

# MEGANE

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## 8 Electrical equipment

### 80B HEADLIGHTS

#### Vdiag No.: 44

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# HEADLIGHTS

## Fault finding - Introduction

### 1. SCOPE OF THIS DOCUMENT

This document presents the fault finding procedure applicable to all computers with the following specifications:

Vehicle(s): **MEGANE II Phase 2**  
Function concerned: **discharge bulb**

Computer name: **Discharge bulb**  
Vdiag No.: **44**

### 2. PREREQUISITES FOR FAULT FINDING

#### Documentation type

**Fault finding procedures** (this manual):

- Assisted fault finding (integrated into the diagnostic tool), Dialogys.

**Wiring diagrams:**

- Visu-Schéma (CD-ROM), paper version.

#### Type of diagnostic tools

- **CLIP + multiplex line probe**

#### Type of special tooling required

Special tooling required	
	Multimeter
Elé. 1674	Clip + CAN probe

### 3. RECAP

#### Procedure

To run fault finding on the vehicle computers, switch on the forced + after ignition feed.

Proceed as follows:

#### Switch on the forced + after ignition feed:

- with the vehicle card in the card reader,
- press and hold the Start button (longer than 5 seconds) with start-up conditions not present,
- connect the diagnostic tools and perform the required operations.

#### Switching off the forced + after ignition feed:

Press the Start button twice briefly (less than 3 seconds); check that the + after ignition feed has cut (computer indicator lights on the instrument panel go out).

**Faults:**

Faults are declared as either present or stored (depending on whether they appeared in a certain context and have disappeared since, or whether they remain present but have not been diagnosed within the current context).

The **present** or **stored** status of faults should be taken into consideration when the diagnostic tool is used following the + after ignition supply being switched on (without acting on the system components).

For a **present fault**, apply the procedure described in the **Interpretation of faults** section.

For a **stored fault**, note the faults displayed and apply the **notes** section.

If the fault is **confirmed** when the notes are applied, the fault is present. Deal with the fault

If the fault is **not confirmed**, check:

- the electrical lines which correspond to the fault,
- the connectors on these lines (corrosion, bent pins, etc.),
- the resistance of the component detected as faulty,
- the condition of the wires (melted or split insulation, wear).

**Conformity check:**

The aim of the conformity check is to check statuses and parameters that do not produce a fault display on the diagnostic tool because they are inconsistent. Therefore, this stage is used to:

- run fault finding on faults which are not displayed but which may correspond to a customer complaint,
- check that the system is operating correctly and that there is no risk of a fault recurring after repair.

This section provides the fault finding procedures for statuses and parameters and the conditions for testing them.

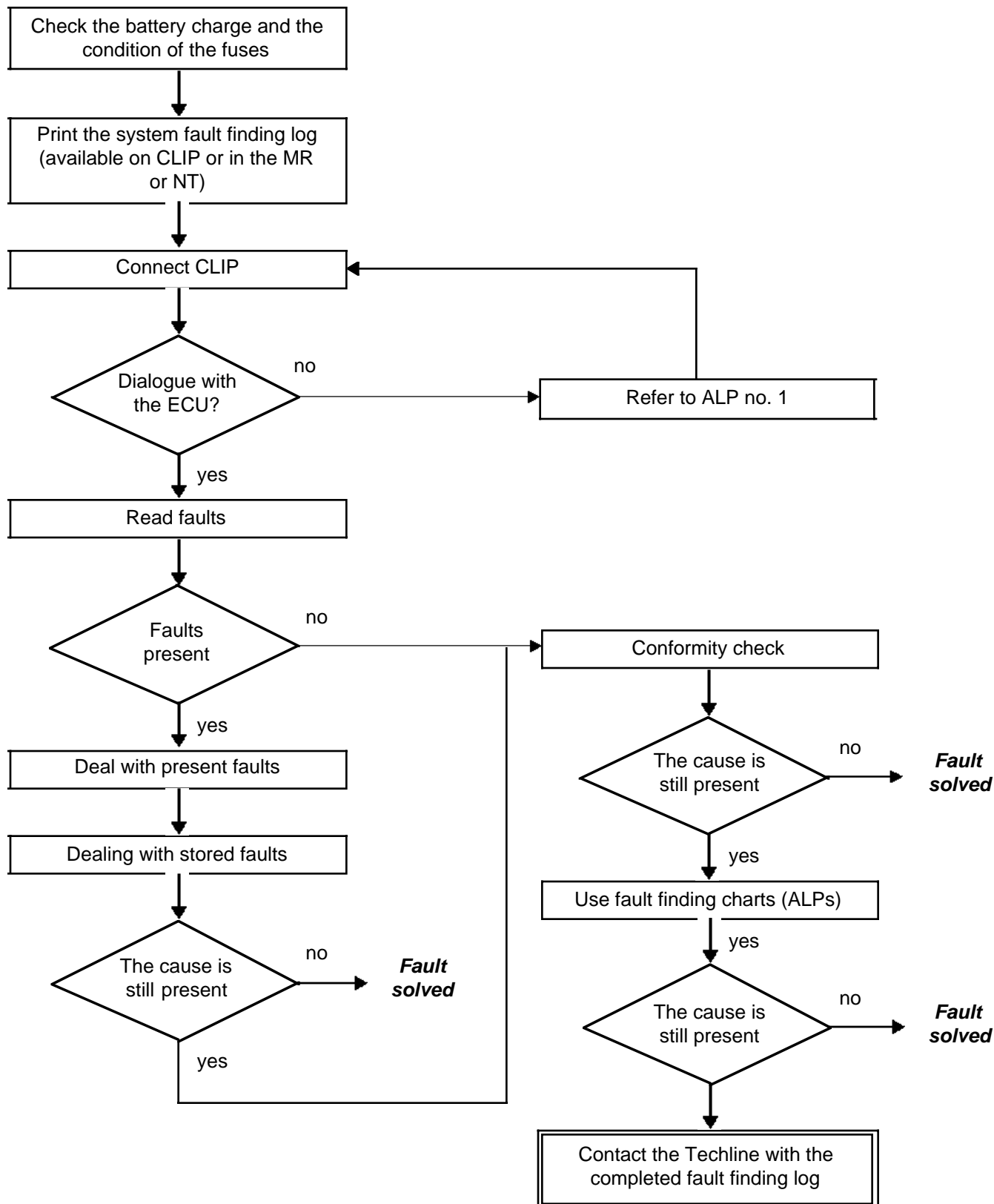
If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

**Customer complaints - Fault finding chart**

If the check using the diagnostic tool is all clear, but the customer complaint is still present, the fault should be dealt as a **Customer complaint**.

**A summary of the overall procedure to follow is provided on the following page in the form of a flow chart**

### 4. FAULT FINDING PROCEDURE



#### 4. FAULT FINDING PROCEDURE (continued)

##### Wiring check:

##### Fault finding problems:

Disconnecting the connectors and/or manipulating the wiring harness may temporarily remove the cause of a fault. Electrical measurements of voltage, resistance and insulation are generally correct, especially if the fault is not present when the analysis is made (stored fault).

##### Visual inspection:

Look for damage under the bonnet and in the passenger compartment.  
Carefully check the fuses, insulators and wiring harness routing.  
Look for signs of oxidation.

