WINDSCREEN WIPER/WASHER - REARSCREEN WIPER/WASHER - HEADLAMP WASHER

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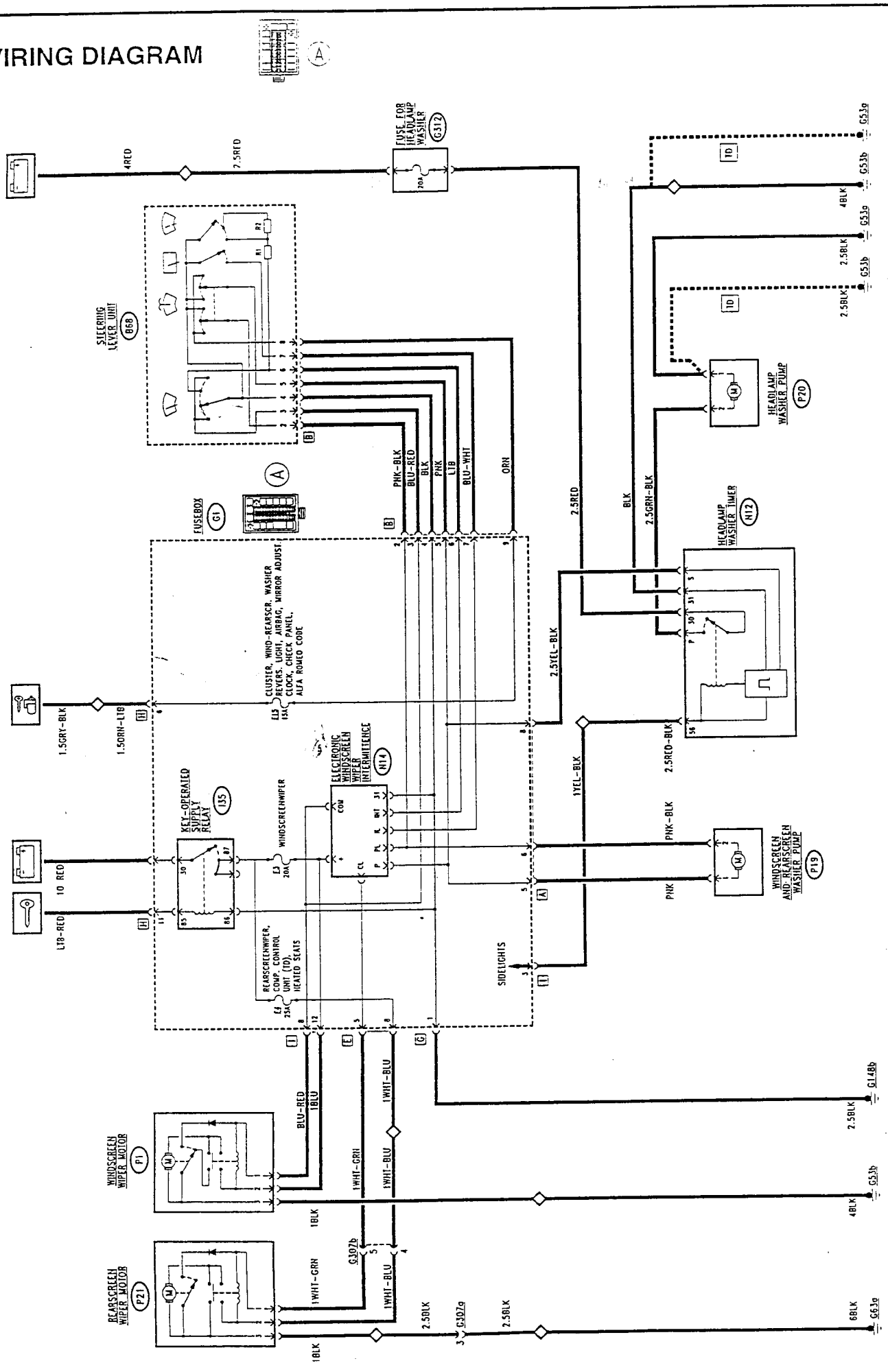
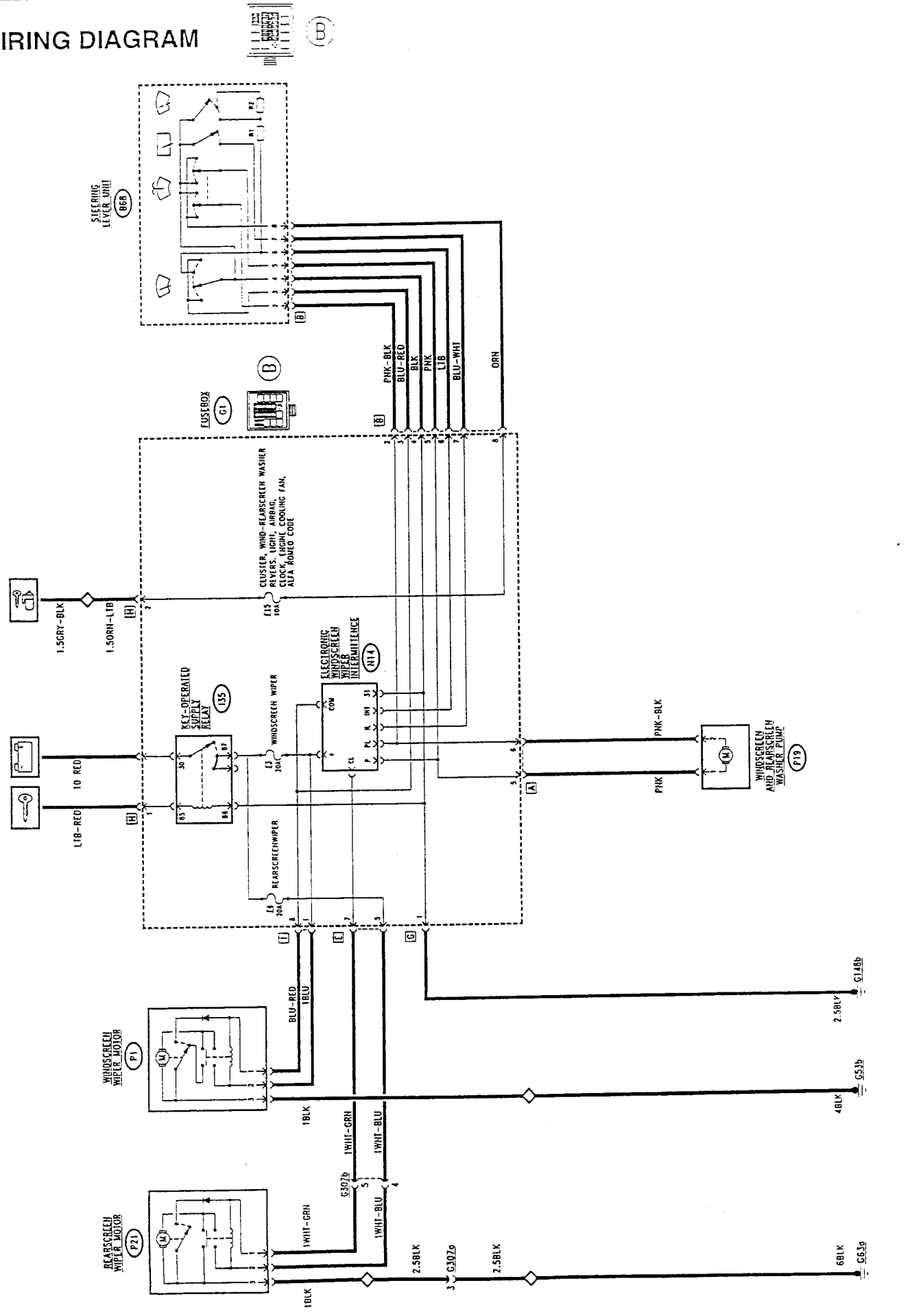
WIRING DIAGRAM

