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<b>Model Year Start:</b> 2023	<b>Model:</b> Prius Prime	<b>Prod Date Range:</b> [03/2023 - ]
<b>Title:</b> M20A-FXS (ENGINE MECHANICAL): ENGINE UNIT (for PHEV Model): REMOVAL; 2023 - 2024 MY Prius Prime [03/2023 - ]		

## REMOVAL

### CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization or registration) that must be performed after parts are removed and installed, or replaced during engine unit removal/installation are shown below.

#### **Necessary Procedures After Parts Removed/Installed/Replaced**

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
Replacement of ECM	Perform Vehicle Identification Number (VIN) registration	DTC is output	<a href="#">INFO</a>
	ECU configuration	-	<a href="#">INFO</a>
	Update ECU security key	Vehicle Control History (RoB) are stored	<a href="#">INFO</a>
<ul style="list-style-type: none"> <li>• Replacement of throttle body with motor assembly</li> <li>• Cleaning the deposits from the throttle body with motor assembly</li> <li>• Replacement of cam timing control motor with EDU assembly*</li> <li>• Replacement of camshaft timing gear assembly*</li> <li>• Replacement of camshaft (for</li> </ul>	Inspection after repair	<ul style="list-style-type: none"> <li>• Poor idle, etc.</li> <li>• Engine start function, etc.</li> </ul>	<a href="#">INFO</a>

\*: Even when not replacing the part, it is necessary to perform the specified necessary procedures after installation.

\*1: Also necessary after performing a tire rotation.

\*2: It is not necessary to perform this procedure if the tire pressure warning valve and transmitters are installed to the same location.

\*3: The vehicle height changes because of tire replacement.

\*4: If matchmarks were not placed when removing parts related to steering operation, perform end position initial setting.

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
intake or exhaust camshaft) <ul style="list-style-type: none"> <li>• Replacement of camshaft timing exhaust gear assembly</li> <li>• Replacement of fuel (engine room side) pump assembly (for high pressure side)</li> <li>• Replacement of ignition coil assembly</li> <li>• Replacement of engine assembly</li> <li>• Gas leak from exhaust system is repaired</li> <li>• Replacement of cylinder head sub-assembly</li> <li>• Replacement of port fuel injector assembly</li> <li>• Replacement of direct fuel injector assembly</li> <li>• Replacement of EGR valve assembly</li> <li>• Replacement of air fuel ratio sensor (sensor 1)</li> <li>• Replacement of spark plug</li> <li>• Replacement of knock control sensor</li> </ul>			

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REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
Replacement of inverter with converter assembly	ECU configuration	-	<a href="#">INFO</a>
	Resolver learning	<ul style="list-style-type: none"> <li>DTCs are stored</li> <li>Slight vibration at a vehicle speed of 5 km/h (3 mph) or less</li> <li>Shock or vibration during acceleration</li> </ul>	<a href="#">INFO</a>
Replacement of service plug grip	High voltage fuse accumulated load history reset	DTCs are stored	<a href="#">INFO</a>
Replacement of hybrid vehicle transaxle assembly	<ul style="list-style-type: none"> <li>Resolver learning</li> <li>Initialize resolver</li> </ul>	<ul style="list-style-type: none"> <li>DTCs are stored</li> <li>Slight vibration at a vehicle speed of 5 km/h (3 mph) or less</li> <li>Shock or vibration during acceleration</li> </ul>	<a href="#">INFO</a>
Suspension parts	Rear television camera assembly optical axis (Back camera position setting)	Parking Assist Monitor System	<a href="#">INFO</a>
	Parking assist ECU initialization	Panoramic View Monitor System	<a href="#">INFO</a>
		Advanced Park	<a href="#">INFO</a>
Tires	<ul style="list-style-type: none"> <li>Initialization*1*2</li> <li>Tire Position Identification*1*2</li> </ul>	Tire Pressure Warning System	Refer to Procedures Necessary When Replacing Parts (for Tire Pressure Warning System) table below <a href="#">INFO</a>

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REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
	Rear television camera assembly optical axis (Back camera position setting)	Parking Assist Monitor System	<a href="#">INFO</a>
	Parking assist ECU initialization*3	Panoramic View Monitor System	<a href="#">INFO</a>
		Advanced Park	<a href="#">INFO</a>
No. 2 steering intermediate shaft assembly*4	End position initial setting	-	<a href="#">INFO</a>
Replacement of front bumper assembly*	Front television camera view adjustment	Panoramic View Monitor System	<a href="#">INFO</a>
		Advanced Park	<a href="#">INFO</a>
Front wheel alignment adjustment	Perform "Calibration"	<ul style="list-style-type: none"> <li>• DTCs are stored</li> <li>• ABS warning light illuminates</li> <li>• Brake system warning light (yellow indicator) illuminates</li> <li>• Slip indicator light illuminates</li> <li>• Electronically controlled brake system disabled or malfunctions</li> </ul>	<a href="#">INFO</a>

\*: Even when not replacing the part, it is necessary to perform the specified necessary procedures after installation.

\*1: Also necessary after performing a tire rotation.

\*2: It is not necessary to perform this procedure if the tire pressure warning valve and transmitters are installed to the same location.

\*3: The vehicle height changes because of tire replacement.

\*4: If matchmarks were not placed when removing parts related to steering operation, perform end position initial setting.

**NOTICE:**

This procedure includes the removal of small-head bolts. Refer to Small-Head Bolts of Basic Repair Hint to identify the small-head bolts.

Click here [INFO](#)

**HINT:**

When the cable is disconnected / reconnected to the auxiliary battery terminal, systems temporarily stop operating. However, each system has a function that completes learning the first time the system is used.

