



## CODE 33

### MASS AIR FLOW (MAF) SENSOR (SIGNAL VOLTAGE HIGH) 5.7L "Y" SERIES FUEL INJECTION (PORT)

The Mass Air Flow (MAF) sensor measures the amount of air which passes through it. The ECM uses this information to determine the operating condition of the engine, to control fuel delivery. For a detailed description of the MAF sensor operation refer to Section C.

The oil pressure switch or the ECM, through control of the fuel pump relay, will provide 12 volts for the MAF power relay which provides the 12 volts needed by the MAF sensor.

The ECM provides a current limiting 5V on the signal line (CKT 998). The MAF sensor then changes the signal by dropping the voltage so that with low air flow the ECM sees a low voltage and a high air flow will cause the ECM to see near the 5 volt supply.

CODE 33 indicates: ECM has seen flow in excess of 45 grams per second (above about 2.2 volts) for one second when:

Engine is first started  
OR  
TPS is less than  $\frac{1}{4}$  throttle.  
RPM is less than 2200.

Due to the 5 volt pull-up resistor in the ECM if CKT 998 becomes open, the ECM will see a high voltage signal and set a CODE 33.

- This test will determine if the conditions to set the code still exist.
- Intermittent: By jumpering the fuel pump test terminal (G term. of ALCL), the MAF sensor will stay powered up and the signal line should see a low voltage, less than 250MV or low grams per second on a "SCAN" tool. By wiggling the related wiring the intermittent may be detected. Also, an erratic signal with the engine running may indicate faulty wiring or components.
- With the ALCL terminal "G" jumpered to 12 volts, there should be 12 volts at the sensor. If no voltage is present, make sure that the fuel pump is running. If not, repair fuel pump circuit.
- If a burn off signal is present at the MAF sensor with the engine running, a code 33 will set.
- The ECM sources a voltage (4-6 volts) to the MAF sensor on CKT 998. This test checks for that voltage.

**CODE 33****MASS AIR FLOW (MAF) SENSOR  
(SIGNAL VOLTAGE HIGH)  
5.7L "Y" SERIES**

- 1
- IF A CODE 54 IS STORED GO TO CODE 54 CHART FIRST.
  - START AND IDLE ENGINE FOR 1 MINUTE OR UNTIL SERVICE ENGINE SOON LIGHT COMES ON.
  - IGN "ON" ENGINE STOPPED.
  - GROUND DIAGNOSTIC TERMINAL AND NOTE CODE.

CODE 33

- 2
- NO CODE 33. PROBLEM IS INTERMITTENT. IF NO OTHER CODES WERE STORED REFER TO INTERMITTENTS IN SECTION B.

- 3
- IGNITION "OFF".
  - JUMPER ALCL TERMINAL "G" TO 12 VOLTS USING A FUSED JUMPER WIRE.
  - DISCONNECT MAF SENSOR
  - PROBE MAF SENSOR HARNESS TERMINAL E (CKT 993) WITH A TEST LIGHT CONNECTED TO GROUND.

TEST LIGHT "ON"

REMOVE JUMPER FROM ALCL CONNECTOR. PROBE MAF SENSOR HARNESS TERMINALS A AND B (CKT 450) WITH A TEST LIGHT CONNECTED TO 12 VOLTS.

TEST LIGHT "OFF"

- DISCONNECT MAF POWER RELAY
- PROBE TERMINALS "E" AND "C" (CKTS 340 & 120) WITH A TEST LIGHT TO GROUND.

LIGHT "ON" BOTH

LIGHT "OFF" ON ONE OR BOTH

LIGHT "OFF" ON ONE OR BOTH

LIGHT "ON" BOTH

- 4
- IGNITION "ON".
  - PROBE HARNESS TERMINAL "D" CKT 994 WITH A VOLTMETER
  - SHOULD READ 0 VOLTS.

REPAIR OPEN IN GROUND CKT THAT DID NOT LIGHT

REPAIR OPEN IN CKT THAT DID NOT LIGHT

PROBE TERMINAL "B" (CKT 450) WITH A TEST LIGHT TO 12 VOLTS.

"OK"

LIGHT "ON"

LIGHT "OFF"

- 5
- IGN. ON ENGINE STOPPED.
  - CONNECT A VOLTMETER BETWEEN HARNESS TERMINAL "C" (CKT 998). AND CHASSIS GROUND. SHOULD READ BETWEEN 4-6 VOLTS.

- CHECK CKT 993 FOR OPEN
- IF NOT OPEN THE MAF POWER RELAY IS FAULTY

REPAIR OPEN GROUND CKT

NOT "OK"

"OK"

NOT "OK"

- DISCONNECT MAF SENSOR BURN-OFF RELAY.
- REPEAT TEST.

CHECK ALL RELATED CONNECTOR TERMINALS FOR MAKING GOOD CONTACT. IF OK, IT IS A FAULTY MAF SENSOR.

OVER 6 VOLTS

LESS THAN 4 VOLTS

NOT "OK" (VOLTAGE PRESENT)

"OK" (NO VOLTAGE)

- IGNITION "OFF"
- DISCONNECT ECM A-B CONNECTOR.
- IGNITION "ON" REPEAT TEST.

- CHECK FOR OPEN CKT 998.
- IF CKT IS NOT OPEN, IT IS A FAULTY ECM CONNECTION OR ECM.

REPAIR SHORT TO VOLTAGE IN CKT 994 FROM RELAY TO MAF SENSOR

PROBE RELAY HARNESS CKT 900 (TERM B) WITH A TEST LIGHT TO 12 VOLTS

OVER 6 VOLTS

LESS THAN 6 VOLTS

LIGHT "OFF"

LIGHT "ON"

FAULTY MAF SENSOR BURN-OFF RELAY

CKT 900 SHORTED TO GROUND OR FAULTY ECM

REPAIR SHORT TO VOLTAGE IN CKT 998.

CHECK RELATED CONN. TERMINALS AND ECM GROUND CKT'S, IF OK, REPLACE ECM.

10-11-85  
6S 2581-6E3