Fog Lamps

Refer to Wiring Diagrams Section 417-01-01 for schematic and connector information.

Special Tool(s)

	Terminal Probe Kit 29-011A

Inspection and Checking

NOTE: *Before reading out the vehicle-specific data, remake all the electrical connections in the vehicle, so that communication between the module and WDS is ensured.*

NOTE: *If the instrument cluster is changed, the new one must be reinitialised. For this purpose, the vehicle-specific data is read out of the module to be replaced using WDS and is transferred to the new module. REFER to: (413-01 Instrument Panel Cluster (IPC))*

Instrument Panel Cluster (IPC) - Vehicles Built Up To: 10/2005 (Diagnosis and Testing),
Instrument Panel Cluster (IPC) - Vehicles Built From: 10/2005 (Diagnosis and Testing).

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

Visual Inspection

Electrical
• Fuse(s) • Lamp(s) • Connector(s). • Switches • Wiring loom

3. Resolve any obvious causes or concerns found during the visual inspection before carrying out any further tests.
4. If the concern is not visually evident, refer to the Symptom Chart.

Symptom Chart

Symptom Chart

Symptom	Possible Causes	Action
• Fog lamps are inoperative	• Fuse • Circuit(s) • Headlight switch	• GO to Pinpoint Test A
• Rear fog lamp(s) or front fog lamps inoperative	• Circuit(s) • Headlight switch	• GO to Pinpoint Test B
• Individual fog lamps inoperative	• Circuit(s) • Right/left-hand front fog lamp. • Rear lamp assembly	• GO to Pinpoint Test C

• Rear fog lamp(s) or front fog lamps illuminate continuously	• Circuit(s) • Headlight switch	• GO to Pinpoint Test D

System Checks

NOTE: *Use a digital multimeter for all electrical measurements.*

NOTE: *A mechanical interlock in the headlight switch allows the fog lamps to be turned on only when the headlight switch is in the "Dipped beam ON" position.*

PINPOINT TEST A: FOG LAMPS ARE INOPERATIVE

A1 CHECK FUSE F50 (20 A) (CJB).

- Ignition OFF.
- Disconnect Fuse F50 (20 A) (CJB).
- CHECK fuse F50 (20 A) (CJB).

Is the fuse OK.?

Yes	GO to A2
No	RENEW fuse F50 (20 A) (CJB) and check the operation of the system. If the fuse blows again, LOCATE and RECTIFY the short to ground using the Wiring Diagrams. CHECK the operation of the system.

A2 CHECK THE VOLTAGE SUPPLY TO FUSE F50 (20A) (CJB) FOR OPEN CIRCUIT

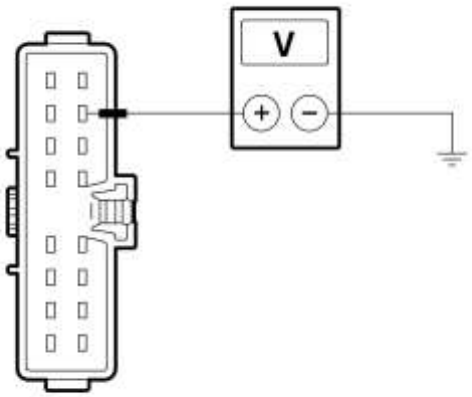
- Connect Fuse F50 (20 A) (CJB).
- Ignition ON.
- Measure the voltage between fuse F50 (20 A) (CJB) and ground.

Is battery voltage measured?

Yes	GO to A3
No	LOCATE AND RECTIFY the break in the voltage supply of fuse F50 (20 A) (CJB) using the Wiring Diagrams. CHECK the operation of the system.

A3 CHECK THE VOLTAGE AT THE HEADLIGHT SWITCH

- Ignition OFF.
- Disconnect headlight switch from connector C338.
- Ignition ON.
- Measure the voltage between the headlamp switch, connector C338, pin 7, circuit 15-LD10 (GN/OG), wiring harness side and ground.



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Is battery voltage measured?

Yes	INSTALL A NEW headlight switch. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in the circuit between fuse F50 (20A) (CJB) and the headlamp switch using the Wiring Diagrams. CHECK the operation of the system.

PINPOINT TEST B: REAR FOG LAMP(S) OR FRONT FOG LAMPS INOPERATIVE

B1 DETERMINE THE FAULT CONDITION

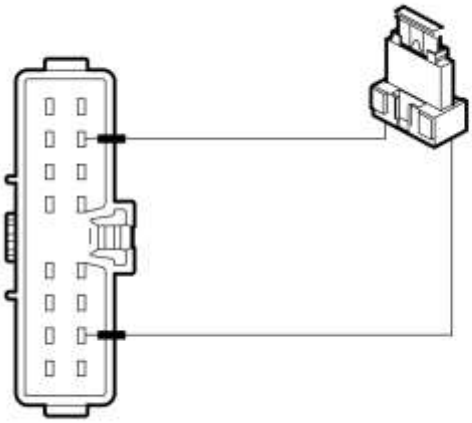
- Ignition ON.
- Check operation of the fog lamps.
- Switch on the front fog lamps.
- Switch on rear fog lamp(s)

Do the front fog lamps illuminate?

Yes	GO to B2
No	GO to B23

B2 CHECK THE HEADLIGHT SWITCH

- Ignition OFF.
- Disconnect headlight switch from connector C338.
- Connect a fused jumper wire (20 A) at the headlamp switch, connector C338, between pin 7, circuit 15-LD10 (GN/OG) and pin 2, circuit 15S-LD6A (GN/YE), wiring harness side.



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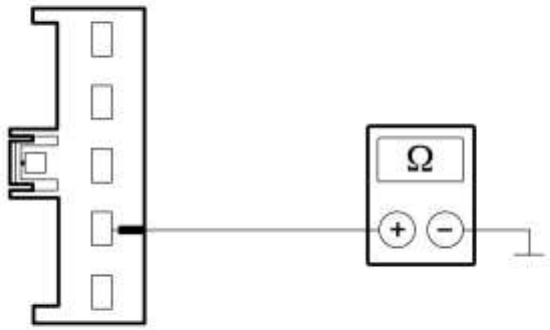
- Ignition ON.
- Switch on rear fog lamp(s)

Does/Do the rear fog lamp(s) illuminate?

Yes	INSTALL A NEW headlight switch. CHECK the operation of the system.
No	- LHD/RHD without trailer socket, built from 08/2005: LOCATE and RECTIFY the break in the circuits between the headlamp switch and soldered connection S19 using the Wiring Diagrams. CHECK the operation of the system. - LHD, vehicles without trailer socket, built before 08/2005: GO to B3 - RHD, vehicles without trailer socket, built before 08/2005: GO to B4 - LHD, vehicles with trailer socket, built before 08/2005: GO to B5 - RHD, vehicles with trailer socket, built before 08/2005: GO to B14

B3 CHECK GROUND CONNECTION OF REAR FOG LAMP (LHD)

- Ignition OFF.
- Disconnect left-hand rear lamp assembly from connector C333.
- Measure the resistance between the left-hand rear lamp assembly, connector C333, pin 4, circuit 31-LF23 (BK), wiring harness side and ground.



