



## WINDSCREEN WASH/WIPE

## WINDSCREEN WASH/WIPE - DESCRIPTION

The windscreen wash/wipe system is activated by the lever located on the right of the steering wheel and has five different positions:

- windscreen wiper off (stationary);

Starting from this position, turning the lever clockwise, three operating modes are selected in order

- intermittent/automatic operation (according to whether or not the rain sensor is activated);
- continuous operation at the 1st speed;
- continuous operation at the 2nd speed.

From the windscreen wiper stationary position it is possible, by turning the lever anti-clockwise, to select the last possible position which is temporary fast operation.

This is an unstable position with the windscreen wipers only remaining activated whilst the lever is manually kept in this position. When the lever is released it returns automatically to the windscreen wipers off position.

In the intermittent operation position, four different operating speeds can be selected by turning the ring nut on the right steering column switch unit lever to one of the 4 possible positions.

If a rain sensor is fitted, the frequency of the windscreen wiper strokes, in the intermittent operating mode, is automatically adjusted to the intensity of the rain.

The function is automatically activated by turning the right steering column switch unit lever to the intermittent operating mode. The activation of the sensor is signalled by a "stroke" to show the command has been acquired.

Turning the special ring nut on the right steering column switch unit lever allows the rain sensor setting to be adjusted. The increasing of the rain sensor sensitivity is signalled by a "stroke" to show the command has been acquired.

If a rain sensor is fitted, if the ignition is turned OFF and the right steering column switch unit lever is kept in the intermittent operation position, the next time the vehicle is started up the rain sensor will not be reactivated.

To reactivate it, move the lever to a different position other than intermittent operation and later on return it to this position or turn the setting adjustment ring nut.



The rain sensor is capable of recognizing the difference between day and night and making the necessary adjustments automatically.

The windscreen washer function can be activated by pulling the lever toward the steering wheel (unstable position): this activates the windscreen washer pump:

Keeping the lever pulled for more than half a second turns the windscreen wipers on as well.

The operation of the windscreen wipers ends four strokes after the lever is released.

The washing cycle is completed by a stroke of the windscreen wipers five seconds later.



Activating the windscreen washers with the rain sensor activated produces the normal washing cycle at the end of which the rain sensor resumes its normal automatic operation.

The control of the functions described above is carried out by the Body Computer which detects the status of the steering column switch unit lever and produces the intermittent function and controls the operation of the windscreen wiper motor and the windscreen washer electric pump.

The circuit is protected by dedicated fuses and controlled by dedicated relays located in the junction units in the engine compartment and under the dashboard.

The windscreen wiper and the windscreen washer can be activated with the ignition in the ON position (INT/A).

If the rain sensor is not working properly, the windscreen wipers operate intermittently, whilst the sensor failure is signalled in the instrument panel by the general failure warning light coming on.

## WINDSCREEN WASH/WIPE - FUNCTIONAL DESCRIPTION

Connector A of the steering column switch unit H005, which makes it possible to select the various settings for the windscreen wash/wipe function, is connected to connector B of the Body Computer M001, which manages the timing of the windscreen wiper motor N015 and the possible activation of the electric windscreen washer pump motor N020.

Specifically:

- the Body Computer M001 provides a reference earth, from pin 9 of connector B, for the steering column switch unit (pin 4 connector A);
- pin 1 of connector A of the steering column switch unit H005 is connected to pin 28 of connector B of the Body Computer M001 which receives the (negative) analogue signal of the windscreen wiper selector;
- pin 12 of connector A of the steering column switch unit H005 is connected to pin 1 of connector B of the Body Computer M001 which receives the (negative) analogue signal relating to the intermittent operation of the windscreen wipers (AUTO function);
- pin 2 of connector A of the steering column switch unit H005 is connected to pin 30 of connector B of the Body Computer M001 which receives the (negative) analogue signal relating to the operation of the windscreen washer.

Having received the input from the steering column switch unit H005, the Body Computer M001 manages the windscreen wiper motor N015 and the electric windscreen washer pump N020.

The windscreen washer motor N015 receives a direct battery power supply via relay T12 along the line protected by fuse F43 located in the junction unit under the dashboard B002 (pin 10 connector A).

This direct battery power supply is protected upstream by fuse F71 (CPL1) of the B099 maxifuse control unit on the battery (connector D). On the Minibus versinos (2.3 JTD / 3.0 JTD), the above power supply is protected by fuse F73 (CPL1) of the maxifuse box on the battery B099 (connector D).

The contact for relay T12 is open with the ignition switch in the AVV position (INT/A, supply interrupted during starting).

The windscreen washer motor N015 is connected, via pins 3, 4 and 5, to the Body Computer M001 (pins 29, 40 and 19 of connector A respectively), from which it receives the signals for the management of the function.

In particular, pin 40 controls the first windscreen wiper speed, pin 29 the second.

