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## 2006 MAZDA 6/Atenza Sedan OEM Service and Repair Workshop Manual

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# OIL PRESSURE INSPECTION [SKYACTIV-D 2.2]

SM2897283

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1. Connect the M-MDS to the DLC-2.
2. Start the engine and warm it up.
3. Select the engine hydraulic pressure (PID: EOP) and the engine speed (PID: RPM) using the M-MDS data monitor function.
4. Verify the engine hydraulic pressure (PID: EOP) value while the engine maintains a constant speed.

- If not within the specification, determine the malfunctioning location referring to the following DTCs "Possible Cause" and repair or replace the applicable part.

- P0524:00 (Engine oil pressure too low)
- P055F:00 (Engine oil pressure control circuit low oil pressure)
- P06DD:00 (Engine oil pressure switch control circuit high input)
- P06DE:00 (Engine oil pressure switch control circuit low input)

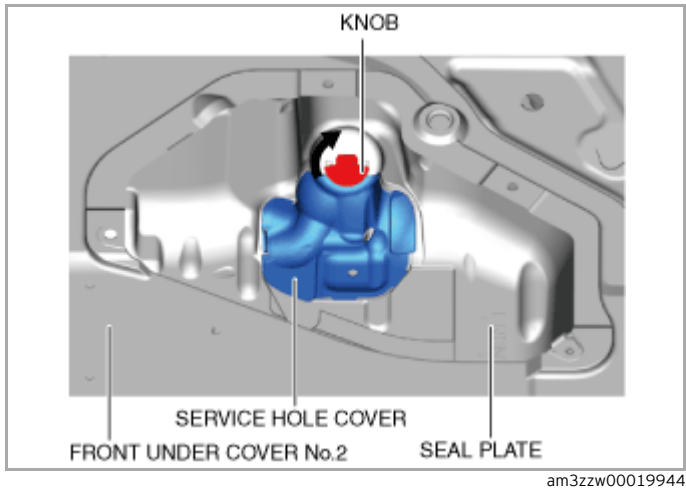
## Note

- The oil pressure can vary with oil viscosity, temperature, and engine speed.

Oil pressure (reference value) [oil temperature: 70–80 °C {158–176 °F}, coolant temperature: 70–80 °C {158–176 °F}]

Lo: 140–190 kPa {1.43–1.93 kgf/cm<sup>2</sup>, 20.4–27.5 psi} [1,500 rpm]

Hi: 310–450 kPa {3.17–4.58 kgf/cm<sup>2</sup>, 45.0–65.2 psi} [3,500 rpm]



(2)Remove the service hole cover.

7.Remove the oil pan drain plug.

8.Drain the engine oil into a container.

9.Wait until the engine oil starts to drip.

10.Install the oil pan drain plug with a new gasket.

**Oil pan drain plug tightening torque**

30–41 N·m {3.1–4.1 kgf·m, 23–30 ft·lbf}

11.Refill with the following type and amount of engine oil.

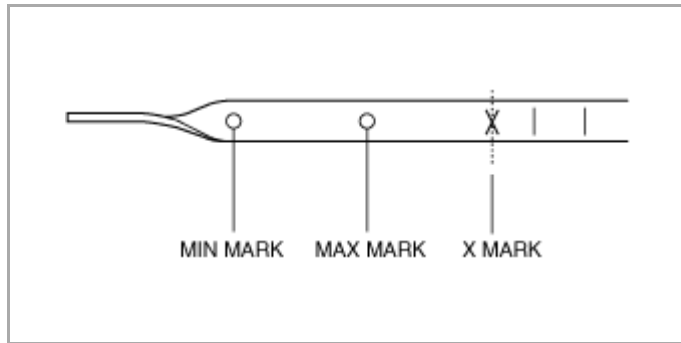
**Engine oil**

Item		Specifications
Engine oil capacity (approx. quantity)	Oil replacement	4.6 L {4.9 US qt, 4.0 Imp qt}
	Oil and oil filter replacement	4.9 L {5.2 US qt, 4.3 Imp qt}
	Total (dry engine)	6.0 L {6.3 US qt, 5.3 Imp qt}
Recommended engine oil		Mazda Genuine 0W-30
Alternative engine oil		ACEA C3 0W-30

12.Install the oil filler cap.

13.Start the engine and confirm that there is no oil leakage.

- If there is oil leakage, repair or replace the applicable part.