##### Tactile inspection:

While manipulating the wiring harness, use the diagnostic tool to note any change in fault status from stored to present.  
Make sure that the connectors are properly locked.  
Apply light pressure to the connectors.  
Twist the wiring harness.  
If there is a change in status, try to locate the source of the fault.

##### Inspection of each component:

Disconnect the connectors and check the appearance of the clips and tabs, as well as their crimping (no crimping on the insulating section).  
Make sure that the clips and tabs are properly locked in the sockets.  
Make sure that no clips or tabs have been dislodged during connection.  
Check the clip contact pressure using an appropriate model of tab.

##### Resistance check:

Check the continuity of entire lines, then section by section.  
Look for a short circuit to earth at + 12 V or to another wire.

If a fault is detected, repair or replace the wiring harness.

### 5. FAULT FINDING LOG

**IMPORTANT!****IMPORTANT**

Any fault on a complex system requires thorough fault finding with the appropriate tools. The FAULT FINDING LOG, which should be completed during the fault finding procedure, ensures a record is kept of the procedure carried out. It is an essential document when consulting the manufacturer.

**IT IS THEREFORE MANDATORY TO FILL OUT A FAULT FINDING LOG EACH TIME FAULT FINDING IS CARRIED OUT.**

You will always be asked for this log:

- when requesting technical assistance from the Techline.
- for approval requests when replacing parts for which approval is obligatory.
- to be attached to monitored parts for which reimbursement is requested. The log is needed for warranty reimbursement, and enables better analysis of the parts removed.

### 6. SAFETY GUIDELINES

All work on components requires the observation of safety rules to prevent damage or injury:

- Check that the battery is properly charged to avoid damaging the computers in the event of a low load.
- Do not smoke,
- Use the appropriate tools.
- Do not touch the discharge bulbs, and do not work on the discharge bulb system when it is in operation, as the voltage can be more than 20,000 V.

## FAULT FINDING LOG

### System: Discharge bulbs

Page 1/2

*List of monitored parts:* **Computer**

- **Administrative identification**

Date \_\_\_\_\_

				2	0		

Log completed by

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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VIN

[illegible]

Engine


### Diagnostic tool

CLIP	
------	--

Update version

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- **Customer complaint**

	1079	No automatic adjustment of the dipped headlights		1081	Erratic automatic adjustment		1082	The dipped headlights do not switch on
	1080	The dipped headlights do not switch off		1083	The dipped headlights come on intermittently		1084	The headlight range is too weak

Other

Your comments

- **Conditions under which the customer complaint occurs**

	005	While driving		011	When ignition is switched on		009	Sudden fault
	003	When stationary		004	Intermittently		999	When switching on the main beam headlights

Other

Your comments

- **Documentation used in fault finding**

<b>Fault finding procedure used</b>	
Type of diagnostic manual:	Workshop Repair Manual <input type="checkbox"/> Technical Note <input type="checkbox"/> Assisted fault finding <input type="checkbox"/>
Fault finding manual no:	
<b>Wiring diagram used</b>	
Wiring Diagram Technical Note No:	
<b>Other documentation</b>	
Title and/or part number:	



# RENAULT

## FD 19

### Fault finding log

# FAULT FINDING LOG

System: Discharge bulbs

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## ● Computer identification and system parts replaced

Part 1 part no.	
Part 2 part no.	
Part 3 part no.	
Part 4 part no.	
Part 5 part no.	

To be read with the diagnostic tool (Identification screen):

Computer part no.	
Supplier no.	
Program no.	
Software version	
Calibration number	
VDIAG	

## ● Faults found with the diagnostic tool

Fault no.	Present	Stored	Fault name	Specification

## ● Conditions under which fault occurs

Status or parameter no.	Parameter name	Value	Unit

## ● System-specific information

Description:

## ● Additional information

What factors led you to replace the computer?

What other parts were replaced?

Other defective functions?

Your comments:




**RENAULT**

**FD 19**  
**Fault finding log**



### 1. System description:

The system on which a fault finding is being performed is fitted with discharge bulbs.

This system allows:

- dynamic adjustment of headlights (**discharge bulb function**).

### 2. System layout:

#### Discharge bulb function:

The system comprises:

- a computer to manage information and control the actuators
- a front height sensor mounted on the front axle to measure vehicle body height variations
- a rear height sensor mounted on the rear axle to measure vehicle body height variations
- 2 adjustment motors mounted inside the headlights
- 2 voltage transformers (ballast) which cannot be diagnosed
- 2 discharge bulbs located inside the headlights which cannot be diagnosed.

### 3. Operation programming

#### Discharge bulb function:

The user requests the vehicle's dipped headlights to be switched on by pressing on the control stalk.

The driver request is received by the UCH which sends it to the computer via the vehicle multiplex network.

The discharge bulb computer operates the headlight adjustment motors.

#### Initialisation:

When the discharge bulbs come on, the headlights run through initialisation.

This function consists of operating the actuators to three different beam heights.

The driver is notified that the system is operating correctly.

If the computer is faulty, the initialisation is not performed when the bulbs are switched on.

Initialisation is performed if the following conditions are fulfilled:

- stalk in dipped headlights position
- system initialised
- vehicle stationary or speed < 6 mph (10 km/h).

**Dynamic adjustment:**

This function allows adjustment of the discharge bulb beam height as a function of variations in vehicle body height and vehicle speed.

This information is provided by:

- the front and rear body sensors
- the ABS computer (speed signal via the multiplex network)
- the longitudinal acceleration sensor

The discharge bulb computer operates the adjustment motors according to the information received, thereby obtaining optimal beam characteristics under all driving conditions.

**Raise/lower according to speed:**

This function allows operation of the adjustment motors to elevate the beam at a speed of more than 18 mph (30 km/h), to optimise driving comfort. The beam is adjusted as a function of the vehicle speed.

If the vehicle speed is < 18 mph (30 km/h), the adjustment motors lower the beam.

**Fault finding - Allocation of computer tracks****a) 12-track black connector**

Track	Description
1	Not connected
2	Multiplex line H signal
3	Not connected
4	multiplex line L signal
5	Rear sensor analogue signal
6	Sensor + supply
7	+ After ignition feed
8	Earth
9	Not connected
10	Not connected
11	Front sensor analogue signal
12	Sensor earth

**b) 10-track black connector**

Track	Description
1	Left-hand adjustment motor track 2
2	Left-hand adjustment motor track 4
3	Left-hand adjustment motor track 1
4	Left-hand adjustment motor track 3
5	Not connected
6	Right-hand adjustment motor track 3
7	Right-hand adjustment motor track 1
8	Right-hand adjustment motor track 4
9	Right-hand adjustment motor track 2
10	Not connected

## Fault finding - Replacement of components

---

### a) Instructions to be followed after replacing the discharge bulb computer:

The following actions must be taken after replacing the discharge bulb computer:

- Allocate the computer to the vehicle by using configuration **CF001 Vehicle type**.
- Initialise the system using the **VP002 System initialisation** configuration.

