1GR-FE ENGINE MECHANICAL ENGINE ASSEMBLY REMOVAL

### **PROCEDURE**

1. DISCHARGE FUEL SYSTEM PRESSURE

Click hereEngine / Hybrid System>1GR-FE FUEL>FUEL SYSTEM>PRECAUTION

2.RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM (w/ Air Conditioning System)

Click hereVehicle Interior>HEATING / AIR CONDITIONING>REFRIGERANT>REPLACEMENT

**3. PRECAUTION** 

### NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work.

Click hereGeneral>INTRODUCTION>REPAIR INSTRUCTION>PRECAUTION

- 4.DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
- 5.REMOVE HOOD SUB-ASSEMBLY 53301
- a. Disconnect the washer hose.
- **b.** Remove the 4 bolts and hood sub-assembly.
- 6.DRAIN ENGINE COOLANT

Click hereEngine / Hybrid System>1GR-FE COOLING>COOLANT>REPLACEMENT

7.DRAIN ENGINE OIL

Click hereEngine / Hybrid System>1GR-FE LUBRICATION>OIL AND OIL FILTER>REPLACEMENT

8.DRAIN MANUAL TRANSMISSION OIL

9.REMOVE RADIATOR ASSEMBLY

Click hereDrivetrain>H150F MANUAL TRANSMISSION / TRANSAXLE>MANUAL TRANSMISSION OIL>REPLACEMENT

16400

Click hereEngine / Hybrid System>1GR-FE COOLING>RADIATOR>REMOVAL

■ 10.REMOVE AIR CLEANER CAP SUB-ASSEMBLY WITH NO. 1 AIR CLEANER HOSE 17705

Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>INTAKE MANIFOLD>REMOVAL

11.REMOVE AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY 17801

**a.** Remove the air cleaner filter element sub-assembly.

■ 12.REMOVE AIR CLEANER ASSEMBLY 17700

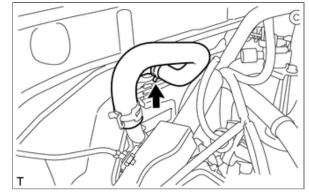
a.



Remove the 2 bolts, nut and air cleaner assembly.

13.REMOVE INTAKE AIR SURGE TANK	17129
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>INTAKE MANIFOLD>REMOVAL	
14.REMOVE FRONT EXHAUST PIPE ASSEMBLY (for Model Code #J78, #J79 Series)	17410
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST PIPE(for Model Code #J78, #J79 Series)>REMOVAL	)
15.REMOVE FRONT EXHAUST PIPE ASSEMBLY (for Model Code #J71, #J76 Series)	17410
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST PIPE(for Model Code #J71, #J76 Series)>REMOVAL	5
☐ 16.REMOVE FRONT FENDER APRON SEAL LH	53737В
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>REMOVAL	
17.REMOVE FRONT FENDER APRON SEAL RH	53736
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>REMOVAL	
18.REMOVE NO. 2 MANIFOLD STAY	17119
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>REMOVAL	
19.REMOVE EXHAUST MANIFOLD SUB-ASSEMBLY LH	17105
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>REMOVAL	
20.REMOVE NO. 1 MANIFOLD STAY	17118
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>REMOVAL	
21.REMOVE EXHAUST MANIFOLD SUB-ASSEMBLY RH	17104
Click hereEngine / Hybrid System>1GR-FE INTAKE / EXHAUST>EXHAUST MANIFOLD>REMOVAL	
22.DISCONNECT INLET HEATER WATER HOSE	87245A



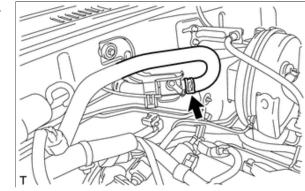


Slide the hose clamp and disconnect the inlet heater water hose from the heater core.

# **23.DISCONNECT OUTLET HEATER WATER HOSE**

87246A



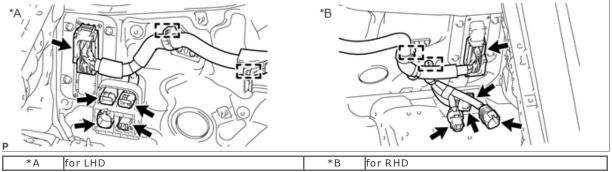


Slide the hose clamp and disconnect the outlet heater water hose from the hose and valve assembly.

