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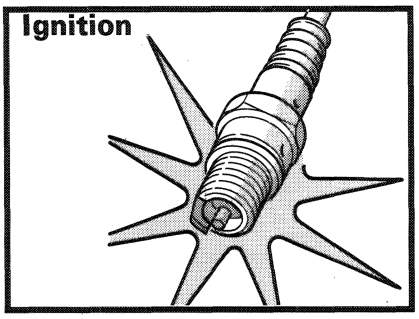
Chart No.	Functions involved
Chart 1	**Version: 1108 SPI - 1242 SPI** Starting - Ignition and electronic injection I.A.W. 6F.SB - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter
Chart 2	**Version: 1242 MPI** Starting - Ignition and electronic injection I.A.W 8F.5T - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter
Chart 3	**Version: 1372 MPI turbo** Starting - Motronic electronic ignition and injection (Bosch) - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter
Chart 4	**Version: 1698 TD** Starting - Pre-heating system and warning light - Recharging and warning light - Insufficient engine oil pressure warning light - Maximum turbocharging pressure warning light - Rev counter
Chart 5	Electrically operated sun roof - Headlamp alignment corrector
Chart 6	Parking lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Headlamp flasher - Number plate lights
Chart 7	Windscreen wiper - Rearscreen wash/wipe - Windscreen and rear window washer pump - Electric horns - Heated rear windscreen and warning light
Chart 8	Fog lights and warning light - Rear fog lamps and warning light - Handbrake warning light

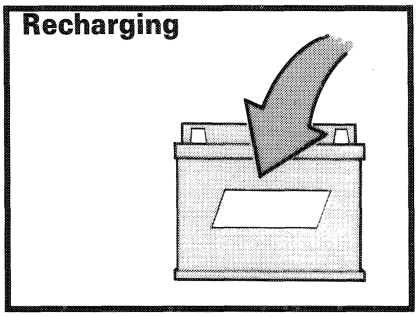
55D.

Chart No.	Functions involved
Chart 9	Engine cooling - Car interior ventilation - Water temperature gauge - Cigar lighter
Chart 10	Anti-lock brakes (A.B.S. 2SH) and failure warning light
Chart 11	Electric front windows
Chart 12	Central locking - Warning light signalling doors ajar
Chart 13	Control-system device - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Braking lights and warning light (check)
Chart 14	AIR-BAG device and failure warning light
Chart 15	Preparation for radio - Courtesy light - Ideogram lights

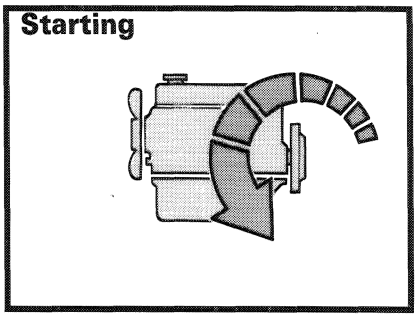
Chart 1



P3M201N03



P3M201N01



P3M201N02

GENERAL DESCRIPTION

Ignition:

All the systems and all the electrical equipment are supplied by the battery at a voltage of 12V.
The cables through which the battery voltage is distributed to the various consumers are represented in the wiring diagrams for the various function and various systems. The Weber--Marelli 6F.SB model which is fitted on the 1108 SPI and 1242 SPI versions of the PUNTO belong to the category of integrated systems: static advance digital electronic ignition and single point intermittent type petrol injection (i.e. with only one injector).
Some circuits are constantly supplied, even with the vehicle stationary and the ignition switched off as they are connected directly to the battery.
Other circuits are supplied when the ignition switch is turned to the various positions.

Starting and recharging:

The starting and recharging circuit is made up of the battery, the starter motor and the alternator.
The battery (12V) is the sealed type which is maintenance free.
The starter motor consists of a direct current motor supplied by the battery and an operation and engagement solenoid.

When the ignition is switched on the voltage coming from the battery supplies the motor windings, creating electro-magnetic forces which cause the rotation of the motor pinion: at the same time the solenoid is energized which operates the pinion engagement mechanism in the flywheel ring gear, thereby causing the rotation of the crankshaft.
The alternator recharges the battery whilst the engine is rotating normally: the alternator shaft, which is rotated directly by the crankshaft through a belt, "cuts" the magnetic field generated by the stator winding producing an alternating current; this is transformed into a direct cirrent by a diode rectifier bridge and is sent to recharge the battery.
A voltage regulator incorporated in the alternator allows the current supply to be kept at a constant voltage (around 12V) for all engine speed and load condition variations.

FUNCTIONAL DESCRIPTION

The supply comes from the battery (53), from where there are numerous cables which directly supply several systems including the connector block (36), which is connected directly to the ignition switch (3).
The alternator (139) is connected directly to the starter motor (140) in order to allow the recharging of the battery.
When the ignition key (3) is inserted and turned to the first stage this is the ON position supplying numerous circuits which are defined as "controlled by the ignition key".

The second position is starting up where the starter motor (140) is directly supplied with the current no longer reaching all those circuits which absorb directly thereby ensuring a maximum flow to the actual engine.
In the last analysis we shall assess the "Park" position where the side lights are supplied with the key in, which is possible by turning the key in the opposite direction (pressing the special button on the ignition switch).
When the ignition key (3) is in the "Starting" position, the starter motor (140) solenoid winding (pin 50) is energized and the supply voltage from the battery (53) reaches the engine (pin 30) and starts it.

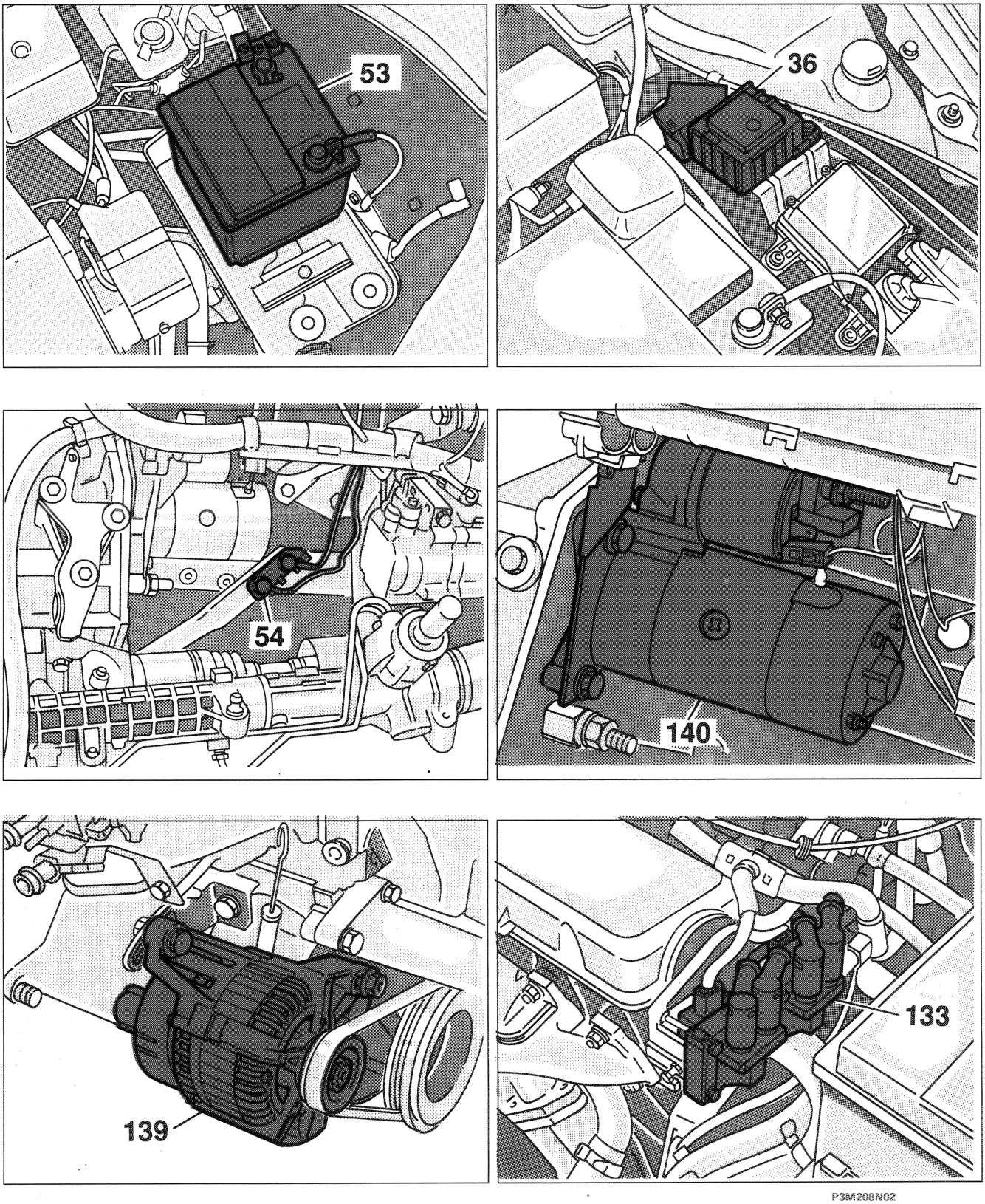
The direct current generated by the alternator (139) is sent to the battery, passing through the starter motor.
When the alternator does not rotate, therefore the battery is not being recharged, a special signal is sent to the Instrument panel (14) to light up the battery recharging warning light (X).

Fault diagnosis

Accompaniment to illustration table

55D.

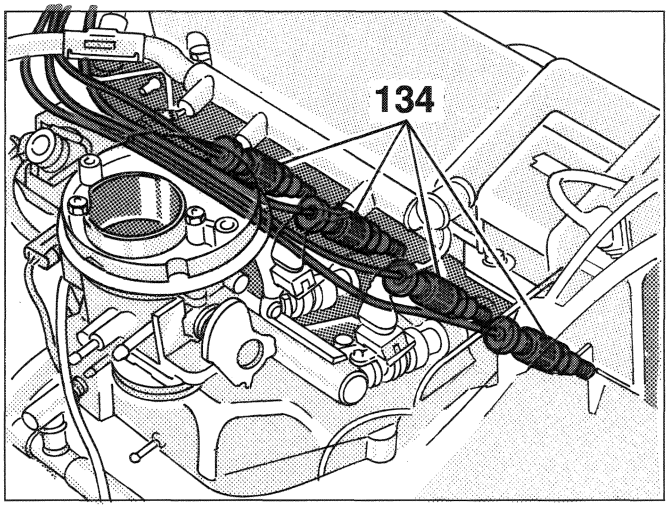
Location of components for starting - Ignition - Recharging

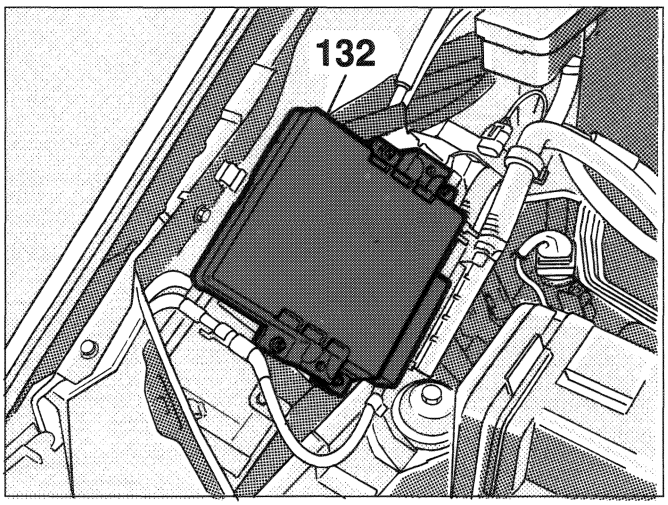


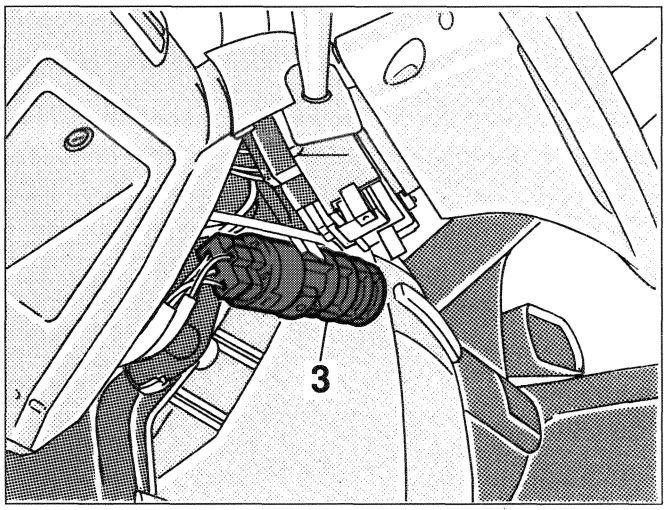
P3M208N02

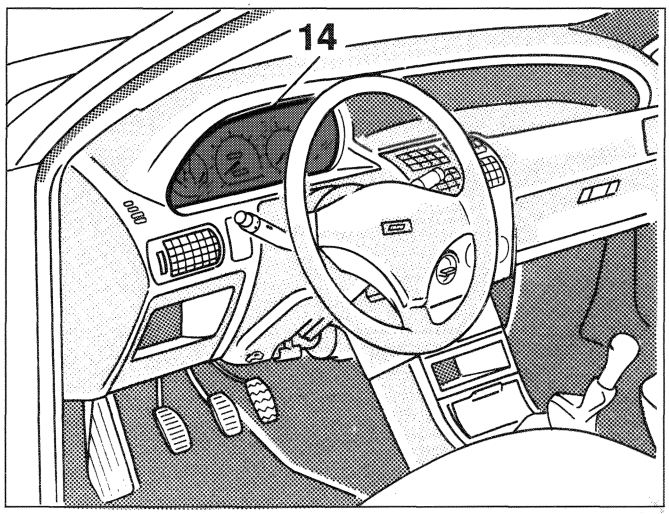
3M102N

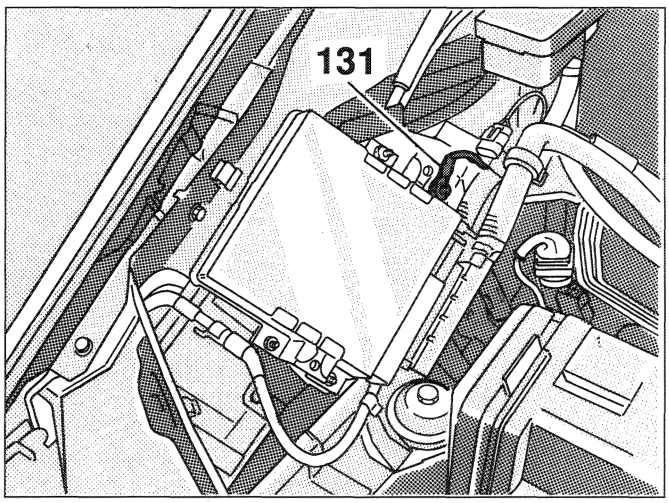
Location of components for starting - Ignition - Recharging

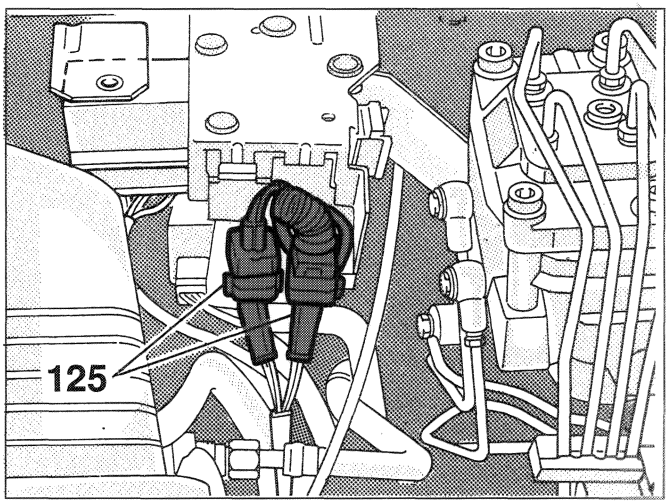




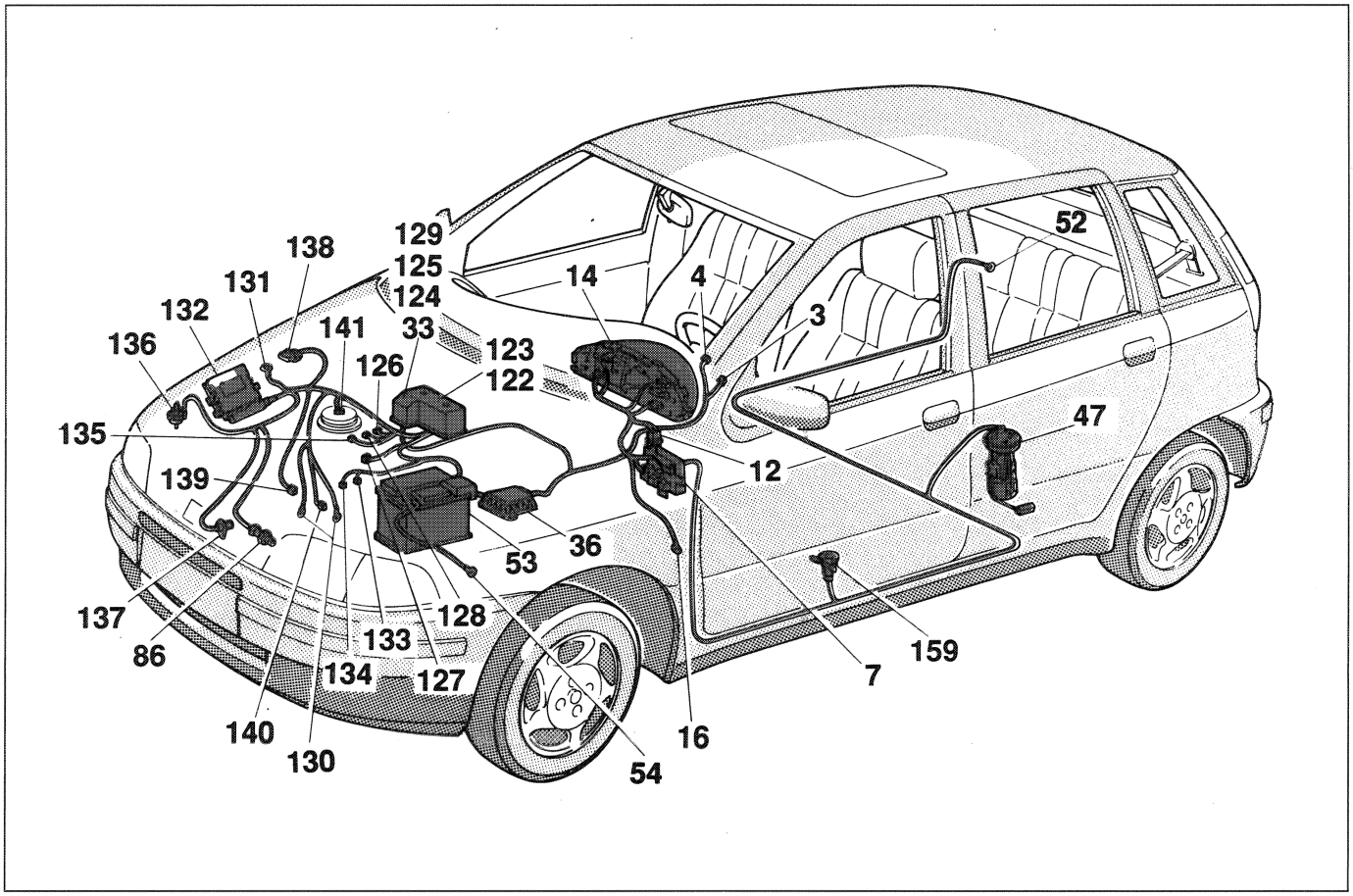








P3M203N02 P3M203N01



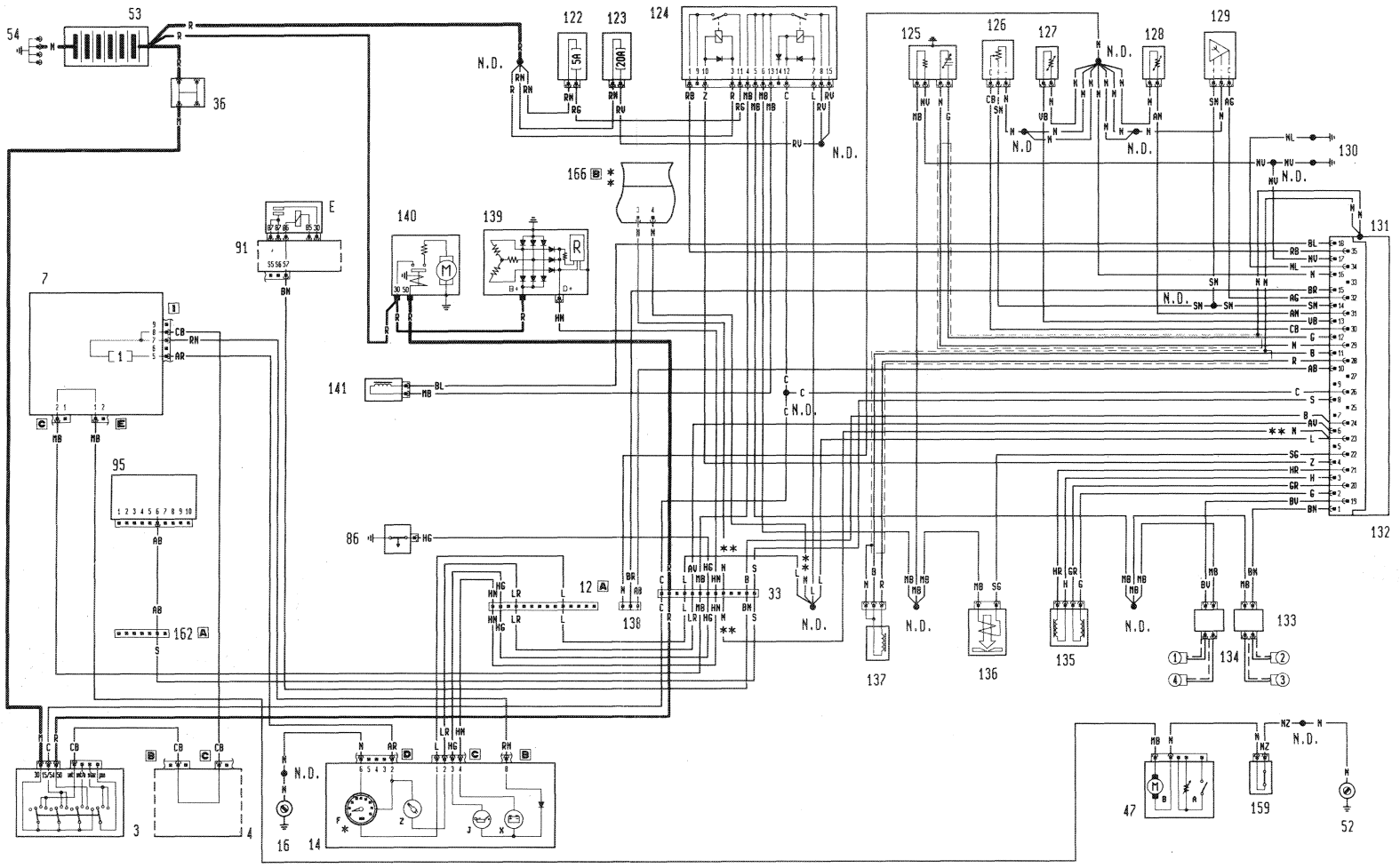
P3M204N02 P3M204N01

Wiring for starting - Ignition and electronic injection I.A.W. 6F.SB - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
12 Connection between dashboard cables and front cables
14 Instrument panel :
F Rev counter
J Insufficient engine oil pressure warning light
Z Injection system failure warning light
X Battery recharging warning light
16 Left dashboard earth
33 Connection for front cables
36 Connector block
47 Fuel level gauge / Electric fuel pump
52 Right rear earth
53 Battery
54 Earth for battery
86 Switch signalling insufficient engine oil pressure
91 Fuse and relay control box for air conditioning :
E Compressor coupling relay
95 Air conditioning system electronic control unit
122 5A protective fuse for injection system
123 20A protective fuse for injection electric pump, Lambda sensor and injectors
124 Multiple relay
125 Heated Lambda sensor
126 Potentiometer on throttle valve
127 Water temperature sensor
128 Air temperature sensor
129 Absolute pressure sensor
130 Earths on engin
131 Earth on control unit
132 I.A.W. electronic injection and ignition control unit
133 Ignition coil unit
134 Spark plugs
135 Stepping actuator
136 Canister solenoid valve
137 Rpm and T.D.C. sensor.
138 Diagnostic socket for injection system
139 Alternator
140 Starter motor
141 Injector
159 Switch for deactivating electic fuel pump
162 Connection for air conditioner unit cables
166 Anti-theft device electronic control unit
N.D. Connectors

Starting - Ignition and electronic injection I.A.W 6F.SB - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter

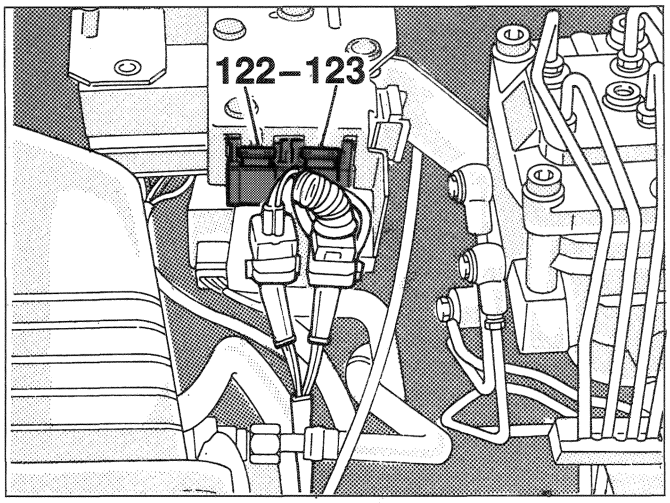


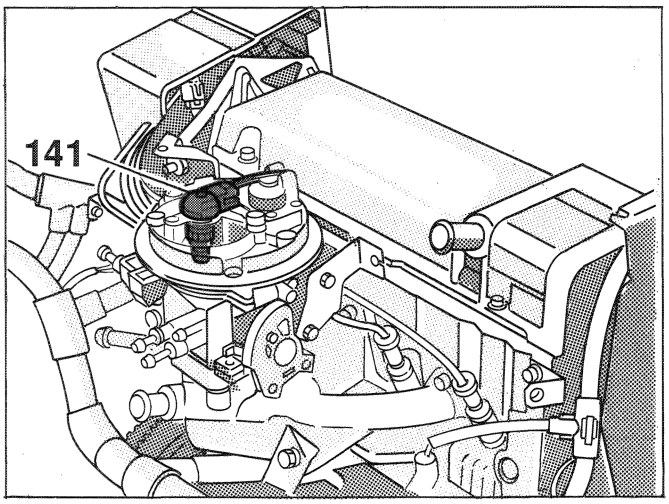
* Does not exist for the F version

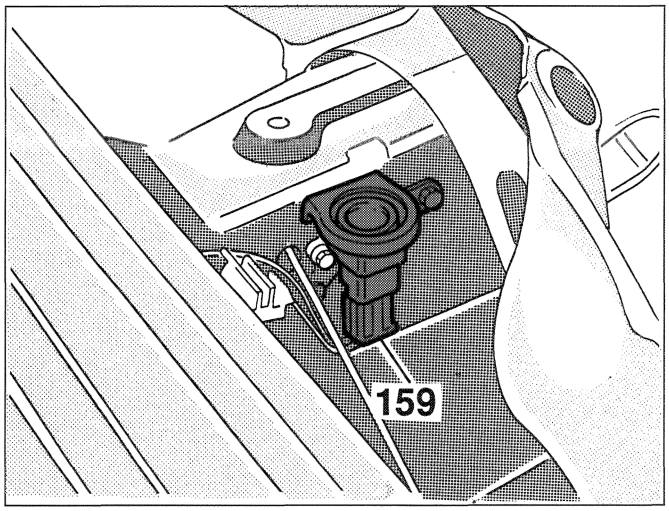
** Variant connections for versions with anti-theft device

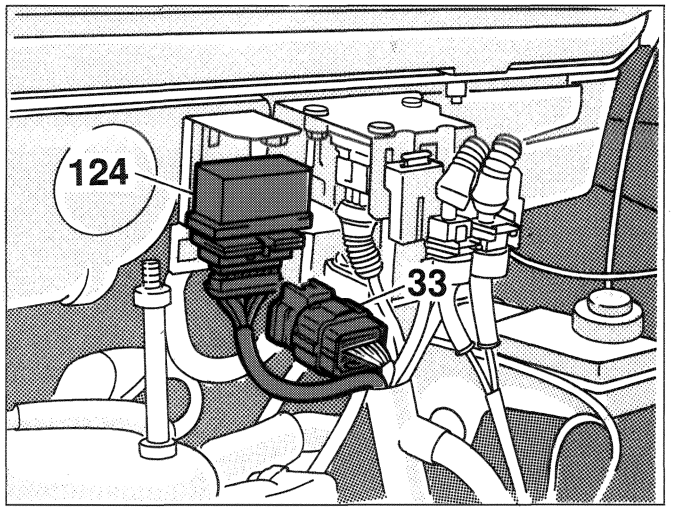
55D.