The Body Computer M001, energizes the coil for relay T17, from pin 3 of connector A, via a reference earth (supplied along the INT/A line protected by fuse F31 located in the junction unit under the dashboard B002) located in the engine compartment junction unit B001, closing the circuit and providing a power supply for the electric windscreen washer pump motor N020.

This direct battery power supply, protected by fuse F09 located in the engine compartment junction unit B001 and by fuse F70 (CVM) of the maxifuse box on the battery B099 (connector A) reaches pin 1 of the electric windscreen washer pump motor N020, connected, via pin 2, to the left front earth C010.

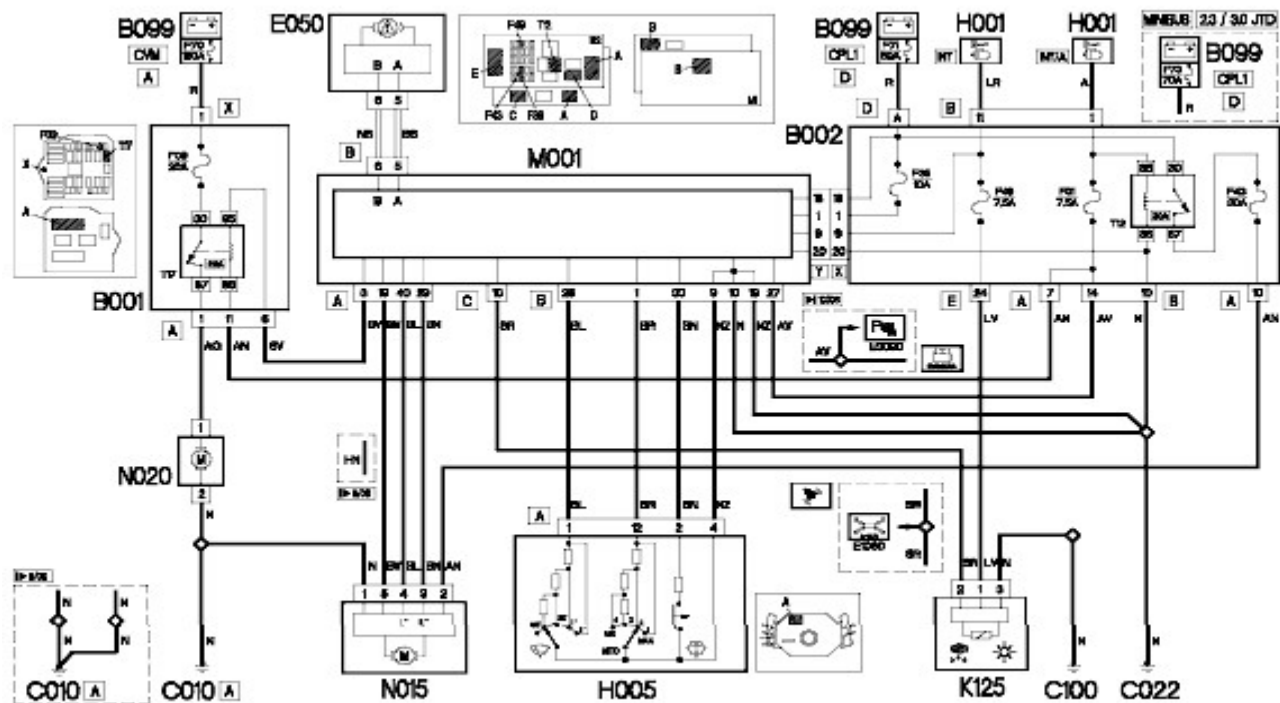
The rain / dusk sensor K125 receives a power supply at pin 1 along the INT line protected by fuse F49 located in the junction unit under the dashboard B002 and receives a reference earth, at pin 3, coming from the cab earth C100.

The information received and processed by it is sent from pin 2, via the A-BUS serial line, to the Body Computer M001 (pin 10 of connector C).

See E1060 A-BUS SERIAL LINE

The Body Computer M001 is connected via the CAN line to the instrument panel E050 to manage the "general failure" warning light if there are problems with the rain / dusk sensor K125.

