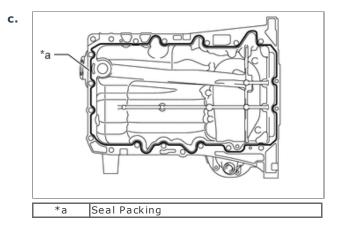
1GR-FE LUBRICATION OIL PUMP INSTALLATION

PROCEDURE

■ 1.INSTALL TIMING CHAIN COVER SUB-ASSEMBLY	11302
Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY	
2.INSTALL FRONT CRANKSHAFT OIL SEAL	11301C
Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY	
3.INSTALL OIL FILTER BRACKET SUB-ASSEMBLY	15609
Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY	
4.INSTALL WATER INLET HOUSING	16323
Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY	
5.INSTALL OIL COOLER HOSE	15777
Click hereEngine / Hybrid System>1GR-FE LUBRICATION>ENGINE OIL COOLER>INSTALLATION	
6.INSTALL NO. 2 OIL COOLER HOSE	15778
Click hereEngine / Hybrid System>1GR-FE LUBRICATION>ENGINE OIL COOLER>INSTALLATION	
7.INSTALL OIL PAN SUB-ASSEMBLY	12101

- **a.** Remove any old packing (FIPG material) and be careful not to drop any oil on the contact surfaces of the cylinder block, rear oil seal retainer and oil pan sub-assembly.
- **b.** Install a new O-ring to the timing chain cover assembly.



Apply seal packing in a continuous line as shown in the illustration.

Seal packing:

Toyota Genuine Seal Packing Black, Three Bond 1207B or equivalent

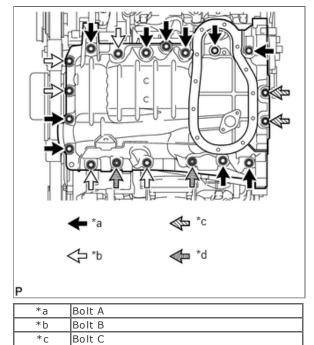
Standard seal diameter:

3.0 to 4.0 mm (0.118 to 0.157 in.)

NOTICE:

- · Remove any oil from the contact surface.
- · Install the oil pan sub-assembly within 3 minutes after applying seal packing.
- Do not start the engine for at least 2 hours after installing.

d.



Install the oil pan sub-assembly with the 17 bolts (A, B and C) and 2 nuts. Tighten the bolts and nuts uniformly in several steps.

Torque:

*d

Nut

for bolt A, B and nut : 21 N*m (214 kgf*cm, 15 ft.*lbf) for bolt C : 10 N*m (102 kgf*cm, 7 ft.*lbf)

Standard Bolt

Item	Quantity	Length
Bolt A	10	45 mm (1.77 in.)
Bolt B	5	25 mm (0.984 in.)
Bolt C	2	14 mm (0.551 in.)

e. Install the 4 bolts.

Torque:

37.3 N*m (380 kgf*cm, 28 ft.*lbf)

8.INSTALL UNDER FLYWHEEL HOUSING COVER

11361J

a. Install the under flywheel housing cover.

9.INSTALL OIL STRAINER SUB-ASSEMBLY

15104

Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY

■ 10.INSTALL NO. 2 OIL PAN SUB-ASSEMBLY

12102A

Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY

■ 11.INSTALL CRANKSHAFT PULLEY

13471

Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE UNIT>REASSEMBLY

■ 12.INSTALL NO. 1 IDLER PULLEY SUB-ASSEMBLY

16603

23.INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY LH 15340

87245A

22.INSTALL INLET HEATER WATER HOSE

a. Install the inlet heater water hose, and slide the 2 clamps to secure the hose.