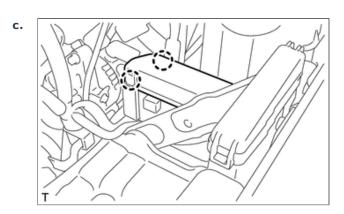
# **24.DISCONNECT ENGINE WIRE**

82121

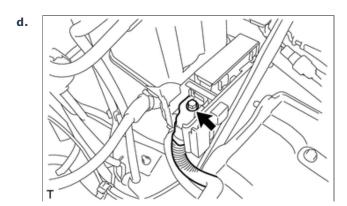
# Disconnect the 5 connectors.



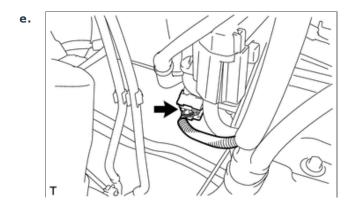
**b.** Detach the 2 wire harness clamps.



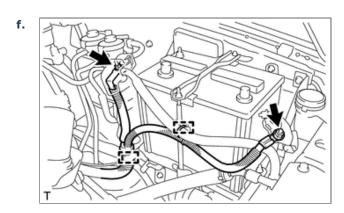
Detach the 2 claws and remove the fuse block cover.



Remove the bolt and disconnect the No. 2 engine wire from the fuse block.

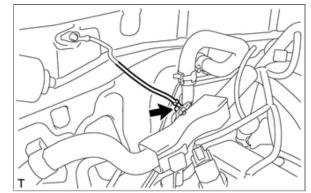


Disconnect the connector and engine room main wire.



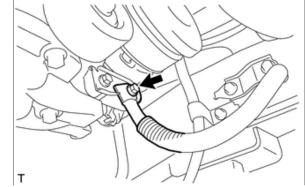
Remove the 2 nuts, detach the 2 wire harness clamps and disconnect the No. 2 engine wire.





Remove the bolt and disconnect the ground cable from the rear water by-pass joint.





Remove the bolt and disconnect the No. 7 engine wire.

### **25.DISCONNECT CLUTCH TUBE**

31482

Click hereEngine / Hybrid System>1GR-FE LUBRICATION>OIL PUMP>REMOVAL

26.DISCONNECT NO. 1 COOLER REFRIGERANT SUCTION HOSE (w/ Air Conditioning System)

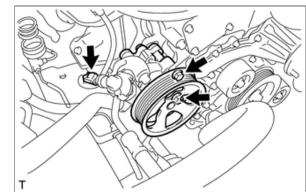
88712

Click hereEngine / Hybrid System>1GR-FE LUBRICATION>OIL PUMP>REMOVAL

### 27.DISCONNECT VANE PUMP ASSEMBLY

44310

a.



Disconnect the connector.

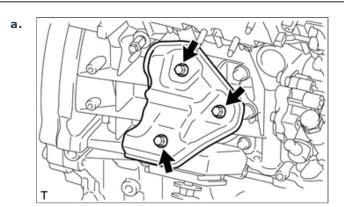
**b.** Remove the 2 bolts and disconnect the vane pump assembly.

# NOTICE:

Do not hit other parts with the pulley when disconnecting the vane pump assembly.

### HINT:

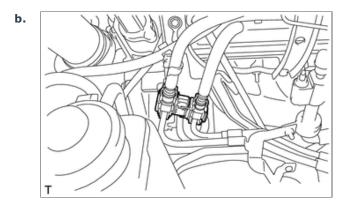
Be sure to suspend the vane pump assembly securely.



Remove the 3 bolts and engine mounting bracket heat insulator.

29.REMOVE GENERATOR ASSEMBLY	27020
Click herePower Source / Network>1GR-FE BATTERY / CHARGING>GENERATOR>REMOVAL	
30.REMOVE COOLER COMPRESSOR ASSEMBLY (w/ Air Conditioning System)	88320
Click hereVehicle Interior>HEATING / AIR CONDITIONING>COMPRESSOR(for 1GR-FE)>REMOVAL	
31.REMOVE IDLER PULLEY BRACKET (w/o Air Conditioning System)	16631B
Click hereEngine / Hybrid System>1GR-FE LUBRICATION>OIL PUMP>REMOVAL	
32.DISCONNECT NO. 1 FUEL PIPE SUB-ASSEMBLY AND NO. 2 FUEL PIPE SUB-ASSEMBLY	23801P

a. Remove the No. 1 fuel pipe clamp.



