DELTA HF integrale

Electrical equipment

55.

page

DELTA HF integrale
91 range

Electrical equipment

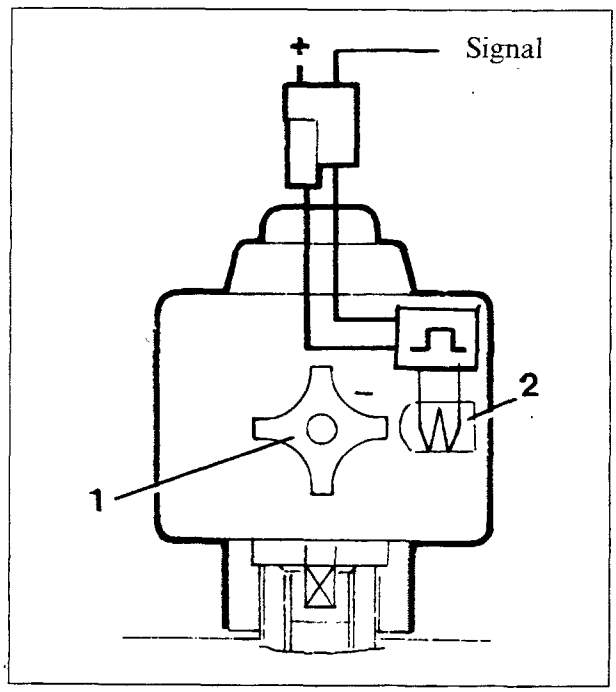
ELECTRONIC SPEEDOMETER

On all versions of this model, as for the previous one, an electronic speedometer is fitted. A description of its operation is given below as it has not yet been dealt with. The device is composed of:

a) an impulse generator, located in the front differential, for the direct pick of power.
b) an electric motor assisted by an electronic control unit, located in the instrument panel.

Wiring diagram showing impulse generator with connector connected to vehicle's electrical system

The impulse generator flywheel (1) is a rotating magnet with four polar expansions 90° apart. With the engine running, for each revolution, the flywheel sends 4 e.m.f. sinusoidal impulses which are varied by an oscillator (2), supplied with the battery voltage and controlled by the ignition key, from a cable coming from the instrument panel (terminal F, connector 1). The impulse generator oscillator in turn transforms the impulses into square signals to send to the control unit. The frequency of the signal emitted in this way by the impulse generator is proportional to the speed of the flywheel.



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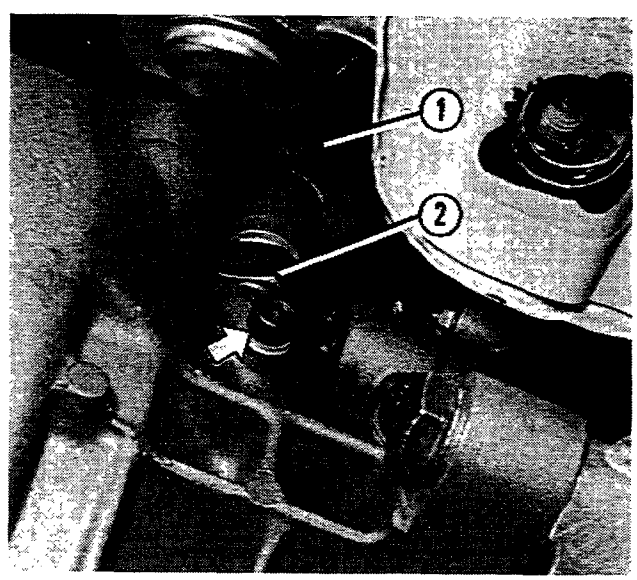
1. Impulse generator flywheel.
2. Impulse generator oscillator.

The flywheel is driven by the power pidck up located in the differential which, in normal vehicles, is used to connect the mechanical speedometer drive cable. The impulse generator is removed when necessary by working underneath the vehicle with a 22 mm open T spanner, which is widely available. To remove the impulse generator, the hexagonal bolt (shown by the arrows) MUST NOT be loosened.



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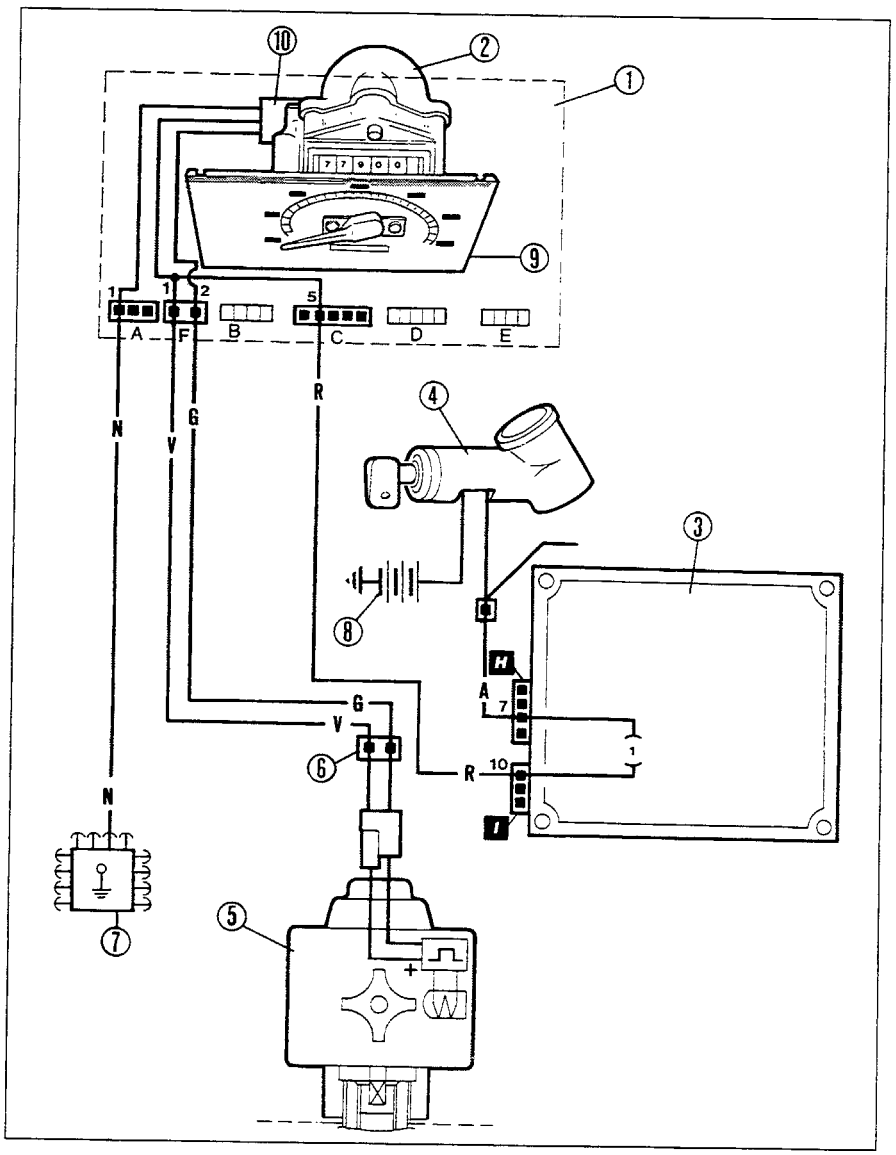
Location of speedometer impulse generator on differential (view from beneath the vehicle)

1. Speedometer impulse generator.
2. Nut fixing impulse generator to front differential.



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Wiring diagram showing electronic speedometer connections

1. Instrument panel
2. Electric motor which determines the rotation of the speed indicator magnet
3. Junction unit
4. Ignition switch
5. Impulse generator bolted onto differential casing
6. Connector
7. Right front earth cable loom
8. Battery
9. Speedometer
10. Speedometer motor electronic control unit

A-B-C-D-E-F Instrument panel connectors

H-I Junction unit connectors

Cable colour code

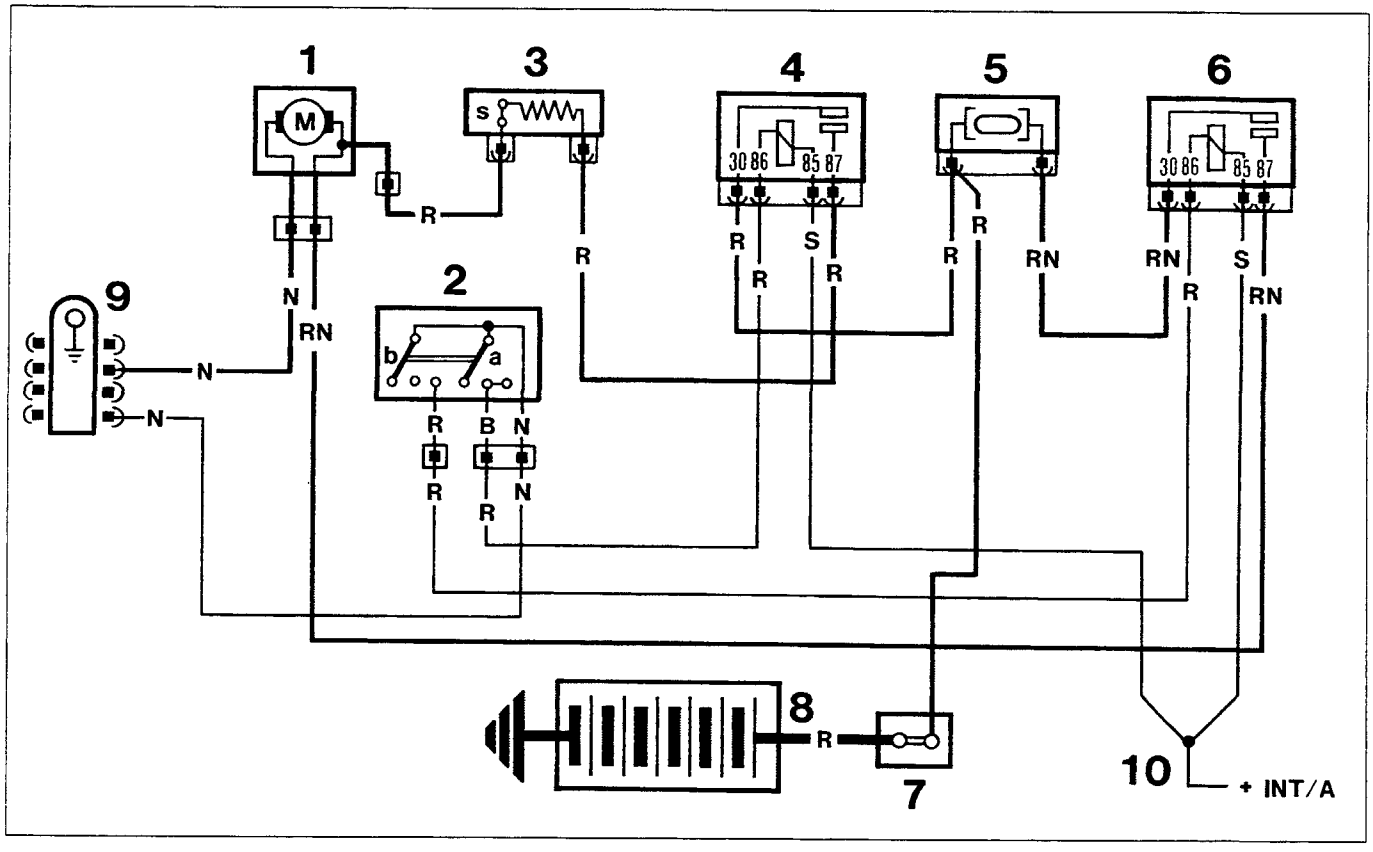
A Light blue
G Yellow
N Black
R Red
V Green

The speedometer drive motor is of the synchronous, direct current type and is controlled by an electronic control unit (10), located in the instrument panel, based on the frequency of the signals emitted by the impulse generator, so that the exact speed corresponds to that of the vehicle. The electronic control unit is supplied by terminal +15 of the ignition switch via blades 7 and 10, respectively for connectors A and I of the junction unit and blade 5 for connector C of the instrument panel. The speedometer electric motor carries out the following functions:
- it rotates a magnet which is fitted on its rotor which in turn, by means of the magnetic field linked to it, drives the needle of the conventional type speedometer indicator;
- it controls the total mileage recorder.

NOTE *The electronic supply unit processes the frequency signals transmitted by the impulse generator and carries out an adjustment in such a way that the speedometer motor rotation is definitely proporation to that of the impulse generator.*

DIAGNOSIS. It is possible to carry out a diagnosis, with the vehicle stationary, to establish whether the defect is in the impulse generator or in the control panel (electronic control unit or motor), it a square wave sender is available. The sender is connected to the yellow impulse generator cable: with the ignition switch in the ON position the speedometer pointer should show a certain speed (that generated by the square wave sender). It this is not the case, or if the speed is different from that generated by the sender, the fault lies in the control panel where the either the electronic control unit or the speedometer motor should be replaced.

TWO SPEED RADIATOR COOLING FAN



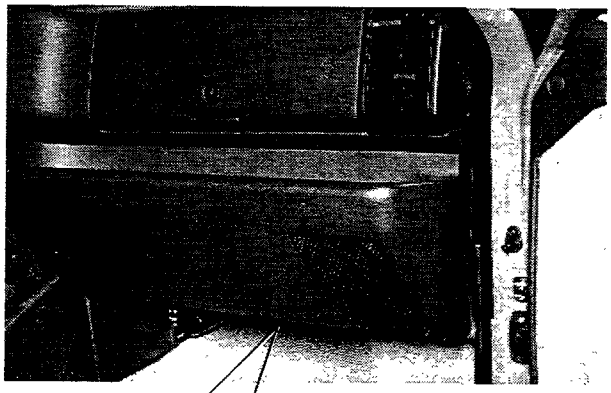
1. Radiator cooling fan
2. Two stage thermal switch
3. Additional resistor for 1st speed
4. 1st speed relay feed
5. Fan motor protective fuse
7. Connector block
8. Battery
9. Left front earth cable loom
10. Ignition switch controlled by key + INT/A

Operation

The fan (1) is controlled by the two stage thermal switch (2) which, as the first stage (a) closes when the temperature of the engine coolant reaches 86-90°C, allows the flow of current from the battery to the fan (1) via the resistor (3) thanks to the energizing of the relay (4) closed to earth, operating the 1st speed of the fan by closing its contacts.

The resistor (3) is protected internally by a thermal contact (s) which interrupts the electrical circuit when the temperature exceeds 130°C.

When the temperature of the engine coolant reaches 90°-94°C, the second stage (b) of the thermal contact (2) also closes putting the relay feed (6) energizing circuit to earth and the latter, by closing its contacts, sends current directly from the joint to the fan without passing through the resistor (3), thereby engaging the 2nd operating speed.



