ENGINE UNIT

COMPONENTS

For Bank 1:
- CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY
- 9.0 (92, 80 in.*lbf)

For Bank 2:
- CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY
- 9.0 (92, 80 in.*lbf)
- 20 (200, 14)
- ENGINE COOLANT TEMPERATURE SENSOR
- GASKET
- O-RING
- WATER BY-PASS JOINT RR

For Bank 1:
- SPARK PLUG x6

For Bank 2:
- SPARK PLUG
- 20 (200, 14)
- GASKET x2
- GASKET x4
- GASKET x6

N*m (kgf*cm, ft*lbf) : Specified torque

● Non-reusable part
**EM–120**  
**1GR-FE ENGINE MECHANICAL – ENGINE UNIT**

- **ENGINE OIL PRESSURE SWITCH ASSEMBLY**
- **NO. 3 WATER BY-PASS HOSE**
- **NO. 2 WATER BY-PASS HOSE**
- **WATER BY-PASS HOSE**
- **WATER INLET**
- **WITH THERMOSTAT WATER INLET SUB-ASSEMBLY**
- **OIL FILTER UNION**
- **OIL FILTER SUB-ASSEMBLY**
- **ENGINE OIL PRESSURE SWITCH ASSEMBLY**
- **OIL FILTER BRACKET SUB-ASSEMBLY**

### Non-reusable part
- **N m (kgf cm, ft lb)**: Specified torque

- **Non-reusable part**

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*Note: The image contains a diagram of the engine components and their corresponding specifications.*
CYLINDER BLOCK WATER DRAIN COCK SUB-ASSEMBLY

CYLINDER HEAD COVER SUB-ASSEMBLY LH

NO. 1 ENGINE HANGER

NO. 2 ENGINE HANGER

CYLINDER BLOCK WATER DRAIN COCK SUB-ASSEMBLY

N\textdegree m (kgf\textdegree cm, ft\textdegree lbf) : Specified torque
EM–122

1GR-FE ENGINE MECHANICAL – ENGINE UNIT

- CYLINDER HEAD COVER SUB-ASSEMBLY
- GASKET
- VVT SENSOR

**Specified torque**

<table>
<thead>
<tr>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0 (92, 80 in.*lbf) x3</td>
</tr>
<tr>
<td>6.0 (61, 53 in.*lbf)</td>
</tr>
<tr>
<td>10 (102, 7.4) x7</td>
</tr>
<tr>
<td>9.0 (92, 80 in.*lbf)</td>
</tr>
<tr>
<td>8.0 (82, 71 in.*lbf)</td>
</tr>
</tbody>
</table>

N*m (kgf*cm, ft*lbf) : Specified torque
**1GR-FE ENGINE MECHANICAL – ENGINE UNIT**

**EM–123**

- **OIL PAN SUB-ASSEMBLY**
  - O-RING
  - GASKET

- **OIL STRAINER SUB-ASSEMBLY**
  - Specified torque: 9.0 (92, 80 in.*lbf)

- **NO.2 OIL PAN SUB-ASSEMBLY**
  - GASKET
  - OIL PAN DRAIN PLUG
  - Specified torque: 10 (102, 7.0)
  - 9.0 (92, 80 in.*lbf)

- **Non-reusable part**

- **Specified torque (N·m, kgf·cm, ft·lbf)**
  - Non-reusable part
OIL CONTROL VALVE FILTER

OIL CONTROL VALVE FILTER

REAR ENGINE OIL SEAL RETAINER

REAR ENGINE OIL SEAL

OIL LEVEL GAUGE GUIDE

OIL LEVEL GAUGE GUIDE

O-RING

GASKET

PLUG

CRANKSHAFT POSITION SENSOR

9.0 (92, 80 in.*lbf)

62 (632, 46)

10 (102, 7.4)

N*m (kgf*cm, ft*lbf) : Specified torque

Non-reusable part

Apply MP grease
**Non-reusable part**

**Apply MP grease**

- **WATER PUMP ASSEMBLY**
  - GASKET
  - CRANKSHAFT PULLEY
  - TIMING CHAIN COVER PLATE
  - TIMING GEAR CASE OR TIMING CHAIN CASE OIL SEAL