## WINDSCREEN WASH/WIPE - WIRING DIAGRAM

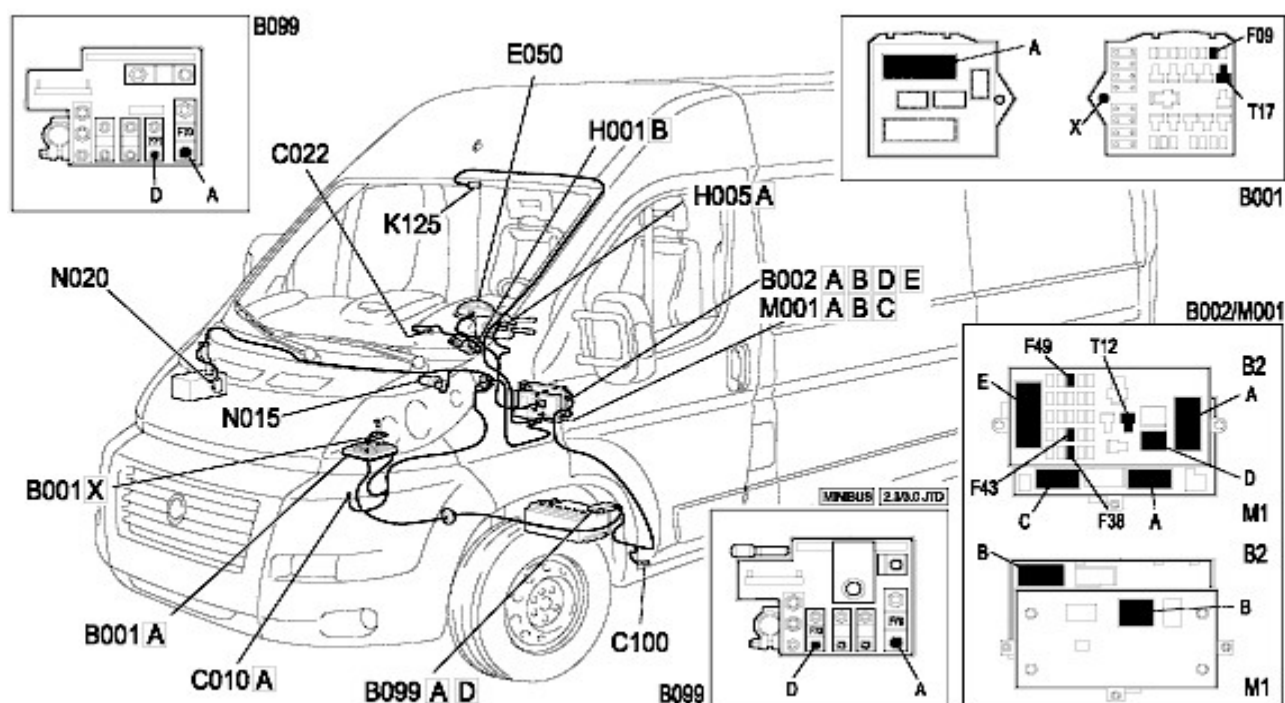


Component code	Description
B001	JUNCTION UNIT
B002	JUNCTION UNIT UNDER DASHBOARD
B099	MAXI FUSE BOX ON BATTERY
C010	LEFT FRONT EARTH
C022	Centre dashboard earth
C100	CAB EARTH
E050	INSTRUMENT PANEL
H001	IGNITION SWITCH
H005	STEERING COLUMN SWITCH UNIT
K125	RAIN AND DUSK SENSOR
M001	BODY COMPUTER
N015	WINDSCREEN WIPER MOTOR
N020	ELECTRIC WINDSCREEN WASHER PUMP MOTOR

With reference to the assembly

- Op. 5505A MULTI-FUNCTION COMPONENTS
- Op. 5505A MULTI-FUNCTION COMPONENTS
- Op. 5530B BATTERY AND LEADS
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- Op. 5560B ANALOGUE CONTROL PANEL
- Op. 5520A IGNITION SWITCH
- Op. 5550A STALK UNIT
- Op. 5050B WINDSCREEN WASH/WIPE
- Op. 5505A MULTI-FUNCTION COMPONENTS
- Op. 5050B WINDSCREEN WASH/WIPE
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## WINDSCREEN WASH/WIPE - COMPONENT LOCATION



Component code	Description
B001	JUNCTION UNIT
B002	JUNCTION UNIT UNDER DASHBOARD
B099	MAXI FUSE BOX ON BATTERY
C010	LEFT FRONT EARTH
C022	Centre dashboard earth
C100	CAB EARTH
E050	INSTRUMENT PANEL
H001	IGNITION SWITCH
H005	STEERING COLUMN SWITCH UNIT
K125	RAIN AND DUSK SENSOR
M001	BODY COMPUTER
N015	WINDSCREEN WIPER MOTOR
N020	ELECTRIC WINDSCREEN WASHER PUMP MOTOR

With reference to the assembly

Op. 5505A MULTI-FUNCTION COMPONENTS

Op. 5505A MULTI-FUNCTION COMPONENTS

Op. 5530B BATTERY AND LEADS

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Op. 5560B ANALOGUE CONTROL PANEL

Op. 5520A IGNITION SWITCH

Op. 5550A STALK UNIT

Op. 5050B WINDSCREEN WASH/WIPE

Op. 5505A MULTI-FUNCTION COMPONENTS

Op. 5050B WINDSCREEN WASH/WIPE

Op. 5050B WINDSCREEN WASH/WIPE