ATTACHMENT#1

ENGINE OIL REPLACEMENT [SKYACTIV-D 2.2]

CAUTIONS – PLEASE READ ALL INFORMATION PRIOR TO REPAIRING THE VEHICLE AS ALL STEPS IN THIS ATTACHMENT MUST BE FOLLOWED

- A hot engine can cause severe burns. Be careful when servicing the vehicle.
- 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.
- If engine oil is spilled on the exhaust system, wipe it off completely. If you fail to wipe the spilled engine oil, it will produce fumes because of the heat.
- If engine oil is added while engine oil drainage is insufficient, the engine oil amount will exceed the specification and the F mark on the dipstick. When draining the engine oil, warm up the engine (engine oil temperature: approx. 60 °C {140 °F} or more) and wait for 5 min or more before draining it.

Note

- The viscosity of the engine oil changes according to the engine oil temperature.
- Because it takes time for the engine oil to return to the oil pan from each engine part and the viscosity of the engine oil is high when the engine is cold, engine oil drainage is slow and may be insufficiently drained.
- Raising the engine oil temperature to approx. 60 °C {140 °F} or more and waiting for 5 min or more will allow the engine oil to return to the oil pan and properly drain all of the oil.
- Add engine oil until it reaches the F mark on the dipstick to handle any possible oil dilution (viscosity reduction), or engine oil consumption (oil amount reduction).
- The engine oil reaches the F mark on the dipstick when the engine oil is drained according to the procedure and the correct, specified amount of engine oil is added.

1. Position the vehicle on level ground.

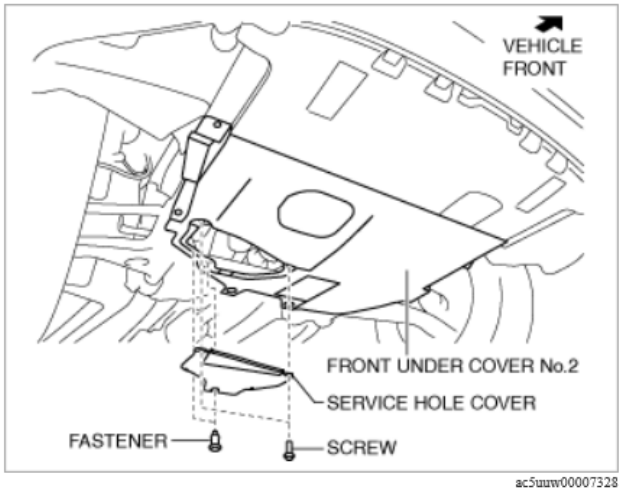
2. Warm up the engine to allow the engine oil temperature to reach 60 °C {140 °F} or more.

   Note
   - The engine oil temperature can be verified by M-MDS PID “EOT”.

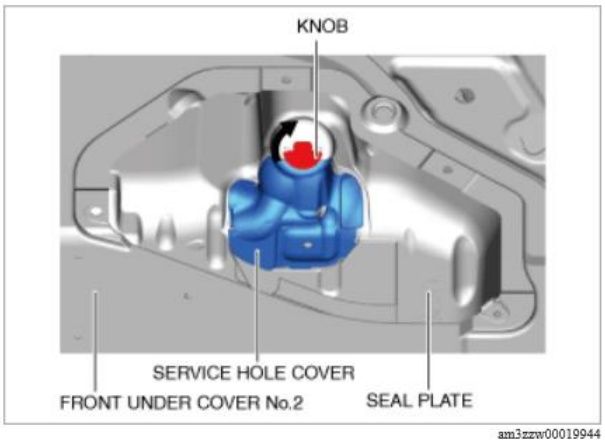
3. Stop the engine and wait for 5 min or more.

4. Remove the oil filler cap.

5. Remove the service hole cover (installed to front under cover No.2) used to drain the engine oil.



6. Remove the service hole cover installed to the seal plate.
   (1) Turn the knob in the direction of the arrow show in the figure.



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

11. Refill with the following type and amount of 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}
Required engine oil		Mazda Genuine 0W-30 0000-77-0W30qt

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.

14. Verify that the engine oil amount is at the F mark or between F and L on the dipstick. (For detail process See ENGINE OIL LEVEL INSPECTION [SKYACTIV-D 2.2]. Page 6 and 7)

15. Install the service hole cover.

16. Perform “Operation After Replacing Engine Oil”.

Operation After Replacing Engine Oil

1. After replacing the engine oil, perform the following procedure.

STEP	ACTION	PAGE/CONDITION
1	Perform engine oil data reset procedure.	(See ENGINE OIL DATA RESET [SKYACTIV-D 2.2].) Page 4 and 5
2	Switch the ignition off.	-
3	Wait for 20 s.	-
4	Switch the ignition ON (engine off).	-
5	Switch the ignition off.	-

ENGINE OIL DATA RESET [SKYACTIV-D 2.2]

Note

- Perform the engine oil data reset to reset the engine oil replacement period calculation data recorded in the PCM, regardless of whether or not the wrench indicator light is turned on.

Using the Center Display

1. Switch the ignition ON (engine off or on).
2. Select [Applications] on the center display.
3. Select [Vehicle Status Monitor] on the center display.
4. Select [Maintenance] on the center display.
5. Select [Oil Change] on the center display.
6. Select [Reset] on the center display.

