

Last Modified: 12-04-2024	6.11:8.1.0	Doc ID: RM10000002BG8Y
Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: M20A-FXS (ENGINE MECHANICAL): CYLINDER HEAD GASKET: INSTALLATION; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

INSTALLATION

CAUTION / NOTICE / HINT

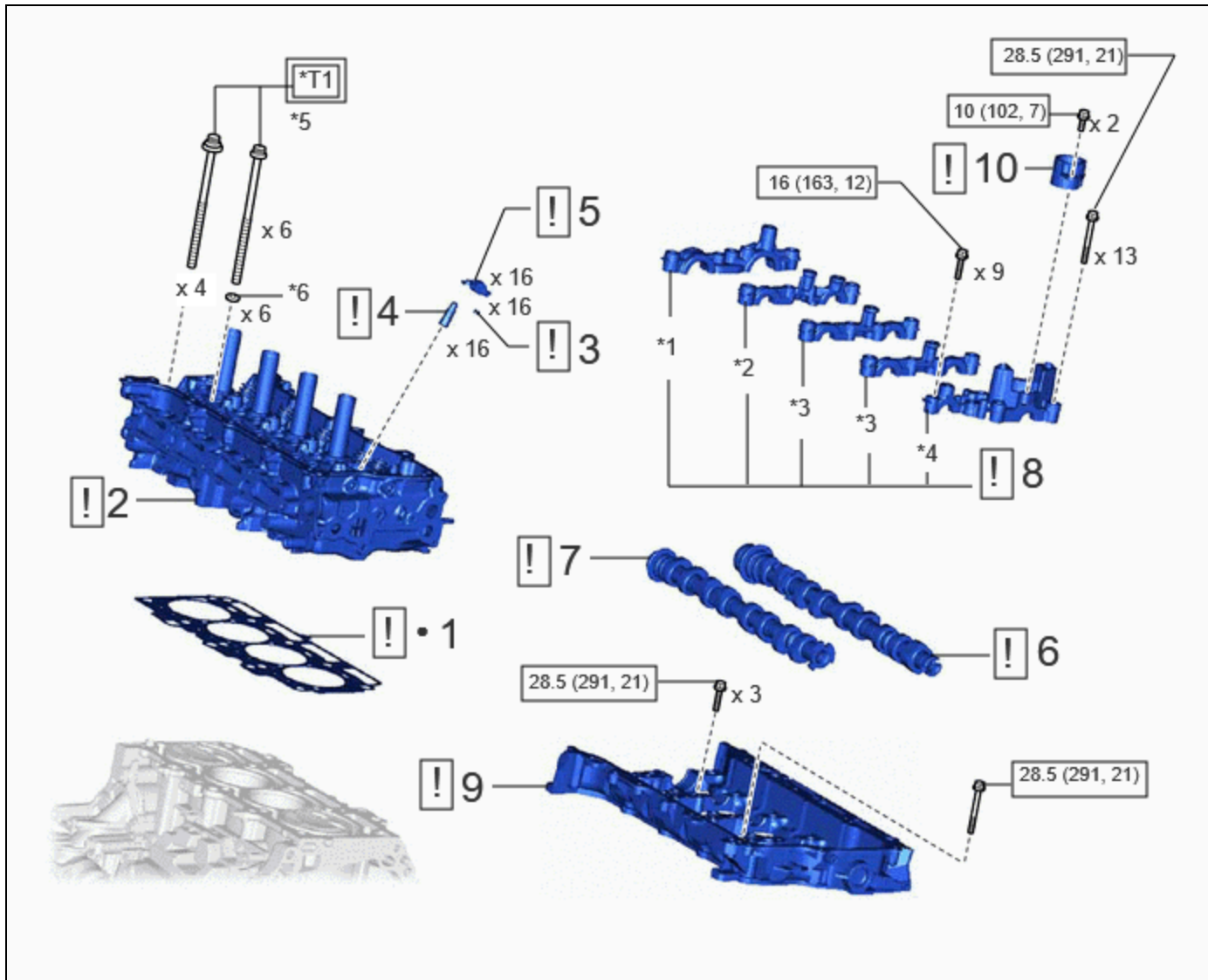
NOTICE:




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



Click here [INFO](#)

