

2008 Ford Mustang

2008 ACCESSORIES & EQUIPMENT Electronic Compass - Mustang

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DESCRIPTION AND OPERATION

ELECTRONIC COMPASS

The compass display and module are an integral part of the interior rear view mirror. A 1 or 2 character display located in the upper right hand side of the mirror indicates the current direction of the vehicle (N, NE, E, SE, S, SW, W, NW). The compass continuously recalibrates due to changes in the magnetic field and remains accurate during most driving conditions. The compass display can be turned off and on by pressing the switch on the mirror.

Compass Accuracy

Driving near power lines, or driving in the area of large iron or steel structures can temporarily change the compass heading. If the compass remains inaccurate after driving near such objects, calibrate the compass. Refer to [Compass Calibration](#).

Most geographic areas (zones) have a magnetic north compass point that varies slightly from the northerly direction on maps. This variation is 4 degrees between the adjacent zones and becomes noticeable as the vehicle crosses multiple zones. A correct zone setting eliminates the error. Refer to [Compass Zone Adjustment](#).

DIAGNOSTIC TESTS

ELECTRONIC COMPASS

Special Tools

Illustration	Tool Name	Tool Number
 ST1137-A	73III Automotive Meter	105-R0057 or equivalent

Principles of Operation

NOTE: The smart junction box (SJB) is also known as the generic electronic module (GEM).

The compass is capable of self-calibrating. This decreases the need to manually set the compass. If the compass is displaying a heading (and not displaying the C or CAL indicator), the compass is in auto-calibration mode. In this mode, the compass automatically calibrates for changes in vehicle magnetics over the life of the vehicle. This auto-calibration mode assures the compass heading is always accurate.

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If the compass displays the C or CAL indicator for an extended period of time (longer than 5 seconds), this indicates the compass has been placed in the manual calibration mode and therefore, requires manual calibration. The compass may temporarily display the C or CAL indicator if the vehicle characteristics have changed (car wash, collision or other factors), with the C or CAL indicator turning off after the vehicle characteristics have returned to normal. If the C or CAL indicator does not turn off after the vehicle characteristics have returned to normal, manual calibration will be necessary. After calibration, the normal compass display will return.

Compass calibration/zone adjustment is controlled by the MODE button on the mirror, which provides access to the calibration and zone adjustment procedures. This is the same switch that is used to turn the compass display on and off.

Excessive magnetism in or near the vehicle may cause the compass to illuminate all segments on the display. In order to distinguish between vehicle magnetics and surrounding magnetics, drive the vehicle to an area that is free from large metal objects, such as bridges, steel buildings, etc. Cycling the key ON and OFF resets the compass. If all segments are illuminated within 20 seconds, the mirror should be replaced due to excessive vehicle magnetism. Refer to **REAR VIEW MIRRORS** article.

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

VISUAL INSPECTION CHART

Mechanical	Electrical
• Interior rear view mirror	• Smart junction box (SJB) fuse 7 (10A) • Wiring, terminals or connectors • Compass sensor (integral to the interior rear view mirror)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom. Go to **Symptom Chart**.

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• The compass is inoperative	• Fuse • Wiring, terminals or connectors	• Go to <u>Pinpoint Test A</u>.

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	• Interior rear view mirror	
• The compass is inaccurate	• Incorrect compass zone setting • Compass calibration • Interior rear view mirror	• Go to <u>Pinpoint Test B.</u>
• The display is locked in one position - all segments on	• Interior rear view mirror	• INSTALL a new interior rear view mirror. REFER to <u>REAR VIEW MIRRORS</u> article. TEST the system for normal operation.
• The display is locked in one position - display of "C" or "CAL"	• Compass has lost calibration • Interior rear view mirror	• CYCLE the ignition and DRIVE slowly in circles until the "C" or "CAL" disappears and the compass returns to a normal display. If this does not occur within 5 complete circles, INSTALL a new interior rear view mirror. REFER to <u>REAR VIEW MIRRORS</u> article. TEST the system for normal operation.

Pinpoint Tests

Pinpoint Test A: The Compass Is Inoperative

Refer to appropriate SYSTEM WIRING DIAGRAMS article, Power Mirrors for schematic and connector information.