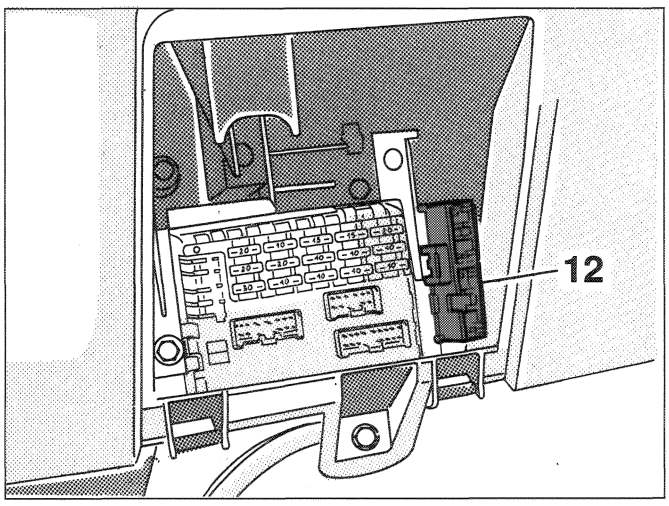
Location of components for starting - Ignition - Recharging

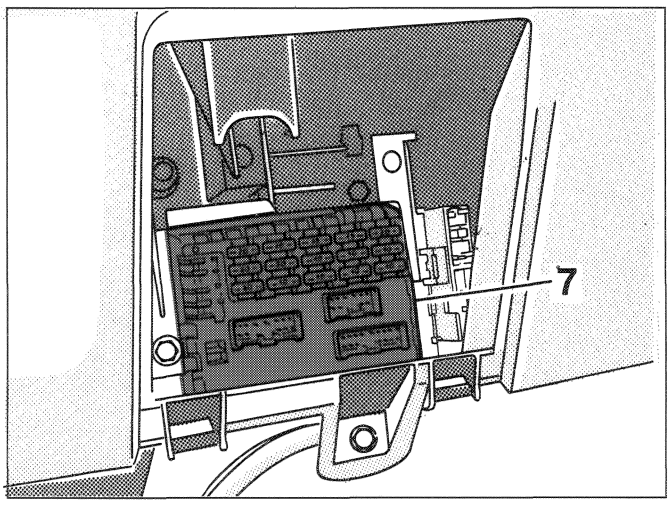








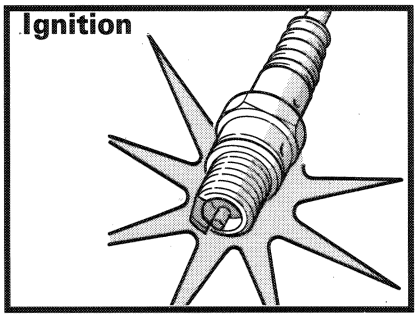




P3M206N02 P3M206N01

3M106N

Chart 2



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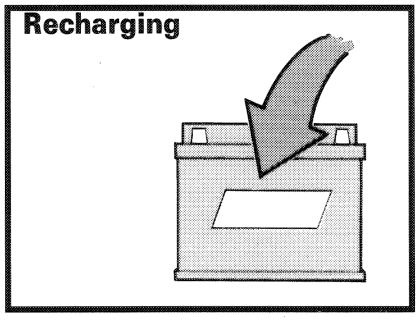

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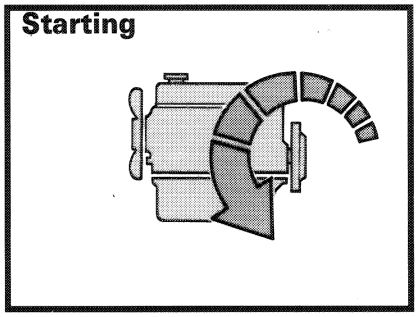


P3M201N02

GENERAL DESCRIPTION

Ignition:

All the systems and all the electrical equipment are supplied by the battery at a voltage of 12V.
The cables through which the battery voltage is distributed to the various consumers are represented in the wiring diagrams for the varoius functions and various systems. The I.A.W. (Weber injeciton/ignition) 8F.5T model belongs to the category of static advance digital electronic ignition and multiple type, non timed petrol injection systems i.e. where all the injectors are connected in parallel (FULL-GROUP) and inject half the quantity of fuel required to form the air/petrol mixture at the same time for each revolution of the crankshaft.

Starting and recharging:

The starting and recharging circuit is made up of the battery, the starter motor and the alternator.
The battery (12V) is the sealed type which is maintenance-free.
The starter motor consists of a direct current motor supplied by the battery and an operation and engagement solenoid.
When the ignition is switched on the voltage coming from the battery supplies the motor windings, creating electro-magnetic forces which cause the rotation of the motor pinion: at the same time the solenoid is energized which operates the pinion engagement mechanism in the flywheel ring gear, thereby causing the rotation of the crankshaft.
The alternator recharges the battery whilst the engine is rotating normally: the alternator shaft, which is rotated directly by the crankshaft through a belt, "cuts" the magnetic field generated by the stator winding producing an alternating current; this is transformed into a direct current by a diode rectifier bridge and is sent to recharge the battery.
A voltage regulator, incorporated in the alternator, allows the current supply to be kept at a constant voltage (around 12V) for all engine speed and load condition variations.

FUNCTIONAL DESCRIPTION

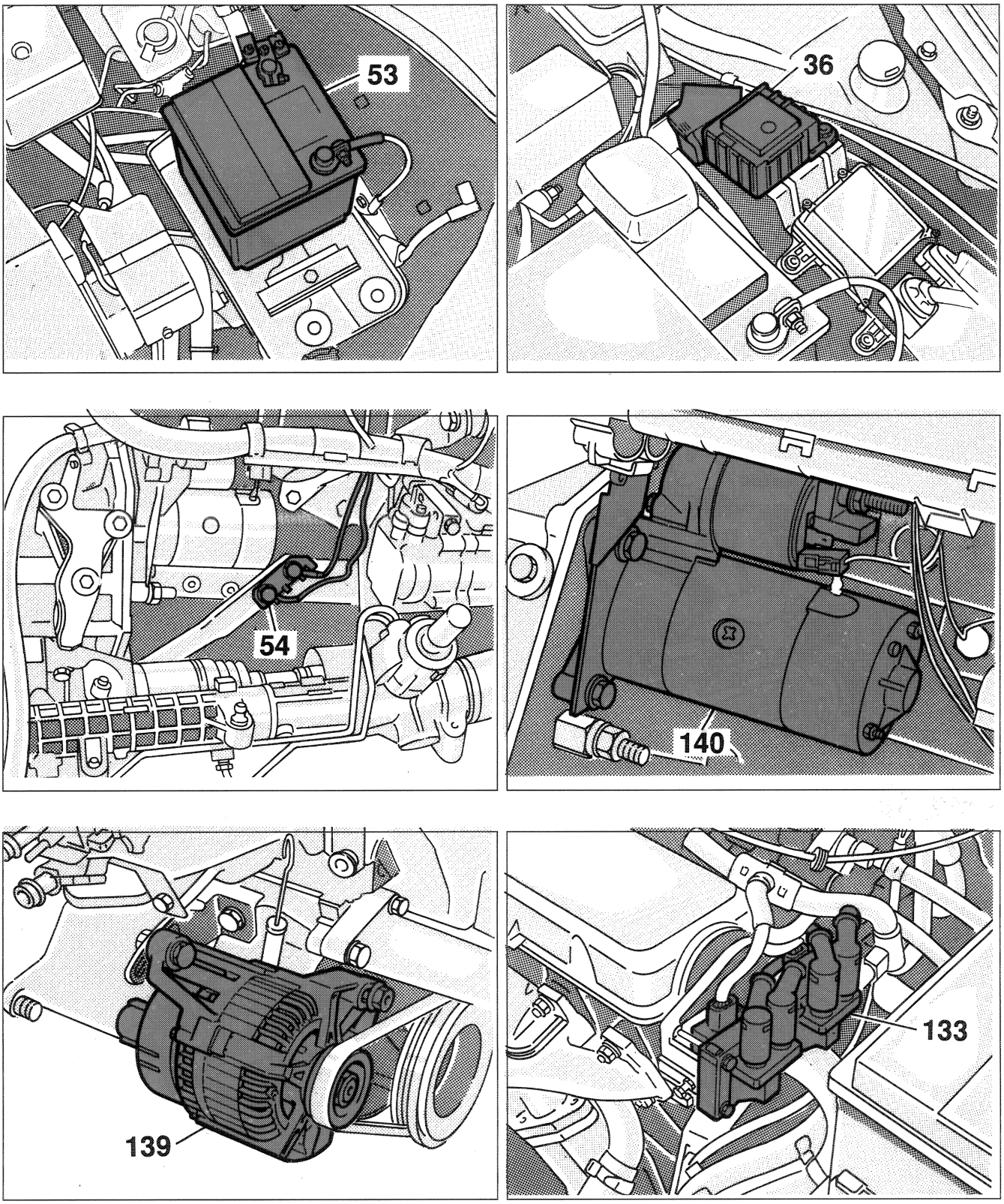
The same operating strategies and usage conditions for the components apply equally to many aspects of the MPI I.A.W. 8F.5T system fitted on the 1242 MPI version and the SPI systems fitted on the 1108 and 1242 versions.
The Weber-Marelli I.A.W. 8F.5T injection/ignition system uses an indirect measuring system known as the "SPEED - DENSITY - LAMBDA" type.
In pratice, the DENSITY OF THE AIR (pressure and temperature) and the ENGINE SPEED (rpm) are used to measure the amount of air drawn in by the engine.
Air density refers to the density of the air drawn in by the engine and is calculated according to the absolute pressure and temperature, both measured in the inlet manifold.
The quantity for air drawn in by each cylinder, for each engine cycle also depends on the unit capacity and the volumetric efficiency as well as on the density of the intake air.
Volumetric efficiency is the parameter relating to the filling coefficient for the cylinders measured during experimental tests on the engine in all operating conditions and then stored in the electronic control unit (ECU) memory.
Having established the quantity of air drawn in the system has to supply the amount of fuel in accordance with the desired mixture strength.
The information required for determining the air/petrol mixture so that this ratio is kept as close as possible to the stoichiometric ratio is obtained by suitable sensors and is transfored into electrical signals.

The sensors are as follows:
- Heated Lambda sensor (125)
- Potentiometer on the throttle valve (126)
- Water temperature sensor (127)
- Air temperature sensor (128)
- Absolute pressure sensor (129)
- Rpm and T.D.C. sensor. (137)

As far as the starting and recharging are concerned, refer to the 1108 and 1242 SPI versions.

55D.

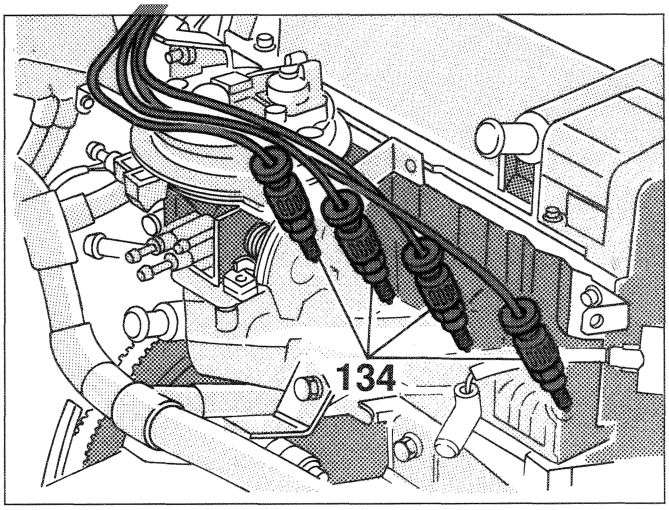
Location of components for starting - Ignition - Recharging

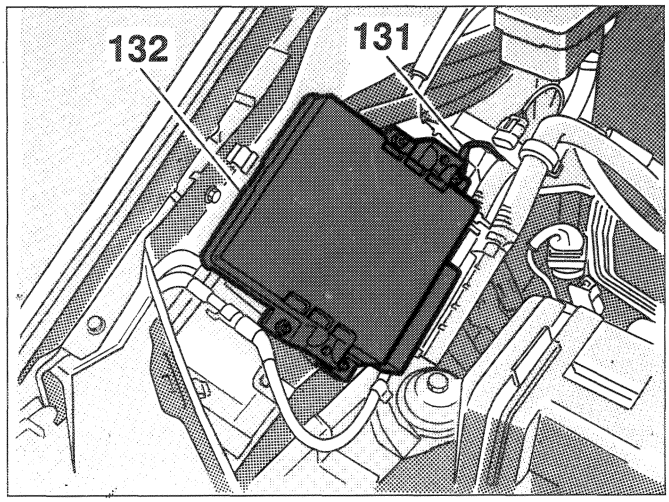


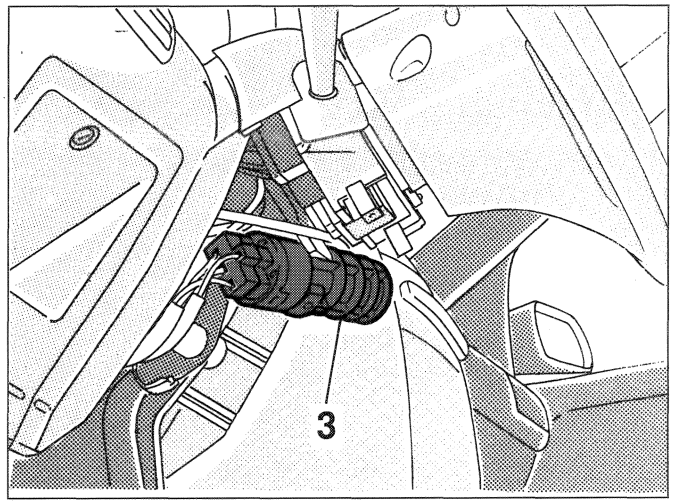
P3M208N02 P3M208N01

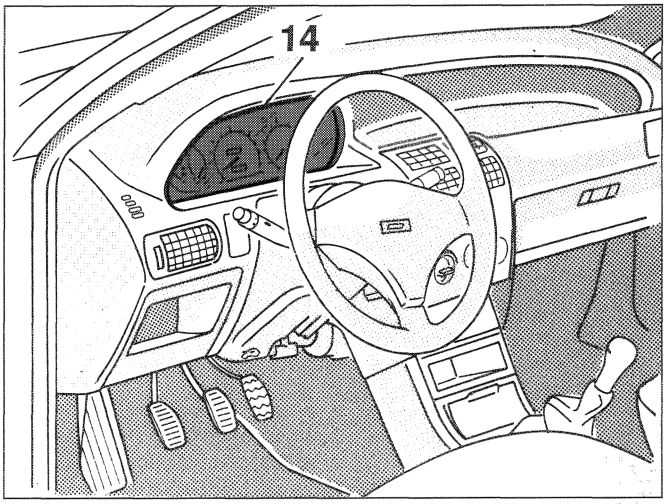
3M108N

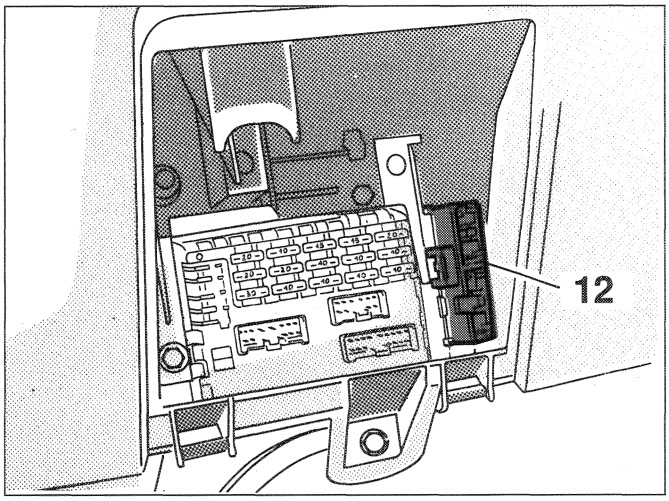
Location of components for starting - Ignition - Recharging

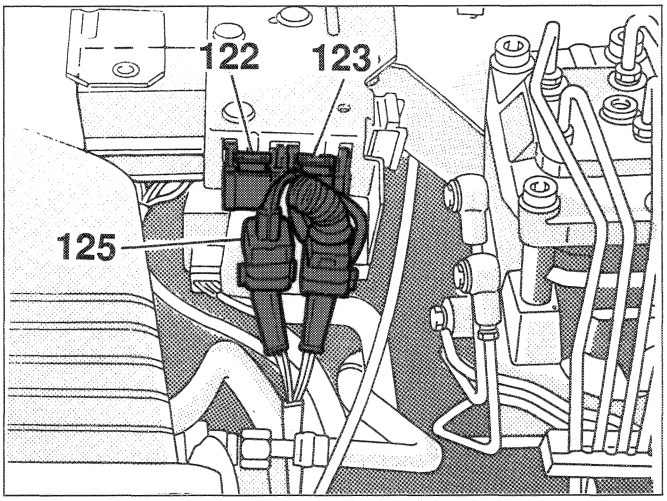






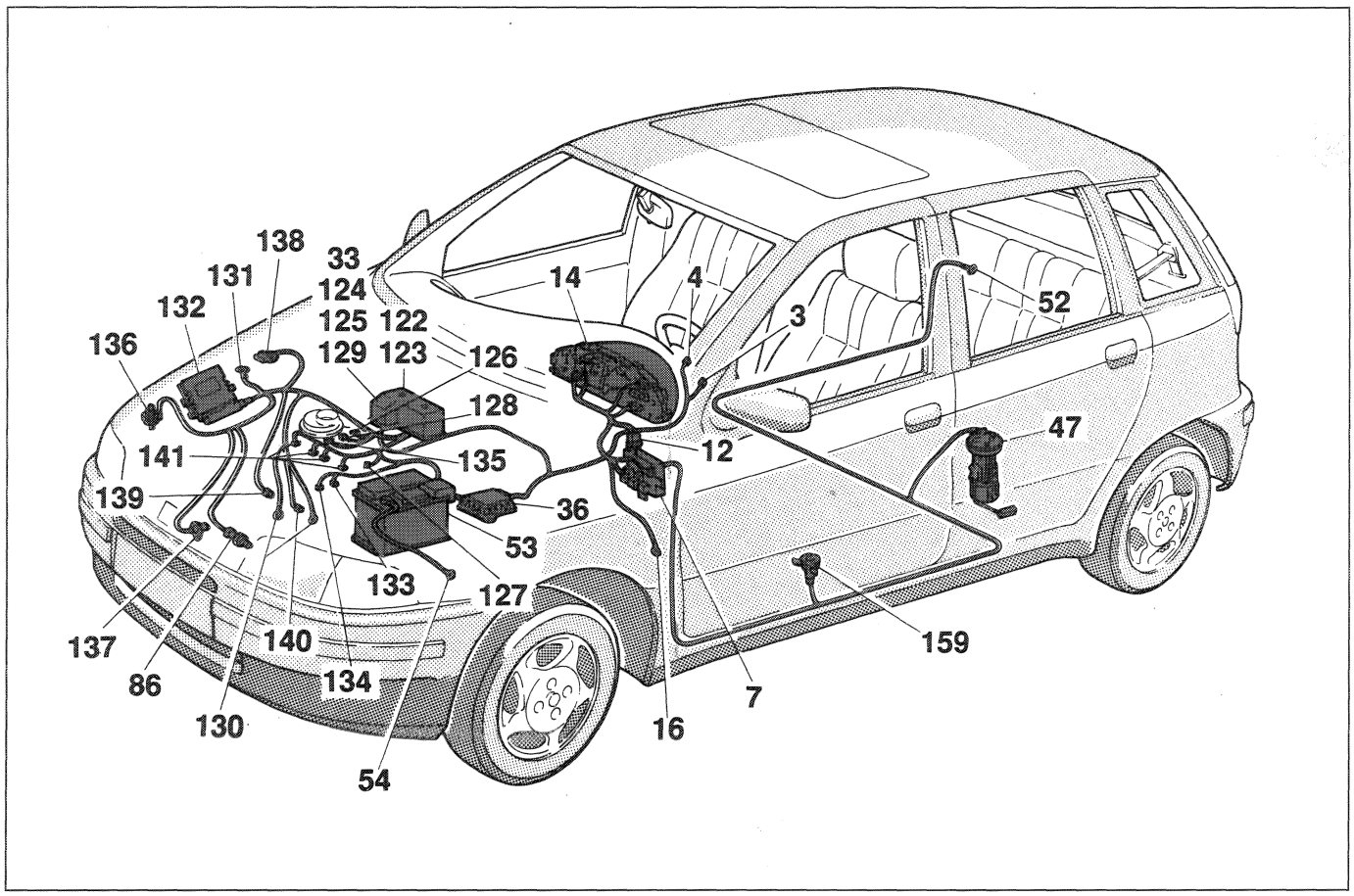






P3M208N02 P3M209N01

3M109N



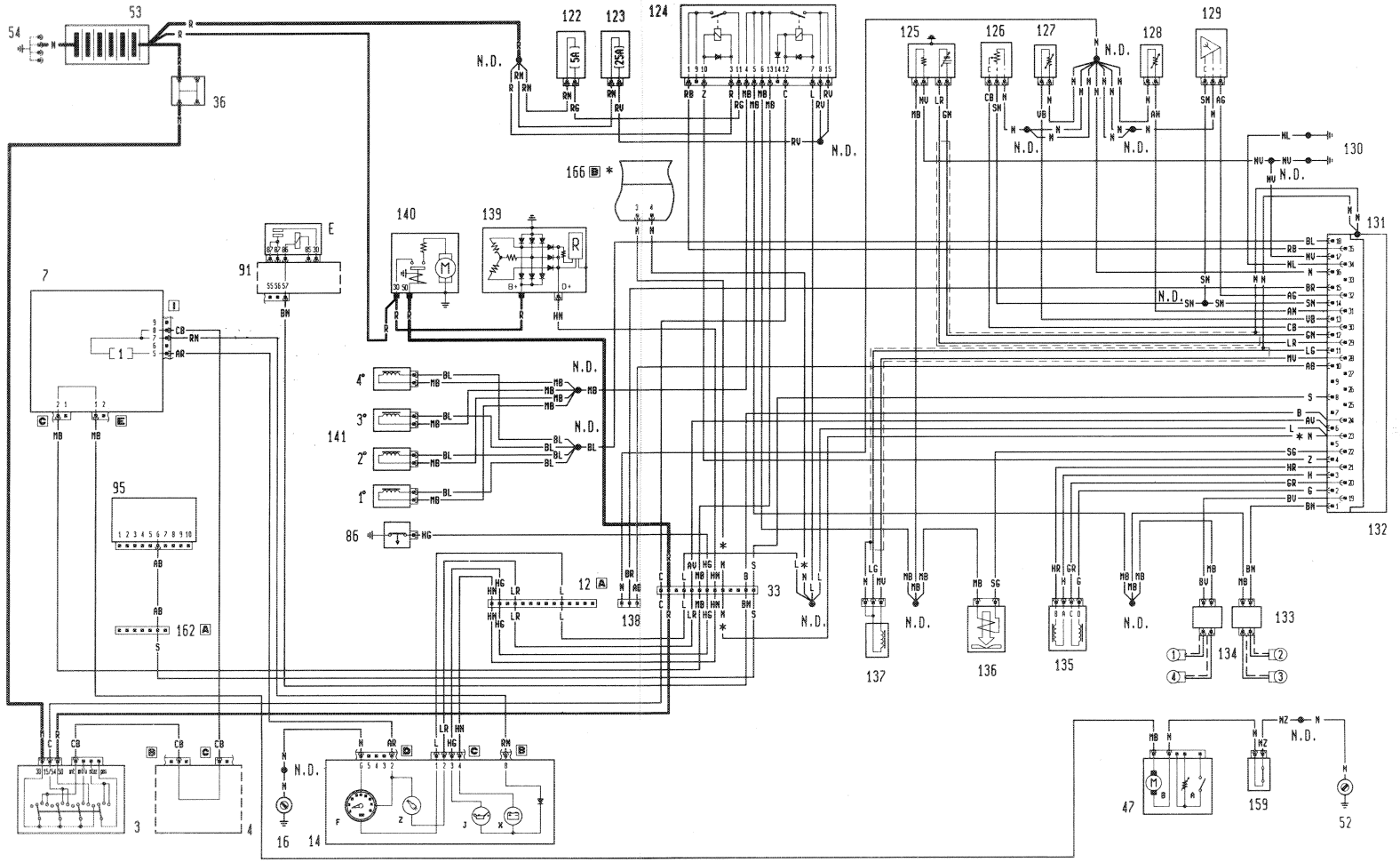
P3M210N02 P3M210N01

Wiring for starting - Ignition and electronic injection I.A.W 8F.5T - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
12 Connection between dashboard cables and front cables
14 Instrument panel :
F Rev counter
J Insufficient engine oil pressure warning light
Z Injection system failure warning light
X Battery recharging warning light
16 Left dashboard earth
33 Connection for front cables
36 Connector block
47 Fuel level gauge / Electric fuel pump
52 Right rear earth
53 Battery
54 Earth for battery
86 Switch signalling insufficient engine oil pressure
91 Fuse and relay control box for air conditioning :
E Compressor coupling relay
95 Air conditioning system electronic control unit
122 5A protective fuse for injection system
123 25A protective fuse for injection electric pump, Lambda sensor and injectors
124 Multiple relay
125 Heated Lambda sensor
126 Potentiometer on throttle valve
127 Water temperature sensor
128 Air temperature sensor
129 Absolute pressure sensor
130 Earth on engine
131 Earth on control unit
132 I.A.W. electronic injection and ignition control unit
133 Ignition coil unit
134 Spark plugs
135 Stepping actuator
136 Canister solenoid valve
137 Rpm and T.D.C. sensor.
138 Diagnostic socket for injection system
139 Alternator
140 Starter motor
141 Injectors
159 Electric fuel pump deactivation switch
162 Connection for air conditioner unit cables
166 Anti-theft device electronic control unit
N.D. Connectors

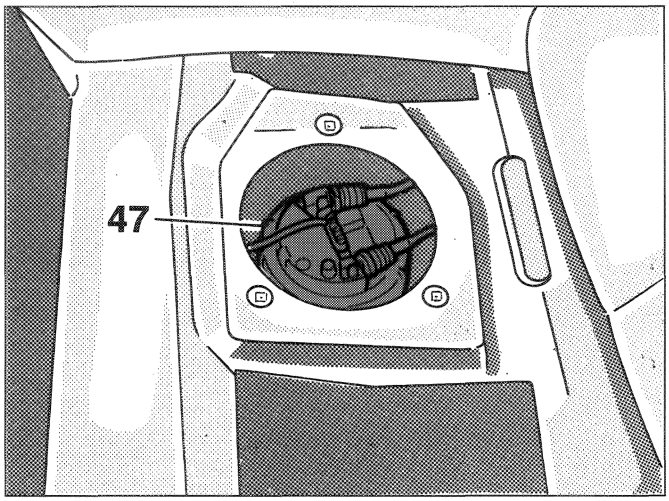
Starting - Ignition and electronic injection I.A.W 8F.5T - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter

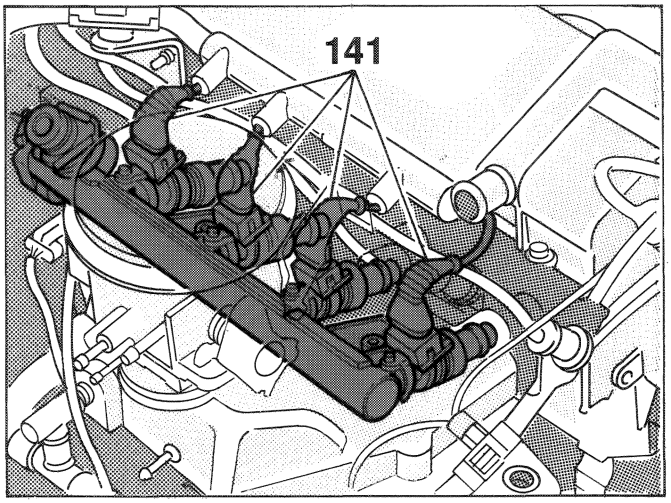


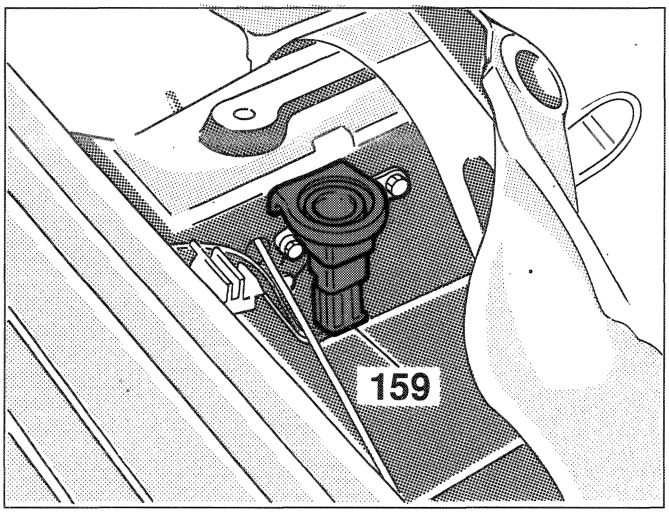
* Variant connection for the version with the anti-theft device

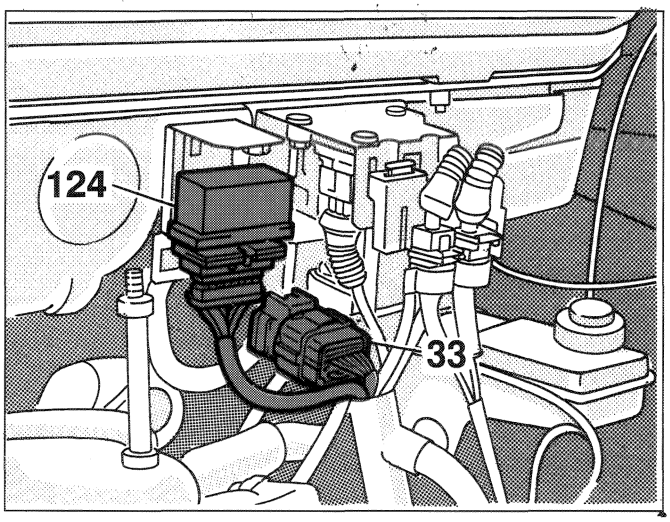
55D.

