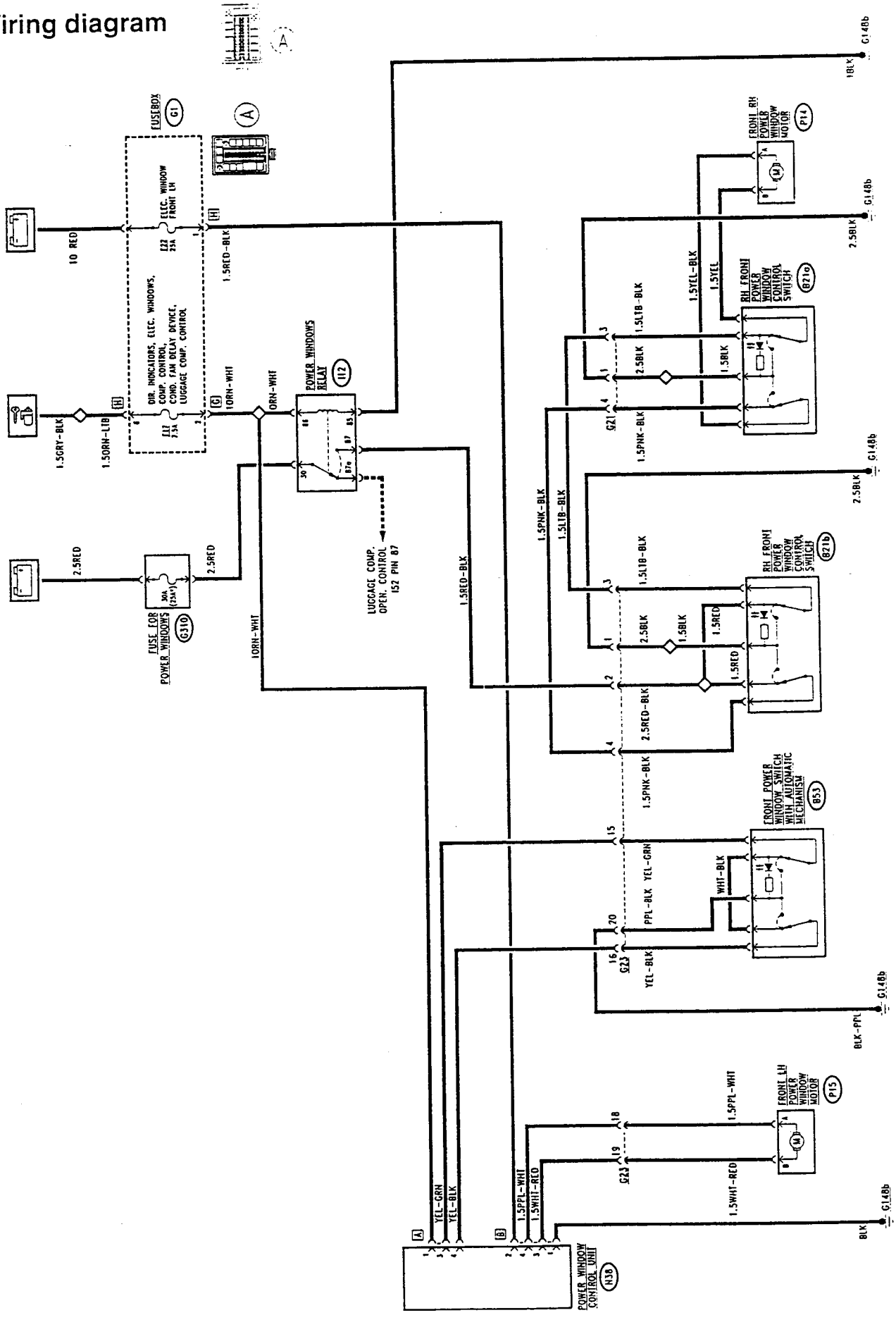
POWER WINDOWS

INDIX

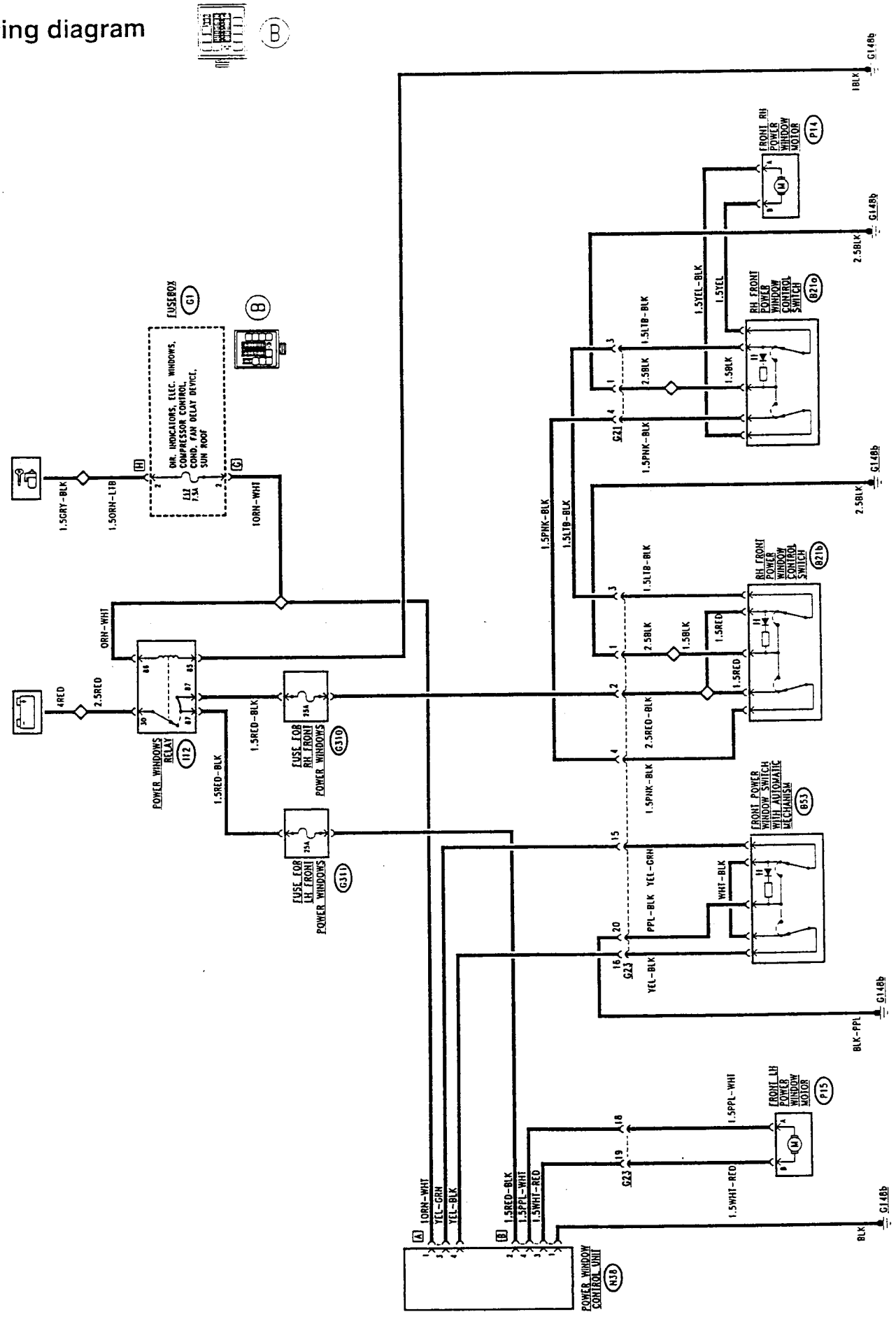
FRONT POWER WINDOWS

Wiring diagram

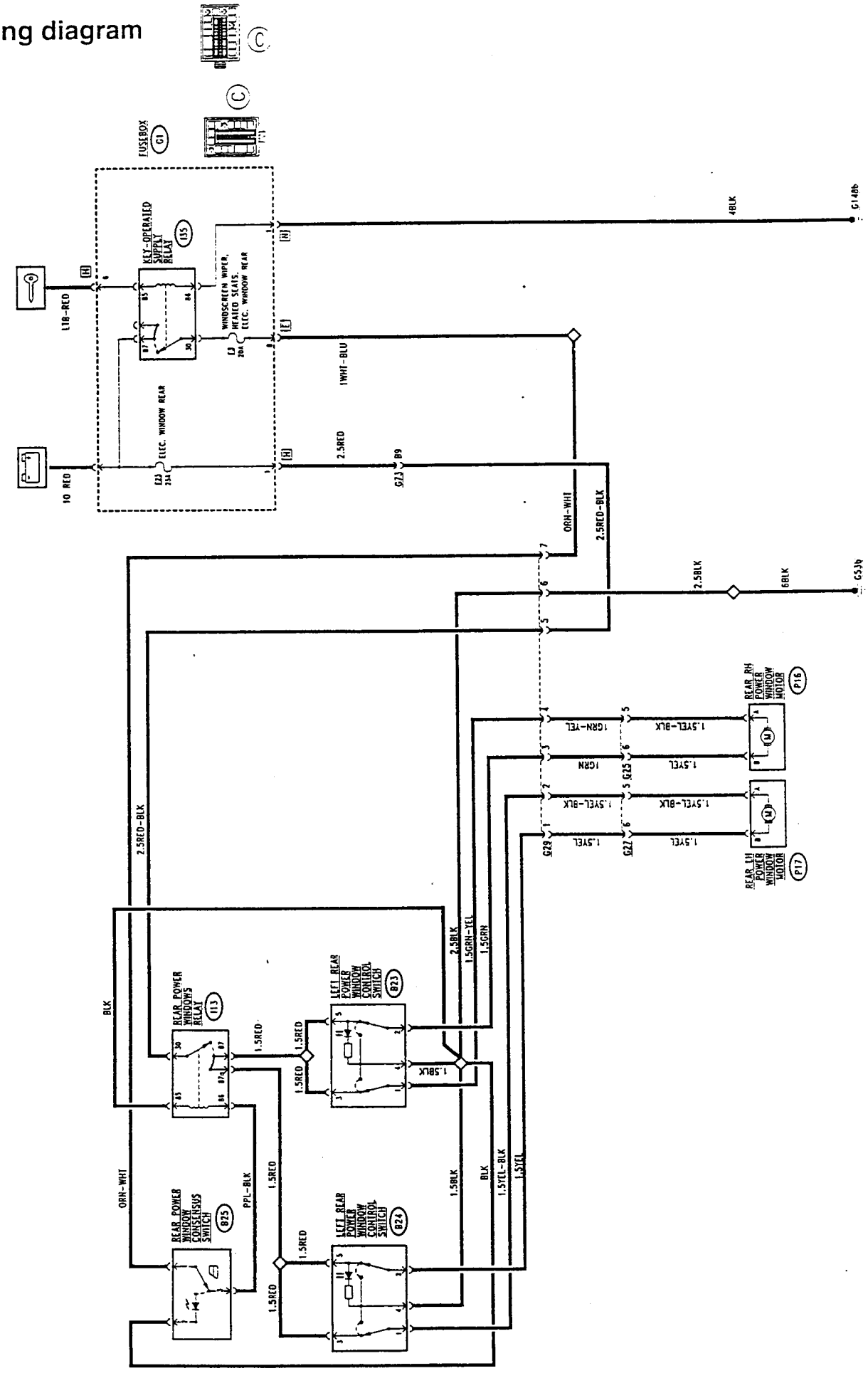


(*) for versions not fitted with electric boot opening device

Wiring diagram



Wiring diagram



General Description

For versions with fusebox "A":
The movement of the **left front** electric window (driver's side) is **automatic**, controlled by a control unit which operates it according to the following logic:

- keeping the pushbutton pressed (over 300 ms) the window opens or closes normally until the pushbutton is released;
- a short pulse (below appr. 300 ms.) operates the motor which automatically continues and only stops at the end of the stroke (window completely open or closed);
- an even shorter pulse (less than appr. 50 ms.) is considered by the control unit as an accidental shock and no action will result.

This operating logic takes place throughtthe "key-operated" supply.

For versions with fusebox "B":
The movement of the **left front** window is **manual**: when the button is pressed in one direction or the other the window moves upwards or downwards: this only takes place through the "key-operated" supply.

The electrical mechanism that operates the **right front** window is - in both cases - of the conventional type: when the button is pressed the window rises or drops; it is fitted with two control switches: one on the right-hand door and one on the left-hand door; operation is only possible with the ignition key engaged.

Functional description

For versions with fusebox "A" or "C":
The power window control unit **N38** is supplied at pin 2 of connector B by battery voltage through fuse **F22** of fusebox **G1**.
The key-operated enable signal reaches pin 1 of connector A via fuse **F17** (box "A") or fuse **F15** (box "C") still of **G1**.
The control signals for the upward and downward stroke respectively reach pins 4 and 3 of connector A from the left-hand window control switch **B53**.
In fact, this double switch sends an earth to the control unit from the part in which the contact has been closed.