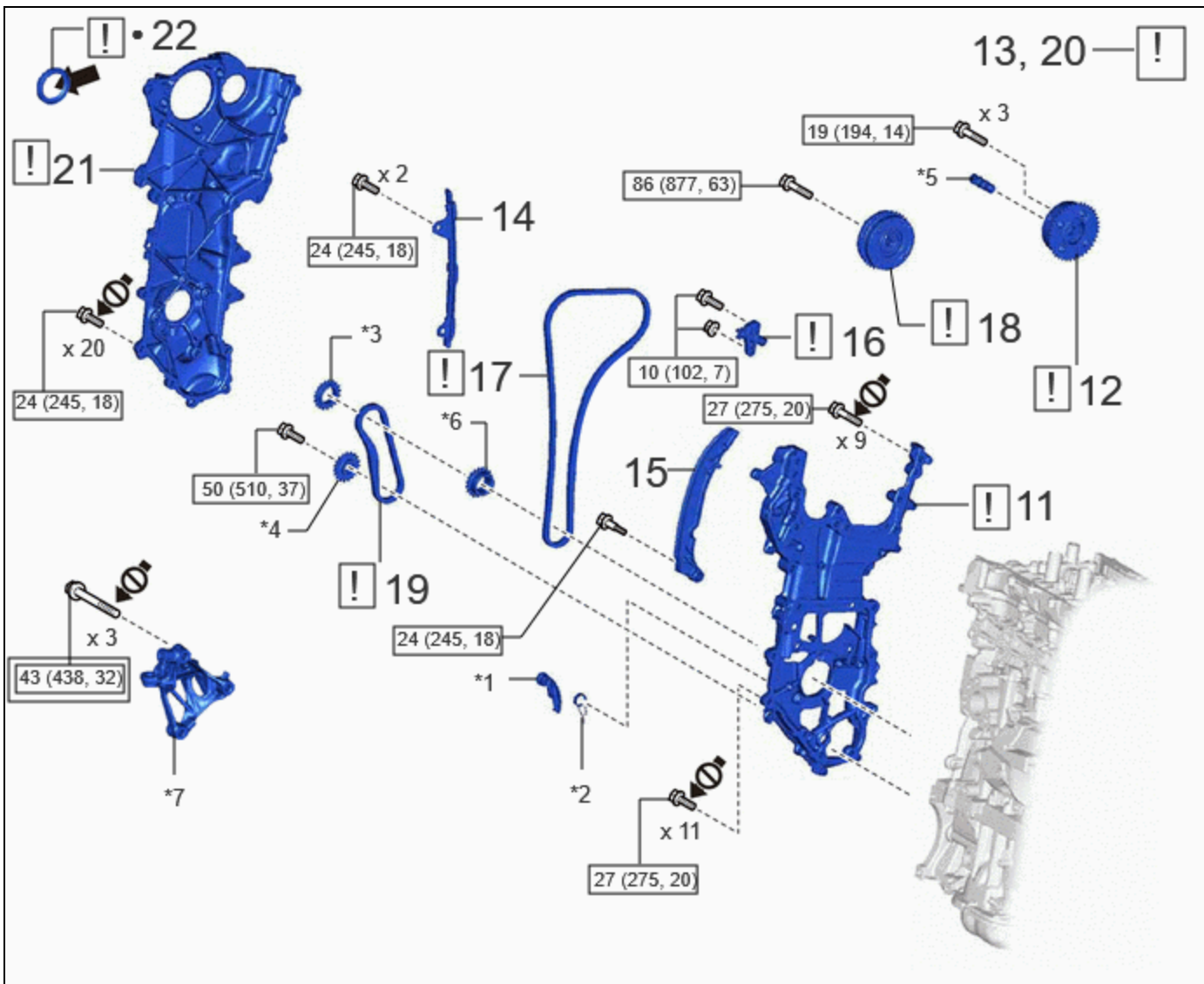
CAUTION / NOTICE / HINT

COMPONENTS (INSTALLATION)










PROCEDURE		PART NAME CODE			
1	CYLINDER HEAD GASKET	11115	INFO	-	-
2	CYLINDER HEAD SUB-ASSEMBLY	11101	INFO	-	-
3	VALVE STEM CAP	13716	INFO	-	-
4	VALVE LASH ADJUSTER ASSEMBLY	13750	INFO	-	-
5	NO. 1 VALVE ROCKER ARM SUB-ASSEMBLY	13801	INFO	-	-
6	EXHAUST CAMSHAFT SUB-ASSEMBLY	13502B	INFO	-	-
7	INTAKE CAMSHAFT SUB-ASSEMBLY	13501A	INFO	-	-
8	CAMSHAFT BEARING CAP	-	INFO	-	-
9	CAMSHAFT HOUSING SUB-ASSEMBLY	11103	INFO	-	-
10	FUEL PUMP LIFTER GUIDE	23477	INFO	-	-

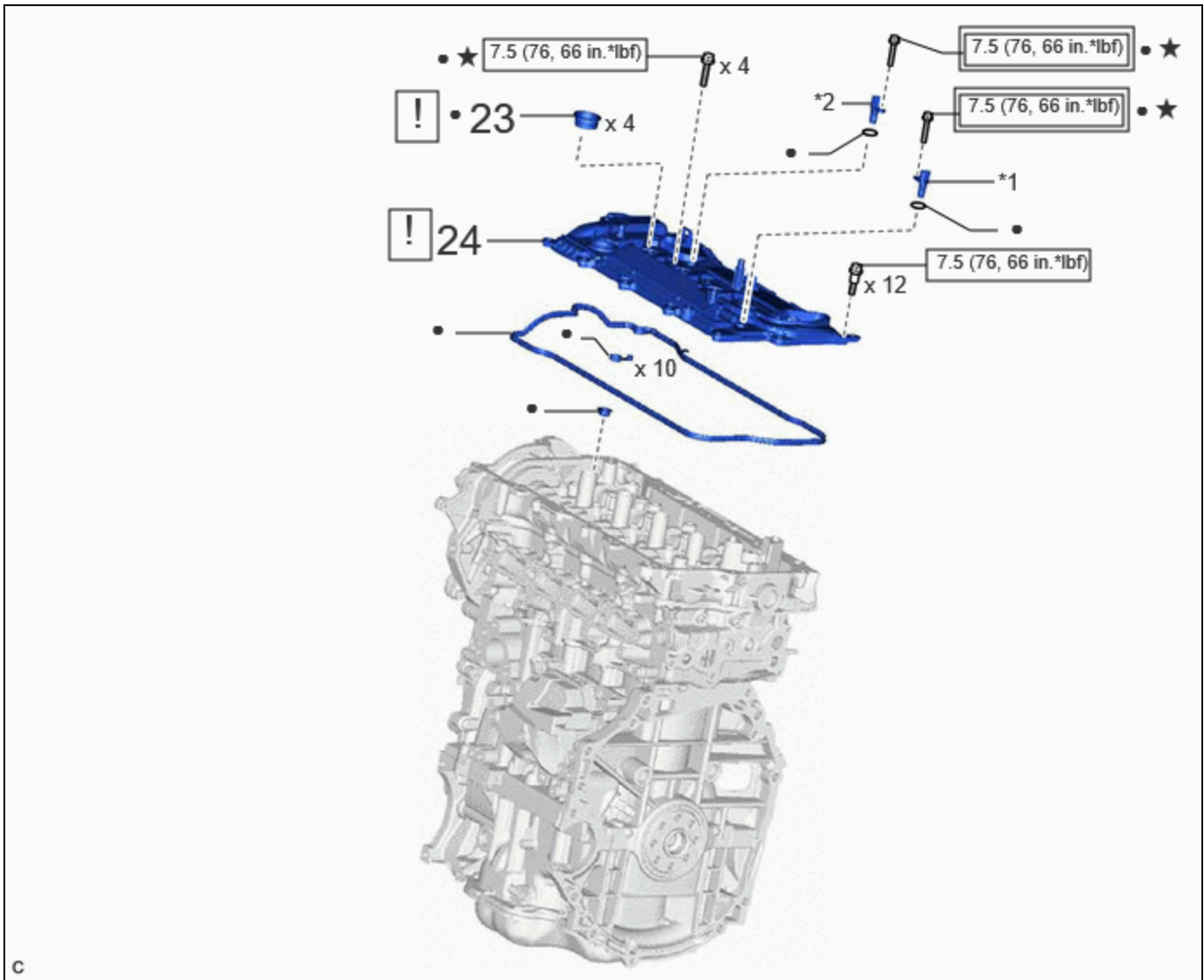
*1	NO. 1 CAMSHAFT BEARING CAP	*2	NO. 2 CAMSHAFT BEARING CAP
*3	NO. 3 CAMSHAFT BEARING CAP	*4	NO. 4 CAMSHAFT BEARING CAP
*5	CYLINDER HEAD SET BOLT	*6	PLATE WASHER
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
•	Non-reusable part	-	-
*T1	1st: 50 (510, 37) 2nd: Turn 90° 3rd: Turn 90°	-	-