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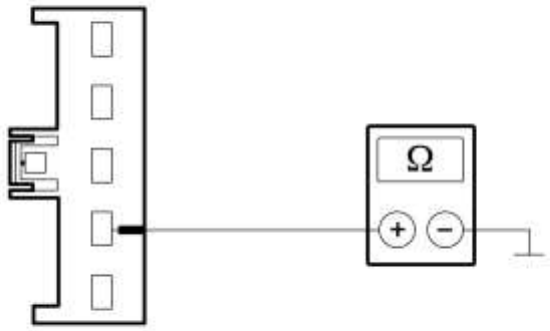
Is a resistance of less than 2 ohms registered?

Yes	LOCATE and RECTIFY the break in circuit 15S-LD6A (GN/YE) or 15S-LD6 (GN/YE) between the headlight switch and the rear lamp assembly using the wiring diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in circuit 31-LF23 (BK) between the rear lamp assembly and soldered connection S24 using the wiring diagrams. CHECK the operation of the system.

B4 CHECK GROUND CONNECTION OF REAR FOG LAMP (RHD)

- Ignition OFF.
- Disconnect right-hand rear lamp assembly from connector C348.
- Measure the resistance between the right-hand rear lamp assembly, connector C348, pin 4, circuit 31-LF24 (BK), wiring harness side and ground.



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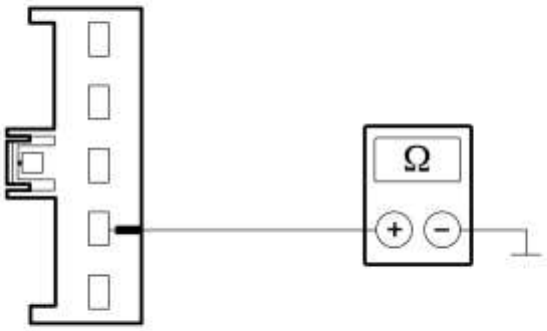
Is a resistance of less than 2 ohms registered?

Yes	LOCATE and RECTIFY the break in circuit 15S-LD6A (GN/YE) or 15S-LD6 (GN/YE) between the headlight switch and the rear lamp assembly using the wiring diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in circuit 31-LF24 (BK), between the rear lamp assembly and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system.

B5 CHECK GROUND CONNECTION OF REAR FOG LAMP (LHD)

- Ignition OFF.
- Disconnect left-hand rear lamp assembly from connector C333a.
- Measure the resistance between the left-hand rear lamp assembly, connector C333a, pin 4:
  - Vehicles built from 03/2004, with 13-pin trailer socket: circuit (BN), wiring harness side and ground.
  - All other models: circuit (GN), wiring harness side and ground.



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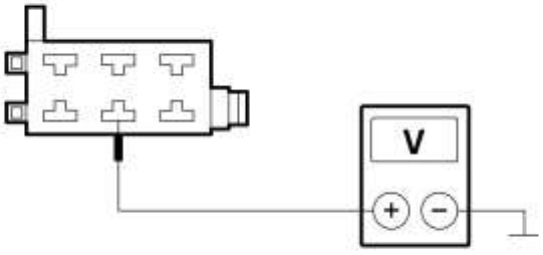
Is a resistance of less than 2 ohms registered?

Yes	GO to B6
No	- Vehicles built from 03/2004, with 13-pin trailer socket: LOCATE and RECTIFY the break in circuit (BN) between the rear lamp assembly and soldered connection S1008 using the Wiring Diagrams. CHECK the operation of the system. - All other models: LOCATE and RECTIFY the break in circuit (GN) or 31-LF23 (BK) between the rear lamp assembly and soldered connection S24 using the Wiring Diagrams. CHECK the operation of the system.

B6 CHECK CIRCUITS 15S-LD6(A) (GN/YE) OR (RD/WH) FOR OPEN CIRCUIT

- Ignition OFF.
- Connect Headlamp switch to connector C338.
- Disconnect Vehicles built before 03/2004: Trailer control unit from connector C1030.
- Disconnect Vehicles built from 03/2004: Rear fog lamp cut-off relay from socket C1043.
- Ignition ON.
- Switch on the REAR FOG LIGHT.
- Vehicles built before 03/2004: Measure the voltage between the trailer control unit, connector C1030, pin 4, circuit (RD/WH), wiring harness side and ground.



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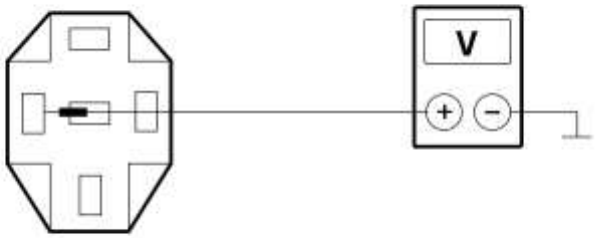
- Vehicles built from 03/2004: Measure the voltage between the rear fog lamp cut-off relay, socket C1043, circuit (RD/WH), wiring harness side and ground.



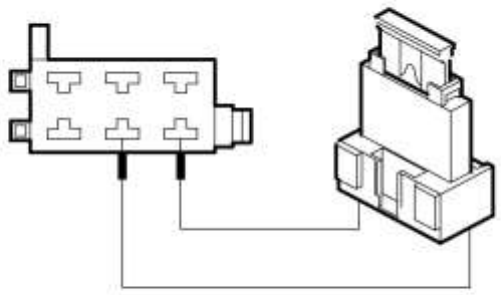
VFE0016095

Is battery voltage measured?

Yes	- Vehicles built before 03/2004: GO to B7 - Vehicles built from 03/2004: GO to B12
No	- Vehicles built before 03/2004: LOCATE and RECTIFY the break in circuit(s) 15S-LD6(A) (GN/YE) or (RD/WH) between the headlamp switch and the trailer control unit using the Wiring Diagrams. CHECK the operation of the system. - Vehicles built from 03/2004: LOCATE and RECTIFY the break in circuit(s) 15S-LD6(A) (GN/YE) or (RD/WH) between the headlamp switch and the rear fog lamp cut-off relay using the Wiring Diagrams. CHECK the operation of the system.

B7 CHECK THE TRAILER CONTROL UNIT

- Ignition OFF.
- Connect Left-hand rear lamp assembly to connector C333a.
- Connect a fused jumper wire (20 A) at the trailer control unit, connector C1030, between pin 4, circuit (RD/WH) and pin 6, circuit (VT/YE), wiring harness side.



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- Ignition ON.
- Switch on the REAR FOG LIGHT.

Does the rear fog lamp illuminate?

Yes	GO to B8
No	LOCATE and RECTIFY the break in circuit (VT/YE) between the trailer control unit and rear lamp assembly using the wiring diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

B8 CHECK FUSE

- Ignition OFF.
- Disconnect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- CHECK Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)

Is the fuse OK.?

Yes	GO to B9
No	INSTALL A NEW fuse F31 (20 A) or F56 (20 A) and check the operation of the system. If the fuse blows again, LOCATE and RECTIFY the short to ground using the Wiring Diagrams. CHECK the operation of the system.