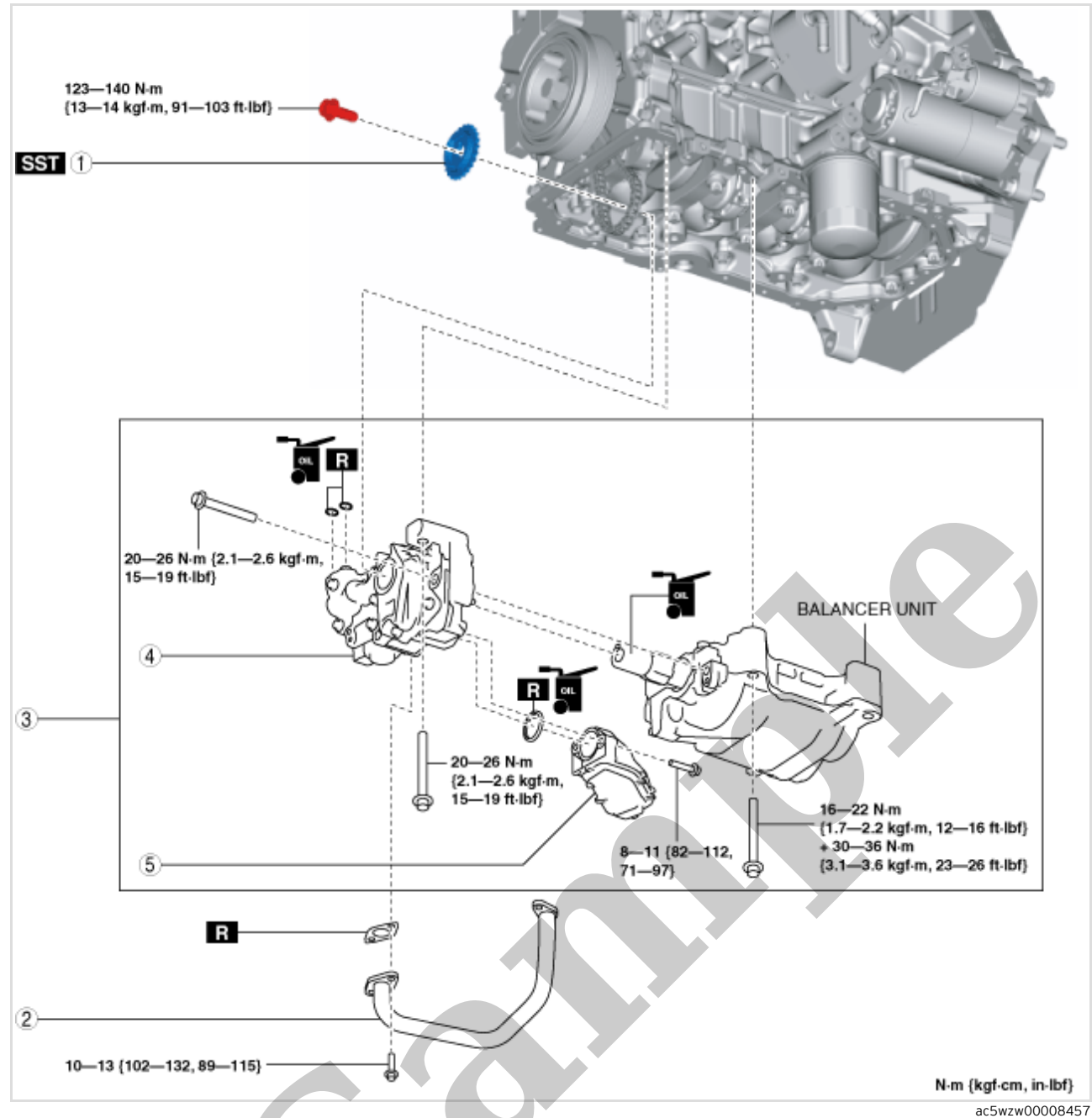


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- Add 1 L {1 USqt, 0.9 Imp qt} of engine oil when the oil level is at the MIN mark.
- If the oil level is lower than the MIN mark, add engine oil while verifying the engine oil amount using the dipstick. (See **ENGINE OIL REPLACEMENT [SKYACTIV-D 2.2].**)
- If the oil level exceeds the X mark, replace the engine oil. (See **ENGINE OIL REPLACEMENT [SKYACTIV-D 2.2].**)

