

## 66 FLASH CODE 66 – KNOCK SENSOR FAULT

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## 66.1 DESCRIPTION OF FLASH CODE 66

Flash Code 66 indicates the oil filter sensor input to the ECM has exceeded or dropped below the allowed range.

This code is not covered in this manual (for diesel engines). If changes occur, notification will be sent from DDC.

For gas engines, Flash Code 66 indicates one or more faults have occurred in the engine knock level circuitry.

## 66.2 SAE J1587 EQUIVALENT CODE FOR FLASH CODE 66

For diesel engines, the SAE J1587 equivalent code for Flash Code 66 is p 099/3, oil filter sensor input voltage high or p 099/4, oil filter sensor input voltage low.

For gas engines, the SAE J1587 equivalent code for Flash Code 66 is one of the following: s 076 0, s 076 7, s 076 3 or s 076 4.

## 66.3 TROUBLESHOOTING FLASH CODE 66

The following procedure will troubleshoot Flash Code 66.

### 66.3.1 Determine Failure

The following procedure will enable you to determine the failure.

1. Code s 076 0, knock level above normal range – A Failure Mode Identifier (FMI) of 0 is used to advise the user that the knock level is too high to allow the electronics to compensate for it. Troubleshoot this as a mechanical problem.
2. Code s 076 – 7, knock level torque reduction – An FMI of 1 is used to advise the user the loss of engine power is due to the engine electronics trying to adjust the fueling to further reduce the knock level. Clear the code and retest. If the code continues to occur, contact Detroit Diesel Technical Service.
3. For code s 076–3, knock sensor input voltage high, refer to section 66.3.2.
4. For code s 076–4, knock sensor input voltage low; refer to section 66.3.3.

### 66.3.2 Check Signal to Noise Enhancement Filter Module / Knock Sensor

Perform the following steps to check the Signal to Noise Enhancement Filter (SNEF) and knock sensor.

1. Unplug the SNEF module.
2. Turn ignition ON.
3. Plug in DDR. Read codes.
  - [a] If code s 076-4 is logged, refer to section 66.3.4.
  - [b] If code s 076-3 is logged, refer to section 66.3.5.

### 66.3.3 Check for Open

Perform the following steps to check for an open:

1. Unplug SNEF.
2. Install a jumper wire between cavity B and E.
3. Turn ignition ON.
4. Plug in DDR. Read codes.
  - [a] If code s 076-3 is logged, refer to section 66.3.4.
  - [b] If code s 076-4 is logged, refer to section 66.3.7.

### 66.3.4 Check Connectors

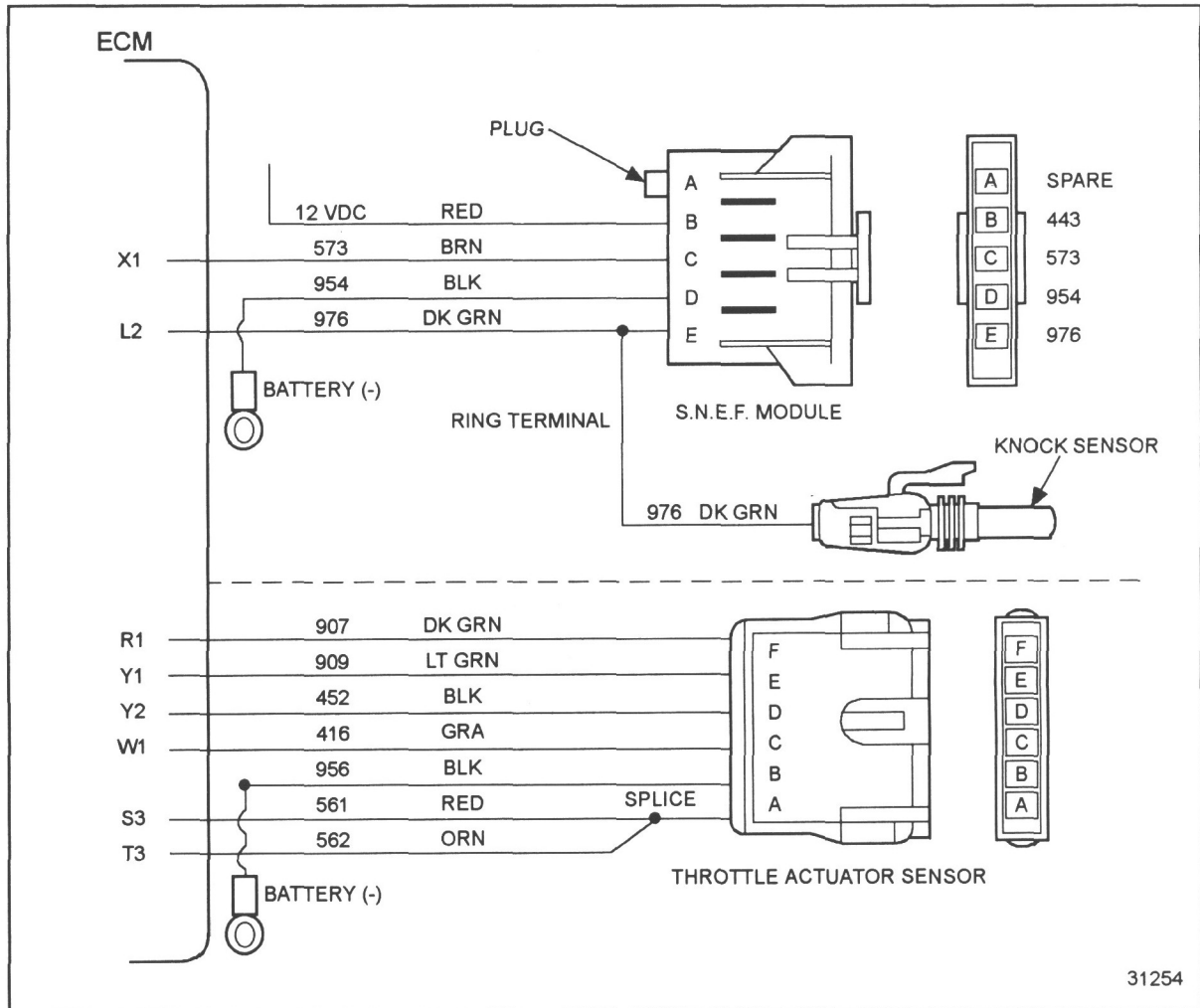
Perform the following steps to check the connectors.

