

TWINGO

8 Electrical equipment

85A WIPERS - WASHERS

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V1

Edition Anglaise

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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1. SCOPE OF THIS DOCUMENT

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

Vehicle(s): **New Twingo**

Function concerned: **Wipers/washers**

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.

Types of diagnostic tools

- CLIP

Special tooling required

Special tooling required	
	Multimeter
Elé. 1681	Universal bornier

3. REMINDERS

To run fault finding on the vehicle's computers, switch on the ignition in fault finding mode (+ after ignition feed).

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 switched on after the + after ignition feed (without any system components being active).

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 instructions in the **Notes** section.

If the fault is **confirmed** when the instructions in the Notes section 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 data that does not produce a fault on the diagnostic tool because the data is inconsistent. Therefore, this stage is used to:

- carry out fault finding on faults that do not have a fault display, and 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 repairs.

This section gives the fault finding procedures for statuses and parameters and the conditions for checking them.

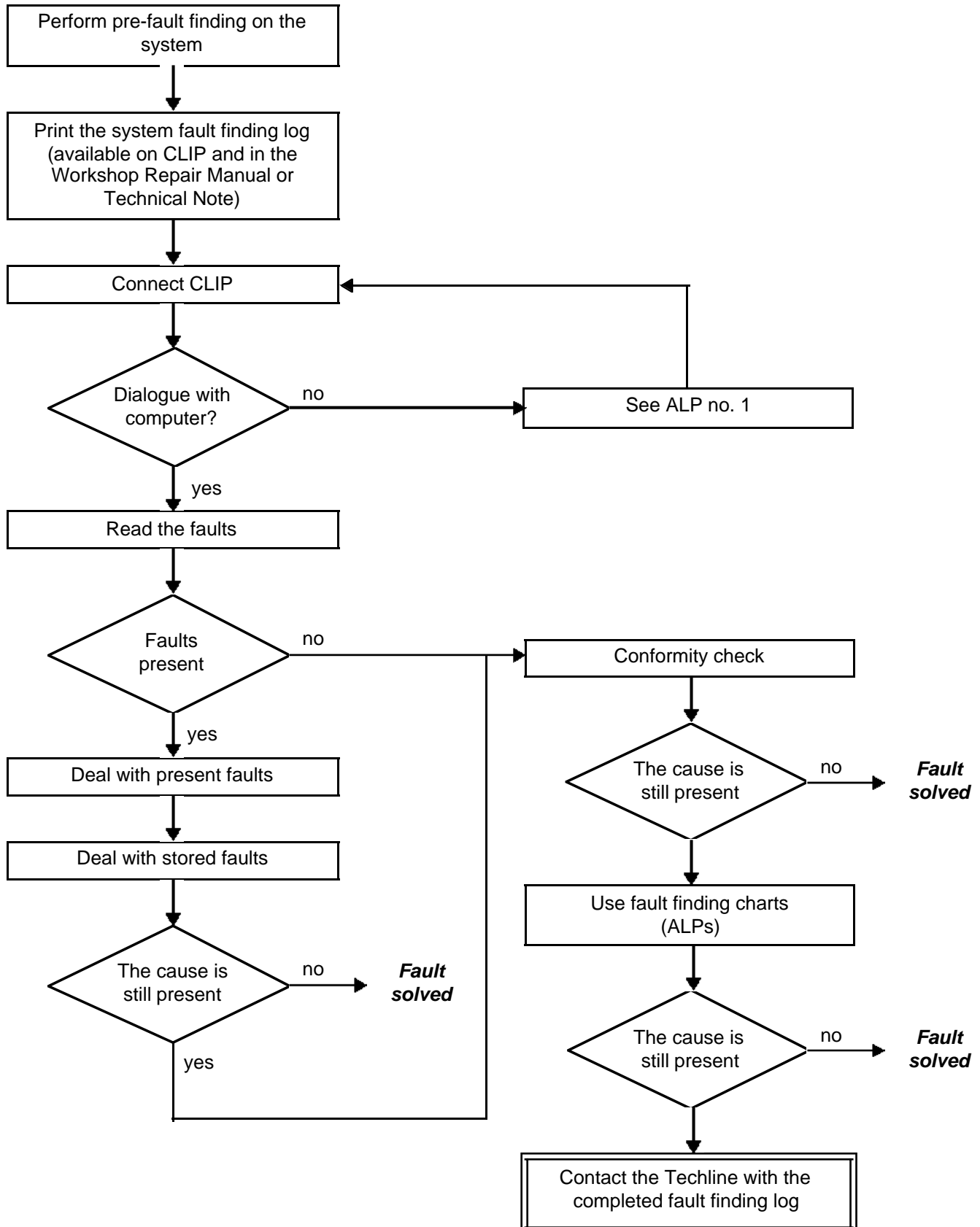
If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

Customer complaints - Fault finding chart

If the test with the diagnostic tool is OK but the customer complaint is still present, the fault should be processed by **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 the crimping (no crimping on the insulating section).