	PROCEDURE	PART NAME CODE	!		
11	TIMING CHAIN COVER ASSEMBLY	11310	INFO	-	-
12	CAMSHAFT TIMING EXHAUST GEAR ASSEMBLY	13070A	INFO	-	-
13	SET NO. 1 CYLINDER TO TDC (COMPRESSION)	-	INFO	-	-
14	NO. 1 CHAIN VIBRATION DAMPER	13561	-	-	-
15	CHAIN TENSIONER SLIPPER	13559	-	-	-
16	NO. 1 CHAIN TENSIONER ASSEMBLY	13540	INFO	-	-
17	CHAIN SUB-ASSEMBLY	13506	INFO	-	-
18	CAMSHAFT TIMING GEAR ASSEMBLY	13050	INFO	-	-
19	OIL PUMP DRIVE CHAIN SUB-ASSEMBLY	13507A	INFO	-	-
20	SET NO. 1 CYLINDER TO TDC (COMPRESSION)	-	INFO	-	-
21	NO. 2 TIMING CHAIN COVER ASSEMBLY	11320B	INFO	-	-

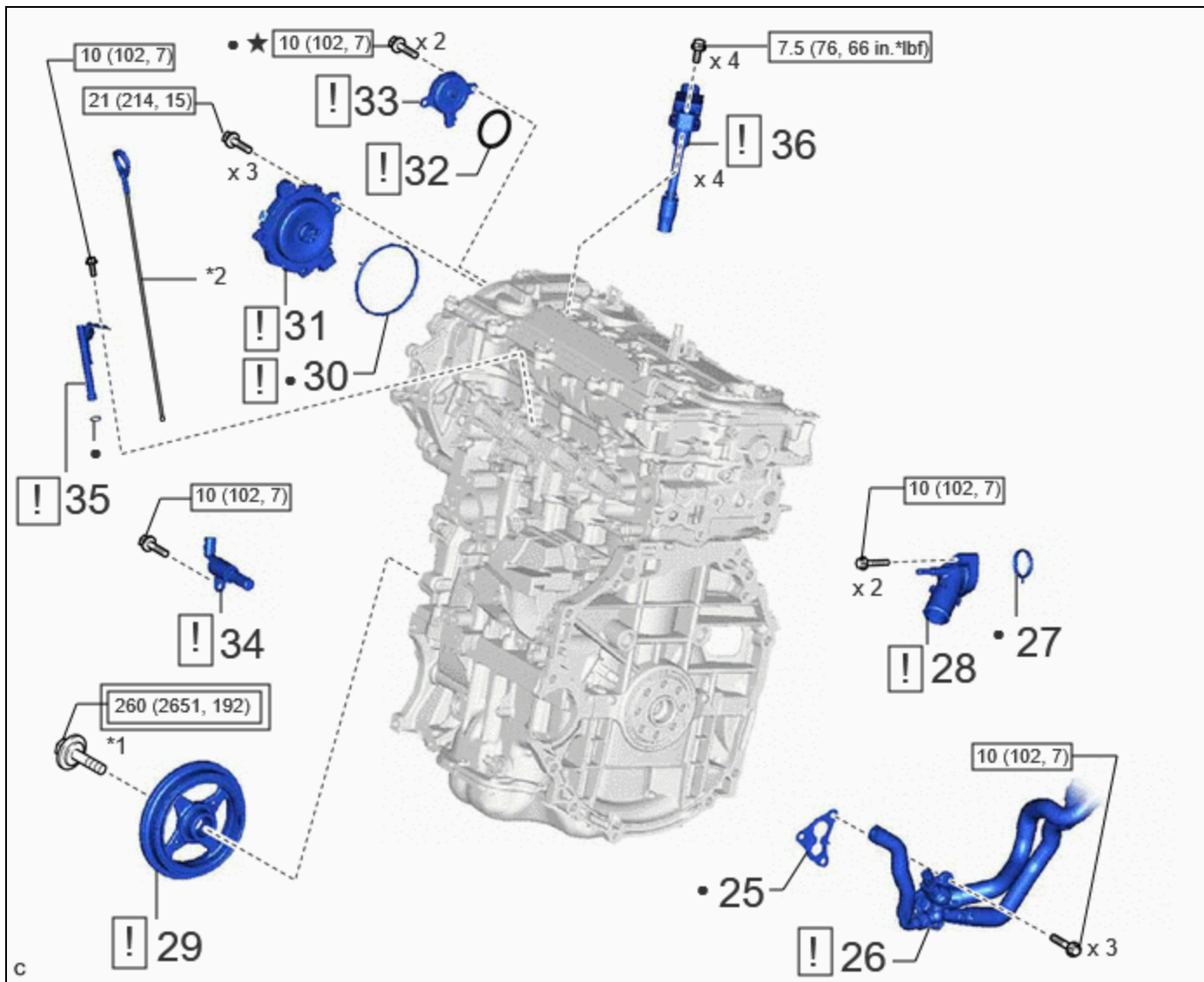
PROCEDURE		PART NAME CODE			
22	TIMING CHAIN COVER OIL SEAL	11301C	INFO	-	-

*1	CHAIN TENSIONER PLATE	*2	CHAIN DAMPER SPRING
*3	OIL PUMP DRIVE SPROCKET	*4	OIL PUMP DRIVE SHAFT SPROCKET
*5	CAMSHAFT TIMING VALVE ASSEMBLY	*6	CRANKSHAFT TIMING SPROCKET
*7	ENGINE MOUNTING BRACKET RH	-	-
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
•	Non-reusable part		MP grease
	Do not apply lubricants to the threaded parts	-	-



