

Diagnosis and Testing

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

Special Tool(s)



Terminal Probe Kit
29-011A

General Equipment

Digital Multimeter.

Diagnostic tool.

Inspection and Verification

NOTE: The generic electronic module (GEM) is part of the central junction box (CJB).

NOTE: If a new GEM module is being installed, the new module must be configured following installation. For this purpose, the vehicle-specific data is read out of the module to be changed using the diagnostic unit and is transferred to the new module.

NOTE: Before reading out the vehicle-specific data make sure that all electrical connections in the vehicle are reconnected so that the module and the diagnostic unit can communicate correctly.

NOTE: Ensure correct engagement of the wiring harness connectors.

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

Visual Inspection Chart

Electrical	
• Fuse(s) • Bulb(s). • Electrical connectors. • Switch. • Vehicle wiring harness. • CAN data bus. • LIN data bus.	
3.	3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step. CHECK system operates correctly
4.	4. If the concern persists after the visual inspection, PERFORM a fault diagnosis with the diagnostic unit and RECTIFY any displayed faults in accordance with the displayed fault description. CHECK system operates correctly
5.	5. For vehicles with no stored fault(s), PROCEED in accordance with the symptom chart according to the fault symptom.
6.	6. After testing or rectifying the fault and after completion of operations, READ OUT the fault memories of all vehicle modules and DELETE any stored faults. READ OUT all fault memories again after a road test.

Diagnostic Trouble Code (DTC) Table - Generic Electronic Module (GEM)

DTC	Description	Action
B1D06-13	Circuit of left-hand turn signal lamps faulty.	REFER TO: Symptom chart.
B1D06-11	Circuit of left-hand turn signal lamps faulty (short to ground).	REFER TO: Symptom chart.
B11D3-11	Circuit of left-hand side turn signal lamp faulty (short to ground).	REFER TO: Symptom chart.
B11D3-13	Circuit of left-hand side turn signal lamp faulty (open circuit).	REFER TO: Symptom chart.
B1D07-11	Circuit of right-hand turn signal lamps faulty (short to ground).	REFER TO: Symptom chart.
B1D07-13	Circuit of right-hand turn signal lamps faulty.	REFER TO: Symptom chart.
B11CB-11	Circuit of right-hand side turn signal lamp faulty (short to ground).	REFER TO: Symptom chart.
B11CB-13	Circuit of right-hand side turn signal lamp faulty (open circuit).	REFER TO: Symptom chart.
B113C-11	Circuit of hazard warning switch illumination faulty (short to ground).	REFER TO: Symptom chart.
B113C-15	Circuit of hazard warning switch illumination faulty (short to voltage or open circuit).	REFER TO: Symptom chart.
B1D35-24	Circuit of hazard warning switch faulty.	REFER TO: Symptom chart.
B1130-07	Light switch unit, component fault.	REFER to: Headlamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1D00-11	Circuit of left-hand headlamp faulty (short to ground).	REFER to: Headlamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1D01-11	Circuit of right-hand headlamp faulty (short to ground).	REFER to: Headlamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1D00-13	Circuit of left-hand headlamp faulty (open circuit).	REFER to: Headlamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1D01-13	Circuit of right-hand headlamp faulty (open circuit).	REFER to: Headlamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1098-11	Circuit of left-hand marker lamp (side lamp) faulty (short to ground).	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1098-13	Circuit of left-hand marker lamp (side lamp) faulty (open circuit).	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1099-11	Circuit of right-hand marker lamp (side lamp) faulty (short to ground).	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1099-13	Circuit of right-hand marker lamp (side lamp) faulty (open circuit).	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B109B-13	Circuit of license plate lamps faulty.	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B109B-11	Circuit of license plate lamps faulty (short to ground).	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1A79-13	Circuit of rear fog lamps faulty.	REFER to: Fog Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1A79-11	Circuit of rear fog lamps faulty (short to ground).	REFER to: Fog Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
C0023-11. C0023-13	Stop lamp circuit faulty.	REFER to: Stoplamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1115-11	Circuit of high-mounted stop lamp faulty (short to ground).	REFER to: Stoplamps (417-01 Exterior Lighting, Diagnosis and Testing).
B1115-13	Circuit of high-mounted stop lamp faulty (open circuit).	REFER to: Stoplamps (417-01 Exterior Lighting, Diagnosis and Testing).
B10AD-09	Rain sensor/light sensor, component fault.	REFER to: Autolamps (417-01 Exterior Lighting, Diagnosis and Testing), Wipers and Washers (501-16 Wipers and Washers, Diagnosis and Testing).
B10AD-04	Internal circuit of rain sensor/light sensor faulty.	REFER to: Autolamps (417-01 Exterior Lighting, Diagnosis and Testing), Wipers and Washers (501-16 Wipers and Washers, Diagnosis and Testing).