B9 CHECK VOLTAGE AT FUSE

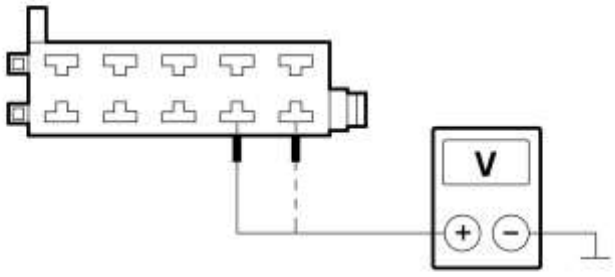
- Connect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- Ignition ON.
- Measure the voltage between:
  - Vehicles built before 10/2002: Fuse F31 (20 A) (CJB) and ground.
  - Vehicles built from 10/2002: F56 (20 A) (CJB) and ground.

Is battery voltage measured?

Yes	GO to B10
No	- Vehicles built before 10/2002: RECTIFY the break in the voltage supply of fuse F31 (20A) (CJB) using the Wiring Diagrams. CHECK and INSTALL A NEW CJB if necessary. CHECK the operation of the system. - Vehicles built from 10/2002: RECTIFY the break in the voltage supply of fuse F56 (20A) (CJB) using the Wiring Diagrams. CHECK and INSTALL A NEW CJB if necessary. CHECK the operation of the system.

B10 CHECK THE VOLTAGE SUPPLY OF THE TRAILER CONTROL UNIT

- Ignition OFF.
- Disconnect trailer control unit from connector C1041.
- Ignition ON.
- Measure the voltage between the trailer control unit, connector C1041, pin 8, circuit (RD), wiring harness side and pin 10, circuit (RD), wiring harness side and ground.



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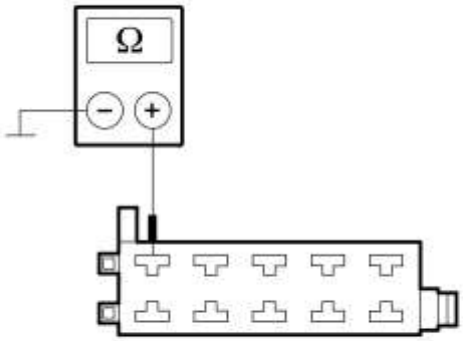
Is battery voltage registered following both measurements?

Yes	GO to B11
No	- Vehicles built before 10/2002: LOCATE and RECTIFY the break in the circuit between fuse F31 (20 A) (CJB) and the trailer control unit using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system. - Vehicles built from 10/2002: LOCATE and RECTIFY the break in the circuit between fuse F56 (20 A) (CJB) and the trailer control unit using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

B11 CHECK THE GROUND CONNECTION OF THE TRAILER CONTROL UNIT

- Ignition OFF.
- Measure the resistance between the trailer control unit, connector C1041, pin 1, circuit (BN), wiring harness side and ground.



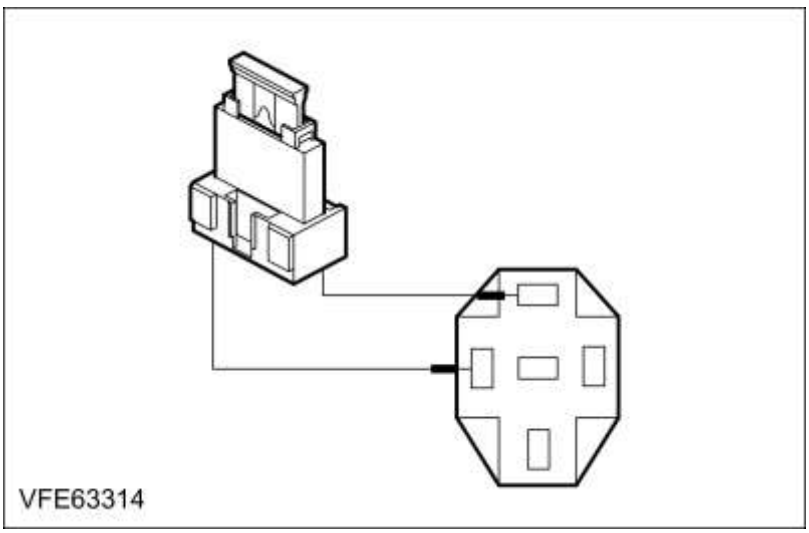
VFE0033872

Is a resistance of less than 2 ohms registered?

Yes	RENEW the trailer control unit. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in the circuit (BN) between the trailer control unit and ground connection G18 using the wiring diagrams. CHECK the operation of the system.

B12 CHECK THE REAR FOG LAMP CUT-OFF RELAY

- Ignition OFF.
- Connect Left-hand rear lamp assembly to connector C333a.
- Connect a fused jumper wire (20 A) at the rear fog lamp cut-off relay, socket C1043, between circuit (RD/WH) and circuit (VT/YE), socket side.



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- Ignition ON.

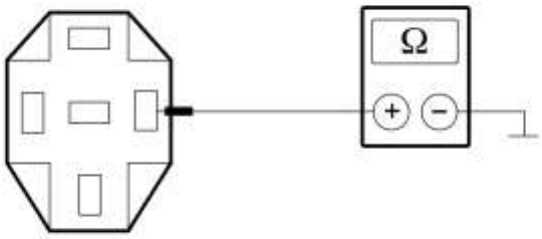
- Switch on the REAR FOG LIGHT.

Does the rear fog lamp illuminate?

Yes	GO to B13
No	LOCATE and RECTIFY the break in the circuit (VT/YE) between the rear fog lamp cut-off relay and the rear lamp assembly using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

B13 CHECK THE GROUND CONNECTION OF THE REAR FOG LAMP CUT-OFF RELAY

- Ignition OFF.
- Measure the resistance between the rear fog lamp cut-off relay, socket C1043, circuit (BN), wiring harness side and ground.



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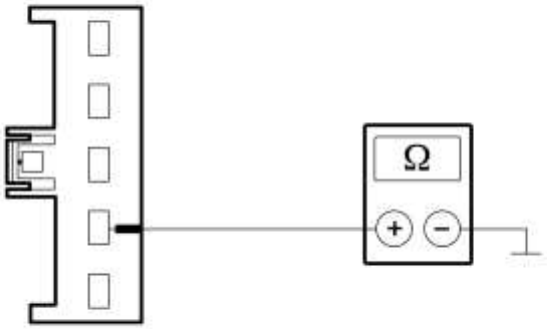
Is a resistance of less than 2 ohms registered?

Yes	RENEW the rear fog lamp cut-off relay. CHECK the operation of the system.
No	- Vehicles with 7 pin trailer socket: LOCATE and RECTIFY the break in circuit (BN) or 31-LF24 (BK) between the rear lamp cut-off relay and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system. - Vehicles with 13 pin trailer socket: LOCATE and RECTIFY the break in circuit (BN) between the rear fog lamp cut-off relay and soldered connection S1008 using the Wiring Diagrams. CHECK the operation of the system.

B14 CHECK GROUND CONNECTION OF REAR FOG LAMP (RHD)

- Ignition OFF.
- Disconnect right-hand rear lamp assembly from connector C348a.
- Measure the resistance between the right-hand rear lamp assembly, connector C348a, pin 4:
  - Vehicles built before 03/2004: circuit (BK), wiring harness side and ground.
  - Vehicles built from 03/2004: circuit (BN), wiring harness side and ground.