**Items for which learning is completed by driving the vehicle**

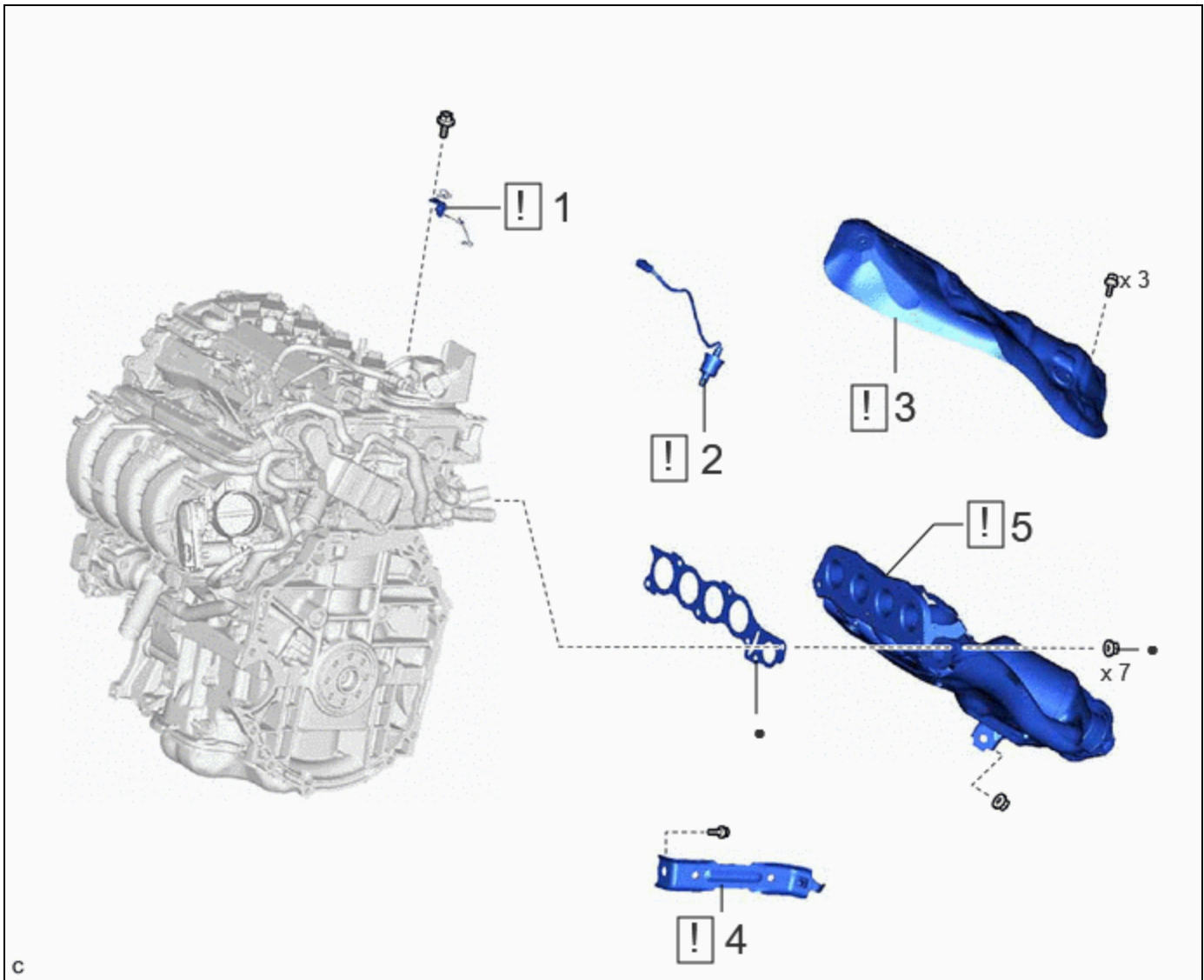
EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	NECESSARY PROCEDURES	LINK
Front Camera System	Drive the vehicle straight ahead at 35 km/h (22 mph) or more for 5 seconds or more.	<a href="#">INFO</a>

#### Items for which learning is completed by operating the vehicle normally

EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	NECESSARY PROCEDURES	LINK
Power Door Lock Control System*1 <ul style="list-style-type: none"> <li>• <span style="color: green;">Back door opener</span></li> </ul>	Perform door unlock operation with door control switch or electrical key transmitter sub-assembly switch.	<a href="#">INFO</a>
Power Back Door System*2	Reset back door close position	<a href="#">INFO</a>
Air Conditioning System	After the ignition switch is turned to ON, the servo motor and cooler expansion valve standard position is recognized.	-
*1: w/o Power Back Door System *2: w/ Power Back Door System		