1. Check connectors at ECM and SNEF module.
  - [a] If the connectors are in good condition, replace the SNEF module. Refer to section 66.3.9.
  - [b] If the connectors are damaged, repair and refer to section 66.3.9.

### 66.3.5 Check for Short to (+)

Perform the following steps to check for a short to positive (+).

1. Turn ignition OFF.
2. Disconnect the engine sensor harness. See Figure 66-1.



**Figure 66-1 Series 50 Gas Engine Sensor Harness**

3. Measure resistance between cavity A and E of the SNEF module connector.
  - [a] If the measured resistance is less than 1,000  $\Omega$ , the wires are shorted to each other. Repair the wires and refer to section 66.3.9.
  - [b] If the measured resistance is greater than 1,000  $\Omega$ , refer to section 66.3.6.

### 66.3.6 Check for Ground

Perform the following steps to check for a ground:

1. Measure resistance between cavity D and battery ground.
  - [a] If the measured resistance is greater than 1,000  $\Omega$ , the ground wire is open. Repair the open and refer to section 66.3.9.
  - [b] If the measured resistance is less than 1,000  $\Omega$ , replace the SNEF module and refer to section 66.3.9.

### 66.3.7 Check for Short to Ground

Perform the following steps to check for a short to ground.

1. Turn ignition OFF.
2. Remove jumper wire.
3. Disconnect the engine harness connector.
4. Measure resistance between cavity A of the SNEF connector and a good ground.
  - [a] If the measured resistance is less than 1,000  $\Omega$ , the signal wire (#976) is shorted to battery (-). Repair or replace the wire and refer to section 66.3.9.
  - [b] If the measured resistance is greater than 1,000  $\Omega$ , replace the knock sensor and refer to section 66.3.8.

### 66.3.8 Check for Signal Open

Perform the following steps to check for a signal open.

1. Insert jumper wire between E and C of the SNEF module connector.
2. Unplug the engine sensor harness connector.
3. Measure resistance between L2 (#976) and X1 (#573).
  - [a] If the measured resistance is greater than 1,000  $\Omega$ , wire #976 is open. Repair or replace the wire and refer to section 66.3.9.
  - [b] If the measured resistance is less than 1,000  $\Omega$ , refer to section 66.3.4.

### 66.3.9 Verify Repairs

Perform the following steps to verify repairs.

1. Hook up all connectors.
2. Start and run the engine.
3. Operate under load. Road test.
4. Turn engine off.
5. Turn ignition ON.
6. Plug in DDR. Read logged codes.
  - [a] If no codes are logged, troubleshooting is complete.
  - [b] If code s 076-X is logged, all system diagnostics are complete. Please review this section from the first step to find the problem. Refer to section 66.3.1, or contact Detroit Diesel Technical Service.