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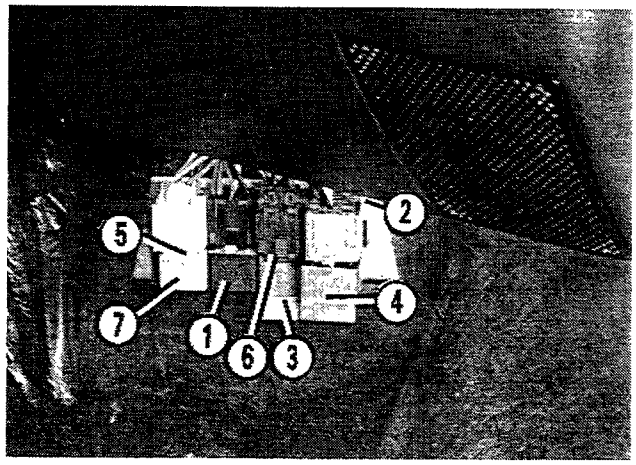

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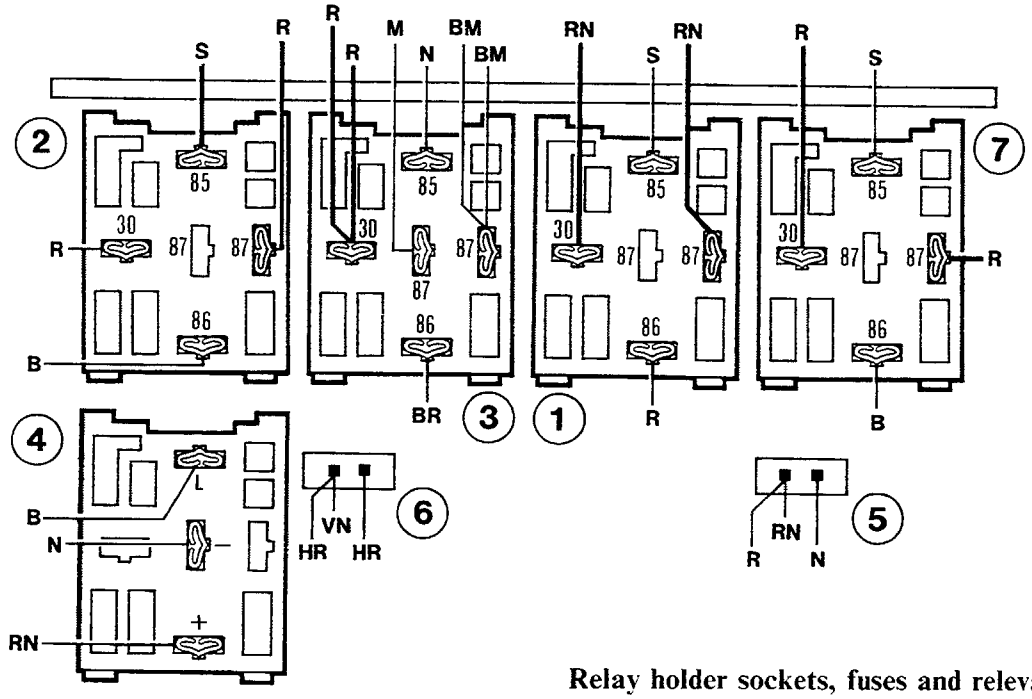
LOCATION ON VEHICLE OF AUXILIARY DEVICES FUSES AND RELAY FEEDS

1. Relay for radiator cooling fan 1st speed
2. Dipped headlamps remote control switch
3. Fog lamps relay
4. Direction indicators/hazard warning lights intermittent device
5. Radiator cooling fan 25 A protective fuse
6. Rear fog lamps 7.5 A protective fuse
7. Relay for radiator cooling fan 2nd speed

Colours of sockets and relays and fuse amperage

1 - Black and black
2 - White and yellow
3 - White and grey
4 - Grey and brown
5 - White and 25 A fuse
6 - Black and 7.5 A fuse
7 - White and yellow

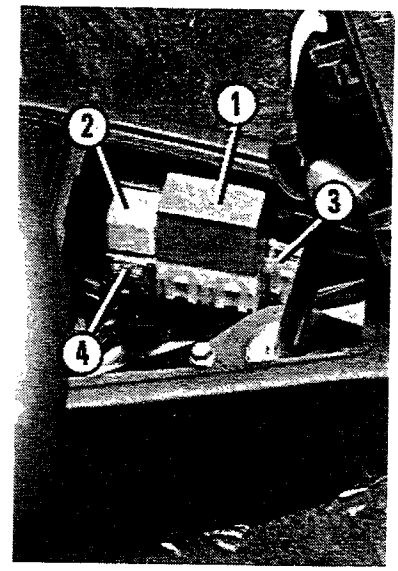


Relay holder sockets, fuses and relevant cables

P1L04CL03

Devices located on gear lever housing central tunnel

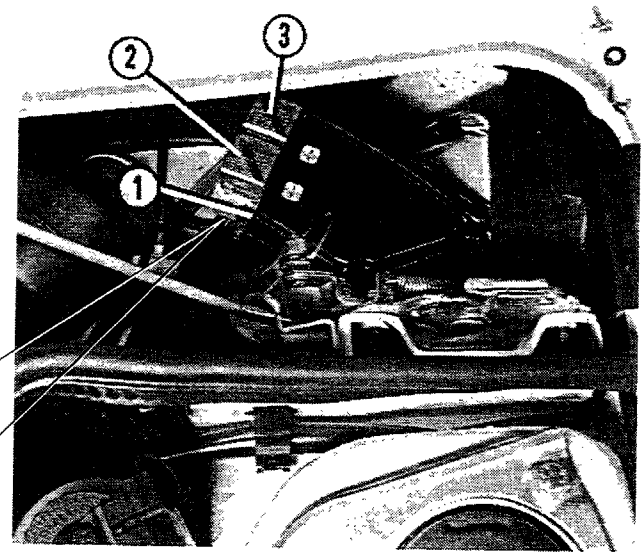
1. Centrl locking control unit - white sockets
2. Front electric windows relay feed - white socket
3. Electric front windows geared motors protective fuse - white socket, capacity 30 A
4. Central locking control unit protective fuse - black socket, capacity 15 A



P1L05CL01

Relays and fuses located in heater housing (with protective cover removed)

1. I.A.W. injection/ignition system protective fuse - black socket, capacity 15 A
2. Electric fuel pump relay feed - white socket
3. Injectors relay feed and electronic control unit - red socket



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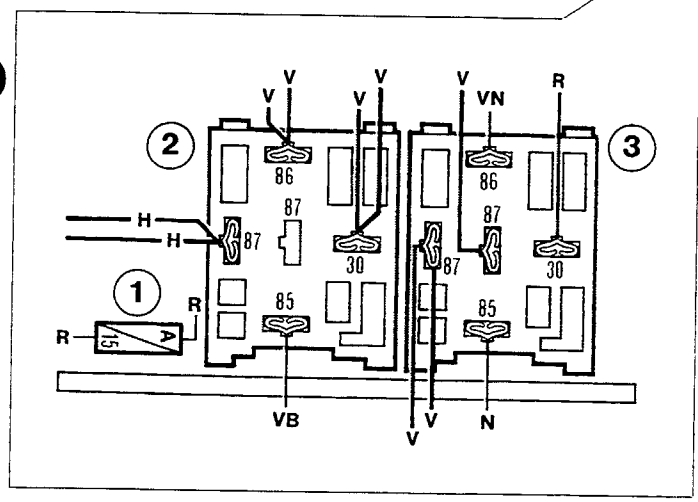

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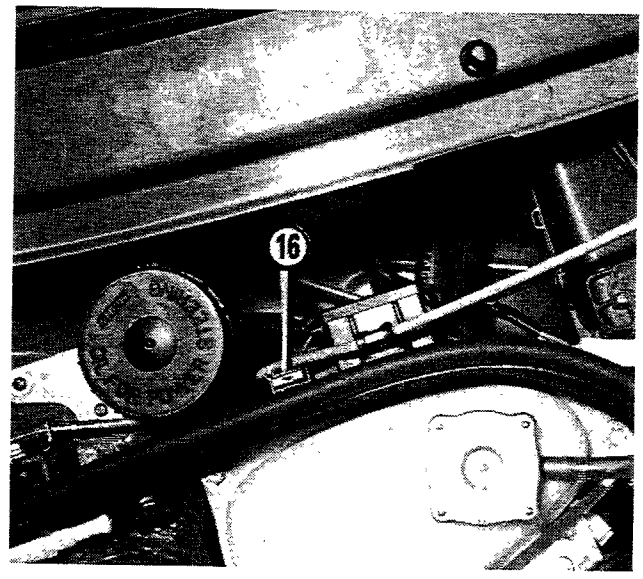
Location of A.B.S. anti-lock braking system protective fuse



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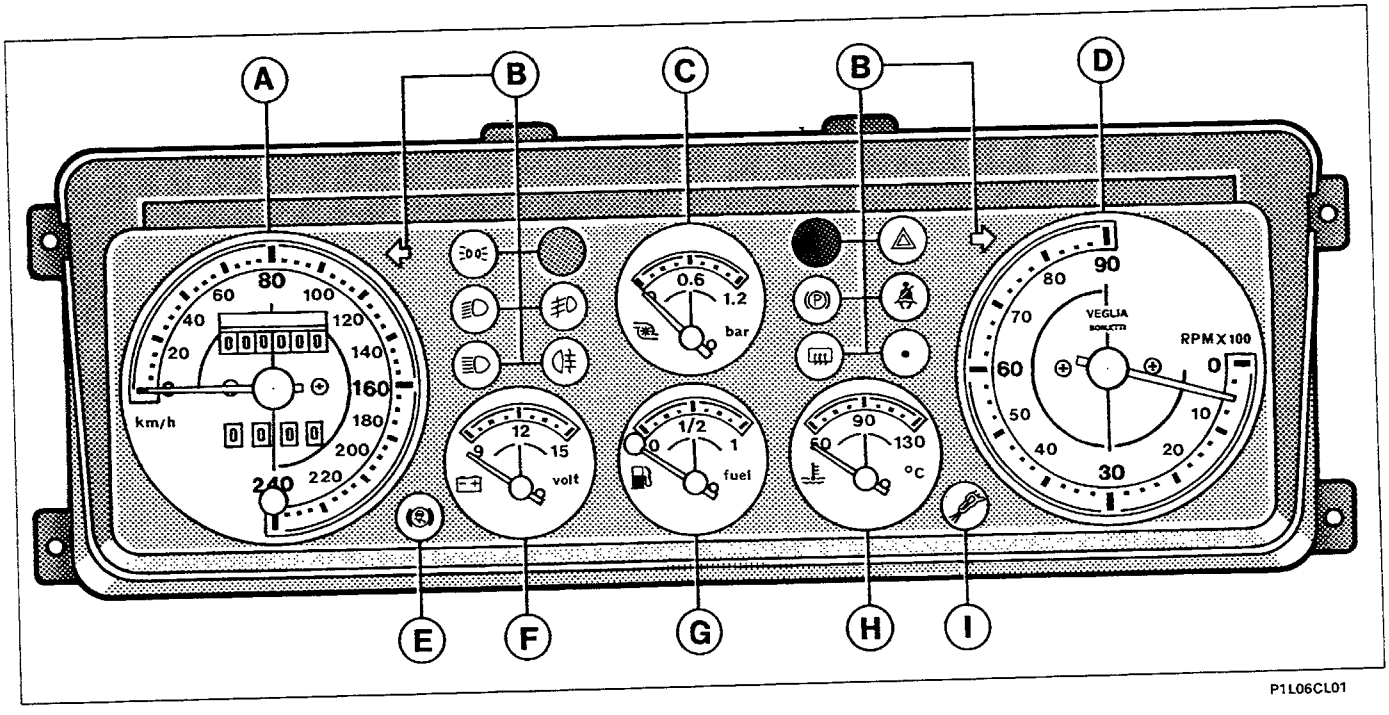
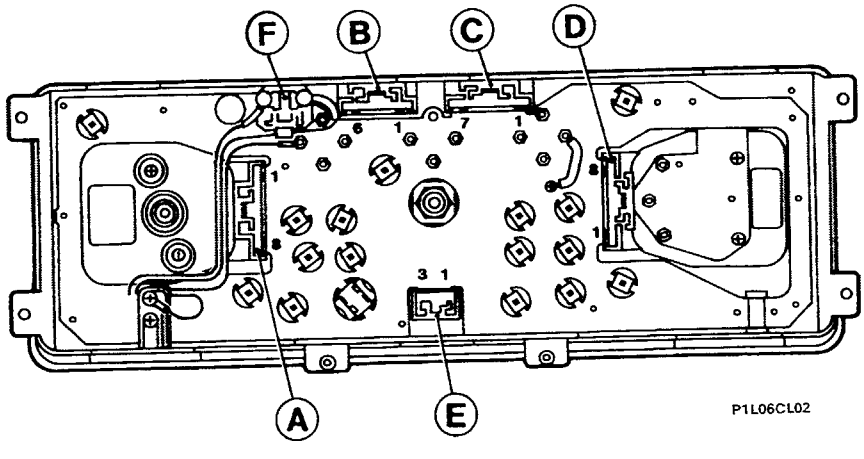
INSTRUMENT PANEL Version with Control System

A. Speedometer and milometer.
B. Warning lights: (from left to right, from top to bottom)
left: left direction indicators, side lights, Control-System failure (RED), dipped beam headlamps, fog lights, main beam headlamps, rear fog lamps.
right: Control-System starter go ahead (GREEN), hazard warning lights, right direction indicators, handbrake applied, seat belt not fastened, heated rear windscreen, spare.



C. Supercharging pressure
D. Rev counter
E. Warning light signalling incorrect operation of anti-lock brakes (ABS)
F. Voltmeter.
G. Fuel level gauge.
H. Coolant temperature gauge
I. Warning light signalling "emergency" operation of injection/ignition system.



Terminals for connectors connected to electrical system at the rear of the instrument panel

NOTE *The letters identify the connectors for connection to the electrical system; the numbers for the terminals are identical to those in the Wiring diagrams.*

Connectors for terminals at the rear of the instrument panel with control system

CONNECTOR A		
Cable colour	N°	COMPONENT CONNECTED
N	1	Instrument general earth to the right front loom on the bodyshell
GN	2	Instrument panel lights: from terminal UT for the dimmer switch
HR	3	Rear fog lamps warning light: from terminal 1, connector H, junction unit
MB	4	Fog lights warning light: from terminal 87 of the relay feed
VB	5	Main beam headlamps warning lights: from terminal 7, connector I for the junction unit (fuse 7)
H	6	Dipped beam headlamps warning light: from terminal 2, connector C for the junction unit (fuse 5)
G	7	Side lights warning light: from terminal 2, connector M for the junction unit (fuse 4)
AN	8	Left direction indicators warning light: from connector A for the steering column switch unit

CONNECTOR B		
Cable colour	N°	COMPONENT CONNECTED
MB	1	Fuel reserve warning light: to terminal 1, connector E for the Control System control module
HR	2	Coolant overheating warning light: from terminal 2, connector E for the Control System control module
V	3	Green starter go ahead signal: from terminal 3, connector E Control System, via the diagnostic socket
RV	4	+ green and red Control System warning light: from terminal 4, connector E for the Control System control module via the diagnostic socket
RN	5	Control System red warning light: from terminal 5, connector E for the Control System control module via the diagnostic socket
G	6	Supply outlet for Control System display panel light

CONNECTOR E SPARE

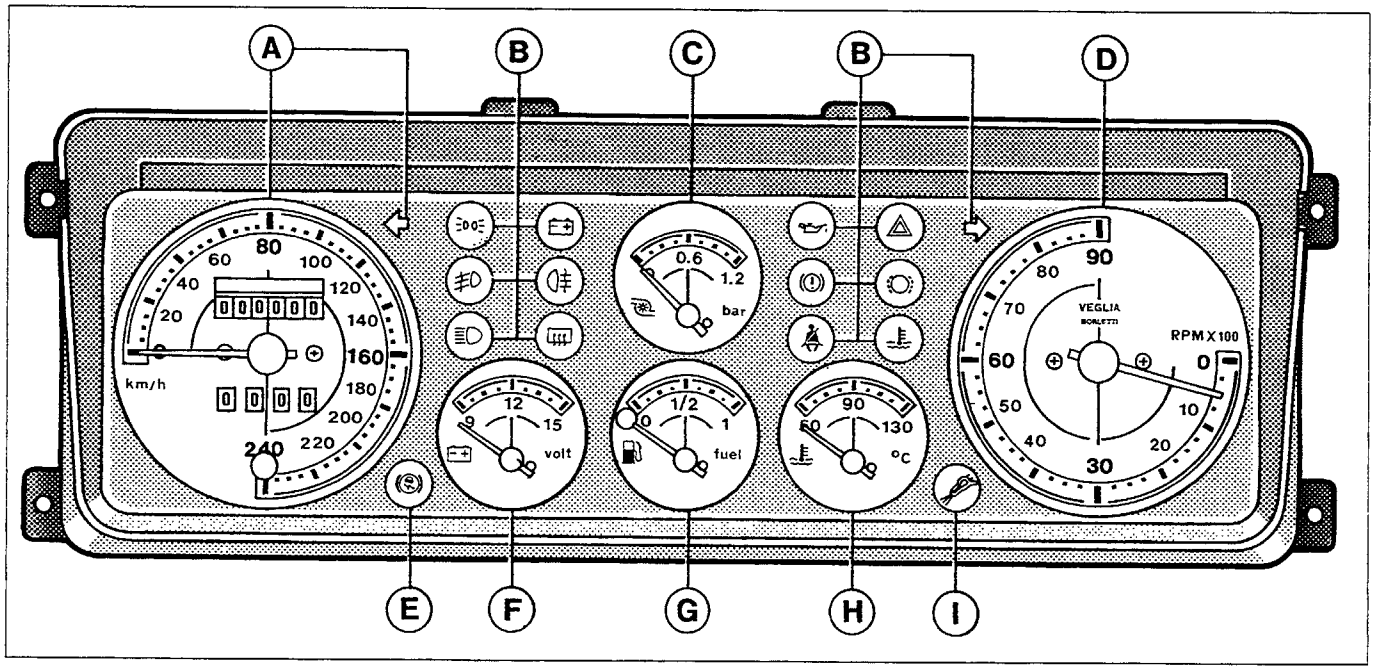
CONNECTOR C		
Cable colour	N°	COMPONENT CONNECTED
GR	1	Warning light signalling emergency operation of injection/ignition system: from terminal 12, IAW control unit
AR	2	Engine coolant temperature: from the sender unit on the engine
VB	3	+ for warning light signalling emergency operation of injection/ignition system: from terminal 20 for the IAW control unit
BN	4	Heated rear windscreen warning light: from terminal 9, connector D for the junction unit (fuse 11)
R	5	+ instrument supply: from terminal 10, connector I for the junction unit (fuse 1)
V	6	Fuel level gauge: from the sender unit via the junction unit (2I and 2L)
M	7	Fuel reserve warning light: from the sender unit via the junction unit (3I and 3L)

CONNECTOR D		
Cable colour	N°	COMPONENT CONNECTED
AB	1	Right direction indicators warning light: from the steering column switch unit via the junction unit (4C and 2B)
AR	2	Hazard warning lights warning light: from terminal L of the hazard warning lights switch
H	3	Seat belt warning light: from the micro-switch on the closure device.
-	4	Spare
HN	5	Engine coolant overheating warning light: from the sender unit on the engine
BR	6	Hnadbrake warning light: from terminal L for the intermittent device.
-	7	Spare
AN	8	Rev counter signal: from terminal 1 of the ignition coil power module.

