Diagnostic Sheet
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Grecale MHEV - Oil pump and sensor diagnosis

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This Diagnostic Sheet serves as a guide and provides additional diagnostic info for possible issues potentially affecting the oil pump/sensor.

MODELS INVOLVED: M182 Grecale MHEV (All MY).

DTCs: P06DD / P06DE

Diagnostic procedure:

1. Initial Identification

Check whether the fault codes are active or stored.
- **Active** → the fault is currently present in real time.
- **Stored** → the fault may have been temporary (old oil, temperature, etc.).

Record the following data:
- Engine oil and coolant temperature at the time of failure (freeze-frame data)
- Engine RPM and load (**RDI 1000 - Engine speed**, **RDI 0249 - Load**)(freeze-frame data)
- Type of oil used and mileage since last oil change (request to customer)

2. Oil and Maintenance Check

Objective: rule out contamination or viscosity-related issues.
- Clear the DTCs
- Start the engine for 30 seconds
- Make sure the vehicle is on level ground
- Check the **RDI 3A41 – Oil Level** (must be within the correct range) **3.5 – 4.8 L**.
- Perform engine oil warm-up **RDI 130B - Oil Temperature starting from 70°C**. **RDI 0300 -Engine Temperature >70°C** and verify with the vehicle parked.
    - **Actual oil pressure RDI 021C** required at idle condition rpm (30 seconds) **2.0 - 2.4 bar**. (If the pressure is above the threshold solenoid is stuck closed.)
    - **Actual oil pressure RDI 021C** required at high engine 3500 rpm (30 seconds) **4.0 - 4.5 bar** (If the pressure is below threshold solenoid is stuck open).
- Visually inspect an oil sample:
    - If oil is **too dark**, contains **sludge**, or **metal particles** → replace oil and filter.
    - In case of less than 1000 km to next maintenance interval → replace oil and filter:

- Clear the DTCs.
- Repeat Step 2
- If the pressure is not within range, continue to Step 3.

Note: Many reported cases have been solved simply by performing an oil and filter replacement.

3. Electrical Check of the Actuator Solenoid

Objective: ensure that the electrical control of the pump operates correctly.
- Disconnect the solenoid connector.
- Measure with a multimeter:

- **Coil resistance:** should be **18.2 ± 0.8 Ohms** between the 2 solenoid pins.
- **Wiring continuity:** between the ECU and the connector.

Check for:

- **Power supply → 12V**
- **ECM ON/OFF control signal** (using active diagnostic test).

If signal or continuity is missing → repair wiring or the connector.
If Coil resistance is out of the acceptable range, → Replace the oil pump.

4. **Oil Pressure Sensor Electrical Check**

Disconnect the oil pressure sensor electrical connection:

- Check the power supply, ground, and signal.
- If possible, test by swapping sensors with a known good vehicle.
- Perform engine oil warm-up **RDI 130B - Oil Temperature starting > 70°C**. **RDI 0300 -Engine Temperature >70°C** and verify in standstill.
  - **Actual oil pressure RDI 021C** required at idle condition rpm (30 seconds) **2.0 - 2.4 bar**.
  - **Actual oil pressure RDI 021C** required at high engine 3500 rpm (30 seconds) **4.0 - 4.5 bar**.

If the sensor is confirmed faulty → replace it**.**

5. **Oil and oil filter substitution** (in case not done in point 2)

- As a last attempt, perform oil and oil filter substitution.

After performing the oil and filter change:

- Clear the DTCs.
- Start the engine and monitor **actual oil pressure** (via MD EVO).
- Perform engine oil warm-up **RDI 130B - Oil Temperature starting > 70°C**. **RDI 0300 -Engine Temperature >70°C** and verify with the vehicle parked.
  - **Actual oil pressure RDI 021C** required at idle condition rpm (30 seconds) **2.0 - 2.4 bar**.
  - **Actual oil pressure RDI 021C** required at high engine 3500 rpm (30 seconds) **4.0 - 4.5 bar**.

If the issue has not been solved in all the previous steps, replace the oil pump.

Please do not hesitate to contact us if you have any questions.

Best regards,

TECHNICAL SERVICE OPERATIONS