### b) Instructions to be followed after replacing one or both adjustment motors:

Replacement of an adjustment motor requires the manual adjustment of the headlight (see **MR364 Mechanical, 80C, Xenon Headlights: Adjustment**).

### c) Instructions to be followed after replacement of a height sensor:

Replacement of a height sensor requires initialisation of the system operating parameters.  
Use the **VP002 System initialisation** configuration after each replacement of a height sensor.

## Fault finding - Configurations and programming

## Summary of configurations and system configuration readings:

**CF001 and LC001 Vehicle type:**

5-door/sport hatch
4-door/estate
Cabriolet
Not defined

This configuration must be used when replacing the discharge bulb computer.

Select the vehicle on which fault finding is being run and confirm.

Check configuration reading **LC001 Vehicle type**.

If you do not have the correct vehicle type, restart the configuration.

**WARNING**

After each configuration of the vehicle type, it is mandatory to perform a system initialisation. Use the **VP002 System initialisation** configuration.

**CF002 Dynamic adjustment:** **WITH**

This configuration is used to activate beam adjustment according to the movements of the vehicle body recorded by the front and rear height sensors.

Select **WITH** to activate this feature.

Check configuration reading **LC002 Dynamic adjustment**.

**LC002 Dynamic adjustment:** **WITH**  
**NONE**

This configuration reading should be **WITH** by default.

If **LC002 = NONE** following replacement of the discharge bulb computer, use the **CF002 Dynamic adjustment** configuration.

**CF003 Automatic dipping of the headlights:** **WITH**

This configuration is used to change the direction of the beam as a function of vehicle speed in order to improve driving comfort.

Select **WITH** to activate this feature.

Check configuration reading **LC003 Automatic dipping of the headlights**.

**LC003 Automatic dipping of the headlights** **WITH**  
**NONE**

This configuration reading should be **WITH** by default.

If **LC003 = NONE** following replacement of the discharge bulb computer, use configuration **CF003 Automatic dipping of the headlights**.

**LC004 Raised dip:****NONE**

This configuration reading should be **NONE** by default.

If **LC002** is **WITH** following replacement of the discharge bulb computer, **contact the Techline**.

**CF005 Initialisation:****WITH**

This configuration is used to operate the adjustment motors when the discharge bulbs are switched on.

It tells the driver the system is operating correctly and there are no faults.

Select **WITH** to activate this feature.

Check configuration reading **LC005 Initialisation**.

**LC005 Initialisation:****WITH  
NONE**

This configuration reading should be **WITH** by default.

If **LC005 = WITHOUT** following replacement of the discharge bulb computer, use the **CF005 Initialisation** configuration.

**VP002: System initialisation**

This configuration must be used when replacing the discharge bulb computer or a body height sensor.

It is used to assign the operating values of the body height sensors in their initial position.

This command must be performed under the following conditions:

- Vehicle stationary
- Under + after ignition feed
- No fault present in the computer
- Vehicle unladen
- Handbrake off
- Vehicle on horizontal flat ground
- Gearbox in neutral

Consult the interpretation of status **ET002 Computer initialisation**.

If status **ET002** does not become **DONE**, restart the configuration.

## Fault finding - Fault summary table

Tool fault	Associated DTC	Diagnostic tool title
DF001	9C05	COMPUTER
DF002	9C01	FRONT HEIGHT SENSOR CIRCUIT
DF003	9C00	REAR HEIGHT SENSOR CIRCUIT
DF004	D208	VEHICLE SPEED SIGNAL
DF005	9C0A	COMPUTER INITIALISATION
DF009	9C04	LEFT-HAND ADJUSTMENT MOTOR CIRCUIT
DF010	9C03	RIGHT-HAND ADJUSTMENT MOTOR CIRCUIT
DF013	9C08	COMPUTER SUPPLY VOLTAGE
DF014	9C0B	COMPUTER CONFIGURATION

**AFTER REPAIR**

Deal with any faults displayed by the diagnostic tool.  
 Clear the computer memory.  
 Carry out a road test followed by another check with the diagnostic tool.

<b>DF001 PRESENT</b>	<u>COMPUTER</u> 1.DEF : Internal electronic fault
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<b>NOTES</b>	None
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Disconnect the discharge bulb computer **12-track** black connector.  
Check the condition of the connections for oxidation, damage, etc.  
If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.  
If the fault is still present, contact the Techline.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

<b>DF002 PRESENT OR STORED</b>	<b>FRONT HEIGHT SENSOR CIRCUIT</b> CC.1 : Short circuit to + 12 V CO.0 : Open circuit or short circuit to earth 1.DEF: Values outside the limits										
<b>NOTES</b>	<b>Conditions for applying the fault finding procedure to stored faults:</b> The fault is declared as present following a road test or a system initialisation.										
<b>CC.1</b>	<b>NOTES</b>	None.									
<p>Manipulate the wiring harness between the discharge bulb computer and the front height sensor in order to produce a change in status (Present ↔ Stored).            Look for possible damage to the harness, and check the <b>connection and condition</b> of the front height sensor and its connection.            If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p> <p>Disconnect the front height sensor and check the condition of the connections (oxidation, damage, etc.). Repair if necessary.            Check <b>the continuity and insulation against + 12 V</b> of the following connections:</p> <table border="0"> <tr> <td>Front height sensor black connector <b>track 4</b></td> <td>→</td> <td><b>Track 11</b> discharge bulb computer 12-track black connector</td> </tr> <tr> <td>Front height sensor black connector <b>track 5</b></td> <td>→</td> <td><b>Track 6</b> discharge bulb computer 12-track black connector</td> </tr> <tr> <td>Front height sensor black connector <b>track 1</b></td> <td>→</td> <td><b>Track 12</b> discharge bulb computer 12-track black connector</td> </tr> </table> <p>If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>			Front height sensor black connector <b>track 4</b>	→	<b>Track 11</b> discharge bulb computer 12-track black connector	Front height sensor black connector <b>track 5</b>	→	<b>Track 6</b> discharge bulb computer 12-track black connector	Front height sensor black connector <b>track 1</b>	→	<b>Track 12</b> discharge bulb computer 12-track black connector
Front height sensor black connector <b>track 4</b>	→	<b>Track 11</b> discharge bulb computer 12-track black connector									
Front height sensor black connector <b>track 5</b>	→	<b>Track 6</b> discharge bulb computer 12-track black connector									
Front height sensor black connector <b>track 1</b>	→	<b>Track 12</b> discharge bulb computer 12-track black connector									
If the fault is still present, replace the front height sensor.											

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

DF002 CONTINUED 1	
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CO.0	NOTES	None
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Manipulate the wiring harness between the discharge bulb computer and the front height sensor in order to produce a change in status (Present ↔ Stored).

Look for possible damage to the harness, and check the **connection and condition** of the front height sensor and its connection.

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

Disconnect the front height sensor and check the condition of the connections (damage, corrosion, etc.),  
If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.