The operating signals (up or down) leave pins 3 and 4 of connector B of **N38** for left-hand window motor **P15**: 12 V and earth are inverted to change the direction of rotation
Pin 1 of connector B of **N38** is connected to earth.

Conversely, the operation of the right-hand motor is controlled directly by one of the two switches **B21** (**B21a** located on the right-hand door, **B21b** on the left) which are connected in series.
The "key-operated" supply passes through relay **I12**, supplied by direct voltage through the line of fuse **G310**. The relay is energised with the key-operated supply, via fuse **F17** (box "A") or fuse **F15** (box "C") still of **G1**.: the righthand window motor **P14** is operated by one of the two switches **B21** in one direction or the other depending on the origin of the 12V or earth signal.

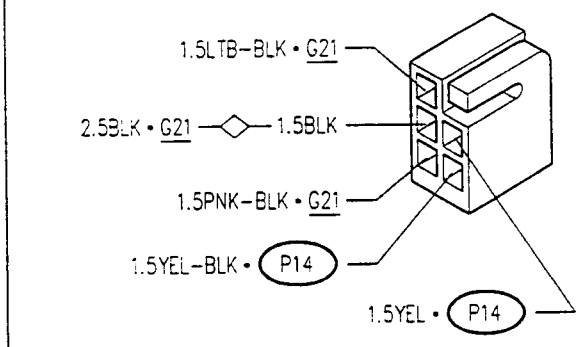
For versions with fusebox "B":
The power window control unit **N38** comprises a "bridge" on connector B which "relays" the supply and earth to the control switch of the left-hand window **B22**. This supply leads through wander fuse **G311** and relay **I12**.

The "key-operated" consensus is received through fuse **F17** of **G1**.
The double switch **B22** sends the operating signals (up or down) for the left-hand window motor **P15**: 12 V and earth are inverted to change the direction of rotation.

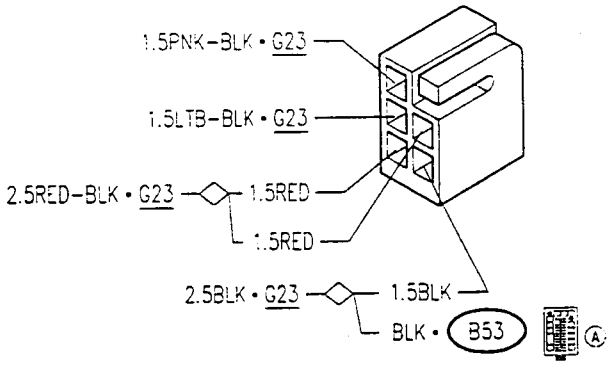
Operation of the right-hand window is controlled directly by one of the two switches **B21** (**B21a** located on the right-hand door, **B21b** on the left) which are connected in series
The "key-operated" supply leads through relay **I12**, energized through the line of fuse **F17** of **G1**, and wander fuse **G310**. The motor for the right-hand window **P14** is operated by one of the two switches **B21** in one direction or in the other depending on the origin of the 2V and earth signals.

Components and Connectors

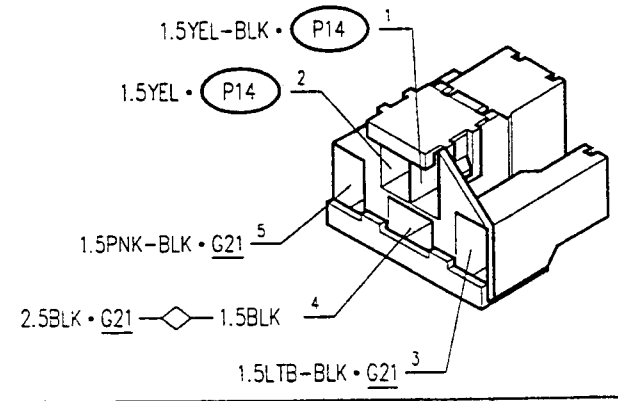
RH front power window control switch (on RH door) (*)	B21a



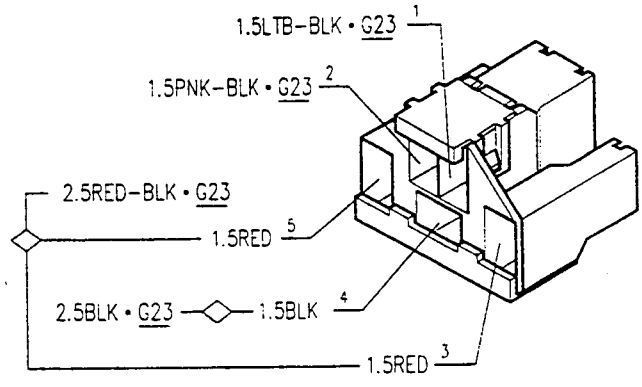
RH front power window control switch (on LH door) (*)	B21b



