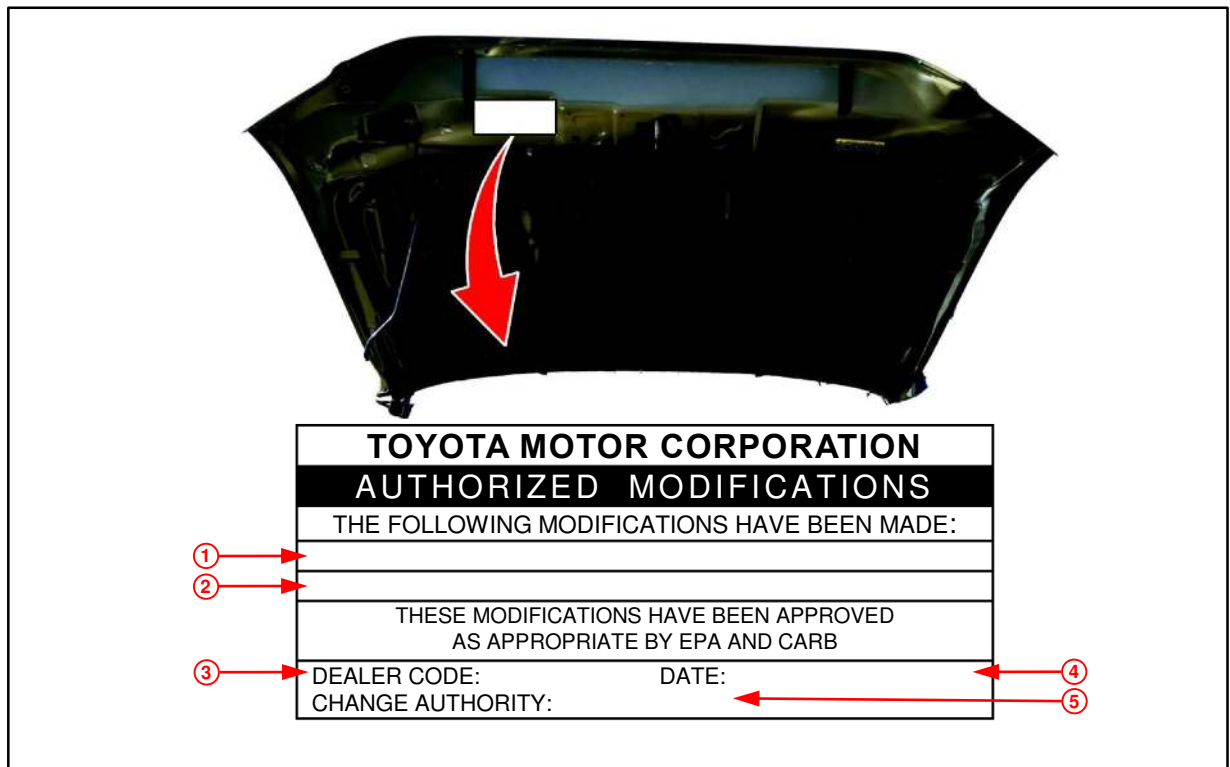
NOTE

Inspect the valve clearance when the engine is cold.

Are the valves correctly adjusted?

- **YES** — Continue to step 6.
 - **NO** — Return to step 4, and then go to step 6.
6. Use Techstream to confirm if the ECM (PCM) calibration has been updated and check for the Authorized Modifications Label affixed to the vehicle in the location shown below.
Is the calibration ID listed in Techstream and on the label the latest ECM (PCM) calibration?
 - **YES** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
 - **NO** — Continue to step 7.

Figure 2. Location of Authorized Modifications Label for 2017 – 2019 86



1	Replacement ECM (PCM) Part Number (e.g., SU003-08190)
2	NEW Calibration ID (e.g., ZA1JK10C)
3	Dealer Code

4	Date Completed
5	This SB Number

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Repair Procedure (continued)

7. Flash reprogram the ECM (PCM).

NOTE

- The GR8 Battery Diagnostic Station 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 GR8 Battery Diagnostic Station, refer to the [GR8 Instruction Manual](#) located on TIS – *Diagnostics – Tools & Equipment – Battery Diagnostics*.

Follow the procedures outlined in Service Bulletin [T-SB-0134-16](#), *Techstream ECU Flash Reprogramming Procedure*, and flash the ECM (PCM) with the NEW calibration file update.

8. Prepare and install the Authorized Modifications Label.
 - A. Using a permanent marker, enter the following information on the label:
 - ECM (PCM) part number [*Refer to the **Parts Information** section for the **NEW PART NUMBER***]
 - Calibration ID(s) [*Refer to the **Calibration Information** section for the **NEW CALIBRATION ID***]
 - Dealer Code
 - Repair Date
 - Change Authority [***This bulletin number***]
 - B. Install the Authorized Modifications Label on the vehicle at the location shown in Figure 2. The Authorized Modifications Label is available through the MDC, P/N 00451-00001-LBL.
9. Start the engine and warm it up to normal operating temperature.
10. Test-drive the vehicle to confirm proper operation.