Make sure that the clips and tabs are properly locked in the sockets.

Check 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, to + 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 procedure, enables you to keep track 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 INSTRUCTIONS

The safety instructions must be followed at all times when working on components, to avoid damage or injury:

- check the battery voltage to avoid incorrect operation of computer functions,
- Use the proper tools.

Procedure for disconnecting the battery:

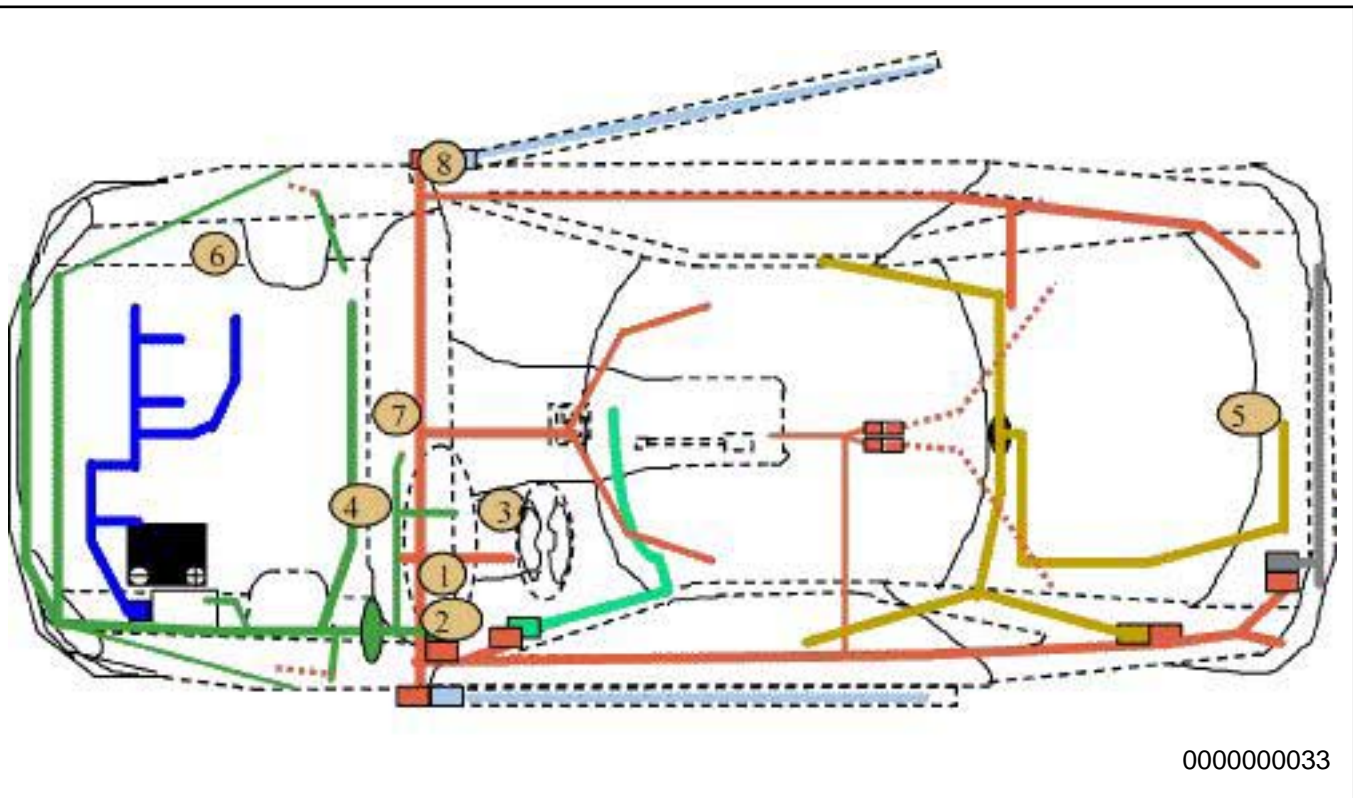
- switch off the ignition,
- switch off all consumers,
- wait at least **1 minute** for the electronic systems to switch off,
- disconnect the battery, starting with the negative terminal.