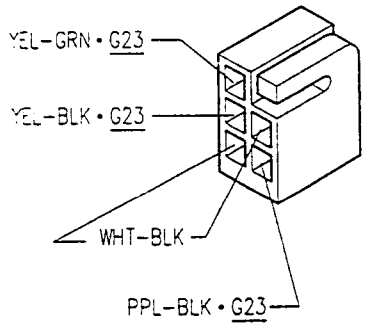
RH front power window control switch (on RH door) (•)	B21a



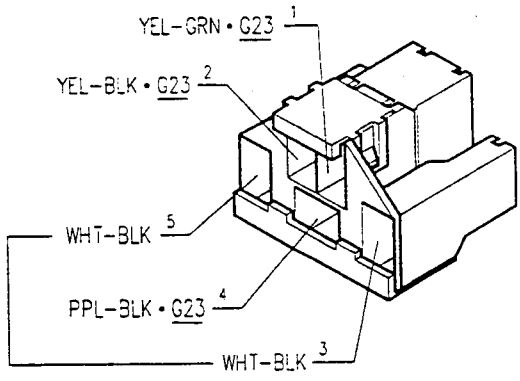
RH front power window control switch (on LH door) (•)	B21b



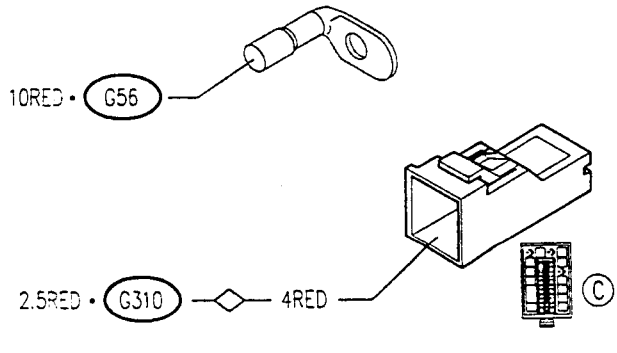
Front power window switch with automatic device (*)	B53



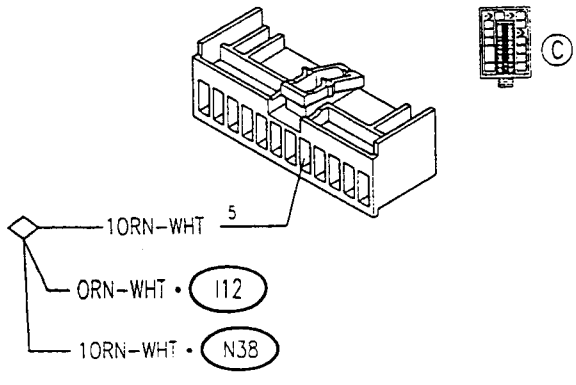
Front power window switch with automatic device (•)	B53



Fusebox	G1



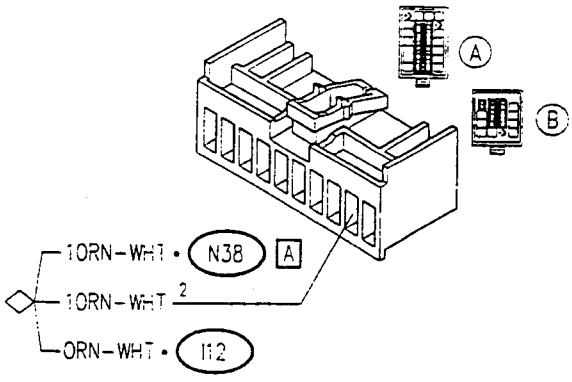
Fusebox	G1	A



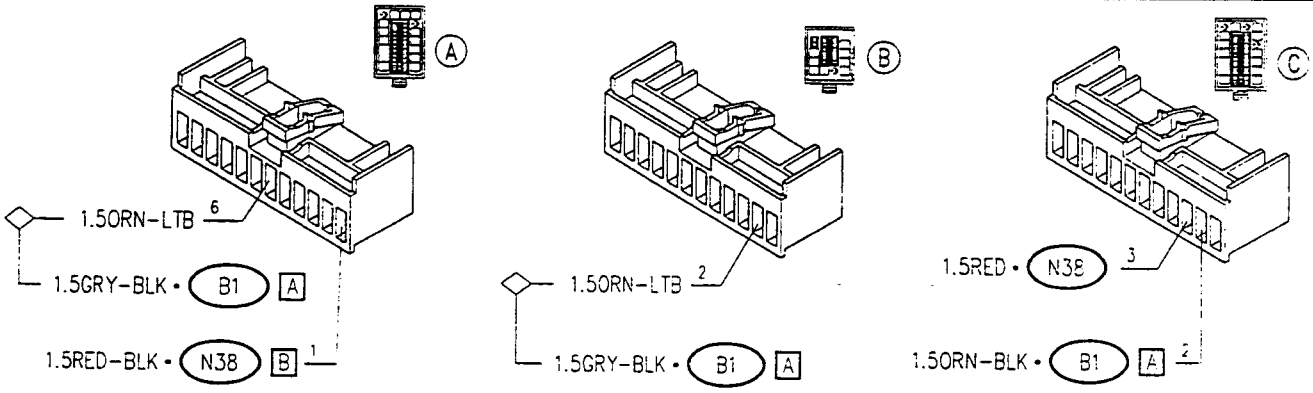
(*) up to chassis no.__
(•) from chassis no.___

Components and Connectors (cont.d)