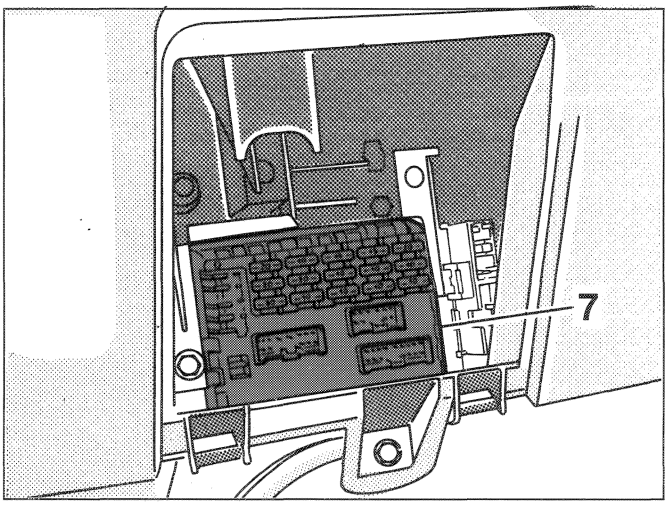
Location of components for starting - Ignition - Recharging

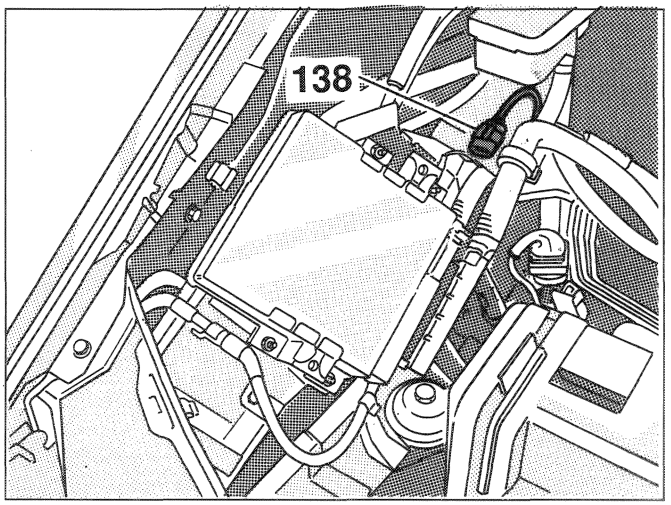








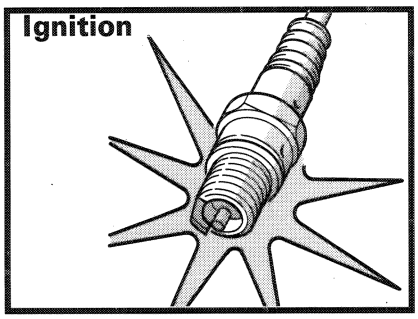




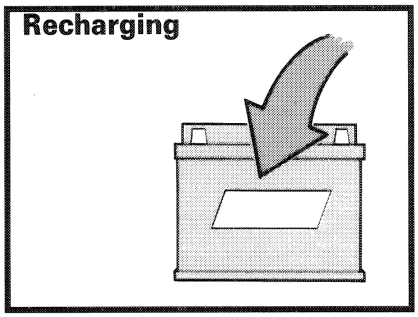
P3M212N02 P3M212N01

3M112N

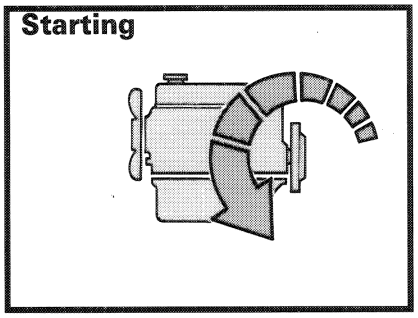
Chart 3



P3M201N03



P3M201N01



P3M201N02

GENERAL DESCRIPTION

Ignition:

All the systems and electrical equipment are supplied by the battery at a voltage of 12V.
The cables through which the battery voltage is distributed to the various consumers are represented in the wiring diagrams for the various function and various systems. The injection/ignition system fitted on the 1372 turbo version of the PUNTO belongs to the generation of integrated fuel injection/ignition systems developed by Bosch.
The injection system is the multiple injector type (Multi-Point), one per engine cylinder, supplied at a low pressure and operated directly by the control unit in a SEUQUENTIAL AND TIMED fashion.
This device ensures efficient operation, fuel economy and the maximum possible reduction in harmful exhaust emissions because all Bosch Motronic M2.7 systems conform to the USA '83 pollution control regulations. Lastly, it is important to bear in mind that no adjustments can be made on this type of system to the engine idle speed; the position of the throttle valve sensor and the CO content in the exhaust gases.

Starting and recharging:

The starting and recharging circuit is made up of the battery, the starter motor and the alternator.
The battery (12V) is the sealed type which is maintenance-free.

The starter motor consists of a direct current motor supplied by the battery and an operation and engagement solenoid valve.

When the ignition is switched on the voltage coming from the battery supplies the motor windings, creating electro-magnetic forces which cause the rotation of the motor pinion: at the same time the solenoid is energized which operates the pinion engagement mechanism in the flywheel ring gear, thereby causing the rotation of the crankshaft.
The alternator recharges the battery whilst the engine is rotating normally: the alternator shaft, which is rotated directly by the crankshaft through a belt "cuts" the magnetic field generated by the stator winding producing an alternating current; this is transformed into a direct current by a diode rectifier bridge and is sent to recharge the battery.
A voltage regulator, incorporated in the alternator, allows the current supply to be kept at a constant voltage (around 12V) for all engine speed and load condition variations.

FUNCTIONAL DESCRIPTION

The supply comes from the battery (53), from where there are numerous cables which directly supply several systems including the connector block (36), which is connected directly to the ignition switch (3).
The alternator (139) is connected directly to the starter motor (140) in order to allow the recharging of the battery.

When the ignition key (3) is inserted and turned to the first position this switches the ignition ON supplying numerous circuits which are known as "controlled by the ignition key".

The second position is "STARTING", directly supplying the starter motor and no longer supplying a current to all those circuits which absorb directly, thereby ensuring a maximum flow to the actual engine.
In the last analysis we shall asses the "PARK" position which supplies the side lights with the ignition key in, which is possible by turning the key in the opposite direction (pressing the special button on the ignition switch).

The ignition system is made up of:

A. A power module (188) outside the control unit which passes a current through the ignition coil (133) primary circuit in order to energize it completely and then instantly cut off the flow of this current to create a very high tension in the secondary winding and cause a spark at the spark plug.

B. An ignition coil (133) with four high tension terminals, made up of two primary windings (supplied by the battery voltage) and two secondary ones (high tension) directly connected to the spark plugs for the cylinders.

The information required by the control unit (119) to operate the power module (188), is transmitted via electrical signals emitted by the following two sensors:

a) RPM AND TDC SENSOR (137) which produces a single-phase alternating signal with the frequency indicating the engine speed.

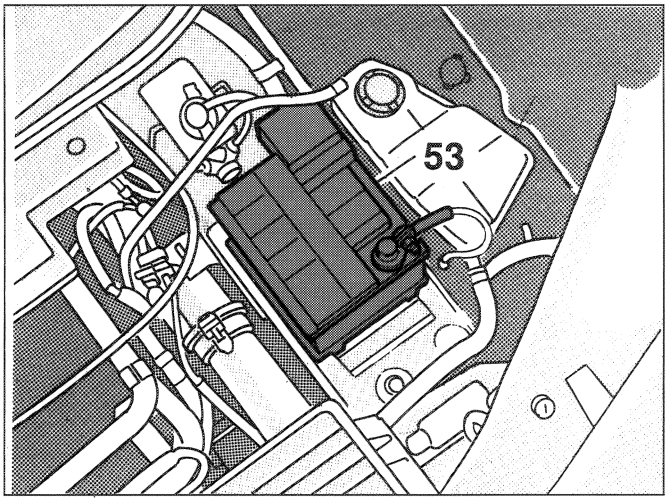
b) AIR FLOW METER (202) which, on the basis of the quantity of air drawn in by the engine, transforms this value into an electrical signal, sending it to the control unit (119).

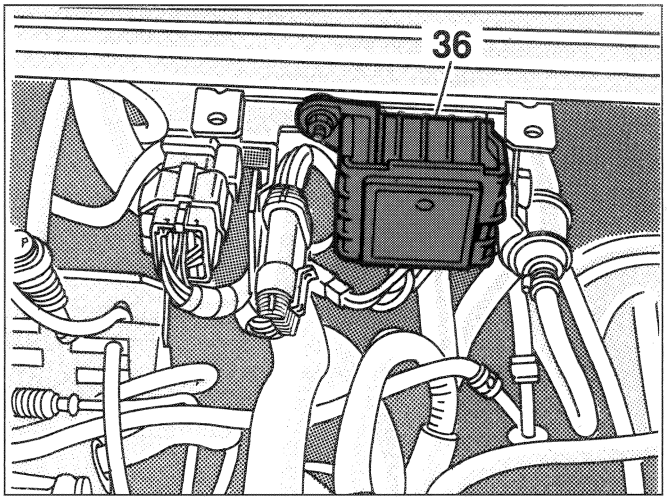
Fault diagnosis

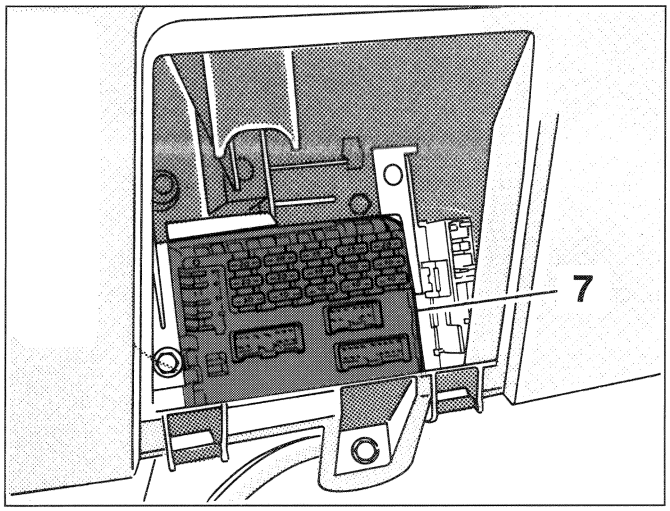
Accompaniment to illustration table

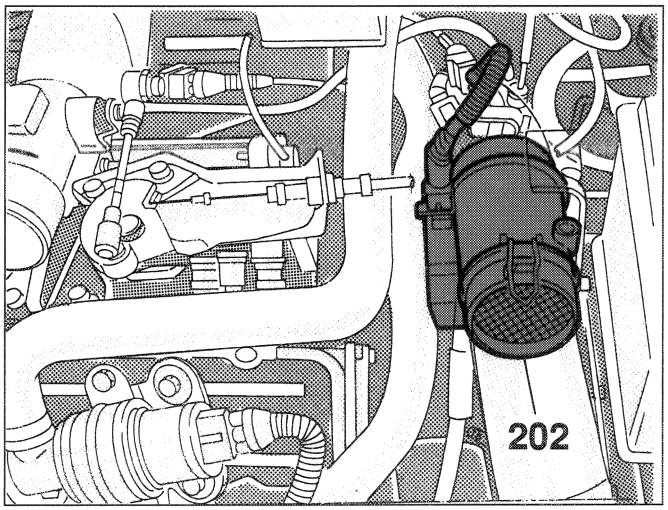
55D.

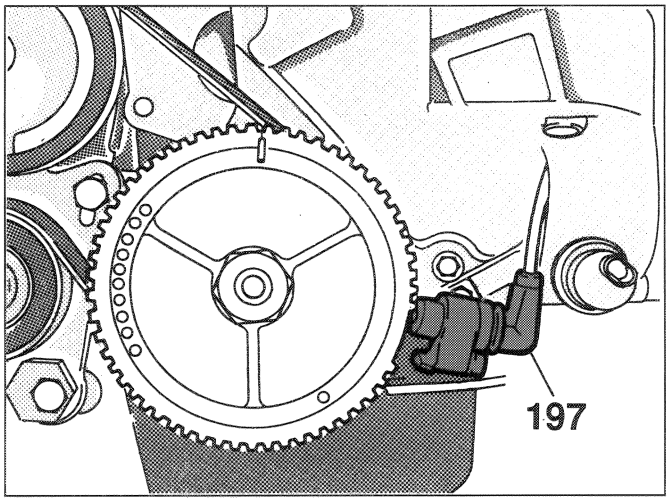
Location of components for starting - Ignition - Recharging

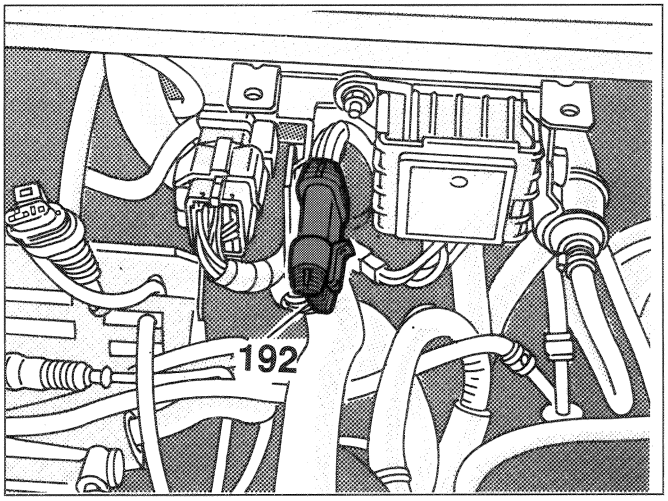








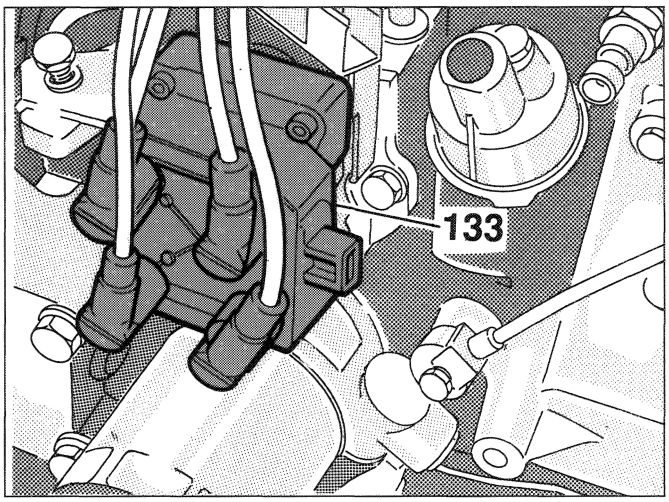


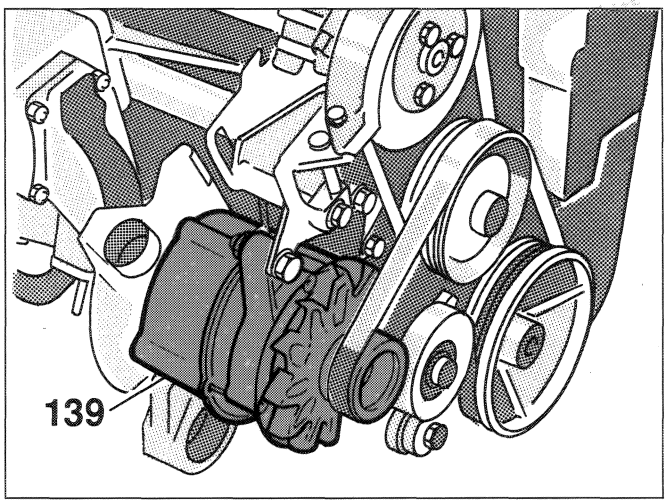


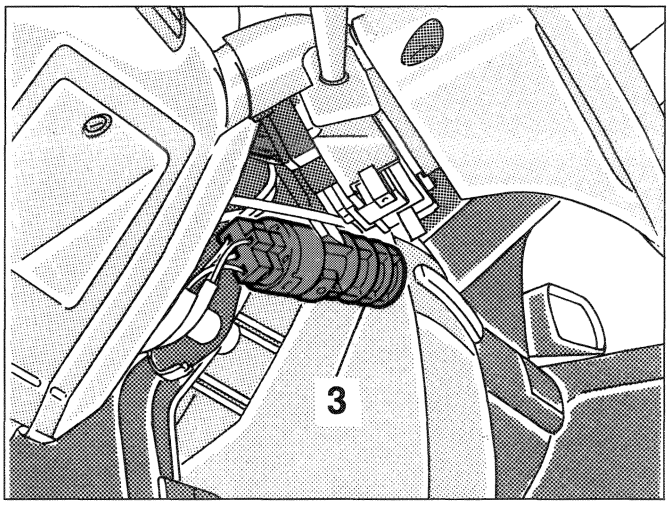
P3M214N02 P3M214N01

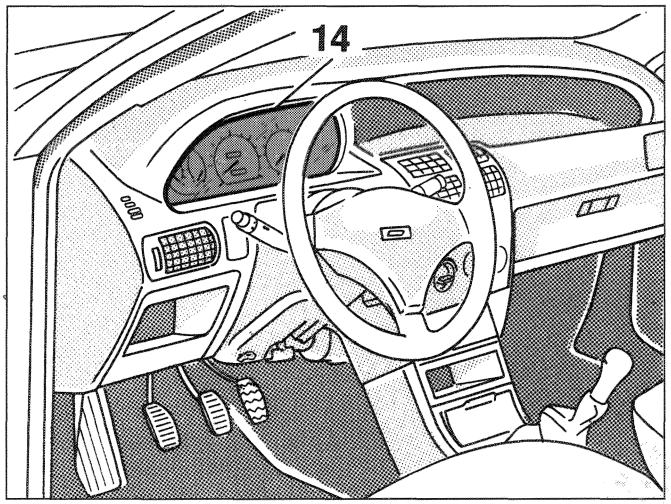
3M114N

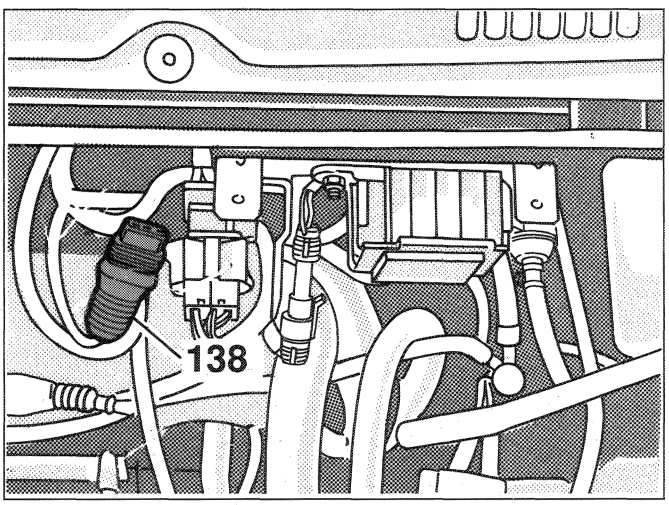
Location of components for starting - Ignition - Recharging

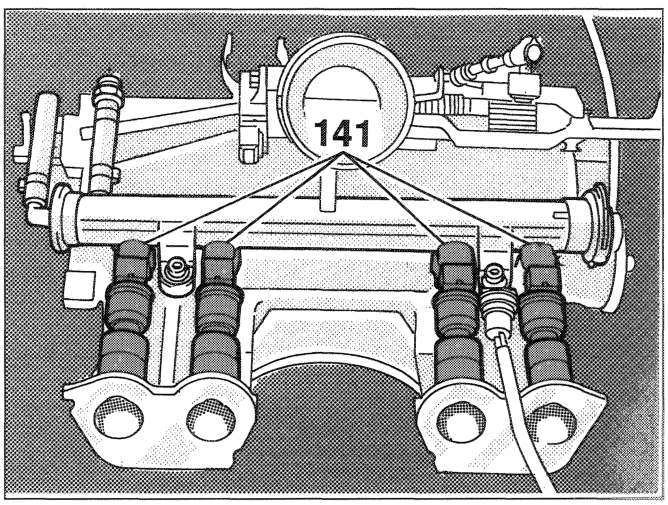






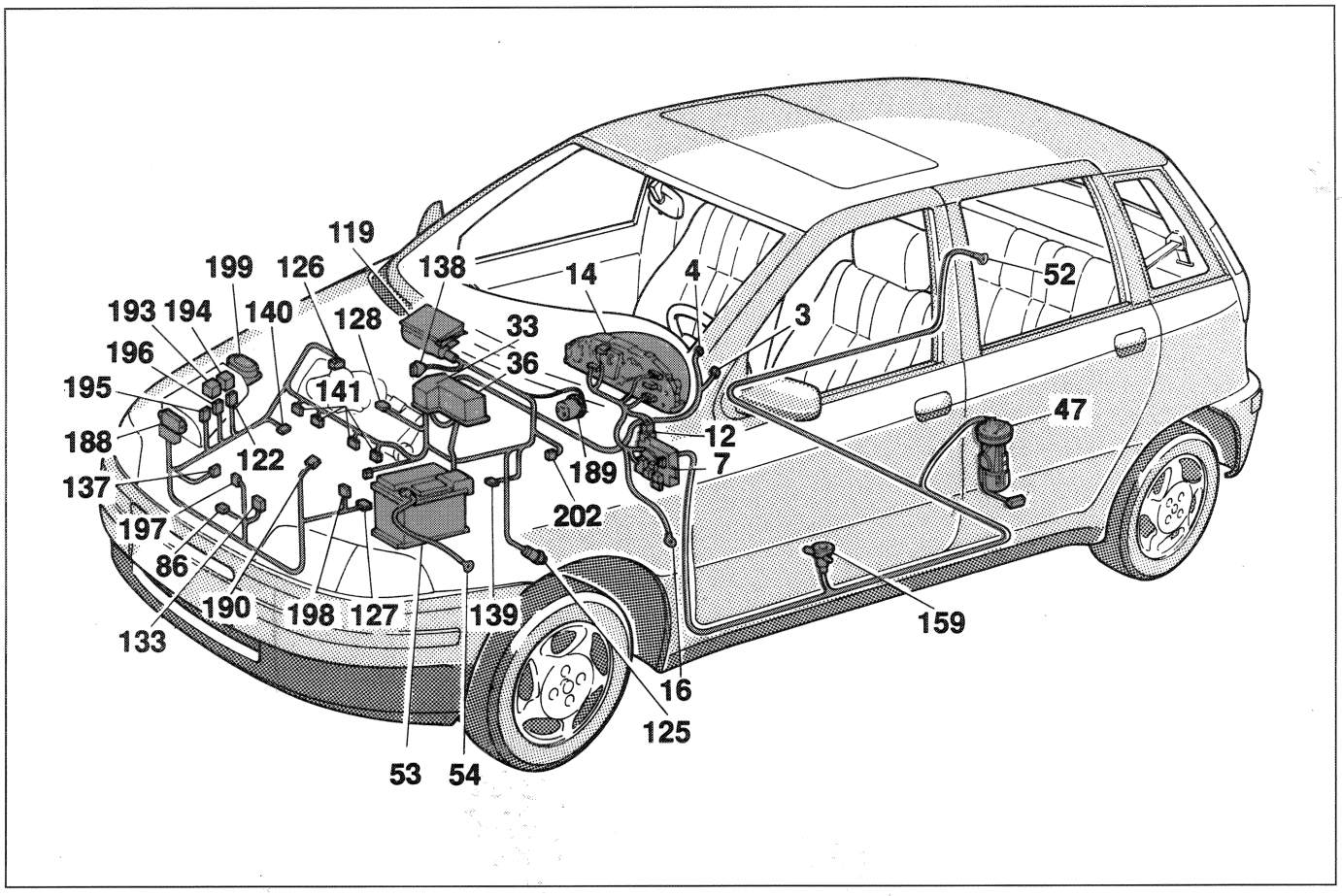






P3M215N02 P3M215N01

3M115N



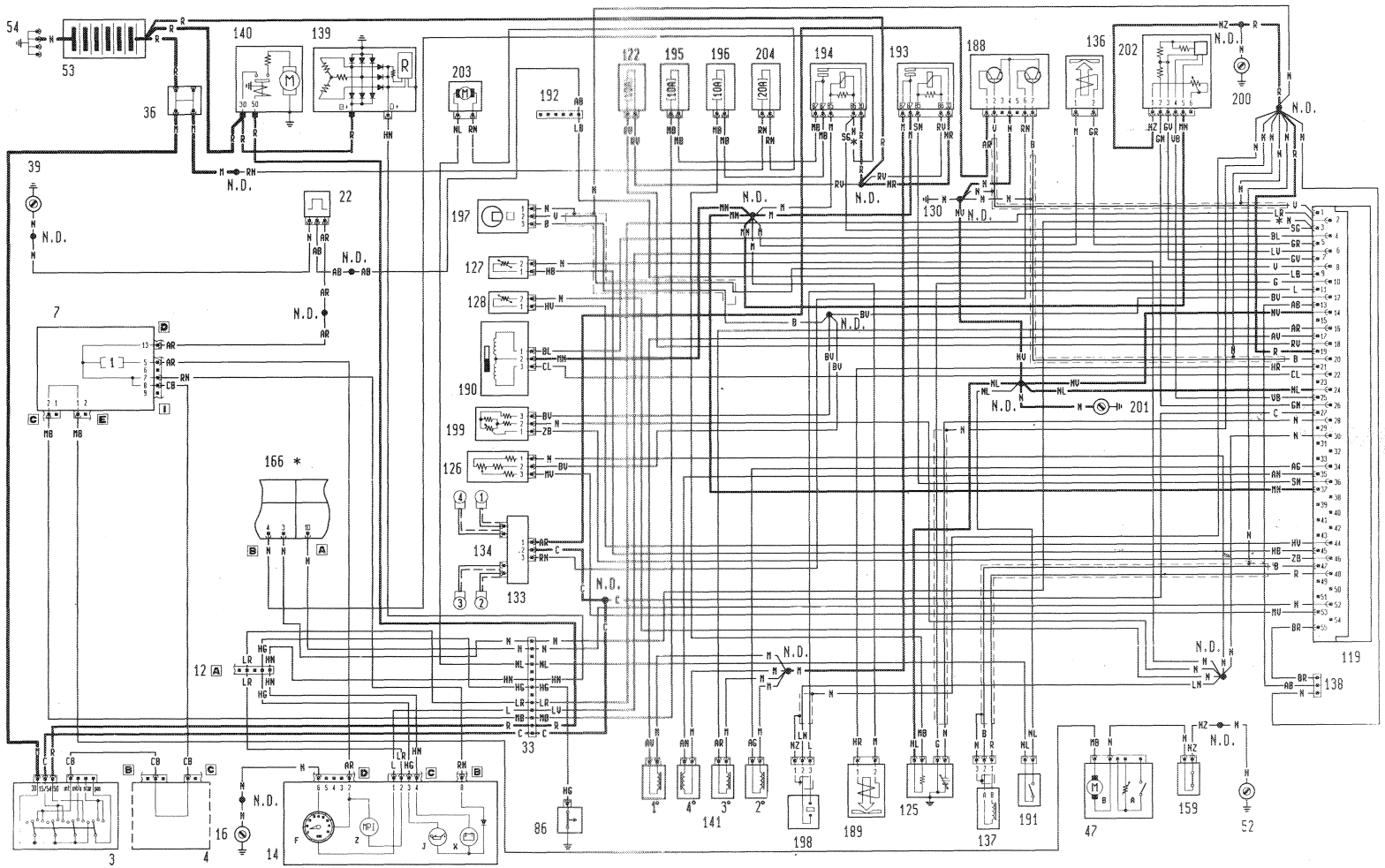
P3M216N02 P3M216N01

Wiring for starting - Motronic electronic ignition and injection (Bosch) - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
12 Connection for dashboard cables with front cables
14 Instrument panel :
F Rev counter
J Insufficient engine oil pressure warning light
Z Injection system failure warning light
X Battery recharging warning light
16 Left dashboard earth
22 Impulse generator for speedometer signal
33 Connection for front cables
36 Connector block
39 Left front earth
47 Fuel level gauge / Electric fuel pump
52 Right rear earth
53 Battery
54 Earth for battery
86 Switch signalling insufficient engine oil pressure
119 Fuel injection control unit BOSCH (1372 Turbo i.e.)
122 10A protective fuse for injection system
125 Heated Lambda sensor
126 Potentiometer on throttle valve
127 Water temperature sensor
128 Air temperature sensor
130 Earth on engine
133 Ignition coil unit
134 Spark plugs
136 Canister solenoid valve
137 Rpm and T.D.C. sensor.
138 Diagnostic socket for injection system
139 Alternator
140 Starter motor
141 Injectors
159 Electric pump deactivataing switch
166 Anti-theft device electronic control unit
188 Power module
189 Pierburg solenoid valve (Waste-Gate)
190 Idle adjustment actuator
191 Injector cooling fan switch
192 Connection for front cables
193 Injection system relay feed
194 Relay for Lambda sensor, electric fuel pump
195 10A protective fuse for electric fuel pump
196 10A protective fuse for Lambda sensor
197 Timing sensor
198 Detonation sensor
199 Distance correcter
200 Earth signal
201 Power earth
202 Air flow meter
203 Injector cooling fan
204 20A protective fuse for injector cooling
N.D. Connectors

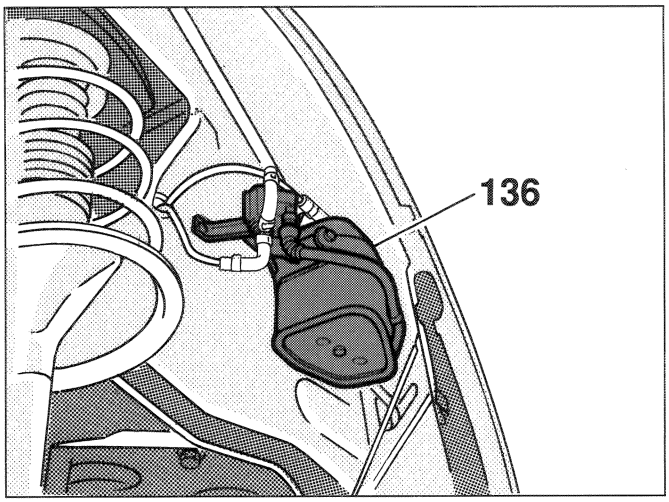
Starting - Motronic electronic ignition and injection (Bosch) - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - Rev counter

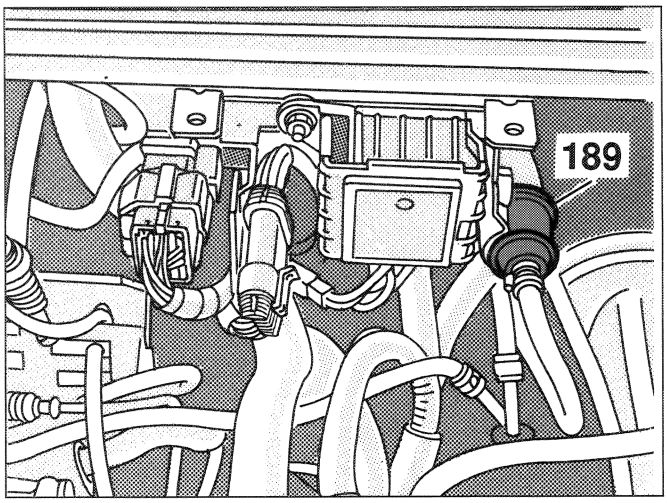


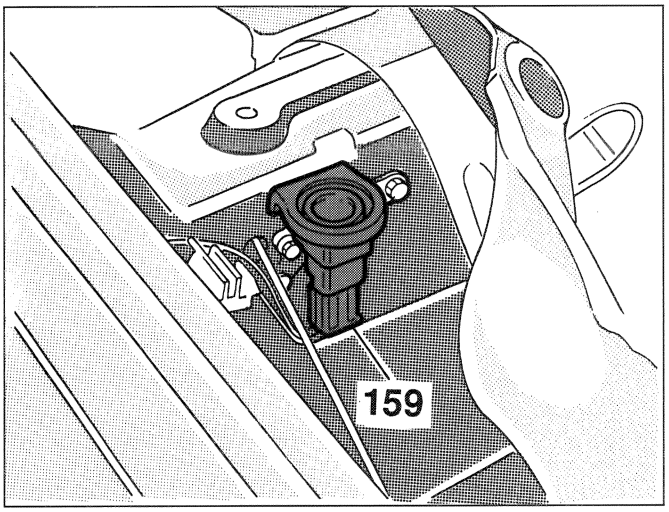
* Variant connections for versions with anti-theft device

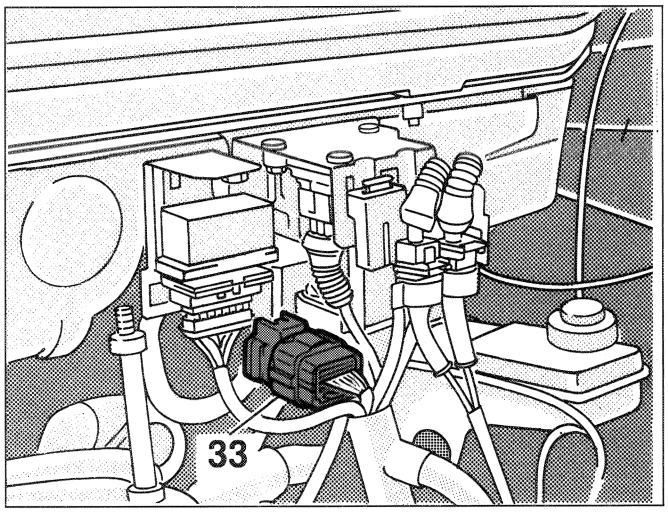
55D.