WIPERS - WASHERS

Fault finding - List and location of components

85A

- ENGINE HARNESS
- FRONT ENGINE HARNESS & PROJADD
- DOOR WIRING
- CEILING WIRING
- PASSENGER COMPARTMENT WIRING
- REAR BUMPER WIRING
- TAILGATE WIRING



000000033

- 1 UCH
- 2 Passenger compartment fuse and relay box
- 3 Combined wiper-washer
- 4 Windscreen wiper motor
- 5 Rear screen wiper motor
- 6 Front and rear screen washer pump
- 7 Light and rain sensor
- 8 Exterior temperature sensor

WIPERS - WASHERS

Fault finding - Operating diagram

85A

List of components and associated component codes:

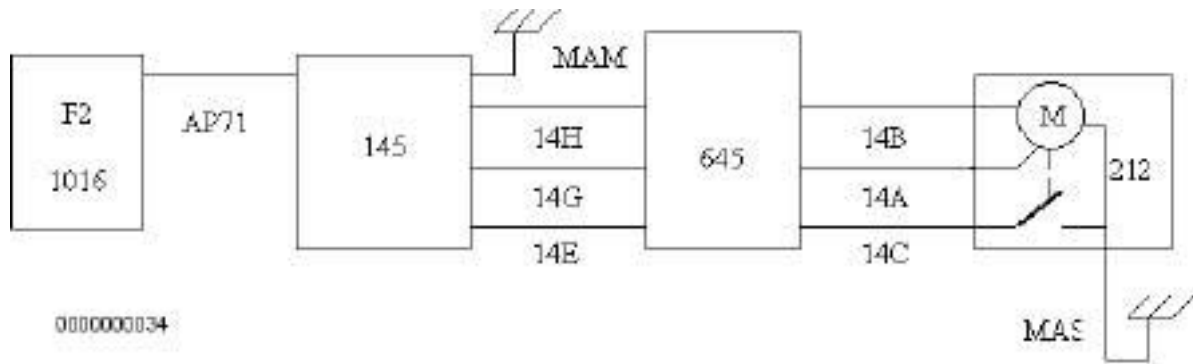
Component code	Component
1016	Passenger compartment fuse box
645	UCH
247	Instrument panel
677	Washer pump
145	Combined wiper-washer
212	Windscreen wiper motor
1415	Light / rain sensor
211	Rear screen wiper motor

WIPERS - WASHERS

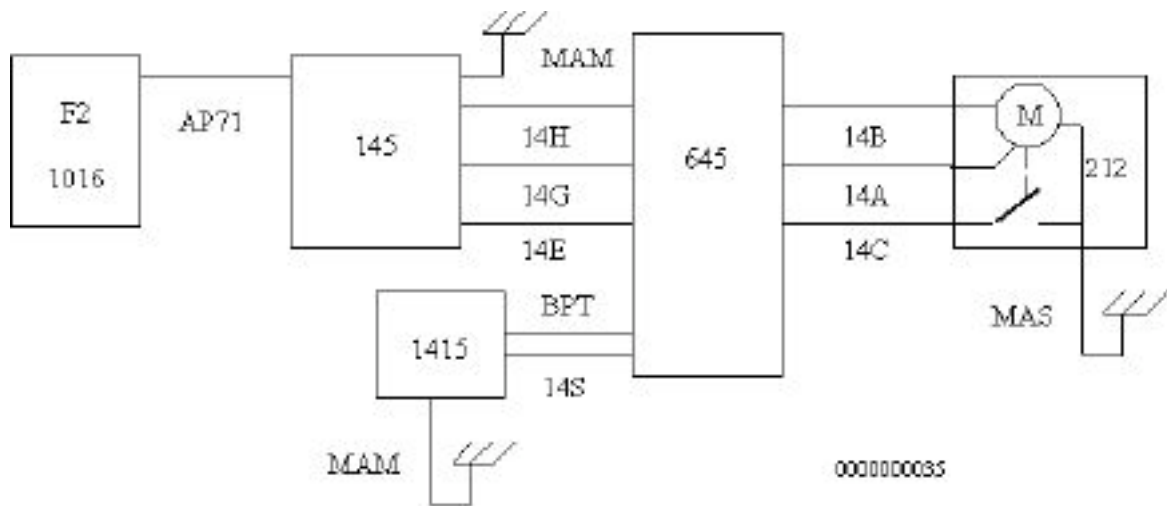
Fault finding - Operating diagram

85A

Simple windscreen wiper diagram (without rain sensor):



Windscreen wiper diagram with rain sensor:

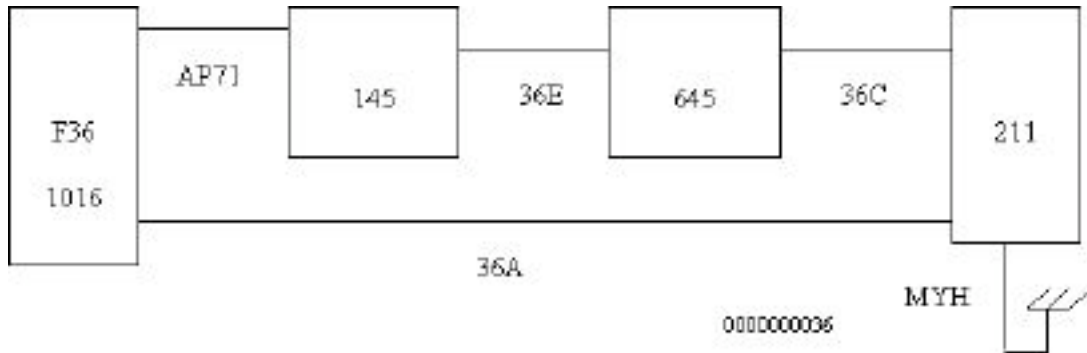


WIPERS - WASHERS

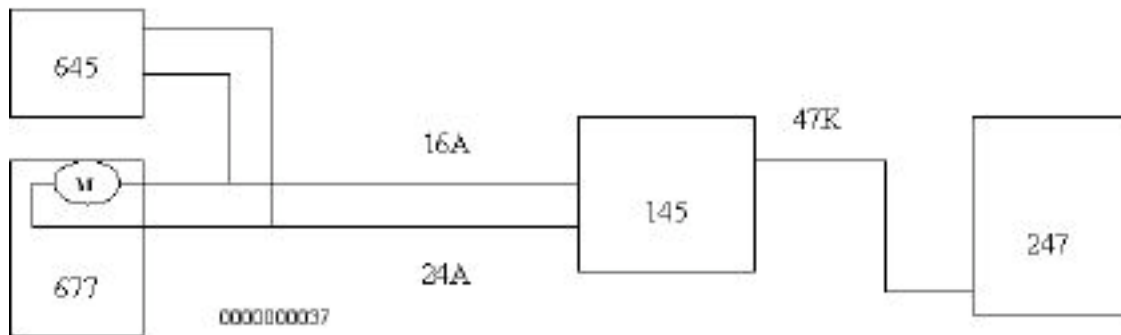
Fault finding - Operating diagram

85A

Rear screen wiper diagram:



Windscreen washer diagram:



WIPERS - WASHERS

Fault finding - Operating diagram

85A

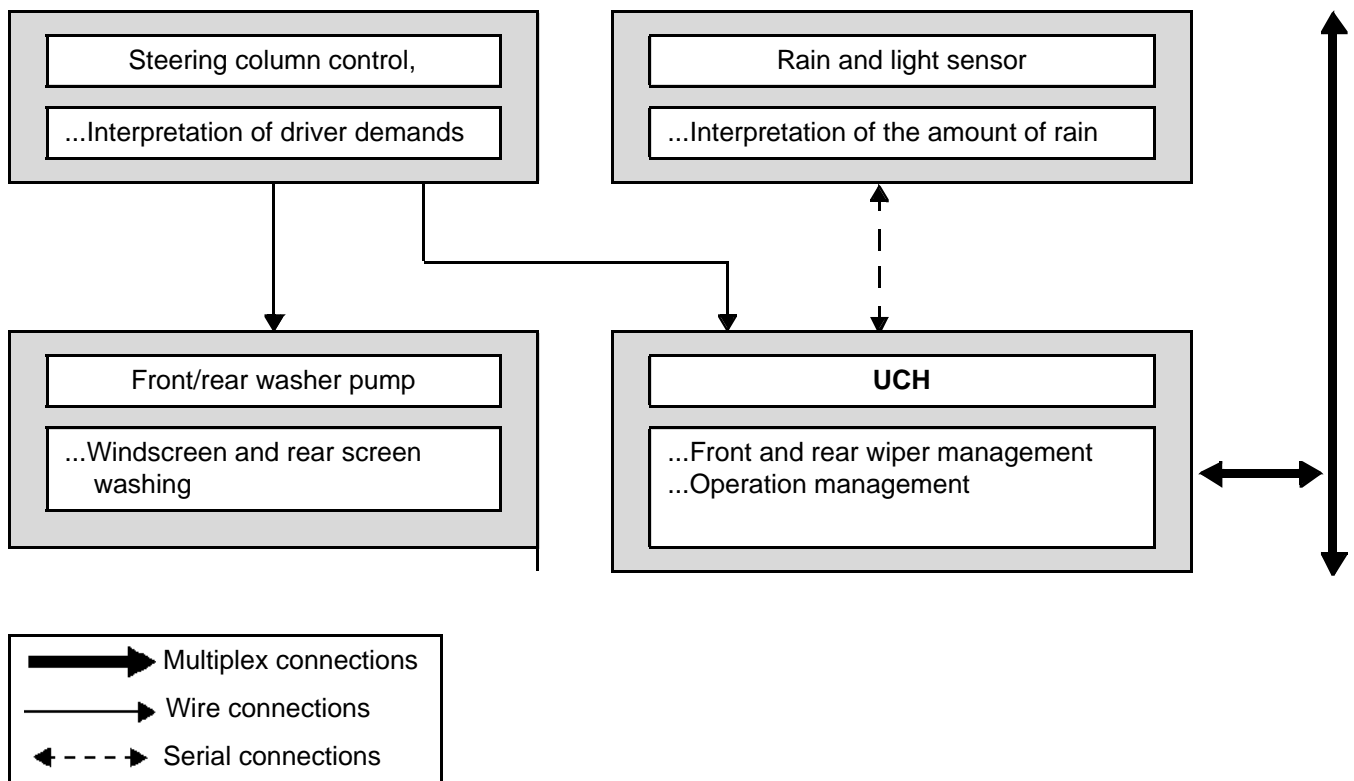
The vehicle has an automatic wiper function. To activate this function, place the combined wiper-washer in the intermittent position.