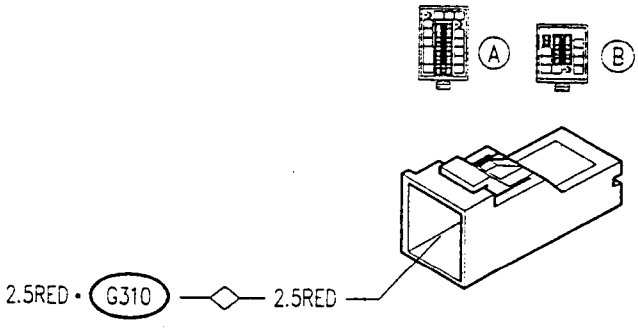
Fusebox — G1 G



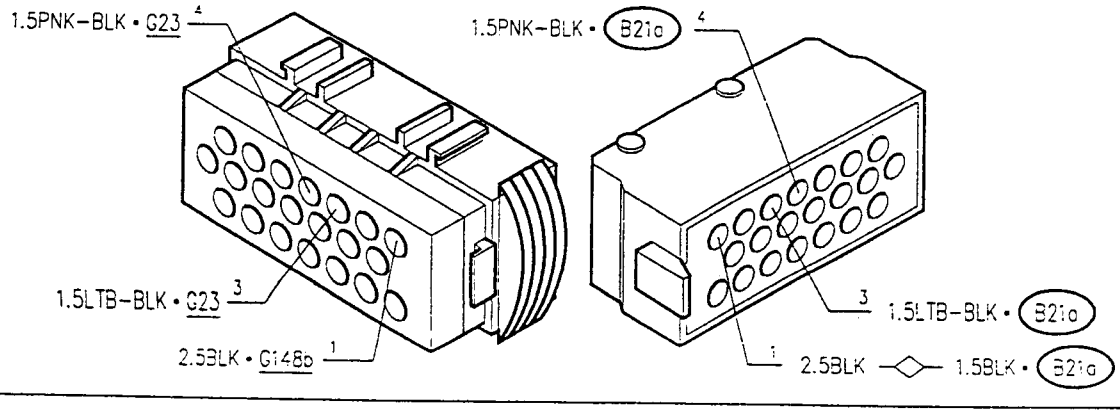
Fusebox — G1 H



Fusebox — G1 Q

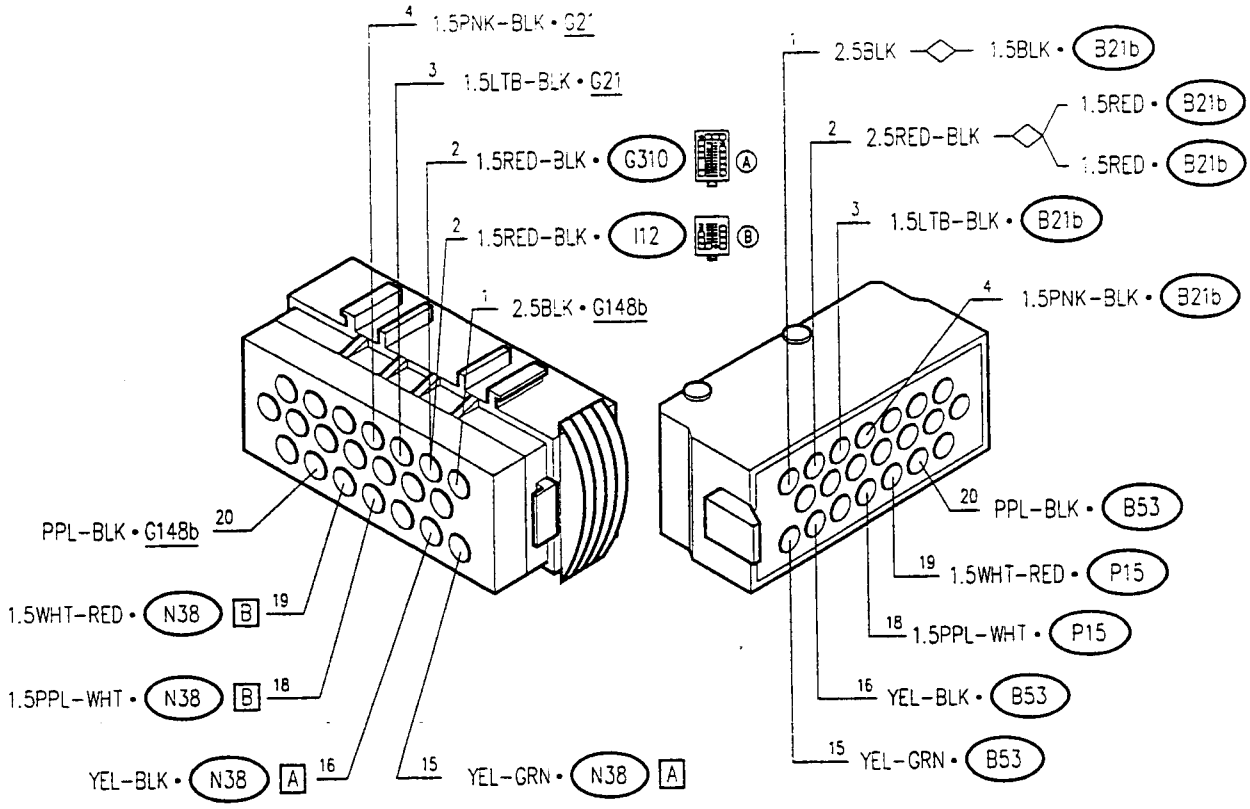


RH front door wiring connector — G21

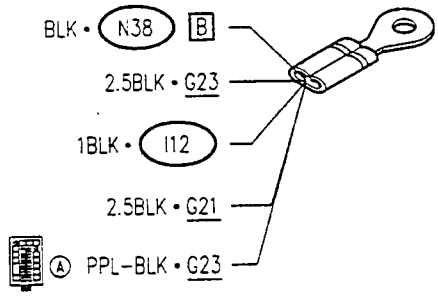


Components and Connectors (cont.d)

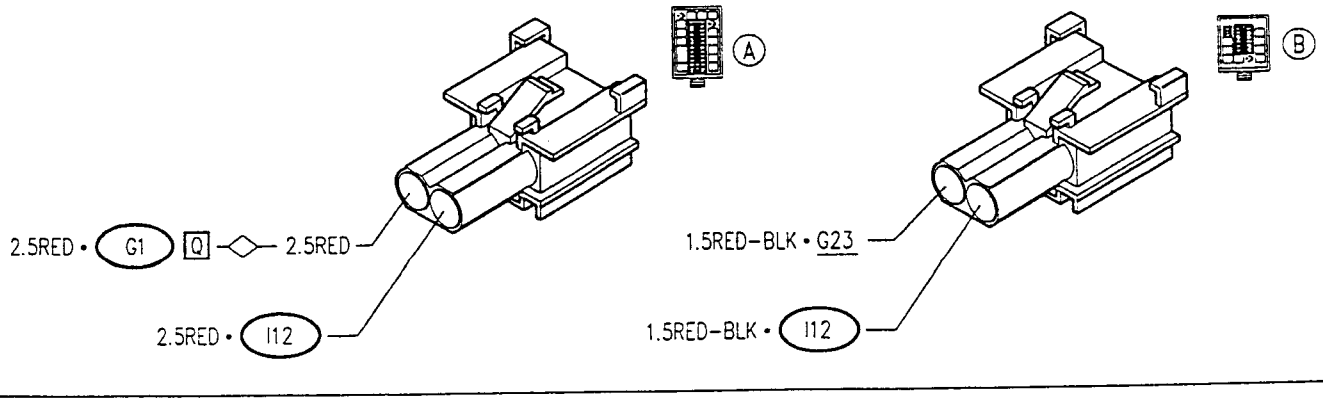
LH front door wiring connector	G23



Earth under LH dashboard	G148b

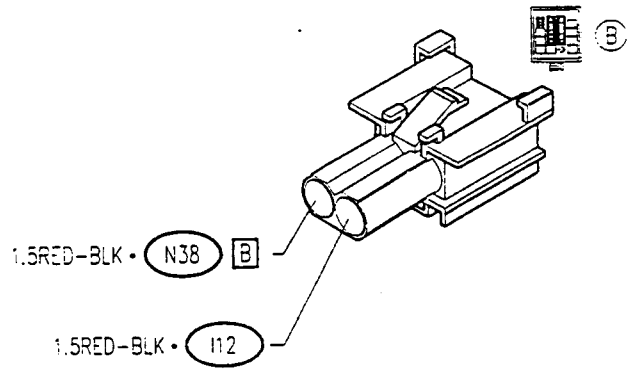


RH front power window fuse	G310

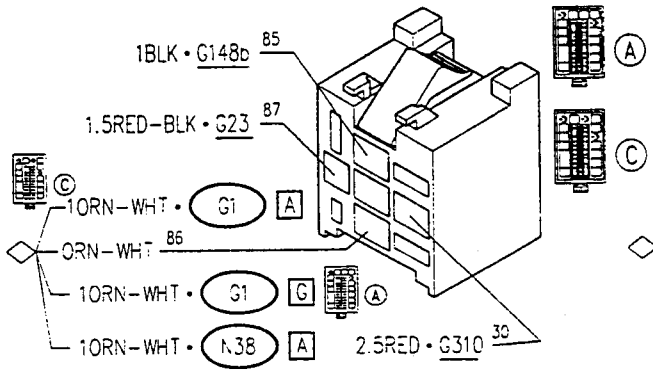


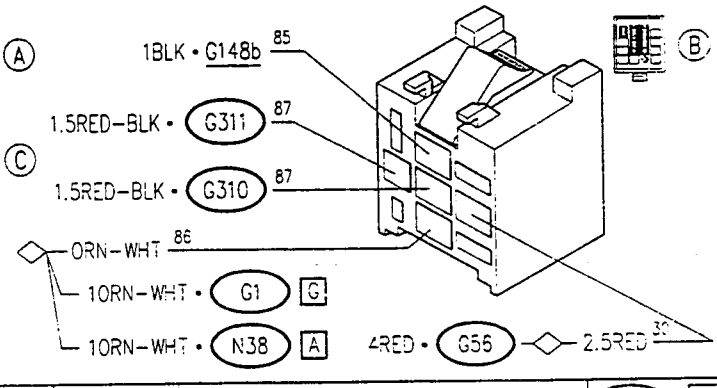
Components and Connectors (cont.d)