Normal Operation

The compass display and module are integrated into the interior rear view mirror. The interior rear view mirror receives switched battery voltage through circuit 46 (VT). Circuit 1205 (BK) provides the mirror ground.

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- Interior rear view mirror

PINPOINT TEST A: THE COMPASS IS INOPERATIVE

NOTE: Make sure the compass is turned on by pressing the **MODE** button before carrying out this pinpoint test.

A1 CHECK CIRCUIT 46 (VT) FOR VOLTAGE

- Key in OFF position.
- Disconnect: Interior Rear View Mirror C911
- Key in ON position.

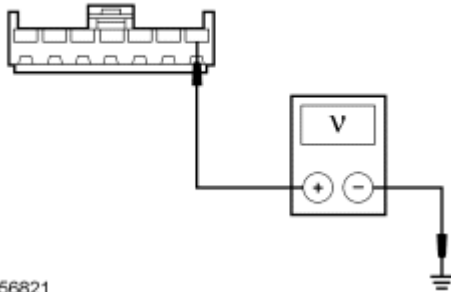


Fig. 1: Measuring Voltage Between Circuit 46 (VT), Harness Side & Ground
Courtesy of FORD MOTOR CO.

- Measure the voltage between the interior rear view mirror C911-1, circuit 46 (VT), harness side and ground.
- **Is the voltage greater than 10 volts?**
YES : Go to A2.
NO : VERIFY the SJB fuse 7 (10A) is OK. If OK, REPAIR the circuit. TEST the system for normal operation.

A2 CHECK CIRCUIT 1205 (BK) FOR AN OPEN

- Key in OFF position.

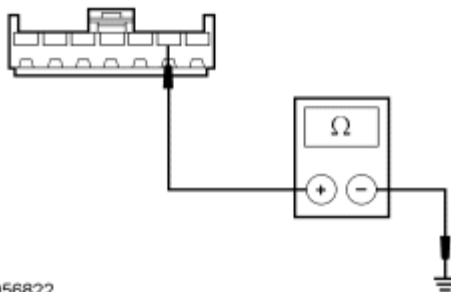


Fig. 2: Measuring Resistance Between Circuit 1205 (BK), Harness Side & Ground
Courtesy of FORD MOTOR CO.

- Measure the resistance between the interior rear view mirror C911-2, circuit 1205 (BK), harness side and ground.
- **Is the resistance less than 5 ohms?**
YES : INSTALL a new interior rear view mirror. REFER to **REAR VIEW MIRRORS** article. TEST the system for normal operation.

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NO : REPAIR the circuit. TEST the system for normal operation.

Pinpoint Test B: The Compass Is Inaccurate

Normal Operation

The compass display and module are integrated into the interior rear view mirror. The compass adjustment and zone variation are controlled by the MODE button on the mirror.

This pinpoint test is intended to diagnose the following:

- Incorrect compass zone setting
- Compass calibration
- Interior rear view mirror

PINPOINT TEST B: THE COMPASS IS INACCURATE

B1 CHECK THE COMPASS ZONE ADJUSTMENT

- Carry out the compass zone adjustment procedure. Refer to Compass Zone Adjustment.
- **Does the compass zone set correctly?**

YES : Go to B2.

NO : INSTALL a new interior rear view mirror. REFER to REAR VIEW MIRRORS article.
TEST the system for normal operation.

B2 CALIBRATE THE COMPASS

- Carry out the compass calibration adjustment procedure. Refer to Compass Calibration.
- **Does the compass calibrate correctly?**

YES : Go to B3.

NO : INSTALL a new interior rear view mirror. REFER to REAR VIEW MIRRORS article.
TEST the system for normal operation.