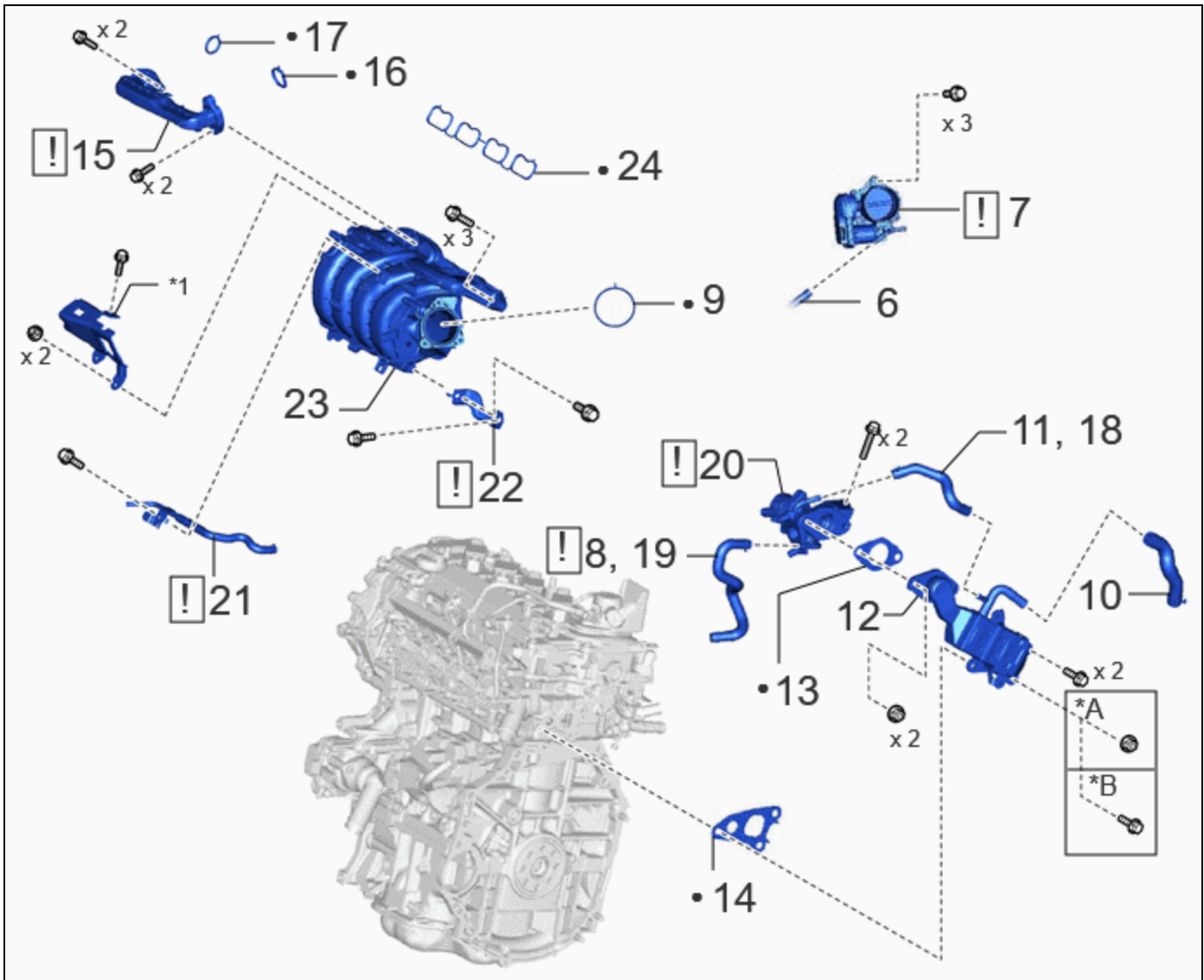
## CAUTION / NOTICE / HINT




### COMPONENTS (REMOVAL)









PROCEDURE		PART NAME CODE			
1	WIRE HARNESS CLAMP BRACKET	-	<a href="#">INFO</a>	-	-
2	AIR FUEL RATIO SENSOR	89467B	<a href="#">INFO</a>	-	-
3	NO. 1 EXHAUST MANIFOLD HEAT INSULATOR	17167	<a href="#">INFO</a>	-	-
4	MANIFOLD STAY	17118	<a href="#">INFO</a>	-	-
5	EXHAUST MANIFOLD	17141	<a href="#">INFO</a>	-	-

•	Non-reusable part	-	-
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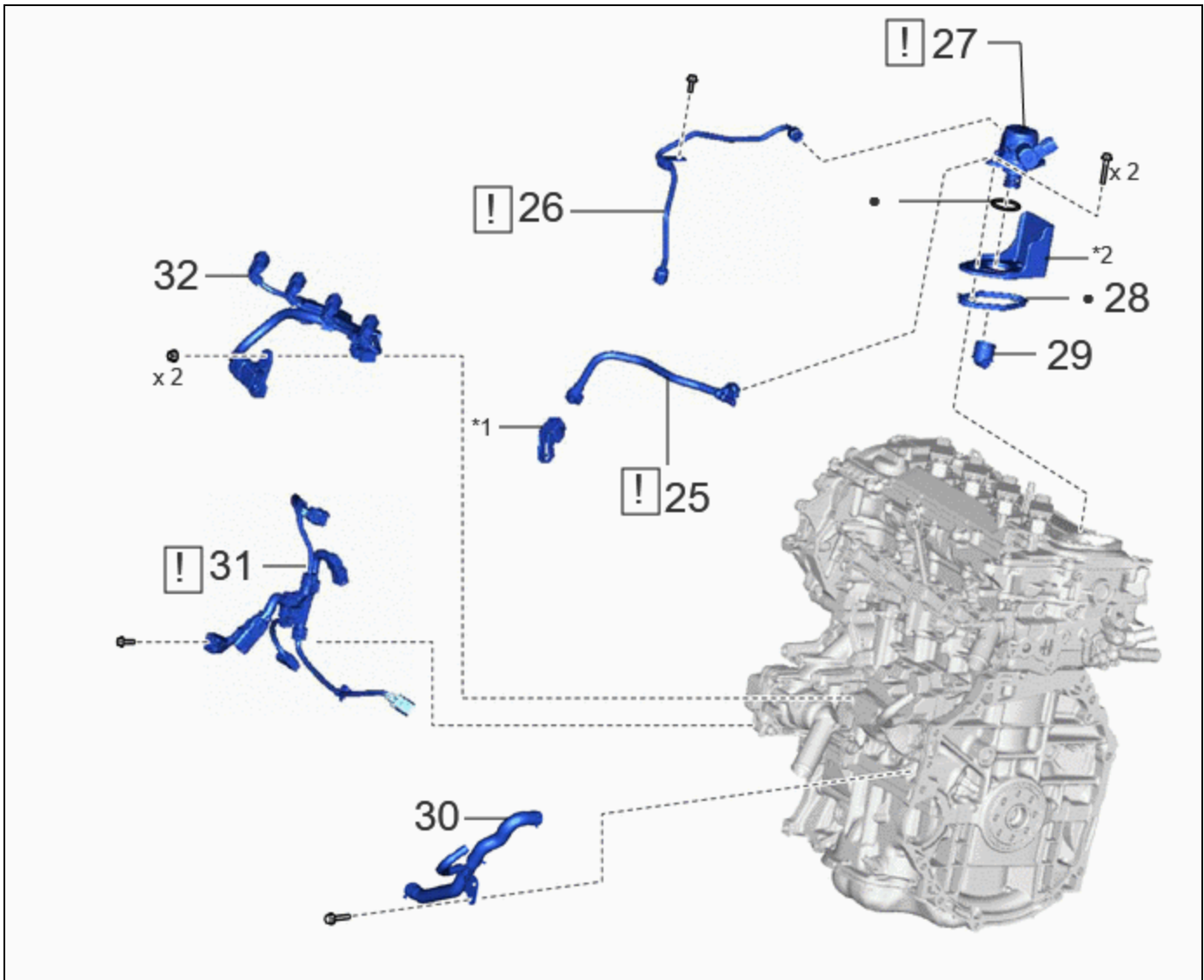


PROCEDURE		PART NAME CODE			
6	NO. 5 WATER BY-PASS HOSE	16282	-	-	-
7	THROTTLE BODY WITH MOTOR ASSEMBLY	22030	<a href="#">INFO</a>	-	-
8	DISCONNECT NO. 8 WATER BY-PASS HOSE	16296	<a href="#">INFO</a>	-	-
9	THROTTLE BODY GASKET	22271	-	-	-
10	NO. 3 WATER BY-PASS HOSE	16267	-	-	-
11	DISCONNECT NO. 4 WATER BY-PASS HOSE	16281	-	-	-
12	EGR COOLER ASSEMBLY	25680	-	-	-
13	EGR VALVE GASKET	25627	-	-	-
14	NO. 1 EGR COOLER GASKET	25685	-	-	-
15	NO. 1 EGR PIPE SUB-ASSEMBLY	25601	<a href="#">INFO</a>	-	-
16	EGR VALVE ADAPTER GASKET	25629	-	-	-

PROCEDURE		PART NAME CODE			
17	EGR INLET GASKET	25628	-	-	-
18	REMOVE NO. 4 WATER BY-PASS HOSE	16281	-	-	-
19	REMOVE NO. 8 WATER BY-PASS HOSE	16296	-	-	-
20	EGR VALVE ASSEMBLY	25620		-	-
21	NO. 3 WATER BY-PASS PIPE	16279		-	-
22	INTAKE MANIFOLD STAY	17138B		-	-
23	INTAKE MANIFOLD	17111	-	-	-
24	NO. 1 INTAKE MANIFOLD TO HEAD GASKET	17177	-	-	-

*A	for Type A	*B	for Type B
*1	NO. 2 FUEL DELIVERY GUARD	-	-
•	Non-reusable part	-	-