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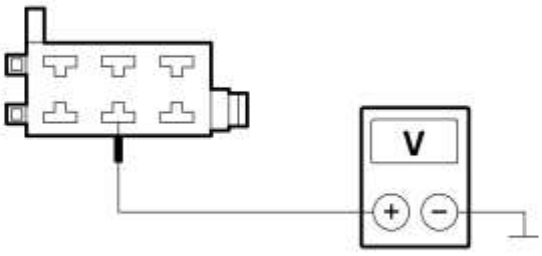
Is a resistance of less than 2 ohms registered?

Yes	GO to B15
No	- Vehicles built before 03/2004: LOCATE and RECTIFY the break in circuit (BK) or 31-LF24 (BK) between the rear lamp assembly and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system. - Vehicles built from 03/2004: LOCATE and RECTIFY the break in circuit (BN) or 31-LF24 (BK) between the rear lamp assembly and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system.

B15 CHECK CIRCUITS 15S-LD6(A) (GN/YE), (VT/OG), (BK/BU) AND (RD/WH) FOR OPEN CIRCUIT

- Ignition OFF.
- Connect Headlamp switch to connector C338.
- Disconnect Vehicles built before 03/2004: Trailer control unit from connector C1030.
- Disconnect Vehicles built from 03/2004: Rear fog lamp cut-off relay from socket C1043.
- Ignition ON.
- Switch on the REAR FOG LAMP.
- Vehicles built before 03/2004: Measure the voltage between the trailer control unit, connector C1030, pin 4, circuit (RD/WH), wiring harness side and ground.



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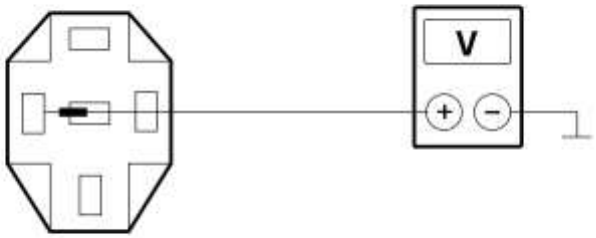
- Vehicles built from 03/2004: Measure the voltage between the rear fog lamp cut-off relay, socket C1043, circuit (RD/WH), socket side and ground.



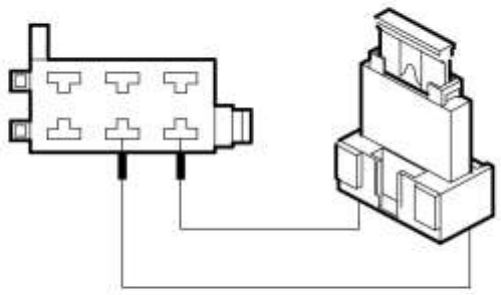
VFE0016095

Is battery voltage measured?

Yes	- Vehicles built before 03/2004: GO to B16 - Vehicles built from 03/2004: GO to B21
No	- Vehicles built before 03/2004: LOCATE and RECTIFY the break in circuit(s) 15S-LD6(A) (GN/YE), (VT/OG) or (RD/WH) between the headlamp switch and the trailer control unit using the Wiring Diagrams. CHECK the operation of the system. - Vehicles built from 03/2004: LOCATE and RECTIFY the break in circuit(s) 15S-LD6(A) (GN/YE), (BK/BU) or (RD/WH) between the headlamp switch and the rear fog lamp cut-off relay using the Wiring Diagrams. CHECK the operation of the system.

B16 CHECK THE TRAILER CONTROL UNIT

- Ignition OFF.
- Connect Right-hand rear lamp assembly to connector C348a.
- Using a fused test cable (20 A) at the trailer control unit, connector C1030, bridge between pin 4, circuit (RD/WH) and pin 6, circuit (VT/YE), wiring harness side.



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- Ignition ON.
- Switch on the REAR FOG LIGHT.

Does the rear fog lamp illuminate?

Yes	GO to B17
No	LOCATE and RECTIFY the break in circuit (VT/YE) or (BK/BU) between the trailer control unit and rear lamp assembly using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

B17 CHECK FUSE

- Ignition OFF.
- Disconnect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- CHECK Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)

Is the fuse OK.?

Yes	GO to B18
No	INSTALL A NEW fuse F31 (20 A) or F56 (20 A) (CJB) and check the operation of the system. If the fuse blows again, LOCATE and RECTIFY the short to ground using the Wiring Diagrams. CHECK the operation of the system.

B18 CHECK VOLTAGE AT FUSE

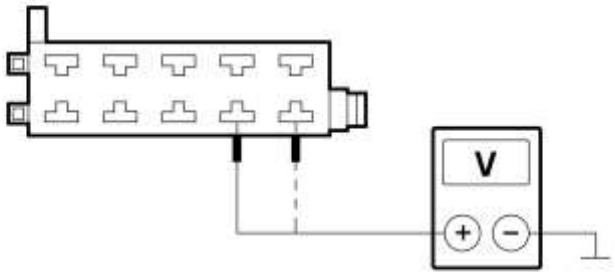
- Connect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- Ignition ON.
- Measure the voltage between:
  - Vehicles built before 10/2002: Fuse F31 (20 A) (CJB) and ground.
  - Vehicles built from 10/2002: F56 (20 A) (CJB) and ground.

Is battery voltage measured?

Yes	GO to B19
No	- Vehicles built before 10/2002: RECTIFY the break in the voltage supply to fuse F31 (20 A) (CJB) using the Wiring Diagrams. CHECK and INSTALL A NEW CJB if necessary. CHECK the operation of the system. - Vehicles built from 10/2002: RECTIFY the break in the voltage supply of fuse F56 (20A) (CJB) using the Wiring Diagrams. CHECK and INSTALL A NEW CJB if necessary. CHECK the operation of the system.

B19 CHECK THE VOLTAGE SUPPLY OF THE TRAILER CONTROL UNIT

- Ignition OFF.
- Disconnect trailer control unit from connector C1041.
- Ignition ON.
- Measure the voltage between the trailer control unit, connector C1041, pin 8, circuit (RD), wiring harness side and pin 10, circuit (RD), wiring harness side and ground.



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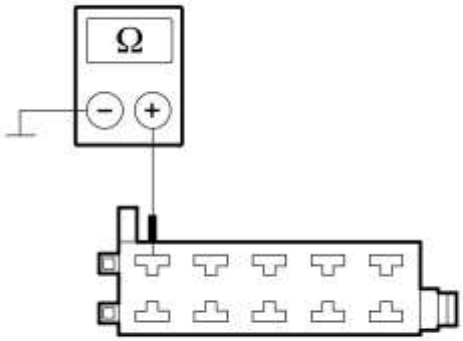
Is battery voltage registered following both measurements?

Yes	GO to B20
No	- Vehicles built before 10/2002: LOCATE and RECTIFY the break in the circuit between fuse F31 (20 A) (CJB) and the trailer control unit using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system. - Vehicles built from 10/2002: LOCATE and RECTIFY the break in the circuit between fuse F56 (20 A) (CJB) and the trailer control unit using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

B20 CHECK THE GROUND CONNECTION OF THE TRAILER CONTROL UNIT

- Ignition OFF.
- Measure the resistance between the trailer control unit, connector C1041, pin 1, circuit (BN), wiring harness side and ground.