CONNECTOR F		
Cable colour	N°	COMPONENT CONNECTED
V	1	Speedometer signal coming from the impulse generator located on the differential.
G	2	+ supply for the impulse generator: coming from the ignition controlled by a key via the junction unit (fuse no. 1) and terminal 5 for connector C of the instrument panel.

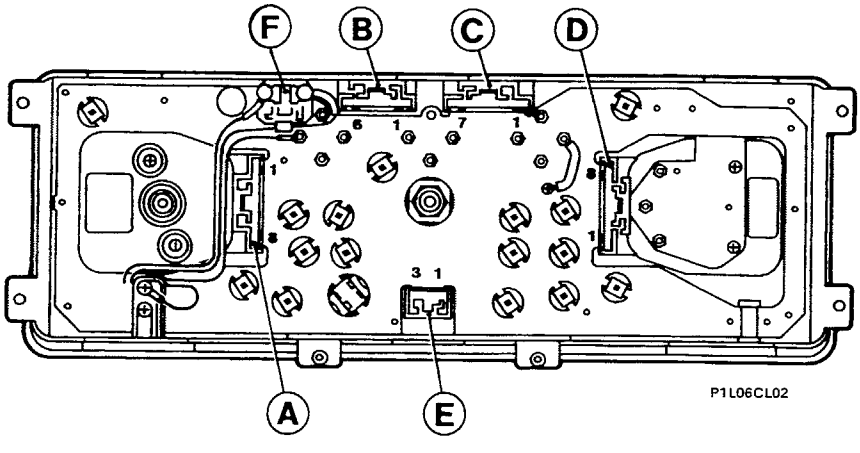
INSTRUMENT PANEL Version without Control System

A. Speedometer and milometer.
B. Warning lights: (from left to right, top to bottom)
left: left direction indicators, side lights, battery recharging, fog lights, rear fog lamps, main beam headlamps, heated rear windcreen.
right: insufficient engine oil pressure, hazard warning lights, right direction indicators, handbrake applied and insufficient brake fluid level, front brake pad wear, seat belts not fastened, engine coolant overheating.



P1L08CL01

C. Pressure gauge indicating engine supply pressure.
D. Rev counter.
E. ABS anti-lock brakes failure warning light
F. Voltmeter.
G. Fuel level gauge.
H. Engine coolant temperature gauge.
I. Warning light indicating "emergency" operation of injection/ignition system



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Terminals for connectors connected to vehicle's electrical system at the rear of the instrument panel

NOTE *The letters denote the connectors connected to the electrical system; the numbers for the terminals are identical to those in the wiring diagrams.*

Connectors for terminals at the rear of the instrument panel without control system

CONNECTOR A		
Cable colour	N°	COMPONENT CONNECTED
N	1	Instrument general earth: to the right front loom on the bodyshell
GN	2	Instrument panel light: from terminal UT for the dimmer switch
HR	3	Heated rear windscreen warning light: from terminal 9, connector I for the junction unit (fuse 11)
MB	4	Rear fog lamps warning light: from terminal 1, connector H for the junction unit
VB	5	Main beam headlamps warning light: from terminal 7, connector I for the junction unit (fuse 7)
H	6	Fog lamps warning light: from terminal 87 for the relay feed
G	7	Side lights warning light: from terminal 2, connector M for the junction unit (fuse 4)
AN	8	Left direction indicators warning light: from connector A for the steering column switch unit

CONNECTOR B SPARE

CONNECTOR C		
Cable colour	N°	COMPONENT CONNECTED
GR	1	Warning light signalling emergency operation of injection/ignition system: from terminal 12, IAW control unit
AR	2	Engine coolant temperature gauge: from the sender unit on the engine
VB	3	+ for warning light signalling emergency operation of injection/ignition system: from terminal 20 for the IAW control unit
BN	4	Seat belt not fastened warning light: from the micro-switch on the closure device.
R	5	+ instrument supply: from terminal 10, connector I of the junction unit (fuse 1)
V	6	Fuel level gauge : from the sender unit via the junction unit (2I and 2L)
M	7	Fuel reserve warning light: from the sender unit via the junction unit (3I and 3L)

CONNECTOR D		
Cable colour	N°	COMPONENT CONNECTED
AB	1	Right direction indicators warning light: from the steering column switch unit via the junection unit (4C and 2B)
AR	2	Hazard warning lights warning light: from terminal L for the hazard warning lights switch
SN	3	Front brake pad wear warning light
-	4	Spare
HN	5	Coolant overheating warning light: from the sender unit located on the engine
BR	6	Handbrake applied and insufficient brake fluid level warning light
-	7	Spare
AN	8	Rev counter signal: from terminal 1 for the ignition coil power module

CONNECTOR E		
Cable colour	N°	COMPONENT CONNECTED
BN	1	Battery recharging warning light: from + D of alternator.
A	2	Battery recharging warning light: from INT of ignition switch controlled by key
HV	3	Insufficient engine oil pressure warning light: from switch located on engine.

CONNECTOR F		
Cable colour	N°	COMPONENT CONNECTED
V	1	Speedometer signal coming from impulse generator located on differential.
G	2	+ supply for impulse generator: from ignition switch via junction unit, (fuse no. 1) and terminal 5, connector C for the instrument panel.

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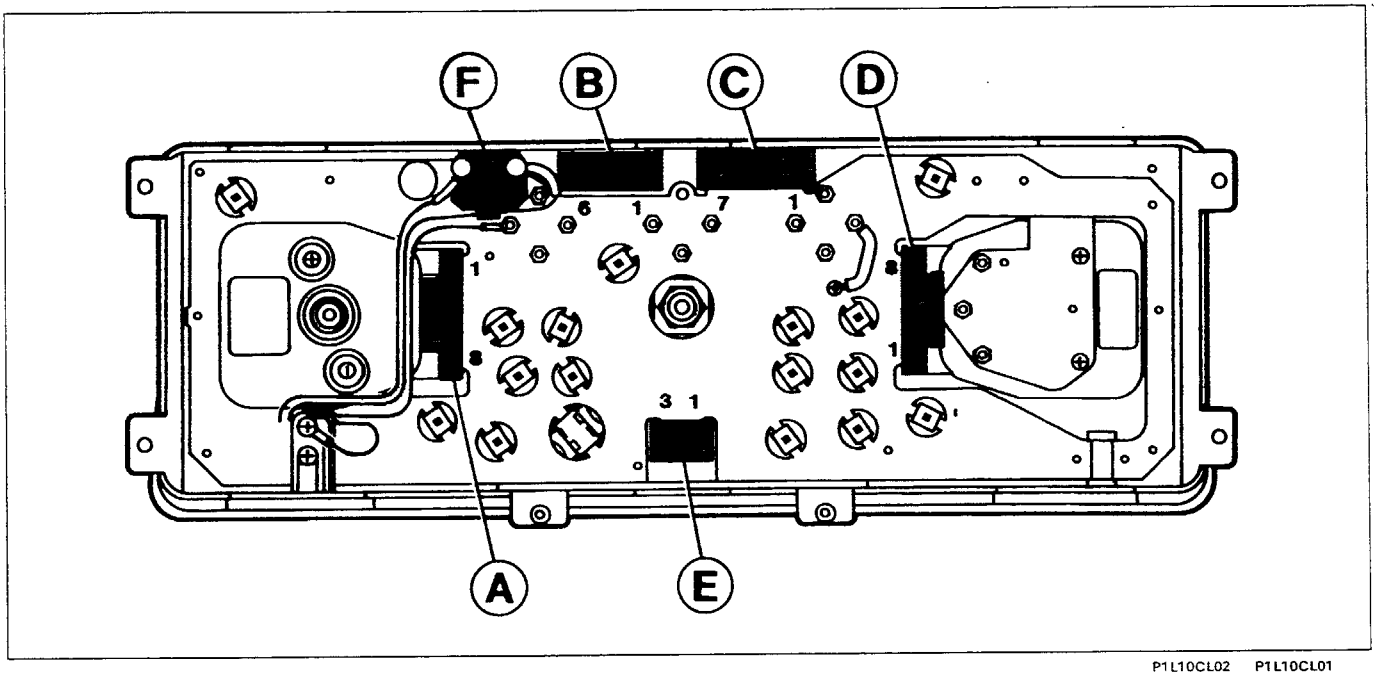
Terminals at the rear of the instrument panel to be connected to vehicle electrical system connectors



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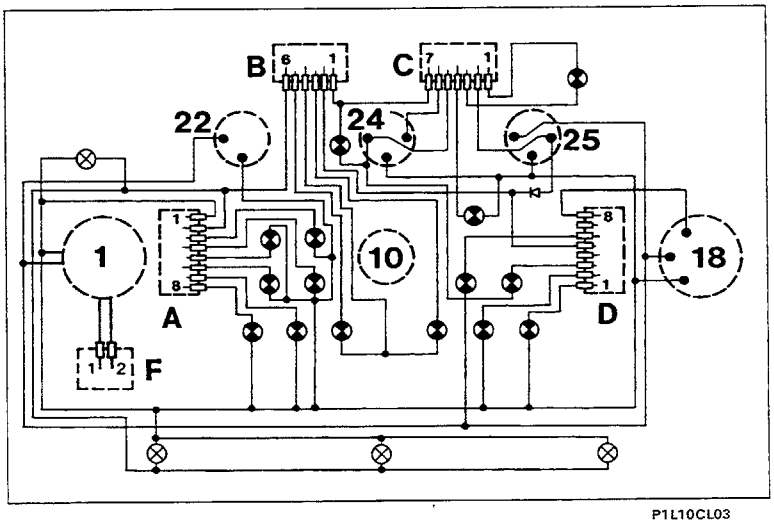
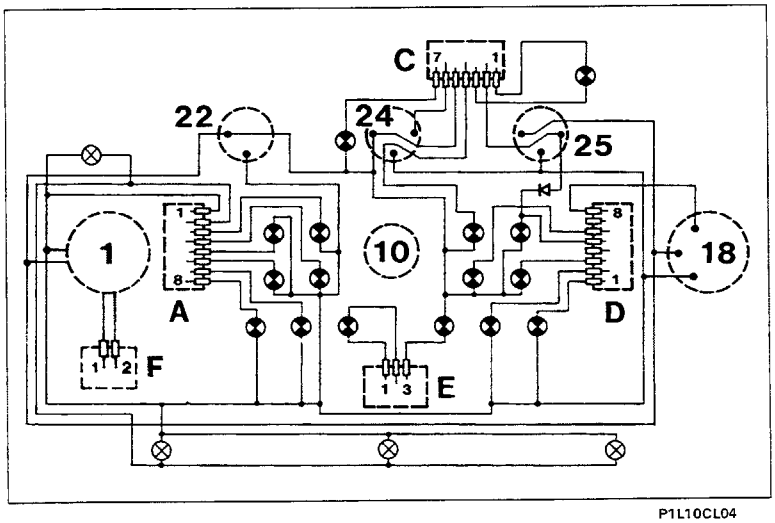


P1L10CL03

Wiring diagram showing instrument panel internal connections for versions with Control-System

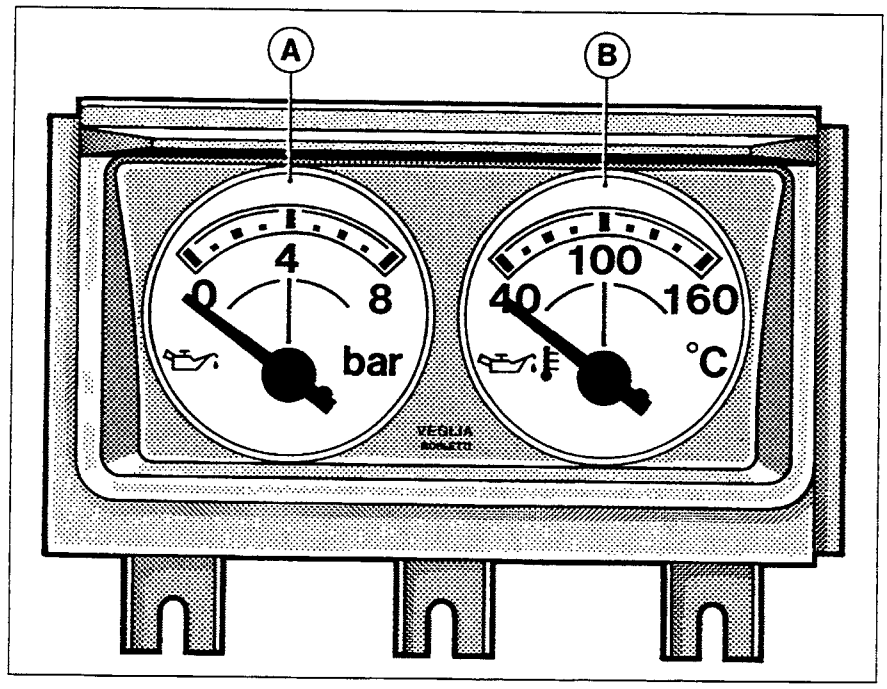
1. Electronic speedometer
10. Engine supply pressure gauge
18. Electronic rev counter
22. Voltmeter measuring electrical system voltage
24. Fuel level gauge
25. Engine coolant temperature gauge

A - B - C - D - E - F
Terminals for connection with vehicle electrical system.The small numbers denote the terminals



P1L10CL04

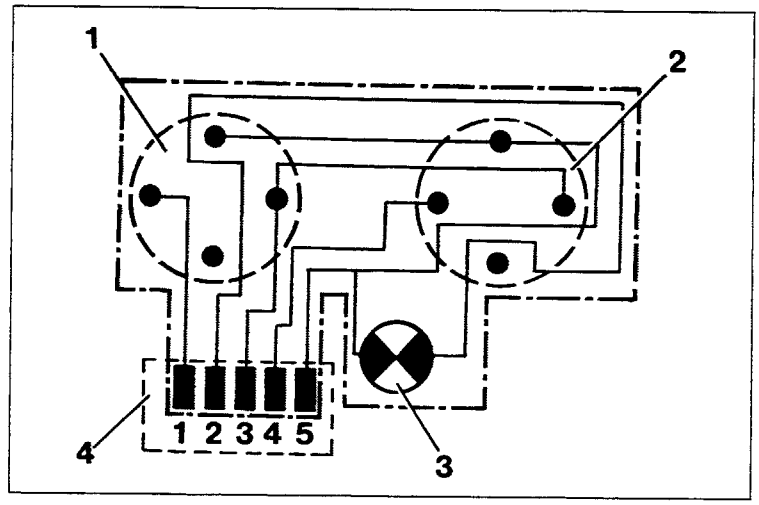
Wiring diagram showing internal connections for instrument panel on versions without Control System



P1L11CL01

Combined instrument for checking engine oil pressure and temperature

A. Engine oil pressure gauge.
B. Engine oil temperature gauge.



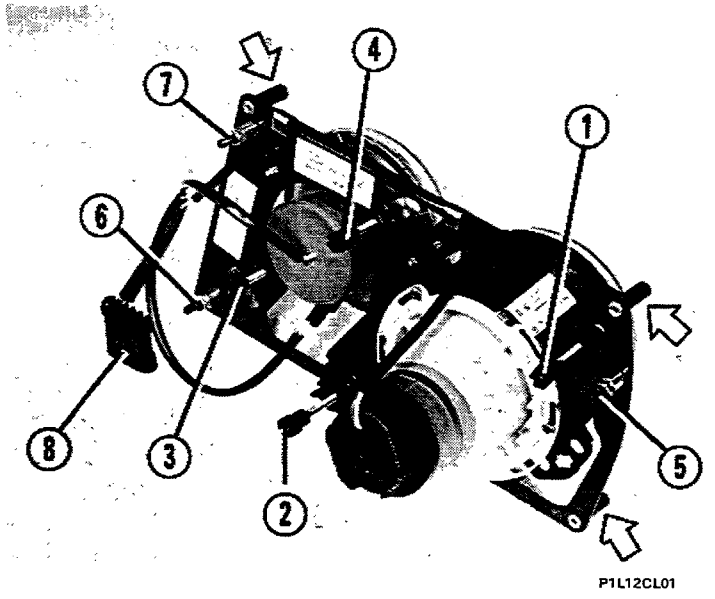
P1L11CL02

Combined instrument rear terminals for connection to vehicle electrical system connectors

1. Engine oil pressure gauge
2. Engine oil temperature gauge
3. Combined instrument light bulb.
4. Combined instrument connector for connection to electrical system.