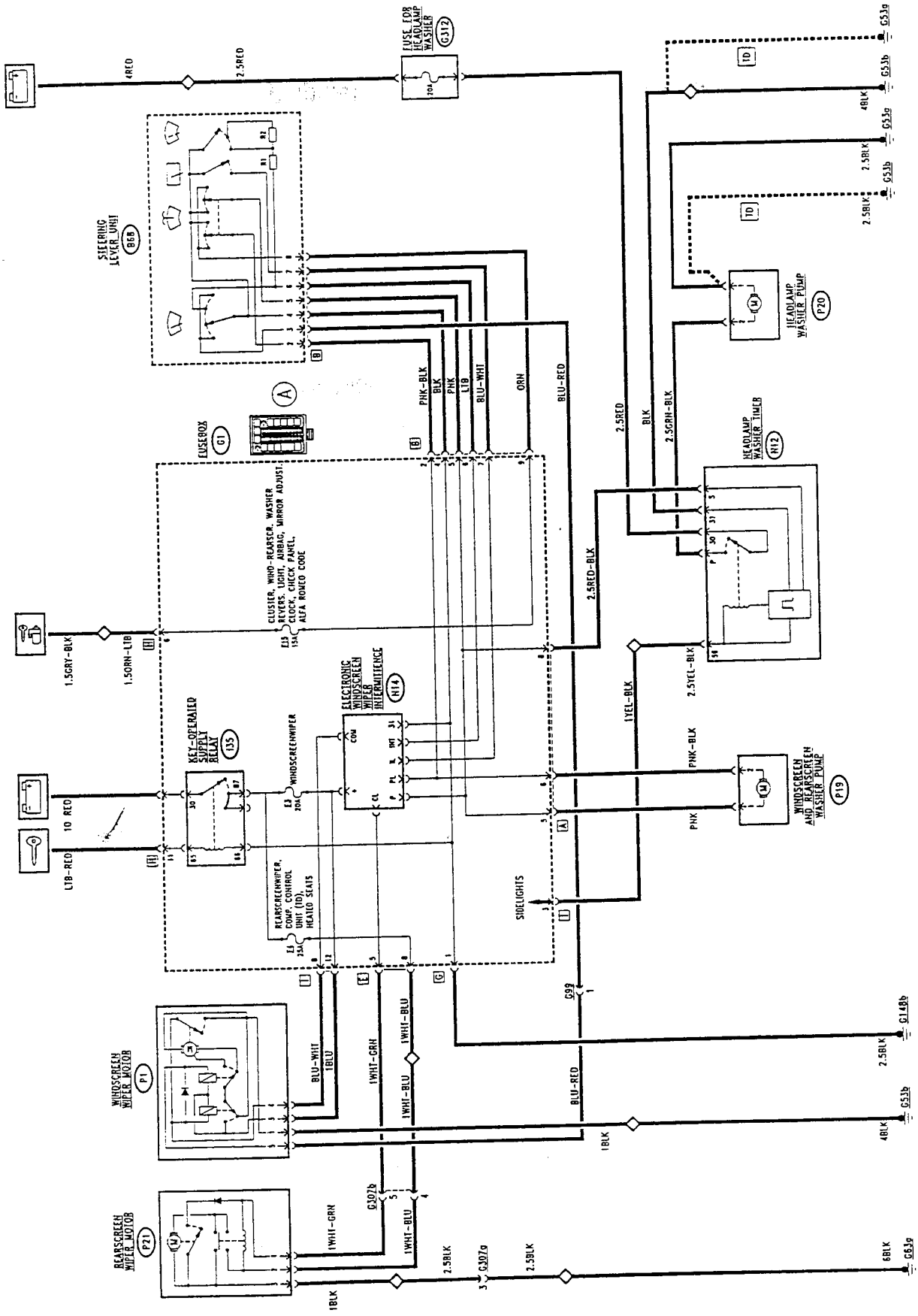


WIRING DIAGRAM

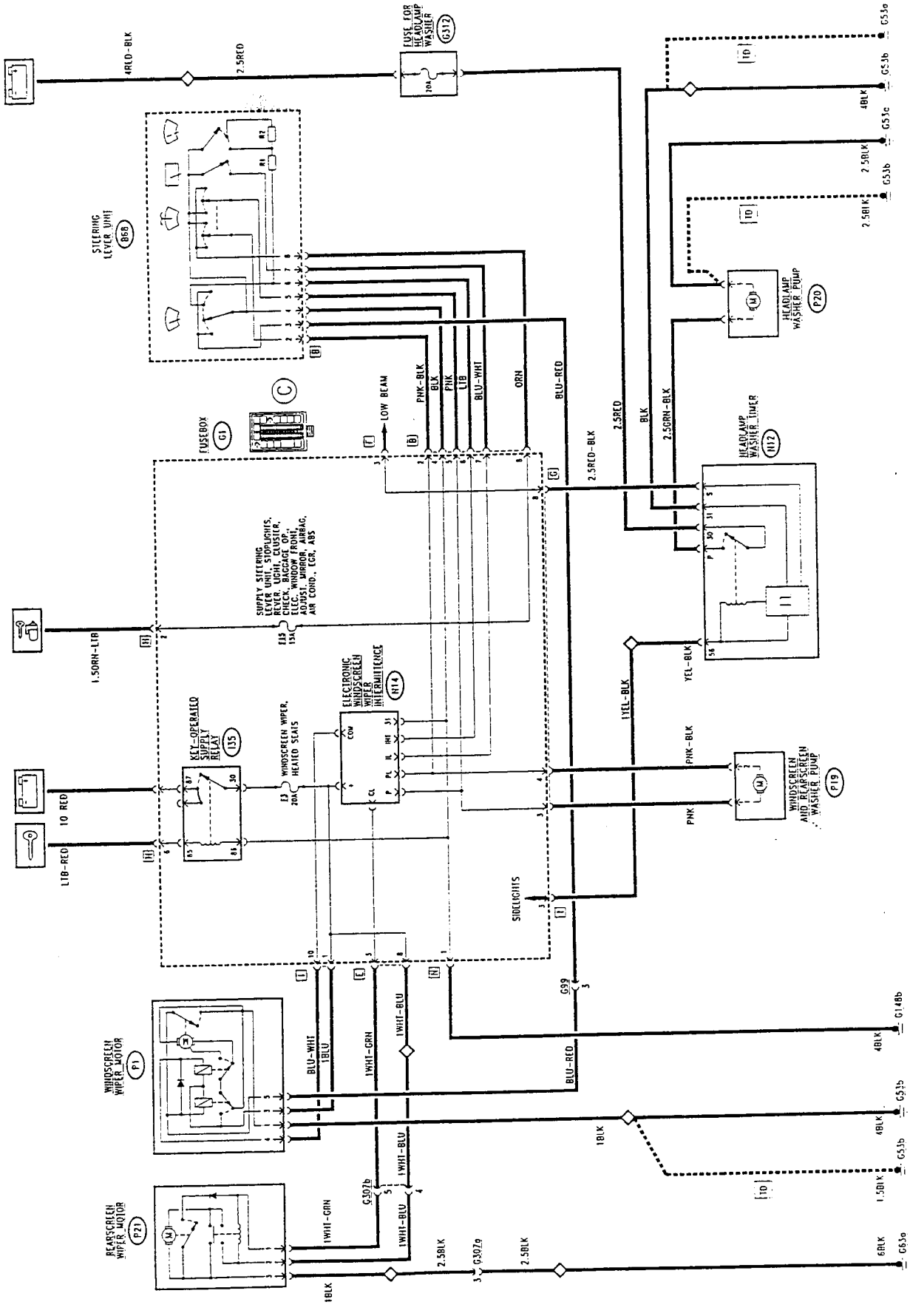


WIRING DIAGRAM

- Model Year '97



WIRING DIAGRAM



GENERAL DESCRIPTION

With the lever on the righthand side of the steering wheel it is possible to engage the different functions of the windscreen washer/wiper, rearscreen washer/wiper and headlamp washer system.
The windscreen wiper device can work continuously and intermittently at different speeds: moving the lever upwards and holding it in this position will select continuous operation (75 passes per min.) which is turned off when the lever is released; if the lever is pushed downwards firstly intermittent operation is engaged and then continuous operation: these functions stay on until the lever is moved upwards again.
With the lever in the rest position, through the special ring switch it is possible to select the different lengths of the intermittent functions (appr. 45, 25 and 11 passes per min.).

From Model Year '97 the device is changed to obtain a second continuous speed of 61 strokes/min and two intermittent speeds (27 and 11 strokes/min). The rearscreen wiper function (intermittent at 15 strokes) is turned on turning the special ring.

The windscreen washer is engaged slightly pulling the lever towards the steering wheel; the rearscreen washer by pushing it towards the dashboard: this way the windscreen/rearscreen washer pump is operated for appr. 4 seconds or until the lever is released.
When the side lights are on, the same windscreen washer controls also operate the headlamp washer: this is an electropneumatic device in which a pump sends the detergent fluid to a double nozzle that sprays a powerful jet onto the headlamp.
A timer operates the headlamp washer pump with successive impulses which last for about half a second.

NOTE: Operating the windscreen/rearscreen washer (and headlamp washer) without detergent fluid in the reservoir can damage the pump.

The entire system is regulated by a windscreen wiper intermittency device located in the fusebox, which controls the windscreen and rearscreen wiper motors, the windscreen and rearscreen washer pump and the headlamp washer device (timer and pump).
The windscreen wiper and washer and rearscreen wiper/washer can be operated with the ignition key engaged and, as mentioned previously, the headlamp washer can only work with the side lights on (chassis no.__ the dipped beam lights).

FUNCTIONAL DESCRIPTION

Windscreen wiper
The windscreen wiper intermittence device **N14**, located in fusebox **G1**, is supplied via the key-operated relay **I35** (pin +) and fuse **F3** also in **G1**.