PROCEDURE		PART NAME CODE			
23	SPARK PLUG TUBE GASKET	11193	INFO	-	-
24	CYLINDER HEAD COVER SUB-ASSEMBLY	11201	INFO	-	-

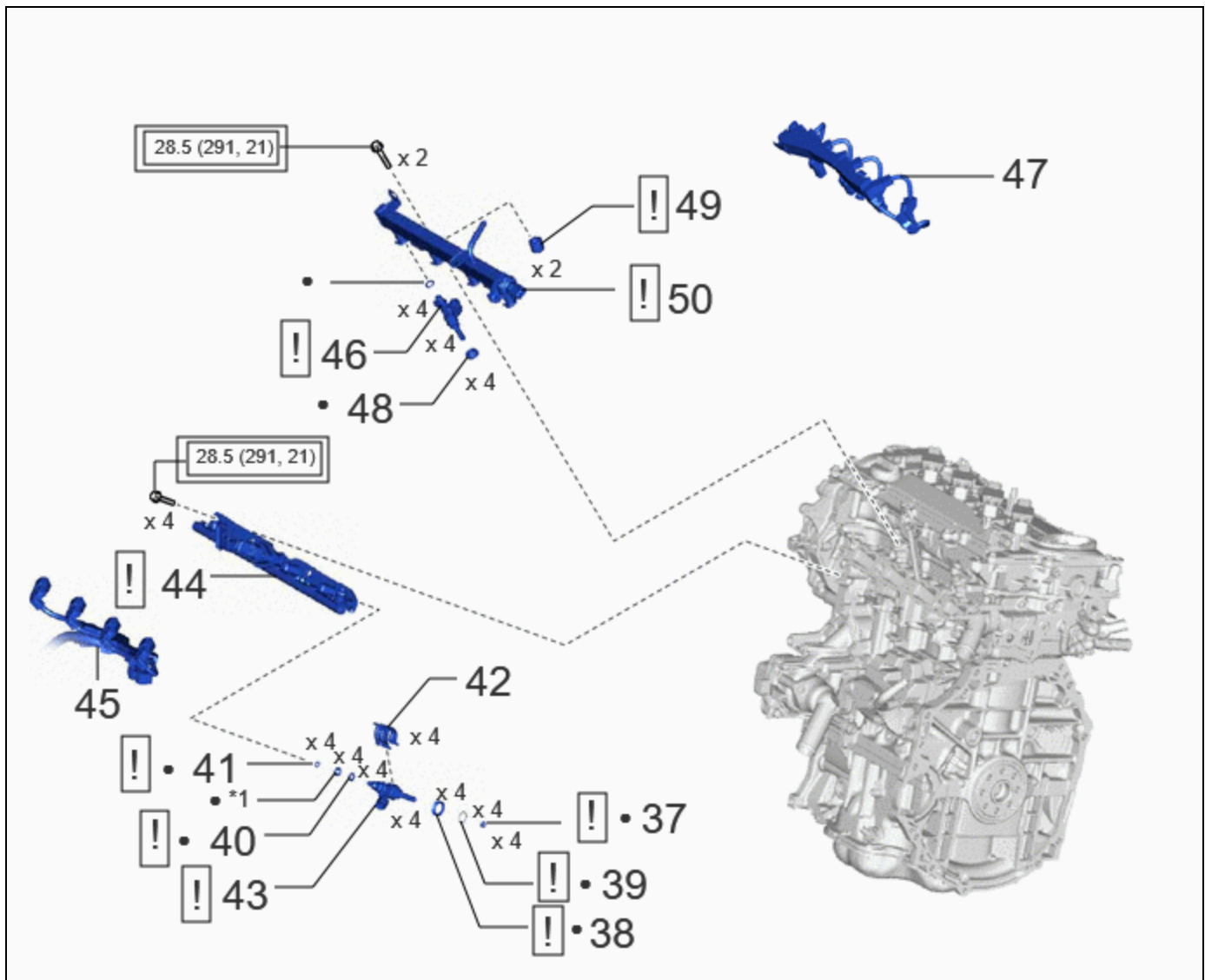
*1	CAMSHAFT POSITION SENSOR (for Intake Side)	*2	CAMSHAFT POSITION SENSOR (for Exhaust Side)
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
•	Non-reusable part	★	Precoated part







PROCEDURE		PART NAME CODE	!	📄	⚙️
25	WATER OUTLET PIPE GASKET	16345	-	-	-
26	WATER BY-PASS OUTLET	16351	INFO	-	-
27	WATER OUTLET GASKET	16341	-	-	-
28	WATER OUTLET SUB-ASSEMBLY	16304	INFO	-	-
29	CRANKSHAFT PULLEY ASSEMBLY	13470	INFO	-	-
30	CAM TIMING CONTROL MOTOR O-RING	13090E	INFO	-	-
31	CAM TIMING CONTROL MOTOR WITH EDU ASSEMBLY	13090D	INFO	-	-
32	CAM TIMING OIL CONTROL SOLENOID O-RING	15370A	INFO	-	-
33	CAM TIMING OIL CONTROL SOLENOID ASSEMBLY	15370	INFO	-	-
34	OIL PRESSURE CONTROL VALVE ASSEMBLY	15250	INFO	-	-
35	ENGINE OIL LEVEL DIPSTICK GUIDE	11452D	INFO	-	-

