



## ELECTRIC FRONT WINDOWS

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## ELECTRIC FRONT WINDOWS - Description

The electric front windows are operated automatically, depending on how the switch is pressed:

for the driver's window:

- the operation is manual (the glass goes up/down only when the button is pressed) when the button is held down for 60 to 300 milliseconds;
- the operation is instead automatic (the glass continues to go up/down to the end of travel, even if the button is released) when the button is held down for over 300 milliseconds;
- if the button is pressed again during movement of the glass, the glass is stopped instantly;
- if the button is pressed for less than 60 milliseconds, it is ignored (it is considered to have been knocked accidentally).

- for the passenger's window:

- closing is only manual;
- opening is the same as for the driver's window (automatic).

Both windows can only be operated when the ignition is on.

This operating logic is controlled by the integrated services control unit, on the right hand side, under the dashboard.

The control unit also carries out a series of safety checks:

- The stopping of the electric windows (switching off the electric supply to the motor) is determined when the glass reaches the end of travel at top or bottom, or if an obstacle blocks the glass. This is regulated by checking the motor current.
- if there are faults on the electrical circuits, the control unit switches the system off temporarily (for example if the motor control signals are interrupted or if the absorbed current is below the usual values);
- if there is a fault in the control buttons (short circuit, or buttons jammed in the pressed position), the control unit switches the system off temporarily

The control circuit for the front electric windows is protected by a specific fuse, in the junction unit. The operating buttons are also protected by the fuse which protects the other supplied controlled by the ignition.

The control switch symbols are lit when the key is turned to MAR.

## ELECTRIC FRONT WINDOWS - Functional description

The integrated services control unit M40 manages the operation of the electric front windows.

The direct supply from the battery for the specific control unit M40 for the electric windows (pins 15 and 16 of connector A) arrive from the line for maxifuse J/B1 (of B99) and fuse F12 of the junction unit B1, whilst the supply controlled by the ignition arrives at pin 7 of connector B from the line for fuse F1. pins 4 and 20 of connector A provide the reference earth for the passenger and the driver's electric windows, respectively.

The switches H40 (driver's electric window), H41 (passenger electric window on driver's door) and H50 (passenger electric window on passenger front door) receive a supply controlled by the ignition (INT/A) from the line from fuse F6 of the additional fuse box B98B, and are earthed C20: in this way they are also lit up when the ignition is switched on.

When the switches are operated, they send control signals (positive and negative) to control unit M40:

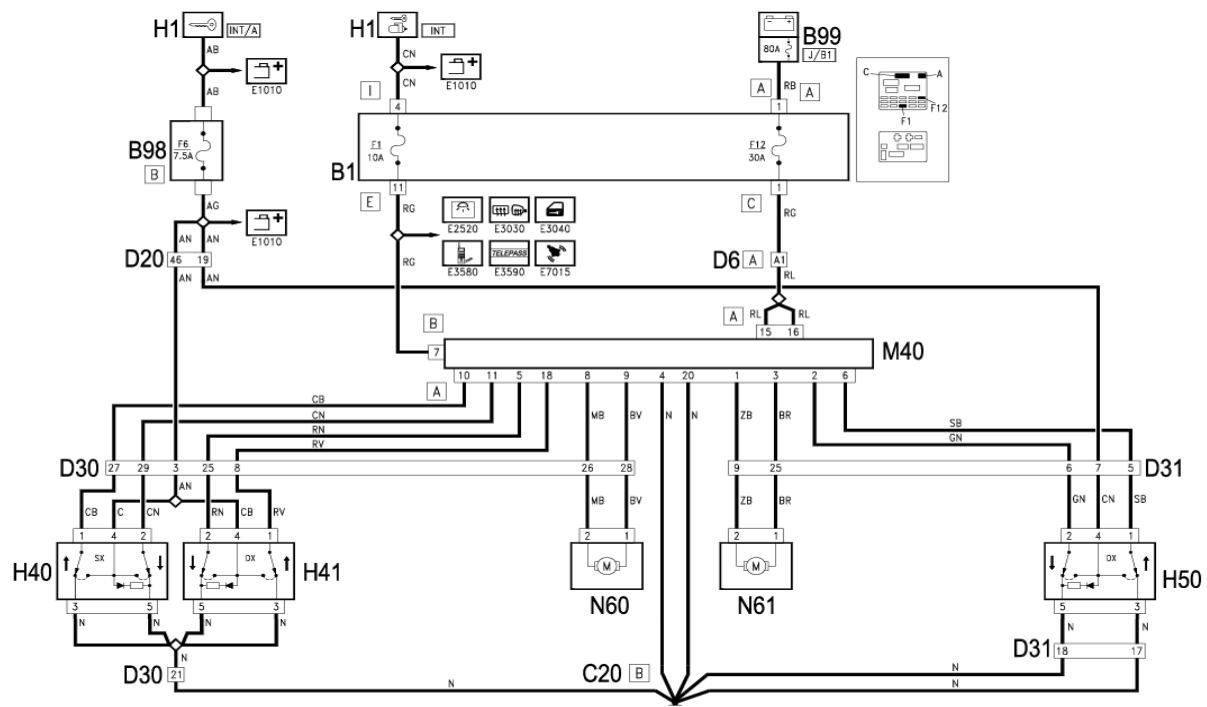
- at pins 10 and 11 of connector A from switch H40 ;
- at pins 5 and 18 of connector A from switch H41 ;
- at pins 2 and 6 of connector A from switch H50 ;

The control unit M40 operates the electric windows on the basis of the logic described previously:

- from pins 8 and 9 of connector A it sends commands to the driver's electric window motor N60
- from pins 1 and 3 of connector A it sends commands to the passenger electric window motor N61.

