



OM654 Engine Oil Consumption

Topic number	LI18.40-N-080867
Version	1
Function group	18.40 - Oil level/oil pressure sensor
Date	8/5/26
Validity	Sprinter 907 with OM654
Reason for change	

Complaint

The customer may report repeated low engine oil level warnings in the instrument cluster. The customer may also state that engine oil must be added between scheduled maintenance intervals.

During diagnosis, oil residue may be observed at the oil filler neck, cylinder head cover, crankcase ventilation connection, charge air pipes, charge air cooler, intake tract, or turbocharger area. In some cases, the complaint may be accompanied by increased diesel particulate filter (DPF) regeneration frequency or aftertreatment-related fault entries.

Cause



Increased engine oil consumption may be caused by external oil leakage, crankcase ventilation system concerns, reduced oil separation efficiency in the cylinder head cover, turbocharger oil leakage, charge air system oil accumulation, fuel dilution, vehicle operating profile, oil level sensor plausibility concerns, or internal engine mechanical damage.

A measured engine oil consumption test is required before a repair direction is determined. Customer-reported oil additions or instrument cluster oil level messages alone are not sufficient to determine the repair.

Remedy

1. Perform the engine oil consumption measurement according to AR18.00-D-0025TSM.

2. If the measured oil consumption is within specification, no repair related to engine oil consumption is required.

- Verify the correct engine oil specification and review the vehicle operating profile, maintenance history, idle time, and regeneration frequency. If the complaint is based mainly on an oil level message and measured oil



consumption is not confirmed, verify oil level sensor plausibility before continuing with engine oil consumption diagnosis.

3. If the measured oil consumption exceeds specification, inspect the engine for external oil leaks.

- Pay close attention to the oil filler neck, oil filler neck seal, cylinder head cover area, oil filter housing, crankcase ventilation connections, turbocharger oil supply and return areas, and other visible sealing points.

4. If an external oil leak is identified, repair the leak according to the applicable repair instructions.

- Correct the engine oil level and repeat the oil consumption measurement if necessary.

5. Inspect the crankcase ventilation connection, turbocharger inlet and outlet, charge air pipes, and charge air cooler for oil accumulation.

- A light oil film alone does not confirm a turbocharger or engine failure. Oil pooling, heavy oil accumulation, debris, or oil migration into the intake tract requires further inspection.



6. If there is no clear external oil leak, no severe charge air system oil contamination, and no obvious turbocharger damage, inspect the crankcase ventilation system first.
 7. Perform the crankcase ventilation shutoff valve leak-tightness test according to AR01.40-D-0050TSM.
 8. If the crankcase ventilation shutoff valve fails the leak-tightness test, replace the shutoff valve and the cylinder head cover with integrated oil separator. Replace all required seals and hardware.
 9. If the crankcase ventilation shutoff valve passes the leak-tightness test, no external oil leak is identified, no abnormal turbocharger oil entry is found, and the engine mechanical condition is not suspect, replace the cylinder head cover with integrated oil separator.
- Fill the engine with oil meeting MB 229.52 SAE 5W-30 and repeat the engine oil consumption measurement according to AR18.00-D-0025TSM.

Turbocharger and Charge Air System Check



If excessive oil is found in the charge air cooler, charge air pipes, intake tract, or turbocharger outlet, inspect the turbocharger for oil leakage, impeller damage, seizure, excessive shaft play, or restricted movement.

If the turbocharger is determined to be the source of oil entry, replace the turbocharger and clean or replace oil-contaminated charge air components as required. If oil ingestion has caused hydrolock or confirmed internal engine damage, engine replacement may be required.

Engine Mechanical Check

Perform manual compression and cylinder leak-down testing at operating temperature if oil consumption remains above specification after crankcase ventilation system repair, or if engine mechanical damage is suspected.

Use the following procedures:

- AR01.00-D-1201TSM, Check compression pressure.



- AR01.00-D-1300TSM, Check cylinders for leak-tightness.
- AH01.00-P-1300-02KOA, Determine loss of pressure at cylinder.