LH front power window fuse — G311

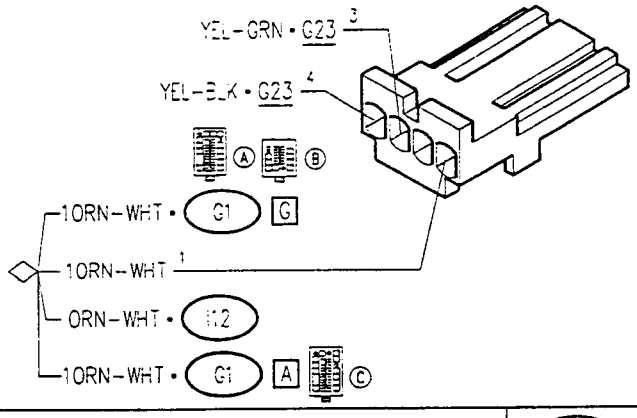


Front power window relay — I12

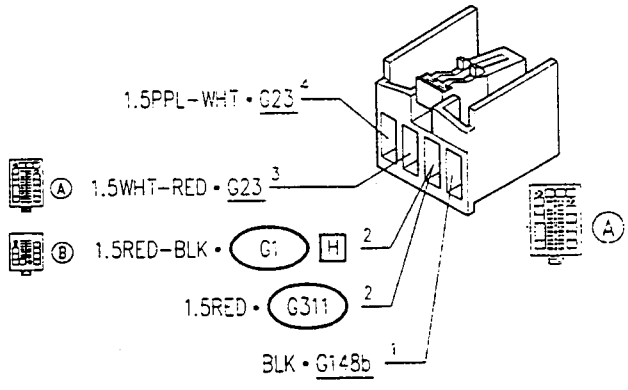




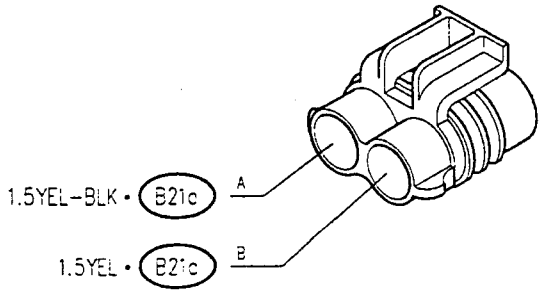
Power window control unit — N38 A



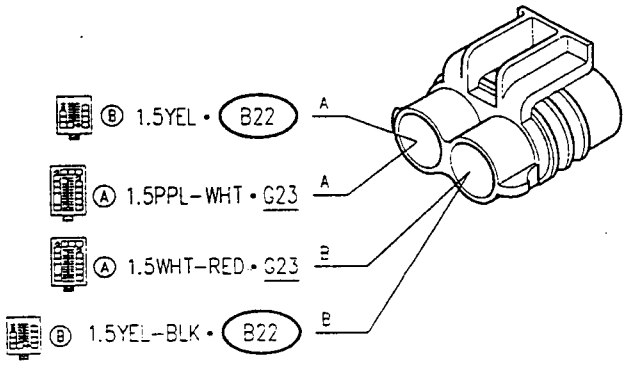
Power window control unit — N38 B



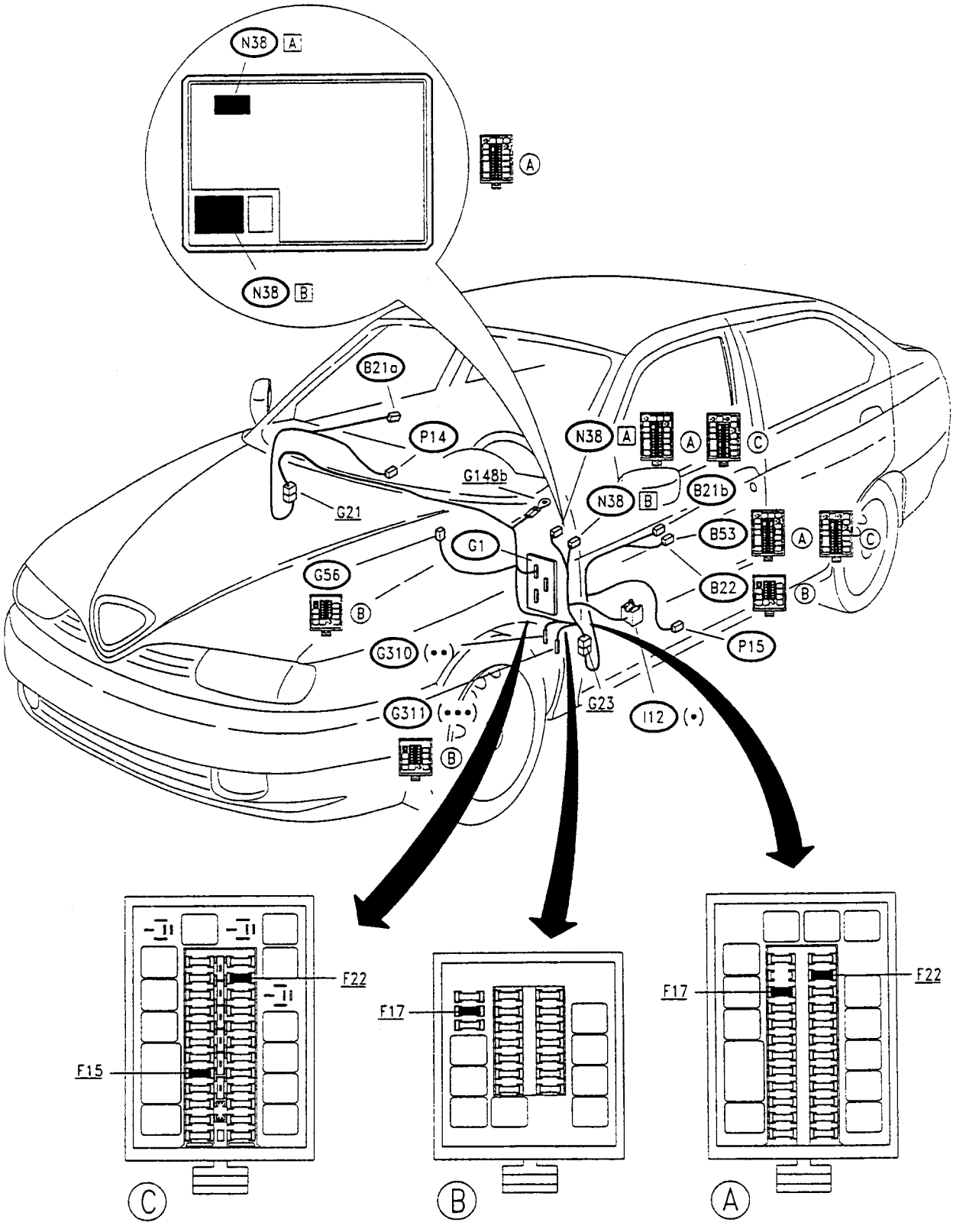
RH front power window motor — P14



LH front power window motor — P15



Location of Components

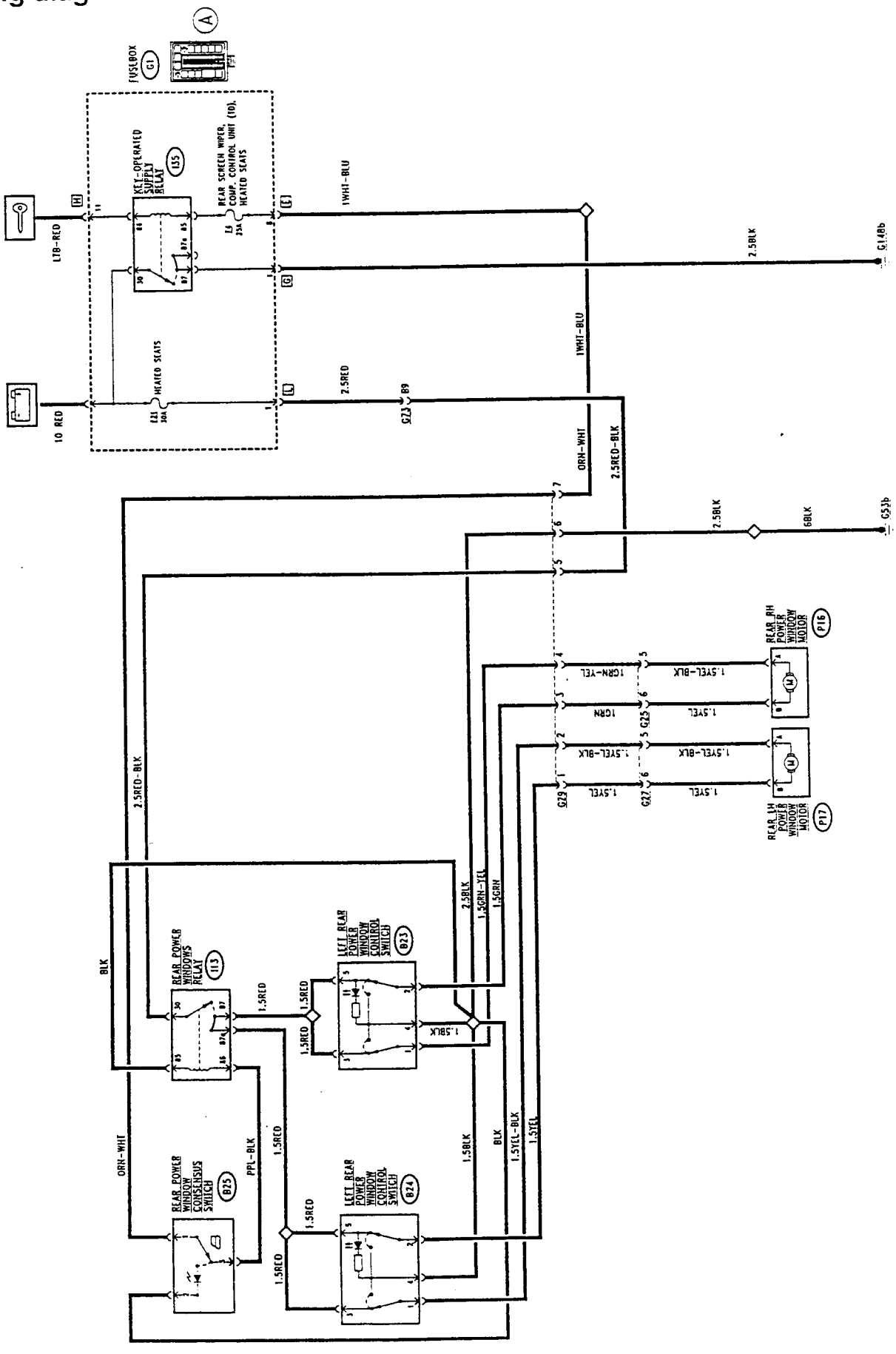


(•) black base
(••) green fuse holder

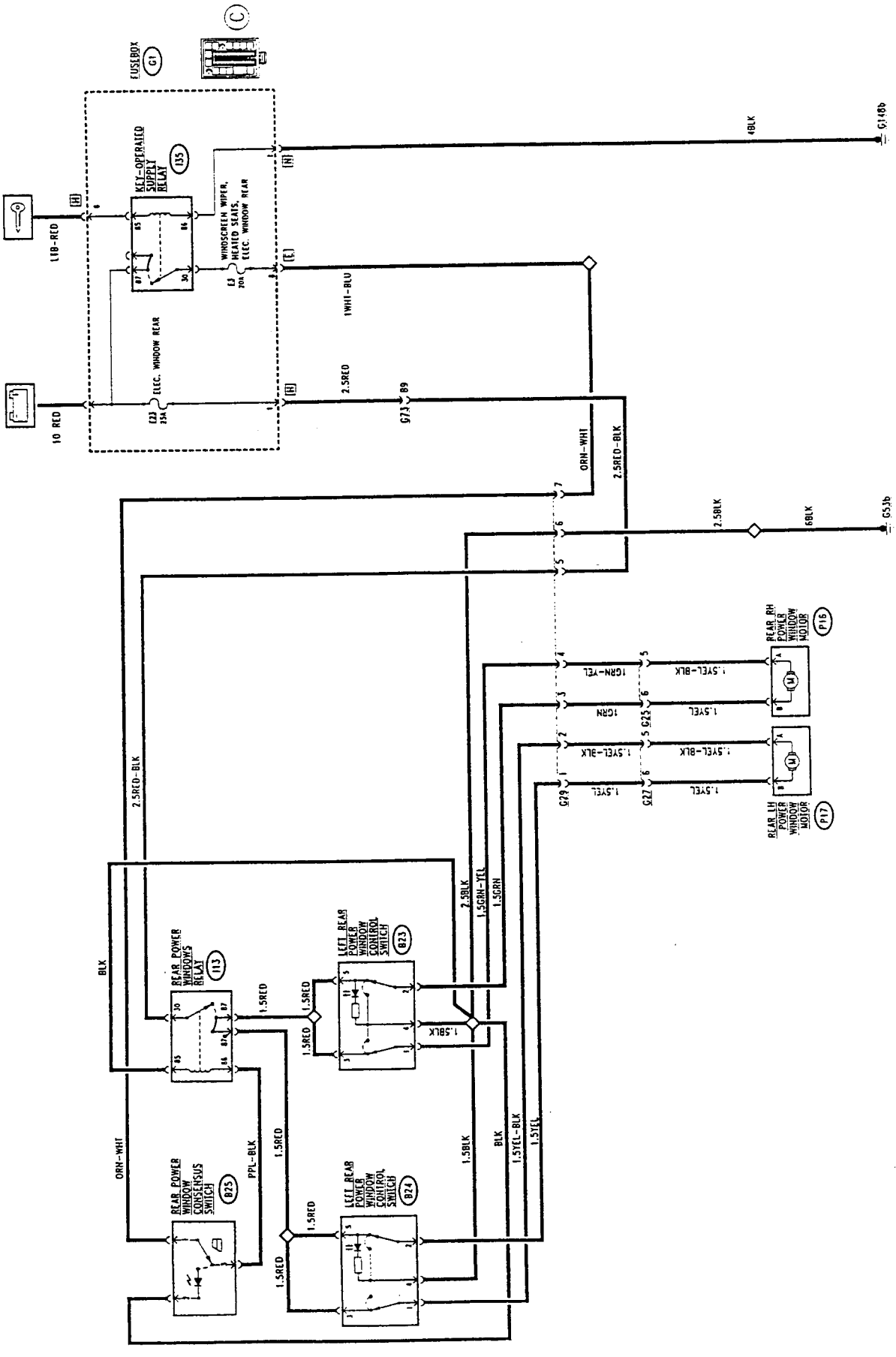
(•) yellow base
(••) white fuse holder
(•••) white fuse holder

REAR POWER WINDOWS

Wiring diagram



Wiring diagram



General Description

The electric mechanism that operates the rear windows is of the conventional type (button pressed - in one direction or the other - the window closes or opens): the control switch is located on the centre console and may also be operated from the front seats.

For safety reasons a special consensus switch, also on the centre console, makes it possible to cut off the supply to the switches.

Operation of the rear power windows is only possible with the ignition switch engaged.

Functional Description