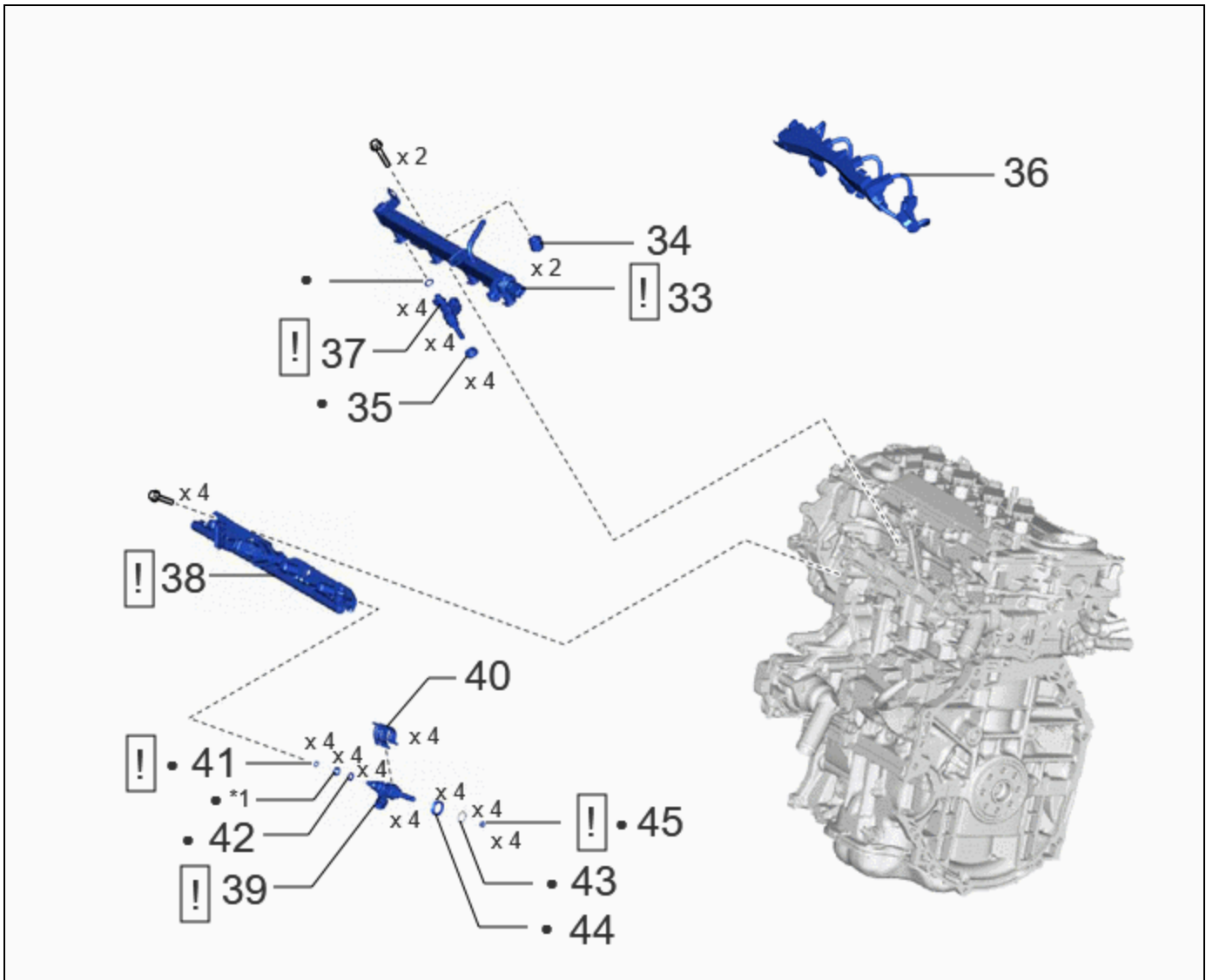








PROCEDURE		PART NAME CODE			
25	FUEL TUBE SUB-ASSEMBLY	23910A	<a href="#">INFO</a>	-	-
26	NO. 1 FUEL PIPE SUB-ASSEMBLY	23801P	<a href="#">INFO</a>	-	-
27	FUEL (ENGINE ROOM SIDE) PUMP ASSEMBLY (for High Pressure)	23100X	<a href="#">INFO</a>	-	-
28	FUEL PUMP SPACER GASKET	23224D	-	-	-
29	FUEL PUMP LIFTER ASSEMBLY	23470	-	-	-
30	WATER BY-PASS HOSE ASSEMBLY	-	-	-	-
31	SENSOR WIRE	82219A	<a href="#">INFO</a>	-	-
32	NO. 6 ENGINE WIRE	82126A	-	-	-