Using the M-MDS

1. Connect the M-MDS to the DLC-2.
2. After the vehicle is identified, select the following item from the initial screen of the M-MDS.
   (1) Select the “Powertrain”.
3. Then, select the items from the screen menu in the following order.
   (1) Select the “Data Reset”.
   (2) Select the “Engine oil”.
4. Perform the procedure according to the directions on the screen.

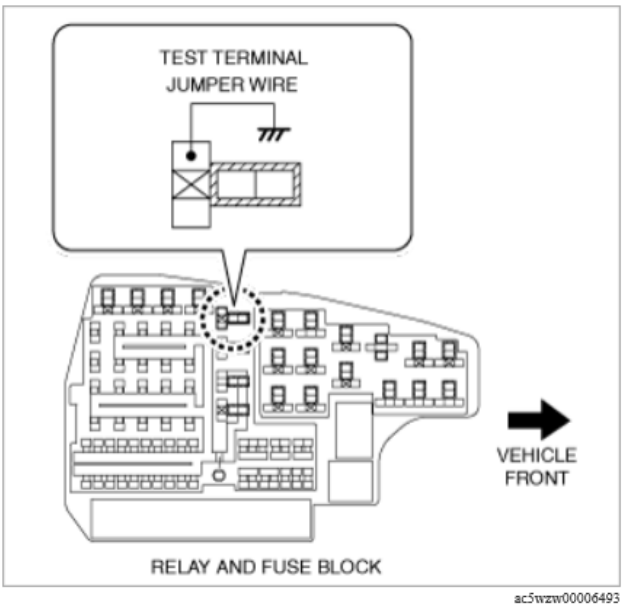
Using the Jumper Wire

Note

- DTC P1905:00 may be detected by grounding the test terminal to the body. In this case, DTC P1905:00 is automatically erased by disconnecting the test terminal ground.

1. Switch the ignition ON (engine off).

2. Short the connection between body ground and test terminal using a jumper wire.



3. Repeatedly depress and release the accelerator pedal five times within 5 s.

   Note

   - If the engine oil data reset is completed correctly, the glow indicator light flashes five times.

4. Verify that the glow indicator light flashes five times.
   – If flashing of the glow indicator light cannot be verified, repeat the procedure from Step 1.

5. Detach the jumper wire from the test terminal.

6. Switch the ignition off.

ENGINE OIL LEVEL INSPECTION [SKYACTIV-D 2.2]

CAUTIONS – PLEASE READ ALL PRIOR TO ENGINE OIL LEVEL INSPECTION AS ALL STEPS BELOW MUST BE FOLLOWED.

- A hot engine can cause severe burns. Be careful when servicing the vehicle.
- If the dipstick is inserted/pulled out incorrectly, the dipstick will contact the inner surface of the cylinder block making it impossible to measure the engine oil level correctly. Insert/pull out the dipstick straight, without twisting, so that the X mark (read surface) is pointed toward the front of the vehicle.
- Because the engine oil amount may not be measured accurately, measure the engine oil amount after warming up the engine (engine oil temperature: approx. 176 °F = 80 °C or more) and waiting for at least 10 minutes.

IMPORTANT GENERAL NOTES:

- The amount of engine oil may increase if fuel is mixed into the engine oil while removing particulate matter accumulated in the diesel particulate filter, however, it does not indicate an abnormality.
- The viscosity of the engine oil changes according to the engine oil temperature.
- The oil viscosity is high when the engine is cold, and because it takes time for the engine oil to return to the oil pan from each engine part, the engine oil amount cannot be measured accurately.
- The engine oil returns to the oil pan and the engine oil amount can be measured accurately by raising the engine oil temperature to approx. 176 °F (80 °C) or more and waiting for about 10 min.
- Add engine oil until it reaches the F mark on the dipstick to handle any possible oil dilution (viscosity reduction), or engine oil consumption (oil amount reduction).

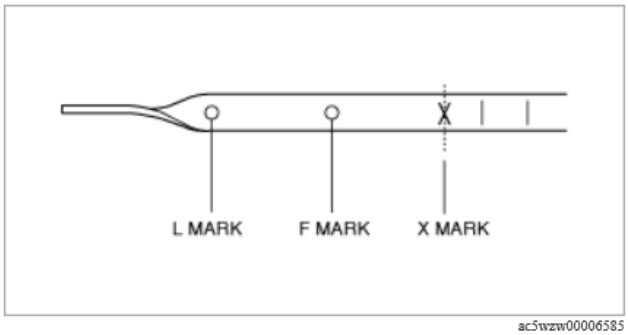
1. Position the vehicle on level ground.

2. Warm up the engine to allow the engine oil temperature to reach 176 °F (80 °C) or more.
   Note
   - The engine oil temperature can be verified by M-MDS PID "EOT".

3. Stop the engine and wait for about 10 min.

4. After removing the dipstick and wiping off any oil on the gauge, install the dipstick straight, without twisting, so that the X mark (read surface) is pointed toward the front of the vehicle.

5. Remove the dipstick straight, without twisting, and verify that the oil level is at F mark or between F and L on the gauge. **<u>If not move to the additional steps below.</u>**



- If the engine oil is at the L mark, add 0.85 US qt (0.8 L) of engine oil. The engine oil amount indicated between the L and F marks on the dipstick is 0.85 US qt (0.8 L).
- If the oil level is lower than the L 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 is exceeds the F mark, drain the engine oil into a clean container and add the correct amount. (See ENGINE OIL REPLACEMENT [SKYACTIV-D 2.2])

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