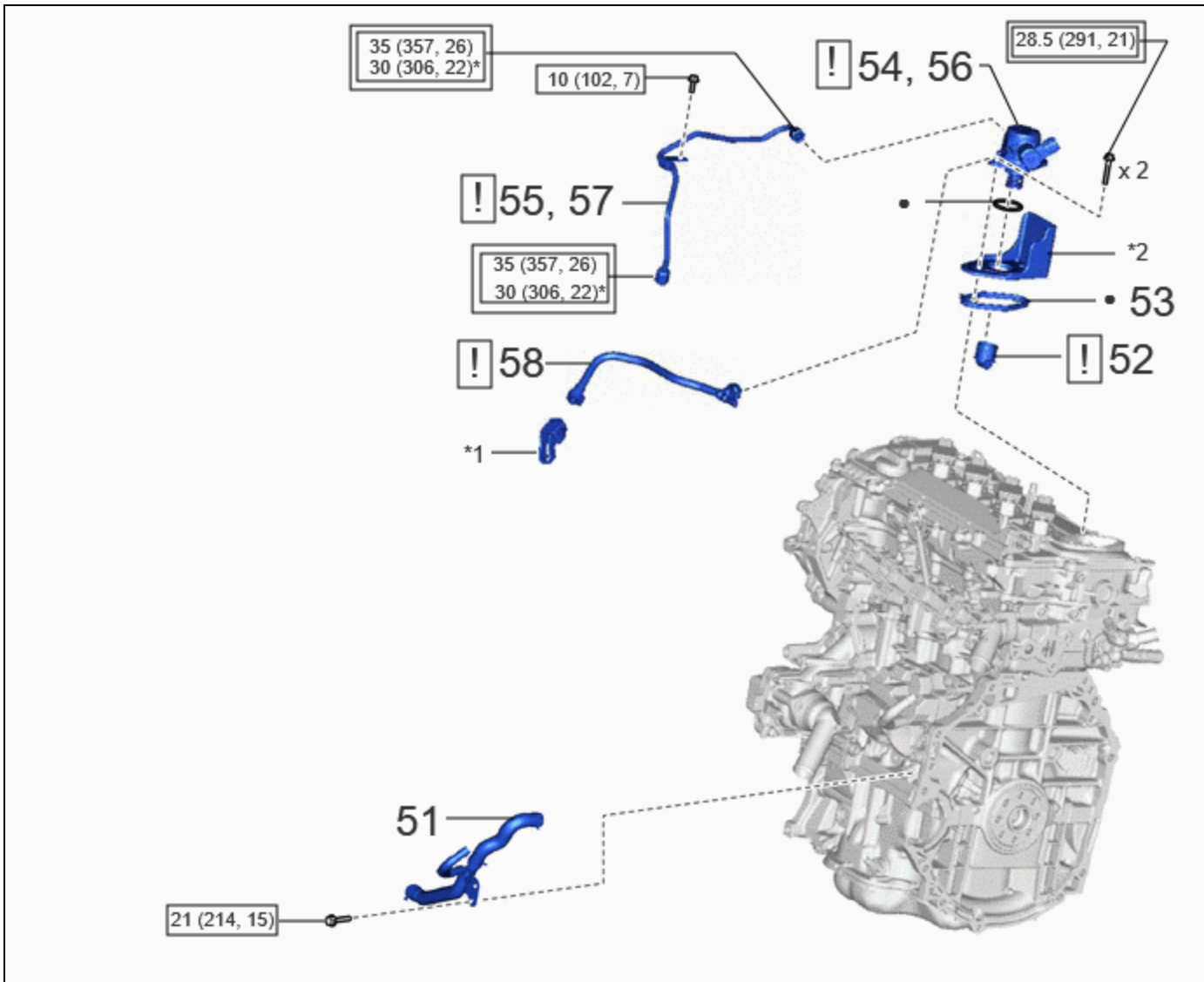
PROCEDURE		PART NAME CODE			
36	IGNITION COIL ASSEMBLY	19500	INFO	-	-



*1	CRANKSHAFT PULLEY BOLT	*2	ENGINE OIL LEVEL DIPSTICK
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
•	Non-reusable part	★	Precoated part



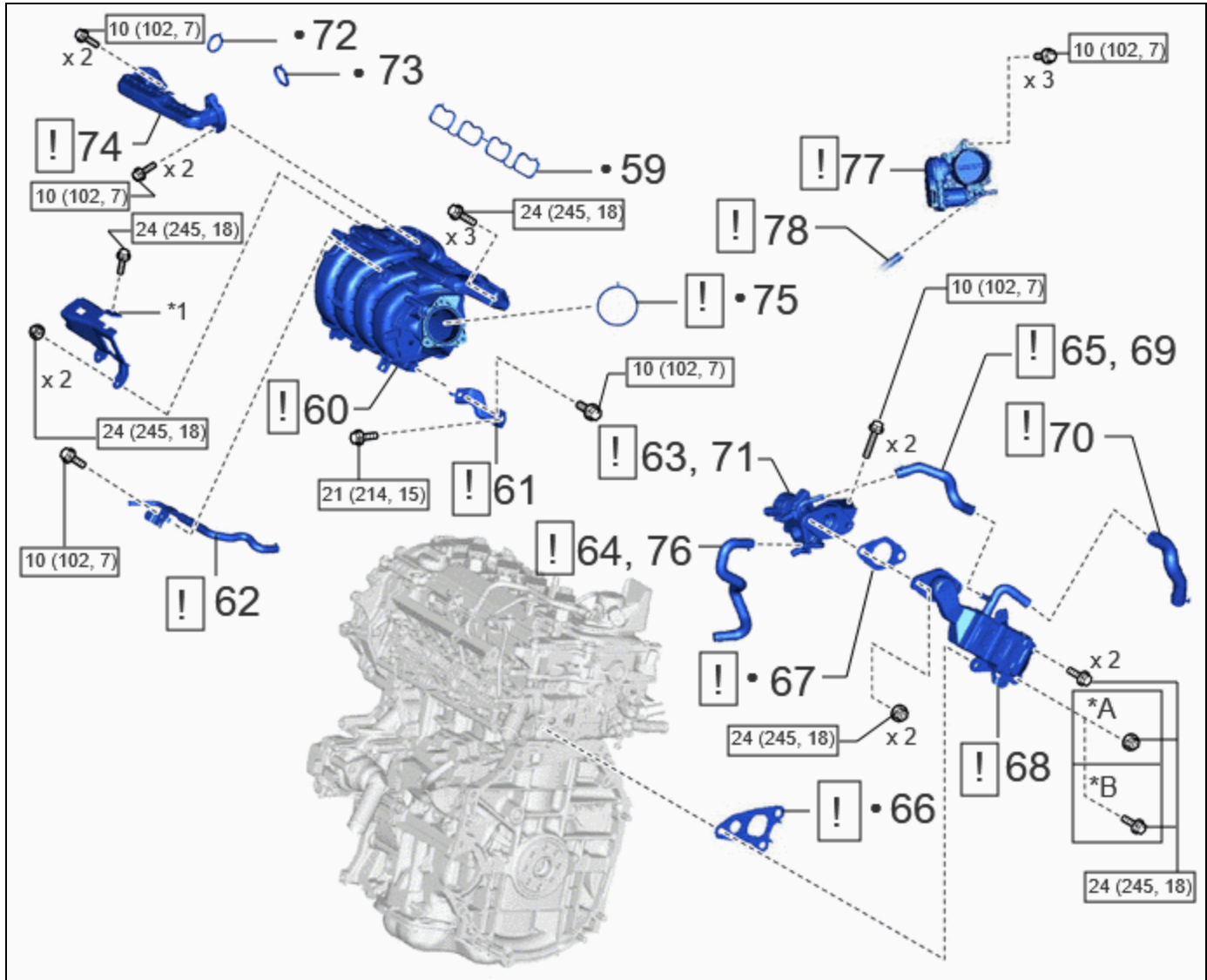
PROCEDURE		PART NAME CODE			
37	FUEL INJECTOR SEAL	23255A	INFO	-	-
38	INJECTOR VIBRATION INSULATOR	23291A	INFO	-	-
39	C-RING	-	INFO	-	-
40	NO. 1 FUEL INJECTOR BACK-UP RING	23256	INFO	-	-
41	NO. 3 FUEL INJECTOR BACK-UP RING	23258	INFO	-	-
42	NOZZLE HOLDER CLAMP	23695A	-	-	-
43	DIRECT FUEL INJECTOR ASSEMBLY	23250E	INFO	-	-
44	FUEL DELIVERY PIPE	23814B	INFO	-	-
45	WIRE HARNESS	-	-	-	-
46	PORT FUEL INJECTOR ASSEMBLY	23250F	INFO	-	-
47	NO. 5 ENGINE WIRE	82125N	-	-	-
48	INJECTOR VIBRATION INSULATOR	23291	-	-	-
49	FUEL DELIVERY SPACER	23891	INFO	-	-
50	FUEL DELIVERY PIPE SUB-ASSEMBLY	23807	INFO	-	-