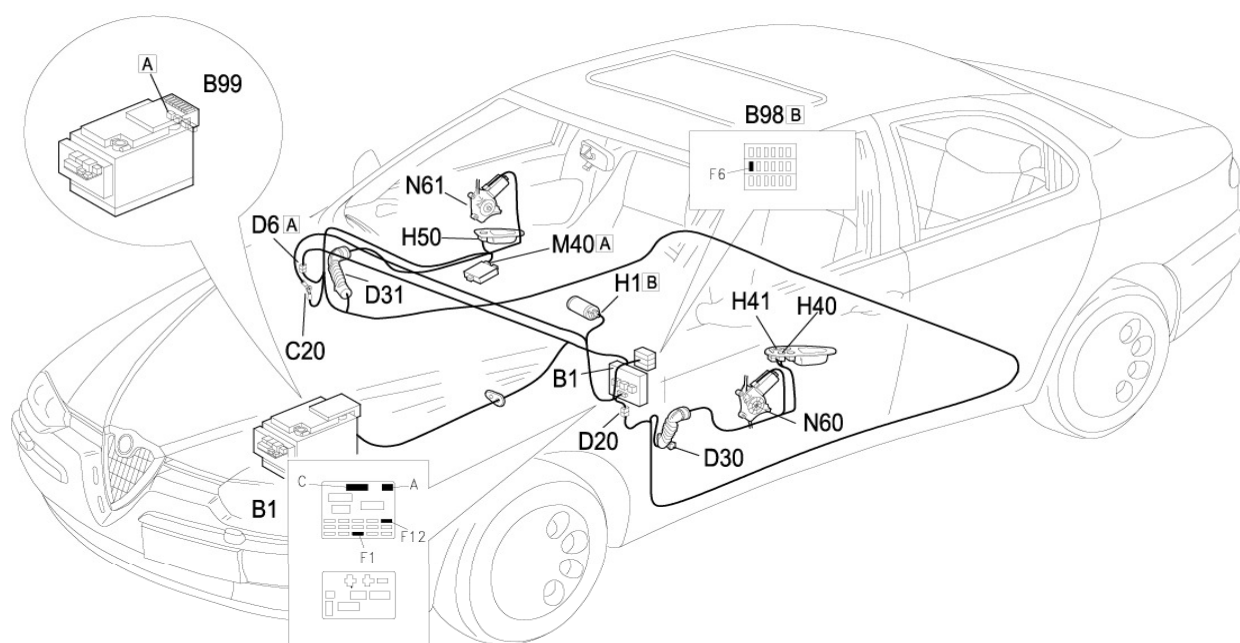
When the positive and negative signals are reversed, the motor direction of rotation is also reversed.

## ELECTRIC FRONT WINDOWS - Wiring diagram



Component code	Name	Assembly reference
B1	Junction unit	5505A
B5	MAXI FUSE box-1	-
B5	MAXI FUSE-1 box	-
B5	MAXIFUSE box-1	-
B10	Fuse controlled by ignition (INT/A)	-
B10	Key-dependent supply fuse (INT/A)	-
B98	Supplementary fuse box	5505A
B99	Maxifuse box on battery	-
B99	Maxifuse box on battery	5530B
C20	Passenger side dashboard earth	5505A
C31	Rear right earth	5505A
D6	Front / rear connection	-
D6	Front / rear coupling	-
D20	/Rear dashboard coupling	-
D20	Dashboard/rear connection	-
D30	Rear / front door connection left	-
D30	Rear / front door coupling left	-
D31	Coupling for rear/right front door	-
D31	Rear coupling / front right. door	-
D31	Right front door rear coupling/.	-
H1	Ignition switch	5520A
H40	Front electric window switch. driver's side on door	7005M
H40	Switch for front electric window on driver's door	7005M
H41	Front. passenger electric window switch in	7005M
H41	Switch for passenger's electric window on driver's door	7005M
H50	Electric window switch on .front passenger door	7005M
H50	Electric window switch on passenger door	7005M
M40	Integrated services control unit	5505A
N60	Front left electric window motor	7005M
N61	Front right electric window motor	7005M

## ELECTRIC FRONT WINDOWS - Location of components



Component code	Name	Assembly reference
B1	Junction unit	5505A
B5	MAXI FUSE box-1	-
B5	MAXI FUSE-1 box	-
B5	MAXIFUSE box-1	-
B10	Fuse controlled by ignition (INT/A)	-
B10	Key-dependent supply fuse (INT/A)	-
B98	Supplementary fuse box	5505A
B99	Maxifuse box on battery	-
B99	Maxifuse box on battery	5530B
C20	Passenger side dashboard earth	5505A
C31	Rear right earth	5505A
D6	Front / rear connection	-
D6	Front / rear coupling	-
D20	/Rear dashboard coupling	-
D20	Dashboard/rear connection	-
D30	Rear / front door connection left	-
D30	Rear / front door coupling left	-
D31	Coupling for rear/right front door	-
D31	Rear coupling / front right. door	-
D31	Right front door rear coupling/.	-
H1	Ignition switch	5520A
H40	Front electric window switch. driver's side on door	7005M
H40	Switch for front electric window on driver's door	7005M
H41	Front. passenger electric window switch in	7005M
H41	Switch for passenger's electric window on driver's door	7005M
H50	Electric window switch on .front passenger door	7005M
H50	Electric window switch on passenger door	7005M
M40	Integrated services control unit	5505A
N60	Front left electric window motor	7005M
N61	Front right electric window motor	7005M