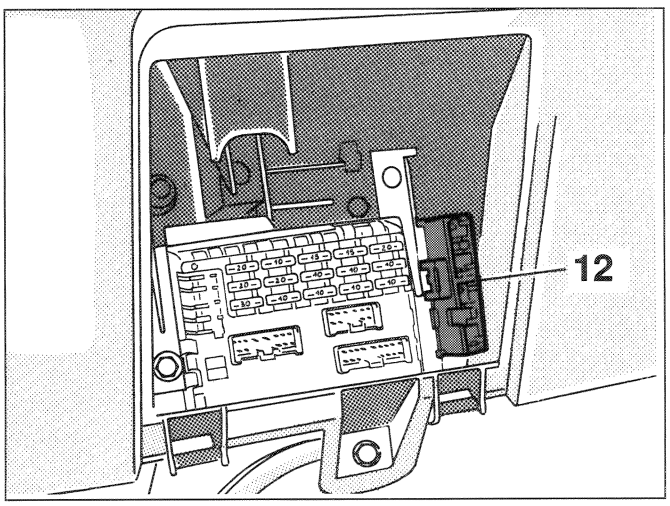
Location of components for starting - Ignition - Recharging







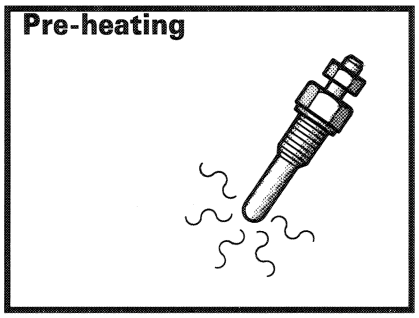




P3M218N02 P3M218N01

3M118N

Chart 4



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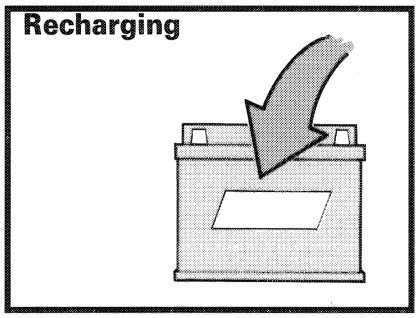

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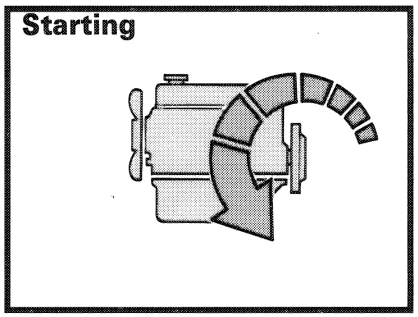


P3M201N02

GENERAL DESCRIPTION

Ignition:

All the systems and all the electrical equipment are supplied by the battery at a voltage of 12V.
The cables through which the battery voltage is distributed to the various consumers are represented in the wiring diagrams for the various functions and various systems.
There are circuits which are constantly supplied, even with the vehicle stationary and the ignition switched off, as they connected directly to the battery, such as, for example the vehicle brake lights.
Other circuits are supplied when the ignition is switched to the various positions.

Starting and recharging:

The starting and recharging circuit is made up of the battery, the starter motor and the alternator.
The battery (12V) is the sealed type which is maintenance-free.

The starter motor consists of a direct current consists of a direct current supplied by the battery and an operation and engagement solenoid.
When the ignition is switched on the voltage coming from the battery supplies the motor windings, creating electro-magnetic forces which cause the rotation of the motor pinion: at the same time the solenoid is energized which operates the pinion engagement mechanism in the flywheel ring gear, thereby causing the rotation of the crankshaft.
The alternator recharges the battery whilst the engine is rotating normally: the alternator shaft, which is rotated directly by the crankshaft through a belt "cuts" the magnetic field generated by the stator winding producing an alternating current; this is transformed into a direct current by a diode rectifier bridge and is sent to recharge the battery.
A voltage regulator incorporated in the alternator allows the current supply to be kept at a constant voltage (around 12V) for all engine speed and load conditions.

FUNCTIONAL DESCRIPTION

The supply comes from the battery (53), from where there are numerous cables which directly supply several systems including the connector block (36), which is connected directly to the ignition switch (3).
The alternator (139) is connected directly to the starter motor (140) in order to allow the recharging of the battery.

When the ignition key (3) is inserted and turned to the first stage this is the ON position supplying numerous circuits which are defined as "controlled by the ignition key".

The second position is "STARTING UP" where the starter motor is supplied directly with the current no longer reaching all those circuits which absorb directly, thereby ensuring a maximum flow to the actual motor.
In the last analysis we shall evaluate the "PARK" position which supplies the side lights with the ignition key in, which is achieved by turning the ignition key in the opposite direction (pressing on the special button on the ignition switch).
Starting in diesel engines takes place with the assistance of different components compared with petrol engines, such as, for example heater plugs; this means that once the ignition is switched to the ON positin it is necessary to wait until the heater plugs warning light (14-S) in the dashboard goes out after which the engine can be started up.
The electronic pre-heating system is composed of:
- an electronic control unit in the engine compartment (205);
- four heater plugs in the engine ante-chambers (206);
- a heater plugs warning light (14-S) in the dashboard.

The aim of the above device is to ensure the following functions:

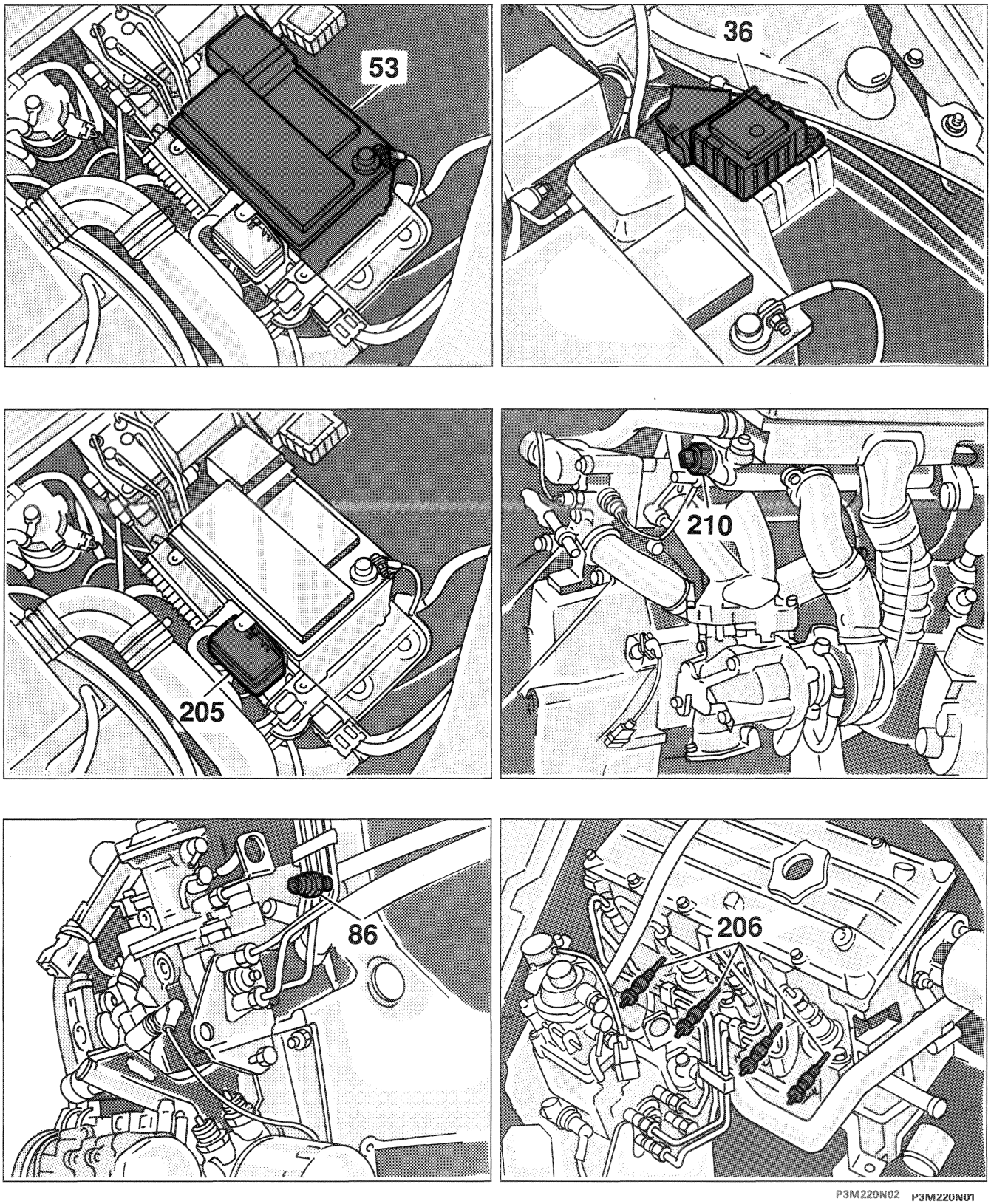
1. To supply a high pre-heating current from the battery to the heater plugs for a time which varies according to the temperture in the engine compartment, before carrying out the starting.

2. To keep the heater plugs warning light on for a length of time which varies according to the temperature in the engine compartment, then to switch it off so that the engine can be started up.

3. To ensure, for about 20 secs, that the heater plugs (206) still remain supplied if the engine has not been started up within this period the pre-heating electronic control unti (205) has to interrupt the current suply.

55D.

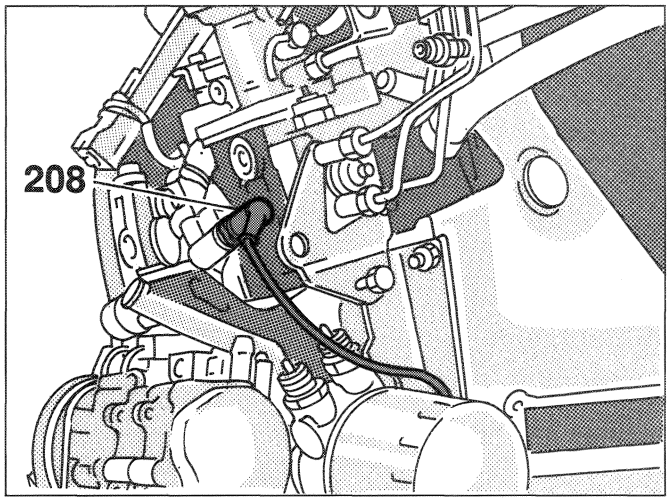
Location of components for starting - Pre-heating system - Recharging

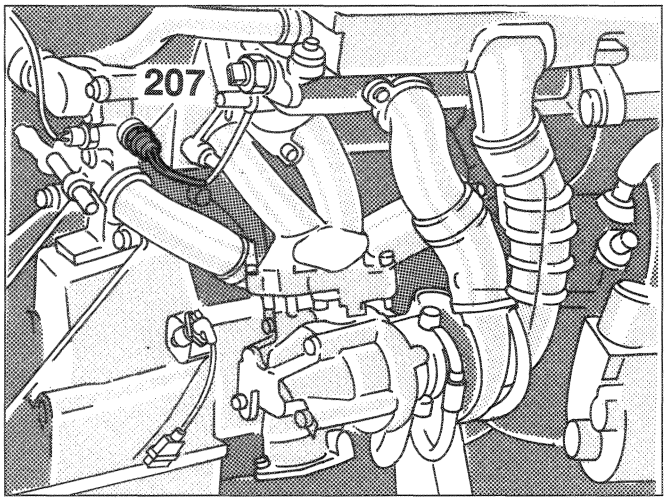


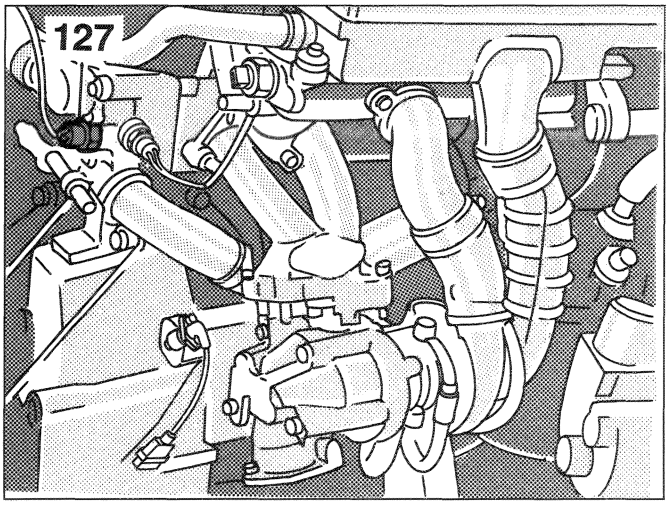
P3M220N02 P3M220N01

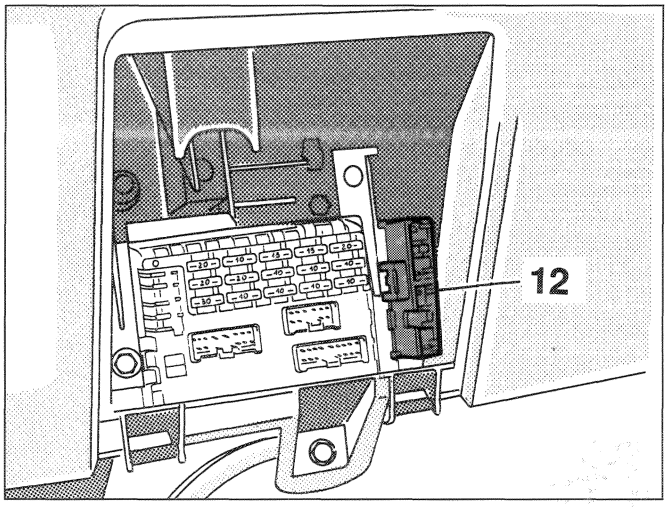
3M120N

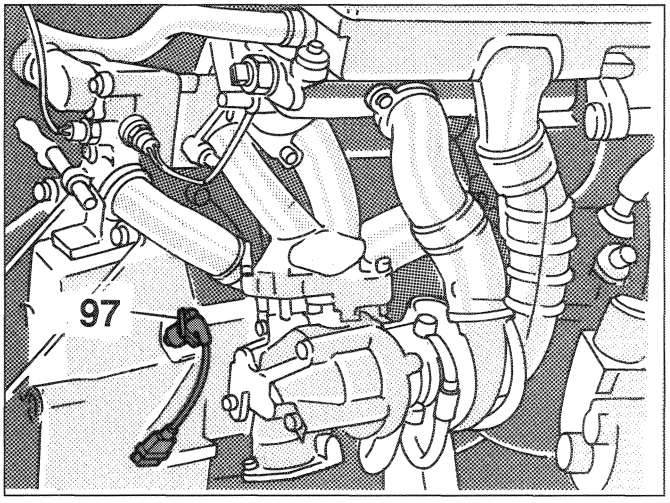
Location of components for starting - Pre-heating system - Recharging

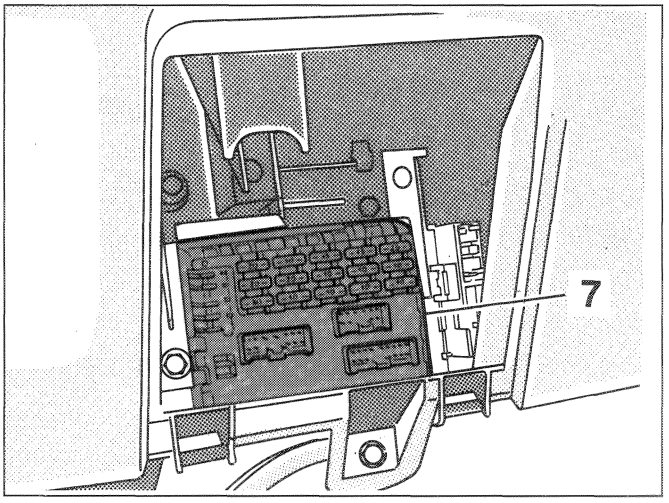






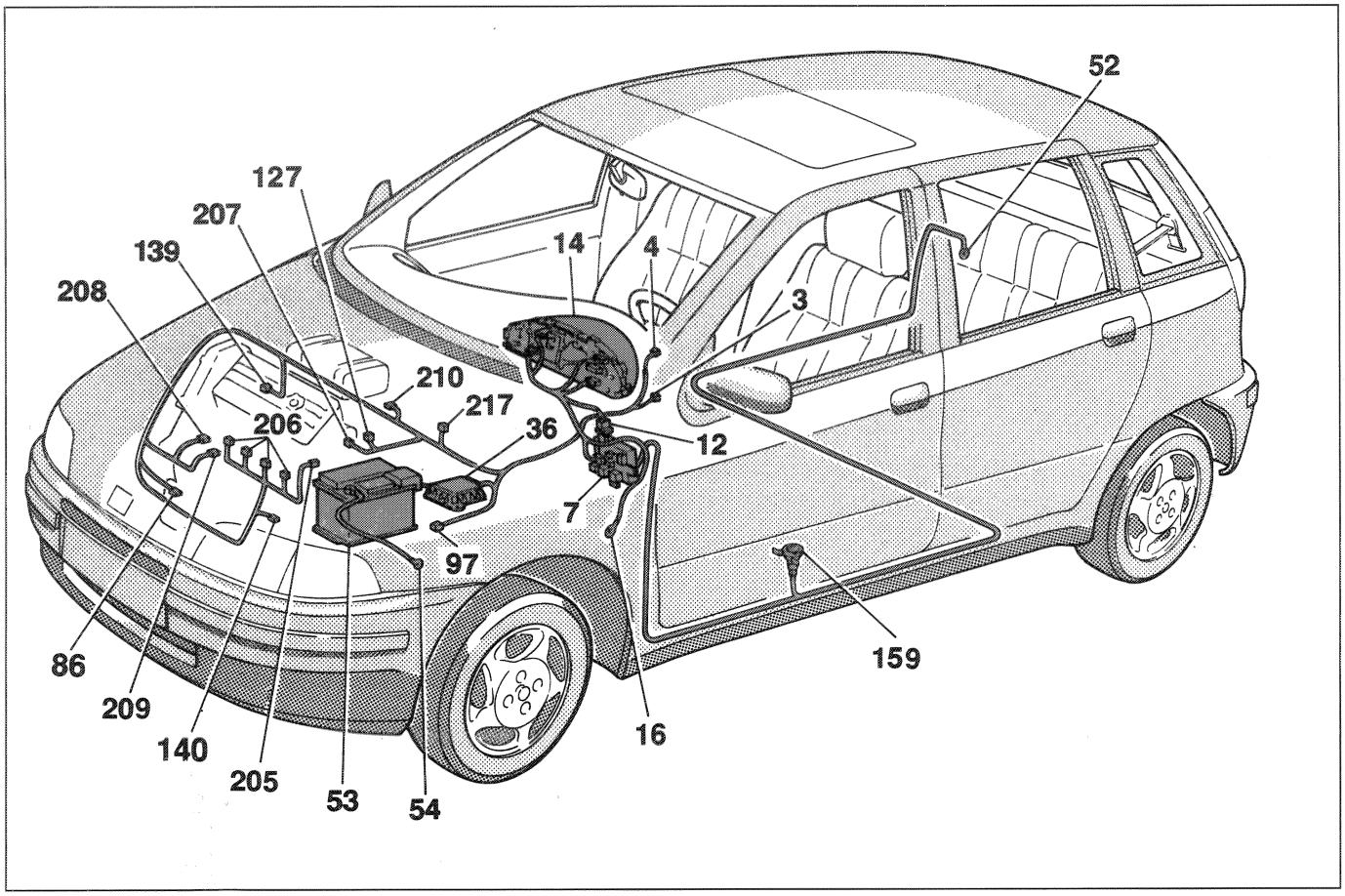






P3M221N02 P3M221N01

3M121N



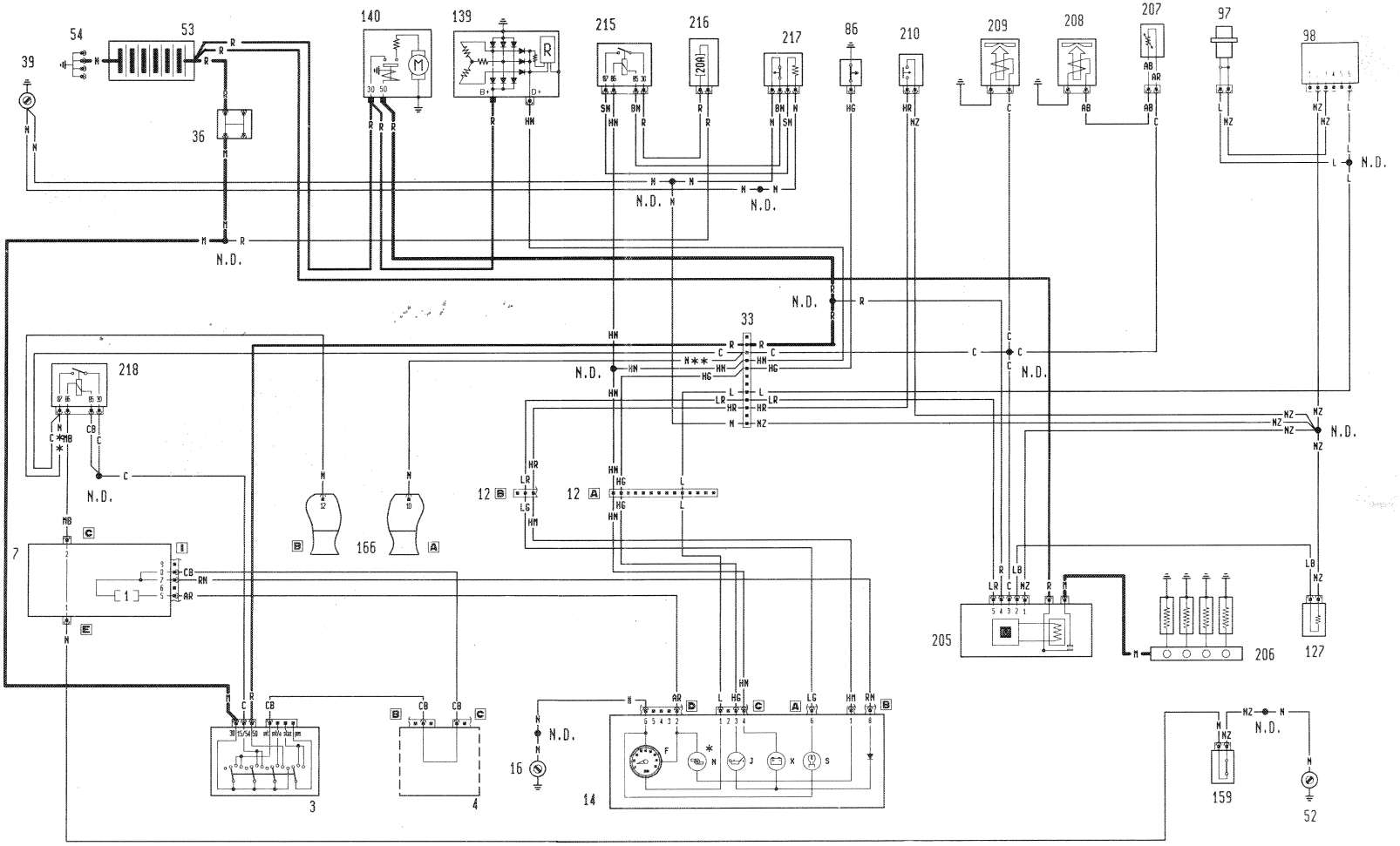
P3M222N02 P3M222N01

Wiring for starting - Pre-heating system and heater plugs warning light - Recharging and warning light - Insufficient engine oil pressure warning light - Maximum turbocharging pressure warning light - Rev counter

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
12 Connection for dashboard cables with front cables
14 Instrument panel :
F Rev counter
J Insufficient engine oil pressure warning light
N Maximum turbocharging pressure warning light
S Heater plugs warning light
X Battery recharging warning light
16 Left dashboard earth
33 Connection for front cables
36 Connector block
39 Left front earth
52 Right rear earth
53 Battery
54 Earth for battery
86 Switch signalling insufficient engine oil pressure
97 Rpm sensor
98 Compressor deactivating control unit (Bitron)
127 Water temperature sensor
139 Alternator
140 Starter motor
159 Electric fuel pump deactivating switch
166 Anti-theft electronic control unit
205 Pre-heating electronic control unit
206 Heater plugs
207 Water temperature sensor for K.S.B.
208 K.S.B. solenoid valve
209 Solenoid valve on injection pump
210 Switch signalling maximum turbocharging pressure
215 Heated fuel filter relay feed
216 20A protective fuse for heated fuel filter
217 Heated fuel filter
218 Injection system relay feed (Turbo Diesel)
N.D. Connectors

Starting - Pre-heating system and heater plugs warning light - Recharging and warning light - Insufficient engine oil pressure warning light - Maximum turbocharging pressure warning light - Rev counter

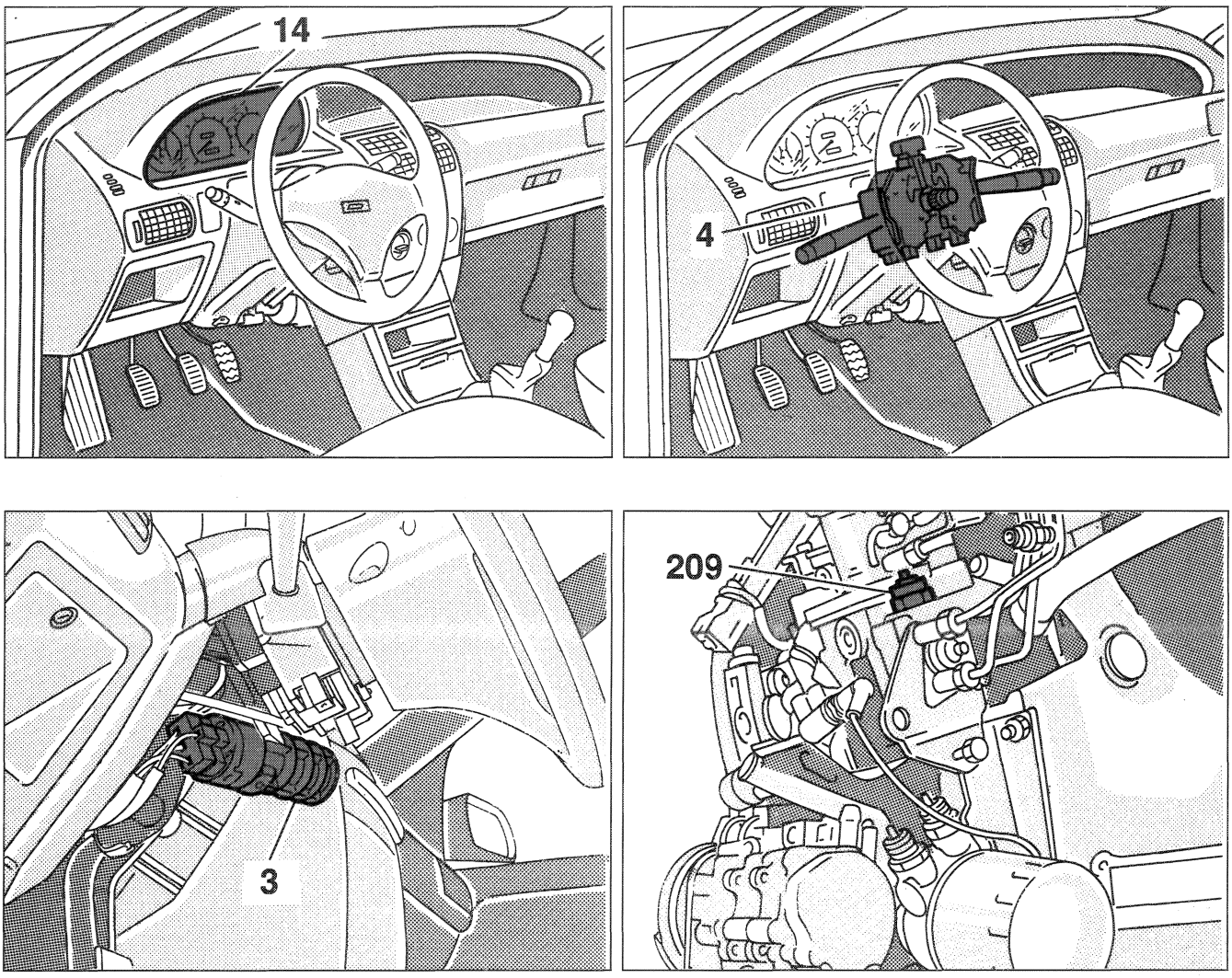


* For the E.pack version warning light N is replaced by the turbocharging pressure gauge (pneumatic)

** Variant connections for versions with anti-theft device

55D.

Location of components for starting - Pre-heating system - Recharging

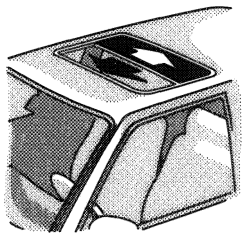


P3M224N02

3M124N

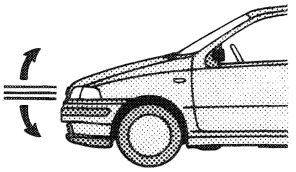
Chart 5

Electrically operated sun roof



P3M225N01

Headlamp alignment correcter



P3M225N02

GENERAL DESCRIPTION

Manually or electrically operated sun roof:

The vehicle can be fitted on request with a manually or electrically operated sun roof which allows additional ventilation of the passenger compartment when the weather is hot and a rapid exchange of air.
The moving part of the roof is made up of a plexiglass panel and a sliding interior blind which is in the actual roof panel lining. If the sun roof is manually operated there is a handle located under the roof panel which, when turned clockwise, allows it to slide and at the same time permits the hinged opening of the roof. With electrically operated sun roofs (on more elegant versions) the entire control is electrical by means of a switch in the courtesy light which is above the internal rear view mirror. The entire system is electronically controlled by a control unit which regulates the various functions.
The sun roof can only be operated with the ignition key inserted and the ignition switch in the ON position.