CONNECTOR C		
cable colour	**N°**	**COMPONENTS CONNECTED**
A	1	Engine oil pressure gauge: from the sender unit on the engine.
GN	2	Instrument panel light cable.
H	3	+ Common instrument supply: from terminal 4, connector M of the junction unit (fuse no. 1).
B	4	Engine oil temperature gauge: from the sender unit on the engine.
N	5	Return to the left front earth cable loom.

NOTE *The terminals are identified by the same numbers and letters as used in the WIRING DIAGRAMS.*



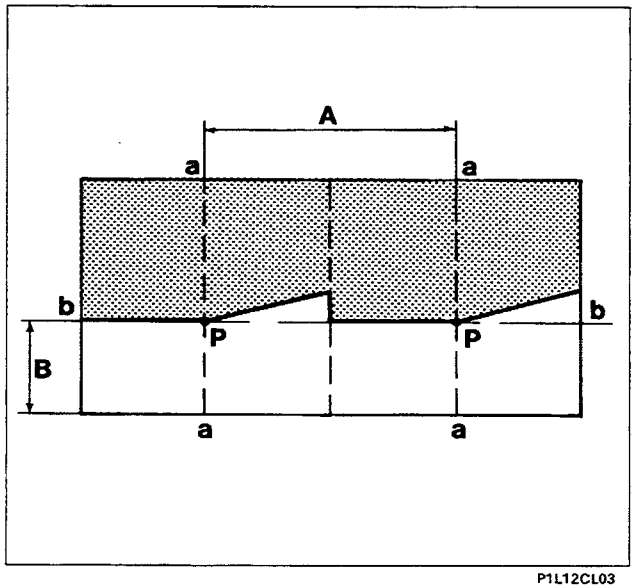
P1L12CL01

REAR LIGHT CLUSTER AND PLATE ANCHORING IT TO THE BODYSHELL

Key

1. Screw for adjusting dipped beam headlamp in a horizontal direction.
2. Screw for adjusting dipped beam headlamp in a vertical direction.
3. Screw for adjusting main beam headlamp in a vertical direction.
4. Screw for adjusting main beam headlamp in a horizontal direction.
5. 6. 7. Bolts fixing plate anchoring light cluster to bodyshell.
8. Electrical connector for side lights, dipped headlamps and main beam headlamps.

The arrows show the tabs for fixing the enigne compartment cooling grille to the anchorage plate.



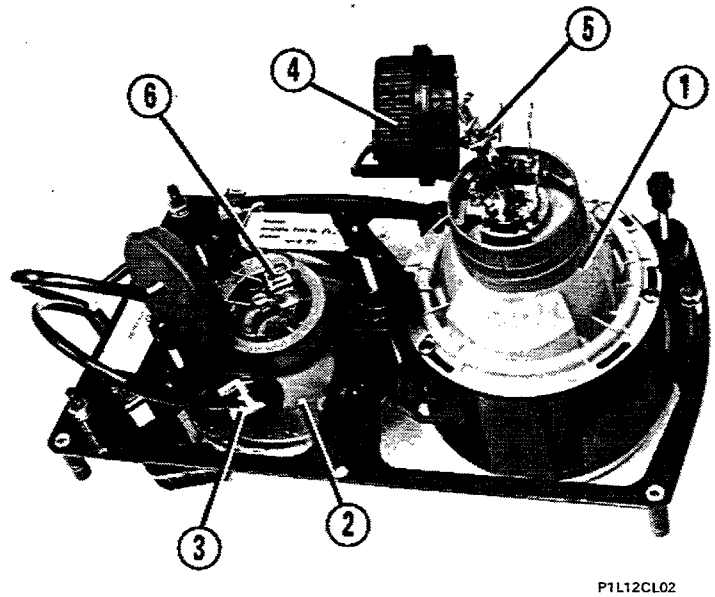
P1L12CL03

HEADLAMP ALIGNMENT

On a screen 10 m away, the demarcation line between the dark area and that lit up by the dipped beam headlamp (b-b) should be 12 cm lower than distance B for a new vehicle and 10 cm for a vehicle which has been run in.

Headlamp alignment diagram

A. Distance between centres of headlamp beams.
B. Height from the ground to the centre of the beams, measured during the alignment.



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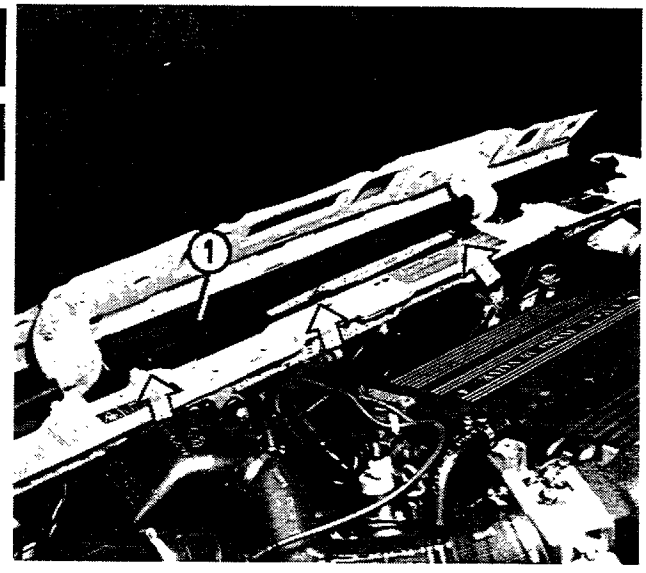
Key

1. Lamp with convex lens for dipped headlamp.
2. Lamp for main beam headlamp
3. Side lights bulb holder socket.
4. Dust cover for dipped beam headlamp.
5. Halogen bulb for dipped headlamp.
6. Halogen bulb for main beam headlamp.

The halogen bulbs should not be touched with ones hands because this could damage the glass and result in a rapid deterioration of the actual brightness of the bulb.

REMOVING-REFITTING LIGHT CLUSTER



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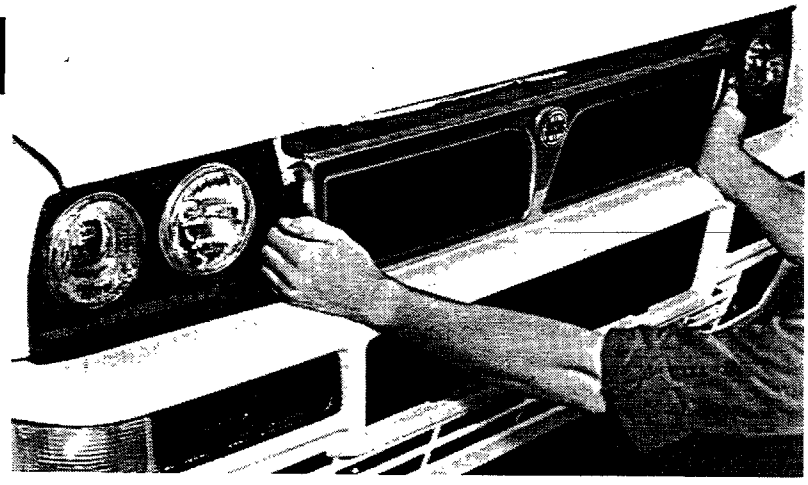
- unstick the rubber protection (1) on the engine compartment front cross member;
- removing upper bolts - shown by the arrows - fixing the grille to the above mentioned cross member;

Extracting radiator grille

In order to facilitate this operation, firstly loosen the four hexagonal head bolts (shown by the arrows in the photo below) fixing the engine compartment radiator grille.



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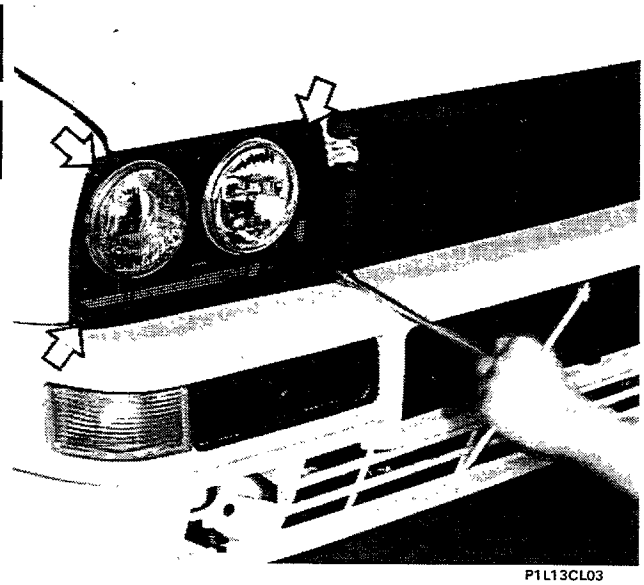
Completion of removal of engine compartment radiator grille

The grille is fixed to the light cluster anchorage plate by four bolts with hexagonal heads.



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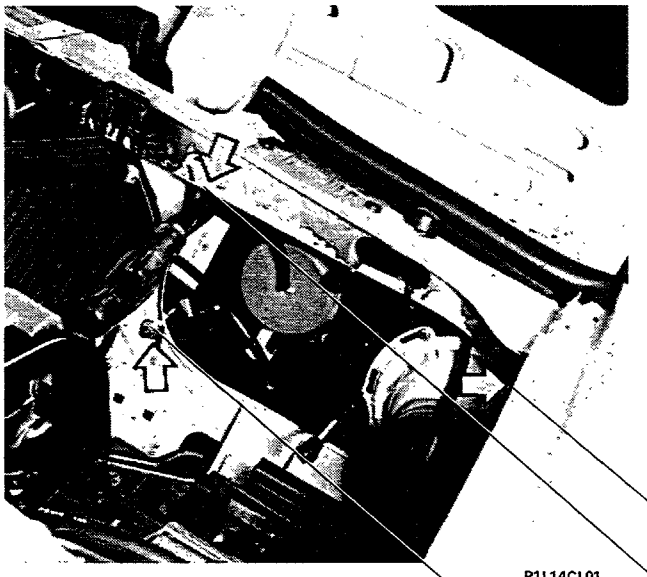
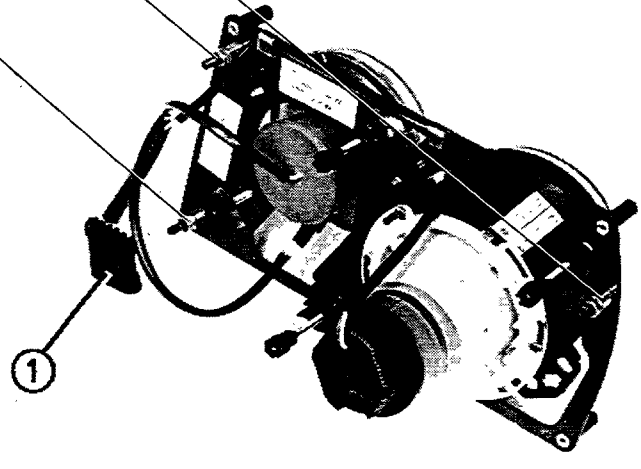
55.



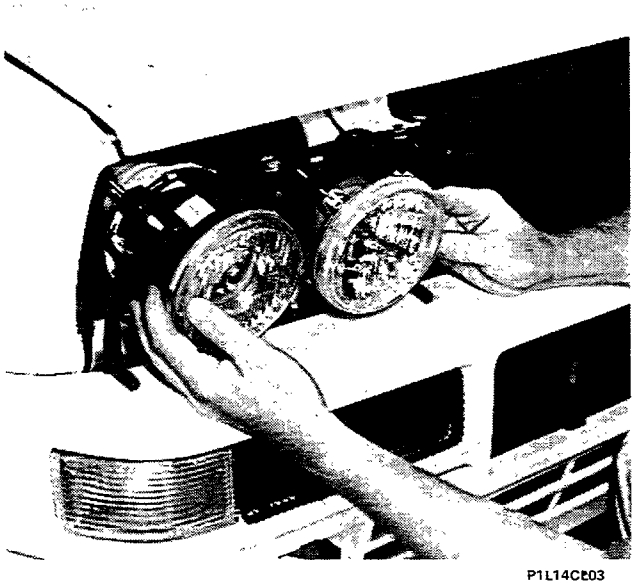
P1L14CL01

- disconnect the multiple connector for the side lights, dipped headlamps and main beam headlamps (1);

Removing bolts fixing light cluster anchorage plate to the bodyshell



P1L14CL02

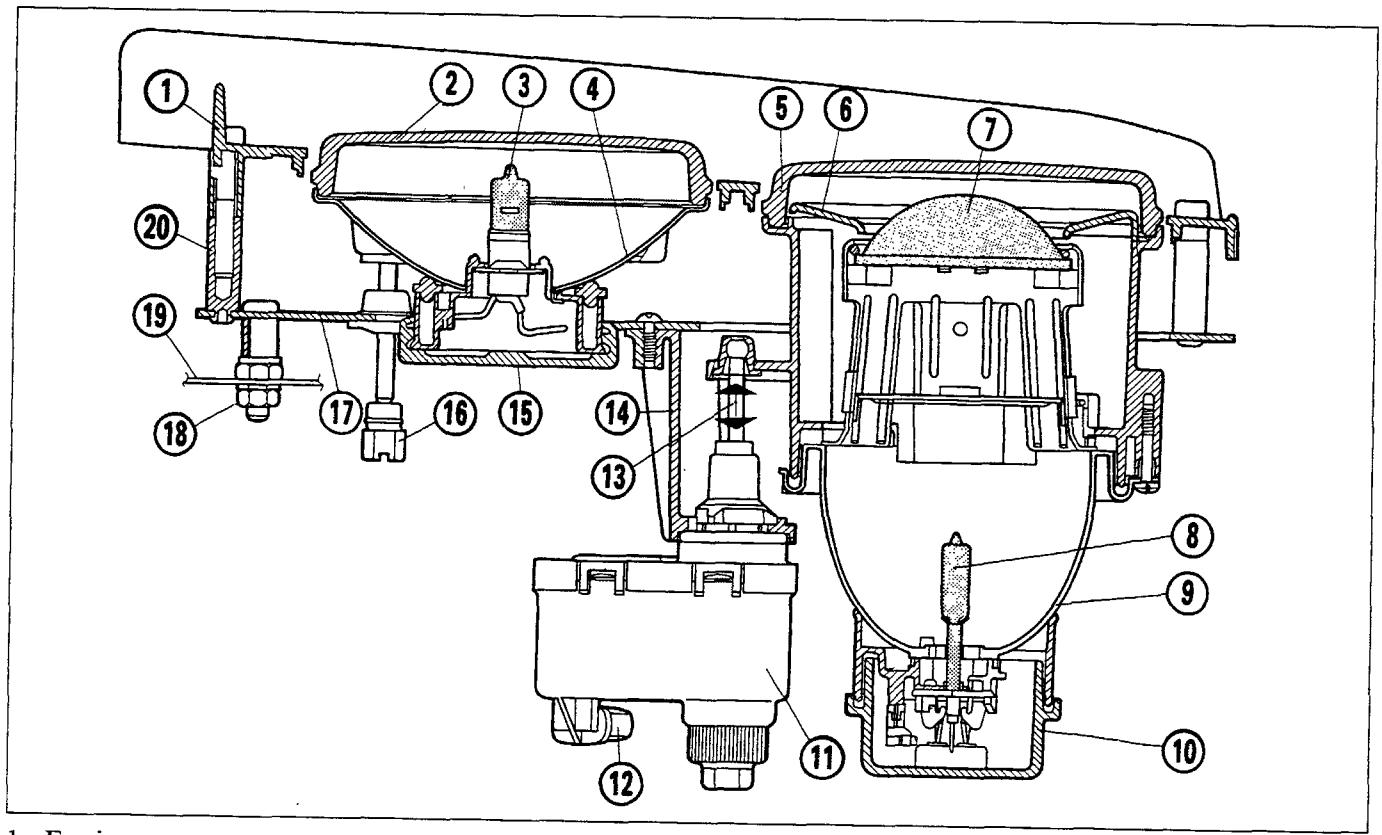


P1L14CE03

Removing anchorage plate complete with light cluster from its housing in the bodyshell

To replace an individual light, firstly remove the light cluster anchorage plate from the vehicle and then adjust the bolts fixing the light which requires replacing to the anchorage plate.