*1	FUEL PIPE CLAMP	*2	FUEL PUMP FLANGE
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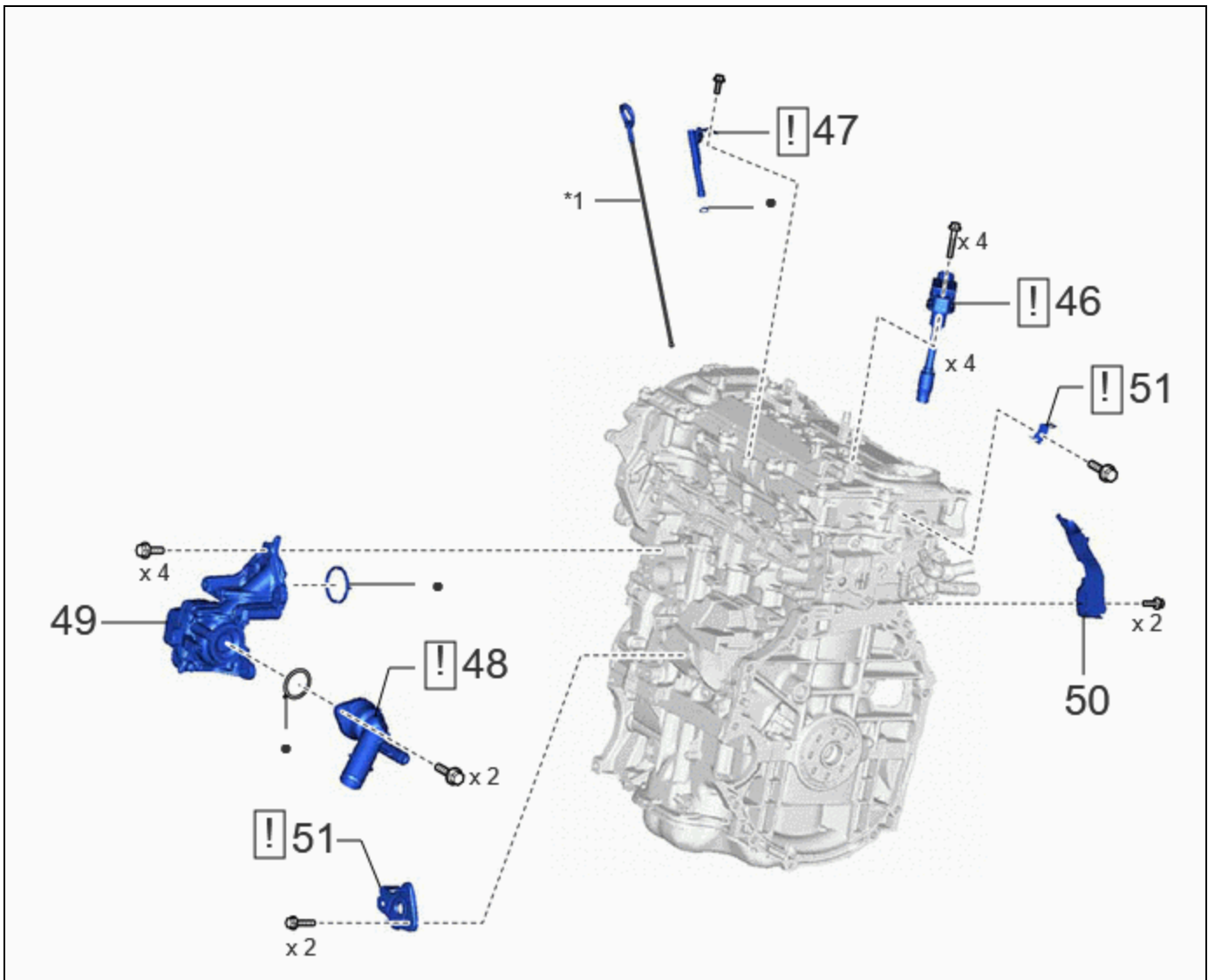
•	Non-reusable part	-	-
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PROCEDURE	PART NAME CODE	!	📄	⚙️
33 FUEL DELIVERY PIPE SUB-ASSEMBLY	23807	INFO	-	-
34 FUEL DELIVERY SPACER	23891	-	-	-
35 INJECTOR VIBRATION INSULATOR	23291	-	-	-
36 NO. 5 ENGINE WIRE	82125N	-	-	-
37 PORT FUEL INJECTOR ASSEMBLY	23250F	INFO	-	-
38 FUEL DELIVERY PIPE	23814B	INFO	-	-
39 DIRECT FUEL INJECTOR ASSEMBLY	23250E	INFO	-	-
40 NOZZLE HOLDER CLAMP	23695A	-	-	-
41 NO. 3 FUEL INJECTOR BACK-UP RING	23258	INFO	-	-

PROCEDURE		PART NAME CODE			
42	NO. 1 FUEL INJECTOR BACK-UP RING	23256	-	-	-
43	C-RING	-	-	-	-
44	INJECTOR VIBRATION INSULATOR	23291A	-	-	-
45	FUEL INJECTOR SEAL	23255A		-	-

*1	O-RING	-	-
•	Non-reusable part	-	-




PROCEDURE		PART NAME CODE			
46	IGNITION COIL ASSEMBLY	19500	<a href="#">INFO</a>	-	-
47	ENGINE OIL LEVEL DIPSTICK GUIDE	11452D	<a href="#">INFO</a>	-	-
48	WATER INLET WITH THERMOSTAT SUB-ASSEMBLY	16031	<a href="#">INFO</a>	-	-
49	ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING)	16032	-	-	-
50	NO. 3 EXHAUST MANIFOLD HEAT INSULATOR	17169A	-	-	-
51	WIRE HARNESS CLAMP BRACKET	-	<a href="#">INFO</a>	-	-


*1	ENGINE OIL LEVEL DIPSTICK	-	-
•	Non-reusable part	-	-

## PROCEDURE


### 1. REMOVE WIRE HARNESS CLAMP BRACKET

	Click here <a href="#">INFO</a>
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### 2. REMOVE AIR FUEL RATIO SENSOR

	Click here <a href="#">INFO</a>
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### 3. REMOVE NO. 1 EXHAUST MANIFOLD HEAT INSULATOR

	Click here <a href="#">INFO</a>
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### 4. REMOVE MANIFOLD STAY

	Click here <a href="#">INFO</a>
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### 5. REMOVE EXHAUST MANIFOLD



Click here [INFO](#)

**6. DISCONNECT NO. 5 WATER BY-PASS HOSE**

Click here [INFO](#)

**7. SEPARATE THROTTLE BODY WITH MOTOR ASSEMBLY**



Click here [INFO](#)

**8. DISCONNECT NO. 8 WATER BY-PASS HOSE**



Click here [INFO](#)

**9. REMOVE THROTTLE BODY GASKET**

Click here [INFO](#)

**10. DISCONNECT NO. 3 WATER BY-PASS HOSE**

Click here [INFO](#)

**11. DISCONNECT NO. 4 WATER BY-PASS HOSE**

Click here [INFO](#)

**12. REMOVE EGR COOLER ASSEMBLY**

Click here [INFO](#)

**13. REMOVE EGR VALVE GASKET**

Click here [INFO](#)

**14. REMOVE NO. 1 EGR COOLER GASKET**

Click here [INFO](#)

**15. REMOVE NO. 1 EGR PIPE SUB-ASSEMBLY**



Click here [INFO](#)

**16. REMOVE EGR VALVE ADAPTER GASKET**

Click here [INFO](#)

### 17. REMOVE EGR INLET GASKET

Click here [INFO](#)

### 18. REMOVE NO. 4 WATER BY-PASS HOSE

Click here [INFO](#)

### 19. REMOVE NO. 8 WATER BY-PASS HOSE

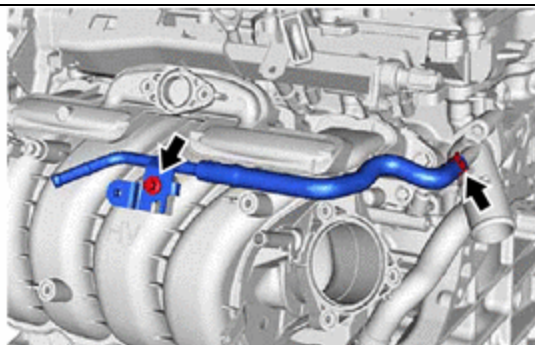
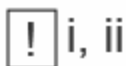
Click here [INFO](#)

### 20. REMOVE EGR VALVE ASSEMBLY



Click here [INFO](#)

### 21. REMOVE NO. 3 WATER BY-PASS PIPE



(1) Slide the clip and disconnect the No. 3 water by-pass pipe from the water outlet sub-assembly.

(2) Using an 8 mm socket wrench, remove the bolt and No. 3 water by-pass pipe from the intake manifold.