Check the following connections for **continuity and the absence of interference resistance**:

Front height sensor black connector <b>track 4</b>	————→	<b>Track 11</b> discharge bulb computer 12-track black connector
Front height sensor black connector <b>track 5</b>	————→	<b>Track 6</b> discharge bulb computer 12-track black connector
Front height sensor black connector <b>track 1</b>	————→	<b>Track 12</b> discharge bulb computer 12-track black connector

Check **the insulation against earth** of the following connections:

Front height sensor black connector <b>track 4</b>	————→	<b>Track 11</b> discharge bulb computer 12-track black connector
Front height sensor black connector <b>track 5</b>	————→	<b>Track 6</b> discharge bulb computer 12-track black connector

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

If the fault is still present, replace the front height sensor.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

DF002 CONTINUED 2		
1.DEF	NOTES	None
Check the condition of the sensor linkage rod. Replace if necessary.		
Disconnect the front height sensor and check the condition of the connections (damage, corrosion, etc.), If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.		
<p>Check the following connections for <b>continuity and the absence of interference resistance</b>:</p> <p>Front height sensor black connector <b>track 4</b> —————&gt; <b>Track 11</b> discharge bulb computer 12-track black connector</p> <p>Front height sensor black connector <b>track 5</b> —————&gt; <b>Track 6</b> discharge bulb computer 12-track black connector</p> <p>Front height sensor black connector <b>track 1</b> —————&gt; <b>Track 12</b> discharge bulb computer 12-track black connector</p> <p>If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p> <p>If the fault is still present, replace the front height sensor.</p>		

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

<b>DF003 PRESENT OR STORED</b>	<b>REAR HEIGHT SENSOR CIRCUIT</b> CC.1 : Short circuit to + 12 V CO.0 : Open circuit or short circuit to earth 1.DEF: Values outside the limits
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<b>NOTES</b>	<b>Conditions for applying the fault finding procedure to stored faults:</b> The fault is declared as present following a road test or a system initialisation.
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<b>CC.1</b>	<b>NOTES</b>	None
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Manipulate the harness between the discharge bulb computer and the rear height sensor in order to produce a change in status (Present  $\Leftrightarrow$  Stored).  
 Look for possible damage to the harness, and check the **connection and condition** of the rear height sensor and its connectors.  
 If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

Disconnect the rear height sensor and check the condition of the connections (damage, corrosion, etc.),  
 If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.

Check **the continuity and insulation against + 12 V** of the following connections:

- |   |       |  |
|---|-------|--|
| Rear height sensor black connector <b>track 4</b> | ————→ | <b>Track 5</b> discharge bulb computer 12-track black connector  |
| Rear height sensor black connector <b>track 5</b> | ————→ | <b>Track 6</b> discharge bulb computer 12-track black connector  |
| Rear height sensor black connector <b>track 1</b> | ————→ | <b>Track 12</b> discharge bulb computer 12-track black connector |

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

If the fault is still present, replace the rear height sensor.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

DF003 CONTINUED 1	
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CO.0	NOTES	None.
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Manipulate the harness between the discharge bulb computer and the rear height sensor in order to produce a change in status (Present ↔ Stored).

Look for possible damage to the harness, and check the **connection and condition** of the rear height sensor and its connectors.

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

Disconnect the rear height sensor and check the condition of the connections (damage, corrosion, etc.),  
If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.

Check the following connections for **continuity and the absence of interference resistance**:

Rear height sensor black connector <b>track 4</b>	————→	<b>Track 5</b> discharge bulb computer 12-track black connector
Rear height sensor black connector <b>track 5</b>	————→	<b>Track 6</b> discharge bulb computer 12-track black connector
Rear height sensor black connector <b>track 1</b>	————→	<b>Track 12</b> discharge bulb computer 12-track black connector

Check **the insulation against earth** of the following connections:

Rear height sensor black connector <b>track 4</b>	————→	<b>Track 5</b> discharge bulb computer 12-track black connector
Rear height sensor black connector <b>track 5</b>	————→	<b>Track 6</b> discharge bulb computer 12-track black connector

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

If the fault is still present, replace the rear height sensor.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

DF003 CONTINUED 2		
1.DEF	NOTES	None
Check the condition of the sensor linkage rod. Replace if necessary.		
Disconnect the rear height sensor and check the condition of the connections (damage, corrosion, etc.), If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.		
Check the following connections for <b>continuity and the absence of interference resistance</b> :		
Rear height sensor black connector <b>track 4</b>	—————▶	<b>Track 5</b> discharge bulb computer 12-track black connector
Rear height sensor black connector <b>track 5</b>	—————▶	<b>Track 6</b> discharge bulb computer 12-track black connector
Rear height sensor black connector <b>track 1</b>	—————▶	<b>Track 12</b> discharge bulb computer 12-track black connector
If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.		
If the fault is still present, replace the rear height sensor.		

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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<b>DF004 PRESENT OR STORED</b>	<u>VEHICLE SPEED SIGNAL</u> 1.DEF: Error in speed signal coming from the ABS
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<b>NOTES</b>	<b>Conditions for applying the fault finding procedure to stored faults:</b> The fault is declared present after a road test.
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Test the multiplex network (see **88B, Multiplexing**) and interpret any faults present.  
Test the ABS computer (see **38C, Anti-lock braking system**).  
If the fault is still present, contact the Techline.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

<b>DF005 PRESENT</b>	<u>COMPUTER INITIALISATION</u> 1.DEF: Computer initialisation not performed
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<b>NOTES</b>	None
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Fault **DF005** is directly associated with status **ET002 Computer initialisation**.  
If the computer initialisation has not been performed, run command **VP002 System initialisation**.  
Follow the procedure described in the **Configuration and programming** section of this Note.  
When the command is complete, check that **ET002 Computer initialisation** is **DONE**.  
If the fault is still present, contact the Techline.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

<b>DF009 PRESENT OR STORED</b>	<u>LEFT-HAND ADJUSTMENT MOTOR CIRCUIT</u> 1.DEF : Unidentified electrical fault
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<b>NOTES</b>	<b>Conditions for applying the fault finding procedure to stored faults:</b> The fault appears after: – the dipped headlights are switched on, – command <b>AC001 Adjustment motors</b> is run.
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**Special notes:**

If the fault has appeared in the dipped headlights position:

- the left-hand adjustment motor will remain immobile,
- the right and left-hand adjustment motors will no longer be operational.

If the fault has appeared in the main beam headlights position:

- the left-hand adjustment motor will remain immobile,
- the right-hand adjustment motor will be pointing downwards,
- the left-hand dipped beam bulb will be off,
- the front fog lights will be on,
- an instrument panel warning message will be sent.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

DF009  
CONTINUED

The **DF009** fault appears following:

- **an open circuit** on the left-hand adjustment motor control lines,
- **a short circuit to + 12 V** on one of the left-hand adjustment motor control lines,
- **a short circuit between 2 control lines** of the left-hand adjustment motor,
- **a short circuit to earth** on one of the left-hand adjustment motor control lines.

Disconnect the black **4-track** left-hand adjustment motor connector.

Check the condition of the connections (oxidation, damage, etc.).

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.