Symptom Chart

Symptom	Possible Sources	Action
All turn signal lamps inoperative.	* Circuit(s) * Steering wheel module. * CJB	* GO to Pinpoint Test A .
Hazard warning lights inoperative, turn signal function OK	* Fuse(s) * Circuit(s) * Hazard warning switch.	* GO to Pinpoint Test B .

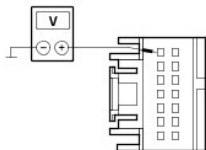
Single or multiple turn signal lamps inoperative.	* GEM * Circuit(s) * Steering wheel module.	* GO to Pinpoint Test C .
One or more turn signal lamps flashing continuously.	* Hazard warning switch. * Steering wheel module. * GEM	* GO to Pinpoint Test D .
One or more turn signal lamps permanently lit.	* Circuit(s) * GEM	* GO to Pinpoint Test E .

Pinpoint Tests

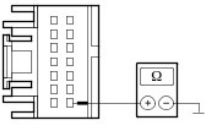
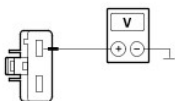
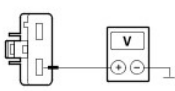
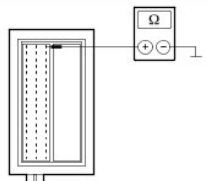
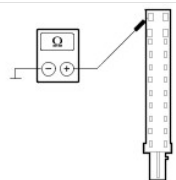
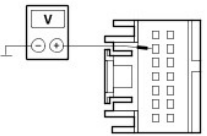
NOTE: Use a digital multimeter for all electrical measurements.

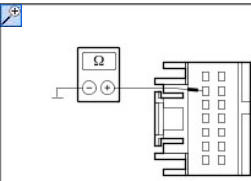
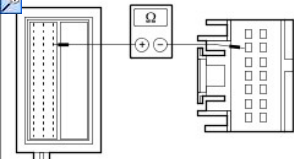
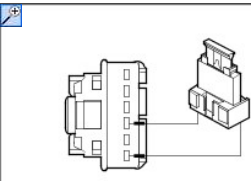
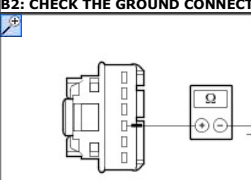
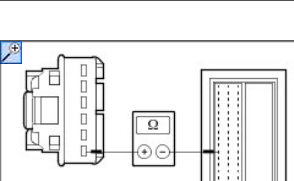
PINPOINT TEST A : ALL TURN SIGNAL LAMPS INOPERATIVE