When the windscreen wiper switch of the lever unit **B68** is operated, it sends two different signals depending on the function selected; from pin 3 for continuous speed and from pin 6 for intermittent operation.
The signal from pin 3 (continuous speed) passes directly to the wiper motor **P1** as a command signal: motor **P1** is connected to earth and supplied with the same line as the intermittent device **N14**. It comprises the the actual gear motor, stroke limit contacts (for automatic parking of the blades) and the supply relay switch.
The signal from pin 6 (intermittent speed) of **B68** reaches the intermittent device **N14** (pin INT) from where it is then sent to the motor **P1** (pin COM).
Turning the switch (ring) of the lever unit **B68** either no, or one (R1), or two (R2) resistances are connected on the same line, thereby obtaining three intermittent speeds.

Rearscreen wiper
Operating the rearscreen wiper ring switch the signal is sent from pin 7 of **B68** to **N14** (pin IL). The intermittent device sends a command (from pin CL to the rearscreen wiper motor **P21** which is supplied from the ignition switch key-operated supply through fuse **F4** of **G1** ("A" and "B") or from fuse **F3** of **G1** "C".
This motor comprises the gear motor, stroke limit contacts and the supply relay switch.

Windscreen/rearscreen washer
When operated, the windscreen washer (and headlamp washer) switch of the lever unit **B68** sends two signals from pin 2 and from pin 5 which reach the intermittent device **N14** (pin PL and P) for operating the windscreen washer for 4 sec., and they operate the windscreen washer pump **P19**; a command signal is also sent to the headlamp washer timer **N12**.

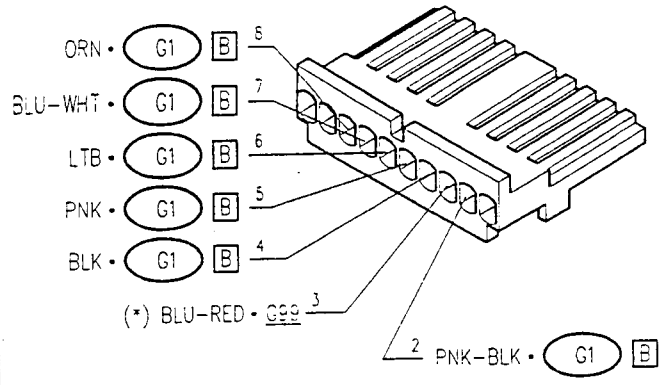
Pump **P19** is two-way: it sends water to the spray jets of the windscreen washer or rearscreen washer depending on the terminal supplied with 12V while the other is connected to earth.

Headlight washer
The timer **N12**, located on the bracket outside the fusebox **G1**, is supplied directly by the battery through fuse **G312** (20A).
When the consensus signal resulting from the side lights being on reaches the relay in addition to the lever unit switch command, the relay switch inside **N12** is energized which supplies the headlamp washer pump **P20** for about half a second.

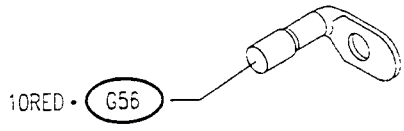
From chassis no.___ the enable signal is received by the turning on of the dipped beams.