Check the **insulation to + 12 V and earth, the continuity and absence of interference resistance** on the following connections:

Discharge bulb computer black 10-track connector <b>Track 2</b>	————→	<b>Track 4</b> Left-hand adjustment motor black 4-track connector
Discharge bulb computer black 10-track connector <b>Track 4</b>	————→	<b>Track 3</b> Left-hand adjustment motor black 4-track connector
Discharge bulb computer black 10-track connector <b>Track 1</b>	————→	<b>Track 2</b> Left-hand adjustment motor black 4-track connector
Discharge bulb computer black 10-track connector <b>Track 3</b>	————→	<b>Track 1</b> Left-hand adjustment motor black 4-track connector

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

**With the connectors disconnected, check the insulation between each control wire.**

If two wires are in short-circuit, repair the relevant connections.

If the fault is still present, replace the left-hand adjustment motor.

**AFTER REPAIR**

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

## Fault finding - Interpretation of faults

<b>DF010 PRESENT OR STORED</b>	<u>RIGHT-HAND ADJUSTMENT MOTOR CIRCUIT</u> 1.DEF: Unidentified electrical fault
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<b>NOTES</b>	<b>Conditions for applying the fault finding procedure to stored faults:</b> The fault appears after: – the dipped headlights are switched on, – command <b>AC001 Adjustment motors</b> is run.
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**Special notes:**

If the fault has appeared in the dipped headlights position:

- the right-hand adjustment motor will remain immobile,
- the right and left-hand adjustment motors will no longer be operational.

If the fault has appeared in the main beam headlights position:

- the right-hand adjustment motor will remain immobile,
- the left-hand adjustment motor will be pointing downwards,
- the right-hand dipped beam bulb will be off,
- the front fog lights will be on,
- an instrument panel warning message will be sent.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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## Fault finding - Interpretation of faults

DF010  
CONTINUED

Fault **DF010** appears following:

- **an open circuit** on the right-hand adjustment motor control lines,
- **a short circuit to + 12 V** on one of the right-hand adjustment motor control lines,
- **a short circuit between 2 control lines** of the right-hand adjustment motor,
- **a short circuit to earth** on one of the right-hand adjustment motor control lines.

Disconnect the black **4-track** right-hand adjustment motor connector.

Check the condition of the connections (oxidation, damage, etc.).

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.

Check the **insulation to + 12 V and earth, the continuity and absence of interference resistance** on the following connections:

Discharge bulb computer black 10-track connector <b>Track 8</b>	————→	<b>Track 4</b> Right-hand adjustment motor black 4-track connector
Discharge bulb computer black 10-track connector <b>Track 6</b>	————→	<b>Track 3</b> Right-hand adjustment motor black 4-track connector
Discharge bulb computer black 10-track connector <b>Track 9</b>	————→	<b>Track 2</b> Right-hand adjustment motor black 4-track connector
Discharge bulb computer black 10-track connector <b>Track 7</b>	————→	<b>Track 1</b> Right-hand adjustment motor black 4-track connector

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

**With the connectors disconnected, check the insulation between each control wire.**

If two wires are in short-circuit, repair the relevant connections.

If the fault is still present, replace the right-hand adjustment motor.

**AFTER REPAIR**

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

## Fault finding - Interpretation of faults

<b>DF013 PRESENT OR STORED</b>	<u>COMPUTER SUPPLY VOLTAGE</u> 1.DEF: Feed voltage too low 2.DEF: Feed voltage too high
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<b>NOTES</b>	<b>Conditions for applying the fault finding procedure to stored faults:</b> If the fault is declared present after: – the engine is started, – battery replacement.
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<b>1.DEF</b>	<b>NOTES</b>	None
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Check the condition of the battery and the vehicle's charge circuit (see **Technical Note 6014, checking the charging circuit, 16A, Starting-charging**).

<b>2.DEF</b>	<b>NOTES</b>	None
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Check the **insulation** and **continuity** of the following connections:

Protection and Switching Unit	————→	<b>Track 1</b> discharge bulb computer 5-track black connector
Vehicle earth	————→	<b>Track 4</b> discharge bulb computer 5-track black connector

If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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<b>DF014 PRESENT</b>	<u>COMPUTER CONFIGURATION</u> 1.DEF : Vehicle configuration not performed
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<b>NOTES</b>	None
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If fault **DF014 computer configuration** is present, the vehicle configuration has not been performed.  
Use the **CF001 Vehicle type** configuration (see **Configuration and programming**).  
When the vehicle type has been entered, run command **VP002 Initialise system** to render the system operational.  
Once the procedure is completed, check for system faults.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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# HEADLIGHTS

## Fault finding - Conformity check

**80B****NOTES**

Only check the conformity after a complete check with the diagnostic tool.  
**Operating conditions: Vehicle with the ignition and dipped headlights lit.**

**MAIN SCREEN**

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Computer	<b>ET002:</b> Computer initialisation	Status <b>ET002</b> should be <b>COMPLETED</b>	If status <b>ET002</b> is <b>NOT DONE</b> , use the <b>VP002 Initialise system</b> command. (See <b>Configuration and programming</b> )
		<b>ET001:</b> Computer configuration	Status <b>ET001</b> should be <b>DONE</b>	If status <b>ET001</b> is <b>NOT DONE</b> , use the <b>CF001 Vehicle type</b> command. (See <b>Configuration and programming</b> )
2	Feed voltages	<b>PR016:</b> Computer feed voltage	<b>10 V &lt; voltage &lt; 15.5 V</b>	If one of the voltages does not comply with the operating values, consult the interpretation of fault <b>DF013 Computer feed voltage</b> .
		<b>PR013:</b> Height sensor feed voltage	<b>4.8 V &lt; voltage &lt; 5.2 V</b>	
3	Reverse gear	<b>ET021:</b> Reverse gear signal	<b>PRESENT or ABSENT</b>	<b>In the event of a fault</b> , test the multiplex network and deal with any faults present. (see <b>88B multiplexing</b> )

# HEADLIGHTS

## Fault finding - Conformity check

**80B****NOTES**

Only check the conformity after a complete check with the diagnostic tool.  
**Operating conditions: Vehicle with the ignition and dipped headlights lit.**

**MAIN SCREEN (CONTINUED)**

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
4	Vehicle speed	<b>PR006:</b> Vehicle speed	<b>0 mph or km/h</b>	If parameter <b>PR006</b> is not consistent, test the multiplex network (see <b>88B multiplexing</b> ) and run fault finding on the ABS computer (see <b>38C ABS</b> )
5	Dipped headlights	<b>ET016:</b> Dipped headlights	<b>ON or OFF</b>	<b>In the event of a fault</b> , test the multiplex network (see <b>88B multiplexing</b> ), and run fault finding on the UCH. (See <b>87B UCH</b> ).