The rear power window relay **I13** supplies and controls the entire system.

The relay coil is energised by a "key-operated" signal, leading from the ignition switch supply relay **I35** and from fuse **F4** of fusebox **G1** (box "A") or from fuse **F3** of box **G1** (box "C");

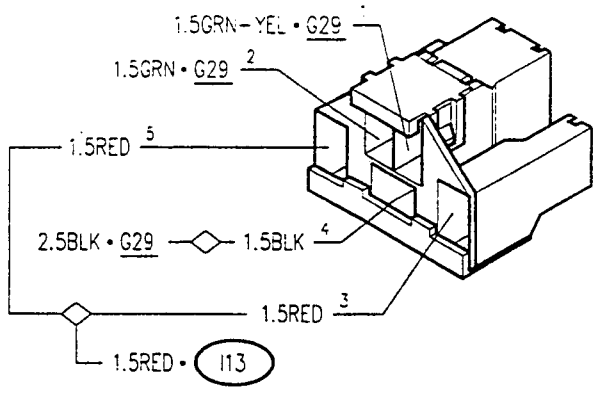
this supply crosses the safety switch for consensus for the rear power windows **B25**: if pressed, this switch de- energises the coil of **I13**, completely cutting off the supply to the circuit, and contemporaneously turning on a led which lights up the ideogram.

Once the coil of relay **I13** is energised, switches **B23** and **B24** are supplied with battery voltage which leads through the rear power window fuse **F21** of fusebox **G1** (box "A") or through fuse **F23** of **G1** (box "C").

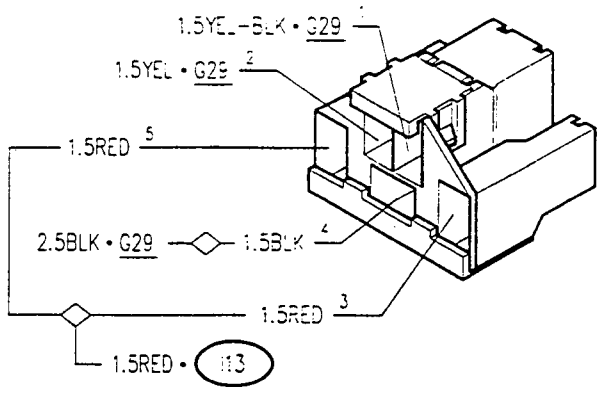
The double switches supply the motors **P16** and **P17**, sending a supply and an earth, inverting the signals depending on the contact that has been closed, thereby establishing the direction of rotation of the motor.

Components and Connectors

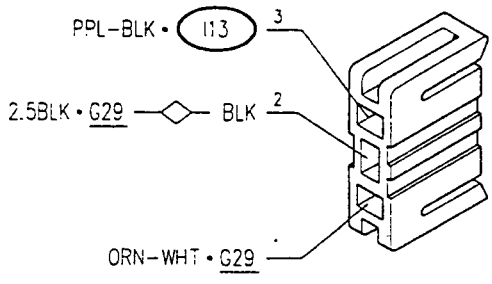
RH rear power window control switch (B23)



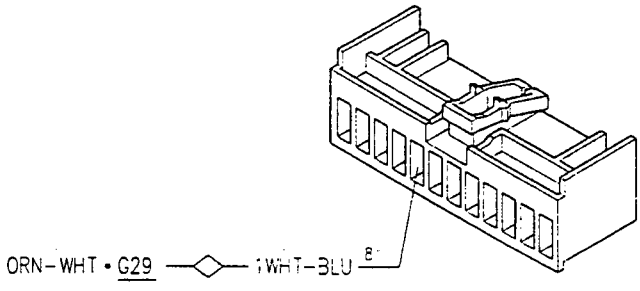
LH rear power window control switch (B24)