*1	O-RING	-	-
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)	•	Non-reusable part







PROCEDURE		PART NAME CODE	!		
51	WATER BY-PASS HOSE ASSEMBLY	-	-	-	-
52	FUEL PUMP LIFTER ASSEMBLY	23470	INFO	-	-
53	FUEL PUMP SPACER GASKET	23224D	-	-	-
54	TEMPORARILY INSTALL FUEL (ENGINE ROOM SIDE) PUMP ASSEMBLY (for High Pressure)	23100X	INFO	-	-
55	TEMPORARILY INSTALL NO. 1 FUEL PIPE SUB-ASSEMBLY	23801P	INFO	-	-
56	INSTALL FUEL (ENGINE ROOM SIDE) PUMP ASSEMBLY (for High Pressure)	23100X	INFO	-	-
57	INSTALL NO. 1 FUEL PIPE SUB-ASSEMBLY	23801P	INFO	-	-
58	FUEL TUBE SUB-ASSEMBLY	23910A	INFO	-	-

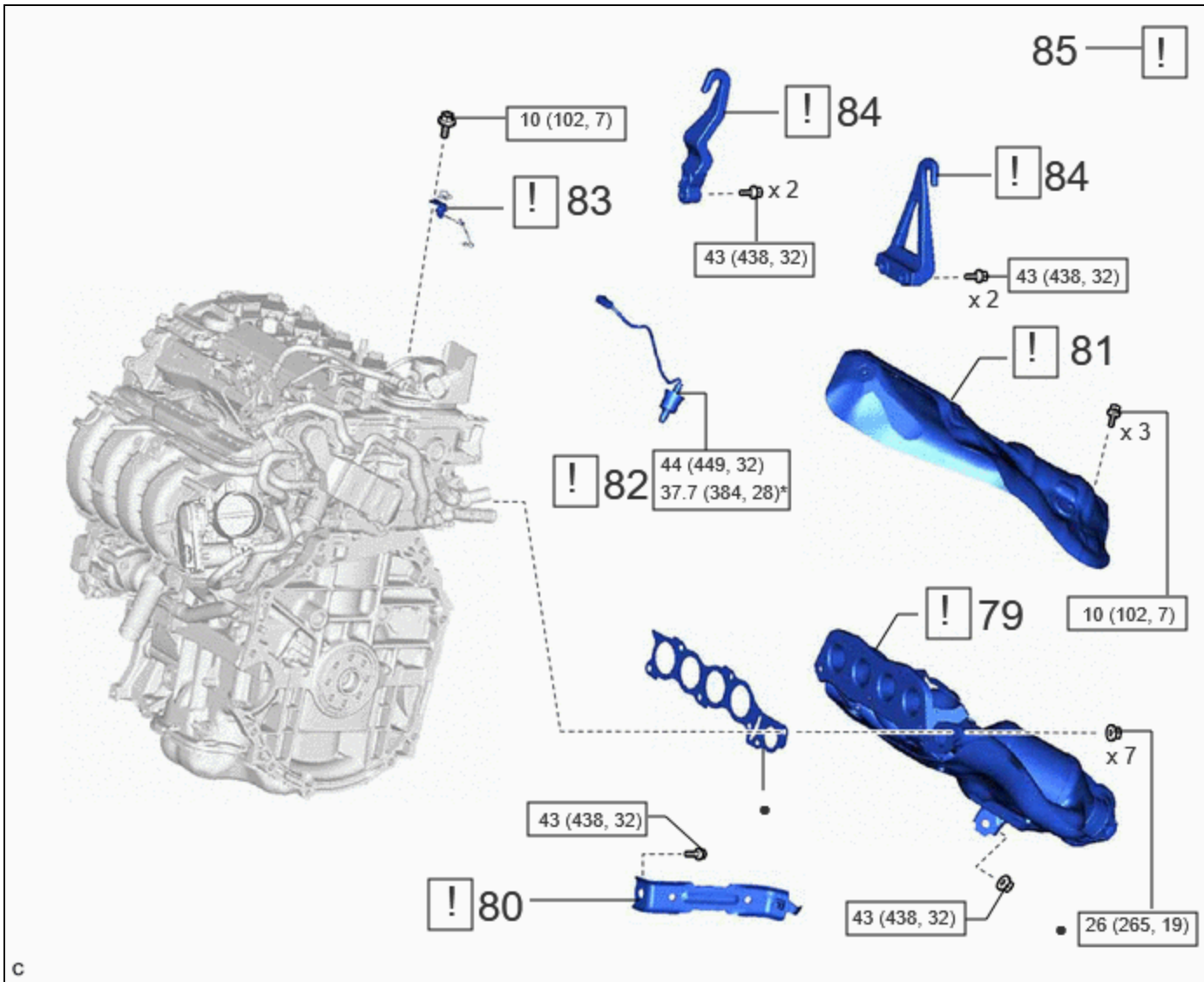
*1	FUEL PIPE CLAMP	*2	FUEL PUMP FLANGE
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
*	For use with a union nut wrench	•	Non-reusable part