# HEADLIGHTS

## Fault finding - Conformity check

**80B****NOTES**

Only check the conformity after a complete check with the diagnostic tool.  
**Operating conditions: Vehicle with the ignition and dipped headlights lit.**

**SUB-FUNCTION: LIGHTING POSITION**

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Sensor supply voltage	<b>PR013:</b> Height sensor feed voltage	<b>4.8 V &lt; voltage &lt; 5.2 V</b>	If the supply voltage is not within the operating range, check the charging circuit and the condition of the battery.
2	Sensor position signal	<b>PR011:</b> Front height sensor signal <b>PR012:</b> Rear height sensor signal	<b>12.5 % &lt; X &lt; 87.5 %</b>	If the height sensor operating values are outside the limits, consult the interpretation of faults <b>DF002 Front height sensor circuit</b> and <b>DF003 Rear height sensor circuit</b> .
3	Adjustment motor position	<b>PR008:</b> Right-hand adjustment motor position <b>PR009:</b> Left-hand adjustment motor position <b>PR021:</b> Left-hand adjustment motor position setpoint <b>PR022:</b> Right-hand adjustment motor position setpoint	<b>PR008 = PR021 to ± 3 steps</b> <b>PR009 = PR022 to ± 3 steps</b> <b>0 step &lt; X &lt; 260 steps</b>	If the adjustment motor operating values are outside the limits, consult the interpretation of faults <b>DF009 Left-hand adjustment motor circuit</b> and <b>DF010 Right-hand adjustment motor circuit</b> .
4	Actuator control	<b>AC001:</b> Adjustment motors	This command is for testing the operation of the adjustment motors.	If the adjustment motors do not move when the <b>AC001</b> command is executed, refer to interpretation of the <b>AC001</b> command.

# HEADLIGHTS

## Fault finding - Conformity check

**80B****NOTES**

Only check the conformity after a complete check with the diagnostic tool.  
**Operating conditions: Vehicle with the ignition and dipped headlights lit.**

**SUB-FUNCTION: LIGHTING MANAGEMENT**

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Computer	<b>ET002:</b> Computer initialisation	Status <b>ET002</b> should be <b>COMPLETED</b>	If status <b>ET002</b> is <b>NOT DONE</b> , use the <b>VP002 Initialise system</b> command. (See <b>Configurations and Programming</b> ).
		<b>ET001:</b> Computer configuration	Status <b>ET001</b> should be <b>DONE</b>	If status <b>ET001</b> is <b>NOT DONE</b> , use the <b>CF001 Vehicle type</b> command. (See <b>Configurations and Programming</b> ).
2	Feed voltages	<b>PR016:</b> Computer feed voltage	<b>10 V &lt; voltage &lt; 15.5 V</b>	If one of the voltages does not comply with the operating values, consult the interpretation of fault <b>DF013 Computer feed voltage</b> .
		<b>PR013:</b> Height sensor feed voltage	<b>4.8 V &lt; voltage &lt; 5.2 V</b>	
3	Dynamic adjustment	<b>ET005:</b> Right-hand adjustment ----- <b>ET004:</b> Left-hand correction	Statuses <b>ET005</b> and <b>ET004</b> should be <b>ACTIVE</b> when the vehicle is stationary.	If status <b>ET005</b> or <b>ET004</b> is other than <b>ACTIVE</b> , refer to interpretation of statuses <b>ET004</b> and <b>ET005</b> to find the operating program for dynamic adjustment.

**NOTES**

Only check the conformity after a complete check with the diagnostic tool.  
**Operating conditions: Vehicle with the ignition and dipped headlights lit.**

**SUB-FUNCTION: LIGHTING MANAGEMENT (CONTINUED)**

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
4	Vehicle speed	<b>PR006:</b> Vehicle speed	<b>0 mph or km/h</b>	If parameter <b>PR006</b> is not consistent, test the multiplex network (see <b>88B multiplexing</b> ) and run fault finding on the vehicle's ABS computer (see <b>38C ABS</b> )

# HEADLIGHTS

## Fault finding - Conformity check

**80B****NOTES**

Only check the conformity after a complete check with the diagnostic tool.  
**Operating conditions: Vehicle with the ignition and dipped headlights lit.**

**SUB-FUNCTION: LIGHTING CONTROL**

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Dipped headlights	<b>ET016:</b> Dipped headlights	<b>ON</b>	<b>In the event of a fault,</b> test the multiplex network (see <b>88B multiplexing</b> ), and run fault finding on the UCH. (See <b>87B UCH</b> ).

Tool status	Diagnostic tool title
ET001	Computer configuration
ET002	Computer initialisation
ET004	Left-hand correction
ET005	Right-hand correction
ET016	Dipped headlights
ET021	Reverse gear signal

ET001	<u>COMPUTER CONFIGURATION</u>
<b>NOTES</b>	Status <b>ET001 COMPUTER CONFIGURATION</b> shows the system operation and authorises computer initialisation.

**INHIBITED**

If status **ET001** is **INHIBITED**, the computer cannot be initialised.

Possible causes:

- Configuration not completed when configuration is attempted.
- Speed not zero when initialisation is attempted.
- Sensor fault or sensor value out of range when initialisation is attempted.

Check height sensors.

Check vehicle configuration.

After repair, initialise the system using the **VP002** command.

When this procedure has finished, the **ET001** status should be **AUTHORISED**.

**AUTHORISED**

Initialisation is possible if status **ET001** is **AUTHORISED**.

<b>AFTER REPAIR</b>	Carry out another fault finding check on the system. Deal with any faults. Clear the stored faults.
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## Fault finding - Interpretation of statuses

ET002	<u>COMPUTER INITIALISATION</u>
-------	--------------------------------

NOTES	If status <b>ET002 COMPUTER INITIALISATION</b> is <b>INHIBITED</b> , system initialisation is impossible.
-------	---

## NOT PERFORMED

If status **ET002** is **NOT DONE**, the computer is not initialised.  
 Fault **DF005 Computer initialisation** is present and the system functions are inhibited. Use command **VP002 Initialise system** following the procedure described in the **configuration and programming** section.  
 When this procedure has finished, the **ET002** status should be **DONE**.

## DONE

If status **ET002** is **DONE**, computer initialisation has been performed and the system is operating normally.

AFTER REPAIR	Carry out another fault finding check on the system. Deal with any faults. Clear the stored faults.
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ET004	<u>LEFT-HAND ADJUSTMENT</u>
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NOTES	These checks are carried out only if the status is inconsistent with the system operating conditions.
-------	---

ACTIVE
--------

Status **ET004** is **ACTIVE** when the left-hand adjustment motor is operated by the computer:

- on switching on the dipped beam headlights
- during adjustment of the beam.

#### STATUS1: INITIALISATION

Status **ET004** is **STATUS1** when the system is in the initialisation phase.

The computer is informed of the initial positions of the adjustment motors and the height sensors.

#### STATUS2: DIPPED HEADLIGHT STANDBY

Status **ET004** is **STATUS2** when the dipped headlights are off.

The correction system is in standby mode.

The computer is informed of the initial positions of the adjustment motors and the height sensors.

AFTER REPAIR	Carry out another fault finding check on the system. Deal with any faults. Clear the stored faults.
--------------	---



**ET004**  
**CONTINUED 1**

**STATUS3: REFERENCING PHASE**

Status **ET004** is **STATUS3** when the computer authorises the system initialisation.  
The status is only visible for a brief moment.

**STATUS4: INITIALISATION PHASE**

Status **ET004** is **STATUS4** during initialisation. The initialisation consists of operating the adjustment actuators at three different beam heights when the dipped headlights are switched on.  
This action confirms correct operation of the system and checks for possible faults.  
(See **System operation**).

**STATUS5: POWER SUPPLY FREEZE TIMED DELAY**

If a fault is present on the adjustment motors, the power supply to the motors is cut, and their position is locked.  
Status **ET004** becomes **STATUS5**. No command is performed on the left-hand adjustment motor.