B3 CHECK THE VEHICLE ACCURACY

- Position the vehicle and observe the compass display as follows:

Direction	Compass Display
North	N
Northeast	NE
East	E
Southeast	SE
South	S
Southwest	SW
West	W
Northwest	NW

- **Does the compass calibrate correctly?**

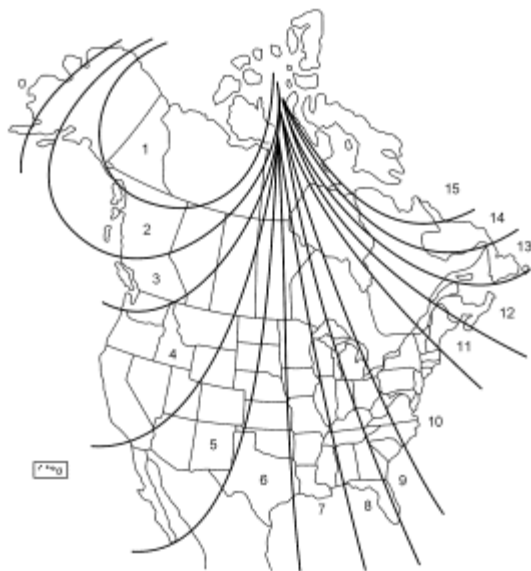
YES : The compass is operating correctly.

NO : INSTALL a new interior rear view mirror. REFER to **REAR VIEW MIRRORS** article.
TEST the system for normal operation.

GENERAL PROCEDURES

COMPASS ZONE ADJUSTMENT

1. Refer to the compass calibration zone map to select the correct compass zone setting for the geographic location of the vehicle. See **Fig. 3**.

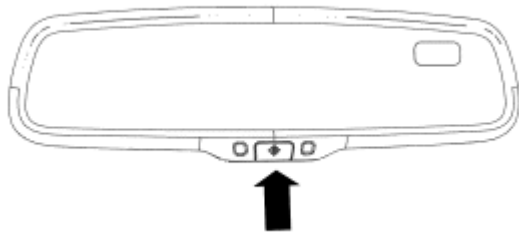


GK5010-A

Fig. 3: Compass Calibration Zone Map
Courtesy of FORD MOTOR CO.

NOTE: The compass display can be turned on and off using the MODE button (Shown in illustration). The key must be in the ON position.

2. With the compass display turned on, press and hold the MODE button (for 3 seconds) until the compass display shows the current zone setting.



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Fig. 4: Locating Compass Display Button On Rear View Mirror
Courtesy of FORD MOTOR CO.

3. Momentarily press and release the MODE button to increase the zone increment by one. Set the zone display number to match the vehicle location that is shown on the compass calibration zone map.
4. Release the MODE button for 10 seconds to exit the zone setting mode.

COMPASS CALIBRATION

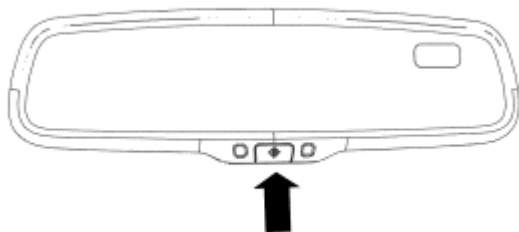
NOTE: For optimum calibration, drive to an open, level location away from large metallic objects or structures such as bridges, steel buildings, etc. Switch off all non-essential electrical accessories (heated rear window, heater fan, A/C, map lamps, and wipers) and make sure all doors are closed.

1. Start the vehicle.

NOTE: The vehicle will remain in CAL mode until the compass has been successfully calibrated.

NOTE: While holding the MODE button down, the compass display will first enter the ZONE setting mode (after 3 seconds) and then after another 3 seconds (6 seconds total), the compass display will enter the CAL mode.

2. Press and hold (for approximately 6 seconds) the MODE button until the C or CAL indicator appears in the display, then release the MODE button.



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Fig. 5: Locating Compass Display Button On Rear View Mirror

Courtesy of FORD MOTOR CO.

NOTE: **If the CAL indicator does not turn off after the vehicle is driven in a circle at least 5 times, repeat the procedure.**

3. Drive the vehicle slowly at less than 5 km/h (3 mph) in a continuous circle until the C or CAL indicator disappears from the display and the compass heading is displayed.
4. If the C or CAL indicator does not turn off after driving in a circle at least 5 times (and the procedure has been repeated at least once), install a new interior rear view mirror with electronic compass. For additional information, refer to **REAR VIEW MIRRORS** article.