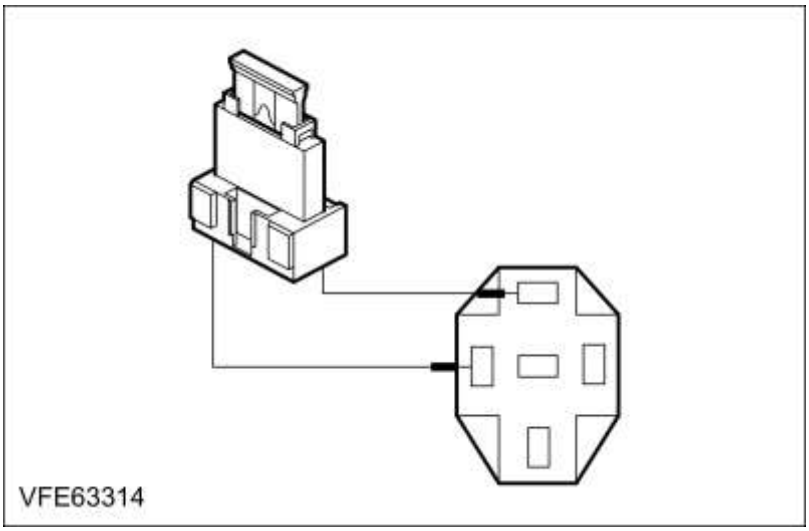
VFE0033872

Is a resistance of less than 2 ohms registered?

Yes	RENEW the trailer control unit. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in the relevant circuit (BN) between the trailer control unit and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system.

B21 CHECK REAR FOG LAMP CUT-OFF RELAY

- Ignition OFF.
- Connect Right-hand rear lamp assembly to connector C348a.
- Connect a fused jumper wire (20 A) at the rear fog lamp cut-off relay, socket C1043, between circuit (RD/WH) and circuit (VT/YE), socket side.



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- Ignition ON.

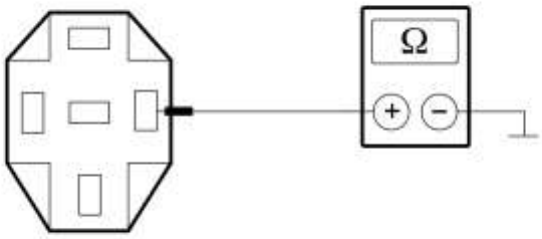
- Switch on the REAR FOG LAMP.

Does the rear fog lamp illuminate?

Yes	GO to B22
No	LOCATE and RECTIFY the break in circuit (VT/YE) or (WH/BK) between the rear fog lamp cut-off relay and the rear lamp assembly using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

B22 CHECK THE GROUND CONNECTION OF THE REAR FOG LAMP CUT-OFF RELAY

- Ignition OFF.
- Measure the resistance between the rear fog lamp cut-off relay, socket C1043, circuit (BN), wiring harness side and ground.



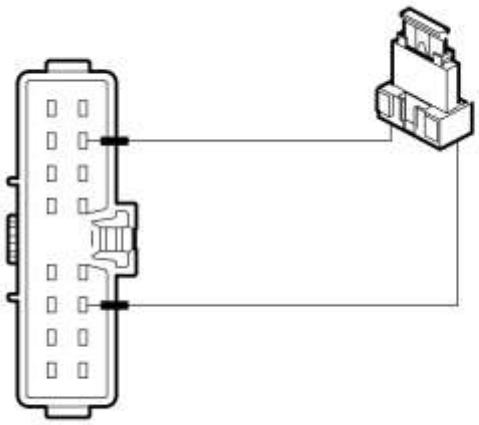
E0031110

Is a resistance of less than 2 ohms registered?

Yes	RENEW the rear fog lamp cut-off relay. CHECK the operation of the system.
No	- Vehicles with 7 pin trailer socket: LOCATE and RECTIFY the break in circuit (BN) or 31-LF24 (BK) between the rear fog lamp cut-off relay and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system. - Vehicles with 13 pin trailer socket: LOCATE and RECTIFY the break in circuit (BN) between the rear fog lamp cut-off relay and soldered connection S1008 using the Wiring Diagrams. CHECK the operation of the system.

B23 CHECK THE HEADLIGHT SWITCH

- Ignition OFF.
- Disconnect headlight switch from connector C338.
- Connect a fused jumper wire (20 A) at the headlamp switch, connector C338, between pin 7, circuit 15-LD10 (GN/OG) and pin 3, circuit 15S-LD5A (GN/BU) wiring harness side.



E0024111

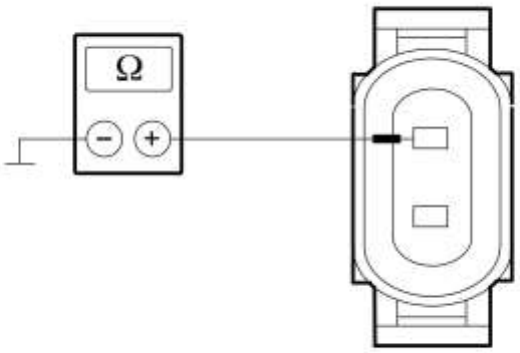
- Ignition ON.
- CHECK the front fog lamps.

Do the front fog lamps illuminate?

Yes	INSTALL A NEW headlight switch. CHECK the operation of the system.
No	- Vehicles built before 10/2004: GO to B24 - Vehicles built from 10/2004: LOCATE and RECTIFY the break in circuit 15S-LD5(A) (GN/BU) between the headlamp switch and soldered connection S38 using the Wiring Diagrams. CHECK the operation of the system.

B24 CHECK THE GROUND CONNECTION OF THE FRONT FOG LAMPS

- Ignition OFF.
- Disconnect right-hand front fog lamp from connector C421.
- Vehicles built before 08/2005: Measure the resistance between right-hand front fog lamp, connector C421, pin 2, circuit 31-LD17 (BK), wiring harness side and ground.



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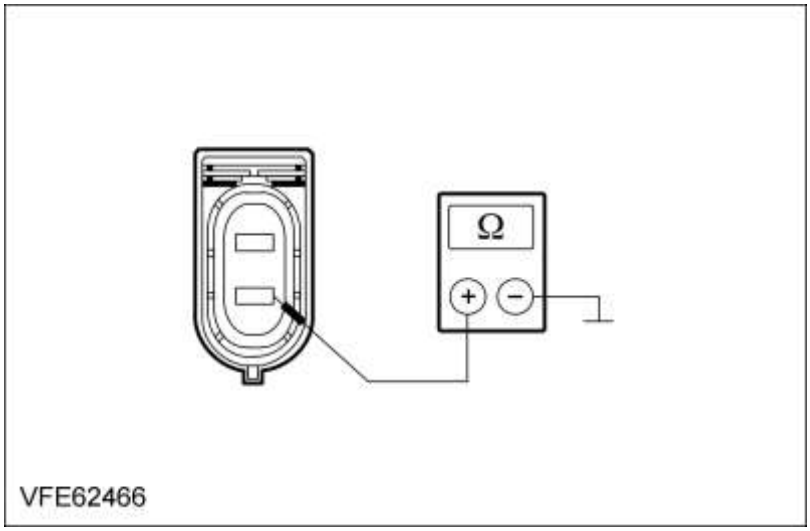
- Vehicles built from 08/2005: Measure the resistance between right-hand front fog lamp, connector C421, pin 2, circuit 31-LD17 (BK), wiring harness side and ground.