**AFTER REPAIR**

Carry out another fault finding check on the system.  
Deal with any faults.  
Clear the stored faults.

**ET004**  
**CONTINUED 2**

**STATUS6: POWER SUPPLY FREEZE EXPIRED**

The command lock is terminated, the system changes to safe mode.

**STATUS7: SAFE MODE**

Status **ET004** is **STATUS7** when:

- the left-hand adjustment motor is faulty,
- the rear height sensor is faulty,
- the computer feed voltage is **< 10 V for + 10 seconds**.

Consult the relevant fault finding pages, and refer to their interpretation if necessary.

If there are no faults affecting the system, refer to interpretation of the **AC001 Adjustment motors** command.

**AFTER REPAIR**

Carry out another fault finding check on the system.  
Deal with any faults.  
Clear the stored faults.

ET005	<u>RIGHT-HAND ADJUSTMENT</u>
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NOTES	These checks are carried out only if the status is inconsistent with the system operating conditions.
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ACTIVE
--------

Status **ET005** is **ACTIVE** when the right-hand adjustment motor is actuated by the computer:

- on switching on the dipped beam headlights
- during adjustment of the beam.

#### STATUS1: INITIALISATION

Status **ET005** is **STATUS1** when the system is in the initialisation phase.

The computer is informed of the initial positions of the adjustment motors and the height sensors.

#### STATUS2: DIPPED HEADLIGHT STANDBY

Status **ET005** is **STATUS2** when the dipped headlights are off.

The correction system is in standby mode.

The computer is informed of the initial positions of the adjustment motors and the height sensors.

AFTER REPAIR	Carry out another fault finding check on the system. Deal with any faults. Clear the stored faults.
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## Fault finding - Interpretation of statuses

**ET005**  
**CONTINUED 1**

**STATUS3: REFERENCING PHASE**

Status **ET005** is **STATUS3** when the computer authorises the system initialisation.  
The status is only visible for a brief moment.

**STATUS4: INITIALISATION PHASE**

Status **ET005** is **STATUS4** during initialisation. The initialisation operation consists of operating the adjustment actuators at three different beam heights when the dipped headlights are switched on.  
This action confirms correct operation of the system and checks for possible faults.  
(See **System operation**).

**STATUS5: POWER SUPPLY FREEZE TIMED DELAY**

If a fault is present on the adjustment motors, the power supply to the motors is cut, and their position is locked.  
Status **ET005** becomes **STATUS5**. No command is performed on the right-hand adjustment motor.

**STATUS6: POWER SUPPLY FREEZE EXPIRED**

The command lock is terminated, the system changes to safe mode.

**AFTER REPAIR**

Carry out another fault finding check on the system.  
Deal with any faults.  
Clear the stored faults.

**ET005**  
**CONTINUED 2**

**STATUS7: SAFE MODE**

Status **ET005** is **STATUS7** when:

- the right-hand adjustment motor is faulty,
- the rear height sensor is faulty,
- the computer feed voltage is **< 10 V for + 10 seconds**.

Consult the relevant fault finding pages, and refer to their interpretation if necessary.

If there are no faults affecting the system, refer to interpretation of the **AC001 Adjustment motors** command.

**AFTER REPAIR**

Carry out another fault finding check on the system.  
Deal with any faults.  
Clear the stored faults.

ET016

DIPPED HEADLIGHTS**NOTES**

These checks are carried out only if the status is inconsistent with the system operating conditions.

**ON**

Status **ET016** is **ON** if the user activates the dipped headlights function.

**OFF**

Status **ET016** is **OFF** if the user cuts the dipped headlights function.

**AFTER REPAIR**

Carry out another fault finding check on the system.  
Deal with any faults.  
Clear the stored faults.

ET021	<u>REVERSE GEAR SIGNAL</u>
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<b>NOTES</b>	These checks are carried out only if the status is inconsistent with the system operating conditions.
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<b>PRESENT</b>
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Status <b>ET021</b> is <b>PRESENT</b> if the user shifts to reverse gear.
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<b>ABSENT</b>
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Status <b>ET021</b> is <b>ABSENT</b> if the user shifts out of reverse gear.
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<b>AFTER REPAIR</b>	Carry out another fault finding check on the system. Deal with any faults. Clear the stored faults.
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Summary table of system parameters:

Tool parameter	Diagnostic tool title
PR004	Rear reference height
PR005	Front reference height
PR006	Vehicle speed
PR008	Right-hand adjustment motor position
PR009	Left-hand adjustment motor position
PR011	Front height sensor signal
PR012	Rear height sensor signal
PR013	Height sensor feed voltage
PR016	Computer feed voltage
PR021	Left-hand adjustment motor position setpoint
PR022	Right-hand adjustment motor position setpoint



Tool commands	Diagnostic tool title
RZ001	Fault memory
AC001	Adjustment motors
VP001	Enter VIN
VP002	System initialisation

## Fault finding - Interpretation of commands

AC001

ADJUSTMENT MOTORS

This command is for testing the control circuit of the adjustment motors.

Select the actuators tab of the diagnostic tool.

Select the command **AC001**.

The adjustment motors should move while the command is being run.

Switch the lights on if necessary to verify the beam height variation.

If either of the two motors, or both motors do not move, check **continuity and absence of interference resistance** on the following connections:

Left-hand adjustment motor:

discharge bulb computer black 10-track connector <b>Track 3</b>	————→	<b>track 1</b> left-hand adjustment motor black 4-track connector
discharge bulb computer black 10-track connector <b>Track 1</b>	————→	<b>track 2</b> left-hand adjustment motor black 4-track connector
discharge bulb computer black 10-track connector <b>Track 4</b>	————→	<b>track 3</b> left-hand adjustment motor black 4-track connector
discharge bulb computer black 10-track connector <b>Track 2</b>	————→	<b>Track 4</b> left-hand adjustment motor black 4-track connector

If all these checks are correct, replace the left-hand adjustment motor.

Right-hand adjustment motor:

discharge bulb computer black 10-track connector <b>Track 7</b>	————→	<b>track 1</b> right-hand adjustment motor black 4-track connector
discharge bulb computer black 10-track connector <b>Track 9</b>	————→	<b>track 2</b> right-hand adjustment motor black 4-track connector
discharge bulb computer black 10-track connector <b>Track 6</b>	————→	<b>track 3</b> right-hand adjustment motor black 4-track connector
discharge bulb computer black 10-track connector <b>Track 8</b>	————→	<b>track 4</b> right-hand adjustment motor black 4-track connector

If all these checks are correct, replace the right-hand adjustment motor.

**AFTER REPAIR**

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

## Fault finding - Customer complaints

NO DIALOGUE WITH THE DISCHARGE BULB COMPUTER

ALP 1

NO HEIGHT ADJUSTMENT ON EITHER OR BOTH HEADLIGHTS, REGARDLESS  
OF VEHICLE LOAD

ALP 2

DAZZLING OR LACK OF POWER OF ONE OR BOTH HEADLIGHTS

ALP 3

**AFTER REPAIR**

Deal with any faults displayed by the diagnostic tool.  
Clear the computer memory.  
Carry out a road test followed by another check with the diagnostic tool.