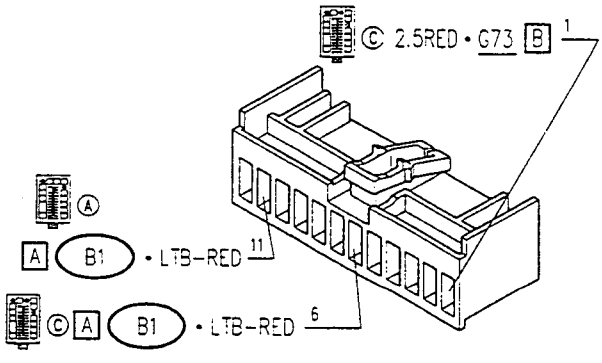
Rear power window consensus switch (B25)



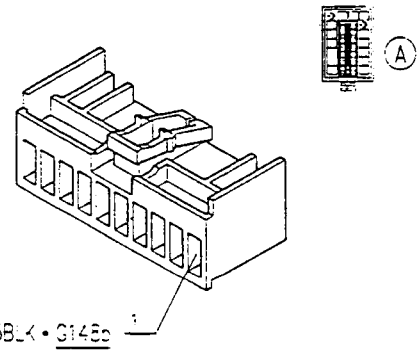
Fusebox (G1 E)



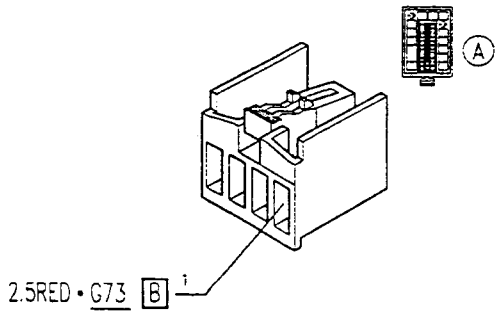
Fusebox (G1 H)



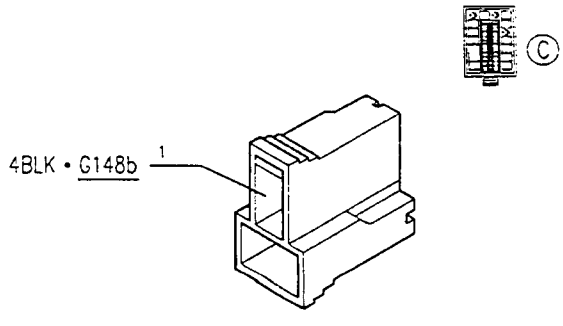
Fusebox (G1 G)



Fusebox (G1 L)

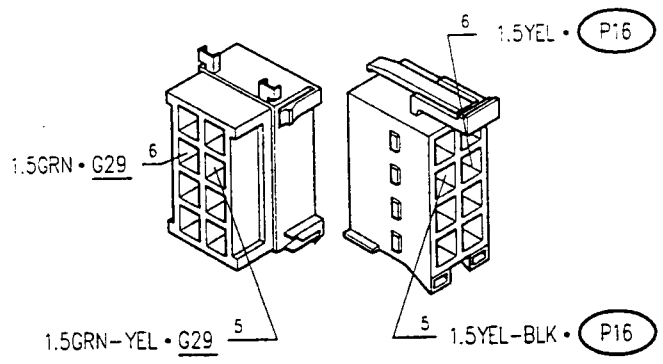


Fusebox (G1 N)

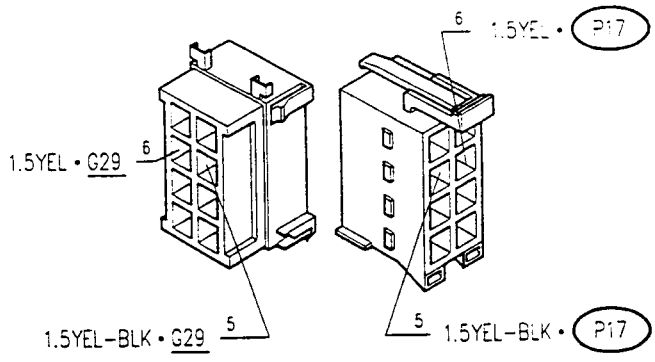


Components and Connectors (cont.d)

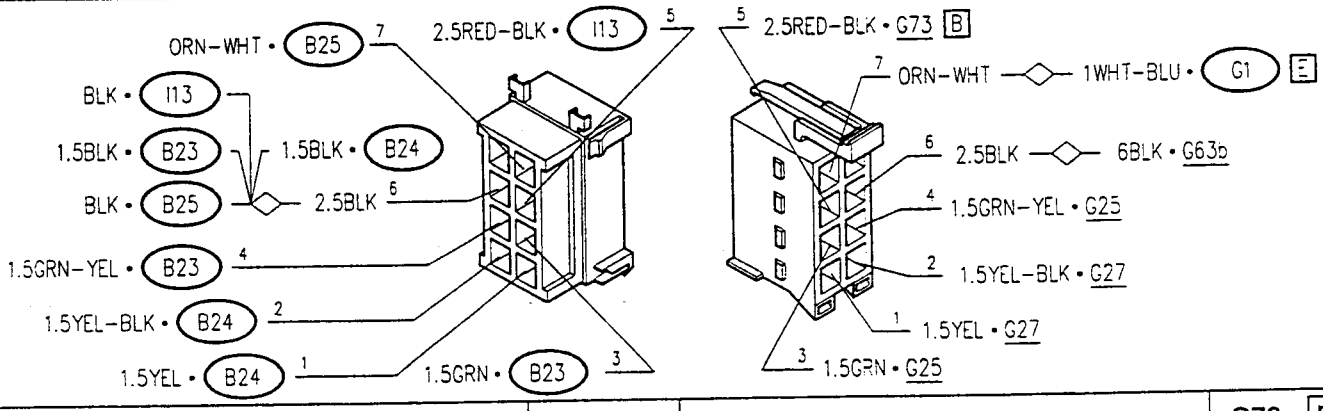
RH rear door wiring connector	G25



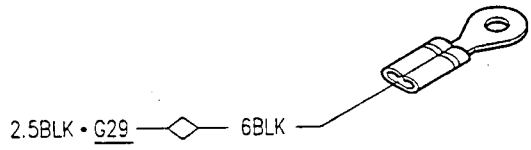
LH rear door wiring connector	G27



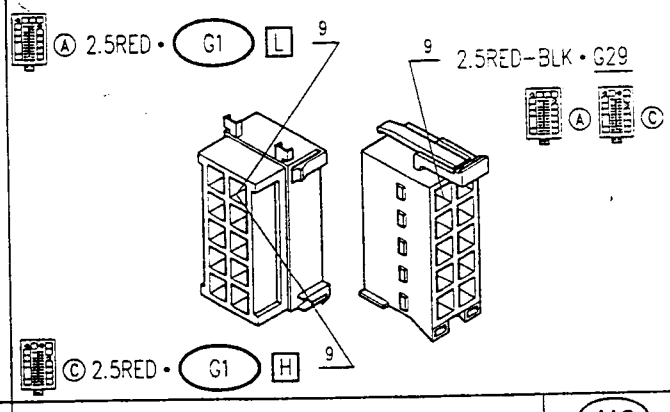
Rear power window wiring connector	G29



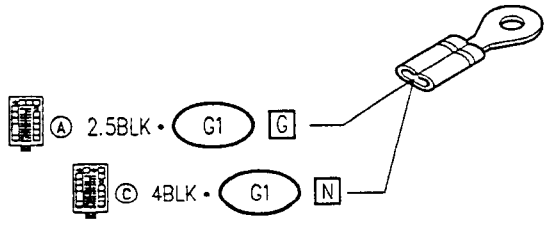
LH rear earth	G63b



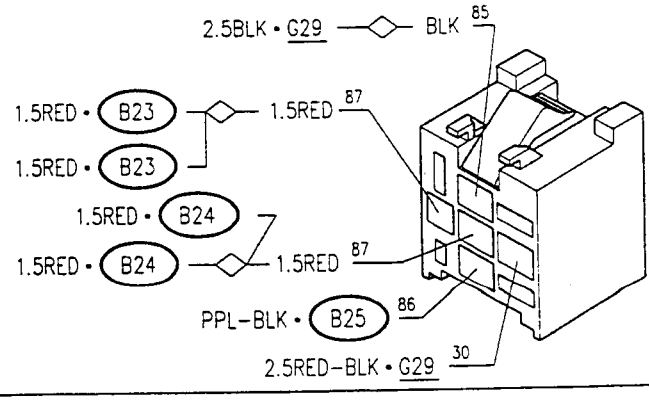
Rear services connector	G73 B



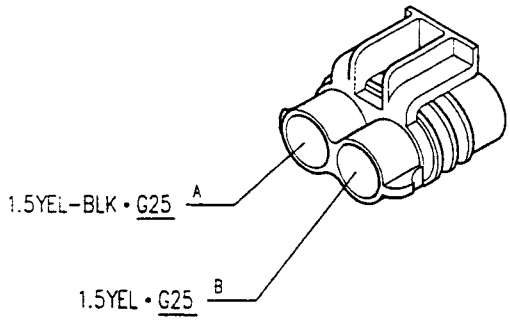
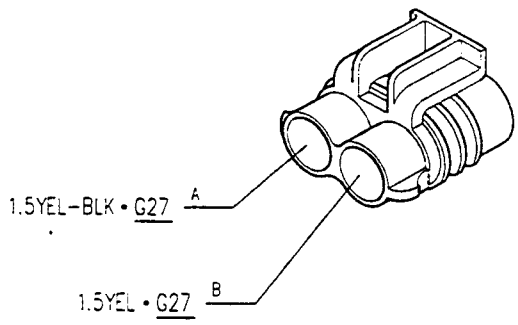
Earth under LH dasboard	G148b