6. Insert the oil level gauge completely until it attaches to the cylinder head cover.

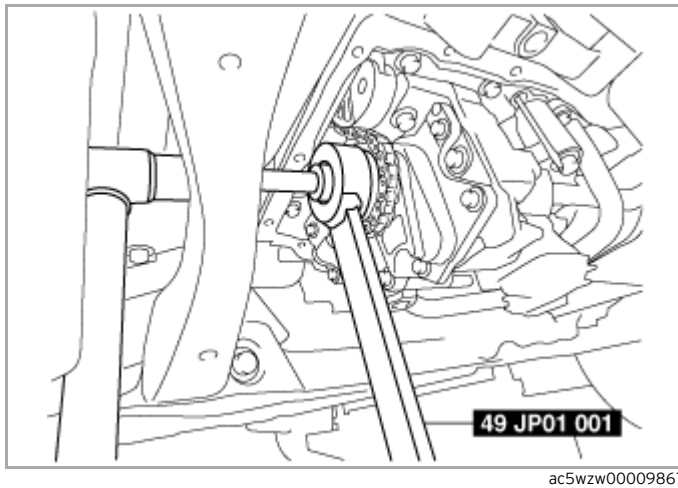




1	Oil pump driven sprocket (See <a href="#">Oil Pump Driven Sprocket Removal Note.</a> ) (See <a href="#">Oil Pump Driven Sprocket Installation Note.</a> )
2	Oil pipe
3	Balancer component (See <a href="#">Oil Pump, Balancer Unit Installation Note.</a> )
4	Oil pump (See <a href="#">Oil Pump, Balancer Unit Installation Note.</a> )
5	Oil strainer (See <a href="#">Oil Pump, Balancer Unit Installation Note.</a> )

## Oil Pump Driven Sprocket Removal Note

1. Rotate the crankshaft and align the oil pump driven sprocket alignment marks to the positions shown in the figure.



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5. Remove the oil pump driven sprocket from the balancer shaft (No.1).

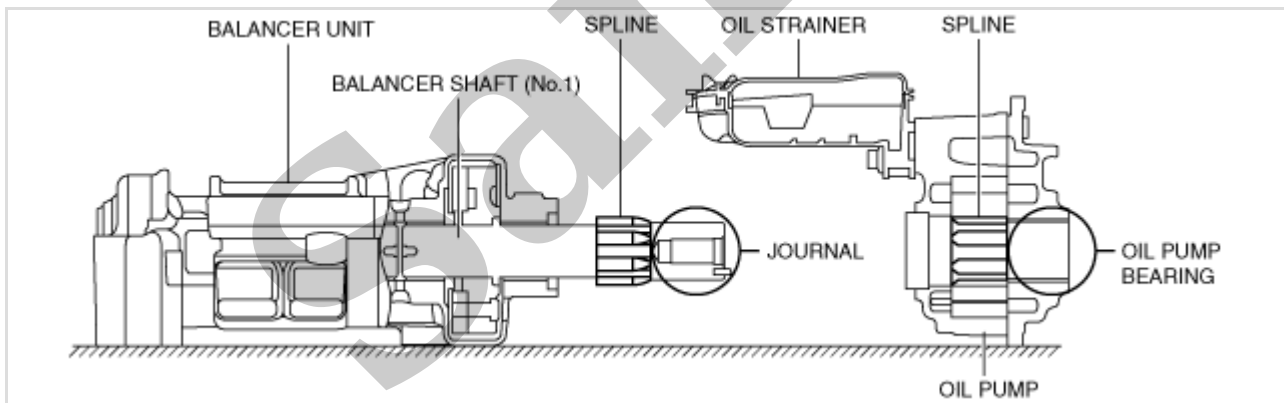
#### Note

- Do not remove the oil pump driven sprocket from the oil pump chain.

### Oil Pump, Balancer Unit Installation Note

#### Caution

- If the balancer shaft (No.1) spline is scratched or damaged, the engagement with the oil pump spline could worsen and it may not be possible to assemble the oil pump. Therefore, be careful not to scratch or damage the spline.
- Because the balancer shaft (No.1) journal slides with oil pump bearing, if the journal is scratched or damaged, the bearing could become damaged. Therefore, be careful not to scratch or damage the journal.



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1. Install the oil pump and balancer component using the following procedure:

- (1) Apply clean engine oil to a new oil strainer O-ring.
- (2) Assemble the oil strainer to the oil pump.
- (3) Verify that the balancer shaft (No.1) knock pin position is perpendicular to the cylinder block installation surface.