### 22. REMOVE INTAKE MANIFOLD STAY



Click here [INFO](#)

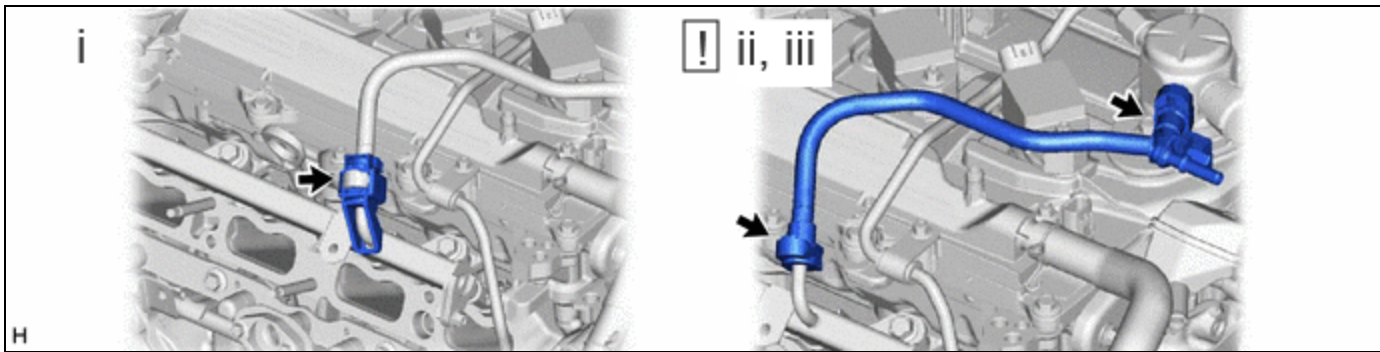
### 23. REMOVE INTAKE MANIFOLD

Click here [INFO](#)

### 24. REMOVE NO. 1 INTAKE MANIFOLD TO HEAD GASKET

Click here [INFO](#)

### 25. DISCONNECT FUEL TUBE SUB-ASSEMBLY



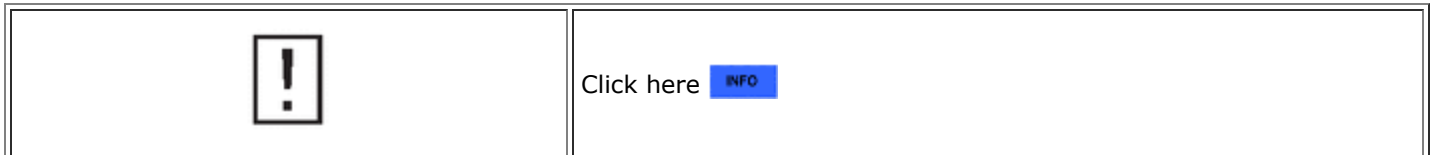
- (1) Remove the fuel pipe clamp from the fuel tube connector.
- (2) Disconnect the fuel tube sub-assembly from the fuel (engine room side) pump assembly.

Click here [INFO](#)

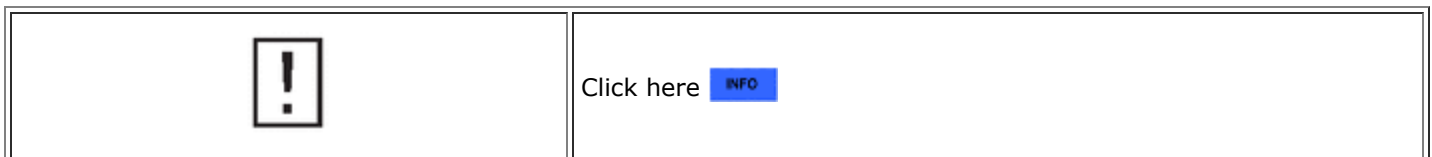
- (3) Disconnect the fuel tube sub-assembly from the fuel delivery pipe sub-assembly.

Click here [INFO](#)

## 26. REMOVE NO. 1 FUEL PIPE SUB-ASSEMBLY



## 27. REMOVE FUEL (ENGINE ROOM SIDE) PUMP ASSEMBLY (for High Pressure)



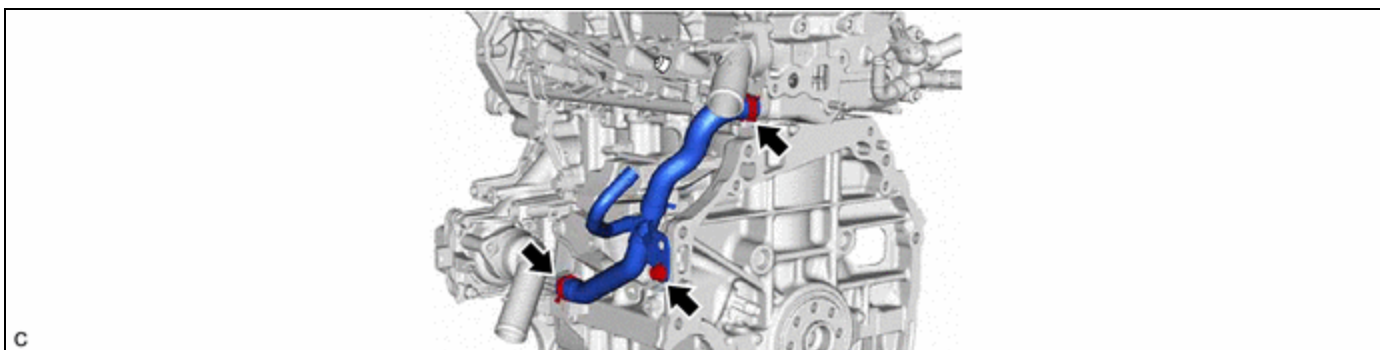
## 28. REMOVE FUEL PUMP SPACER GASKET

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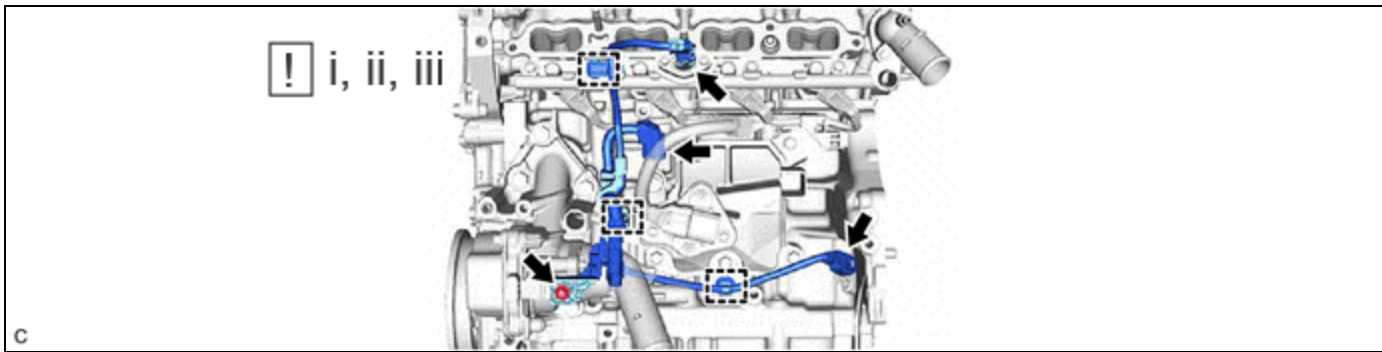
## 29. REMOVE FUEL PUMP LIFTER ASSEMBLY