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
A1: CHECK FUSE F7 (7.5 A) (CJB).	1 Ignition switch in position 0. 2 Disconnect Fuse F7 (7.5 A) (CJB). 3 CHECK Fuse F7 (7.5 A) (CJB). Is the fuse OK? Yes GO to A2. No RENEW fuse F7 (7.5 A) (CJB) and CHECK the operation of the system. If the fuse blows again, LOCATE and RECTIFY short using the Wiring Diagrams. CHECK system operates correctly
A2: CHECK THE VOLTAGE SUPPLY TO FUSE F7 (7.5 A) (CJB) FOR OPEN CIRCUIT	1 Connect Fuse F7 (7.5 A) (CJB). 2 Ignition switch in position II. 3 Measure the voltage between fuse F7 (7.5 A) (CJB) and ground. Does the meter display battery voltage? Yes GO to A3. No LOCATE AND RECTIFY the break in the voltage supply of fuse F7 (7.5 A) (CJB) with the aid of the Wiring Diagrams. CHECK system operates correctly
A3: CHECK FUSE F17 (60 A) (EJB)	1 Ignition switch in position 0. 2 Disconnect fuse F17 (60 A) (EJB). 3 CHECK fuse F17 (60 A) (EJB). Is the fuse OK? Yes GO to A4. No RENEW fuse F17 (60 A) (EJB) and CHECK the operation of the system. If the fuse blows again, LOCATE and RECTIFY short using the Wiring Diagrams. CHECK system operates correctly
A4: CHECK THE VOLTAGE SUPPLY TO FUSE F17 (60 A) (EJB) FOR OPEN CIRCUIT	1 Connect fuse F17 (60 A) (EJB). 2 Ignition switch in position II. 3 Measure the voltage between fuse F17 (60 A) (EJB) and ground. Does the meter display battery voltage? Yes GO to A5. No LOCATE AND RECTIFY the break in the voltage supply of fuse F17 (60 A) (EJB) with the aid of the wiring diagrams. CHECK system operates correctly
A5: CHECK FUSE F18 (60 A) (EJB)	1 Ignition switch in position 0. 2 Disconnect fuse F18 (60 A) (EJB). 3 CHECK fuse F18 (60 A) (EJB). Is the fuse OK? Yes GO to A6. No RENEW fuse F18 (60 A) (EJB) and CHECK the operation of the system. If the fuse blows again, LOCATE and RECTIFY short using the Wiring Diagrams. CHECK system operates correctly
A6: CHECK THE VOLTAGE SUPPLY TO FUSE F18 (60 A) (EJB) FOR OPEN CIRCUIT	1 Connect fuse F18 (60 A) (EJB). 2 Ignition switch in position II. 3 Measure the voltage between fuse F18 (60 A) (EJB) and ground. Does the meter display battery voltage? Yes GO to A7. No LOCATE AND RECTIFY the break in the voltage supply of fuse F18 (60 A) (EJB) with the aid of the wiring diagrams. CHECK system operates correctly
A7: CHECK VOLTAGE SUPPLY TO STEERING WHEEL MODULE FOR OPEN CIRCUIT	1 Ignition switch in position 0. 2 Disconnect Steering wheel module from connector C2LS41. 3 Measure the voltage between the steering wheel module, connector C2LS41, pin 1, circuit SBP07A (WH/RD), wiring harness side and ground. Does the meter display battery voltage? Yes GO to A8. No LOCATE AND RECTIFY the break in circuit SBP07A (WH/RD) between fuse F7 (7.5 A) (CJB) and the steering wheel module using the Wiring Diagrams. CHECK system operates correctly
A8: CHECK GROUND CONNECTION OF STEERING WHEEL MODULE FOR OPEN CIRCUIT	1 Ignition switch in position 0. 2 Measure the resistance between the steering wheel module, connector C2LS41, pin 14, circuit GD138AY (BK/WH), wiring harness side and ground.

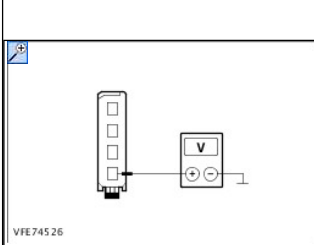
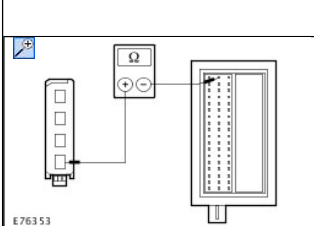
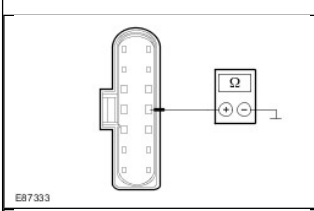
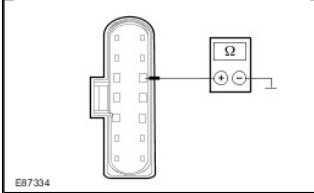


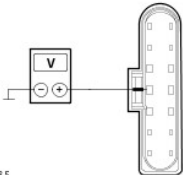
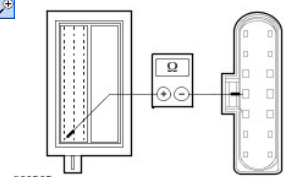
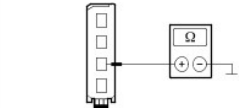
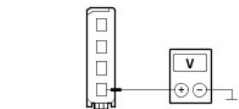
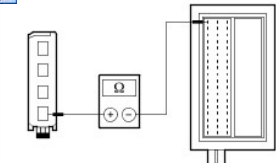
VFE73604