Disconnect the No. 1 fuel pipe sub-assembly and No. 2 fuel pipe sub-assembly. Click hereEngine / Hybrid System>1GR-FE FUEL>FUEL SYSTEM>PRECAUTION

# 33.REMOVE PROPELLER SHAFT ASSEMBLY Slick house Definatories DRIVE CHAFT (PROPELLER CHAFT ASSEMBLY) REMOVAL

Click hereDrivetrain>DRIVE SHAFT / PROPELLER SHAFT>PROPELLER SHAFT ASSEMBLY>REMOVAL

■ 34.REMOVE FRONT PROPELLER SHAFT ASSEMBLY 37140

Click hereDrivetrain>DRIVE SHAFT / PROPELLER SHAFT>FRONT PROPELLER SHAFT ASSEMBLY>REMOVAL

**35.REMOVE MANUAL TRANSMISSION WITH TRANSFER** 

HINT: Only perform this procedure when replacement of the rear No. 1 engine mounting insulator is necessary.

Click hereDrivetrain>H150F MANUAL TRANSMISSION / TRANSAXLE>MANUAL TRANSMISSION ASSEMBLY(for 1GR-FE)>REMOVAL

**■** 37.REMOVE CLUTCH COVER ASSEMBLY

31210

Click hereDrivetrain>CLUTCH>CLUTCH UNIT(for 1GR-FE)>REMOVAL

**38.REMOVE CLUTCH DISC ASSEMBLY** 

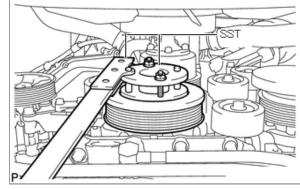
31250

Click hereDrivetrain>CLUTCH>CLUTCH UNIT(for 1GR-FE)>REMOVAL

**39.REMOVE FLYWHEEL SUB-ASSEMBLY** 

13405

a.

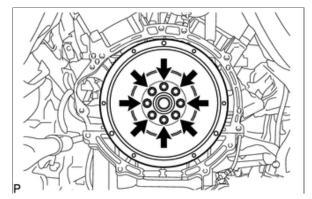


Using SST, hold the crankshaft.

SST

09213-54015 (91651-60855) 09330-00021





Remove the 8 bolts and flywheel sub-assembly.

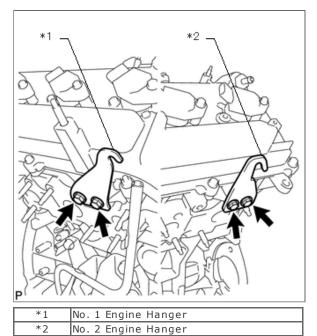
# **NOTICE:**

Do not reuse the bolts.



40.INSTALL ENGINE HANGER

a.



Install the No. 1 engine hanger and No. 2 engine hanger with 4 bolts as shown in the illustration.

### **Torque:**

33 N\*m (337 kgf\*cm, 24 ft.\*lbf)

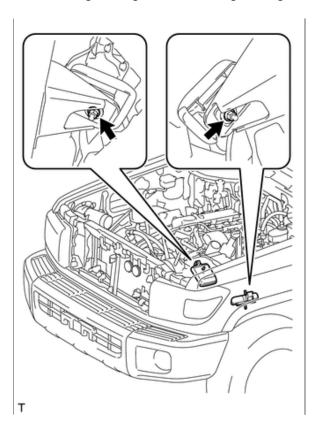
# HINT:

No. 1 engine hanger	12281-31060
No. 2 engine hanger	12282-31040
Bolt	90119-08A87

# **■** 41.REMOVE ENGINE ASSEMBLY

a. Attach an engine sling device and hang the engine with a chain block.





Remove the 2 nuts and 2 washers, and then lift the engine out of the vehicle carefully.

### **NOTICE:**

Make sure the engine is clear of all wiring and hoses.

# 42.INSTALL ENGINE STAND

a. Install the engine to an engine stand with bolts.

# **43.REMOVE ENGINE HANGER**

a. Remove the 4 bolts, No. 1 engine hanger and No. 2 engine hanger.

# 44.REMOVE FRONT ENGINE MOUNTING INSULATOR

12361

# HINT:

Only perform this procedure when replacement of the front engine mounting insulator is necessary.

- **a.** Remove the 2 nuts and 2 front engine mounting insulators.
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