COMPONENTS AND CONNECTORS

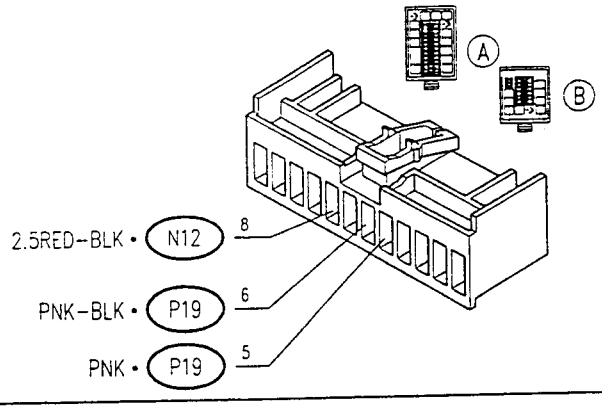
Lever unit — B68 B



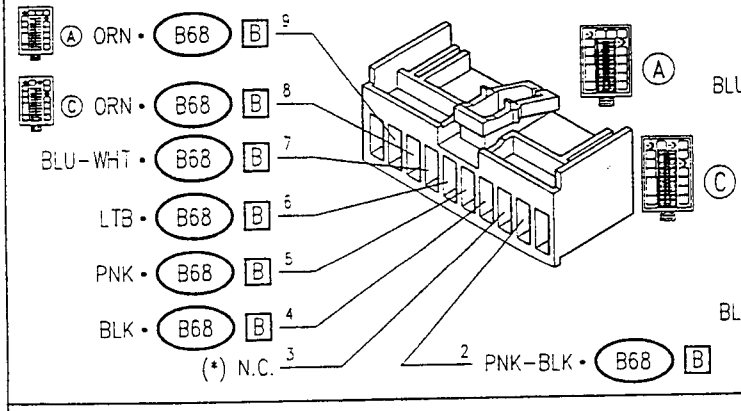
Fusebox — G1

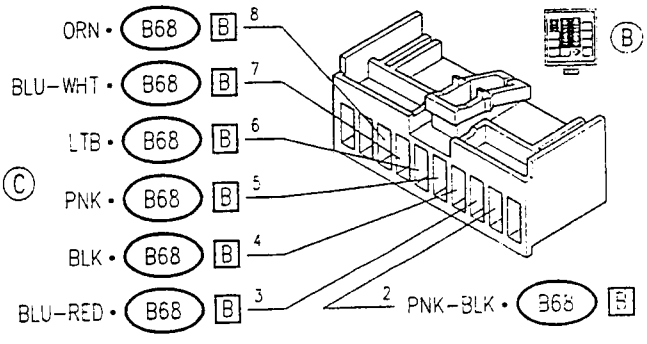


Fusebox — G1 A

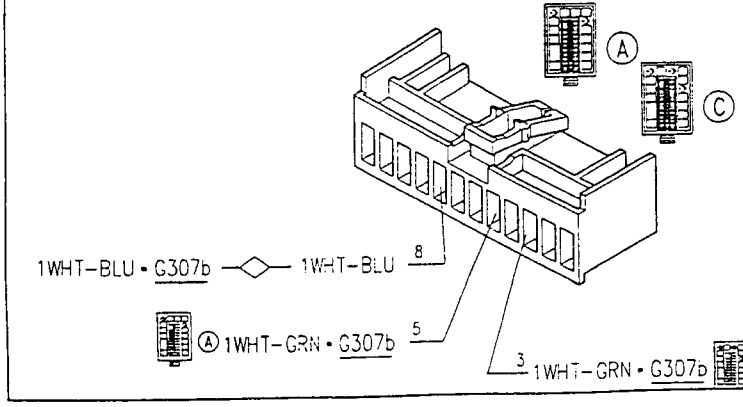


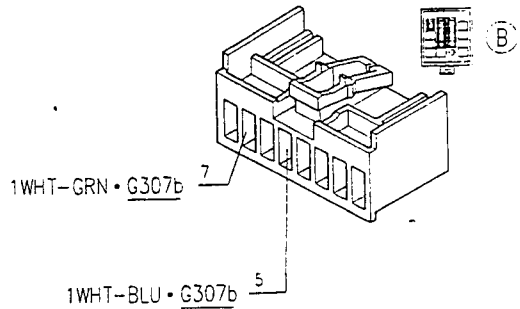
Fusebox — G1 B





Fusebox — G1 E





(*) from Model Year '97

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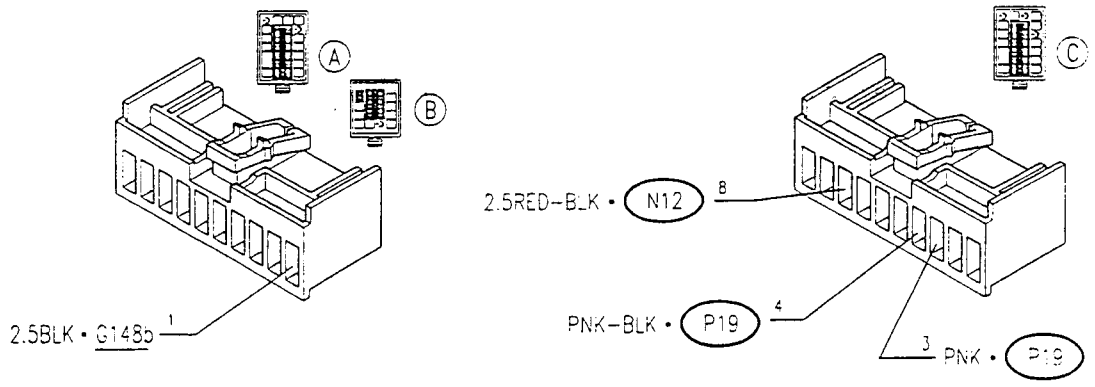
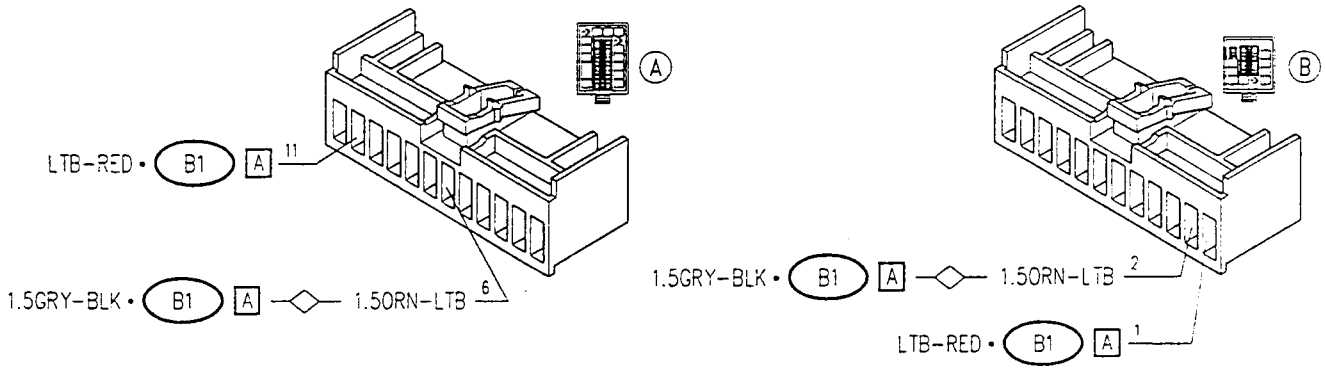
COMPONENTS AND CONNECTORS (cont.d)