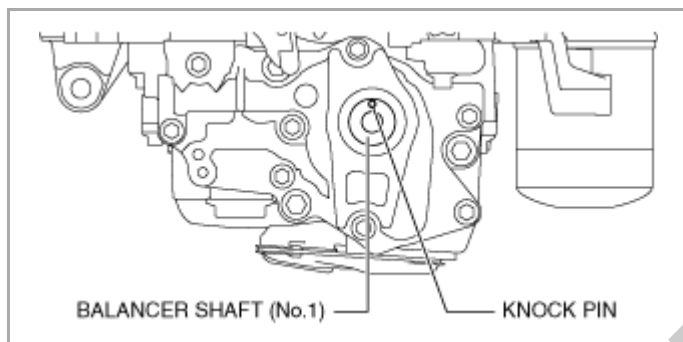
## Tightening torque

20–26 N·m {2.1–2.6 kgf·m, 15–19 ft·lbf}

## Oil Pump Driven Sprocket Installation Note

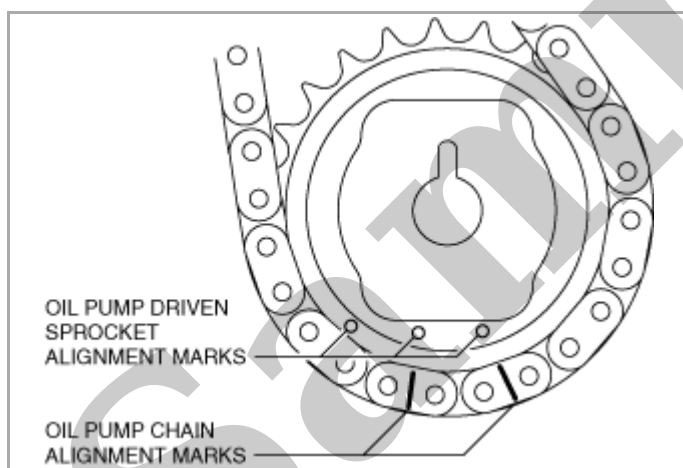
1. Verify that the knock pin is aligned to the position shown in the figure.

- If it is not in the position shown in the figure, rotate the balancer shaft (No.1) and adjust the knock pin position.



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2. Align the oil pump chain alignment marks with the oil pump driven sprocket alignment marks.



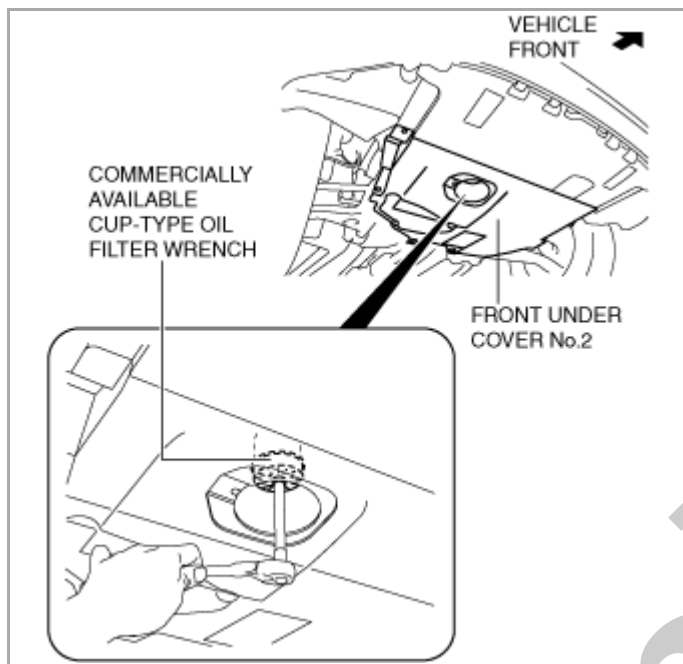
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3. Install the oil pump chain and oil pump driven sprocket as a single unit using the following procedure.

- (1) Press in the plunger of the oil pump chain tensioner No.1 as shown in the figure using a screwdriver wrapped in a cloth.

## Note

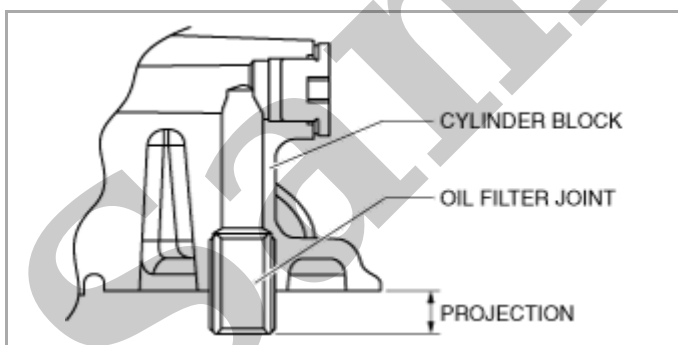
- If a cup-type oil filter wrench is used, select a size from the following:
  - Nominal diameter: 75 mm {2.953 in} (15 sided), or nominal diameter: 76 mm {2.992 in} (15 sided).
- If there is excessive play between the cup-type oil filter wrench and the oil filter, insert a thin cloth between them. An adjustable oil filter wrench can also be used.