Click here [INFO](#)

## 30. REMOVE WATER BY-PASS HOSE ASSEMBLY

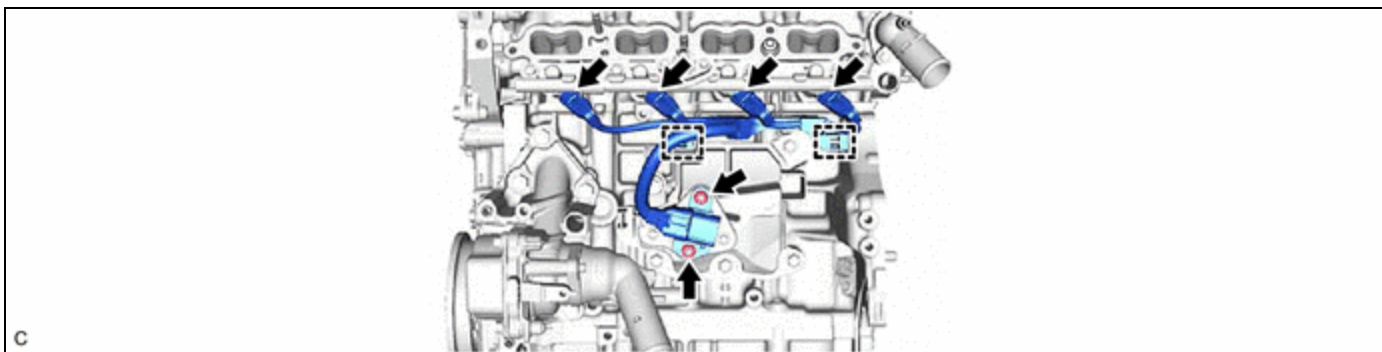


## 31. REMOVE SENSOR WIRE

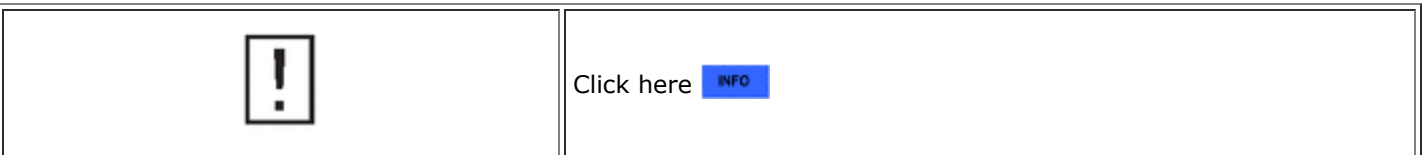


- (1) Disconnect the 3 connectors.
- (2) Disengage the 3 clamps.
- (3) Using an 8 mm socket wrench, remove the bolt and sensor wire from the water inlet with thermostat sub-assembly.

### 32. REMOVE NO. 6 ENGINE WIRE



### 33. REMOVE FUEL DELIVERY PIPE SUB-ASSEMBLY



### 34. REMOVE FUEL DELIVERY SPACER

Click here [INFO](#)

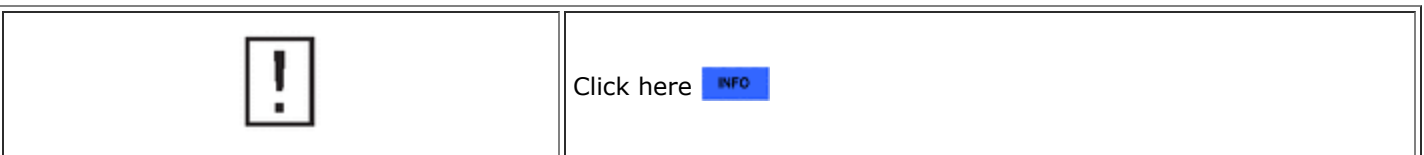
### 35. REMOVE INJECTOR VIBRATION INSULATOR

Click here [INFO](#)

### 36. REMOVE NO. 5 ENGINE WIRE

Click here [INFO](#)

### 37. REMOVE PORT FUEL INJECTOR ASSEMBLY



### 38. REMOVE FUEL DELIVERY PIPE





Click here [INFO](#)

**39. REMOVE DIRECT FUEL INJECTOR ASSEMBLY**



Click here [INFO](#)

**40. REMOVE NOZZLE HOLDER CLAMP**

Click here [INFO](#)

**41. REMOVE NO. 3 FUEL INJECTOR BACK-UP RING**



Click here [INFO](#)

**42. REMOVE NO. 1 FUEL INJECTOR BACK-UP RING**

Click here [INFO](#)

**43. REMOVE C-RING**

Click here [INFO](#)

**44. REMOVE INJECTOR VIBRATION INSULATOR**

Click here [INFO](#)

**45. REMOVE FUEL INJECTOR SEAL**



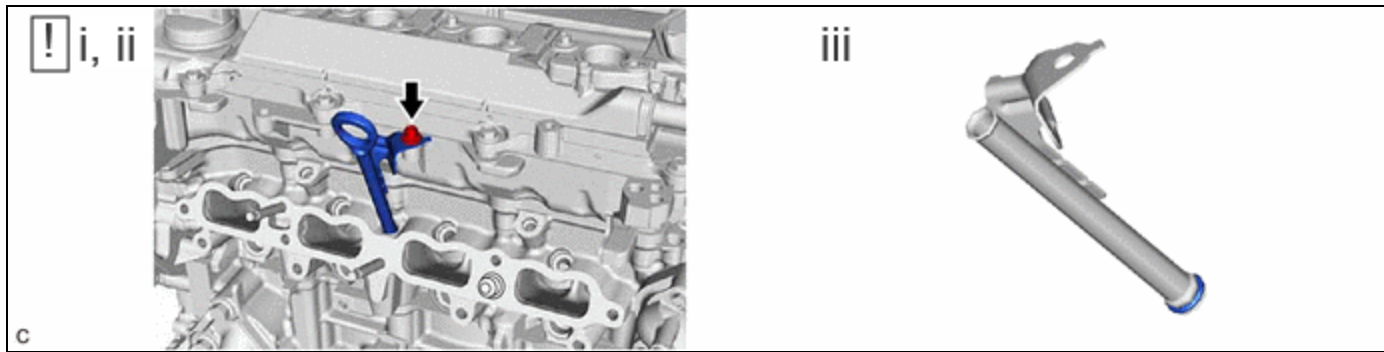
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**46. REMOVE IGNITION COIL ASSEMBLY**