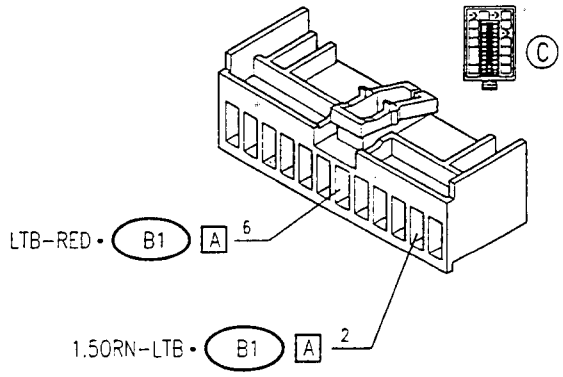
Fusebox — G1 G



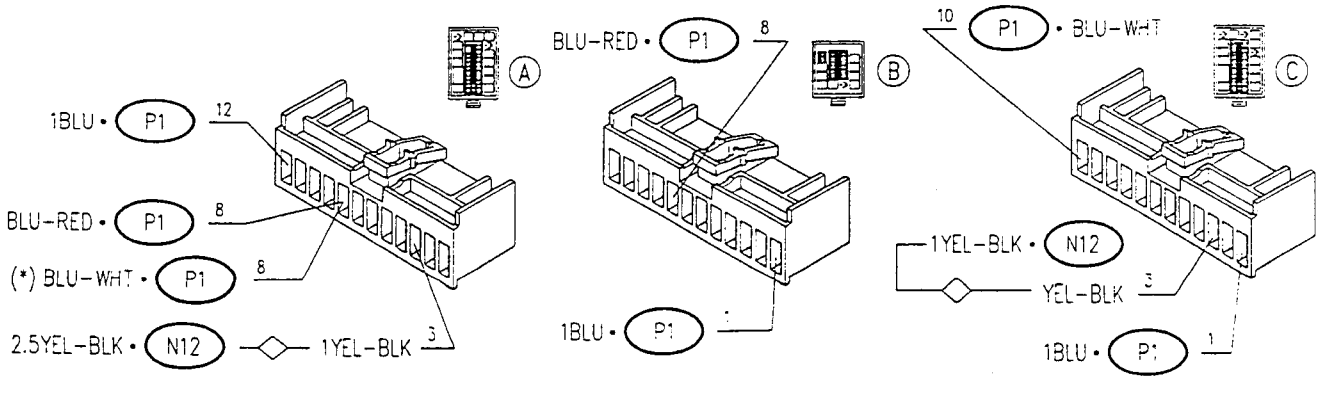
Fusebox — G1 H



Fusebox — G1 H



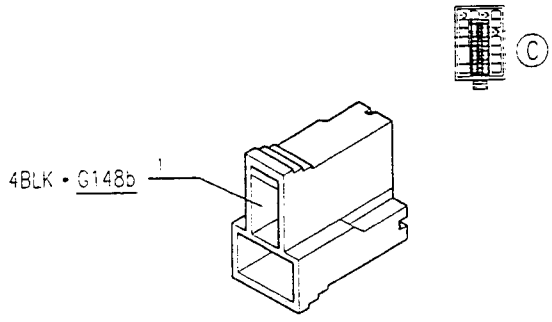
Fusebox — G1 I



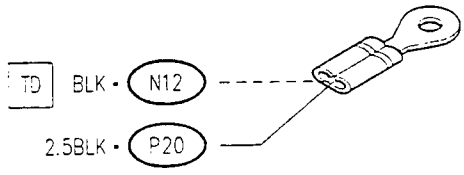
(*) from Model Year '97

COMPONENTS AND CONNECTORS (cont.d)

