COMPULSORY DIESEL PARTICULATE FILTER REGENERATION [SKYACTIV-D 2.2]

id0140z7993400

Warning

- **High temperature exhaust gas is emitted during diesel particulate filter regeneration. People near the vehicle could be seriously burned, or flammable objects could catch fire. Always perform compulsory diesel particulate filter regeneration away from people and flammable objects.**
- **If large amounts of exhaust gas are inhaled, it may cause carbon monoxide poisoning. Always perform compulsory diesel particulate filter regeneration in a well-ventilated place (avoid using an exhaust air duct indoors and perform compulsory diesel particulate filter regeneration in the open air).**

Caution

- **Perform compulsory diesel particulate filter regeneration with the bonnet opened to prevent engine compartment overheating.**
- **If an electrical load is applied, the post injection amount of the fuel injection control changes and compulsory diesel particulate filter regeneration cannot be performed normally. Do not apply an electrical load such as turning on the headlights or the rear window defroster during compulsory diesel particulate filter regeneration (A/C cut control is performed during compulsory diesel particulate filter regeneration, and A/C is stopped).**
- **If there are obstructions such as a wall around the tailpipe, it will obstruct the exhaust gas passage (airflow), and compulsory diesel particulate filter regeneration may not be performed correctly due to the increase in exhaust gas temperature. Always perform compulsory diesel particulate filter regeneration with no obstructions around tailpipe.**
- **The temperature in the trunk compartment increases because high temperature exhaust gas is emitted during diesel particulate filter regeneration. If an object which can be easily damaged by heat is in the trunk compartment such as an electronic device, it could be damaged by the temperature increase. If compulsory diesel particulate filter regeneration is performed, do not place objects such as electronic devices which can be easily damaged by heat in the trunk compartment.**
- **If any DTC other than P2458:00, P2463:00, and P242F:00 is stored, the PCM may inhibit compulsory diesel particulate filter regeneration. Before performing compulsory diesel particulate filter regeneration, resolve the malfunction and clear the DTC.**

Note

- To perform compulsory diesel particulate filter regeneration, the implementation conditions for compulsory diesel particulate filter regeneration must be met. Compulsory diesel particulate filter regeneration will not be performed without the implementation conditions met.
- Normal and long modes are available for compulsory diesel particulate filter regeneration. The PCM calculates the amount of accumulated particulate matter (PM), automatically selects normal mode (**approx. 34 min**) or long mode (**approx. 60 min**) according to the amount, and then diesel particulate filter regeneration is performed.
- The PCM automatically selects normal mode or long mode, however, normal mode and long mode are not performed continuously. If compulsory diesel particulate filter regeneration is performed once and the PM combustion elimination is not completed, it is necessary to perform the compulsory diesel particulate filter regeneration procedure again.

Item	Diesel particulate filter accumulation amount				
PM accumulation amount	0—8.0 g/L {0—0.50 lb/ft^3}	8.0—10.0 g/L {0.50—0.62 lb/ft^3}	10.0—13.0 g/L {0.62—0.81 lb/ft^3}	13.0—17.0 g/L {0.81—1.06 lb/ft^3}	17.0 g/L {1.06 lb/ft^3} or more
Diesel particulate filter indicator light	—	“Soot Accumulation in DPF too high”*1 (Informs user)	“DPF Inspection Required”*2 (Warns user)		
Check engine light	—	—	—	Illuminated*3 (Warns user)	
Output restriction	—	—	Gas temperature restriction	Gas temperature restriction and soot emission amount restriction	
DTC recorded in PCM	—	—	P2458:00	P2463:00	P242F:00

Item	Diesel particulate filter accumulation amount			
Automatic diesel particulate filter regeneration control range	Automatic diesel particulate filter regeneration control operable (If the accumulated PM amount exceeds the specified value*4, auto diesel particulate filter regeneration control is implemented, and operates until the accumulated PM amount is approx. 0 g/L {0 lb/ft^3}.)		Automatic diesel particulate filter regeneration control inoperable (Automatic diesel particulate filter regeneration control is disabled when amount of accumulated PM is 10.0 g/L {0.62 lb/ft^3} or more because output is restricted)	
User action	—	Let vehicle warm-up completely and drive vehicle at 40 km/h {25 mph} or more for 10—20 min to promote efficient completion of auto diesel particulate filter regeneration.	Bring vehicle to a Mazda dealer.	
Mazda dealer action	—	—	Compulsory diesel particulate filter regeneration*5	Diesel particulate filter replacement

*1 : Turns off when PM accumulation amount is **5.5 g/L {0.34 lb/ft^3} or less**.

*2 : The diesel particulate filter indicator light flashes when the amount of accumulated PM is **10.0 g/L {0.62 lb/ft^3} or more**. This indicates that amount of accumulated PM in the diesel particulate filter is full. Therefore, to reduce the amount of accumulated PM, the fuel injection amount is reduced and exhaust gas temperature restriction (output restriction) is performed. As a result, soot generation is reduced and the PM accumulating in the diesel particulate filter is reduced. Turns off when it is **5.5 g/L {0.34 lb/ft^3} or less**.