Headlamp alignment correcter device:

Some versions offer the possibility of directly adjusting the headlamp alignment according to the different load conditions from the driver's seat. The adjustment device consists of a motor fitted on each headlamp which suitably tilts it so as to lower the luminous beam if the vehicle is particularly laden and raise it when the load is decreased.
The system can only be activted with the dipped beam headlamps/main beam headlamps switched on; otherwise it is completely deactivated.

FUNCTIONAL DESCRIPTION

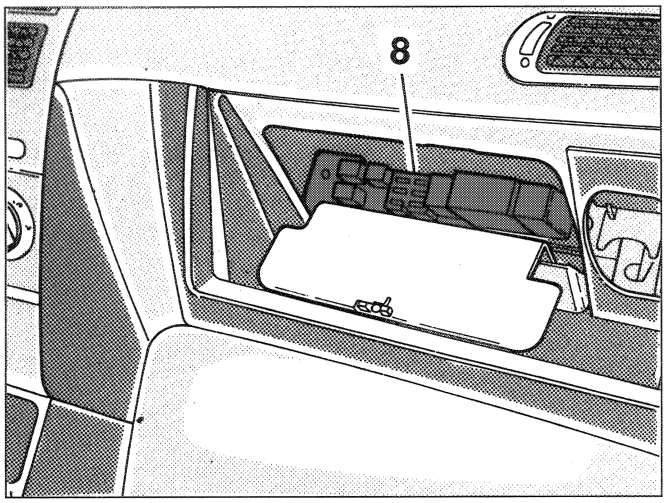
A single switch (84) controls all the opening, closing, raising and lowering oprerations for the sun roof (electrical).
The end of travel position is determined by the switch (81). This switch is located in a control unit (83) in the courtesy light which contains the motor (82) for operating the sun roof. The circuit is controlled by a relay (E6) protected by a 20A fuse in the control unit for the optional equipment (8).

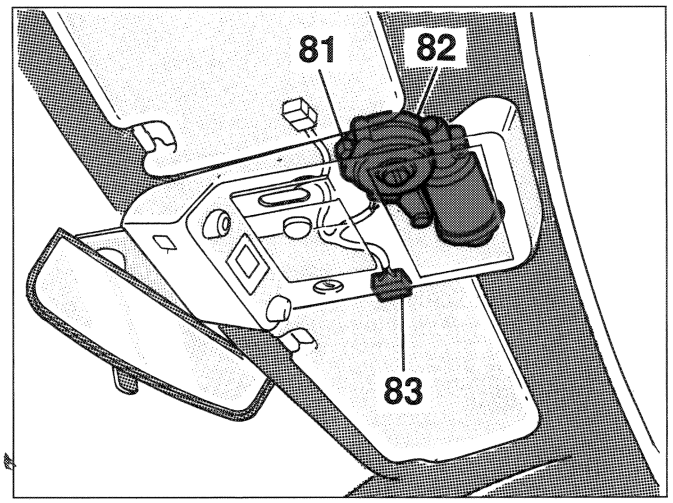
As far as the headlamp alignment correcter is concerned, the adjustment is carried out by two correcters, (68) for the left front light cluster and (69) for the right front light cluster fitted directly on the light clusters. The control (67) is via a potentiometer operated by a knob in the dashboard which can assume four different positions, corresponding to the different positions which the light clusters can assume. The system receives a positive supply of 12V from the ignition switch and is protected by a fuse (5) located in the junction unit (7). The actuator is made up of a correcter to which a potentiometric type position transducer and an electronic control unit is fitted.

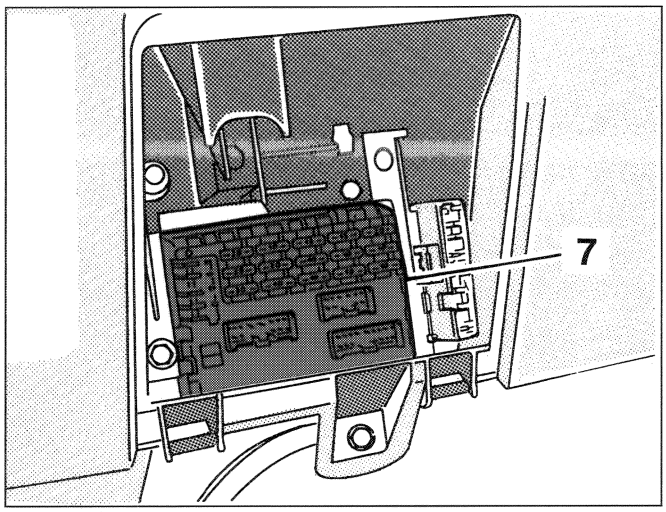
Accompaniment to illustration table

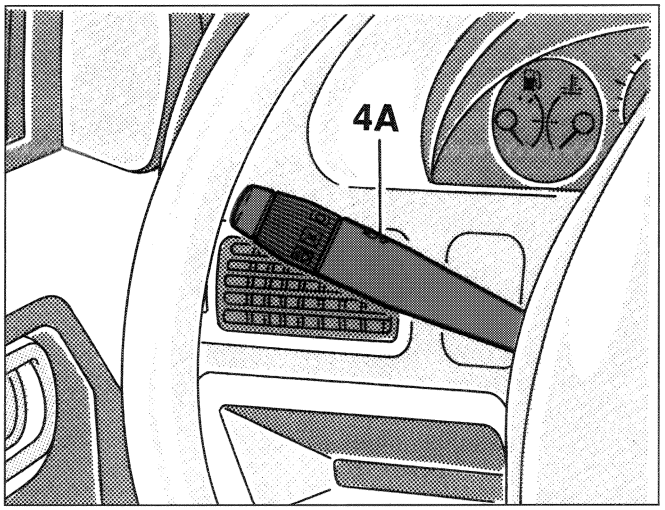
55D.

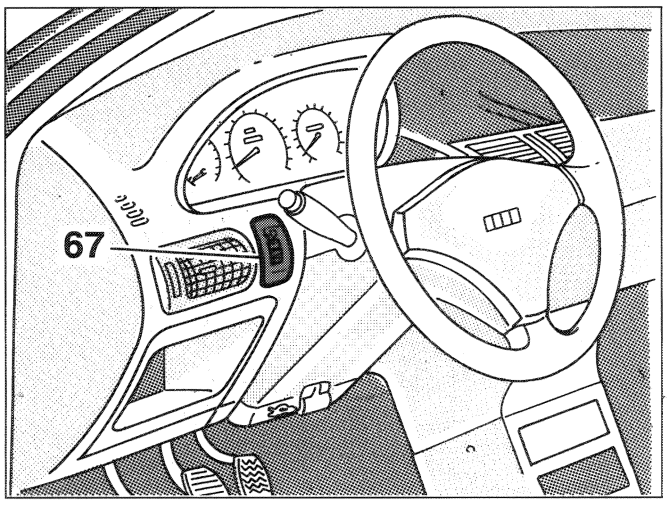
Location of sun roof components - Headlamp alignment correcter

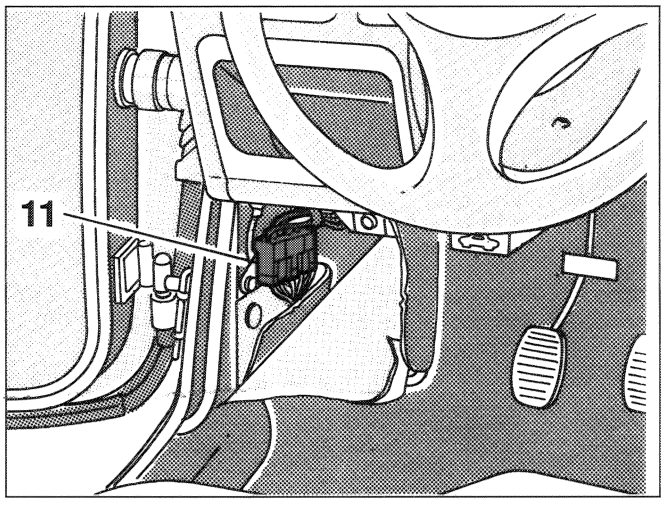








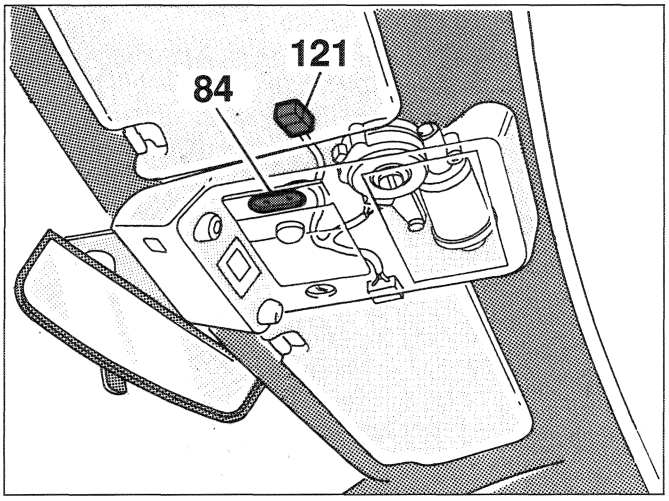


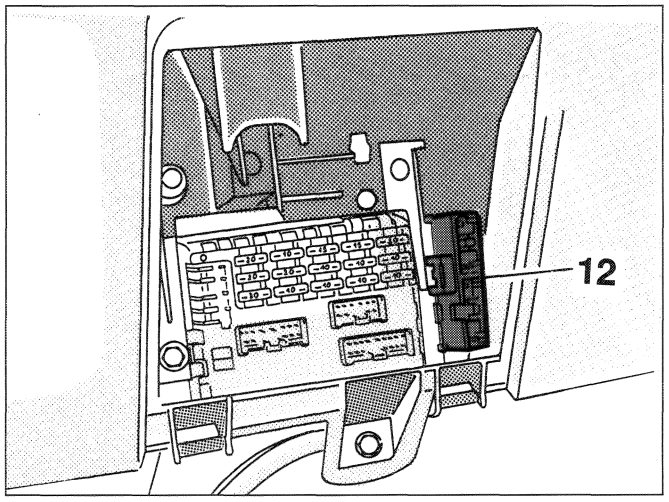


P3M226N02 P3M226N01

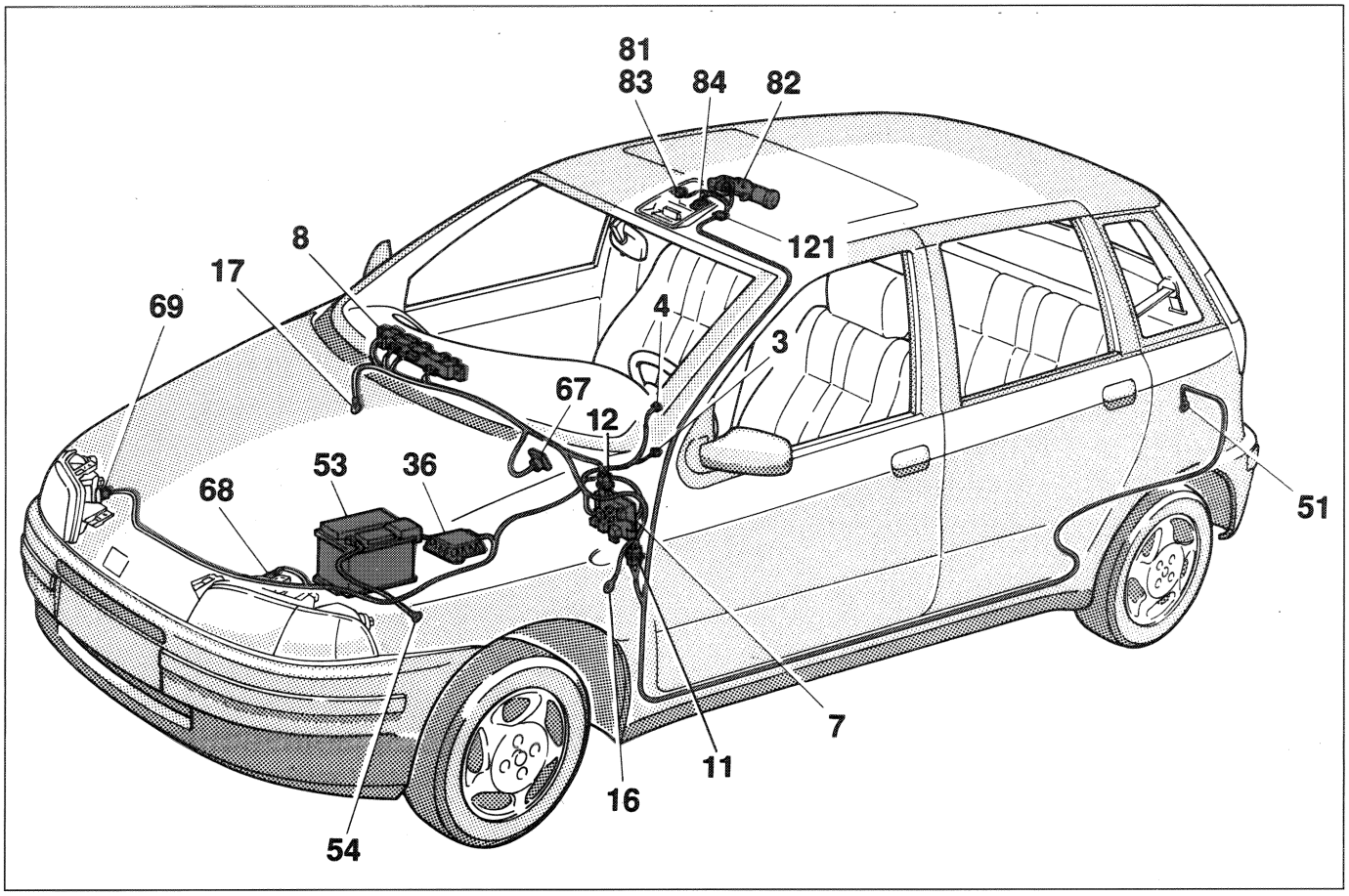
3M126N

Location of electric sun roof components - Headlamp alignment correcter





P3M227N02 P3M227N01



P3M228N02 P3M228N01

Wiring for electrically operated sun roof - Headlamp alignment correcter

Key for components

3 Ignition switch
4 Steering column switch unit:
F Side lights/dipped headlamps control switch
G Dipped beam headlamps/main beam headlamps control switch
H Main beam headlamps switch
7 Junction unit
8 Control unit for optional equipment:
E3 Power relay (sun roof)
E4 Dipped beam headlamps/headlamp alignment correcter relay feed
11 Connection for dashboard cables with rear cables
12 Connection for dashboard cables with front cables
16 Left dashboard earth
17 Right dashboard earth
36 Connector block
51 Left rear earth
53 Battery
54 Earth for battery
67 Headlamp alignment device control unit
68 Left headlamp alignment correction motor
69 Right headlamp alignment correction motor
81 Electrically operated sun roof end of travel switch
82 Electric sun roof operating motor
83 Electronic control unit for electrically operated sun roof
84 Electrically operated sun roof control switch
121 Connecter for electric sun roof cables
N.D. Connectors

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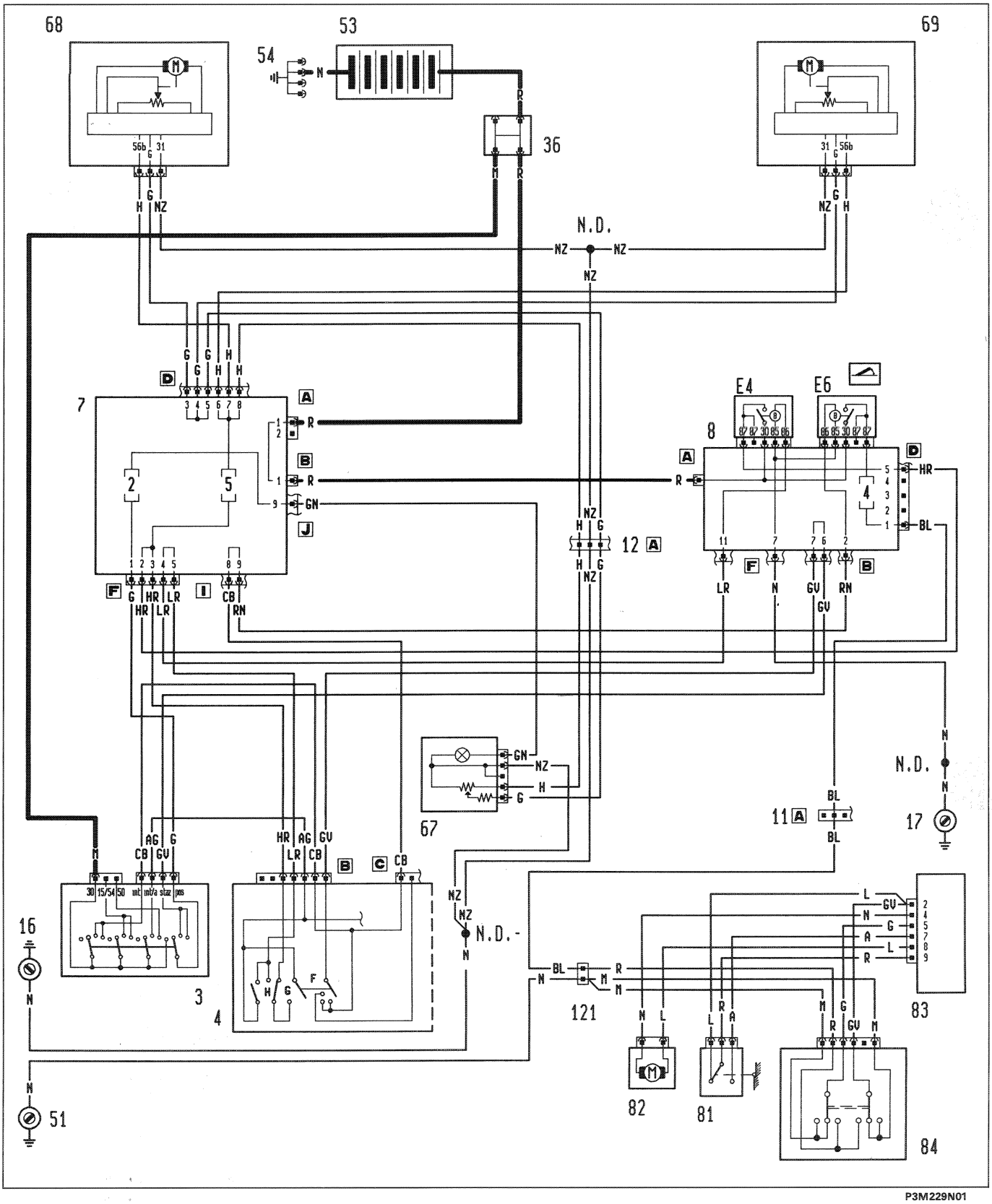
Electrically operated sun roof - Headlamp alignment correcter

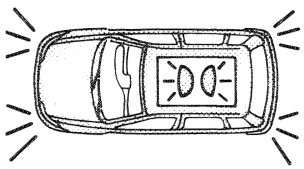


P3M229N01

3M129N

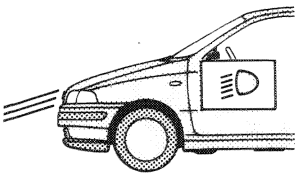
Chart 6

Side lights



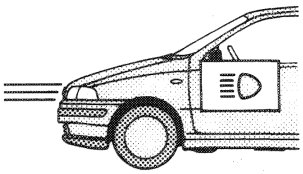
P3M231N03

Dipped beam headlamps



P3M231N01

Main beam head-lamps



P3M231N02

GENERAL DESCRIPTION

Side lights:

The side lights are switched on when the special switch on the steering column switch unit is in the first position, with the ignition switched on: this protects the battery charge if the lights are accidentally left on when leaving the vehicle. They are also switchedon when the ignition is switched in an anti-clockwise direction, keeping the special button pressed: in the "Parking" position. Together with the side lights the no. plate lights, numerous idoegrams and interior lights for the instrumentation and the controls are also switched on. A warning light in the dashboard signals that the side lights are on. For safety reasons the circuit is protected by two fuses, one for the right front side lights and the left rear ones and the other for the left front side lights and the right rear ones.

Dipped beam headlamps and main beam headlamps:

The vehicle has a lamp for the dipped and main beam headlamps which are switched on via the special switch in the steering column switch unit in the position after that for the side lights; under these circumstances it is possible to switch on the dipped headlamps permanently by operating the dipped headlamps/main beam headlamps switch; by gently pulling the steering column switch unit lever towards the steering wheel the "headlamp flasher" or the main beam head-lamps come on. A warning light in the Instrument panel signals that the main beam headlamps are on.

FUNCTIONAL DESCRIPTION

The fuel system of the various lights takes place through the junction unit (7) located under the dashboard on the driver's side, namely fuses (2 and 3) protect the right and left side lights inside the right front light cluster (23) and the left front light cluster (24) and at the same time they protect the side lights for the respective light clusters (43 and 44) and the number plate lights (41 and 42). All of this takes place when the lever on the steering column switch unit (4) which controls switch F inside is operated. In the second position for this switch the dipped beam headlamps are switched on, protected in the junction unit (7) by fuses (4 and 5) located inside the front light clusters; under these circumstances it is possible to switch on the main beam headlamps via the control lever for switch G inside the steering column switch unit protected by fuses (6 and 7) located in the control unit. It is possible to switch on the main beam headlamps, keeping the other exterior lights off, by operating the headlamp flasher button H on the steering column switch unit.

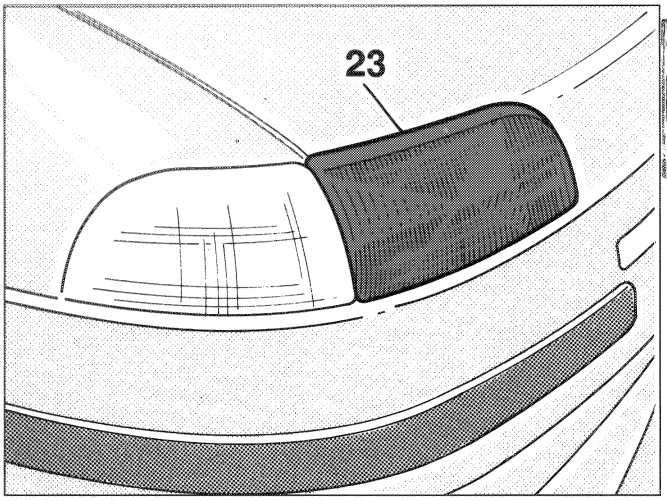
To check that the side lights or the main beam headlamps have come on there are two warning lights in the instrument panel (14), marked by the letters T and U, respectively (see wiring diagram). There is also a relay E4 in the control unit for the optional equipment located inside the oddments pocket in front of the passenger which allows the dipped beam headlamps to come on even with the main beam headlamps on.

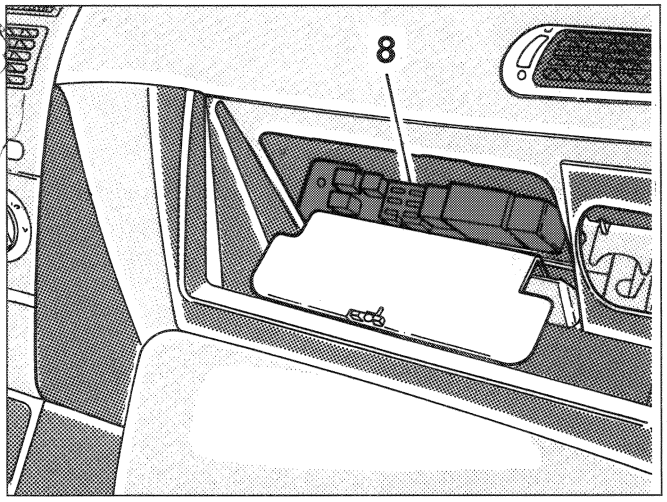
3M131N

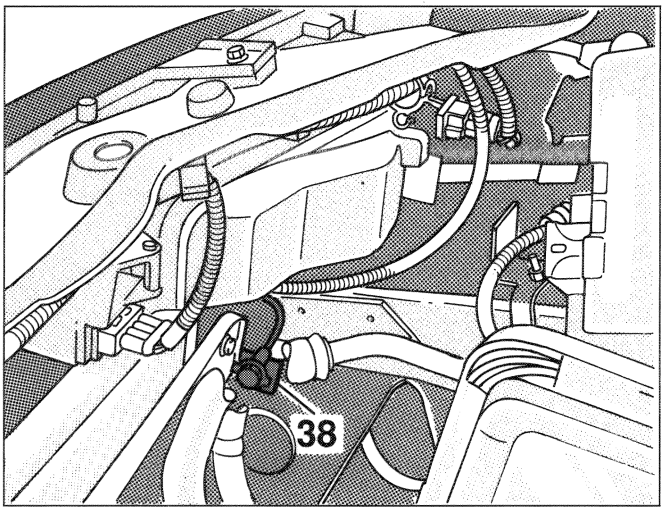
Accompaniment to illustration table

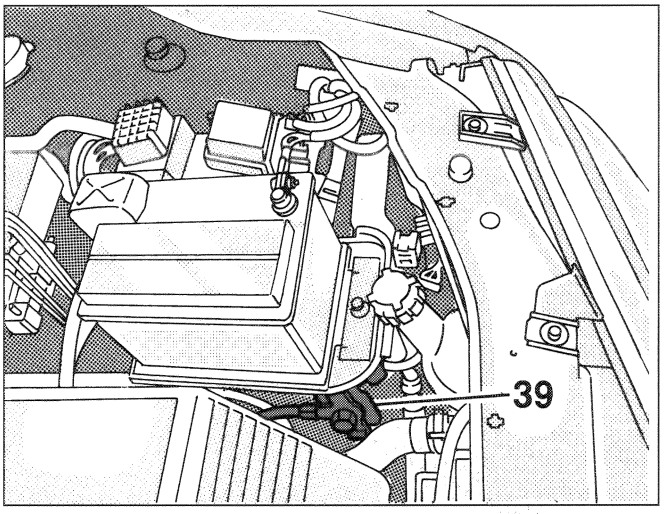
55D.

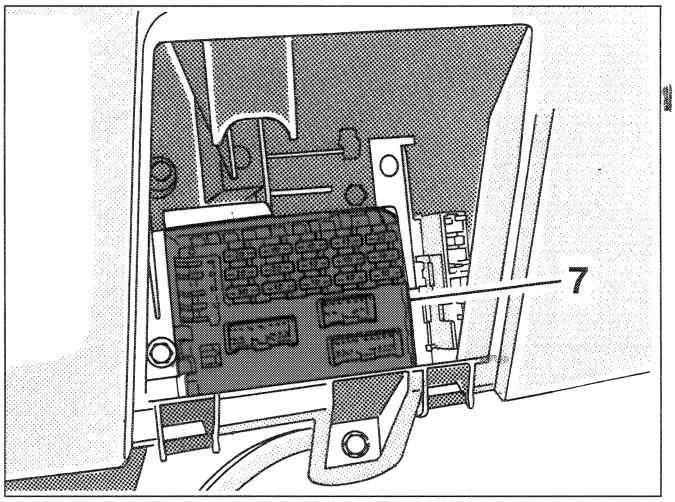
Location of components for side light and warning light - Dipped beam headlamps - Main beam headlamps and warning light - Headlamp flasher - Number plate lights

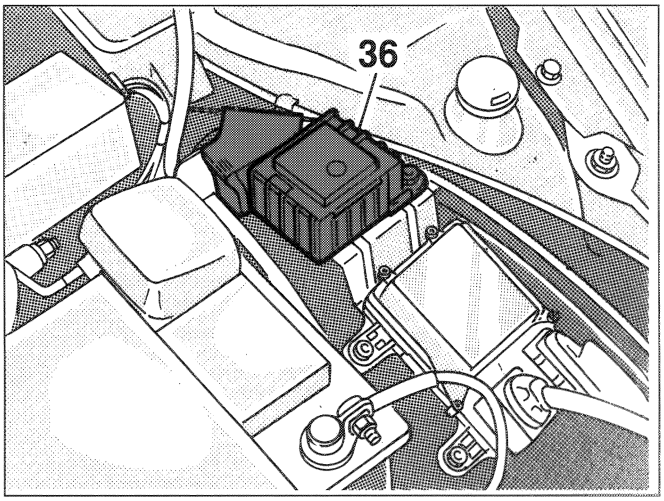








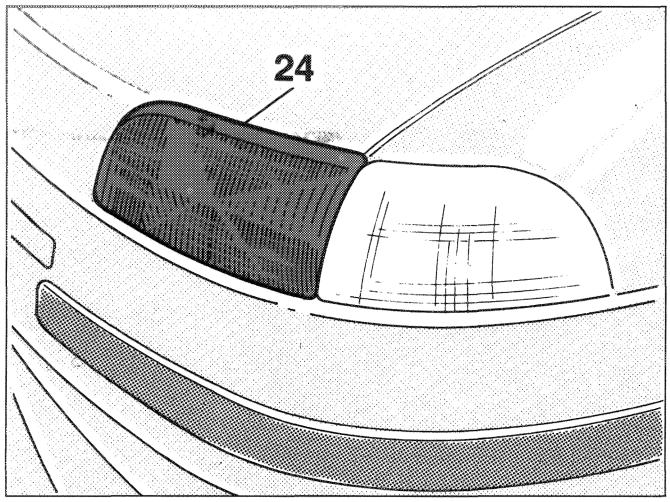


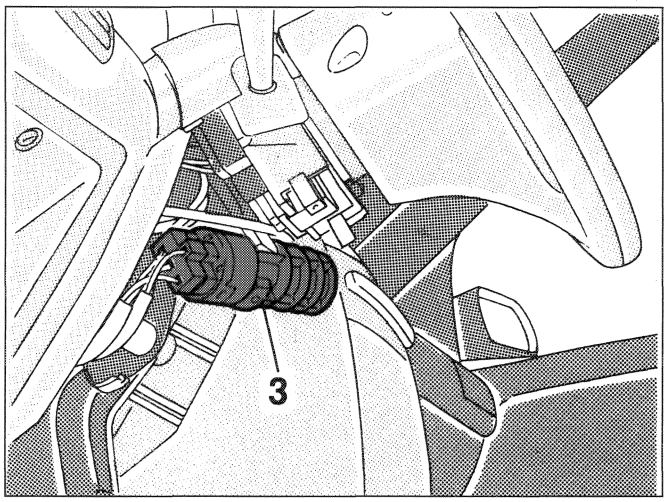


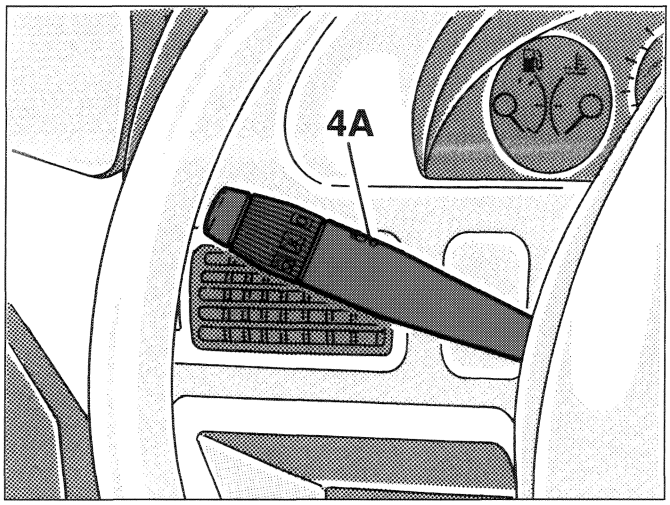
P3M232N02 P3M232N01

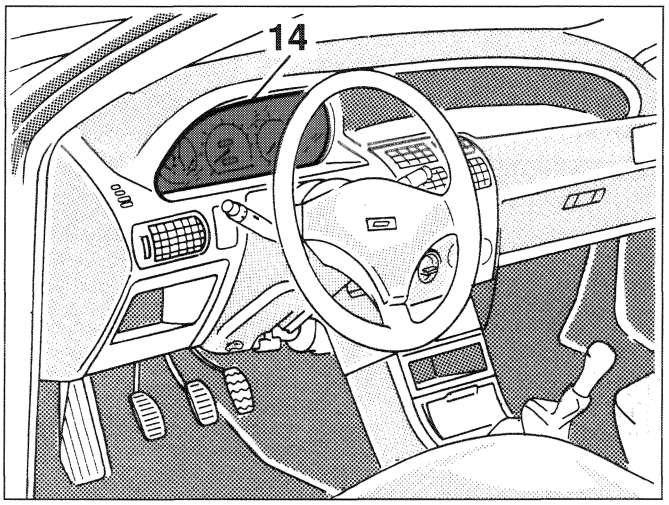
3M132N

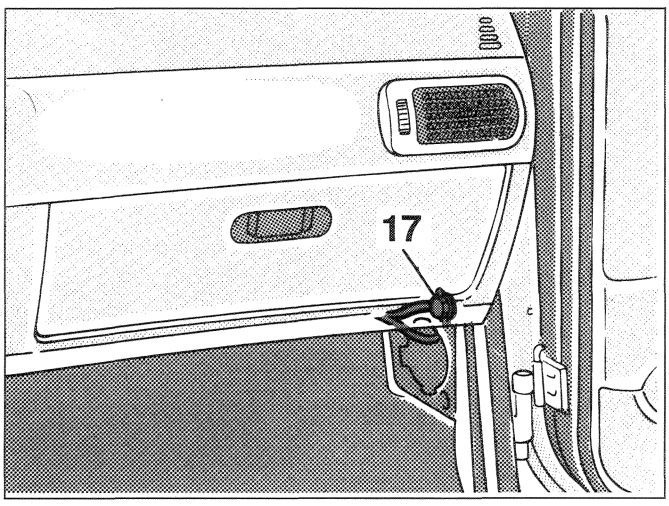
Location of components for side lights and warning light - Dipped beam headlamps - Main beam headlamps and warning light - Headlamp flasher - Number plate lights