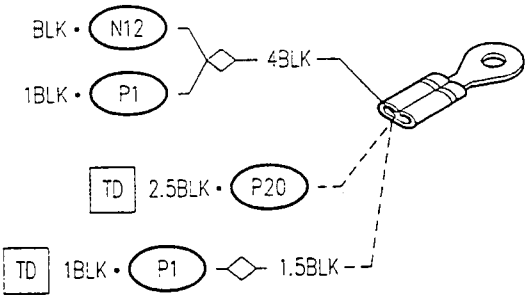
Fusebox	G1 N



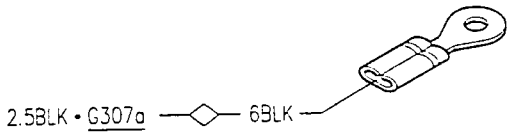
RH engine compartment earth	G53a



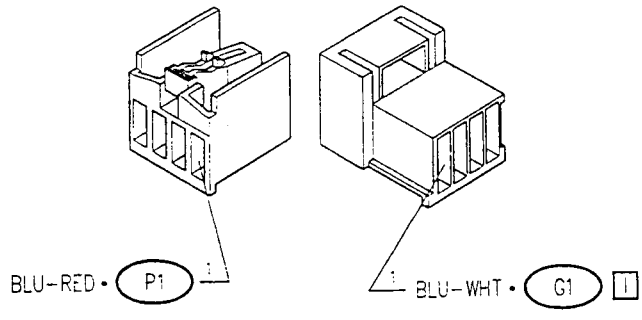
LH engine compartment earth	G53b



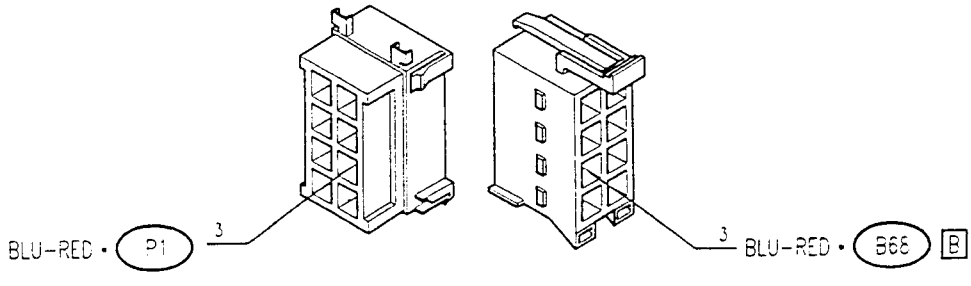
RH rear earth	G63a



Connector for dashboard wiring/engine wiring (*)	G99



Connector for dashboard wiring/engine wiring (**)	G99

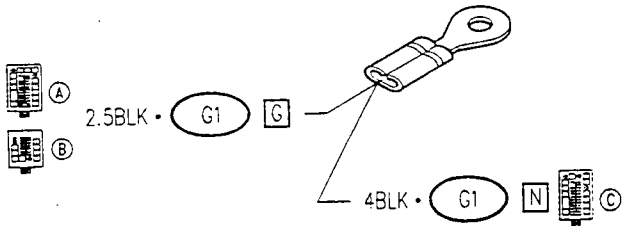


(*) from Model Year '97, up to chassis no. ___

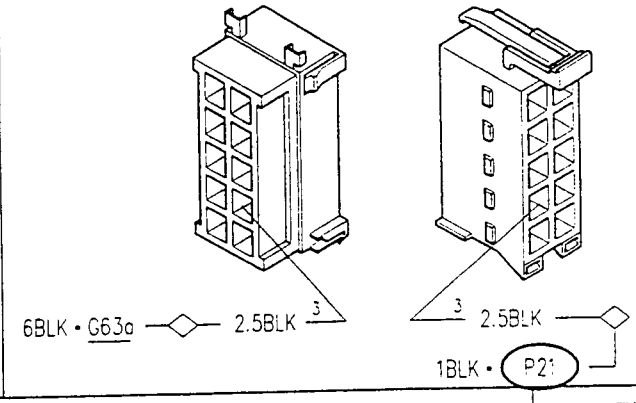
(**) from chassis no. ___

COMPONENTS AND CONNECTORS (cont.d)

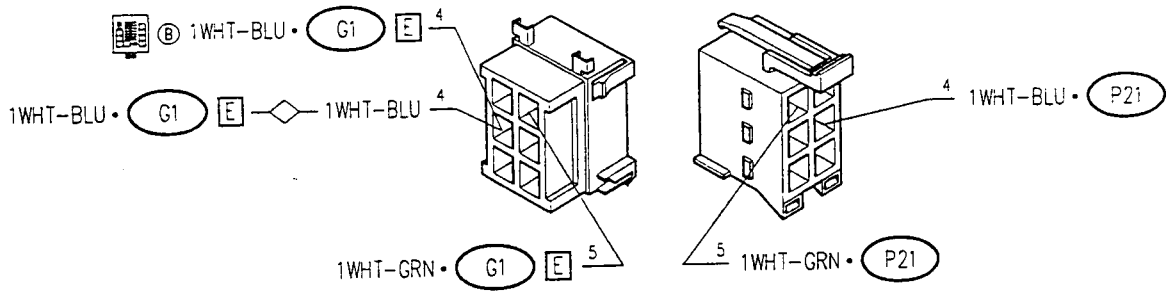
Earth under dashboard LH	G148b



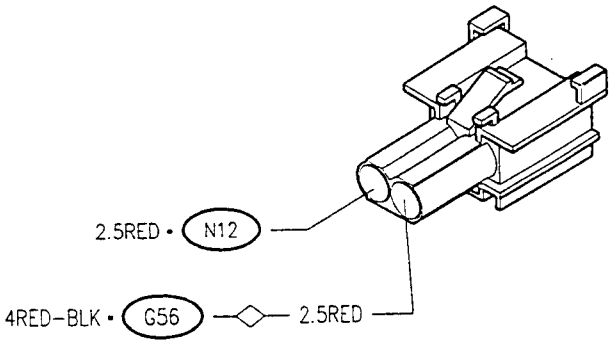
Rear/luggage compartment wiring connector A	G307a



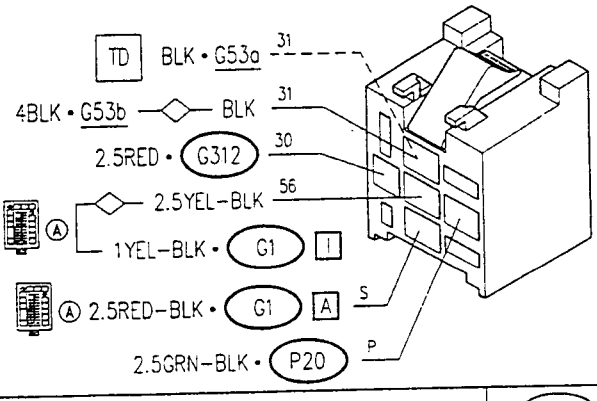
Rear/luggage compartment wiring connector B	G307b



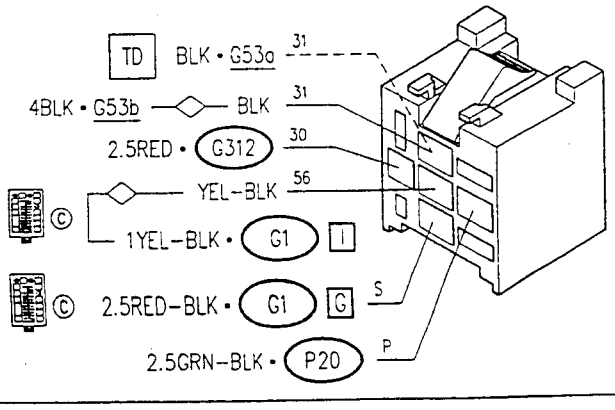
Fuse for headlamp washer	G312



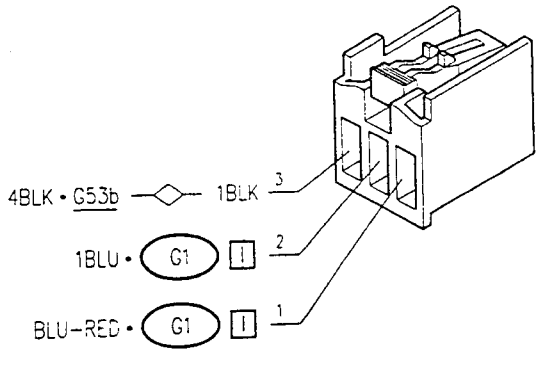
Timer for headlamp washer	N12



Timer for headlamp washer	N12



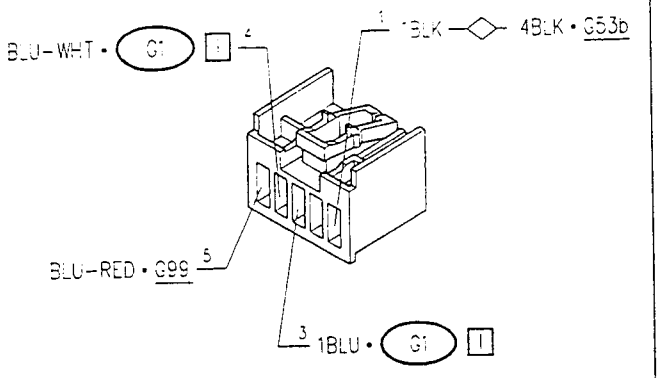
Windscreen wiper motor	P1



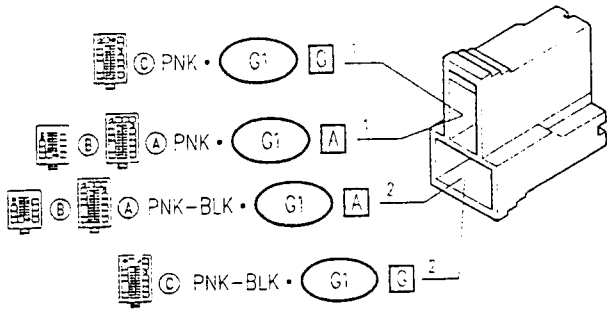
(*) from Model Year '97

COMPONENTS AND CONNECTORS (cont.d)