*3 : The check engine light illuminates when the amount of accumulated PM reaches **13.0 g/L {0.81 lb/ft^3} or more**. In this case, to further restrict soot generation (output restriction), exhaust gas is induced to the cylinder by EGR control to lower the combustion temperature. As a result, soot generation is further reduced, and the PM accumulating in the diesel particulate filter is reduced.

*4 : Figure fluctuates depending on distance travelled/conditions

*5 : The PCM automatically selects normal mode or long mode for the compulsory diesel particulate filter regeneration operation time according to the accumulated PM amount. If compulsory diesel particulate filter regeneration is performed when the amount of accumulated PM is **less than 10.0 g/L {0.62 lb/ft^3}**, normal mode is performed. If compulsory diesel particulate filter regeneration is performed when the amount of accumulated PM is **10.0 g/L {0.62 lb/ft^3} or more**, long mode is performed.

1. Meet the implementation condition for compulsory diesel particulate filter regeneration.

   Implementation condition for compulsory diesel particulate filter regeneration
   - **ECT: 70 °C {158 °F} or more**

Compulsory Diesel Particulate Filter Regeneration Performed Using M-MDS

Caution
- **Perform compulsory diesel particulate filter regeneration with the bonnet opened to prevent engine compartment overheating.**

1. Open the bonnet.
2. Connect the M-MDS to the DLC-2.
3. After the vehicle is identified, select the following item from the initial screen of the M-MDS.
   (1) Select the “Powertrain”.
4. Then, select the following item from the screen menu.
   (1) Select the “DPF Regeneration”.
5. Perform the procedure according to the directions on the screen.
6. Switch the ignition off.
7. Start the engine.
8. Verify that the messages, “Soot Accumulation in DPF too high” and “DPF Inspection Required” are displayed in the TFT LCD in the instrument cluster.
   Message is displayed
   - Perform compulsory diesel particulate filter regeneration again.

   No message is displayed
   - Compulsory diesel particulate filter regeneration is completed.

Compulsory Diesel Particulate Filter Regeneration Performed Using Test Terminal

Caution
- **Perform compulsory diesel particulate filter regeneration with the bonnet opened to prevent engine compartment overheating.**

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.

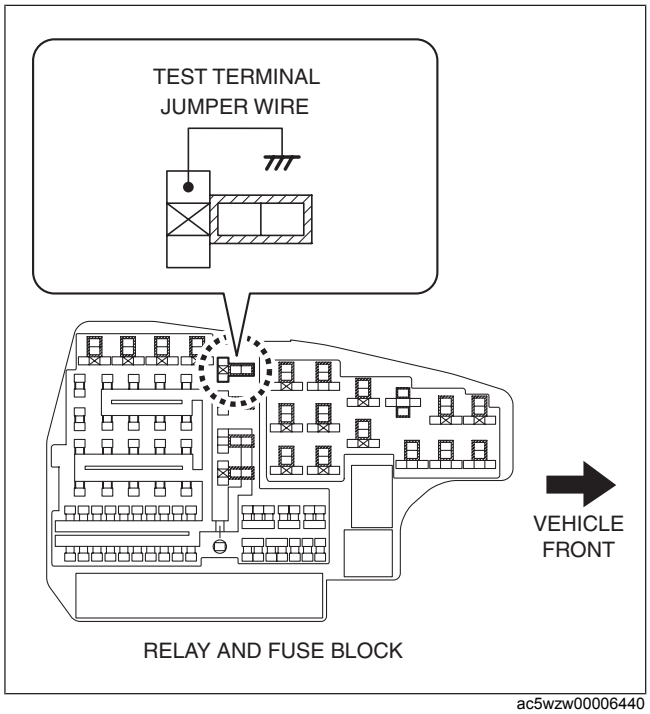
1. Open the bonnet.
2. Start the engine.
3. Short the connection between body ground and test terminal using a jumper wire.
4. Repeatedly depress and release the accelerator pedal two times.

Note
- If diesel particulate filter regeneration initiates, the engine speed increases.

5. Verify that the engine speed increases.
   — If the engine speed does not increase, return to procedure 1.

Note
- If the diesel particulate filter regeneration is completed correctly, the engine speed decreases to the normal idle speed.

6. After the engine speed increases, wait until the engine speed decreases to the normal idle speed.
7. Detach the jumper wire from the test terminal.
8. Switch the ignition off.
9. Start the engine.
10. Verify that the messages, “Soot Accumulation in DPF too high” and “DPF Inspection Required” are displayed in the TFT LCD in the instrument cluster.



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Message is displayed
- Perform compulsory diesel particulate filter regeneration again.

No message is displayed
- Compulsory diesel particulate filter regeneration is completed.

Compulsory Diesel Particulate Filter Regeneration Is Canceled

Caution
- **If compulsory diesel particulate filter regeneration is canceled, elimination of the diesel particulate filter is required.**
- **If the diesel particulate filter is not eliminated, the diesel particulate filter may be damaged.**

1. Switch the ignition off.
2. Start the engine.
3. Maintain the engine speed at **3,000 rpm** for **1 min** (diesel particulate filter cooling).
4. Switch the ignition off.