If the car is put into reverse gear when the front wiper motor is in operation, the **UCH** commands operation of the rear wiper.

The **UCH** controls the power supply to the wiper function. It controls the operation of the front wipers, the wiping speed (intermittent, low-speed, high-speed) and the bi-directional front and rear screen wash pump.

The rain sensor requires an exterior temperature signal, as this enables activation of the wipers to be avoided at temperatures which might have frozen the wipers.

Summary of the operation of the rain and light sensor



The wiper function is divided into two sub-functions: Wiper command, Wiper power.

1. Wiper command

a) By the driver

The UCH receives the request from the driver using the steering column controls.
The UCH orders rear wiping when reverse gear is engaged, if the front wipers are active.
The steering column control supplies power directly to the front/rear washer pump.
The wiper intermittent speed ring allows the intermittent front wiping frequency to be altered.

b) By the rain sensor

The rain and light sensor is a single and unique sensor fitted in the windscreen. It is connected by a **serial connection** to the UCH.
The rain sensor enables the wipers to be started automatically. It determines the wiping speed according to various parameters (exterior temperature, vehicle speed, amount of rain, tunnel, night etc), and it informs the UCH, which carries out the wiping command.
It is possible to view the status of the sensor using status **ET114 "Wiper request by rain sensor"**.
The sensor configuration can be viewed by reading configuration **LC044 "Rain/light sensor"** and altered using command **CF035 "Rain/light sensor"**.
Configuration of the automatic headlight function is carried out using **CF193 "Automatic headlight function"**. This function can be viewed using **LC095 "Automatic headlight function"**. The configuration **CF194 "Automatic headlight function"** is also linked to activation of the headlight function. This function can be viewed using **LC096 "Automatic headlight function"**.

2. Wiper power

The UCH controls the power supply to the wiper motors.
The operation of the rear screen wiper motor may be checked using command **AC007 "Rear screen wiper"** in the UCH.

The correct functioning of the front wiper motor is checked using commands **AC056 "Low speed wiper"**, **AC057 "High speed wiper"** and **AC058 "Intermittent wiper"** in the UCH.

Rain sensor:

The role of the rain sensor is to activate the wiper motor automatically when it detects rain.

Windscreen wiper motor:

The role of the windscreen wiper motor is to provide windscreen cleaning.

Rear screen wiper motor:

The role of the rear screen wiper motor is to provide rear screen cleaning.

Combined wiper-washer:

The role of the combined wiper-washer is to control the different washing and wiping functions.

External temperature sensor:

The role of the exterior temperature sensor is to provide the rain sensor with the exterior temperature, so that the rain sensor will not activate the wipers if the wiper arms are frozen to the windscreen.

Front and rear screen wash pump:

The role of the front and rear screen wash pump is to send screen wash fluid to the windscreen and rear screen.

Wiper intermittent speed ring:

The wiper intermittent speed ring allows the intermittent front wiping frequency to be altered.

UCH:

The UCH enables all wiper operations to be managed (triggering, intermittent function etc).

WIPERS - WASHERS

Fault finding - configuration and programming

85A

Equipment required	
Diagnostic tool	Clip

Configurations of the wiper function in the UCH

Individual configuration available on the **diagnostic tool** with reading of the relevant configuration.

Configuration	Configuration reading	Name of configuration	Option
CF029	LC002	External temperature sensor	WITH/WITHOUT
CF193	LC095	Automatic headlight function	WITH/WITHOUT
CF194	LC096	Automatic wiper function	WITH/WITHOUT
CF035	LC044	Rain/light sensor	WITH/WITHOUT
CF191	LC094	Wiper intermittent speed ring	WITH/WITHOUT

WIPERS - WASHERS

Fault finding - Conformity check

85A

NOTES	<p>Only carry out this conformity check after a complete check with the diagnostic tool (fault reading and configuration checks).</p> <p>Application condition: engine stopped, + after ignition feed present.</p>
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SUB-FUNCTION: WIPING CONTROL