Section of front light cluster with convex lens for dipped beam headlamp, with view of actuator controlling electrical adjustment of dipped beam headlamp in vertical direction



1. Engine compartment radiator grille
2. Main beam headlamp glass
3. Main beam headlamp halogen bulb (it covers the side light bulb)
4. Main beam headlamp parabolic reflector
5. Dipped headlamp glass
6. Dipped headlamp outer reflector
7. Dipped headlamp convex lens
8. Dipped headlamp halogen bulb
9. Dipped headlamp semi-elliptical reflector
10. Dust cover
11. Stepping motor for electrical adjustment of dipped headlamp vertical alignment
12. Stepping motor electrical connector
13. Rod for electrically controlled vertical adjustment of dipped headlamp luminous beam
14. Stepping motor mounting bracket
15. Dust cover
16. Screw for initial vertical adjustment of main beam headlamp
17. Plate anchoring light cluster to bodyshell
18. Nut fixing anchorage plate to bodyshell
19. Bodyshell
20. Tabs fixing engine compartment radiator grille

Description

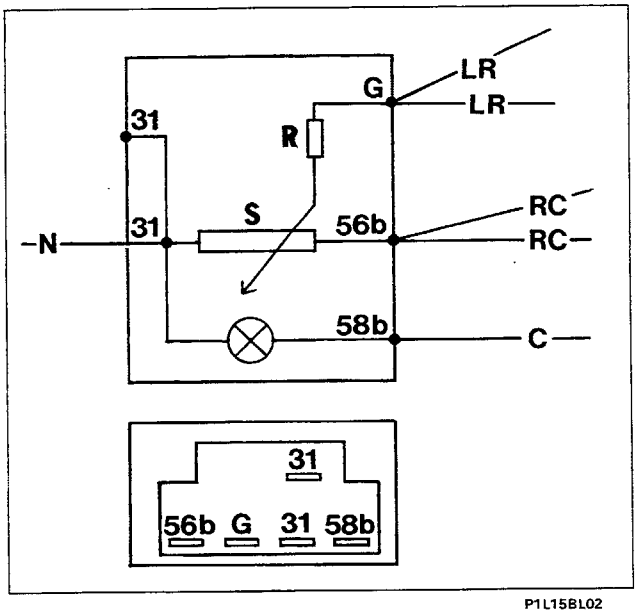
The front light cluster is available with either mechanical adjustment, described on page 12 or with the option (compulsory in certain Markets) of electrically operated vertical adjustment of the dipped beam headlamp alignment which can be carried out from the driver's seat by means of a 4 position control: 0, 1, 2, 3. This control varies the tension applied to an actuator composed of an electrical stepping motor (11) which is controlled by an electronic control unit in the actual motor which either lengthens or shortens the rod (13) which alters the angle of the headlamp axis.

The basic adjustment of the luminous beams should be carried out keeping the electrical control in position 0 and following the instructions given on page 12 concerning the vertical alignment of dipped beam headlamps.

To increase the brightness of the dipped beam headlamps there is a **convex lens in the second focus of the ellipse** (7) so that the semi-elliptical parabola (9) for this lamp can collect the greatest possible amount of light flux produced by the halogen bulb (8) with which it is equipped.

55.

DIAGRAM SHOWING ELECTRICALLY OPERATED VERTICAL ALIGNMENT OF DIPPED HEADLAMPS (LOCATED IN DASHBOARD) AND TERMINAL BOARD



Key

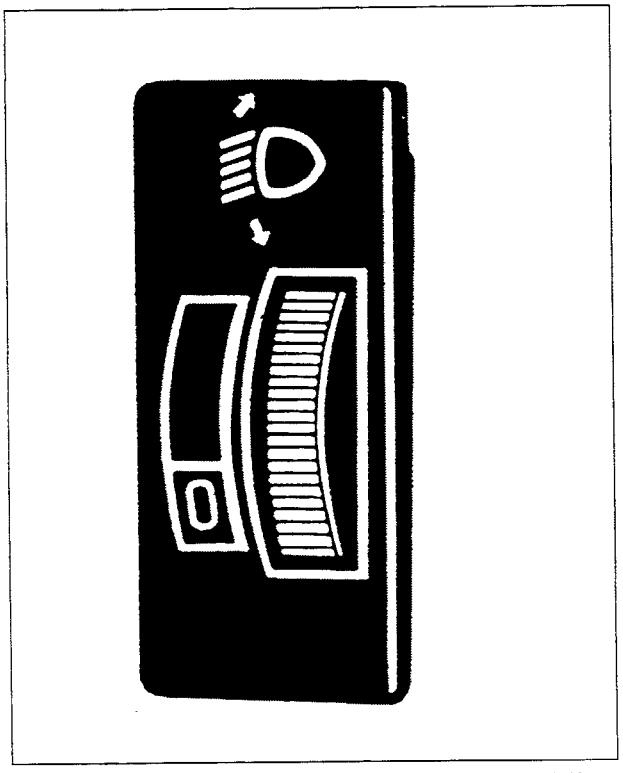
S. Potentiometer for adjusting supply voltage for stepping motor 4,7 KΩ - 0,5 W.
R. Resistor 390 Ω

Voltage measured between terminal G and 56b:

Position 0	4,6% of Vb
Position 1	8,8% of Vb
Position 2	14,4% of Vb
Position 3	39,4% of Vb
Final position	43,7 % of Vb

Tolerance ± 4%
Vb is the system voltage.

The electrically controlled vertical adjustment of the dipped headlamp beam is carried out from the driver's seat by regulating a potentiometer located in the centre tray which can assume the following positions: 0, 1, 2, 3. The control varies the voltage applied to the electrical stepping motor which is controlled by means of an electronic control unit contained in the actual motor.
The basic adjustment of the light beams should be carried out with the electrical control kept in position 0 and following the instructions given on page 12 concerning the vertical alignment of headlamps.

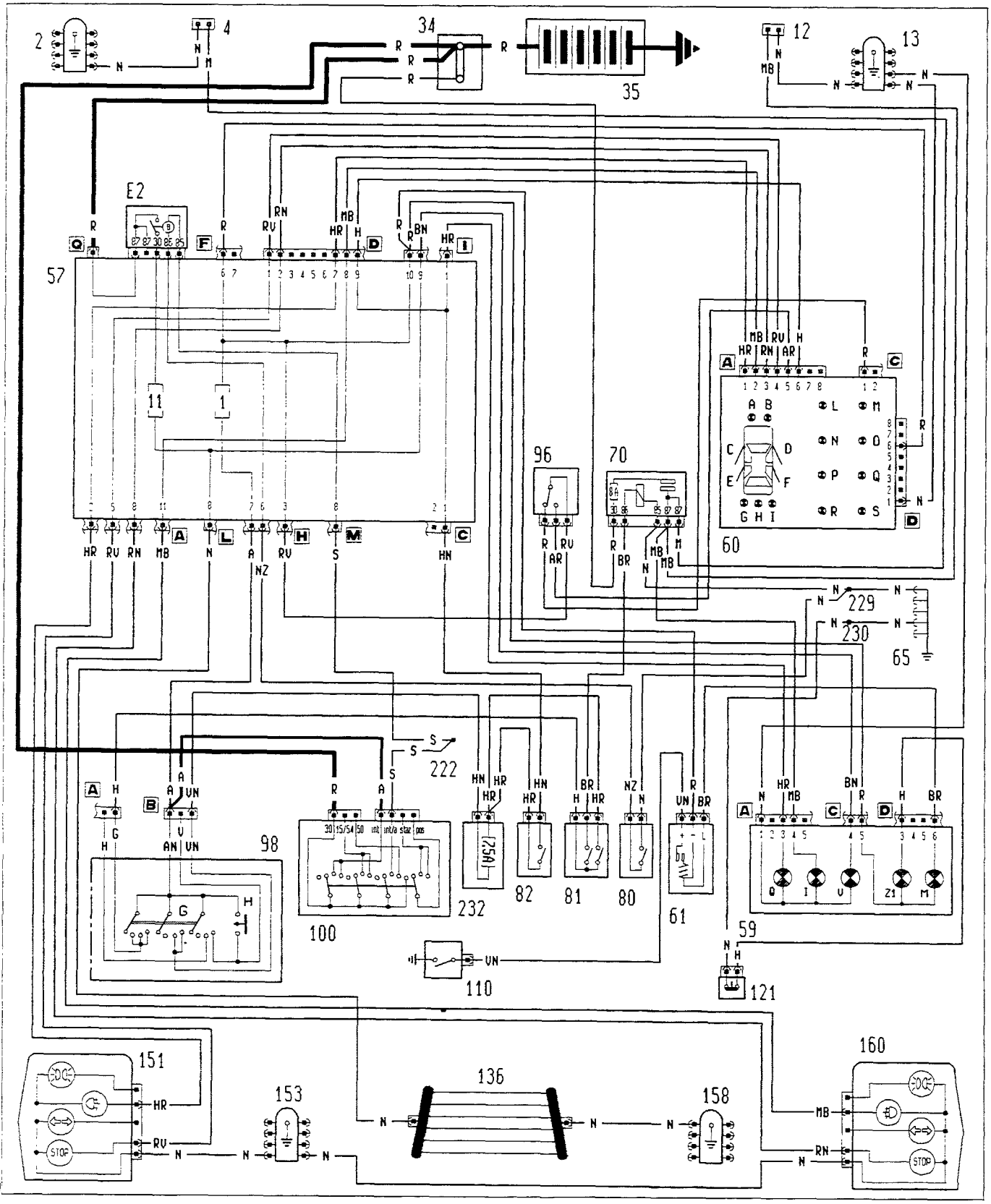


Electrically operated adjustment of headlamps from inside the vehicle according to the load transported optional

Control position	Load location
0	– driver only – driver and passenger in front seat
1	– 5 persons – driver and load in luggage compartment (max 75 kg)
2	– 5 persons and load in luggage compartment (max 75 kg) – driver and load in luggage compartment (max 200 kg)
3	– not to be used

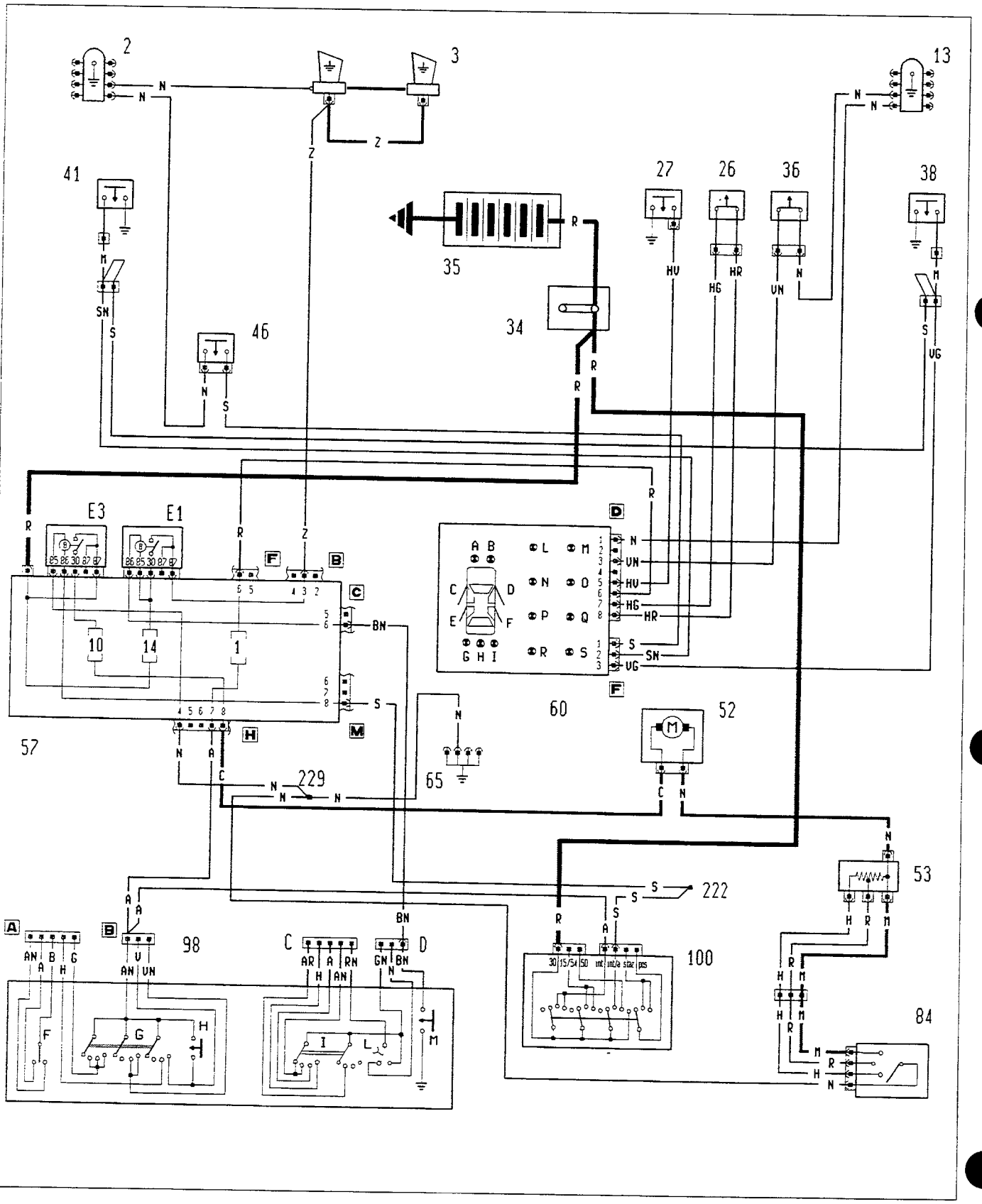
For other load conditions, use intermediate positions.

Version with Control-System
Rear fog lamps and warning light - Brake light - Heated rear windscreen and warning light - Wiring for fog light and warning light - Handbrake warning light - Seat belt not fastened warning light (see key at end of wiring diagrams).

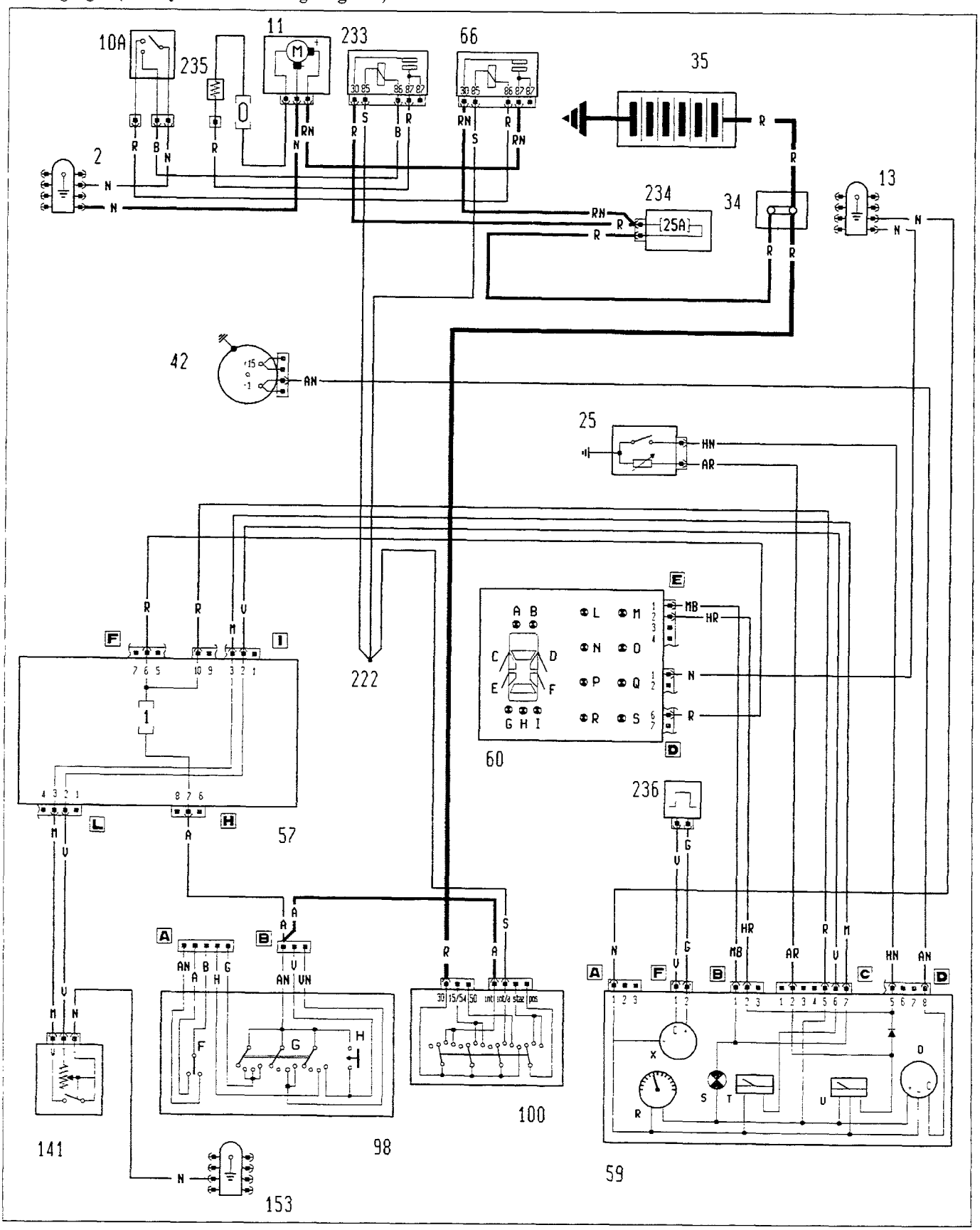


55.