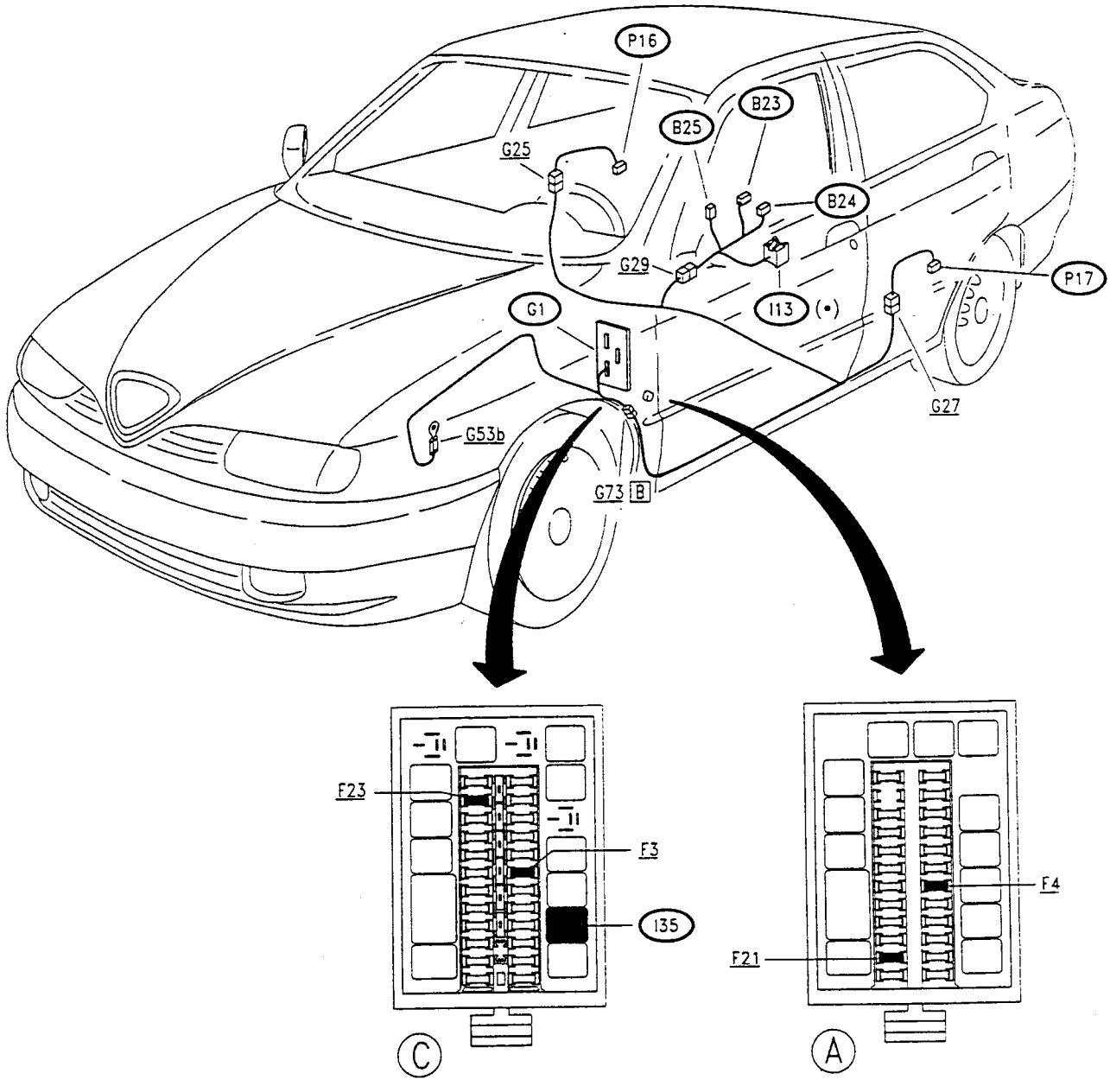
Rear power window relay	I13



Components and Connectors (cont.d)

RH rear power window motor	P16	LH rear power window motor	P17
			

Location of Components



(•) grey base

FAULT-FINDING TABLE

Fault	Component to be checked											
	G311 (B)	G310	F17	F22 (A)	P14	P15	N38 (A)	B21a	B21b	I12	B53 (A)	B22 (B)
LH front power window, in all circumstances	•		•	•		•	•			•	•	•
LH front power window, automatic operation				•			•					
RH front power window		•	•		•			•		•		

(cont.d)

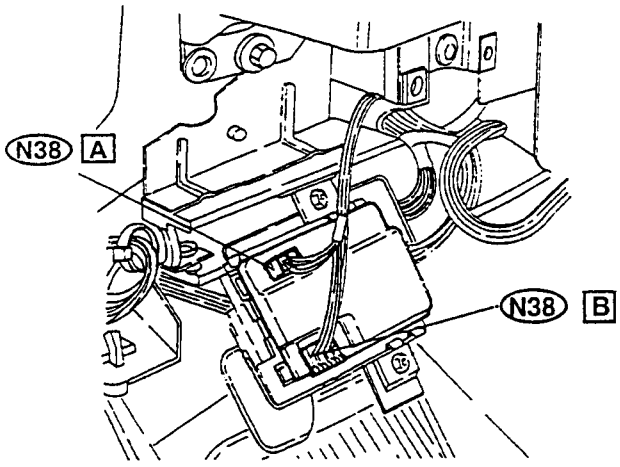
(A) Versions with fusebox "A"

(B) Versions with fusebox "B"

Fault	Component to be checked							
	F21	F4	P17	P16	B24	B23	I13	B25
Both rear power windows	•	•					•	•
LH rear power window			•		•			
RH rear power window				•		•		

CHECKING COMPONENTS

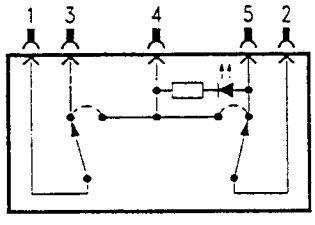
Power window control unit (N38)



Check device:

test A (only for fusebox "A")

Power window switches (B21a) (B21b) (B22) (B23) (B24)



SPECIFICATIONS
Check operation: **at rest**: continuity between pin 3 and 1 and between pin 2 and 5, a.c. between the other pins operating pushbutton for **closing**: continuity between pin 4 and 1; a.c. between the other pins operating pushbutton for **opening**: continuity between pin 4 and 2, a.c. between the other pins

CHECK POWER WINDOW CONTROL UNIT (N38) (version for fusebox "A")	TEST A

Work with the component fitted on its connector, from the cable inlet side

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK VOLTAGE – Check for 12V between pin 2 and 1 of connector B of **N38**	OK ▶	Carry out **step A2**
	~~OK~~ ▶	Check fuse **F22** of fusebox **G1**. Restore the wiring between **N38 B** and **G1** and between **N38 B** and earth **G148b**
A2 CHECK VOLTAGE – With the key at MARCIA, check for 12V between pin 1 of connector B and pin 1 of connector A of **N38**	OK ▶	Carry out **step A3**
	~~OK~~ ▶	Check fuse **F17** of **G1**. Restore the wiring between **N38 A** and **G1**
A3 CHECK MANUAL OPERATION – Operating the driver's side front power window switch **B53**, check for 12V between pin 3 and 4 of connector B of **N38**; this voltage ceases when operation of the button stops	OK ▶	Carry out **step A5**
	~~OK~~ ▶	Carry out **step A4**
A4 CHECK MANUAL OPERATION – Operating switch **B53**, check for a voltage of 12V between pins 3 and 4 of connector A of **N38**	OK ▶	Change device **N38**
	~~OK~~ ▶	Restore the wiring between **N38 A** and switch **B53**, or change the latter
A5 CHECK AUTOMATIC OPERATION – With the key at MARCIA, operating switch **B53** check for: • 12V d.c. between pins 3 and 4 of connector B if the button is pressed for less than 300 ms • no voltage if the button is pressed for less than 50 ms • 12V d.c. between pins 3 and 4 of connector B keeping the button pressed	OK ▶	DEVICE **N38** IS WORKING PROPERLY. Check the connections with the other components
	~~OK~~ ▶	Change device **N38**