## Fault finding - Fault Finding Chart

ALP 1	No dialogue with the discharge bulb computer															
NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.															
<p>Disconnect the discharge bulb computer 12-track black connector. Check the condition of the connections: no corrosion, damaged contacts, etc. If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.</p>																
<p>Check the battery voltage and carry out the operations necessary to obtain a correct voltage (9.5 V &lt; battery voltage &lt; 16 V).</p>																
<p>Check the presence and condition of fuses:</p> <ul style="list-style-type: none"><li>– F17 (7.5 A) on the UPC Vdiag 48</li><li>– F5F (7.5 A) on the UPC Vdiag 44</li></ul> <p>Replace it if necessary.</p>																
<p>Check the following connections for <b>continuity and the absence of interference resistance</b>:</p> <table><tr><td><b>Vdiag 48 UPC or above</b></td><td>————→</td><td><b>Track 7</b> discharge bulb computer, 12-track black connector</td></tr><tr><td>UPC 6-track black CM connector <b>track 1</b></td><td></td><td></td></tr><tr><td><b>Vdiag 44 UPC</b></td><td>————→</td><td><b>Track 7</b> discharge bulb computer, 12-track black connector</td></tr><tr><td>UPC 12-track brown PPH2 connector <b>track 11</b></td><td></td><td></td></tr><tr><td>Discharge bulb computer black connector <b>track 8</b></td><td>————→</td><td>Vehicle earth</td></tr></table>		<b>Vdiag 48 UPC or above</b>	————→	<b>Track 7</b> discharge bulb computer, 12-track black connector	UPC 6-track black CM connector <b>track 1</b>			<b>Vdiag 44 UPC</b>	————→	<b>Track 7</b> discharge bulb computer, 12-track black connector	UPC 12-track brown PPH2 connector <b>track 11</b>			Discharge bulb computer black connector <b>track 8</b>	————→	Vehicle earth
<b>Vdiag 48 UPC or above</b>	————→	<b>Track 7</b> discharge bulb computer, 12-track black connector														
UPC 6-track black CM connector <b>track 1</b>																
<b>Vdiag 44 UPC</b>	————→	<b>Track 7</b> discharge bulb computer, 12-track black connector														
UPC 12-track brown PPH2 connector <b>track 11</b>																
Discharge bulb computer black connector <b>track 8</b>	————→	Vehicle earth														

<b>AFTER REPAIR</b>	<p>Deal with any faults displayed by the diagnostic tool.  Clear the computer memory.  Carry out a road test followed by another check with the diagnostic tool.</p>
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## Fault finding - Fault Finding Chart

<b>ALP 1</b> <b>CONTINUED</b>							
<p>Check the <b>continuity of the CAN H and CAN L connections</b>:</p> <table><tr><td><b>Vdiag 44 UPC</b> PEH connector <b>track 10</b> <b>Vdiag 48 UPC or above</b> CT1 connector <b>track 8</b></td><td>—————▶</td><td><b>Track 2</b> discharge bulb computer, 12-track black connector</td></tr><tr><td><b>Vdiag 44 UPC</b> PEH connector <b>track 8</b> <b>Vdiag 48 UPC or above</b> CT1 connector <b>track 1</b></td><td>—————▶</td><td><b>Track 4</b> discharge bulb computer 12-track black connector</td></tr></table> <p>If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>		<b>Vdiag 44 UPC</b> PEH connector <b>track 10</b> <b>Vdiag 48 UPC or above</b> CT1 connector <b>track 8</b>	—————▶	<b>Track 2</b> discharge bulb computer, 12-track black connector	<b>Vdiag 44 UPC</b> PEH connector <b>track 8</b> <b>Vdiag 48 UPC or above</b> CT1 connector <b>track 1</b>	—————▶	<b>Track 4</b> discharge bulb computer 12-track black connector
<b>Vdiag 44 UPC</b> PEH connector <b>track 10</b> <b>Vdiag 48 UPC or above</b> CT1 connector <b>track 8</b>	—————▶	<b>Track 2</b> discharge bulb computer, 12-track black connector					
<b>Vdiag 44 UPC</b> PEH connector <b>track 8</b> <b>Vdiag 48 UPC or above</b> CT1 connector <b>track 1</b>	—————▶	<b>Track 4</b> discharge bulb computer 12-track black connector					
<p>Check the power supply and earths of the diagnostic socket:</p> <ul style="list-style-type: none"><li>– presence of <b>+ 12 V before ignition</b> on <b>track 16</b>,</li><li>– presence of <b>+ 12 V after ignition feed</b> on <b>track 1</b>,</li><li>– presence of an earth on <b>tracks 4 and 5</b>.</li></ul> <p>If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>							
<p>If the fault is still present, contact Techline.</p>							

<b>AFTER REPAIR</b>	<p>Deal with any faults displayed by the diagnostic tool.          Clear the computer memory.          Carry out a road test followed by another check with the diagnostic tool.</p>
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## Fault finding - Fault Finding Chart

<b>ALP 2</b>	<b>No height adjustment on either or both headlights, regardless of vehicle load</b>
<b>NOTES</b>	Only consult this customer complaint after a complete check with the diagnostic tool.
<p>Verify the initialisation when the dipped headlights are switched on <b>with the vehicle stationary</b>. If initialisation is not performed, the adjustment motors or one of the system components could be faulty.</p>	
<p>Check the presence and condition of fuses:          – <b>F17 (7.5 A) on the UPC Vdiag 48</b>          – <b>F5F (7.5 A) on the UPC Vdiag 44</b>          Replace it if necessary.</p>	
<p>Use the <b>AC001 Adjustment motors</b> command to check the operation of the adjustment motors. If nothing happens when the command is run, refer to interpretation of the <b>AC001 Adjustment motors</b> command.</p>	
<p>Check the conformity of parameters <b>PR011 Front height sensor signal</b> and <b>PR012 Rear height sensor signal</b>.</p>	
<p>Check the conditions of the height sensor linkage rods: sticking, ball joint disconnected, damage to the sensor and electrical connections. If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>	
<p>If the fault is still present, contact Techline.</p>	

<b>AFTER REPAIR</b>	<p>Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.</p>
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# HEADLIGHTS

## Fault finding - Fault Finding Chart

**80B**

<b>ALP 3</b>	<b>Dazzling or lack of power in one or both headlights</b>
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<b>NOTES</b>	Only consult this customer complaint after a complete check with the diagnostic tool.
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Check that headlights are mounted correctly.
Check that the front right-hand and front left-hand lens units project their beams at the same level. If the heights of the units are different, adjust the headlights manually.
Check the mechanical components of the system (sensor mountings, linkage rods). Repair if necessary.
Initialise the system using command <b>VP002</b> (See configuration and programming).
Switch on the dipped beam headlights and use the <b>AC001 Adjustment motors</b> command. If the adjustment motors are actuated but the direction of the beam does not change, check the condition of the adjustment motor/headlight linkage rods. Replace the faulty adjustment motor(s). If the adjustment motors fail to move, replace the faulty adjustment motor(s). If the adjustment motors move and the direction of the beam changes, adjust the headlights manually.

<b>AFTER REPAIR</b>	Deal with any faults displayed by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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