Is a resistance of less than 2 ohms registered?

Yes	LOCATE and RECTIFY the break in circuit 15S-LD5A (GN/BU) or 15S-LD5 (GN/BU), between the headlight switch and soldered connection S241 using the wiring diagrams. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in the circuit between soldered connection S242 and ground connection G4 using the wiring diagrams. CHECK the operation of the system.

PINPOINT TEST C: INDIVIDUAL FOG LAMPS INOPERATIVE

C1 DETERMINE THE FAULT CONDITION

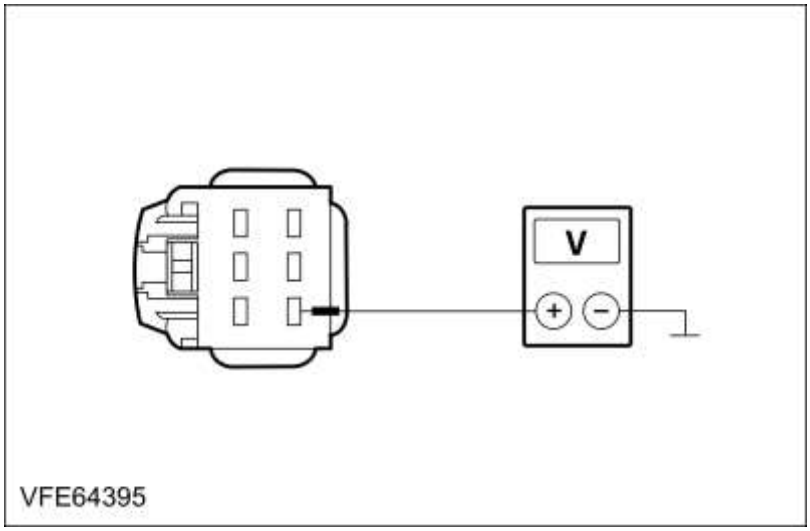
- Ignition ON.
- DETERMINE the fault conditions.
- SWITCH ON the fog lamps.

Is one of the rear fog lamps inoperative?

Yes	- One rear fog lamp is inoperative, vehicles built before 08/2005: GO to Pinpoint Test B - One rear fog lamp is inoperative, vehicles without trailer socket, built from 08/2005: GO to C2
No	- Left-hand front fog lamp not working: GO to C4 - Right-hand front fog lamp not working: GO to C5

C2 CHECK THE POWER SUPPLY TO THE REAR FOG LAMP FOR OPEN CIRCUIT

- Ignition OFF.
- Disconnect Rear lamp assembly.
  - left from connector C333
  - right from connector C348
- Ignition ON.
- SWITCH ON the fog lamps.
- Measure the voltage between the rear lamp assembly
  - left, connector C333, pin 6, circuit 15S-LD6A (GN/YE), wiring harness side and ground.
  - right, connector C348, pin 6, circuit 15S-LD6B (GN/YE), wiring harness side and ground.

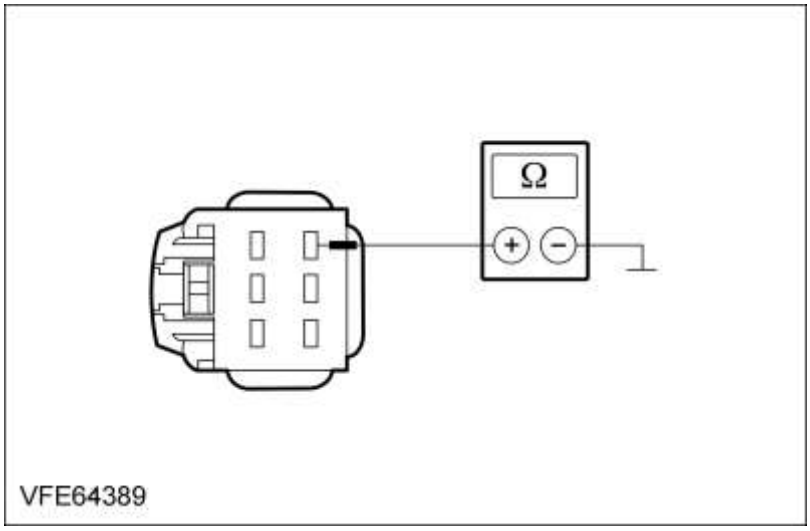


Is battery voltage measured?

Yes	GO to C3
No	- Left-hand rear lamp assembly: LOCATE and RECTIFY the break in circuit 15S-LD6A (GN/YE) between the rear lamp assembly and soldered connection S19 using the Wiring Diagrams. CHECK the operation of the system. - Right-hand rear lamp assembly: LOCATE and RECTIFY the break in circuit 15S-LD6B (GN/YE) between the front fog lamp and soldered connection S19 using the Wiring Diagrams. CHECK the operation of the system.

C3 CHECK THE GROUND CONNECTION TO THE REAR LAMP ASSEMBLY FOR OPEN CIRCUIT

- Ignition OFF.
- Measure the resistance between the rear lamp assembly
  - left, connector C333, pin 4, circuit 31-LF23 (BK), wiring harness side and ground.
  - right, connector C348, pin 4, circuit 31-LF24 (BK), wiring harness side and ground.

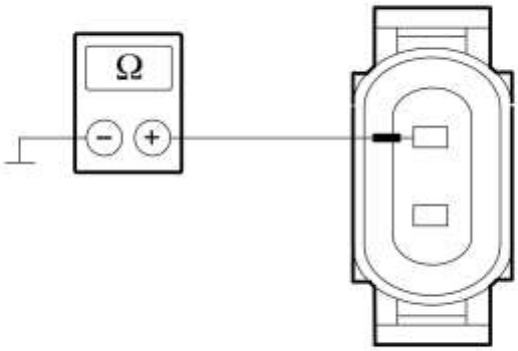


Is a resistance of less than 2 ohms registered?

Yes	CHECK and if necessary RENEW the rear lamp assembly. CHECK the operation of the system.
No	- Left-hand rear lamp assembly: LOCATE and RECTIFY the break in circuit 31-LF23 (BK) between the rear fog lamp and soldered connection S24 using the Wiring Diagrams. CHECK the operation of the system. - Right-hand rear lamp assembly: LOCATE and RECTIFY the break in circuit 31-LF24 (BK) between the front fog lamp and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system.

C4 CHECK THE GROUND CONNECTION OF THE LEFT-HAND FRONT FOG LAMP

- Ignition OFF.
- Disconnect left-hand front fog lamp from connector C415.
- Vehicles built before 08/2005: Measure the resistance between left-hand front fog lamp, connector C415, pin 2, circuit 31-LD11 (BK), wiring harness side and ground.