Computer	Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
UCH (see 87B, passenger compartment connection unit)	1	Wiper control	ET077: Wiper stalk position	INACTIVE INTERMITTENT LOW-SPEED HIGH SPEED	In the event of a fault, apply the interpretation of status ET077 (see 87B, UCH).
	2		ET096: Wiper intermittent speed ring position	1 2 3 4 5	In the event of a fault, apply the interpretation of status ET096 (see 87B, UCH).
	3		ET114: Windscreen wiper request by rain sensor	ABSENT LOW-SPEED HIGH SPEED	In the event of a fault, apply the interpretation of status ET114 (see 87B, UCH).
	4	Windscreen wiper park position	ET078: Windscreen washer request	ACTIVE INACTIVE	In the event of a fault, apply the interpretation of status ET078 (see 87B, UCH).
	5		ET027: Windscreen wiper park position	ACTIVE INACTIVE	In the event of a fault, apply the interpretation of status ET027 (see 87B, UCH).
	6	Rear screen wiper park position	ET079: Rear screen washer request	ACTIVE INACTIVE	In the event of a fault, apply the interpretation of status ET079 (see 87B, UCH).
	7		ET097: Rear screen wiper park position	ACTIVE INACTIVE	In the event of a fault, apply the interpretation of fault ET097 "Windscreen wiper park position" (see 87B, UCH).
	8		ET080: Rear screen wiper request	ACTIVE INACTIVE	In the event of a fault, apply the interpretation of status ET080
	9	Reverse gear	ET109: Reverse gear engaged	YES NO	In the event of a fault, apply the interpretation of status ET109 (see 87B, UCH).

WIPERS - WASHERS

Fault finding - Conformity check

85A

NOTES	<p>Only carry out this conformity check after a complete check with the diagnostic tool (fault reading and configuration checks).</p> <p>Application condition: engine stopped, + after ignition feed present.</p>
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SUB-FUNCTION: WIPING POWER

Computer	Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
UCH (see 87B, passenger compartment connection unit)	1	Rear screen wiper	AC007: Rear screen wiper	This control is used to operate the rear screen wiper.	In the event of a fault, apply the procedure for command AC007 (see 87B, UCH).
	2	Windscreen wiper request	AC058: Intermittent windscreen wiper request	This command triggers the activation of intermittent windscreen wiper action.	In the event of a fault, consult the interpretation of command AC058 (see 87B, UCH).
	3		AC056: Low-speed wiper	This command triggers the activation of the windscreen wipers at low speed.	In the event of a fault, consult the interpretation of command AC056 (see 87B, UCH).
	4		AC057: High-speed wiper	This command triggers the activation of the windscreen wipers at high speed.	In the event of a fault, consult the interpretation of command AC057 (see 87B, UCH).

WIPERS - WASHERS

Fault finding - Customer complaints

85A

NOTES

Only refer to these customer complaints after performing a complete check with the diagnostic tool.

WIPERS

NO REAR SCREEN WIPING	ALP 13
THE REAR SCREEN WIPER BLADE STOPS IN THE WRONG POSITION	ALP 14
NO FRONT WIPING FOLLOWING ACTIVATION OF THE WIPER SWITCH	ALP 15
THE FRONT WINDSCREEN WIPER BLADES STOP IN THE WRONG POSITION	ALP 16
NO FRONT AND REAR SCREEN WASHING	ALP 17
NO WIPING WHEN IT RAINS	ALP 18
NO CHANGE IN WIPING SPEED AFTER ACTIVATING THE WIPER INTERMITTENT COMMAND	ALP 19

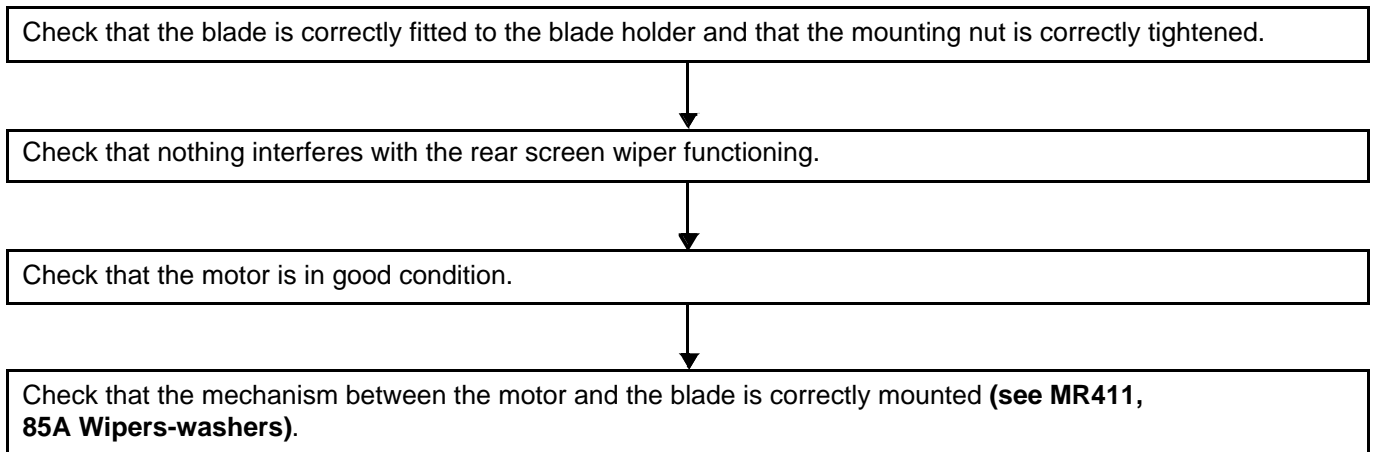
WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 13	No rear screen wiping
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NOTES	Only refer to the customer complaints after performing a complete check using the diagnostic tool . Check in particular the functioning of the status ET080 "Rear screen wiper request" and the command AC007 "Rear screen wiper" in the UCH. Also check that fault DF040 "Rear screen wiper park position" is not present.
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AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 14	The rear screen wiper blade stops in the wrong position
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NOTES	Only refer to the customer complaints after performing a complete check using the diagnostic tool . Check in particular the correct functioning of status ET097 "Rear screen wiper park position" and command AC007 "Rear screen wiper" in the UCH. Also check that fault DF040 "Rear screen park position" is not present. Check for fault DF097 "Windscreen wiper park position circuit" .
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Check that the blade is correctly mounted on the blade holder and on the connecting pin.