PROCEDURE	PART NAME CODE			
59 NO. 1 INTAKE MANIFOLD TO HEAD GASKET	17177	-	-	-
60 INTAKE MANIFOLD	17111	INFO	-	-
61 INTAKE MANIFOLD STAY	17138B	INFO	-	-
62 NO. 3 WATER BY-PASS PIPE	16279	INFO	-	-
63 SET EGR VALVE ASSEMBLY	25620	INFO	-	-

PROCEDURE		PART NAME CODE			
64	INSTALL NO. 8 WATER BY-PASS HOSE	16296	INFO	-	-
65	INSTALL NO. 4 WATER BY-PASS HOSE	16281	INFO	-	-
66	NO. 1 EGR COOLER GASKET	25685	INFO	-	-
67	EGR VALVE GASKET	25627	INFO	-	-
68	EGR COOLER ASSEMBLY	25680	INFO	-	-
69	CONNECT NO. 4 WATER BY-PASS HOSE	16281	INFO	-	-
70	NO. 3 WATER BY-PASS HOSE	16267	INFO	-	-
71	INSTALL EGR VALVE ASSEMBLY	25620	INFO	-	-
72	EGR INLET GASKET	25628	-	-	-
73	EGR VALVE ADAPTER GASKET	25629	-	-	-
74	NO. 1 EGR PIPE SUB-ASSEMBLY	25601	INFO	-	-
75	THROTTLE BODY GASKET	22271	INFO	-	-
76	CONNECT NO. 8 WATER BY-PASS HOSE	16296	INFO	-	-
77	THROTTLE BODY WITH MOTOR ASSEMBLY	22030	INFO	-	-
78	NO. 5 WATER BY-PASS HOSE	16282	INFO	-	-

*A	for Type A	*B	for Type B
*1	NO. 2 FUEL DELIVERY GUARD	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part



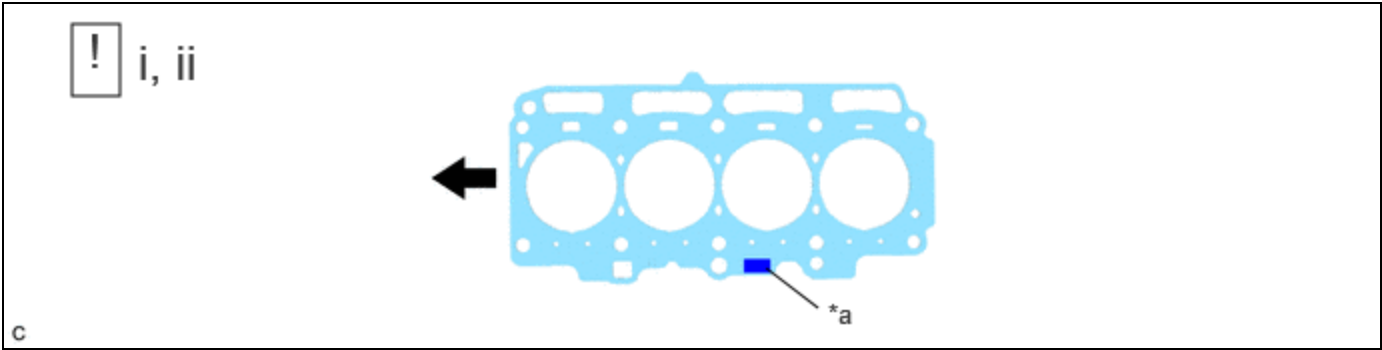
PROCEDURE		PART NAME CODE			
79	EXHAUST MANIFOLD	17141	INFO	-	-
80	MANIFOLD STAY	17118	INFO	-	-
81	NO. 1 EXHAUST MANIFOLD HEAT INSULATOR	17167	INFO	-	-
82	AIR FUEL RATIO SENSOR	89467B	INFO	-	-
83	WIRE HARNESS CLAMP BRACKET	-	INFO	-	-
84	ENGINE HANGERS	-	INFO	-	-
85	REMOVE ENGINE ASSEMBLY FROM ENGINE STAND	-	INFO	-	-

	N*m (kgf*cm, ft.*lbf): Specified torque		* For use with SST
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•	Non-reusable part	-	-
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PROCEDURE

1. INSTALL CYLINDER HEAD GASKET



*a	Lot No.	-	-
	Front of Engine	-	-

- (1) Clean the cylinder block sub-assembly and cylinder head sub-assembly with solvent.
- (2) Place a new cylinder head gasket on the cylinder block sub-assembly as shown in the illustration.

NOTICE:

- Make sure that the cylinder head gasket is installed in the correct orientation.
- Remove any oil from the contact surfaces.
- Pay attention to the installation direction.

2. INSTALL CYLINDER HEAD SUB-ASSEMBLY

	<ul style="list-style-type: none"> • for HEV Model: Click here INFO • for PHEV Model: Click here INFO
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3. INSTALL VALVE STEM CAP

	<ul style="list-style-type: none"> • for HEV Model: Click here INFO • for PHEV Model: Click here INFO
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4. INSTALL VALVE LASH ADJUSTER ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

5. INSTALL NO. 1 VALVE ROCKER ARM SUB-ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

6. INSTALL EXHAUST CAMSHAFT SUB-ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

7. INSTALL INTAKE CAMSHAFT SUB-ASSEMBLY



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

8. INSTALL CAMSHAFT BEARING CAP



- for HEV Model:
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- for PHEV Model:
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9. INSTALL CAMSHAFT HOUSING SUB-ASSEMBLY



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

10. INSTALL FUEL PUMP LIFTER GUIDE



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

11. INSTALL TIMING CHAIN COVER ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

12. INSTALL CAMSHAFT TIMING EXHAUST GEAR ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
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13. SET NO. 1 CYLINDER TO TDC (COMPRESSION)



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

14. INSTALL NO. 1 CHAIN VIBRATION DAMPER

- for HEV Model:

Click here [INFO](#)

- for PHEV Model:

Click here [INFO](#)

15. INSTALL CHAIN TENSIONER SLIPPER

- for HEV Model:

Click here [INFO](#)

- for PHEV Model:

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16. INSTALL NO. 1 CHAIN TENSIONER ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