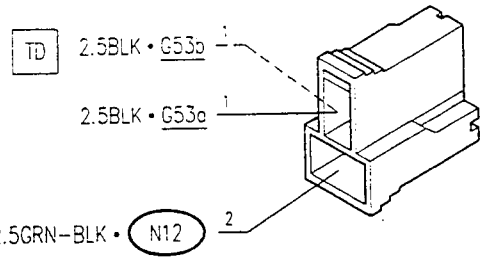
Windscreen wiper motor (*)	P1



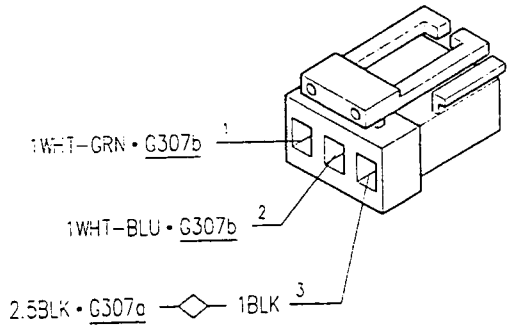
Windscreen/rearscreen washer pump	P19



Headlight washer pump	P20

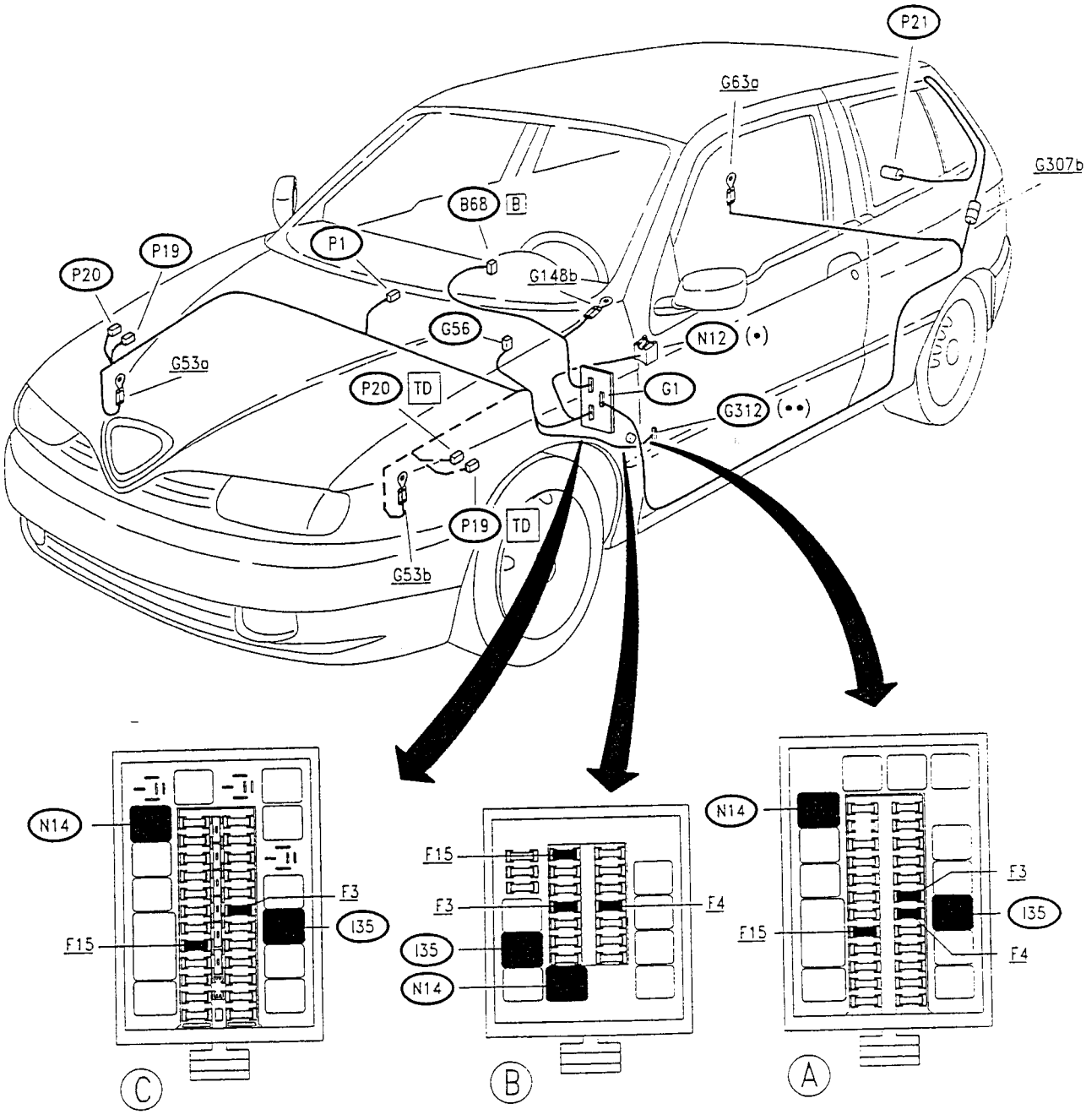


Rearscreen wiper motor	P21



(*) from Model Year '97

LOCATION OF COMPONENTS



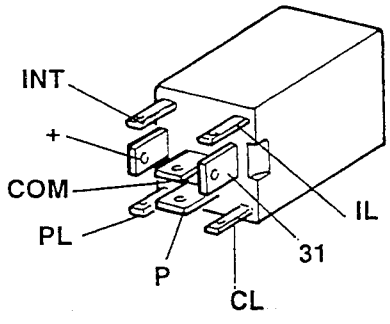
(•) black base
(••) yellow fuseholder

FAULTFINDING TABLE

Failure	Component to be checked										
	F3	F4	F15	G312	P1	P21	P20	P19	N14	N12	B68
Windscreen wiper (cont. speed)	•				•						•
Windscreen wiper (inter-mitt.speed)									•		•
Rearscreen wiper		•				•			•		
Windscreen/rearscreen washer			•					•			•
Headlight washer			•	•			•			•	

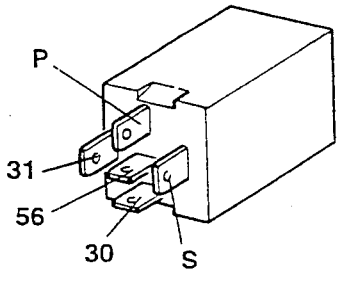
CHECKING COMPONENTS

Windscreen wiper electronic intermittent device (N14)