Check that the mounting nut for the wiper arm is correctly tightened (see **MR411, 85A Wipers-washers**).

AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 15	No front wiping following activation of the wiper switch
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NOTES	Only refer to the customer complaints after performing a complete check using the diagnostic tool . Check in particular the correct functioning of statuses ET077 "Wiper stalk position" and ET114 "Wiper request by rain sensor" , ET027 "Windscreen wiper park position" and commands AC056 "Low speed wiper" and AC057 "High speed wiper" in the UCH. Check for fault DF097 "Windscreen wiper park position circuit" .
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Perform a multiplex network test if the multiplex network is faulty (see **88B, Multiplexing**).



Check that the blades are correctly fitted to the blade holders and that each mounting nut is correctly tightened.



Check that nothing is interfering with the windscreen wiper mechanism operation.



Check that the motor is in good condition.



Check that the mechanism between the motor and the blade is correctly mounted and tightened (**see MR411, 85A Wipers-washers**).

AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 16	The windscreen wiper blades stop in the wrong position
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NOTES	Only check this customer complaint after performing a complete check with the diagnostic tool . Check in particular the correct functioning of statuses ET077 "Wiper stalk position" and ET027 "Windscreen wiper park position" . Also check that fault DF097 "Windscreen wiper park position circuit" is not present.
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Perform a multiplex network test if the multiplex network is faulty (see **88B, Multiplexing**).



Check that the blades are correctly fitted to the blade holders and the mounting shaft.



Check that the mounting nuts for the blade holders are correctly tightened.



Check that the mechanism between the motor and the blades is correctly mounted and tightened (**see MR411, 85A Wipers-washers**).

AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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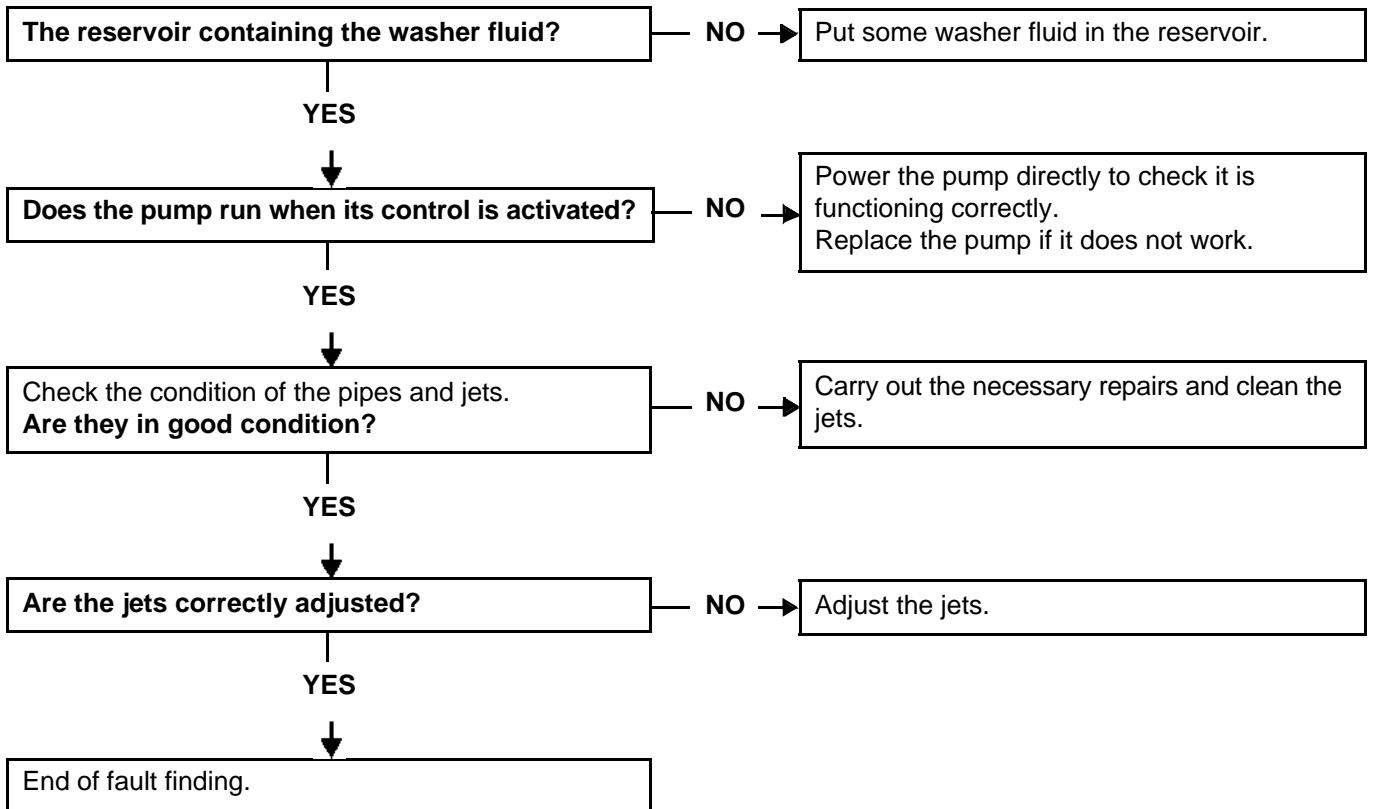
WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 17	No front and rear screen washer
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NOTES	Only check this customer complaint after a complete check with the diagnostic tool. Check in particular the correct functioning of statuses ET078 "Front washer request" and ET079 "Rear washer request" in the UCH.
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AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 18	No wiping when it rains
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NOTES	<p>Only check this customer complaint after a complete check with the diagnostic tool. Check in particular the correct functioning of statuses ET077 "Wiper stalk position" and ET114 "Wiper request by rain sensor" in the UCH.</p> <p>Note: If the exterior temperature is below 5 °C, automatic wiper action will be blocked, to avoid damaging the wiper blades if they are frozen.</p>
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STEP 1
Place the command in the intermittent position to activate automatic wiping. If necessary explain to the customer how this function works.