17. INSTALL CHAIN SUB-ASSEMBLY



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

18. INSTALL CAMSHAFT TIMING GEAR ASSEMBLY



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

19. INSTALL OIL PUMP DRIVE CHAIN SUB-ASSEMBLY



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

20. SET NO. 1 CYLINDER TO TDC (COMPRESSION)



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

21. INSTALL NO. 2 TIMING CHAIN COVER ASSEMBLY



- for HEV Model:
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- for PHEV Model:
Click here [INFO](#)

22. INSTALL TIMING CHAIN COVER OIL SEAL



Click here [INFO](#)

23. INSTALL SPARK PLUG TUBE GASKET



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

24. INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

25. INSTALL WATER OUTLET PIPE GASKET

26. INSTALL WATER BY-PASS OUTLET



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

27. INSTALL WATER OUTLET GASKET

28. INSTALL WATER OUTLET SUB-ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

29. INSTALL CRANKSHAFT PULLEY ASSEMBLY



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

30. INSTALL CAM TIMING CONTROL MOTOR O-RING



Click here [INFO](#)

31. INSTALL CAM TIMING CONTROL MOTOR WITH EDU ASSEMBLY



Click here [INFO](#)

32. INSTALL CAM TIMING OIL CONTROL SOLENOID O-RING



Click here [INFO](#)

33. INSTALL CAM TIMING OIL CONTROL SOLENOID ASSEMBLY



Click here [INFO](#)

34. INSTALL OIL PRESSURE CONTROL VALVE ASSEMBLY



Click here [INFO](#)

35. INSTALL ENGINE OIL LEVEL DIPSTICK GUIDE



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

36. INSTALL IGNITION COIL ASSEMBLY



Click here [INFO](#)

37. INSTALL FUEL INJECTOR SEAL



Click here [INFO](#)

38. INSTALL INJECTOR VIBRATION INSULATOR



Click here [INFO](#)

39. INSTALL C-RING



Click here [INFO](#)

40. INSTALL NO. 1 FUEL INJECTOR BACK-UP RING



Click here [INFO](#)

41. INSTALL NO. 3 FUEL INJECTOR BACK-UP RING



Click here [INFO](#)

42. INSTALL NOZZLE HOLDER CLAMP

43. INSTALL DIRECT FUEL INJECTOR ASSEMBLY



Click here [INFO](#)

44. INSTALL FUEL DELIVERY PIPE



Click here [INFO](#)

45. CONNECT WIRE HARNESS

46. INSTALL PORT FUEL INJECTOR ASSEMBLY



Click here [INFO](#)

47. INSTALL NO. 5 ENGINE WIRE

48. INSTALL INJECTOR VIBRATION INSULATOR

49. INSTALL FUEL DELIVERY SPACER



Click here [INFO](#)

50. INSTALL FUEL DELIVERY PIPE SUB-ASSEMBLY



Click here [INFO](#)

51. INSTALL WATER BY-PASS HOSE ASSEMBLY

- for HEV Model:

Click here [INFO](#)

- for PHEV Model:

Click here [INFO](#)

52. INSTALL FUEL PUMP LIFTER ASSEMBLY



Click here [INFO](#)

53. INSTALL FUEL PUMP SPACER GASKET

54. TEMPORARILY INSTALL FUEL (ENGINE ROOM SIDE) PUMP ASSEMBLY (for High Pressure)



Click here [INFO](#)

55. TEMPORARILY INSTALL NO. 1 FUEL PIPE SUB-ASSEMBLY




Click here [INFO](#)


56. INSTALL FUEL (ENGINE ROOM SIDE) PUMP ASSEMBLY (for High Pressure)

	Click here INFO
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57. INSTALL NO. 1 FUEL PIPE SUB-ASSEMBLY


	Click here INFO
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58. CONNECT FUEL TUBE SUB-ASSEMBLY


	<ul style="list-style-type: none">• for HEV Model: Click here INFO• for PHEV Model: Click here INFO
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59. INSTALL NO. 1 INTAKE MANIFOLD TO HEAD GASKET


60. INSTALL INTAKE MANIFOLD

	Click here INFO
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61. INSTALL INTAKE MANIFOLD STAY

	Click here INFO
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62. INSTALL NO. 3 WATER BY-PASS PIPE

	<ul style="list-style-type: none">• for HEV Model: Click here INFO• for PHEV Model: Click here INFO
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63. SET EGR VALVE ASSEMBLY

	Click here INFO
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64. INSTALL NO. 8 WATER BY-PASS HOSE



Click here [INFO](#)

65. INSTALL NO. 4 WATER BY-PASS HOSE



Click here [INFO](#)

66. INSTALL NO. 1 EGR COOLER GASKET



Click here [INFO](#)

67. INSTALL EGR VALVE GASKET



Click here [INFO](#)

68. INSTALL EGR COOLER ASSEMBLY



Click here [INFO](#)

69. CONNECT NO. 4 WATER BY-PASS HOSE



Click here [INFO](#)

70. CONNECT NO. 3 WATER BY-PASS HOSE



Click here [INFO](#)

71. INSTALL EGR VALVE ASSEMBLY



Click here [INFO](#)

72. INSTALL EGR INLET GASKET

73. INSTALL EGR VALVE ADAPTER GASKET

74. INSTALL NO. 1 EGR PIPE SUB-ASSEMBLY

	Click here INFO
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75. INSTALL THROTTLE BODY GASKET

	Click here INFO
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76. CONNECT NO. 8 WATER BY-PASS HOSE

	Click here INFO
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77. INSTALL THROTTLE BODY WITH MOTOR ASSEMBLY

	Click here INFO
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78. CONNECT NO. 5 WATER BY-PASS HOSE

	Click here INFO
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79. INSTALL EXHAUST MANIFOLD

	Click here INFO
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80. INSTALL MANIFOLD STAY

	Click here INFO
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81. INSTALL NO. 1 EXHAUST MANIFOLD HEAT INSULATOR



Click here [INFO](#)

82. INSTALL AIR FUEL RATIO SENSOR



Click here [INFO](#)

83. INSTALL WIRE HARNESS CLAMP BRACKET



Click here [INFO](#)

84. INSTALL ENGINE HANGERS



- for HEV Model:
Click here [INFO](#)
- for PHEV Model:
Click here [INFO](#)

85. REMOVE ENGINE ASSEMBLY FROM ENGINE STAND

- for HEV Model:

Click here [INFO](#)

- for PHEV Model:

Click here [INFO](#)