 VFE73605	
	Is a resistance of less than 2 Ohms registered? Yes GO to A9. No LOCATE and RECTIFY the break in the circuits between the steering wheel module and soldered connection SP518 with the aid of the Wiring Diagrams. CHECK system operates correctly
A9: CHECK THE POWER SUPPLY TO THE GEM FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-G.
 VFE73606	3 Measure the voltage between the GEM, connector C1BP02-G, pin 1, circuit SBB17A (RD), wiring harness side and ground.
 VFE73603	4 Measure the voltage between the GEM, connector C1BP02-G, pin 2, circuit SBB18A (YE), wiring harness side and ground.
	5 Ignition switch in position II. Is battery voltage measured in both cases? Yes GO to A10. No LOCATE and RECTIFY the break in the relevant circuits between fuse F17 (60 A) (EJB) or F18 (60 A) (EJB) and the GEM with the aid of the Wiring Diagrams. CHECK system operates correctly
A10: CHECK GROUND CONNECTION OF GEM FOR OPEN CIRCUIT	
 VFE74523	1 Ignition switch in position 0. 2 Measure the resistance between the GEM, connector C1BP02-A, pin 54, circuit GD123F (BK/GY), wiring harness side and ground.
	Is a resistance of less than 2 Ohms registered? Yes GO to A11. No LOCATE and RECTIFY the break in circuit GD123F (BK/GY) between the GEM and ground G1D132B using the Wiring Diagrams. CHECK system operates correctly
A11: CHECK GROUND CONNECTION OF GEM FOR OPEN CIRCUIT	
 EB6531	1 Ignition switch in position 0. 2 Measure the resistance between the GEM, connector C1BP02-B, pin 65: - LHD: circuit GD140J (BK/GN), wiring harness side and ground. - RHD: circuit GD134U (BK/VT), wiring harness side and ground.
	Is a resistance of less than 2 Ohms registered? Yes GO to A12. No - LHD: LOCATE and RECTIFY the break in the circuit between the GEM and ground connection G3D138 with the aid of the Wiring Diagrams. CHECK system operates correctly - RHD: LOCATE and RECTIFY the break in the circuit between the GEM and ground connection G3D133 with the aid of the Wiring Diagrams. CHECK system operates correctly
A12: CHECK LIN DATABUS CONNECTION BETWEEN THE STEERING WHEEL MODULE AND THE GEM FOR SHORT TO BATTERY VOLTAGE	
 VFE73607	1 Ignition switch in position II. 2 Measure the voltage between the steering wheel module, connector C2LS41, pin 2, circuit VMC34A (WH), wiring harness side and ground.
	Does the meter display battery voltage? Yes GO to A13. No LOCATE and RECTIFY the short to battery voltage in the circuits between the steering wheel module and the GEM using the Wiring

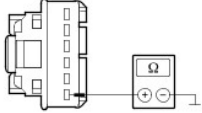
Diagrams. CHECK system operates correctly	
A13: CHECK THE LIN DATA BUS CONNECTION BETWEEN THE LIGHTING CONTROL MODULE AND THE GEM FOR SHORT TO GROUND	
 VFE73608	1 Ignition switch in position 0. 2 Measure the resistance between the steering wheel module, connector C2LS41, pin 2, circuit VMC34A (WH), wiring harness side and ground.
	Is a resistance of more than 10,000 ohms measured? Yes GO to A14. No LOCATE and RECTIFY the short to ground in the circuits between the steering wheel module and the GEM using the Wiring Diagrams. CHECK system operates correctly
A14: CHECK THE LIN DATABUS CONNECTION BETWEEN THE STEERING WHEEL MODULE AND THE GEM FOR OPEN CIRCUIT	
 VFE74524	1 Measure the resistance between the steering wheel module, connector C2LS41, pin 2, circuit VMC34A (WH), wiring harness side and the GEM, connector C1BP02-C, pin 51, circuit VMC34A (WH), wiring harness side.
	Is a resistance of less than 2 Ohms registered? Yes RENEW the steering wheel module. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). No LOCATE and RECTIFY the break in the circuits between the steering wheel module and the GEM using the Wiring Diagrams. CHECK system operates correctly
PINPOINT TEST B : HAZARD WARNING LIGHT INOPERATIVE, TURN SIGNAL FUNCTION OK	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
B1: EXCLUDE THE HAZARD WARNING SWITCH AS THE CAUSE OF THE FAULT	
 VFE73609	1 Ignition switch in position 0. 2 Disconnect Hazard warning switch from connector C2LS32. 3 Connect a fused jumper lead (5 A) to the hazard warning switch, connector C2LS32, between pin 6, circuit CLS32A (BN/YE) and pin 4, circuit GD133CF (BK), wiring harness side.
	4 Ignition switch in position II. 5 CHECK the turn signal lamps. Do the hazard indicators operate? Yes RENEW the hazard warning light switch. CHECK system operates correctly No GO to B2.
B2: CHECK THE GROUND CONNECTION OF THE HAZARD WARNING LAMP SWITCH FOR OPEN CIRCUIT	
 VFE61796	1 Measure the resistance between the hazard warning switch, connector C2LS32, pin 4, circuit GD133CF (BK), wiring harness side and ground.
	Is a resistance of less than 2 Ohms registered? Yes GO to B3. No LOCATE and RECTIFY the break in the circuit between the hazard warning switch and ground connection G3D134 with the aid of the Wiring Diagrams. CHECK system operates correctly
B3: CHECK THE CIRCUIT BETWEEN THE HAZARD WARNING SWITCH AND THE GEM FOR OPEN CIRCUIT	
 VFE74525	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-C. 3 Measure the resistance between the hazard warning switch, connector C2LS32, pin 6, circuit CLS32A (BN/YE), wiring harness side and the GEM, connector C1BP02-C, pin 8, circuit CLS32A (BN/YE), wiring harness side.
	Is a resistance of less than 2 Ohms registered? Yes RENEW the GEM. CHECK system operates correctly No LOCATE and RECTIFY the break in the circuit between the hazard warning switch and the GEM using the Wiring Diagrams. CHECK system operates correctly
PINPOINT TEST C : SINGLE OR MULTIPLE TURN SIGNAL LAMPS INOPERATIVE	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
C1: DETERMINE THE FAULT CONDITION	
Ignition switch in position II.	