Version with Control-System
Electric horns - Car interior ventilation - Front brake pad wear warning light - Insufficient brake fluid level warning light - Insufficient engine oil pressure warning light - Insufficient engine oil level warning light - Insufficient coolant level warning light (see key at end of wiring diagrams)

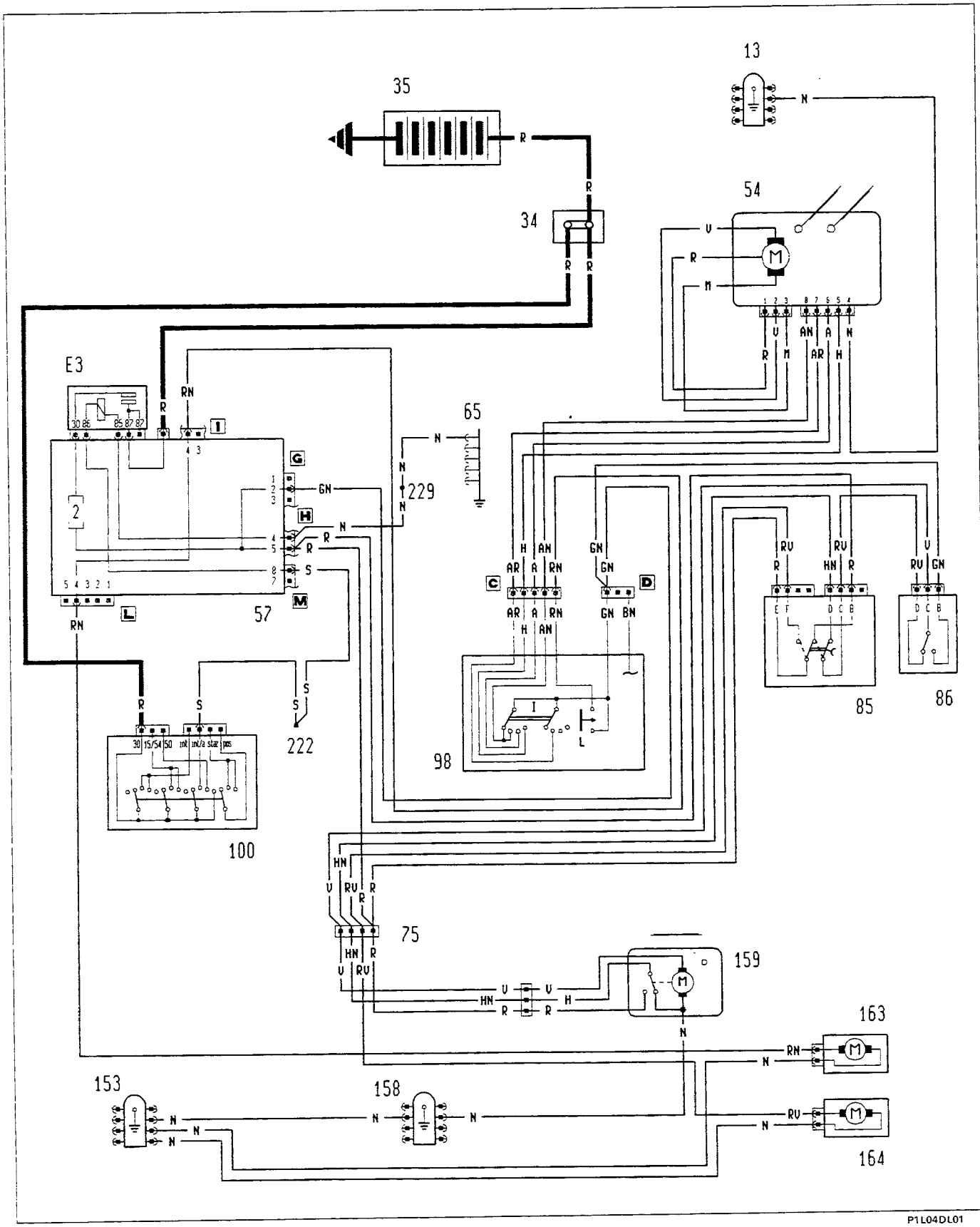


Version with Control-System
Engine cooling - Fuel level gauge and reserve warning light - Rev counter - Voltmeter - Coolant temperature gauge and overheating warning light (see key at end of wiring diagrams).

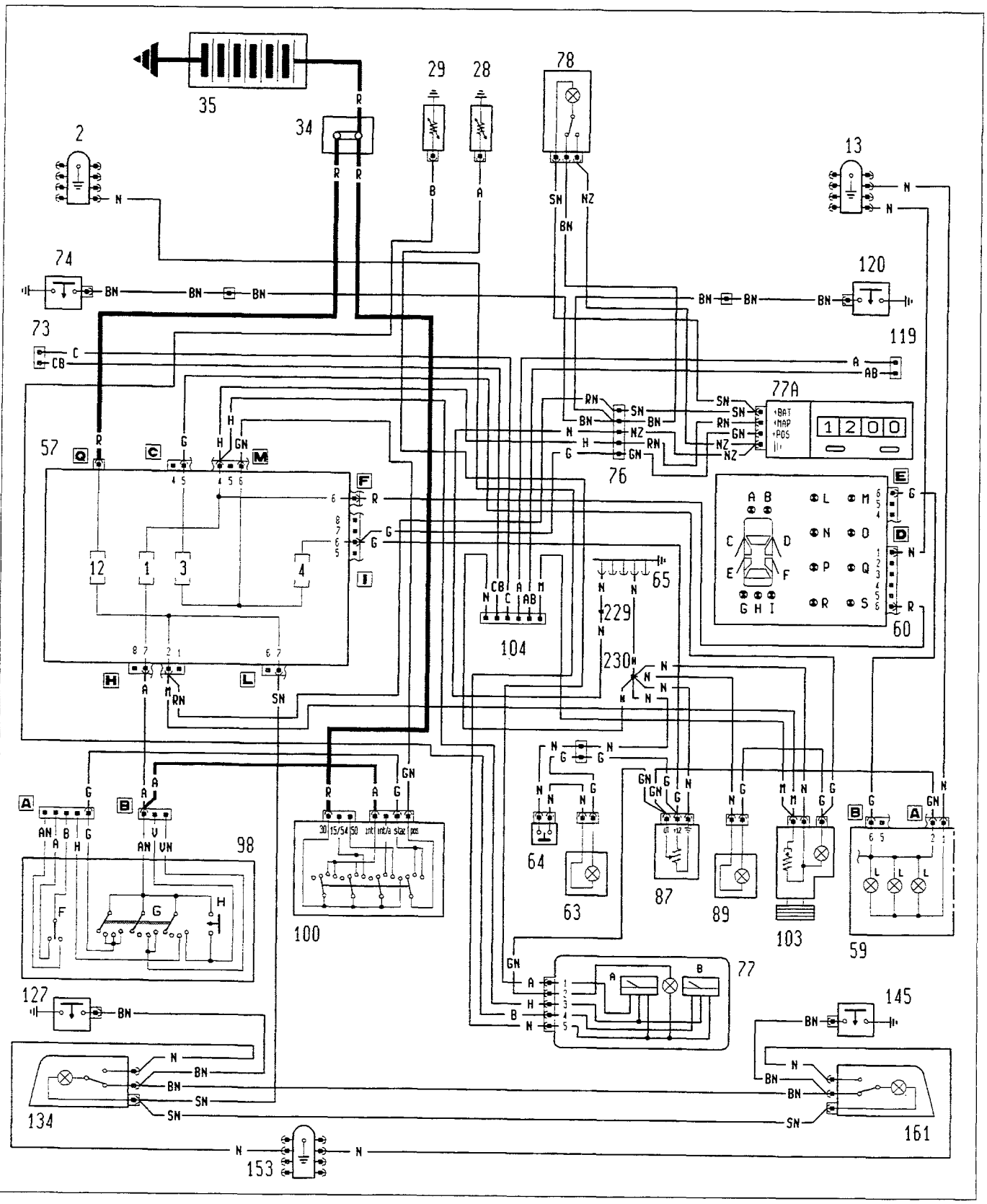


55.

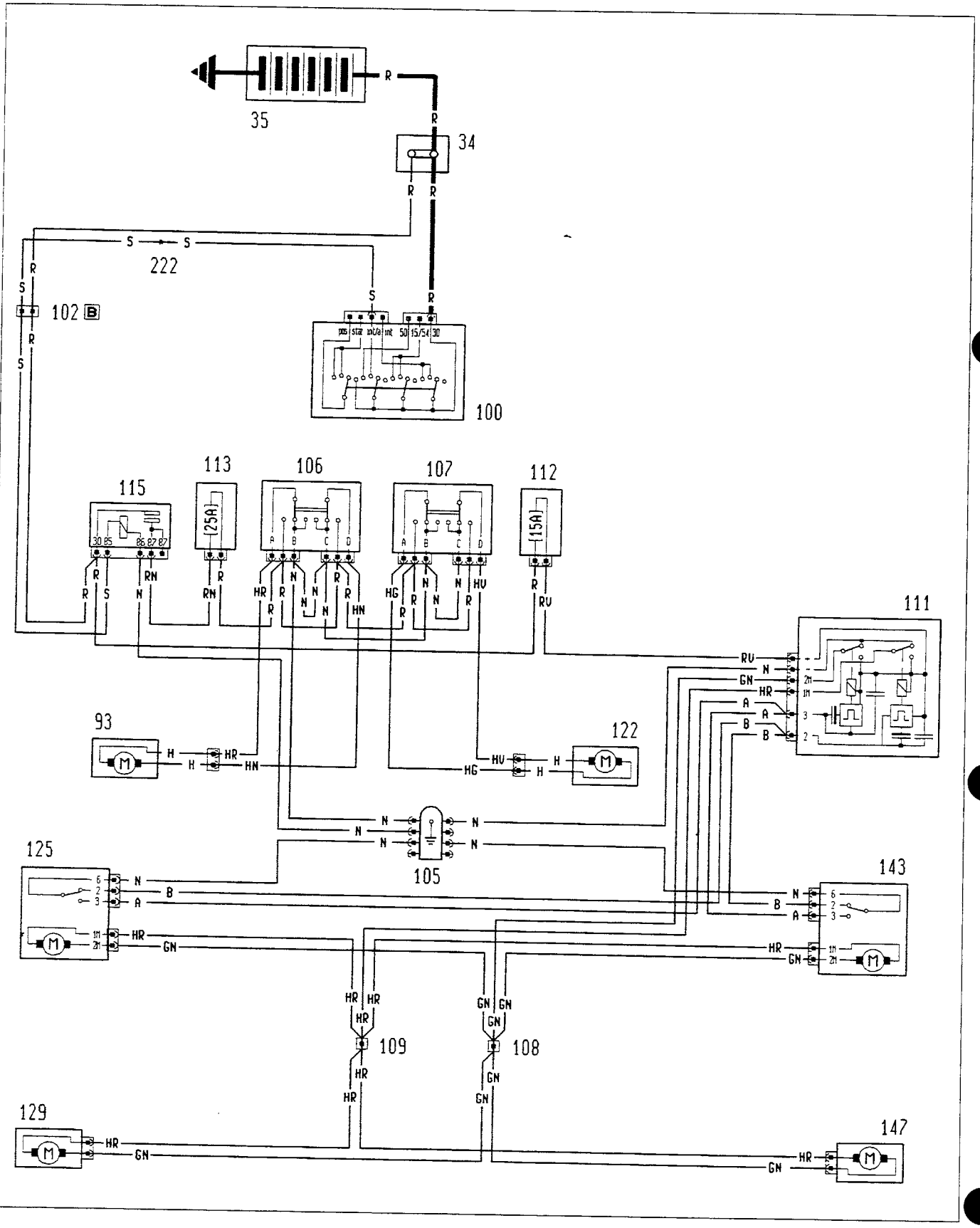
Windscreen wiper - Rearscreen wash/wipe - Electric windscreen washer pump - Electric rearscreen washer pump (see key at end of wiring diagrams)



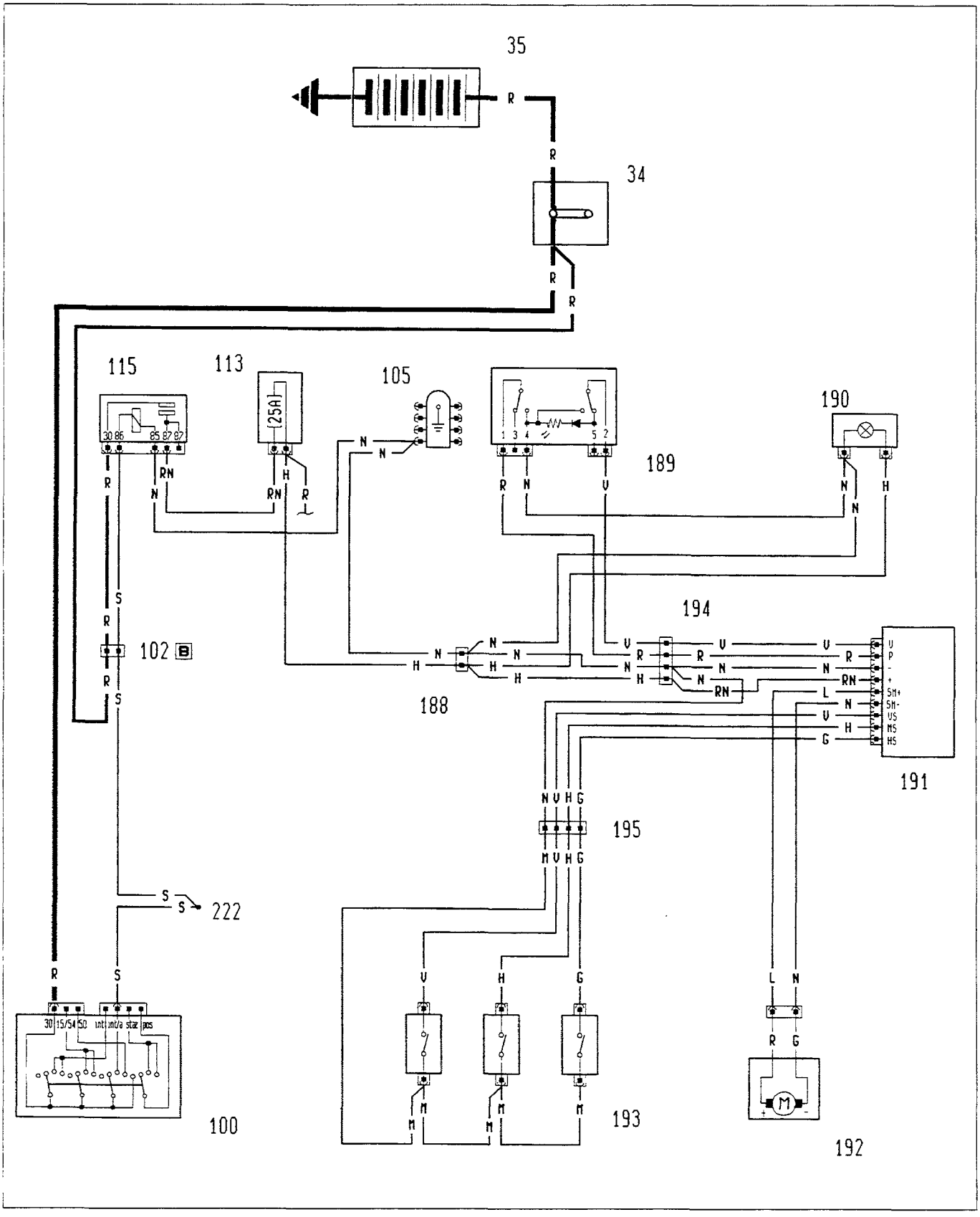
Version with Control-System
Courtesy light - Glove compartment light - Cigar lighter - Digital clock - Wiring for radio - Switch lighting - Instrument panel light and dimmer - Combined instrument - Engine oil pressure gauge - Engine oil temperature gauge (see key at end of wiring diagrams).