- **23 (235, 17)**
  - TIMING CHAIN OR BELT COVER SUB-ASSEMBLY

- **9.0 (92, 80 in.*lbf)**
  - TIMING GEAR CASE OR TIMING CHAIN CASE OIL SEAL

- **250 (2,549, 184)**
  - TIMING GEAR CASE OR TIMING CHAIN CASE OIL SEAL

- **A126542531**

**Specified torque**

- **N*m (kgf*cm, ft*lbf)**: Specified torque

- **Non-reusable part**

- **Apply MP grease**
EM–126
1GR-FE ENGINE MECHANICAL — ENGINE UNIT

- Chain Sub-Assembly
- Camshaft Timing Gear or Sprocket
- Chain Tensioner Slipper
- No. 1 Chain Tensioner Assembly
- No. 1 Idle Gear Shaft
- No. 1 Idle Gear
- No. 2 Idle Gear Shaft
- O-Ring
- Key
- No. 2 Chain Vibration Damper

**N•m (kgf•cm, ft•lbf):** Specified torque

- Non-reusable part

A128348E01
CAMSHAFT TIMING GEAR ASSEMBLY

CAMSHAFT TIMING GEAR OR SPROCKET

NO. 3 CAMSHAFT

NO. 4 CAMSHAFT

NO. 2 CHAIN

NO. 3 CHAIN TENSIONER ASSEMBLY

N*m (kgf*cm, ft*lbf) : Specified torque
NO. 1 CAMSHAFT BEARING

NO. 1 CAMSHAFT

CAMSHAFT TIMING GEAR ASSEMBLY

CAMSHAFT TIMING GEAR OR SPROCKET

NO. 2 CHAIN TENSIONER ASSEMBLY

NO. 2 CAMSHAFT BEARING

NO. 2 CAMSHAFT

NO. 2 CHAIN

N°m (kgf*cm, ft*lbf) : Specified torque

9.0 (92, 80 in.*lbf)

24 (245, 18)

100 (1,020, 74)

19 (194, 14)

24 (245, 18)

9.0 (92, 80 in.*lbf)

24 (245, 18)

x3

x3
\[ N* \text{m (kgf*cm, ft*lbf)} : \text{Specified torque} \]

- Non-reusable part
**EM–130** 1GR-FE ENGINE MECHANICAL – ENGINE UNIT

**Cylinder Head Gasket**

- **Cylinder Head Set Bolt**
  - 1st: 36 (367, 27)
  - 2nd: Turn 180°

- **Cylinder Head Sub-Assembly**

- **Knock Sensor**
  - **Specified Torque**
    - 4.0 (41, 35 in.*lbf)
    - 9.0 (92, 80 in.*lbf)
    - 20 (204, 15)

- **Non-reusable part**

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N*m (kgf*cm, ft*lbf) : Specified torque

A126347E01
PISTON RING SET

NO. 1 PISTON RING

NO. 2 PISTON RING

OIL RING

PISTON

PISTON PIN

HOLE SNAP RING

CONNECTING ROD SUB-ASSEMBLY

CONNECTING ROD BEARING

CONNECTING ROD CAP

1st: 25 (250, 18)
2nd: Turn 90°

N*m (kgf*cm, ft*lbf): Specified torque

● Non-reusable part
**NO. 1 SUB-ASSEMBLY OIL NOZZLE**

**CRANKSHAFT BEARING**

**UPPER CRANKSHAFT THRUST WASHER**

**CRANKSHAFT**

**LOWER CRANKSHAFT THRUST WASHER**

**CRANKSHAFT BEARING**

**CRANKSHAFT BEARING CAP**

**CRANKSHAFT BEARING CAP SET BOLT**

**N·m (kgf·cm, ft·lbf)**: Specified torque

- **1st**: 61 (622, 45)
- **2nd**: Turn 90°
OIL JET

4.0 (41.35 in.*lbf)

4.0 (41.35 in.*lbf)

4.5 (46.40 in.*lbf)

11 (112, 8.1)

x2

x2

x2

x2

x2

11 (112, 8.1)

N*m (kgf*cm, ft*lbf) : Specified torque