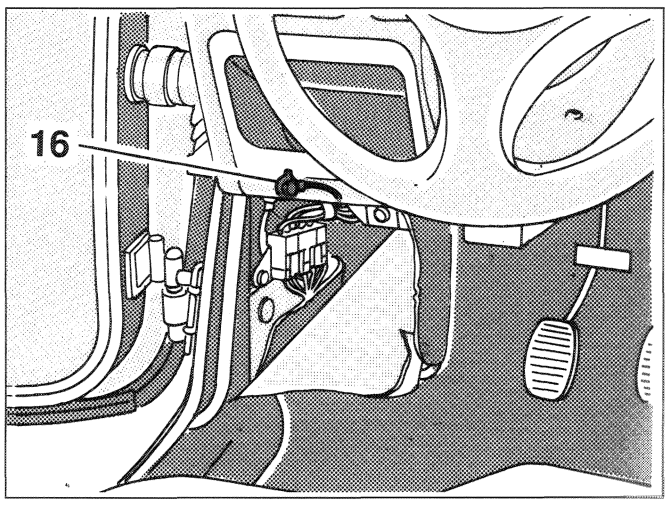






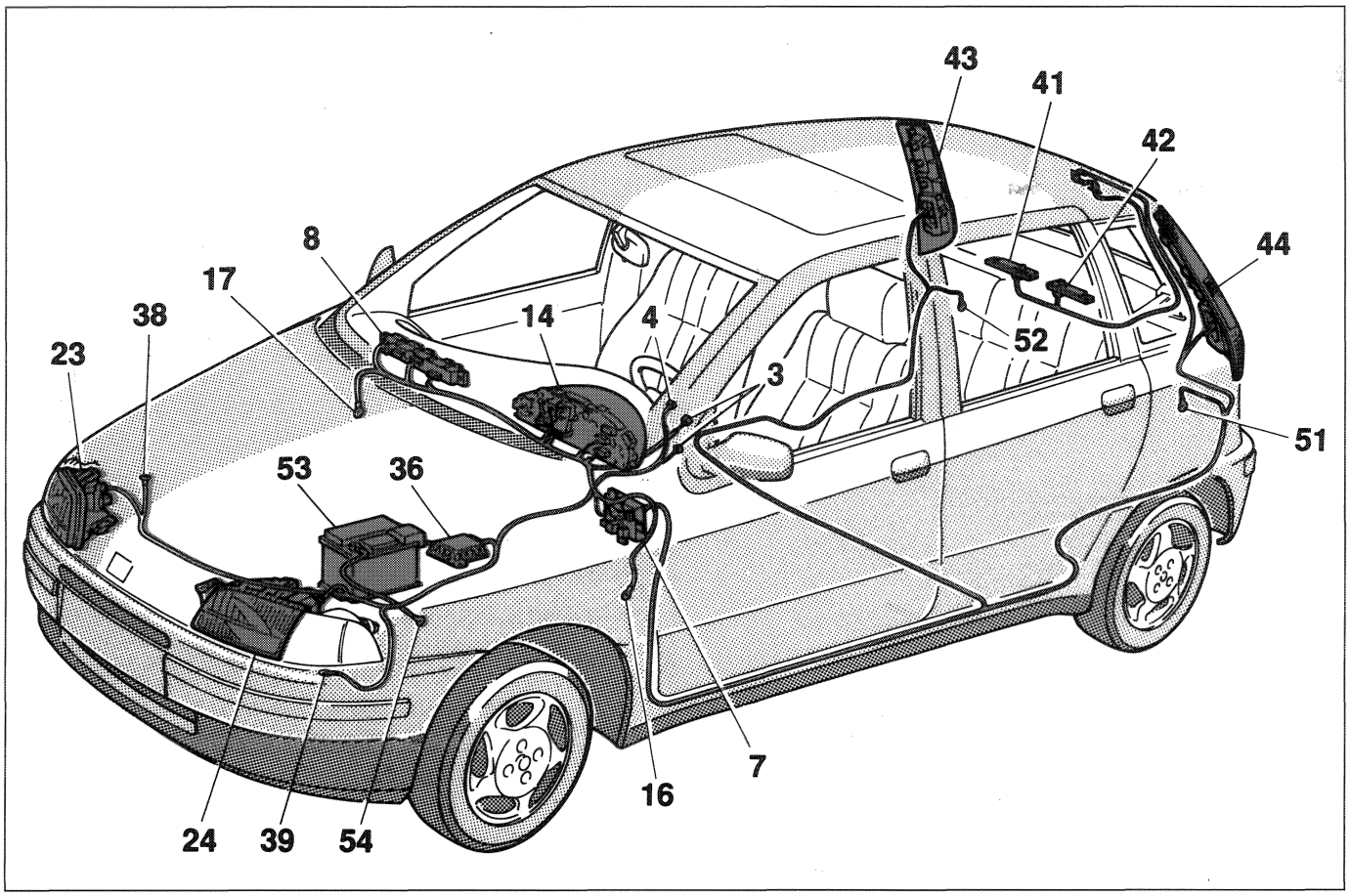






P3M233N02 P3M233N01

3M133N



P3M234N02 P3M234N01

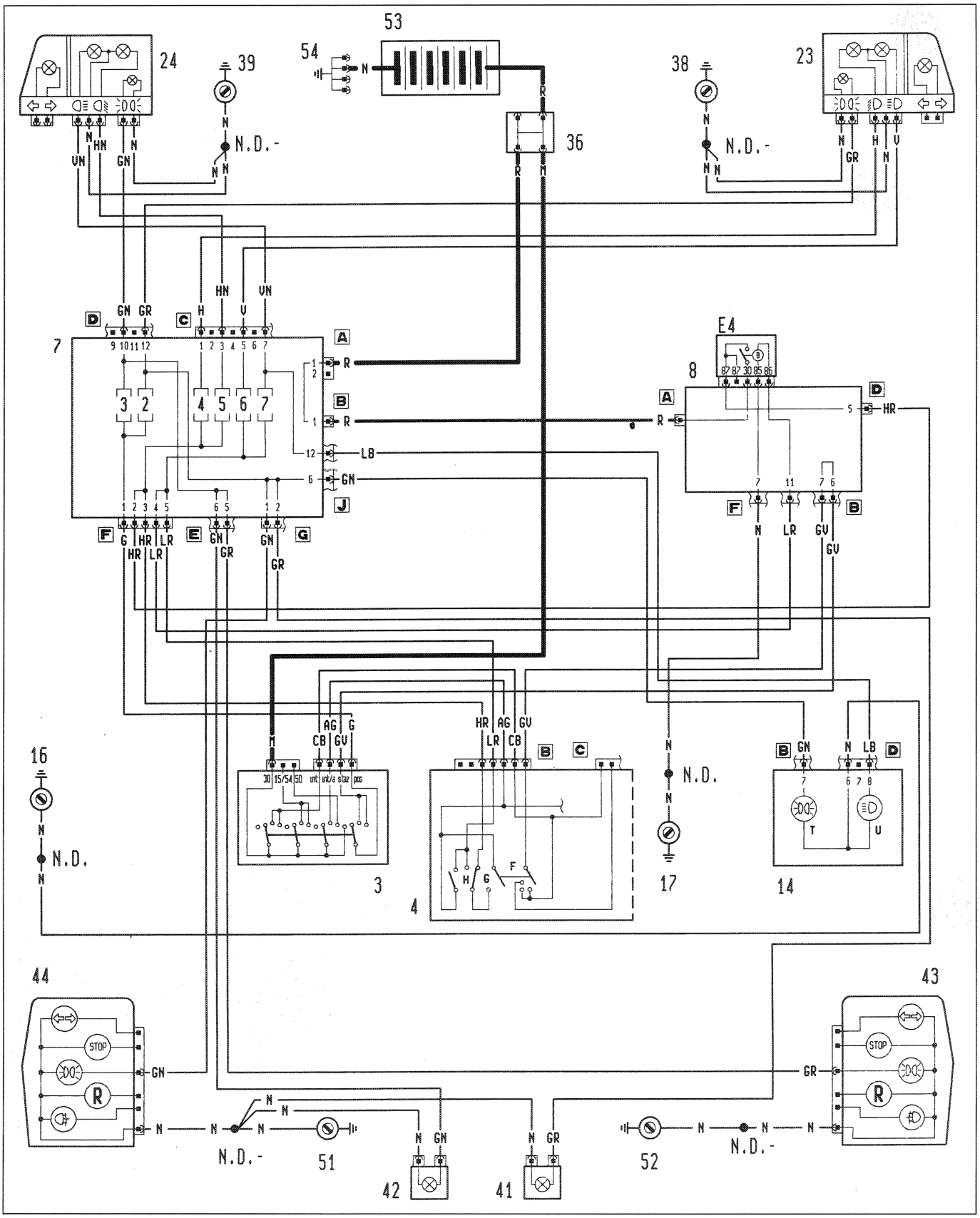
Wiring for side lights and warning light - Dipped beam headlamps - Main beam headlamps and warning light - Headlamp flasher - Number plate lights

Key for components

3 Ignition switch
4 Steering column switch unit:
F Side lights/dipped headlamps control switch
G Dipped beam headlamps/main beam headlamps control switch
H Main beam headlamps button
7 Junction unit
8 Control unit for optional equipment:
E4 Dipped beam headlamps/headlamp alignment relay feed
14 Instrument panel :
T Side lights warning light
U Main beam headlamps warning light
16 Left dashboard earth
17 Right dashboard earth
23 Right front light cluster
24 Left front light cluster
36 Connector block
38 Right front earth
39 Left front earth
41 Right no. plate light
42 Left no. plate light
43 Right rear light cluster
44 Left rear light cluster
51 Left rear earth
52 Right rear earth
53 Battery
54 Earth for battery
N.D. Connectors

Version: E.pack - 1372 turbo

Side lights and warning light - Dipped beam headlamps - Main beam headlamps and warning light - Headlamp flasher - Number plate lights

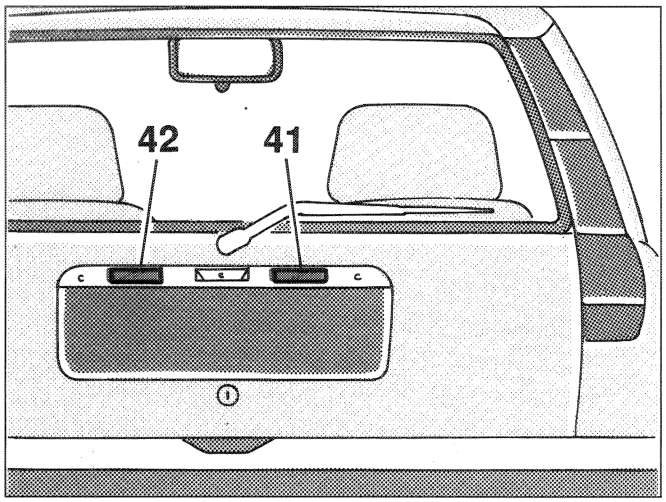


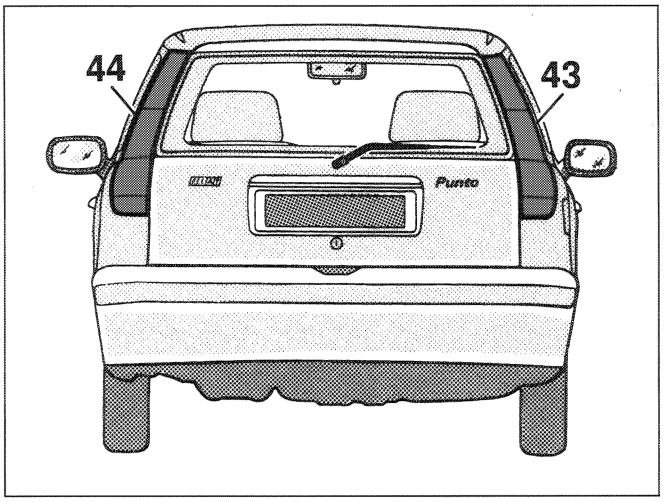
P3M235N01

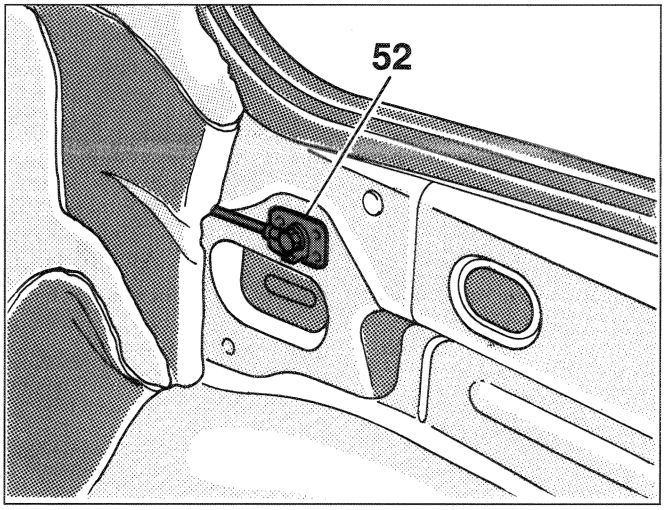
Accompaniment to illustration table

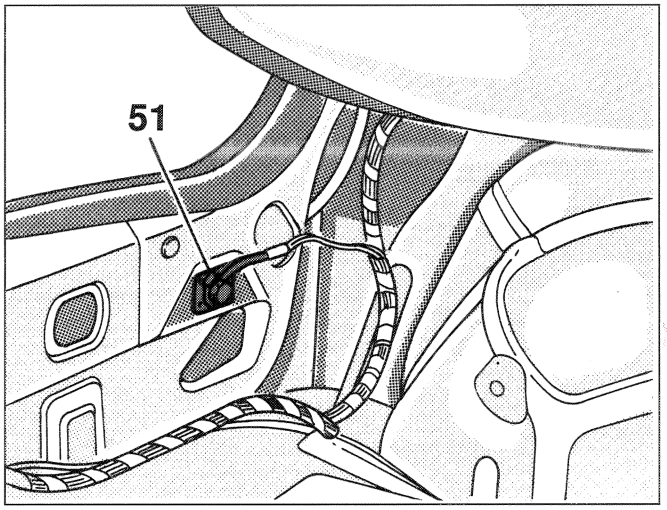
55D.

Location of components for side lights and warning light - Dipped beam headlamps - Main beam headlamps and warning light - Headlamp flasher - Number plate lights





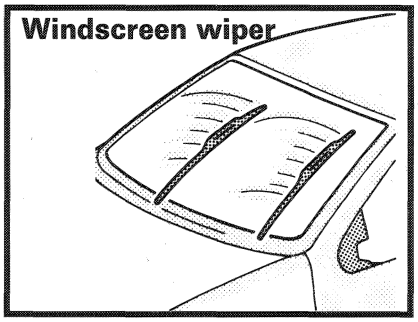




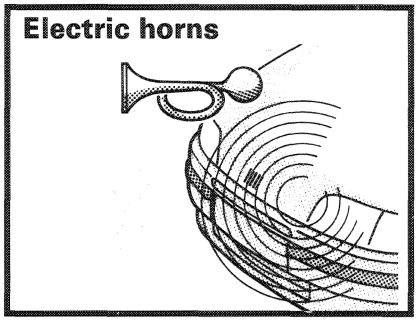
P3M236N02 P3M236N01

3M136N

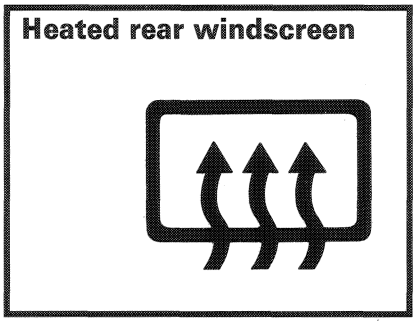
Chart 7



P3M237N03



P3M237N01



P3M237N02

GENERAL DESCRIPTION

Electric horns:

The vehicle is equipped with a horn system composed of two different tones; a high tone and a low tone with the two horns coming on at the same time.
The horn is operated by pressing the conventional switch in the centre of the steering wheel. For safety reasons electric horns can be operated at any time even with the ignition switched off.

Windscreen wiper - Rearscreen wash/wipe - Electric pump for windscreen and rearscreen washer - Heated rear windscreen and warning light:

The windscreen wiper has two speeds plus an intermittent speed. It is possible to activate the washer pump via the lever on the right of the steering column switch unit and at the same time an automatic wiping cycle is implemented; the system is made up of a motor to which a container which houses the switching circuit made up of a relay and a switch for the automatic return of the blades to the rest position is fixed. It is also possible to operate the pump for the windscreen and rearscreen washer and the rearscreen wiper motor via the same control.

The rear window glass (rearscreen) contains a conducting wire which, when a current passes through it, heats the surfaces with which it comes into contact therefore ensuring rapid demisting. This device is operated by pressing the appropriate switch located in the central panel on the right of the steering column switch unit.
A warning light signals that the device is on.

FUNCTIONAL DESCRIPTION

The electric horn relay (E2), is supplied by the battery voltage (35) through the fuse (13) located in the junction unit (7). The relay coil is energized through an earth signal coming from the switch (B) located in the centre of the steering wheel integrated with the steering column switch unit (4). In this way the supply is sent by the relay to the two electric horns (27) and (28), right and left, respectively, which are connected to the right front earth (38).
The system for the windscreen wiper, rearscreen wiper, windscreen washer and rearscreen washer is activated by a single lever on the right of the steering column switch unit (4).

The windscreen wiper is made up of a engine (18) which controls the blades either intermittently or continuously, as required: if the lever is moved downwards this operates switch (M) in the centre of the steering column switch unit (4) which engages the intermittent operation of the blades (about 15 strokes per minute).
When, on the other hand, the lever is rotated and switch (M) is in the second position, the speed of the blades is increased (about 35 strokes per minute). Lastly, in the third and last position of the switch the blades are operated at a frequency of 45 strokes per minutes. If the lever is pulled towards the steering wheel this operates the windscreen washer pump, controlled by the motor (19) which is fitted directly the fluid reservoir located inside the front wing on the left hand side.

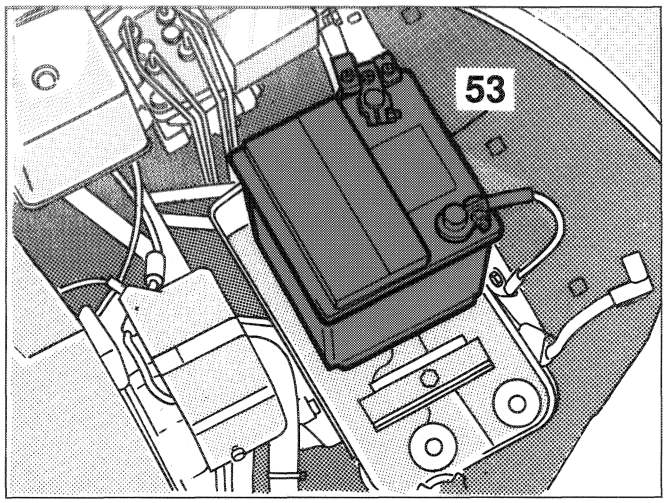
The rearscreen wiper is controlled by the lever on the right of thesteering column switch unit; in effect it has two supplementary switches (I) and (L) where the first controls the rearscreen wiper motor (56) which is activated by rotating this lever and supplying the motor constantly; whilst the second switch operates the rearscreen washer pump by means of the motor (19), only in this case in addition to sending the fluid to the rearscreen it operates the blade at the same time until the lever is released.

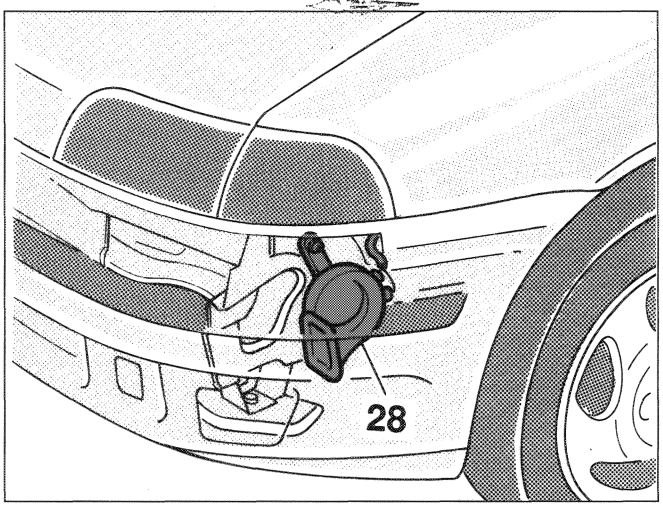
The relay feed for the heated rear windscreen (E3) located in the junction unit (7) is controlled by the ignition therefore the ignition has to be switched ON in order to supply it; when this is the case the relay coil is supplied and consequently also the line which, protected by the fuse (11) for the control unit, reaches the heated rear windscreen (55) and its resistances. The same supply signal for the rearscreen is sent to the switch control unit (15) where there is a switch (A) whic controls the warning light marked with the letter (B) integrated with the relevant switch.

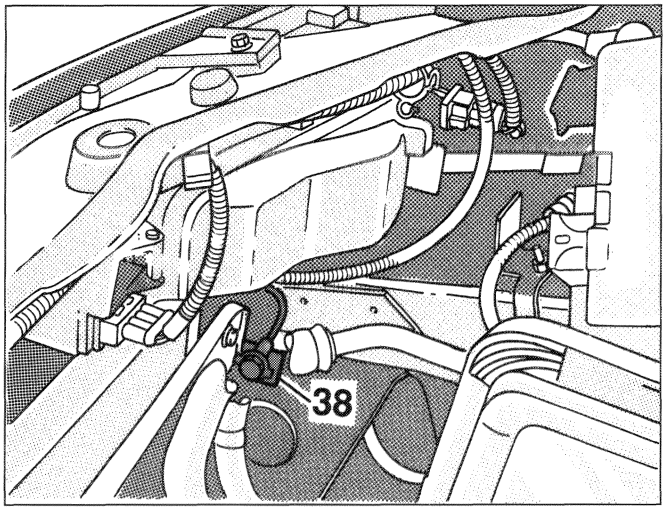
Accompaniment to illustration table

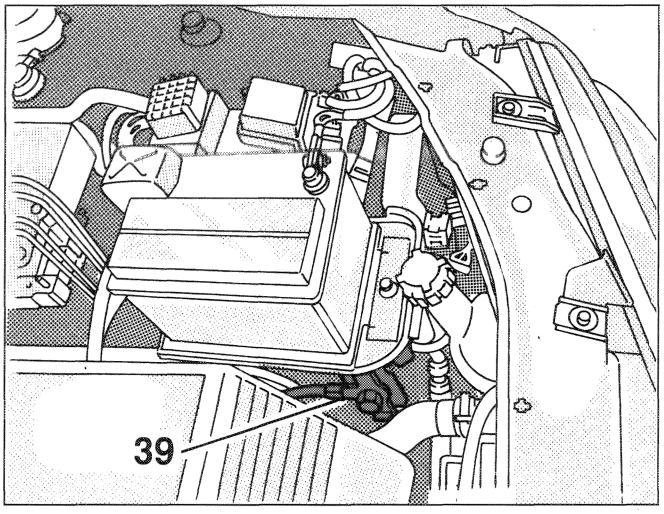
55D.