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3.If the oil filter joint has loosened, tighten it using the following procedure:

- (1)Tighten the oil filter joint using a Hex bit socket wrench.



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### Tightening torque

30-40 N·m {3.1-4.0 kgf·m, 23-29 ft·lbf}

### Oil filter joint projection

14.2-18.5 mm {0.560-0.728 in}

4.Use a clean rag to wipe off the mounting surface.

5.Apply clean engine oil to the O-ring of a new oil filter.

6.Tighten the oil filter using a cup-type oil filter wrench and according to the instruction on the package or side of the oil filter.

8.Install in the reverse order of the removal.

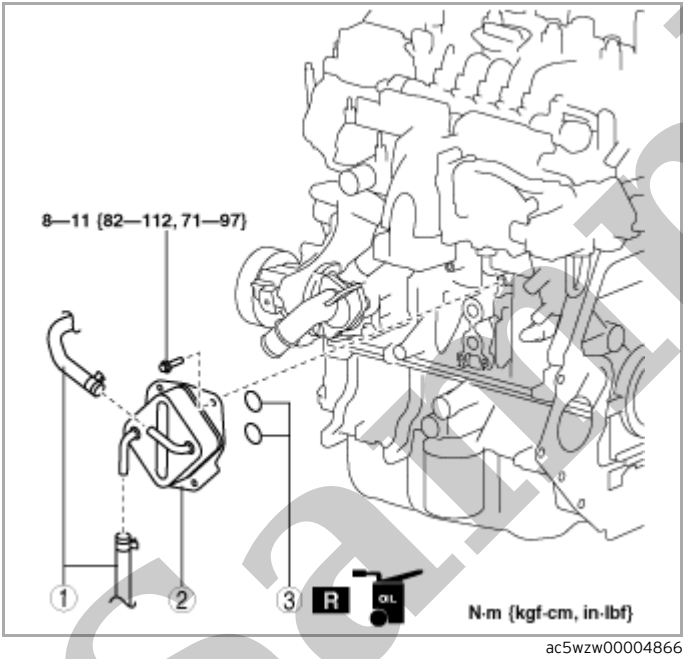
9.Refill the engine coolant. (See [ENGINE COOLANT REPLACEMENT \[SKYACTIV-D 2.2\].](#))

10.Start the engine and confirm that there is no oil leakage.

- If there is oil leakage, repair or replace the applicable part.

11.Inspect the oil level. (See [ENGINE OIL LEVEL INSPECTION \[SKYACTIV-D 2.2\].](#))

12.Inspect for engine coolant leakage. (See [ENGINE COOLANT LEAKAGE INSPECTION \[SKYACTIV-D 2.2\].](#))



1	Water hose
2	Oil cooler (See <a href="#">Oil Cooler Removal Note.</a> ) (See <a href="#">Oil Cooler Installation Note.</a> )
3	O-ring

### Oil Cooler Removal Note

1.Cover the area around the oil cooler with a rag because a small amount of engine oil will leak from the oil cooler installation area.

### Oil Cooler Installation Note

1.Tighten the bolts in the order shown in the figure.

# ENGINE OIL SOLENOID VALVE REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

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## Replacement Part

Bolt	Gasket
Quantity: 3	Quantity: 1
Location of use: Engine oil solenoid valve	Location of use: Engine oil solenoid valve

## Oil and Chemical Type

Silicone sealant	Engine oil
Type: TB1207B or equivalent	Type: Recommended oil

## Warning

- Hot engines and engine oil can cause severe burns. Turn off the engine and wait until it and the engine oil have cooled.
- A vehicle that is lifted but not securely supported on safety stands is dangerous. It can slip or fall, causing death or serious injury. Never work around or under a lifted vehicle if it is not securely supported on safety stands.
- Continuous exposure to USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after working with engine oil.

- 1.Disconnect the negative battery terminal. (See [NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.](#))
- 2.Remove the front under cover No.2. (See [FRONT UNDER COVER No.2 REMOVAL/INSTALLATION.](#))
- 3.Remove the front splash shield (RH). (See [SPLASH SHIELD REMOVAL/INSTALLATION.](#))
- 4.Remove in the order indicated in the table.
- 5.Install in the reverse order of removal.
- 6.Start the engine and confirm that there is no oil leakage.

- If there is oil leakage, repair or replace the applicable part.