Electric front windows - Central locking (see key at end of wiring diagrams)



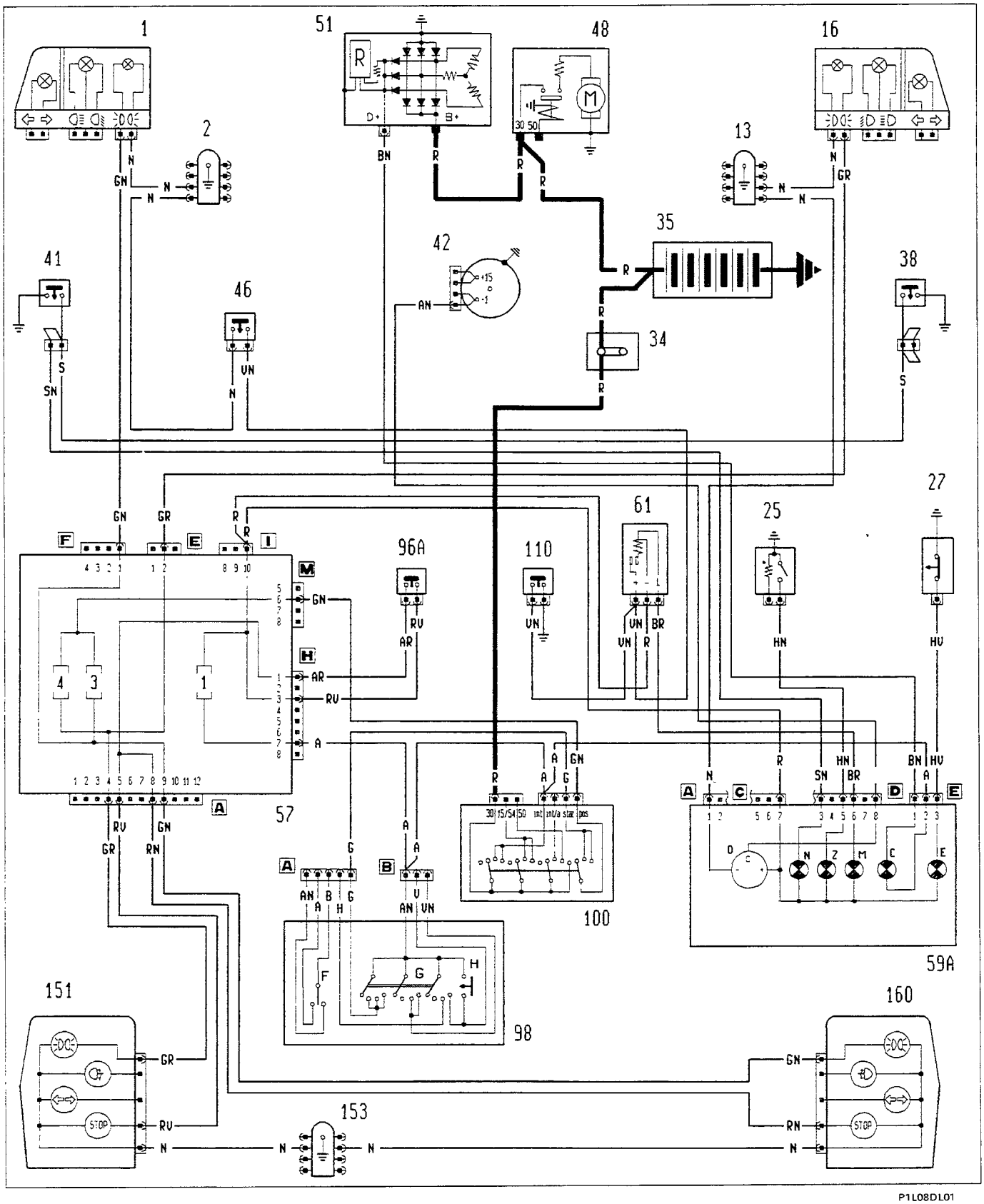
Electric sun roof (see key at end of wiring diagrams).



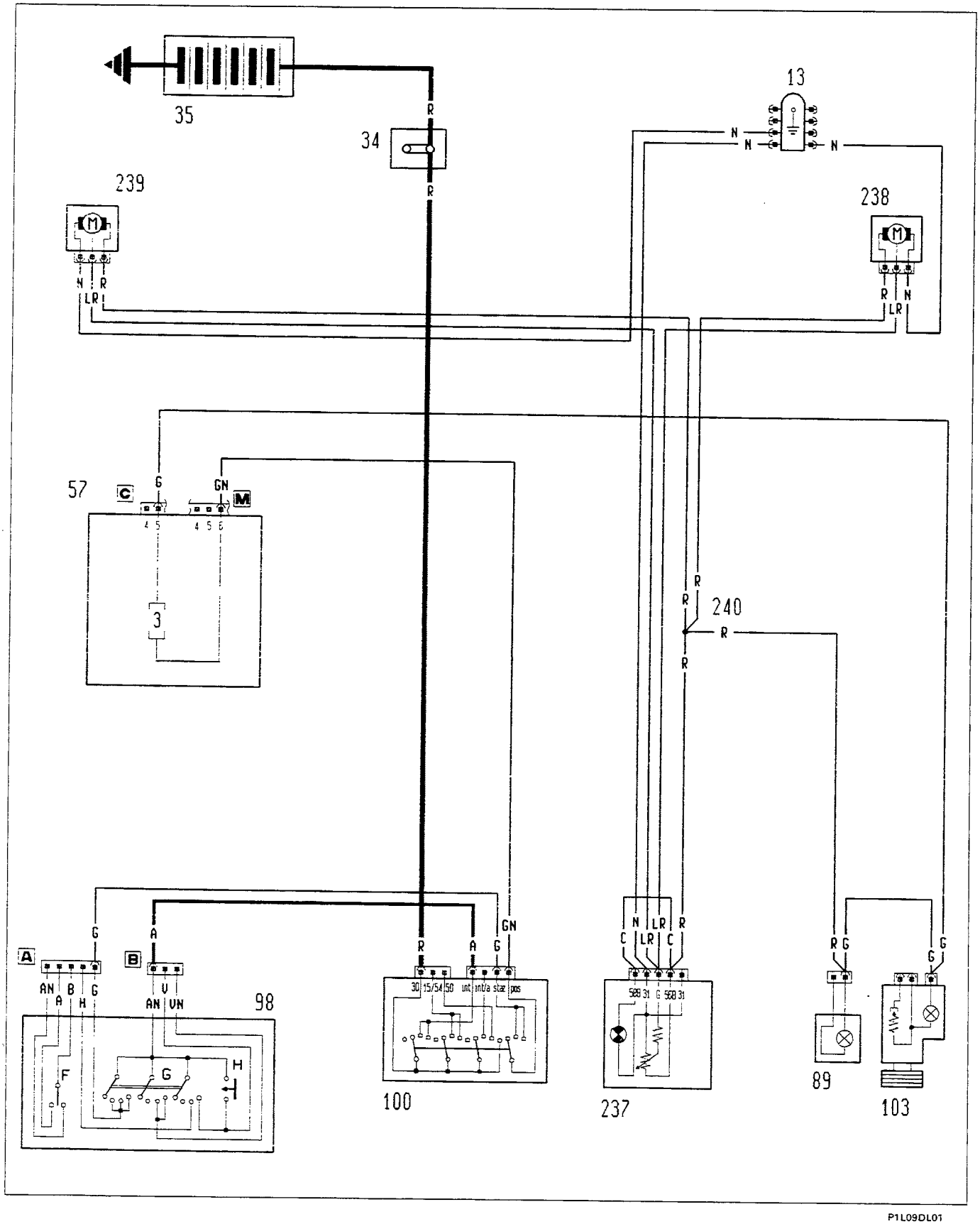
55.

Version without Control-System

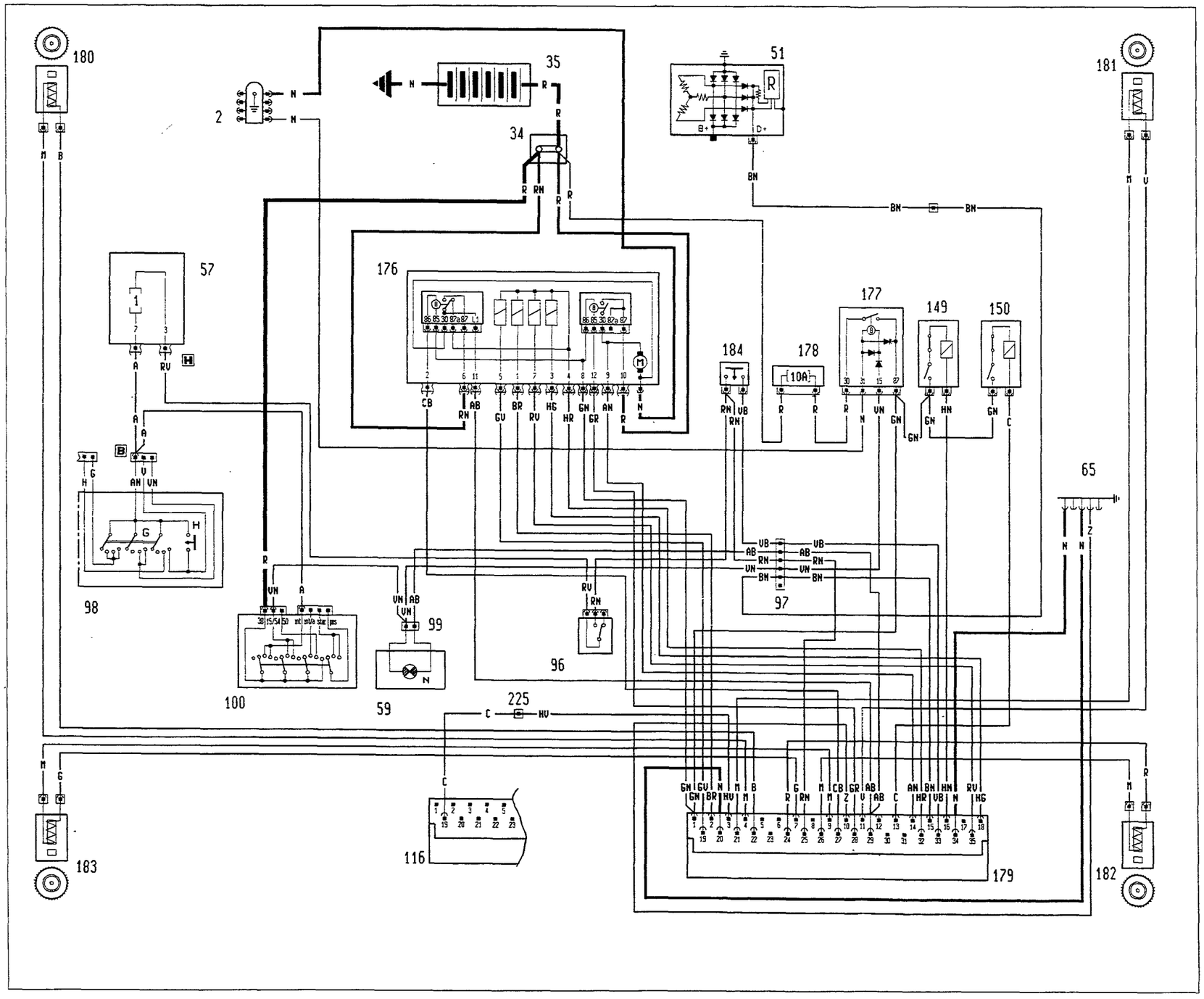
Parking lights and warning lamp - Braking lights - Handbrake applied and insufficient brake fluid level warning light - Battery recharging warning light - Front brake pad wear warning light - Insufficient engine oil pressure warning light - Coolant overheating warning light - Rev counter (see key at end of wiring diagrams)



Headlamp alignment adjustment device (see key at end of wiring diagrams).

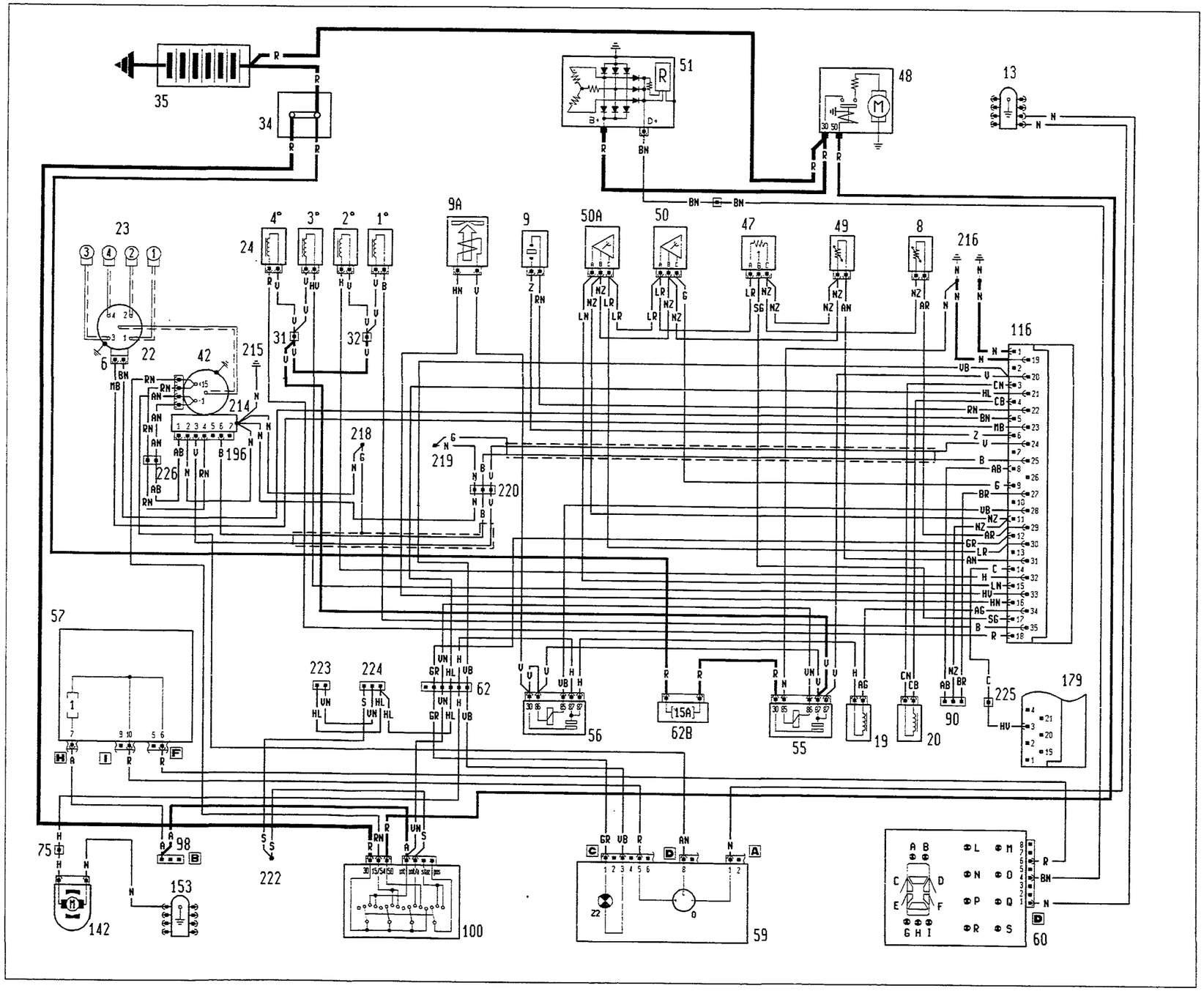


ABS (see key at end of wiring diagrams)

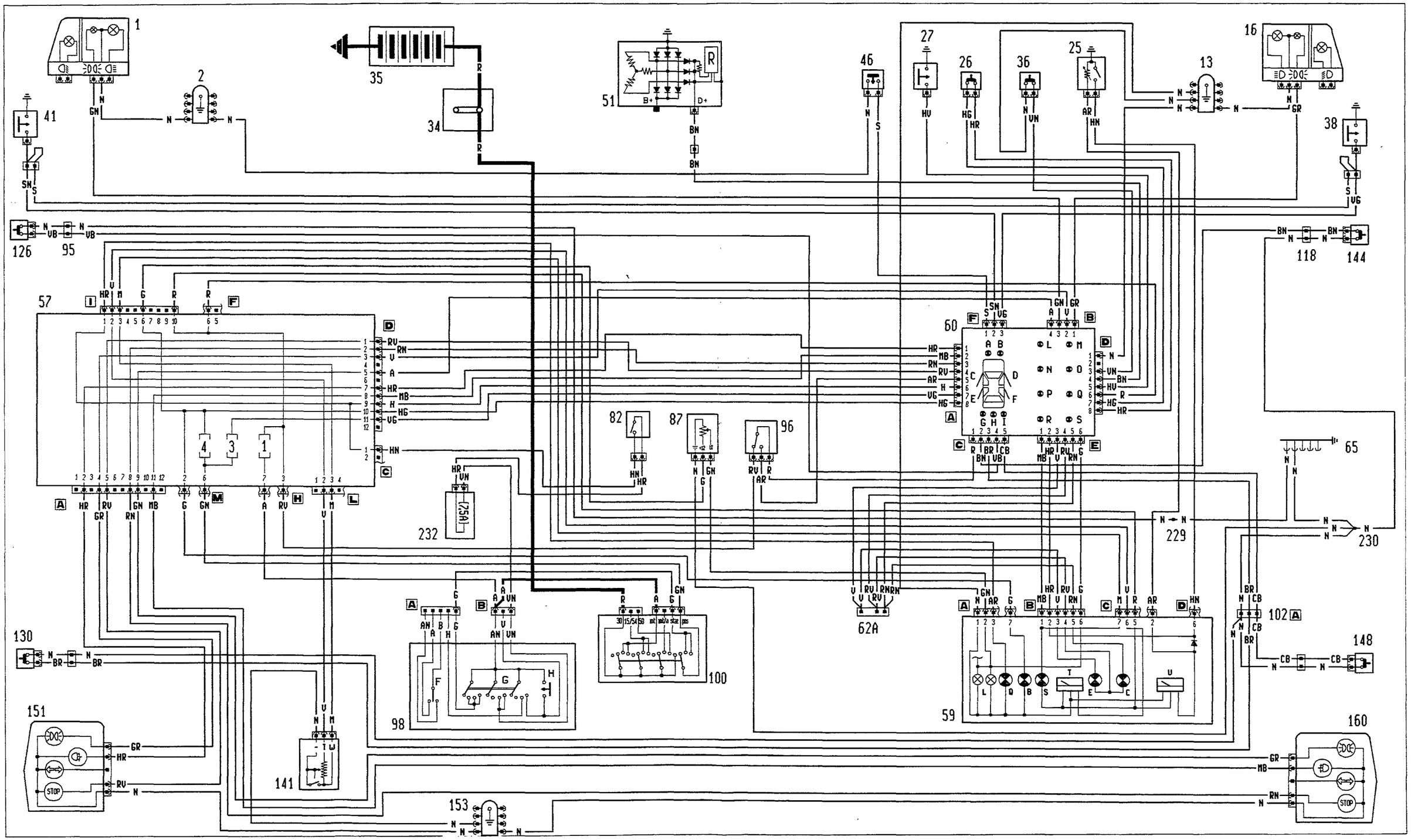


55.