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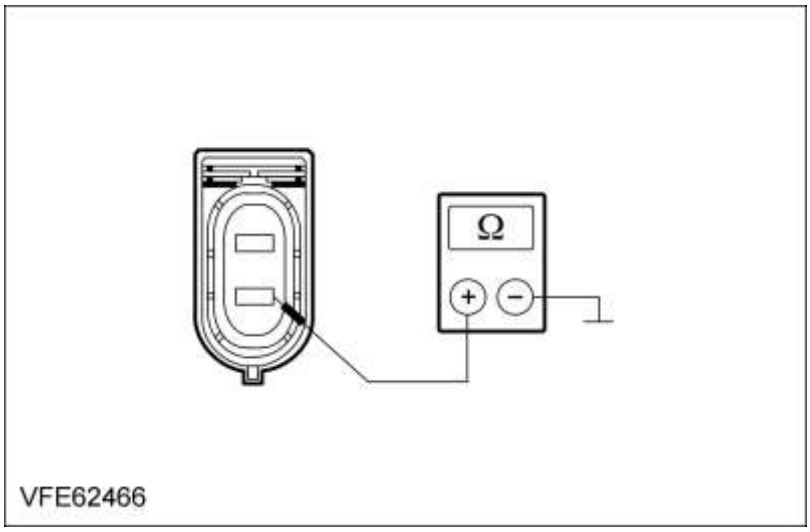
- Vehicles built from 08/2005: Measure the resistance between left-hand front fog lamp, connector C415, pin 2, circuit 31-LD11 (BK), wiring harness side and ground.



VFE62466

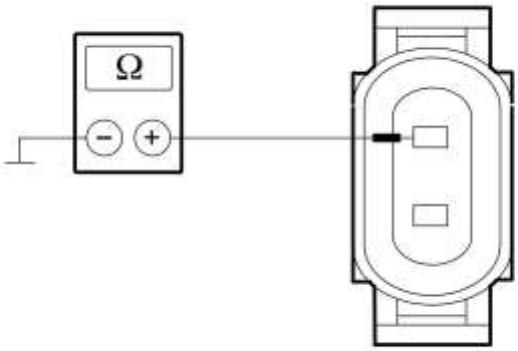
Is a resistance of less than 2 ohms registered?

Yes	- Vehicles built before 10/2004: LOCATE and RECTIFY the break in circuit 15S-LD11 (GN/WH) between soldered connection S241 and the front fog lamp using the Wiring Diagrams. If necessary CHECK and INSTALL A NEW front fog lamp. CHECK the operation of the system. - Vehicles built from 10/2004: LOCATE and RECTIFY the break in circuit 15S-LD11 (GN/WH) between soldered connection S38 and the front fog lamp using the Wiring Diagrams. If necessary CHECK and INSTALL A NEW front fog lamp. CHECK the operation of the system.
No	- Vehicles built before 10/2004: LOCATE and RECTIFY the break in circuit 31-LD11 (BK) between the front fog lamp and soldered connection S242 using the Wiring Diagrams. CHECK the operation of the system. - Vehicles built from 10/2004: LOCATE and RECTIFY the break in circuit 31-LD11 (BK) between the front fog lamp and soldered connection S10 using the Wiring Diagrams. CHECK the operation of the system.

C5 CHECK THE GROUND CONNECTION OF THE RIGHT-HAND FRONT FOG LAMP

- Ignition OFF.

- Disconnect right-hand front fog lamp from connector C421.
- Vehicles built before 08/2005: Measure the resistance between the right-hand front fog lamp, connector C421, pin 2, circuit 31-LD17 (BK), wiring harness side and ground.



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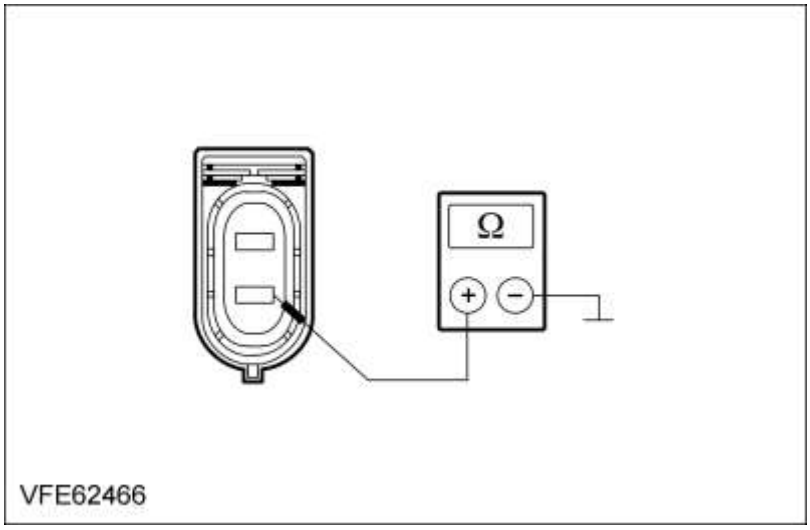
- Vehicles built from 08/2005: Measure the resistance between the right-hand front fog lamp, connector C421, pin 2, circuit 31-LD17 (BK), wiring harness side and ground.



VFE62466

Is a resistance of less than 2 ohms registered?

Yes	- Vehicles built before 10/2004: LOCATE and RECTIFY the break in circuit 15S-LD17 (GN/WH) between soldered connection S241 and the front fog lamp using the Wiring Diagrams. If necessary CHECK and INSTALL A NEW front fog lamp. CHECK the operation of the system. - Vehicles built from 10/2004: LOCATE and RECTIFY the break in circuit 15S-LD17 (GN/WH) between soldered connection S38 and the front fog lamp using the Wiring Diagrams. If necessary CHECK and INSTALL A NEW front fog lamp. CHECK the operation of the system.
No	- Vehicles built before 10/2004: LOCATE and RECTIFY the break in circuit 31-LD17 (BK) between the front fog lamp and soldered connection S242 using the Wiring Diagrams. CHECK the operation of the system. - Vehicles built from 10/2004: LOCATE and RECTIFY the break in circuit 31-LD17 (BK) between the front fog lamp and soldered connection S11 using the Wiring Diagrams. CHECK the operation of the system.

PINPOINT TEST D: REAR FOG LAMP(S) OR FRONT FOG LAMPS ILLUMINATE CONTINUOUSLY

D1 RULE OUT THE HEADLAMP SWITCH AS A CAUSE OF THE FAULT
• Ignition OFF. • Disconnect Headlamp switch from connector C338.

- Ignition ON.
- CHECK fog lamps.

Do the front fog lamps or the rear fog lamp(s) illuminate continuously?

Yes	GO to D2
No	INSTALL A NEW headlight switch. CHECK the operation of the system.

D2 EXCLUDE THE INSTRUMENT CLUSTER AS THE CAUSE OF THE FAULT

- Ignition OFF.
- Disconnect Fuse F20 (7.5 A) (CJB).
- Disconnect Fuse F33 (7.5 A) (CJB).
- Disconnect Fuse F38 (7.5 A) (CJB).
- Disconnect Fuse F44 (3 A) (CJB).
- Ignition ON.
- CHECK fog lamps.

Does/Do the rear fog lamp(s) illuminate continuously?