	1 2 CHECK the turn signal lamps. 3 Switch on LEFT-HAND TURN SIGNAL. 4 SWITCH ON the right-hand turn signal. Is one or more turn signal lamp on the left-hand side inoperative? Yes - All turn signal lamps on left-hand side inoperative: CHECK the steering wheel module and INSTALL a NEW one if necessary. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). - Left-hand front turn signal lamp is inoperative: GO to C2. - Left-hand rear turn signal lamp is inoperative: GO to C5. - Side turn signal lamp inoperative on the left-hand side: GO to C8. No - All turn signal lamps on right-hand side inoperative: CHECK the steering wheel module and INSTALL a NEW one if necessary. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). - Right-hand front turn signal lamp is inoperative: GO to C11. - Right-hand rear turn signal lamp is inoperative: GO to C14. - Side turn signal lamp inoperative on the right-hand side: GO to C17.
C2: CHECK GROUND SUPPLY OF LEFT-HAND HEADLAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect Left-hand headlamp from connector C1LF08. 3 Measure the resistance between the left-hand headlamp, connector C1LF08, pin 7, circuit GD130T (BK/YE), wiring harness side and ground.
E87333	
E87334	4 Measure the resistance between the left-hand headlamp, connector C1LF08, pin 9, circuit GD130AS (BK/YE), wiring harness side and ground.
	Is a resistance of less than 2 Ohm measured in both cases? Yes GO to C3. No LOCATE and RECTIFY the break in the relevant circuit between the headlamp and soldered connection SP371 using the wiring diagrams. CHECK system operates correctly
C3: CHECK THE VOLTAGE SUPPLY OF THE FRONT LEFT-HAND TURN SIGNAL LAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position II. 2 Switch on LEFT-HAND TURN SIGNAL. 3 Measure the voltage between the left-hand headlamp, connector C1LF08, pin 8, circuit CLS21A (BU/GN), wiring harness side and ground.
E88785	
	Is fluctuating battery voltage measured? Yes CHECK the left-hand headlamp and RENEW it as necessary. CHECK system operates correctly No GO to C4.
C4: CHECK THE VOLTAGE SUPPLY OF THE FRONT LEFT-HAND TURN SIGNAL LAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-A. 3 Measure the resistance between the GEM, connector C1BP02-A, pin 19, circuit CLS21A (BU/GN), wiring harness side and the left-hand headlamp, connector C1LF08, pin 8, circuit CLS21A (BU/GN), wiring harness side.
E98786	
	Is a resistance of less than 2 Ohms registered? Yes RENEW the GEM. CHECK system operates correctly No LOCATE and RECTIFY the break in circuit CLS21A (BU/GN) between the GEM and the headlamp using the Wiring Diagrams. CHECK system operates correctly
C5: CHECK GROUND SUPPLY OF LEFT-HAND REAR LAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect Left-hand rear lamp from connector C4LS18-A. 3 Measure the resistance between the left-hand rear lamp, connector C4LS18-A, pin 3, circuit GD150C (BK/WH), wiring harness side and ground.
VFE74520	
	Is a resistance of less than 2 Ohms registered? Yes GO to C6. No LOCATE and RECTIFY the break in circuit GD150C (BK/WH) between the rear lamp and soldered connection SP549 using the Wiring Diagrams. CHECK system operates correctly
C6: CHECK THE POWER SUPPLY TO THE LEFT-HAND REAR LAMP FOR OPEN CIRCUIT	