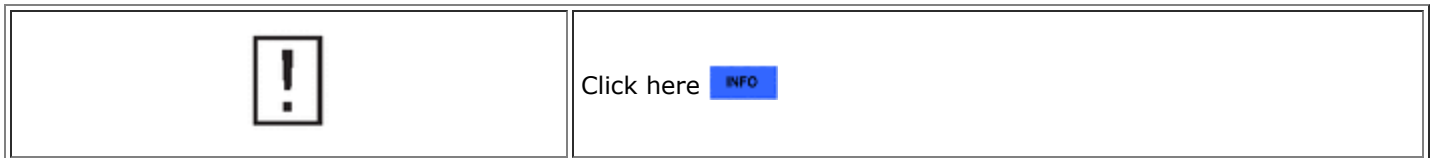
Click here [INFO](#)

**47. REMOVE ENGINE OIL LEVEL DIPSTICK GUIDE**

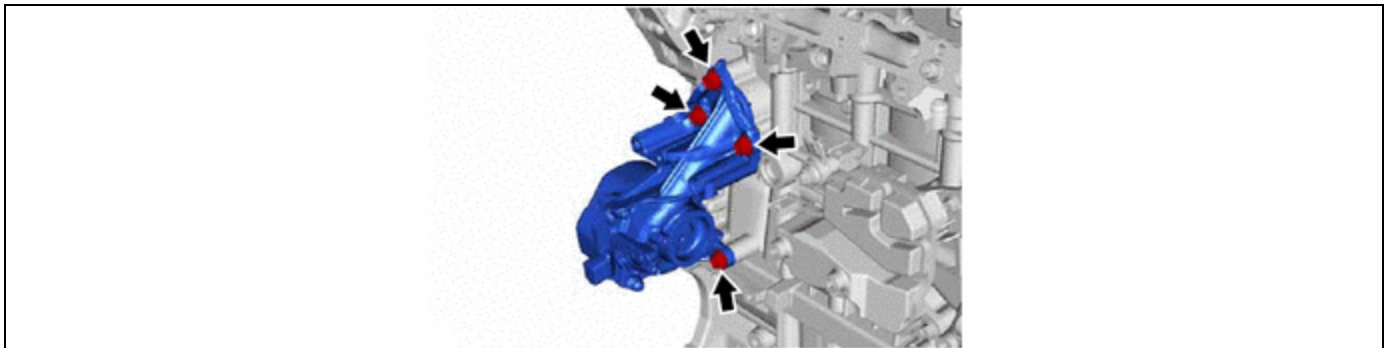


- (1) Remove the engine oil level dipstick.
- (2) Using an 8 mm socket wrench, remove the bolt and engine oil level dipstick guide from the camshaft housing sub-assembly.
- (3) Remove the O-ring from the engine oil level dipstick guide.

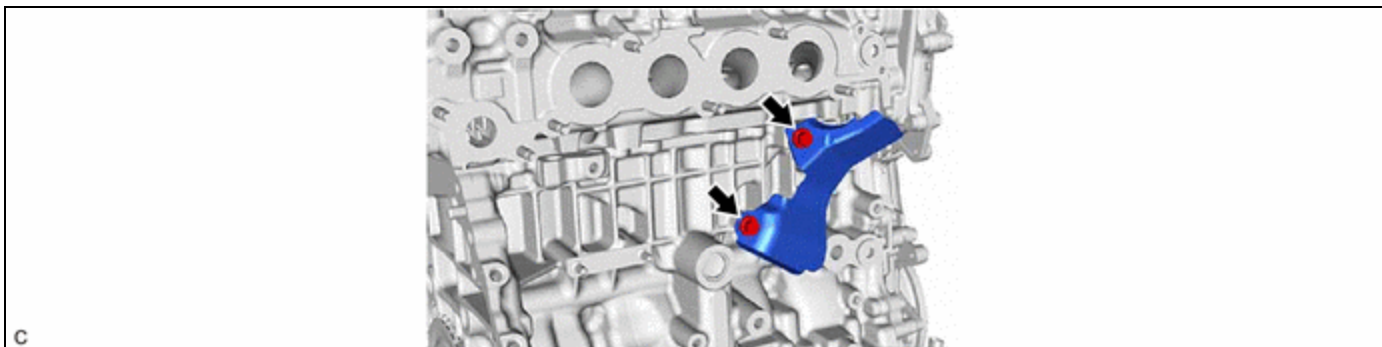
#### 48. REMOVE WATER INLET WITH THERMOSTAT SUB-ASSEMBLY



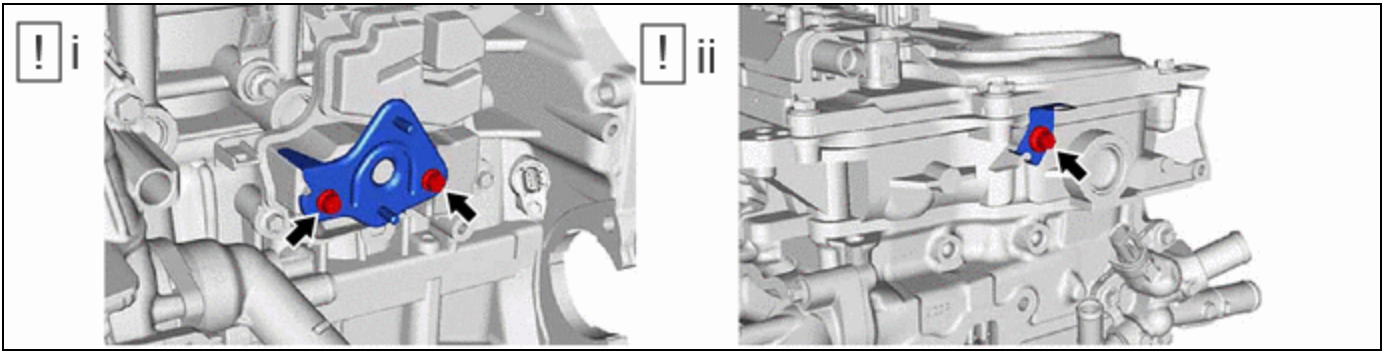
#### 49. REMOVE ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING)



#### 50. REMOVE NO. 3 EXHAUST MANIFOLD HEAT INSULATOR



#### 51. REMOVE WIRE HARNESS CLAMP BRACKET



- (1) Using an 8 mm socket wrench, remove the 2 bolts and wire harness clamp bracket from the No. 1 ventilation case.
- (2) Using an 8 mm socket wrench, remove the bolt and wire harness clamp bracket from the camshaft housing sub-assembly.