If excessive leakage is found, identify the leakage path through the oil filler opening, intake manifold, exhaust outlet, cooling system, or adjacent cylinder.

Borescope inspection may be used to document the cylinder walls, piston crowns, valves, and injector tips. The OM654 uses NanoSlide cylinder technology. Cylinder wall appearance may differ from previous diesel engines and should not be used alone to justify engine replacement.

If inspection or testing indicates piston ring or oil scraper ring damage, document the findings before determining repair direction. Supporting evidence may include excessive cylinder leakage into the crankcase, abnormal compression, oil residue in the combustion chamber, broken ring material, metal debris, cylinder wall damage, or oil contamination in the oil pan.



Oil Level Increase During Test

If the engine oil level or measured oil weight increases during the oil consumption measurement, stop the oil consumption diagnosis and evaluate for fuel dilution.

Review DPF regeneration history, regeneration frequency, injector operation, aftertreatment system function, engine idle time, and vehicle operating profile before continuing. An increasing oil level may indicate fuel dilution rather than engine oil consumption.

Engine Replacement

Engine replacement should only be considered when diagnostic results confirm internal engine damage that cannot be corrected by component-level repair.



Examples include failed compression, excessive cylinder leakage, hydrolock, severe cylinder wall damage, piston or ring damage, oil scraper ring damage, valve sealing failure, significant metal debris in the oil filter, severe oil analysis findings, coolant contamination, or turbocharger failure resulting in engine damage.

Do not replace the engine based only on customer-reported oil additions, crankcase pressure at the oil filler opening, light oil film in the charge air system, oil level messages, or NanoSlide cylinder wall appearance.

Escalation

If measured oil consumption remains above specification after completing the repair path in this LI, create a TIPS case routed to the Powertrain inbox.

Include the oil consumption measurement results, external oil leak inspection results, crankcase ventilation shutoff valve test result, turbocharger and charge



air system inspection photos, maintenance history, oil specification used, regeneration history, compression and leak-down results if performed, oil level sensor plausibility findings if applicable, and all relevant repair findings.

WIS-References

Document number	Title	Note
AR01.00-D-1201TSM	Check compression pressure.	
AR01.00-D-1300TSM	Check cylinders for leak-tightness.	
AR01.40-D-0050TSM	Crankcase ventilation shutoff valve leak-tightness test.	
AR18.00-D-0025TSM	Engine oil consumption measurement.	
AH01.00-P-1300-02KOA	Determine loss of pressure at cylinder.	

Disclaimer

NOTE: The information contained in this document is intended for use by trained, professional technicians with the knowledge to properly and safely perform diagnosis and repairs on Mercedes-Benz vehicles, using Mercedes-Benz approved tools and equipment. It informs service technicians about conditions that could occur in certain vehicles and provides information that could assist in proper vehicle diagnosis, service, or repair. It does not indicate that a defect is present in any vehicle referenced in this document nor does it imply warranty coverage. DO NOT assume that a symptom or condition, or a described cause of a symptom or condition, affects any particular vehicle or groups of vehicles, or that a described repair applies to any particular vehicle or



groups of vehicles. There can be multiple causes resulting in the same or similar symptoms or conditions described in this document, and trained professional service technicians must use their diagnostic skills to make evaluations on a case-by-case basis. The information contained in this document does not guarantee warranty coverage nor does it extend the vehicle's warranty in any way.

Symptoms

Power generation > Engine lubrication/oil cooling > Function > Oil level too low

Power generation > Engine lubrication/oil cooling > Function > High oil consumption

Power generation > Engine management > Indicator lamp > Engine diagnosis > lit

Power generation > Engine lubrication/oil cooling > Indicator lamp > Engine oil level indicator lamp > lit

Power generation > Engine lubrication/oil cooling > Leakage > External oil loss

Power generation > Engine lubrication/oil cooling > Display message > Oil sensor message

Power generation > Engine management > Function > Malfunction