	1 Ignition switch in position II. 2 Switch on LEFT-HAND TURN SIGNAL. 3 Measure the voltage between the left-hand rear lamp, connector C4LS18-A, pin 4, circuit CLS23A (GY/OG), wiring harness side and ground.
	Is fluctuating battery voltage measured? Yes CHECK the left-hand rear lamp and INSTALL a NEW one if necessary. CHECK system operates correctly No GO to C7.
C7: CHECK THE POWER SUPPLY TO THE LEFT-HAND REAR LAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-B. 3 Measure the resistance between the GEM, connector C1BP02-B, pin 36, circuit CLS23A (GY/OG), wiring harness side and the left-hand rear lamp, connector C4LS18-A, pin 4, circuit CLS23A (GY/OG), wiring harness side.
	Is a resistance of less than 2 Ohms registered? Yes CHECK the GEM using the Digital Multimeter and INSTALL A NEW one if necessary. CHECK system operates correctly No LOCATE and RECTIFY the break in circuit CLS23A (GY/OG) between the GEM and the rear lamp using the Wiring Diagrams. CHECK system operates correctly
C8: CHECK THE VOLTAGE SUPPLY TO THE LEFT-HAND TURN SIGNAL LAMP (SIDE) FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect Left-hand turn signal lamp from connector C1LS21. 3 Ignition switch in position II. 4 TURN ON the left turn signal. 5 Measure the voltage between the left-hand turn signal lamp, connector C1LS21, pin 1, circuit CLS22A (GN/BN), wiring harness side and ground. Does the meter display battery voltage? Yes GO to C9. No GO to C10.
C9: CHECK THE GROUND CONNECTION OF THE LEFT-HAND (SIDE) TURN SIGNAL LAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Measure the resistance between the left-hand turn signal lamp (side), connector C1LS21, pin 2, circuit GD130V (BK/YE), wiring harness side and ground. Is a resistance of less than 2 Ohms registered? Yes CHECK and if necessary INSTALL A NEW left-hand turn signal side lamp. CHECK system operates correctly No LOCATE and RECTIFY the break in the circuit between the left-hand turn signal side lamp and soldered connection SP371 using the Wiring Diagrams. CHECK system operates correctly
C10: CHECK THE VOLTAGE SUPPLY TO THE LEFT-HAND TURN SIGNAL LAMP (SIDE) FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-A. 3 Measure the resistance between the GEM, connector C1BP02-A, pin 32, circuit CLS22A (GN/BN), wiring harness side and the left-hand turn signal lamp, connector C1LS21, pin 1, circuit CLS22A (GN/BN), wiring harness side. Is a resistance of less than 2 Ohms registered? Yes RENEW the GEM. CHECK system operates correctly No LOCATE and RECTIFY the break in circuit CLS22A (GN/BN) between the GEM and the left-hand side turn signal lamp using the Wiring Diagrams. CHECK system operates correctly
C11: CHECK THE GROUND CONNECTION TO THE RIGHT-HAND HEADLAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Measure the resistance between the right-hand headlamp, connector C1LF09, pin 7, circuit GD132M (BK/VT), wiring harness side and ground.
	3 Measure the resistance between the right-hand headlamp, connector C1LF09, pin 9, circuit GD132X (BK/VT), wiring harness side and ground.
	Is a resistance of less than 2 Ohm measured in both cases? Yes GO to C12. No LOCATE and RECTIFY the break in the relevant circuit between the headlamp and soldered connection SP380 using the wiring diagrams. CHECK system operates correctly
C12: CHECK THE VOLTAGE SUPPLY TO THE FRONT RIGHT-HAND TURN SIGNAL LAMP FOR OPEN CIRCUIT	
	1 Ignition switch in position II. 2 SWITCH ON the right-hand turn signal. 3 Measure the voltage between the right-hand headlamp, connector C1LF09, pin 8, circuit CLS25A (YE/VT), wiring harness side and ground.

