
39 FLASH CODE 39 – EGR VALVE / VNT VANE FAULT

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39.1 DESCRIPTION OF FLASH CODE 39

Flash Code 39 is used for several EGR (Exhaust Gas Recirculation) system or VNT (Variable Nozzle Turbine) operational faults. These codes are typically logged in the ECM when one of the components are faulty.

39.2 SAE J1587 EQUIVALENT CODE FOR FLASH CODE 39

The SAE J1587 equivalent codes for Flash Code 39, EGR valve fault:

- s 146/2, EGR leak — Boost Power
- s 146/12, EGR leak — Boost Jake
- s 146/7, EGR Valve not responding
- s 152/7, EGR Valve not responding (temporary code)

The SAE J1587 equivalent codes for Flash Code 39, VNT vane fault:

- s 147/2, VNT Vanes not responding — Boost Power
- s 147/12, VNT Vanes not responding — Boost Jake
- s 147/14, EGR flow too low
- s 147/11, VNT Vanes at Max — Jake
- s 147/7, VNT Vanes not responding — EGR
- s 153/7, VNT Vanes not responding (temporary code)

39.3 TROUBLESHOOTING FLASH CODE 39

The following procedure will troubleshoot Flash Code 39. For all EGR related codes, always perform the basic checks in EGR-1. Performing the basic checks will troubleshoot the components that will be responsible for logging these codes for Series 50 engines. Refer to section 10-16. For Series 60 engines, refer to section 10.18.

If the basic checks all pass, and no fault can be found with the VNT/turbocharger or EGR valve, then it is recommended that the information you have collected be available to discuss with Detroit Diesel Technical Service.

1. Code s 146/7 — occurs if actual EGR rate during EGR mode operation is less than it should be. This fault will lock boost mode operation and illuminate the CEL for the remainder of the ignition cycle.
2. Code s 146/2 — occurs if actual EGR rate during Power Boost mode operation is greater than a calibrated value. This fault will illuminate the CEL for the duration of the fault being active.
3. Code s 146/12 — occurs if actual EGR rate during Boost Jake mode operation is greater than a calibrated value. This fault will illuminate the CEL for the duration of the fault being active.
4. Code s 147/7 — occurs if error in actual EGR rate vs desired EGR rate (Actual – Desired) during EGR mode operation. This FMI signifies excessive EGR flow. This fault will lock boost mode operation and illuminate the CEL for the remainder of the ignition cycle if the actual is greater than the desired.
5. Code s 147/2 — occurs if error in actual boost vs desired boost during Power Boost mode operation is greater than it should be. This fault will illuminate the CEL for the duration of the fault being active.
6. Code s 147/12 — occurs if error in actual boost vs desired boost during Jake Boost mode operation is greater than it should be. This fault will illuminate the CEL for the duration of the fault being active.
7. Code s 147/14 — occurs if error in actual EGR rate vs desired EGR rate (Desired – Actual) during EGR mode operation. This FMI signifies low EGR flow. This fault will illuminate the CEL for the duration of the fault being active.

39.3.1 Verify Repairs

Perform the following steps to verify repairs:

1. Reassemble the engine.
2. Start and run the engine.
3. Perform a road test.
4. Check for logged codes.
 - [a] If codes 146/152 or 147/153 are logged, refer to section 10.16 for Series 50 engines. For Series 60 engines, refer to section 10.18. Or, call Detroit Diesel Technical Service.
 - [b] If no codes are logged, repairs are complete.