24.INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY RH	15330B
Click hereEngine / Hybrid System>1GR-FE ENGINE CONTROL>CAMSHAFT OIL CONTROL VALVE>INSTALL	ATION
25.INSTALL VVT SENSOR (for Bank 2)	
Click hereEngine / Hybrid System>1GR-FE ENGINE CONTROL>CAMSHAFT POSITION SENSOR>INSTALLAT	TON
26.INSTALL VVT SENSOR (for Bank 1)	
Click hereEngine / Hybrid System>1GR-FE ENGINE CONTROL>CAMSHAFT POSITION SENSOR>INSTALLAT	TON
27.INSTALL IGNITION COIL ASSEMBLY	19500
Click hereEngine / Hybrid System>1GR-FE ENGINE CONTROL>IGNITION COIL AND SPARK PLUG>INSTAL	LATION
28.INSTALL NO. 1 FUEL PIPE SUB-ASSEMBLY AND NO. 2 FUEL PIPE SUB-ASSEMBLY	23801P
 Install the No. 1 fuel pipe sub-assembly and No. 2 fuel pipe sub-assembly with the 2 bolts. Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf) 	
b. Connect the No. 1 fuel pipe sub-assembly and No. 2 fuel pipe sub-assembly. Click hereEngine / Hybrid System>1GR-FE FUEL>FUEL SYSTEM>PRECAUTION	
c. Install the No. 1 fuel pipe clamp and 2 No. 2 fuel pipe clamps.	
29.CONNECT NO. 7 ENGINE WIRE	82127
a. Connect the No. 7 engine wire with the bolt. Torque: 8.4 N*m (86 kgf*cm, 74 in.*lbf)	
30.CONNECT NO. 1 COOLER REFRIGERANT SUCTION HOSE (w/ Air Conditioning System)	88712
 a. for LHD: Connect the No. 1 cooler refrigerant suction hose with the bolt. Torque: 9.5 N*m (97 kgf*cm, 84 in.*lbf) 	
31.CONNECT VANE PUMP ASSEMBLY	44310
Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE ASSEMBLY>INSTALLATION	
32.INSTALL GENERATOR ASSEMBLY	27020
Click herePower Source / Network>1GR-FE BATTERY / CHARGING>GENERATOR>INSTALLATION	
33.INSTALL IDLER PULLEY BRACKET (w/o Air Conditioning System)	16631B
 a. Install the idler pulley bracket with the 3 bolts. Torque: 25 N*m (255 kgf*cm, 18 ft.*lbf) 	

88320

34.INSTALL COOLER COMPRESSOR ASSEMBLY (w/ Air Conditioning System)

	35.INSTALL FAN SHROUD	16711
Click h	ereEngine / Hybrid System>1GR-FE COOLING>RADIATOR>INSTALLATION	
	36.INSTALL EXHAUST MANIFOLD	
Click h	ereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>INSTALLATION	
	37.INSTALL INTAKE MANIFOLD	17111
Click h	ereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>INTAKE MANIFOLD>INSTALLATION	
	38.ADD ENGINE COOLANT	
Click h	ereEngine / Hybrid System>1GR-FE COOLING>COOLANT>REPLACEMENT	
	39.ADD ENGINE OIL	
Click h	ereEngine / Hybrid System>1GR-FE LUBRICATION>OIL AND OIL FILTER>REPLACEMENT	
	40.CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT (w/ Air Conditioning System	em)
Click h	ereVehicle Interior>HEATING / AIR CONDITIONING>REFRIGERANT>REPLACEMENT	
	41.INSPECT FOR COOLANT LEAK	
Click h	ereEngine / Hybrid System>1GR-FE COOLING>COOLING SYSTEM>ON-VEHICLE INSPECTION	
	42.INSPECT FOR OIL LEAK	
Click h	ereEngine / Hybrid System>1GR-FE LUBRICATION>OIL AND OIL FILTER>REPLACEMENT	
	43.CHECK ENGINE OIL LEVEL	
Click h	ereEngine / Hybrid System>1GR-FE LUBRICATION>LUBRICATION SYSTEM>ON-VEHICLE INSPECT	TON
	44.INSPECT FOR EXHAUST GAS LEAK	
Click h	ereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>INSTALLATION	
	45.INSPECT FOR REFRIGERANT LEAK (w/ Air Conditioning System)	
Click h	ereVehicle Interior>HEATING / AIR CONDITIONING>REFRIGERANT>REPLACEMENT	

Click hereEngine / Hybrid System>1GR-FE ENGINE MECHANICAL>ENGINE>ON-VEHICLE INSPECTION

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46.INSPECT IGNITION TIMING