 E88785	
	Is fluctuating battery voltage measured? Yes CHECK and if necessary RENEW the headlamp. CHECK system operates correctly No GO to C13.
C13: CHECK THE VOLTAGE SUPPLY TO THE FRONT RIGHT-HAND TURN SIGNAL LAMP FOR OPEN CIRCUIT	
1 Ignition switch in position 0.	
2 Disconnect GEM from connector C1BP02-A.	
 E88787	3 Measure the resistance between the GEM, connector C1BP02-A, pin 1, circuit CLS25A (YE/VT), wiring harness side and the right-hand headlamp, connector C1LF09, pin 8, circuit CLS25A (YE/VT), wiring harness side.
Is a resistance of less than 2 Ohms registered? Yes RENEW the GEM. CHECK system operates correctly No LOCATE and RECTIFY the break in circuit CLS25A (YE/VT) between the headlamp and the GEM using the Wiring Diagrams. CHECK system operates correctly	
C14: CHECK THE GROUND SUPPLY TO THE RIGHT-HAND REAR LAMP FOR OPEN CIRCUIT	
1 Ignition switch in position 0.	
2 Disconnect Right-hand rear lamp from connector C4LS19-A.	
 VFE74520	3 Measure the resistance between the right-hand rear lamp, connector C4LS19-A, pin 3, circuit GD152A (BK/BU), wiring harness side and ground.
Is a resistance of less than 2 Ohms registered? Yes GO to C15. No LOCATE and RECTIFY the break in circuit GD152A (BK/BU) between the rear lamp and soldered connection SP600 using the Wiring Diagrams. CHECK system operates correctly	
C15: CHECK THE VOLTAGE SUPPLY TO THE RIGHT-HAND REAR LAMP FOR OPEN CIRCUIT	
1 Ignition switch in position II.	
2 SWITCH ON the right-hand turn signal.	
 VFE74526	3 Measure the voltage between the right-hand rear lamp, connector C4LS19-A, pin 4, circuit CLS27A (GN/OG), wiring harness side and ground.
Is fluctuating battery voltage measured? Yes CHECK the right-hand rear lamp and INSTALL a NEW one if necessary. CHECK system operates correctly No GO to C16.	
C16: CHECK THE VOLTAGE SUPPLY TO THE RIGHT-HAND REAR LAMP FOR OPEN CIRCUIT	
1 Ignition switch in position 0.	
2 Disconnect GEM from connector C1BP02-B.	
 VFE74527	3 Measure the resistance between the GEM, connector C1BP02-B, pin 18, circuit CLS27A (GN/OG), wiring harness side and the right-hand rear lamp, connector C4LS19A, pin 4, circuit CLS27A (GN/OG), wiring harness side.
Is a resistance of less than 2 Ohms registered? Yes RENEW the GEM. CHECK system operates correctly No LOCATE and RECTIFY the break in circuit CLS27A (GN/OG) between the rear lamp and the GEM using the Wiring Diagrams. CHECK system operates correctly	
C17: CHECK THE VOLTAGE SUPPLY TO THE RIGHT-HAND TURN SIGNAL LAMP (SIDE) FOR OPEN CIRCUIT	
1 Ignition switch in position 0.	
2 Disconnect Right-hand turn signal lamp (side) from connector C1LS25.	
3 Ignition switch in position II.	
4 TURN ON the right turn signal.	
5 Measure the voltage between the right-hand turn signal lamp (side), connector C1LS25, pin 1, circuit CLS226A (BU/GY), wiring harness side and ground. Does the meter display battery voltage? Yes GO to C12. No GO to C13.	
C18: CHECK THE GROUND CONNECTION OF THE RIGHT-HAND (SIDE) TURN SIGNAL LAMPS FOR OPEN CIRCUIT	

	1 Ignition switch in position 0. 2 Measure the resistance between the right-hand turn signal lamp (side), connector C1LS25, pin 2, circuit GD132Z (BK/VT), wiring harness side and ground.
	Is a resistance of less than 2 ohm measured?
	Yes CHECK the right-hand turn signal lamp and INSTALL A NEW one as necessary. CHECK system operates correctly
	No LOCATE and RECTIFY the break in circuit GD132Z (BK/VT) between the right-hand turn signal lamp (side) and soldered connection SP380 using the Wiring Diagrams. CHECK system operates correctly
C19: CHECK THE VOLTAGE SUPPLY TO THE RIGHT-HAND TURN SIGNAL LAMP (SIDE) FOR OPEN CIRCUIT	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-A. 3 Measure the resistance between the GEM, connector C1BP02-A, pin 48, circuit CLS26A (BU/GY), wiring harness side and the right-hand turn signal lamp (side), connector C1LS25, pin 1, circuit CLS26A (BU/GY), wiring harness side.
	Is a resistance of less than 2 Ohms registered?
	Yes RENEW the GEM. CHECK system operates correctly
	No LOCATE and RECTIFY the break in circuit CLS26A (BU/GY) between the GEM and the right-hand side turn signal lamp using the Wiring Diagrams. CHECK system operates correctly