Starting - I.A.W. electronic ignition/injection - Recharging - Electric fuel pump - I.A.W. injection system failure warning light - Rev counter (see key at end of wiring diagrams)

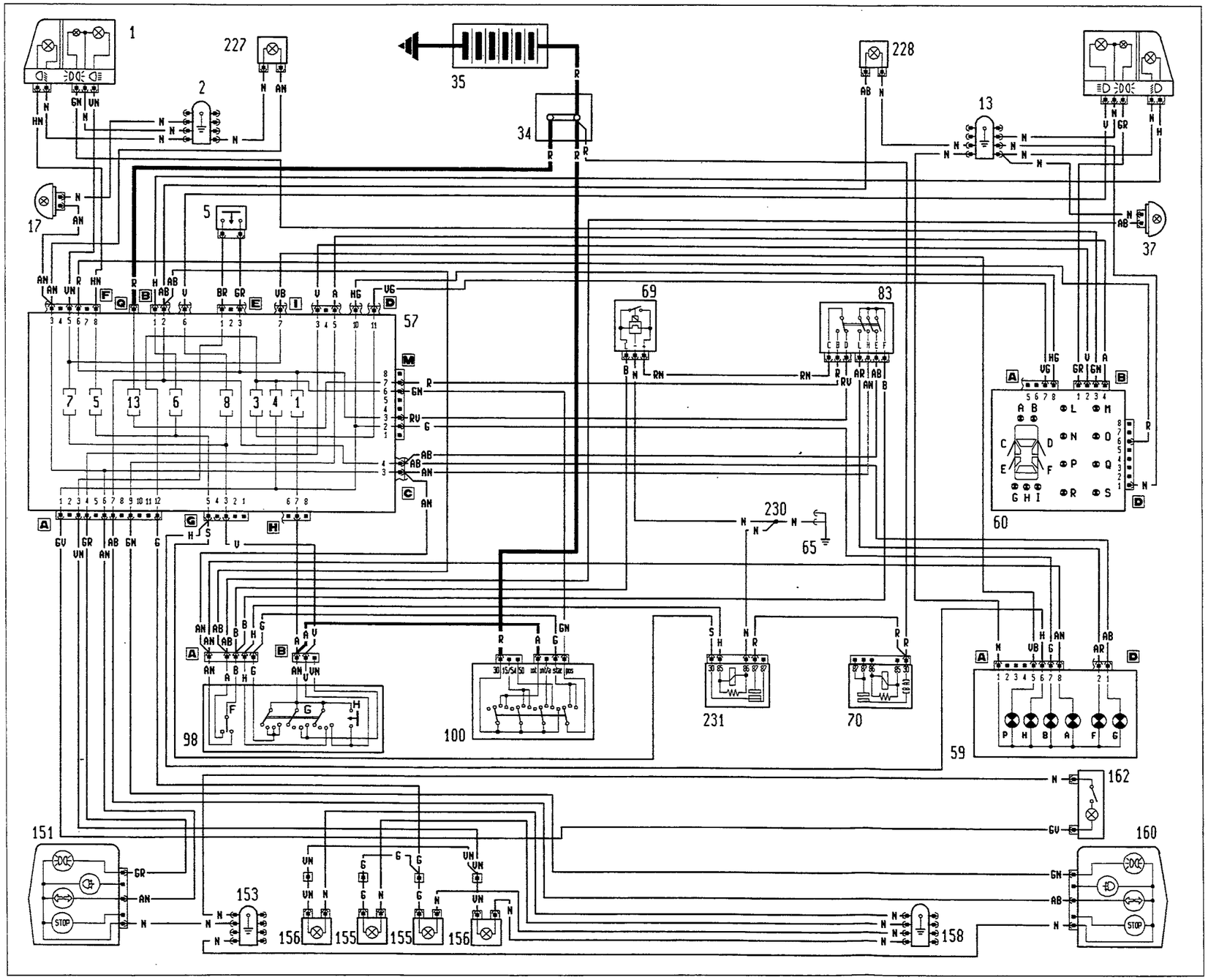


Control-System (see key at end of wiring diagrams).



Version with Contol-System

Dipped headlamps and warning light - Main beam headlamps and warning light - Parking lights and warning lamp - Headlamp flasher - Number plate lights - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Luggage compartment light - (See key at end of wiring diagrams)



Key to components

1 Left front light cluster (side lights and dipped headlamps)
2 Left front earth cable loom
3 Electric horns
4 Left fog lamp
5 Reversing lights switch
6 Timing sensor (located in ignition distributor)
8 Engine coolant temperature sensor (I.A.W.)
9 Detonation sensor
9A Controlled supercharging solenoid valve
10A Two speed thermal switch for engine cooling fan
11 Radiator cooling fan
12 Wiring for right fog light
13 Right front earth cable loom
16 Right front light cluster (side lights and dipped headlamps)
17 Left side direction indicator
19 Automatic idle adjustment solenoid air valve (V.A.E) (I.A.W.)
20 Rpm and TDC sensor (I.A.W.)
22 Ignition distributor
23 Spark plugs
24 Fuel injectors (I.A.W.)
25 Engine coolant temperature sender unit and switch signalling coolant overheating
26 Engine oil level sensor
27 Insufficient engine oil pressure switch
28 Engine oil pressure sender unit
29 Engine oil temperature sender unit
31 Connector block for electronic injection (I.A.W.)
32 Connector block for electronic injection (I.A.W.)
34 Connector block
35 Battery
36 Coolant level sensor
37 Right side direction indicator
38 Right front brake pad wear sensor
41 Left front brake pad wear sensor
42 Ignition coil
46 Brake fluid level sensor
47 Butterfly valve position sensor (I.A.W.)
48 Starter motor
49 Air temperature sensor (I.A.W.)
50 Absolute pressure sensor (I.A.W.)
50A Absolute pressure sensor (I.A.W.)
51 Alternator
52 Heater fan
53 Electric fan speed resistor
54 Windscreen wiper motor
55 Injector relay feed (I.A.W)
56 Electric fuel pump relay (I.A.W.)
57 Fuse carrier and relay control box:
- E1 Electric horn relay
- E2 Heated rear windscreen relay
- E3 Ignition discharge relay

59 Instrument panel:
- A Left side direction indicators warning light
- B Side lights warning light
- C Control System general fault warning light
- E Starting go-ahead signal
- F Hazard warning lights warning light
- G Right side direction indicators warning light
- H Dipped headlamps warning light
- I Fog lights warning light
- L Instrument panel light bulbs
- M Handbrake warning light
- N A.B.S. failure warning light
- O Rev counter
- P Main beam headlamps warning light
- Q Rear fog lamps warning light
- R Voltmeter
- S Fuel reserve warning light
- T Fuel level gauge
- U Coolant temperature gauge
- V Heated rear windscreen warning light
- X Electronic tachometer
- Z1 Seat belts not fastened warning light
- Z2 I.A.W. system failure warning light

59A Instrument panel (version without Control-System):
- C Battery recharging warning light
- E Insufficient engine oil pressure warning light
- M Handbrake applied and insufficient brake fluid level warning light
- N Front brake pad wear warning light
- O Rev counter
- Z Coolant overheating warning light

60 Control-System:
- A Left front side lights failure warning light
- B Right front side lights failure warning light
- C Right front door ajar warning light
- D Left front door ajar warning light
- E Right rear door ajar warning light
- F Left rear door ajar warning light
- G Warning light siganlling side lights, left rear brake lights failure
- H Rear fog lamps warning light
- I Warning light signalling side lights, right rear brake lights failure
- L Insufficient brake fluid level warning light
- M Front brake apd wear warning light
- N Insufficient engine oil pressure warning light
- O Battery recharging warning light
- P Insufficient engine oil level warning light
- Q Insufficient coolant level warning light
- R Automatic transmission fluid overheating warning light
- S Engine coolant overheating warning light

61 Intermittent device for handbrake warning light
62 Connector block
62A Control system diagnostic socket
62B 15 A protective fuse for injectors and electric fuel pump
63 Glove compartment light
64 Glove compartment light push button
65 Earth cable loom under dashboard

I Fog lights warning light
L Instrument panel light bulbs
M Handbrake warning light
N A.B.S. failure warning light
O Rev counter
P Main beam headlamps warning light
Q Rear fog lamps warning light
R Voltmeter
S Fuel reserve warning light
T Fuel level gauge
U Coolant temperature gauge
V Heated rear windscreen warning light
X Electronic tachometer
Z1 Seat belts not fastened warning light
Z2 I.A.W. system failure warning light

59A Instrument panel (version without Control-System):
C Battery recharging warning light
E Insufficient engine oil pressure warning light
M Handbrake applied and insufficient brake fluid level warning light
N Front brake pad wear warning light
O Rev counter
Z Coolant overheating warning light

60 Control-System:

A Left front side lights failure warning light
B Right front side lights failure warning light
C Right front door ajar warning light
D Left front door ajar warning light
E Right rear door ajar warning light
F Left rear door ajar warning light
G Warning light siganlling side lights, left rear brake lights failure
H Rear fog lamps warning light
I Warning light signalling side lights, right rear brake lights failure
L Insufficient brake fluid level warning light
M Front brake apd wear warning light
N Insufficient engine oil pressure warning light
O Battery recharging warning light
P Insufficient engine oil level warning light
Q Insufficient coolant level warning light
R Automatic transmission fluid overheating warning light
S Engine coolant overheating warning light

61 Intermittent device for handbrake warning light
62 Connector block
62A Control system diagnostic socket
62B 15 A protective fuse for injectors and electric fuel pump
63 Glove compartment light
64 Glove compartment light push button
65 Earth cable loom under dashboard
66 Cooling fan relay feed
69 Intermittent device for direction indicators and hazard warning lights
70 Fog lights relay
73 Left front speaker wiring
74 Front courtesy light push button on left front pillar
75 Connector block
76 Connector block for courtesy light
77 Combined instrument
A - Oil pressure gauge
B - Oil temperature gauge
77A Digital clock
78 Front courtesy light
80 Heated rear windscreen switch
81 Fog lights switch
82 Rear fog lamps switch
83 Hazard warning lights switch
84 Heater fan switch
85 Rearscreen wash/wipe switch
86 Heated rear windscreen switch
87 Instrument panel and Control System light dimmer switch
89 Switch fibre optic light
90 Diagnostic socket
93 Left front electric window motor
95 Connector
96 Brake lights switch
96A Brake lights switch
98 Steering column switch unit
A - Connector
B - Connector
C - Connector
D - Connector
E - Connector
F - Direction indicators control
G - Side lights, dipped beam/main headlamps control
H - Headlamp flasher control
I - Windscreen wiper control
L - Windscreen washer control
M - Electric horn control
99 Wiring for warning light signalling anti-lock braking system failure
100 Ignition switch
102 Cable join for electric windows/central locking/signalling doors ajar
103 Cigar lighter
104 Wiring for radio
105 Earth on gearbox tunnel
106 Left front electric windows switch
107 Right front electric windows switch
108 Connector
109 Connector
110 Handbrake warning light push button
111 Central door locking control unit
112 10 A protective fuse for central locking control unit
113 25 A protective fuse for electric front windows
115 Electric windows relay
116 Injection/ignition electronic control unit (I.A.W.)
118 Connector block
119 Right front speaker wiring
120 Front courtesy light push button on right front pillar
121 Switch signalling seat belts not fastened
122 Right front electric window motor
125 Left front door locking motor
126 Push button signalling left front door ajar
127 Rear courtesy light push button on left centre pillar
129 Left rear door locking motor
130 Push button signalling left rear door ajar
134 Left rear courtesy light
136 Heated rear windscreen
141 Fuel level gauge and reserve warning light control
142 Electric fuel pump
143 Right front door locking motor
144 Push button signalling right front door ajar
145 Courtesy light push button on right centre pillar
147 Right rear door locking motor
148 Push button signalling right rear door ajar
151 Left rear light cluster
153 Rear earth cable loom
155 Number plate lights
156 Reversing lights
158 Earth cable loom on tailgate
159 Rearscreen wash/wipe
160 Right rear light cluster
161 Right rear courtesy light
162 Luggage compartement courtesy light
163 Electric windscreen washer pump
164 Electric pump for rearscreen washer
176 Electro-hydraulic control unit for anti-lock brakes
177 Relay for anti-lock brakes
178 10 A protective fuse for anti-lock brakes
179 Anti-lock brakes electronic control unit
180 Sensor on left front wheel
181 Sensor on right front wheel
182 Sensor on right rear wheel
183 Sensor on left rear wheel
184 Switch on clutch pedal
188 Join for electric sun roof wiring
189 Electric sun roof control switch
190 Ideogram light
191 Electric sun roof control unit
192 Electric sun roof geared motor
193 Sun roof end of travel switch
194 Cable join for sun roof
195 Cable join for sun roof
196 Electronic ignition power module
214 Earth on ignition power module
215 Earth on engine
216 Earths on engin
218 Connector block
219 Connector block
220 Join on front cable
222 Connector block
223 Air conditioning cable join
224 Air conditioning cable join
225 Anti-lock brakes cable join
226 Front cable join
227 Left front direction indicator
228 Right front direction indicator
229 Connector block
230 Connector block
231 Dipped headlamps remote control switch
232 7.5 A protective fuse for rear fog lamps
233 Engine cooling fan 2nd speed relay
234 25 A protective fuse for engine cooling fan
235 Current restriction resistor for engine cooling fan
236 Speedometer signal impulse generator
237 Headlamp alignment
238 Right headlamp alignment motor
239 Left headlamp aglignment motor
240 Connector block

Cable colour code

A Light blue
B White
C Orange
G Yellow
H Grey
L Blue
M Brown
N Black
R Red
S Pink
V Green
Z Violet
AB Light blue-White
AG Light blue-Yellow
AN Light blue-Black
AR Light blue-Red
AV Light blue-Green
BG White-Yellow
BL White-Blue
BN White-Black
BR White-Red
BV White-Green
BZ White-Violet
CA Orange-Light blue
CB Orange-White
CN Orange-Black
GN Yellow-Black
GL Yellow-Blue
GR Yellow-Red
GV Yellow-Green
HG Grey-Yellow
HN Grey-Black
HR Grey-Red
HV Grey-Green
LB Blue-White
LG Blue-Yellow
LN Blue-Black
LR Blue-Red
LV Blue-Green
MB Brown-White
MN Brown-Black
NZ Black-Violet
RB Red-White
RG Red-Yellow
RN Red-Black
RV Red-Green
SN Pink-Black
VB Green-White
VN Green-Black
VR Green-Red
ZB Violet-White