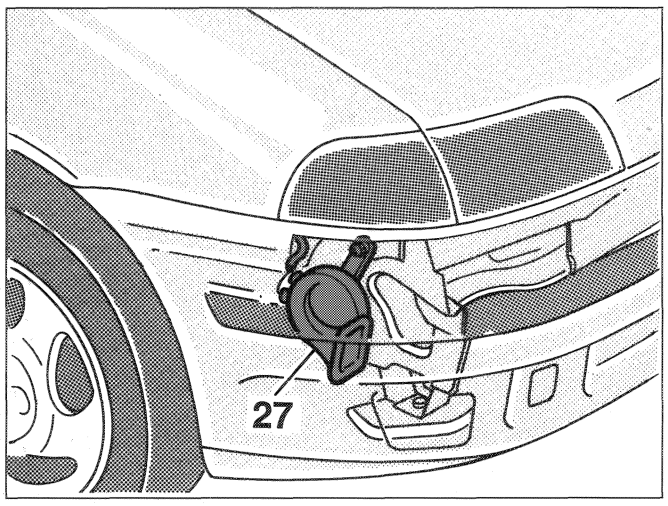
Location of components for windscreen wiper - Rearscreen wash/wipe - Windscreen and rear window washer pump - Electric horns - Heated rear windscreen and warning light

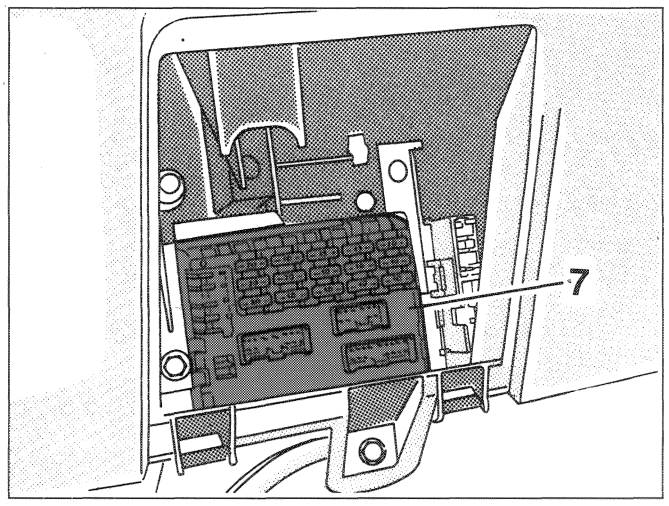








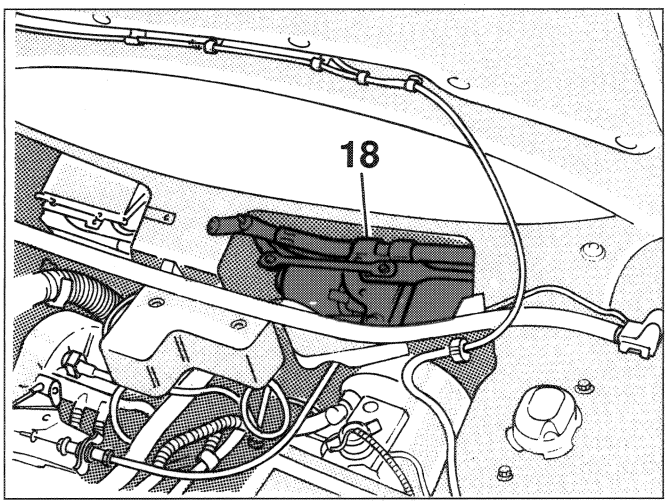


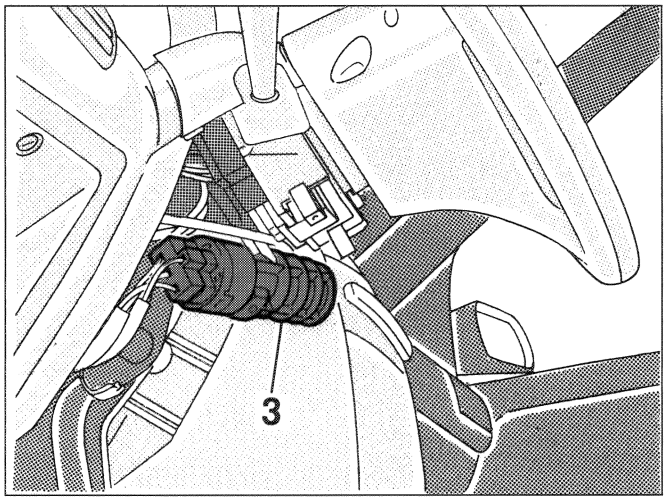


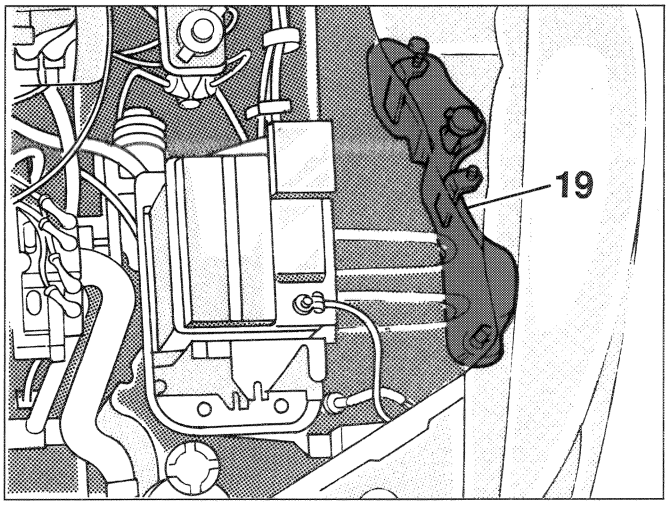
P3M238N02 P3M238N01

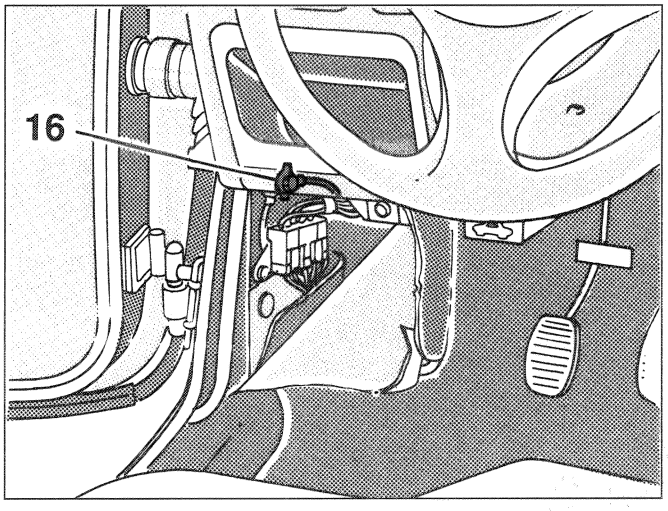
3M138N

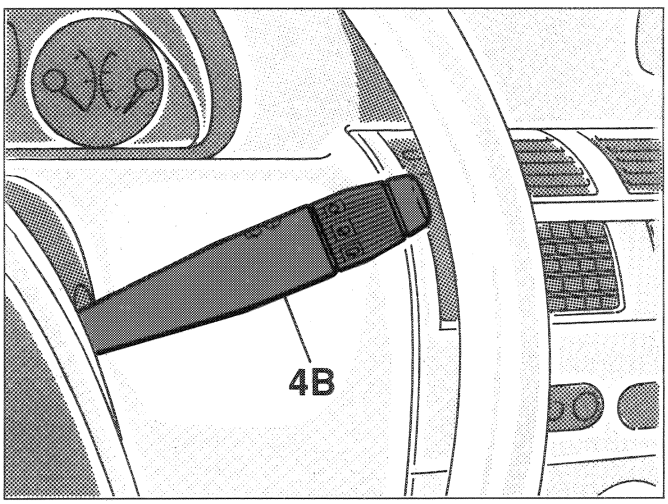
Location of components for windscreen wiper - Rearscreen wash/wipe - Windscreen and rear window washer pump - Electric horns - Heated rear windscreen and warning light

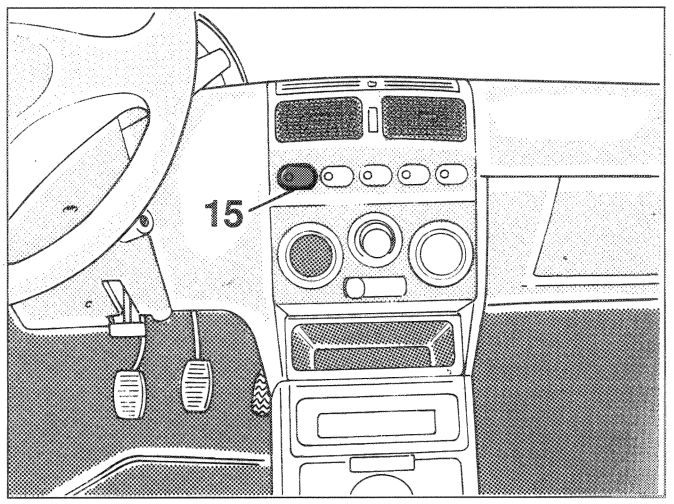






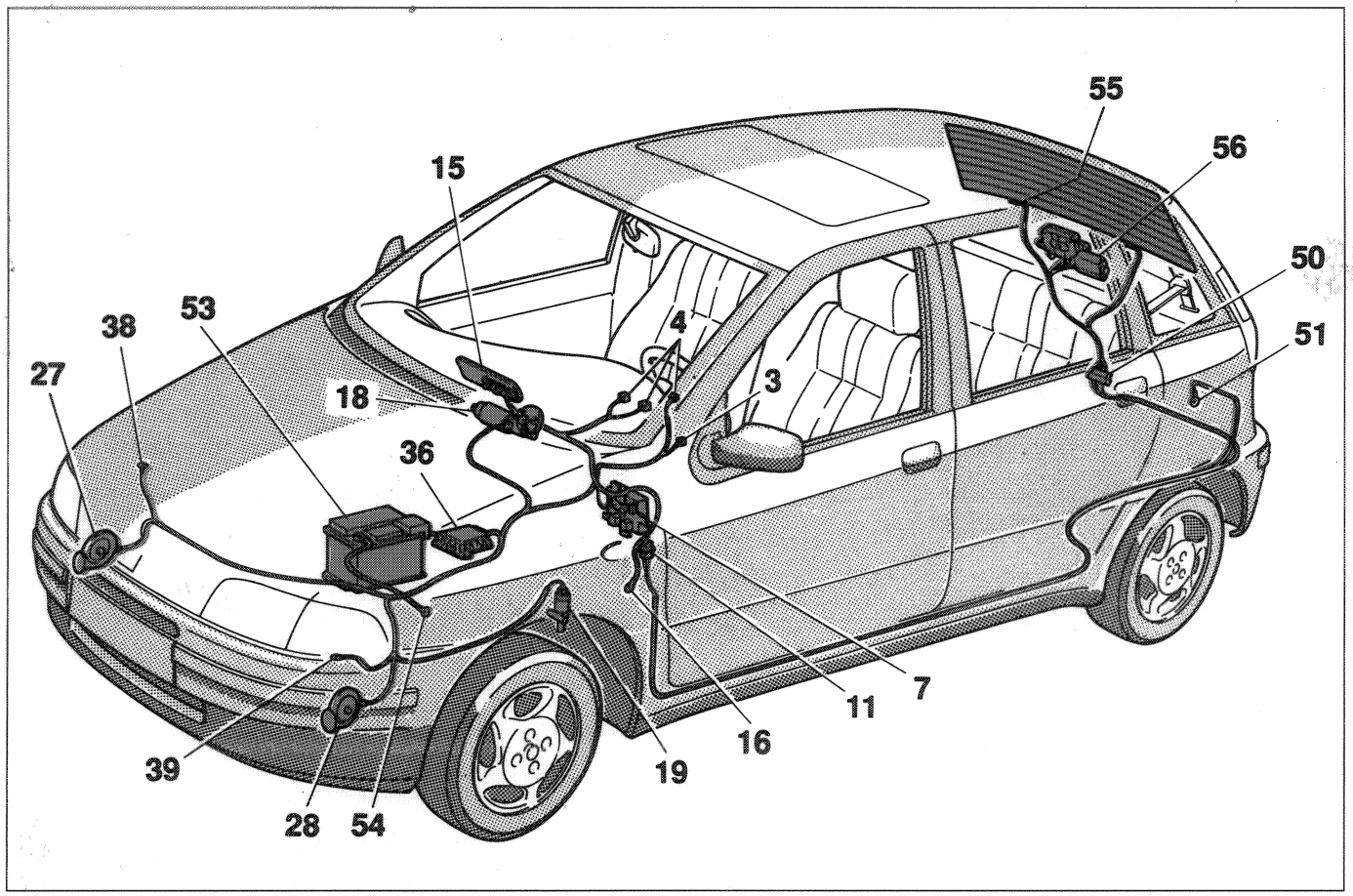






P3M239N02 P3M239N01

3M139N



P3M240N02 P3M240N01

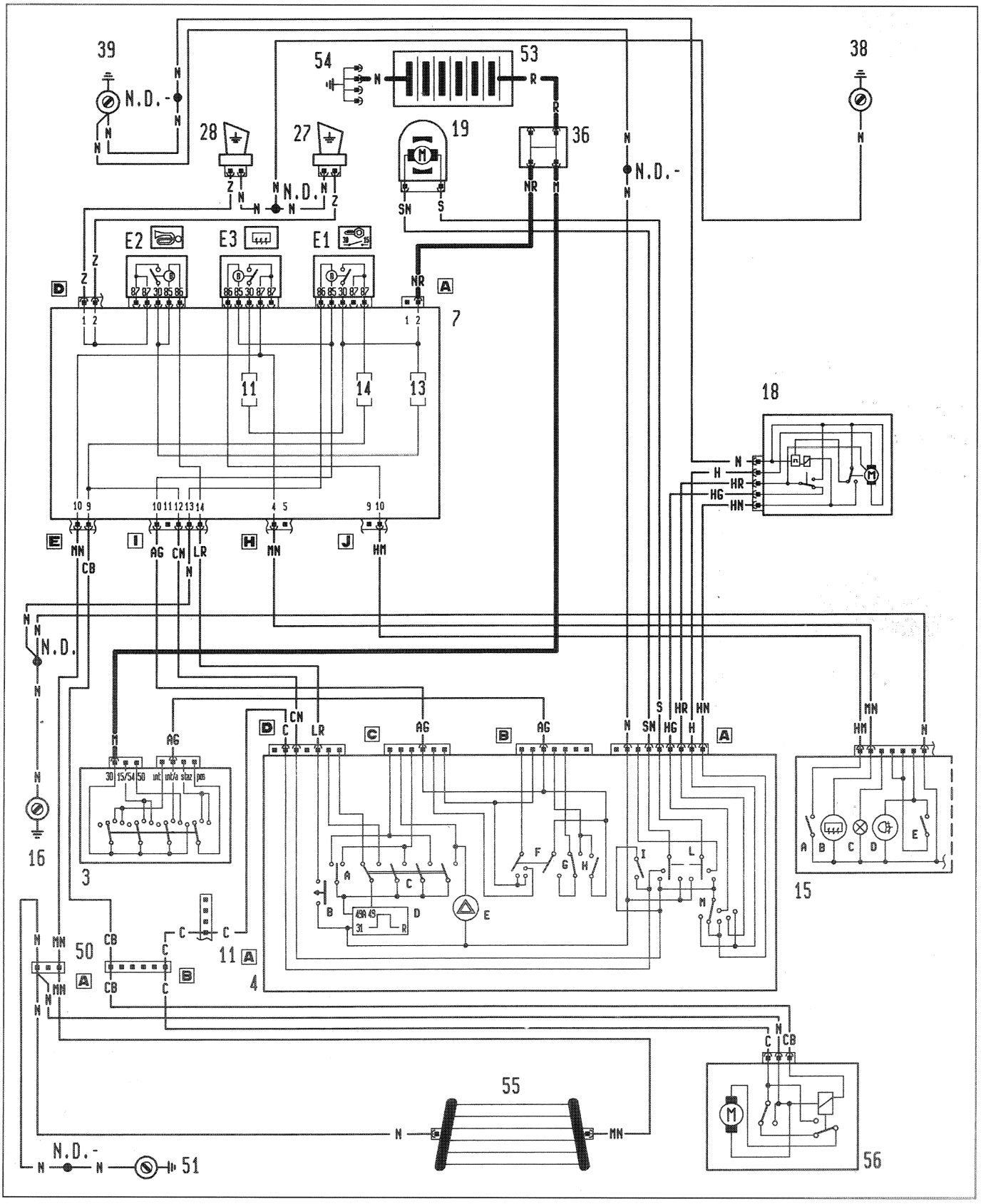
Wiring for windscreen wiper - Rearscreen wash/wipe - Windscreen and rear window washer pump - Electric horns - Heated rear windscreen and warning light

Key for components

3 Ignition switch
4 Steering column switch unit:
B Horn control
I Rearscreen wiper control switch
L Control for windscreen washer/rearscreen wiper and headlamp washer
M Windscreen wiper control switch
7 Junction unit :
E1 Ignition discharge relay
E2 Electric horn relay feed
E3 Heated rear windscreen relay feed
11 Connection for dashboard cables with rear cables
15 Switch control unit :
A Heated rear windscreen control switch
B Heated rear windscreen warning light
16 Left dashboard earth
18 Windscreen wiper motor with intermittent device incorporated
19 Electric windscreen washer pump/rearscreen washer
27 Right electric horn
28 Left electric horn
36 Connector block
38 Right front earth
39 Left front earth
50 Connection for rear cables
51 Left rear earth
53 Battery
54 Earth for battery
55 Heated rear windscreen
56 Rearscreen wiper motor
N.D. Connectors

Version: E.pack - 1372 turbo

Windscreen wiper - Rearscreen wash/wipe - Windscreen and rear window washer pump - Electric horns - Heated rear windscreen and warning light

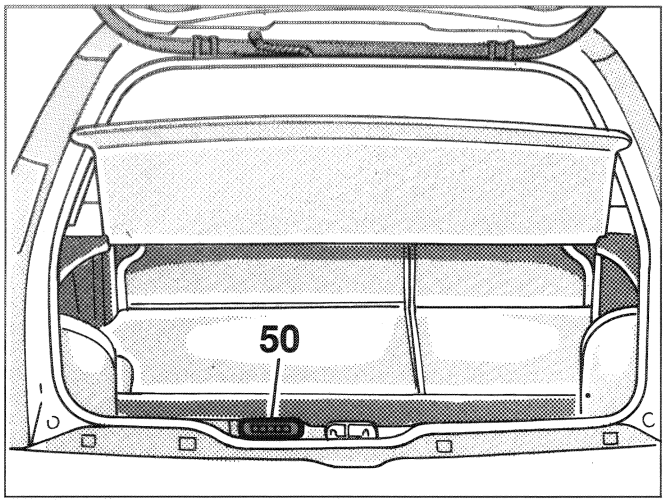


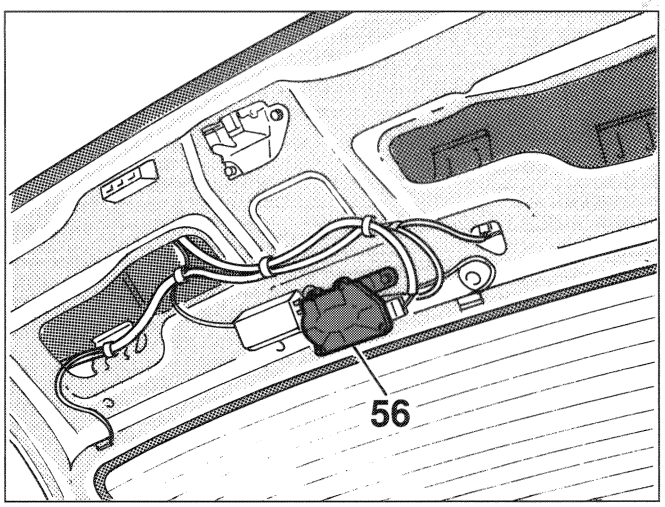
3M141N

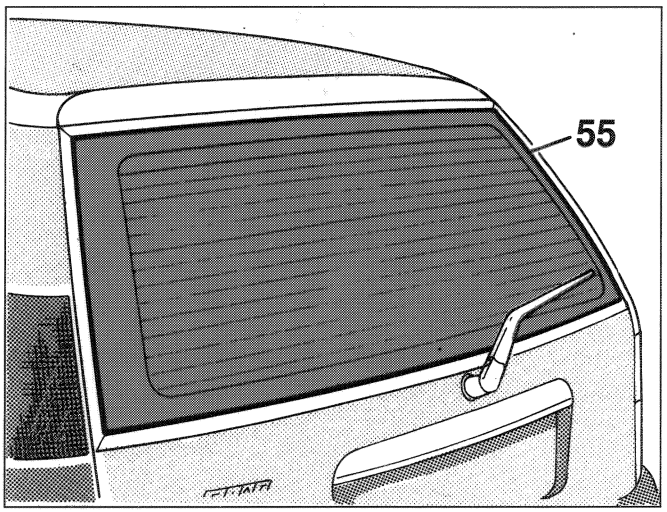
P3M241N01

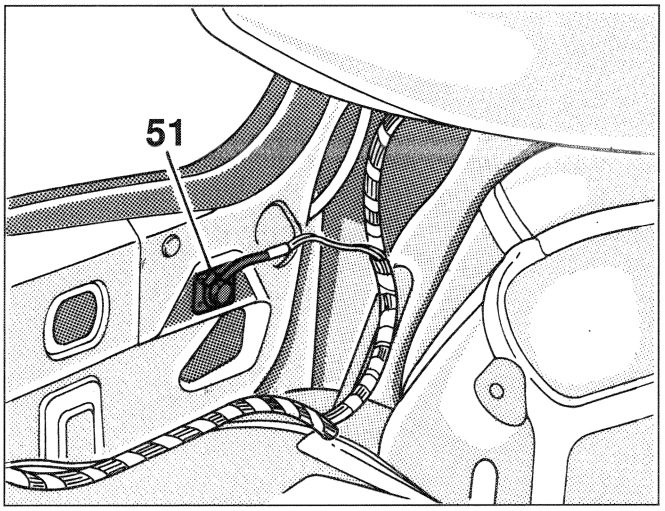
55D.

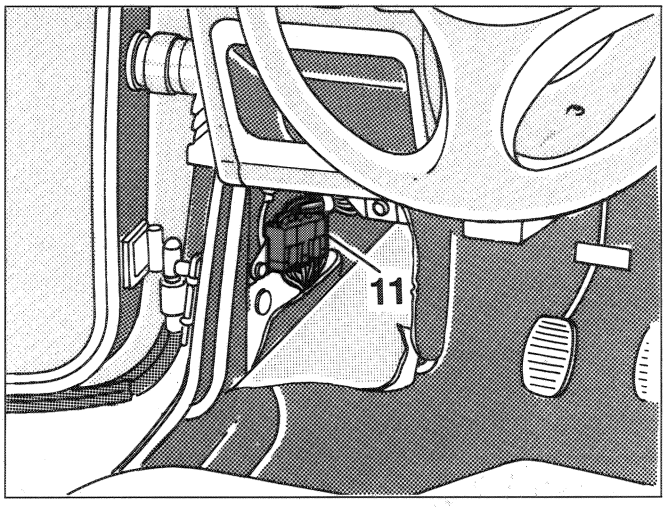
Location of components for windscreen wiper - Rearscreen wash/wipe - Windscreen and rear window washer pump - Electric horns - Heated rear windscreen and warning light







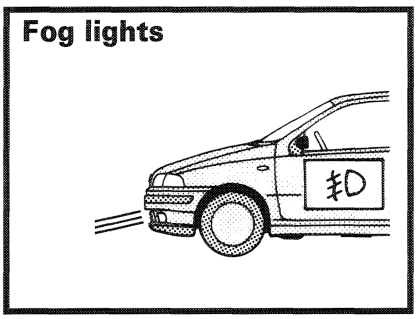




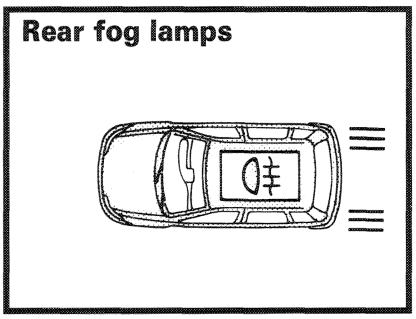
P3M242N02 P3M242N01

3M142N

Chart 8



P3M243N02



P3M243N01

GENERAL DESCRIPTION

Fog lights and rear fog lamps:
The vehicle is equipped with special halogen type fog lights and very bright rear lights for all situations where visibility is poor. This entire system ensures the maximum possible visibility in all circumstances.
The fog ilghts are switched on via a special switch in the light switch panel where the switch for the rear fog lamps is also located.
The fog lights can be switched on with the side lights on, whilst the rear fog lamps can only be switched on if the dipped headlamps are on, or with the fog lights on. Two warning lights on the actual switches signal that the fog lights or the rear fog lamps are on. Each of the two circuits is protected by a special fuse.

Hanbrake applied:

The main fucntion of the lever on the central tunnel is to ensure that the vehicle is kept stationary whilst parked on very steep inclines, but this lever can also be used for other purposes: e.g. when moving off on an incline, etc. In order to engage the handbrake or parking brake, it is necessary to pull the lever upwards to the end of travel position and to release it it must be pulled upwards and the button located at the top must be pressed in and the lever lowered. Usually it acts directly on the rear wheels of the vehicle. There is a red coloured warning light with the letter P on it in the dashboard which comes on when the handbrake is applied and lights up each time the switch is closed.

FUNCTIONAL DESCRIPTION

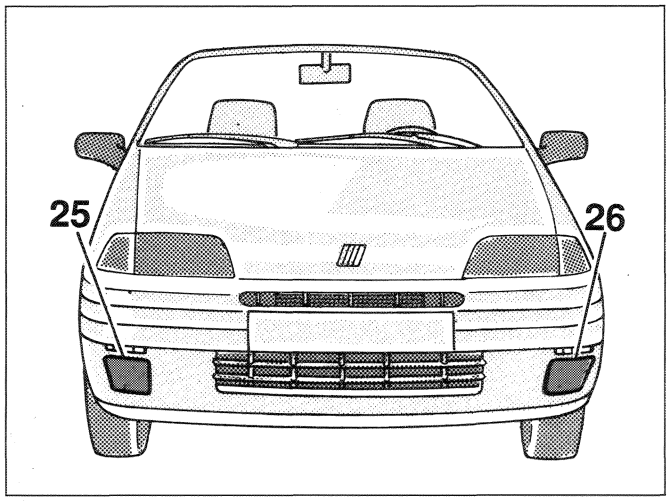
The circuit for the fog lights is controlled by the appropriate relay (E5) located in the control unit for the optional equipment. If the switch (G) in the switch unit (15) is operated this sends an earth which energizes the relay coil thereby closing the circuit which sends a supply to the right and left fog lights (25) and (26), respectively. The switch (G) is lit up e (G) when the side lights are switched on. The circuit is protected by the fuse (2) located in the control unit for the optional equipment (8). The relay feed sends a signal to the switch unit to light up the appropriate warning light (F) in the switch which indicates that the fog lights are on. This all takes place if the side lights are on.

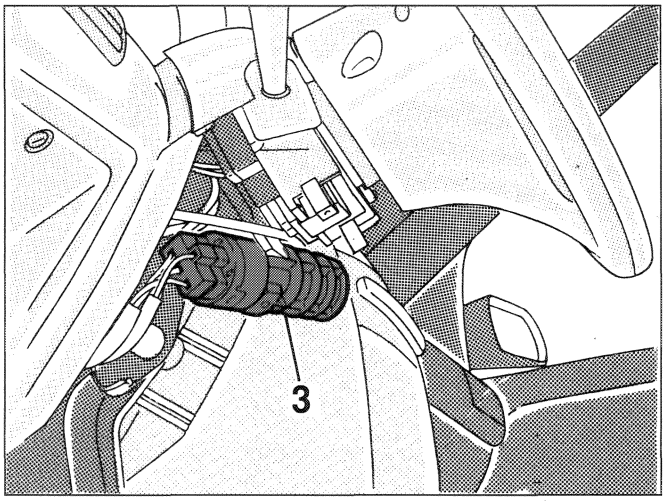
As far as the rear fog lamps are concerned the circuit is controlled by the relay (E6) located in the control unit for the optional equipment (8). Through a special switch (E) in the switch unit, with the dipped beam headlamps on, a supply and earth is sento the relay coil thereby closing the circuit which sends the supply to the right (43) and left (44) rear fog lamps. The circuit is protected by the fuse (8) in the junction unit (7). At the same time a signal is sent to the warning light (D) in the switch in the control unit (15) which indicates that the rear fog lamps are on. The rear fog lamps only work if the dipped headlamps are on or if the fog lights are on.
The handbrake warning light, is in the instrument panel (14) marked with the letter (I) and is protected by the fuse (1) in the junction unit (7) and is controlled by a switch (40) located under the handbrake lever.

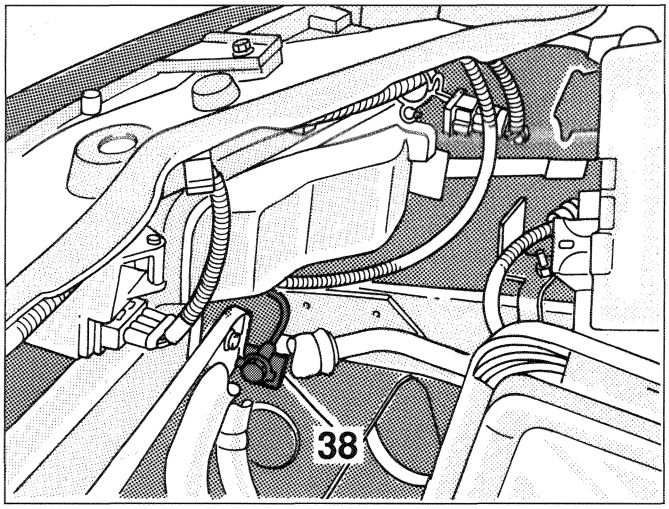
Accompaniment to illustration table

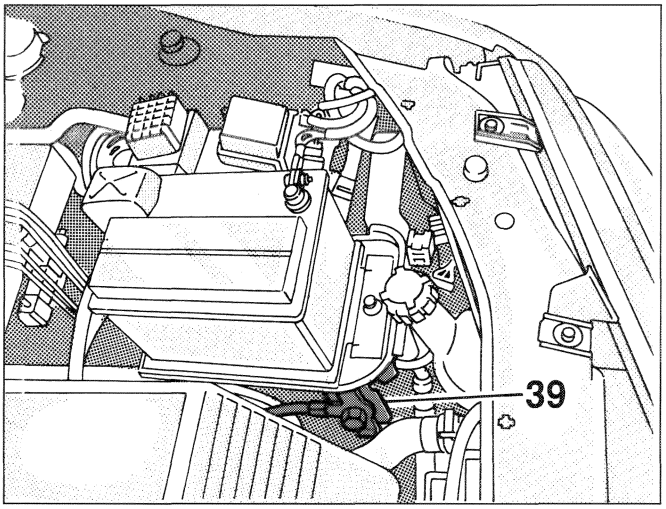
55D.