Yes	- Vehicles without trailer socket: LOCATE and RECTIFY the short to battery voltage in the circuits connected to soldered connection S281 using the wiring diagrams. CHECK the operation of the system. - Vehicles with trailer socket, built before 03/2004: GO to D3 - Vehicles with trailer socket, built from 03/2004 to 08/2005: GO to D9
No	- Front fog lamps continuously lit: LOCATE and RECTIFY the short to battery voltage in the circuits connected to soldered connection S280 using the Wiring Diagrams. CHECK the operation of the system. - No fog lamp continuously lit: REFER to: (413-01 Instrument Panel Cluster (IPC)) Instrument Panel Cluster (IPC) - Vehicles Built Up To: 10/2005 (Diagnosis and Testing), Instrument Panel Cluster (IPC) - Vehicles Built From: 10/2005 (Diagnosis and Testing).

D3 EXCLUDE THE TRAILER CONTROL UNIT AS THE CAUSE OF THE FAULT

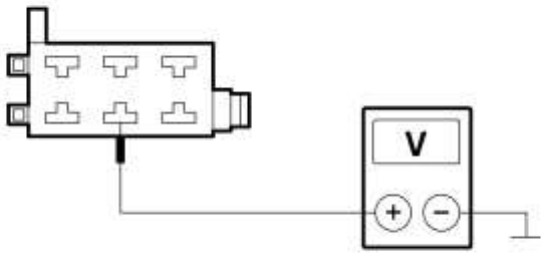
- Ignition OFF.
- Connect Fuse F20 (7.5 A) (CJB).
- Connect Fuse F33 (7.5 A) (CJB).
- Connect Fuse F38 (7.5 A) (CJB).
- Connect Fuse F44 (3 A) (CJB).
- Disconnect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- Ignition ON.
- Check the rear fog lamp.

Does the rear fog lamp illuminate continuously?

Yes	- LHD: LOCATE and REPAIR the short to battery voltage in circuits (VT/YE) between the trailer control unit and the rear lamp assembly using the Wiring Diagrams. CHECK the operation of the system. - RHD: LOCATE and RECTIFY the short to battery voltage in circuits (VT/YE) or (BK/BU) between the trailer control unit and the rear lamp assembly using the Wiring Diagrams. CHECK the operation of the system.
No	GO to D4

D4 CHECK CONTROL CIRCUIT FOR SHORT TO BATTERY VOLTAGE

- Measure the voltage between the trailer control unit, connector C1030, pin 4, circuit (RD/WH), wiring harness side and ground.



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Is battery voltage measured?

Yes	LOCATE and RECTIFY the short to battery voltage in the circuits connected to soldered connection S281 using the wiring diagrams. CHECK the operation of the system.
No	GO to D5

D5 CHECK FUSE

- Ignition OFF.
- Disconnect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- CHECK Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)

Is the fuse OK.?

Yes	GO to D6
No	INSTALL A NEW fuse F31 (20 A) or F56 (20 A) (CJB) and check the operation of the system. If the fuse blows again, LOCATE and RECTIFY the short to ground using the Wiring Diagrams. CHECK the operation of the system.

D6 CHECK VOLTAGE AT FUSE

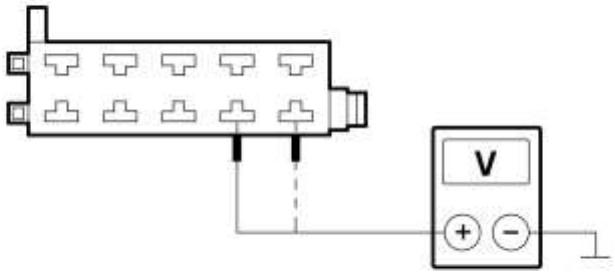
- Connect Fuse.
  - Vehicles built before 10/2002: F31 (20 A) (CJB)
  - Vehicles built from 10/2002: F56 (20 A) (CJB)
- Ignition ON.
- Measure the voltage between:
  - Vehicles built before 10/2002: Fuse F31 (20 A) (CJB) and ground.
  - Vehicles built from 10/2002: F56 (20 A) (CJB) and ground.

Is battery voltage measured?

Yes	GO to D7
No	- Vehicles built before 10/2002: RECTIFY the break in the voltage supply of fuse F31 (20A) (CJB) using the Wiring Diagrams. CHECK and INSTALL A NEW CJB if necessary. CHECK the operation of the system. - Vehicles built from 10/2002: RECTIFY the break in the voltage supply of fuse F56 (20A) (CJB) using the Wiring Diagrams. CHECK and INSTALL A NEW CJB if necessary. CHECK the operation of the system.

D7 CHECK THE VOLTAGE SUPPLY OF THE TRAILER CONTROL UNIT

- Ignition OFF.
- Disconnect trailer control unit from connector C1041.
- Ignition ON.
- Measure the voltage between the trailer control unit, connector C1041, pin 8, circuit (RD), wiring harness side and pin 10, circuit (RD), wiring harness side and ground.



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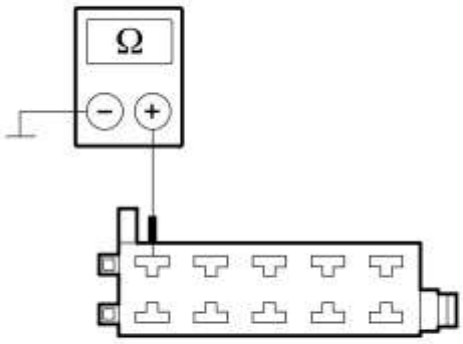
Is battery voltage registered following both measurements?

Yes	GO to D8
No	- Vehicles built before 10/2002: LOCATE and RECTIFY the break in the circuit between fuse F31 (20 A) (CJB) and the trailer control unit using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system. - Vehicles built from 10/2002: LOCATE and RECTIFY the break in the circuit between fuse F56 (20 A) (CJB) and the trailer control unit using the Wiring Diagrams. CHECK and INSTALL A NEW rear lamp assembly if necessary. CHECK the operation of the system.

D8 CHECK THE GROUND CONNECTION OF THE TRAILER CONTROL UNIT

- Ignition OFF.
- Measure the resistance between the trailer control unit, connector C1041, pin 1, circuit (BN), wiring harness side and ground.



VFE0033872

Is less than 2 Ohm measured?

Yes	RENEW the trailer control unit. CHECK the operation of the system.
No	LOCATE and RECTIFY the break in the relevant circuit (BN) between the trailer control unit and ground connection G18 using the Wiring Diagrams. CHECK the operation of the system.

D9 EXCLUDE THE LOAD CURRENT CIRCUIT AS THE CAUSE OF THE FAULT

- Ignition OFF.
- Disconnect Rear fog lamp cut-off relay from socket C1043.
- Ignition ON.
- Check the rear fog lamp.

Does the rear fog lamp illuminate continuously?

Yes	- LHD: LOCATE and REPAIR the short to battery voltage in circuits (VT/YE) between the rear fog lamp cut-off relay and the rear lamp assembly using the Wiring Diagrams. CHECK the operation of the system. - RHD: LOCATE and REPAIR the short to battery voltage in circuits (VT/YE) or (WH/BK) between the rear fog lamp cut-off relay and the rear lamp assembly using the Wiring Diagrams. CHECK the operation of the system.
No	LOCATE and RECTIFY the short to battery voltage in the circuits connected to soldered connection S281 using the Wiring Diagrams. CHECK the operation of the system.