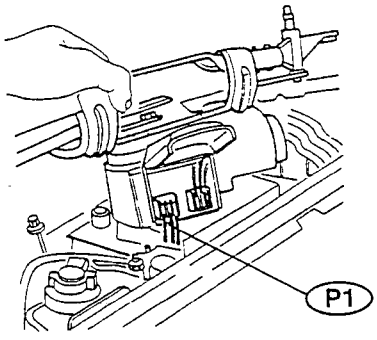
Checking the device: see **TEST A**

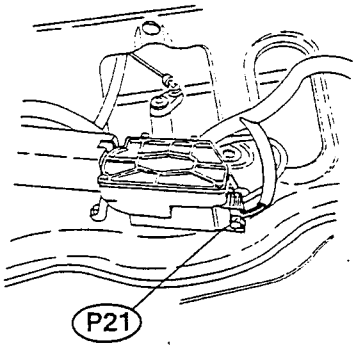
Headlamp washer timer (N12)



Checking the device: see **TEST B**

Windscreen wiper motor (P1) - rearscreen wiper motor (P21)





P1 up to Model Year '96, **P21**

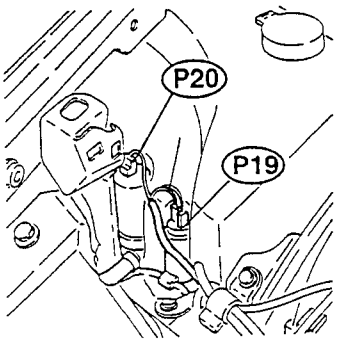
SPECIFICATIONS
with 12V at pin 3 and earth at pin 2: applying an earth at pin 1 the motor operates continuously

P1 from Model Year '97

SPECIFICATIONS
with 12V at pin 3 and earth at pin 1; applying an earth at pin 5 continuous motor operation is obtained at 1st speed; at pin 4 there is the 2nd speed. pag. 3

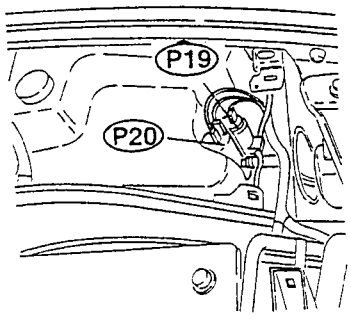
Windscreen/rearscreen washer pump (two-way) (P19)

Boxer



SPECIFICATIONS	
12V at pin 1 and 0V at pin 2	operation of windscreen washer
12V at pin 2 and 0V at pin 1	operation of rearscreen washer

TD



CHECKING WIPER ELECTRONIC INTERMITTENT DEVICE (N14) — TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK VOLTAGE – Disconnect device **N14** and on the corresponding base of the fusebox **G1**: with the key at MARCIA, check for 12V at pin + of **N14**	OK →	Carry out **step A2**
	NO →	Check fuse **F3** and relay switch **I35** of fusebox **G1**
A2 CHECK EARTH – Check for 0V at pin 31 of **N14**	OK →	Carry out **step A3**
	NO →	Check that fusebox **G1** is connected to earth: from pin 1 of connector G towards earth **G148b**
A3 CHECK WINDSCREEN WIPER INTERMITTENCE SIGNAL – Operate the different intermittent speeds of the windscreen wiper through the ring switch on the lever unit **B68** and check: - 0 Ω between pin INT and pin 31 at **N14** for max. speed - 1.3 kΩ between pin INT and pin 31 at **N14** for intermediate speed - 6 kΩ between pin INT and pin 31 at **N14** for min. speed	OK →	Carry out **step A4**
	NO →	Check the wiring between **N14** (**G1**) and the lever unit **B68**, or change the latter
A4 CHECK WINDSCREEN WASHER SIGNAL – Operate the windscreen washer and check for 12V at pin P of **N14**	OK →	Carry out **step A5**
	NO →	Check fuse **F15** of **G1** or the wiring between **N14** (**G1**) and the lever unit **B68**, or change the latter
A5 CHECK REARSCREEN WASHER SIGNAL – Operate the rearscreen washer and check for 0V at pin PL of **N14**	OK →	Carry out **step A6**
	NO →	Check the wiring between **N14** (**G1**) and the lever unit **B68**, or change the latter
A6 CHECK REARSCREEN WIPER SIGNAL – Operate the rearscreen and check for 0V at pin IL of **N14**	OK →	Insert device **N14** on the corresponding base of fusebox **G1** and continue with **step A7**
	NO →	Check the wiring between **N14** (**G1**) and the lever unit **B68**, or change the latter

(cont.d)

CHECKING WIPER ELECTRONIC INTERMITTENT DEVICE (N14) — TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A7 CHECK WINDSCREEN WIPER INTERMITTENT OPERATION		
– Operate the different intermittent speeds of the windscreen wiper through the ring switch on the lever unit **B68** and check for a cyclic signal at pin 8 of connector I of fusebox **G1**: - 45 cycles per minute for max. speed - 25 cycles per minute for intermediate speed - 15 cycles per minute for min. speed	OK ▶ ~~OK~~ ▶	Carry out **step A8** Change device **N14**
A8 CHECK WINDSCREEN WIPER ACTUATION FOR WINDSCREEN WASHER		
– Operating the windscreen washer, check for a continuous signal at pin 8 of connector I of **G1** for about 4 seconds	OK ▶ ~~OK~~ ▶	Carry out **step A9** Change device **N14**
A9 CHECK ACTUATION OF REARSCREEN WIPER FOR REARSCREEN WASHER		
– Operating the rearscreen washer, check for a cyclic signal (15 cycles per minute) at pin 8 of connector E at **G1**; this signal remains for about 4 seconds	OK ▶ ~~OK~~ ▶	Carry out **step A10** Change device **N14**
A10 CHECK ACTUATION OF REARSCREEN WIPER		
– Operating the rearscreen wiper, check for a cyclic signal (15 cycles per minute) at pin 8 of connector E of **G1**	OK ▶ ~~OK~~ ▶	DEVICE **N14** IS WORKING PROPERLY. Check the connections with the other components Change device **N14**

CHECKING THE HEADLAMP WASHER TIMER (N12)	TEST B

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

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK VOLTAGE – Check for 12V between pins 30 and 31 of **N12**	OK ▶	Carry out **step B2**
	~~OK~~ ▶	Check fuse G312 (20A). Restore the wiring between **N12** and **G312**, and between **N12**and earth **G53b**
B2 CHECK VOLTAGE – With the side lights on, check for 12V at pin 56 of **N12**	OK ▶	Carry out **step B3**
	~~OK~~ ▶	Check that the side lights are working properly; also check the wiring between **N12** and **G1**
B3 CHECK VOLTAGE – Operating the windscreen washer with the side lights on, check for 12V at pin S of **N12**	OK ▶	Carry out **step B4**
	~~OK~~ ▶	Restore the wiring between **N12** and **G1** or check that the **windscreen washer** is working properly
B4 CHECK HEADLAMP WASHER CONTROL – Operating the windscreen washer with the side lights on, check for 12V at pin P di **N12** for about 0.5 seconds 0,5	OK ▶	DEVICE **N12** IS WORKING PROPERLY. Check the connections with the other components
	~~OK~~ ▶	Change device **N12**