PINPOINT TEST D : ONE OR MORE TURN SIGNAL LAMPS FLASHING CONTINUOUSLY	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
D1: DETERMINE THE FAULT CONDITION	
	1 Ignition switch in position II. 2 CHECK all turn signal lamps.
	Do the turn signal lamps on one side flash continuously?
	Yes GO to D2.
	No - Turn signal lamps on both sides are flashing continuously: GO to D3. - Individual turn signal lamp flashing continuously: CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). - One of the integrated turn signal lamps in the exterior mirrors is flashing continuously: CHECK and if necessary RENEW the door control module. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). - Both of the integrated turn signal lamps in the exterior mirrors are flashing continuously: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
D2: EXCLUDE THE STEERING WHEEL MODULE AS THE CAUSE OF THE FAULT	
	1 Ignition switch in position 0. 2 Disconnect Steering wheel module from connector C2LS41. 3 Ignition switch in position II. 4 CHECK the turn signal lamps.
	Are the turn signal lamps flashing continuously?
	Yes CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
	No RENEW the steering wheel module. CHECK system operates correctly
D3: EXCLUDE THE HAZARD WARNING SWITCH AS THE CAUSE OF THE FAULT	
	1 Ignition switch in position 0. 2 Disconnect Hazard warning switch from connector C2LS32. 3 Ignition switch in position II. 4 CHECK the turn signal lamps.
	Are the turn signal lamps flashing continuously?
	Yes GO to D4.
	No RENEW the hazard warning light switch. CHECK system operates correctly
D4: CHECK CONTROL CIRCUIT BETWEEN HAZARD WARNING SWITCH AND THE GEM FOR SHORT TO GROUND	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-C. 3 Measure the resistance between the hazard warning switch, connector C2LS32, pin 6, circuit CLS32A (BN/YE), wiring harness side and ground.
  VFE73616	
	Is a resistance of more than 10,000 ohms measured?
	Yes CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly
	No LOCATE and RECTIFY the short to ground in the circuits between the hazard warning switch and the GEM using the Wiring Diagrams. CHECK system operates correctly

PINPOINT TEST E : ONE OR MORE TURN SIGNAL LAMPS PERMANENTLY LIT	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
E1: DETERMINE THE FAULT CONDITION	
	1 Ignition switch in position II. 2 CHECK the turn signal lamps.
	Are the turn signal lamps lit up permanently?
	Yes CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly If the concern persists: REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
	No - Front left turn signal lamp permanently lit: GO to E2. - Rear left turn signal lamp permanently lit: GO to E3. - Front right turn signal lamp permanently lit: GO to E4. - Rear right-hand turn indicator permanently lit: GO to E5.
E2: CHECK CIRCUIT BETWEEN THE GEM AND THE LEFT-HAND HEADLAMP FOR SHORT TO BATTERY VOLTAGE	
	1 Ignition switch in position 0. 2 Disconnect GEM from connector C1BP02-A. 3 Ignition switch in position II. 4 CHECK the turn signal lamps.
	Is the front left-hand turn signal permanently lit?
	Yes LOCATE and RECTIFY the short to battery voltage in the circuit between the headlamp and the GEM using the Wiring Diagrams. CHECK system operates correctly
	No CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly
E3: CHECK CIRCUIT BETWEEN THE GEM AND THE LEFT-HAND REAR LAMP FOR SHORT TO BATTERY VOLTAGE	
	1 Ignition switch in position 0. 2 Disconnect Left-hand rear lamp from connector C4LS18-A. 3 CHECK the turn signal lamps.

	4	Ignition switch in position II.
	5	CHECK the turn signal lamps.
		Is the rear left-hand turn signal lamp permanently lit?
	Yes	LOCATE and RECTIFY the short to battery voltage in the circuit between the rear lamp and the GEM using the Wiring Diagrams. CHECK system operates correctly
	No	CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly
E4: CHECK CIRCUIT BETWEEN THE GEM AND THE RIGHT-HAND HEADLAMP FOR SHORT TO BATTERY VOLTAGE		
	1	Ignition switch in position 0.
	2	Disconnect GEM from connector C1BP02-A.
	3	Ignition switch in position II.
	4	CHECK the turn signal lamps.
		Is the front right-hand turn signal permanently lit?
	Yes	LOCATE and RECTIFY the short to battery voltage in the circuit between the headlamp and the GEM using the Wiring Diagrams. CHECK system operates correctly
	No	CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly
E5: CHECK CIRCUIT BETWEEN THE GEM AND THE RIGHT-HAND REAR LAMP FOR SHORT TO BATTERY VOLTAGE		
	1	Ignition switch in position 0.
	2	Disconnect GEM from connector C1BP02-B.
	3	Ignition switch in position II.
	4	CHECK the turn signal lamps.
		Is the right-hand rear turn signal lamp on continuously?
	Yes	LOCATE and RECTIFY the short to battery voltage in the circuit between the rear lamp and the GEM using the Wiring Diagrams. CHECK system operates correctly
	No	CHECK the GEM and INSTALL a NEW one if necessary. CHECK system operates correctly