

# TECHNICAL INFORMATION



## Rearview Mirror Compass Error and Calibration

No: 86/07/01/NAS  
Ref:  
Issue: 1  
Date: 06/15/01

### AFFECTED VEHICLE RANGE:

Discovery Series II (LT)

All with heated windshield

### SITUATION:

#### COMPASS READINGS INCORRECT WHEN HEATED WINDSHIELD ACTIVATED

The customer may note that shortly after the heated front windshield is switched on, the integrated rear-view mirror compass changes direction indication. The electrical fields produced when the heated windshield is in use can produce a polarization effect that alters the compass display. In some cases the letter "C" may appear in the mirror indicating a need to calibrate the mirror.

### RESOLUTION:

#### CORRECT WINDSHIELD POLARITY AND CALIBRATION REQUIRED

If a customer complaint is registered of a change in directional indication when the heated screen is activated, reversing the polarity of the wires on one side of the windshield heating elements will cause the magnetic fields, produced by the heating element, to cancel each other and thus eliminate the induced compass error. Mirrors that constantly display the "C" need to be properly calibrated for the correct magnetic North location.



**NOTE: The compass in a Discovery Series II shows "true" North rather than magnetic North. Maps are usually drawn to the true North. A comparison with a hand-held magnetic compass will therefore read differently than Discovery's compass.**

### PARTS INFORMATION:

No parts involved

### WARRANTY CLAIMS:

86.70.89/60..... Time 0.35 hrs.

Change heated windshield polarity and ensure mirror calibration

**FAULT CODE: A**

*Normal warranty policy and procedures apply*

### REPAIR PROCEDURE

#### INSPECT HEATED WINDSHIELD ELECTRICAL POLARITY

1. Ensure that the ignition is switched off.
2. Inspect both heated windshield electrical connectors. (Figure 2)
3. Ensure that the connector wiring matches that of Table 1.
4. If either connector is not wired as above, (Table 1) perform the "Correct to Ensure Proper Electrical Polarity" Section

**Table 1**


Left-hand Connector (B)		Right-hand Connector (A)	
Screen Side	Harness Side	Screen Side	Harness Side
Black	Purple	Black	Black
Purple	Black	Purple	Purple

<b>TIB</b> 86/nn/00/NAS	<b>CIRCULATE:</b> <b>TO</b>	<b>Service Mgr</b> <b>X</b>	<b>Warranty</b> <b>X</b>	<b>Workshop</b> <b>X</b>	<b>Body Shop</b> <b>X</b>	<b>Parts</b> <b>X</b>
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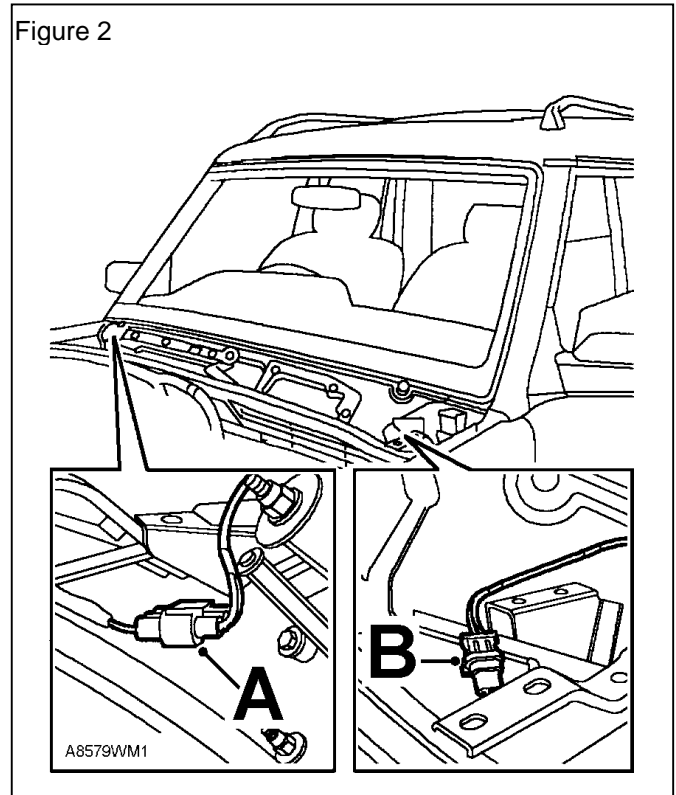
## CORRECT TO ENSURE PROPER ELECTRICAL POLARITY

1. Release the connector from the mounting bracket and disconnect the two halves.
2. Select *ONE* of the separated connector halves and remove the anti-back-out plug.
3. Using a probe, carefully release both terminals from the connector housing.
4. Withdraw the terminal leads from the rear of the connector housing.
5. Swap position of the two leads and install into the connector housing.
6. Install the anti-back-out plug.
7. Reconnect the two halves of the connector and reinstall to mounting bracket.
8. Verify that both the left-hand and right-hand connectors are now wired to match Table 1.

 **NOTE:** The compass should now be largely unaffected when the heated windshield is switched on and off.

- The wiring change has reversed the polarity of the magnetic field in one half of the windshield so that the fields of the two halves of the windshield oppose each other.
  - Minor fluctuation is normal and cannot be completely cancelled. Some change in direction indication may still be experienced when the heaters in either the front or rear windows are activated.
9. Start the engine and verify that the compass is substantially unaffected by activation of the heated windshield. Leave the heated windshield on for at least 1 minute.
  10. If any calibration issues remain, perform "Calibrate Mirror Compass Setting" section.

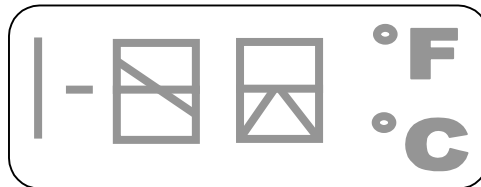
Figure 2





## CALIBRATE MIRROR COMPASS SETTING

**NOTE:** When the ignition switch is first turned on, the mirror display performs an “LCD segment check” where all of the possible LCD segments are illuminated at once. Because this mirror could accept a temperature input in other applications, the display would briefly show a degree Fahrenheit and a degree Centigrade symbol (See the illustration). The HVAC system in the Discovery displays the outside temperature, so the mirror temperature feature is not used.



LCD SEGMENT CHECK DISPLAY

1. If the display reads a direction, perform the following:
  - Determine your local Magnetic Zone of Influence numbers (Refer to map on next page).
  - Position the ignition switch to Position II.



**NOTE:** Use a pencil or paper clip end to push the RESET button which is inside a “pin-hole” at the bottom of the mirror.

2. Press the “RESET” button for approximately three seconds until a number appears in the window and release the button.
3. Briefly press and release the “RESET” button as many times as required to advance the number to the zone number identifying your location.
4. When the correct zone is selected, wait approximately 10 seconds for the correct direction indication to appear.
5. If there is no display in the compass window, perform the following calibration procedure:
  - Hold the “RESET” button for six seconds until a “C” displays in the compass window.
  - Drive the vehicle slowly (below 5 mph) in a circle until a direction is displayed. Usually this will require driving one or two complete circles.
  - Complete the Magnetic Zone procedure outlined above.

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## MAGNETIC ZONE MAP