STEP 2
Check whether the vehicle has a rain / light sensor. If the vehicle does not have a rain / light sensor, explain to the customer that this is normal, and that the vehicle does not have this feature.
Check that the vehicle is configured with a rain / light sensor. Check that LC044 "Rain/light sensor" displays " Present ". If not, carry out CF035 "Rain/light sensor" . Check that LC096 "Automatic wiper function" displays " With ". If not, carry out CF194 "Automatic wiper function" . Check that LC095 "Automatic headlight function" , displays " With ". If not, carry out CF193 "Automatic headlight function" .

STEP 3
Check that the windscreen is clean and in good condition (no cracks, bonded correctly, etc.). Check that the sensor is present and correctly positioned. Check that the windscreen is the correct type.

AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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WIPERS - WASHERS

Fault finding - Fault Finding Chart

85A

ALP 19	No change in wiper speed after activating the wiper intermittent speed ring
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NOTES	<p>Only check this customer complaint after a complete check with the diagnostic tool. Check in particular the correct functioning of statuses ET077 "Wiper stalk position" and ET114 "Wiper request by rain sensor" in the UCH.</p> <p>Note: In order for intermittent wiping to function, the ignition must be on and the wiper intermittent speed ring should be at least in position "1". With each change of position for the wiper intermittent speed ring, the windscreen wiper blades should carry out one movement.</p> <p>If the exterior temperature is below 5 °C, automatic wiper action will be blocked, to avoid damaging the wiper blades if they are frozen.</p>
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STEP 1	
Check that the vehicle is fitted with a wiper intermittent speed ring.	
Check that LC094 "Wiper intermittent speed ring" displays "With". If not, carry out CF191 "Wiper intermittent speed ring" .	
If CF191 "Wiper intermittent speed ring" displays "With", check in the ICM application (Shared World Information) that the vehicle does indeed have this fitted.	

STEP 2	
Ensure the correct functioning of status ET077 "Wiper stalk position" . In the event of a fault consult status interpretation ET077 "Wiper stalk position" .	
Ensure the correct functioning of status ET096 "Wiper intermittent position" . In the event of a fault consult status interpretation ET096 "Wiper intermittent position" .	
Ensure that the park position is not presenting a fault (DF097 "Windscreen wiper park position").	

STEP 3	
Check that the vehicle is configured with a rain / light sensor.	
Check that LC044 "Rain/light sensor" displays "Present". If not, carry out CF035 "Rain/light sensor" .	
Check that LC096 "Automatic wiper function" displays "With". If not, carry out CF194 "Automatic wiper function" .	
Check that LC095 "Automatic headlight function" , displays "With". If not, carry out CF193 "Automatic headlight function" .	

AFTER REPAIR	Carry out a complete check with the diagnostic tool .
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