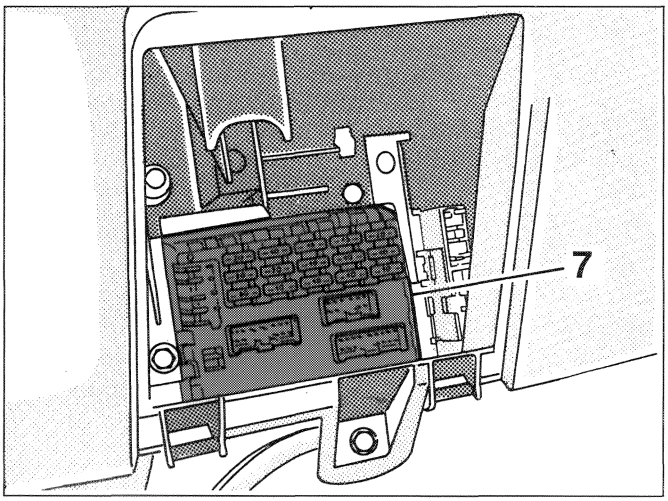
Location of components for fog lights and warning light - Rear fog lamps and warning light - Hand-brake warning light

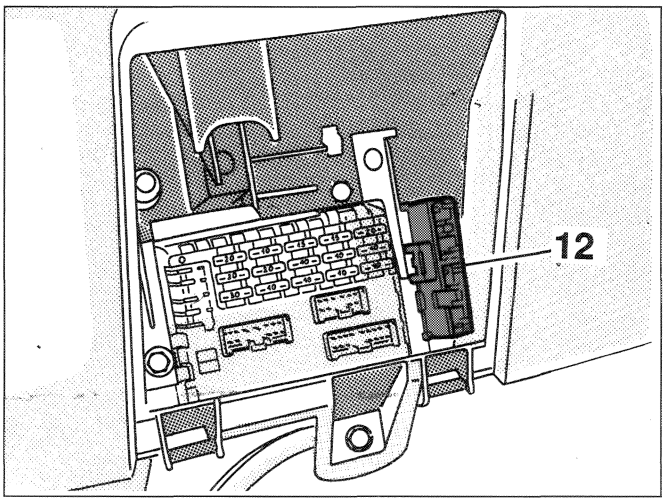








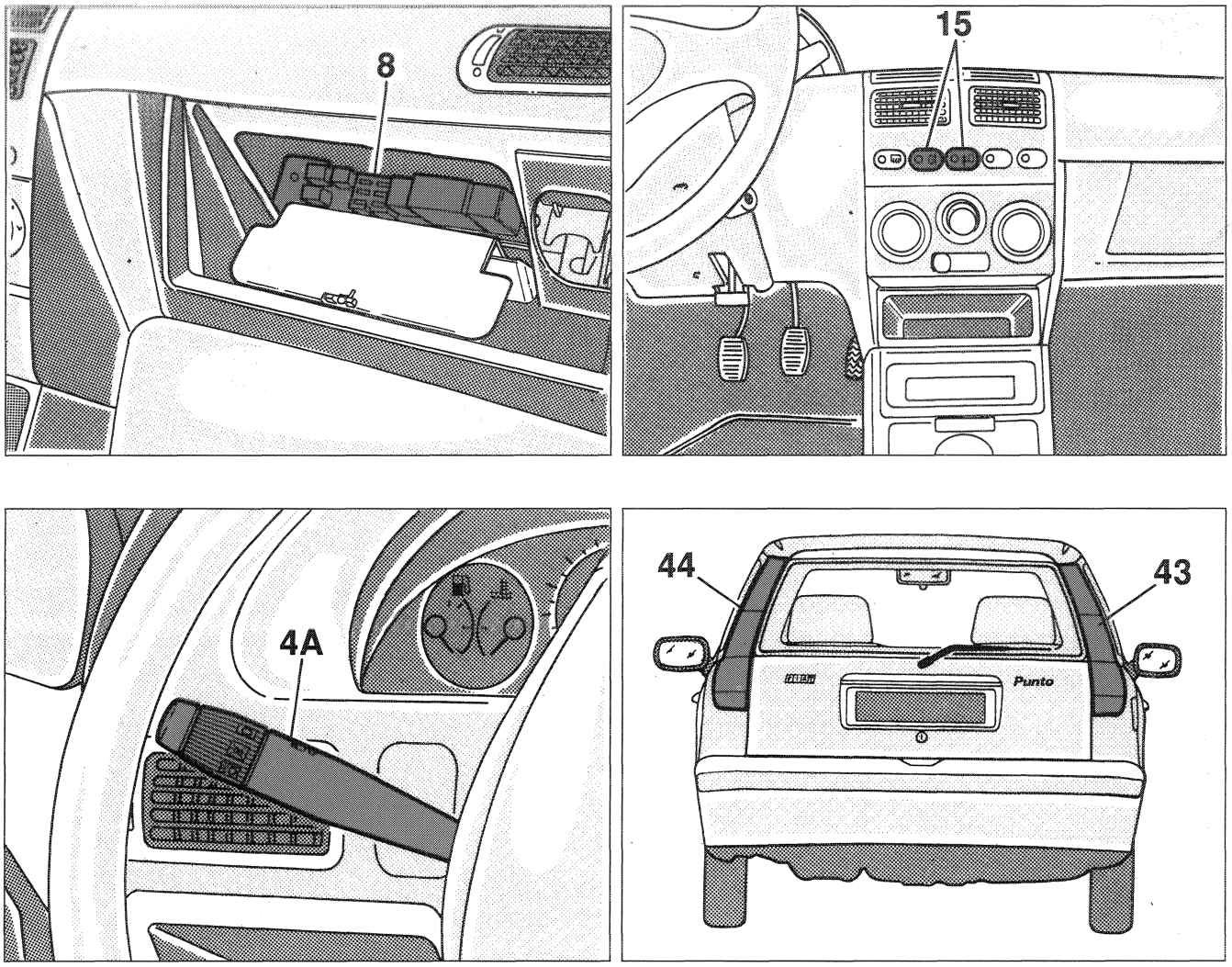




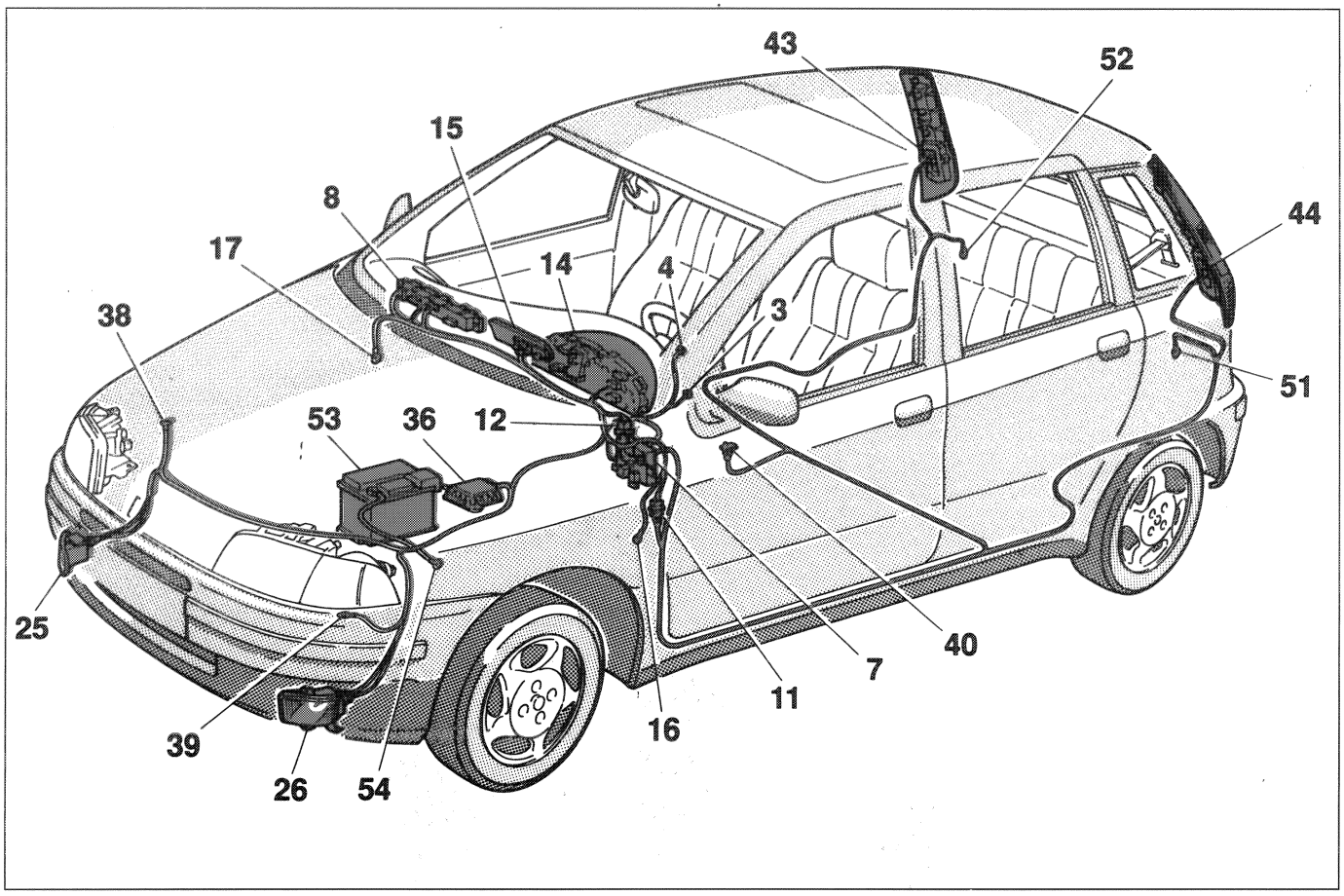
P3M244N02 P3M244N01

3M144N

Location of components for fog lights and warning light - Rear fog lamps and warning light - Hand-brake warning light



P3M245N02



P3M246N02 P3M246N01

Wiring for fog lights and warning light - Rear fog lamps and warning light - Handbrake warning light

Key for components

3 Ignition switch
4 Steering column switch unit:
- F Side lights/dipped beam headlamps control switch
- G Dipped beam/main beam headlamps control switch
- H Main beam headlamps button

7 Junction unit
8 Control unit for optional equipment :
- E5 Fog lights relay
- E6 Relay feef for rear fog lamps with fog lights on

11 Connection for dashboard cables with rear cables
12 Connection for dashboard cables with front cables
14 Instrument panel :
- I Handbrake warning light

15 Switch unit:
- D Rear fog lamps warning light
- E Rear fog lamps control switch
- F Fog lights warning light
- G Fog lights control switch

16 Left dashboard earth
17 Right dashboard earth
25 Right fog light
26 Left fog light
36 Connector block
38 Right front earth
39 Left front earth
40 Switch signalling handbrake applied
43 Right rear light cluster
44 Left rear light cluster
51 Left rear earth
52 Right rear earth
53 Battery
54 Earth for battery
N.D. Connectors

3M146N

Version: E.pack - 1372 turbo

Fog lights and warning light - Rear fog lamps and warning light - Handbrake warning light

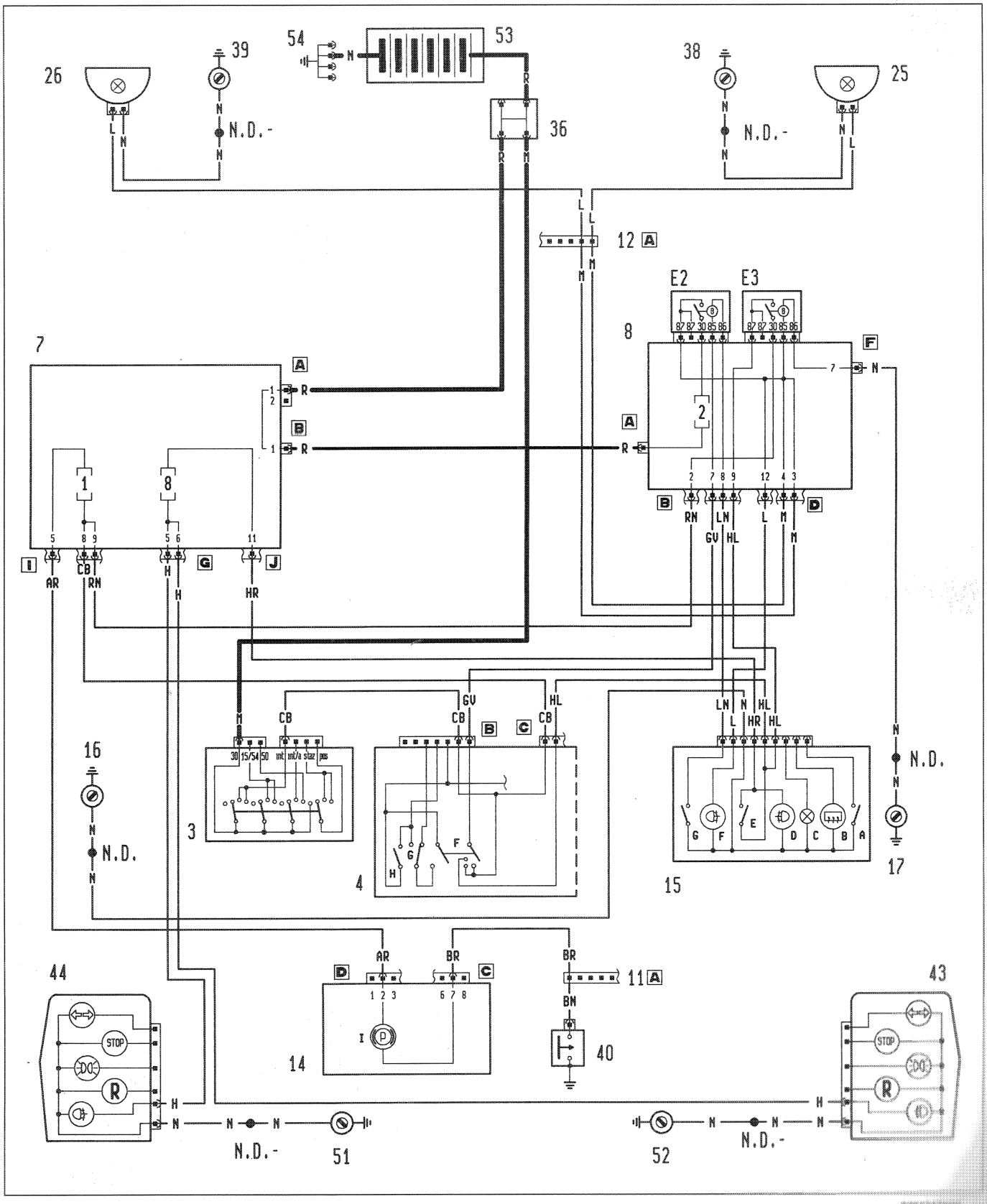
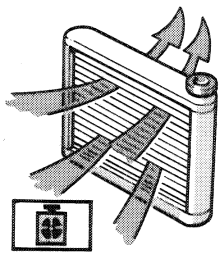


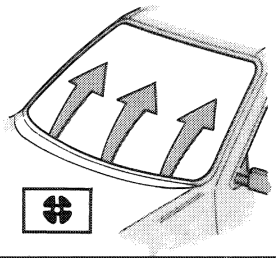
Chart 9

Engine cooling



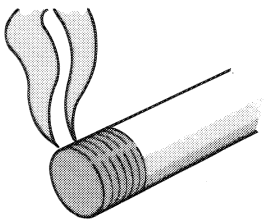
P3M249N03

Car interior ventilation



P3M249N01

Cigar lighter



P3M249N02

GENERAL DESCRIPTION

Cigar lighter:
There is an ashtray in the centre of the dashboard for the occupants of the vehicle. The resistance for the cigar lighter is located in the ashtray; the cigar lighter is switched on by pressing it in and then it pops out automatically after several seconds and is ready to use. This standard type socket can also be used for connecting other instruments of equipment (operating at 12 V). The socket is supplied even when the igntion is in the PARKING position or with the instruments switched off.

Engine cooling:
An electric fan makes it possible to increase the dissipation of the heat by the radiator and the engine coolant. A thermal switch detects when the temperature of the coolant is too high and operates the electric fan: the contact opens at between 90 and 94 degrees centrigrade and closes at between 85 and 89 degrees centrigrade.

FUNCTIONAL DESCRIPTION

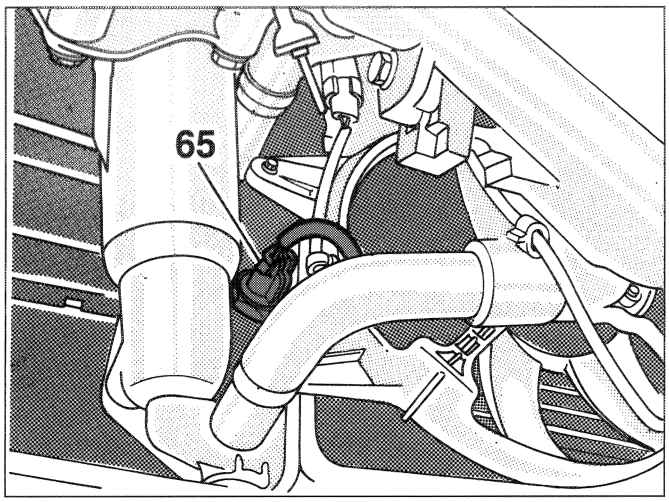
The socket for the cigar lighter (13) resistance is supplied directly by the battery votlage via the fuse (10) located in the junction unit (7) which protects the circuit. The light for the cigar lighter comes on with the side lights on: in effect, it is supplied when the lever on the steering column switch unit (4) which controls switch F is operated. The voltage coming from the relay (E1) in the junction unit passes through the fuse (2).

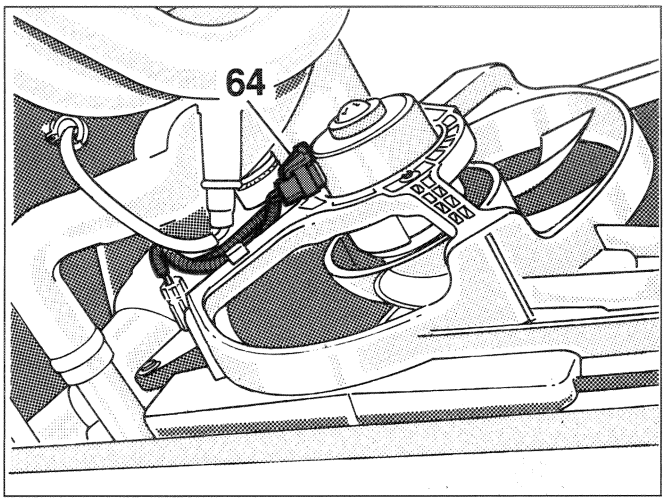
The electric fan (64) is supplied at the battery voltage through the fuse (12) inside the junction unit. The relay (E1) which controls the electric fan is controlled by the ignition and is energized by an earth signal coming from the thermal contact (65) which closes when the temperature of the coolant reaches 92 degrees centrigrade; in this way the switch (65) sends an earth to the motor which oeprates the electric fan. When the temperature goes down below 87 degrees centigrade the contact opens, the relay is de-energized and the fan switches off.

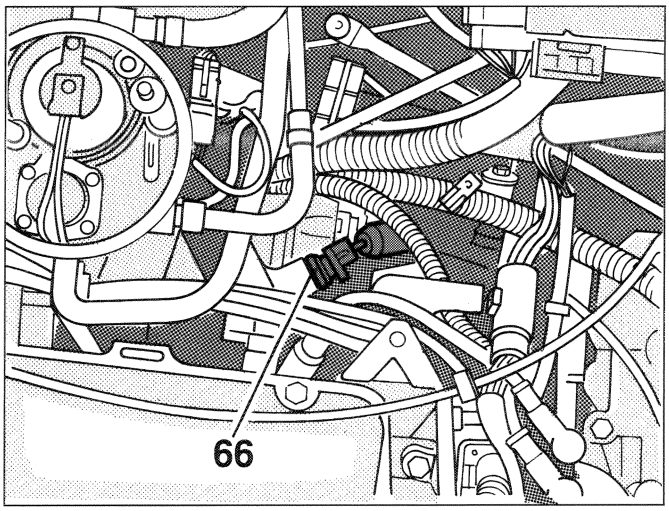
Accompaniment to illustration table

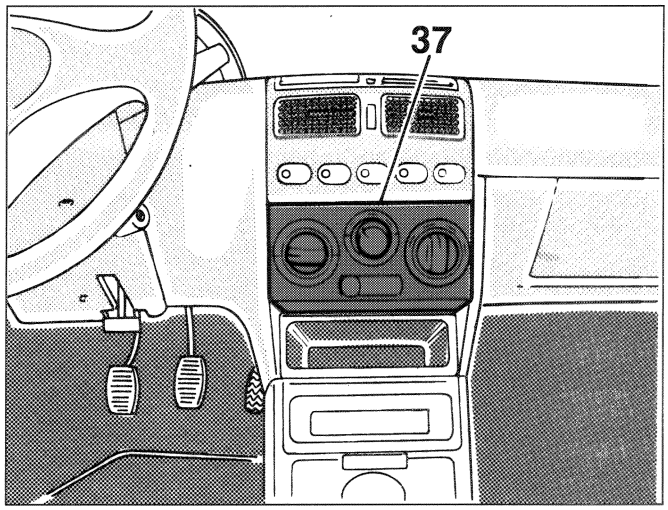
55D.

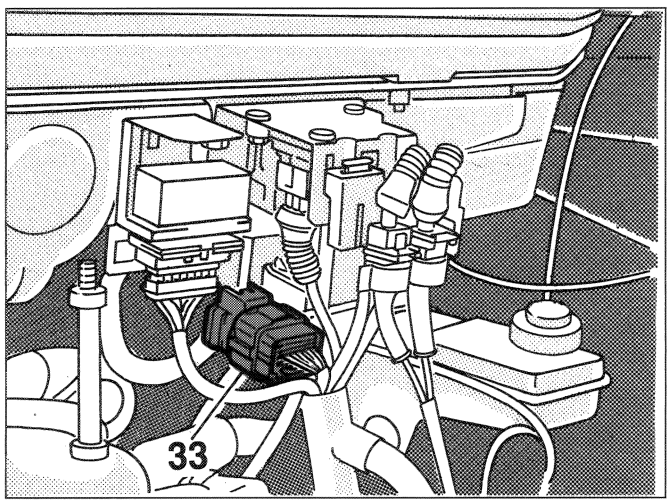
Location of components for engine cooling - Car interior ventilation - Water temperature gauge - Cigar lighter

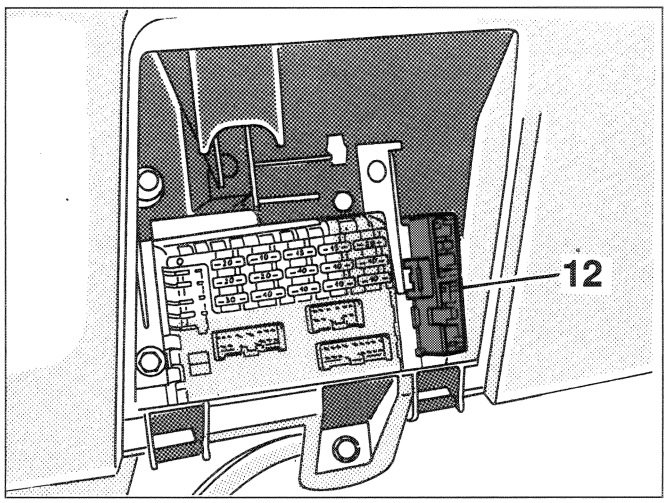








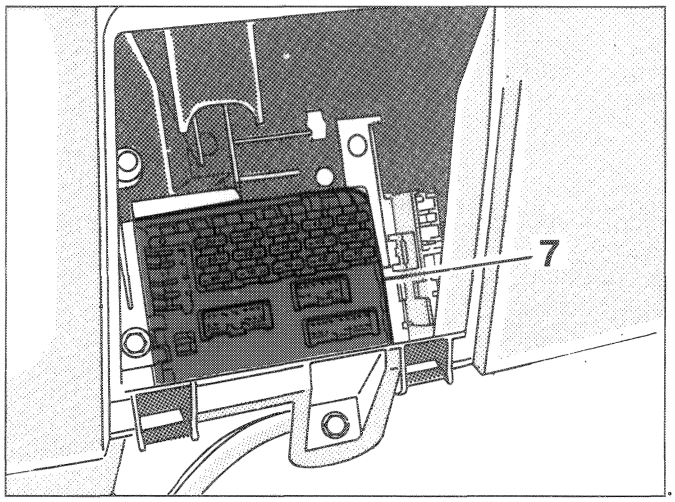


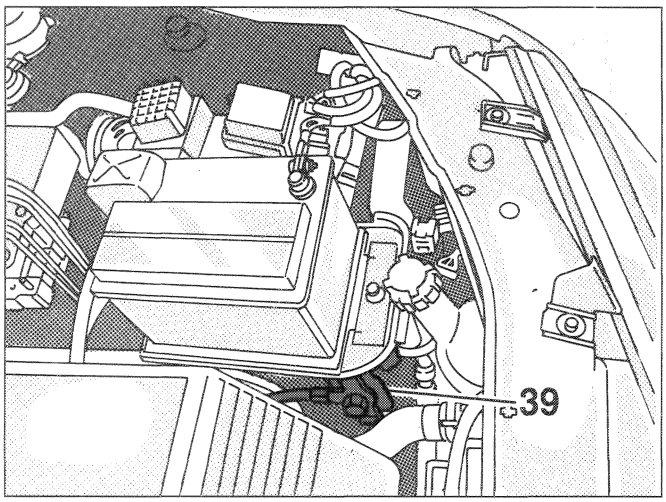


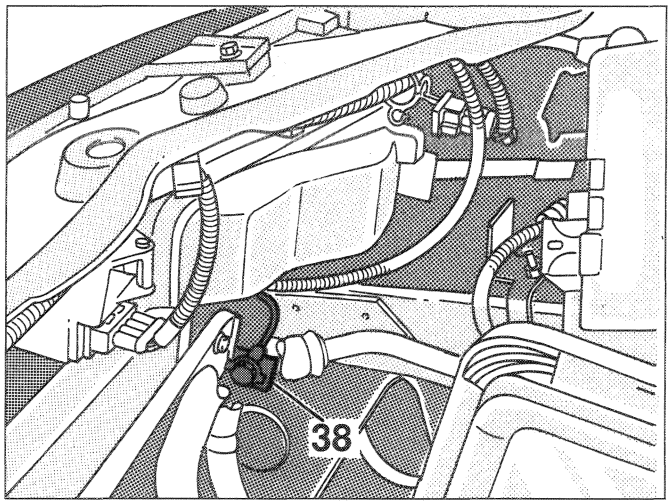
P3M250N02 P3M250N01

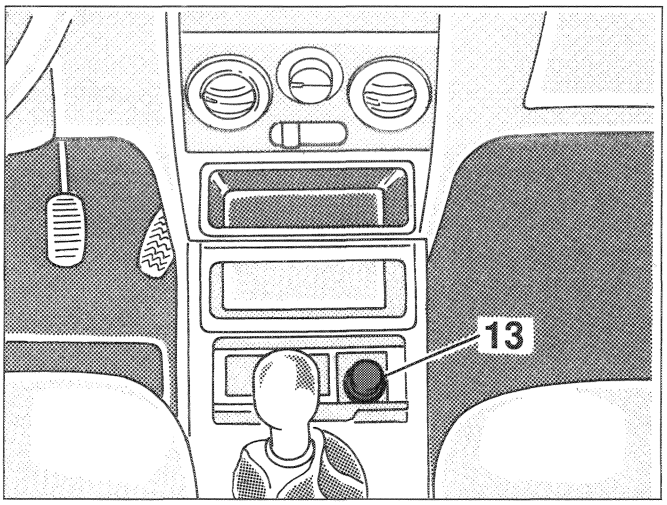
3M150N

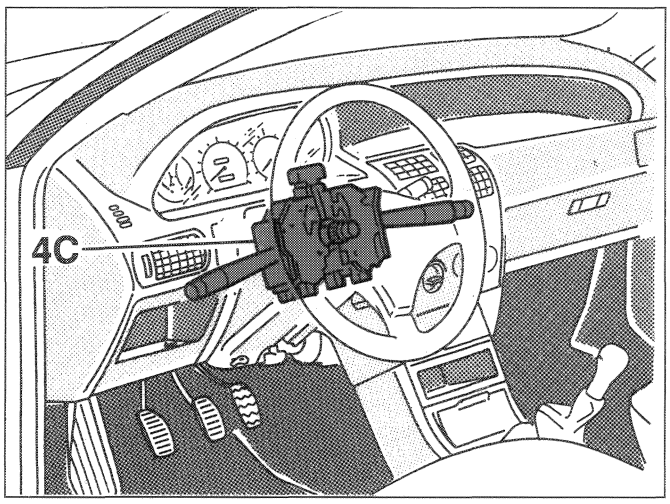
Location of components for engine cooling - Car interior ventilation - Water temperature gauge - Cigar lighter

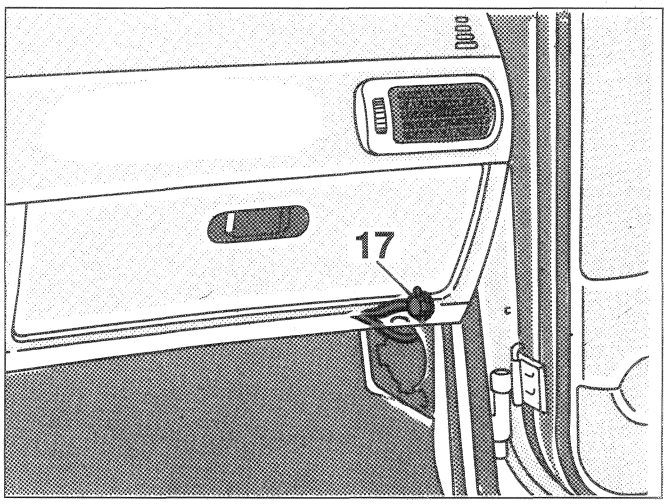






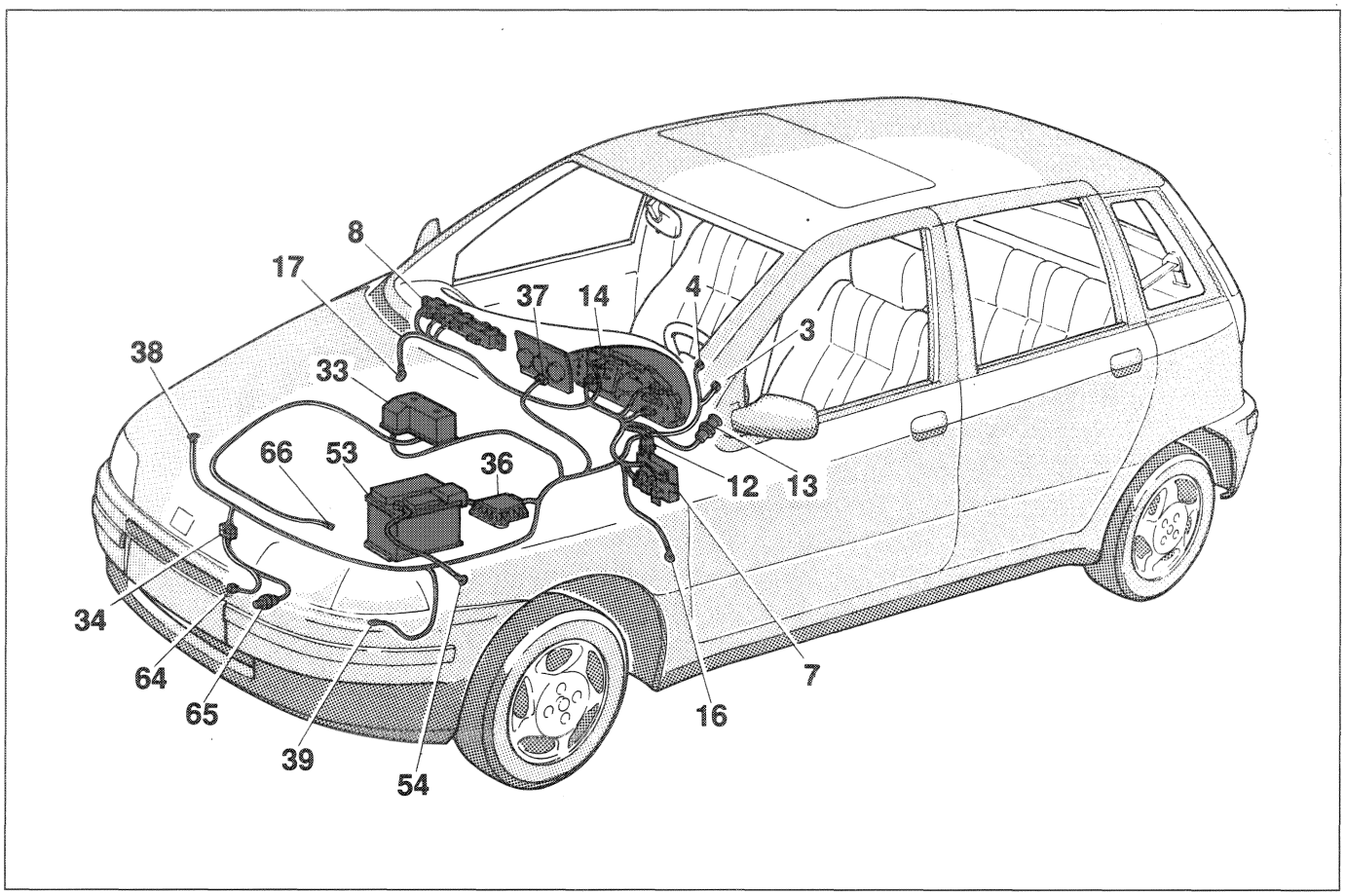






P3M251N02 P3M251N01

3M151N



P3M252N02 P3M252N01

Wiring for engine cooling - Car interior ventilation - Water temperature gauge - Cigar lighter

Key for components

3 Ignition switch
4 Steering column switch unit:
- F Side lights/dipped beam headlamps control switch
- G Dipped/main beam headlamps control switch
- H Main beam headlamps button

7 Junction unit :
- E1 Ignition discharge relay

8 Control unit for optional equipment
12 Connection for dashboard cables with front cables
13 Cigar lighter
14 Instrument panel :
- C Water temperature gauge
- C1 Coolant temperature overheating warning light

16 Left dashboard earth
17 Right dashboard earth
33 Connection for front cables
34 Connection for front cables
36 Connector block
37 Heater controls
38 Right front earth
39 Left front earth
53 Battery
54 Earth for battery
64 Engine cooling fan
65 Engine cooling fan thermal switch
66 Engine coolant temperature sensor
N.D. Connectors

3M152N

Version: All versions

Engine cooling - Car interior ventilation - Water temperature gauge - Cigar lighter

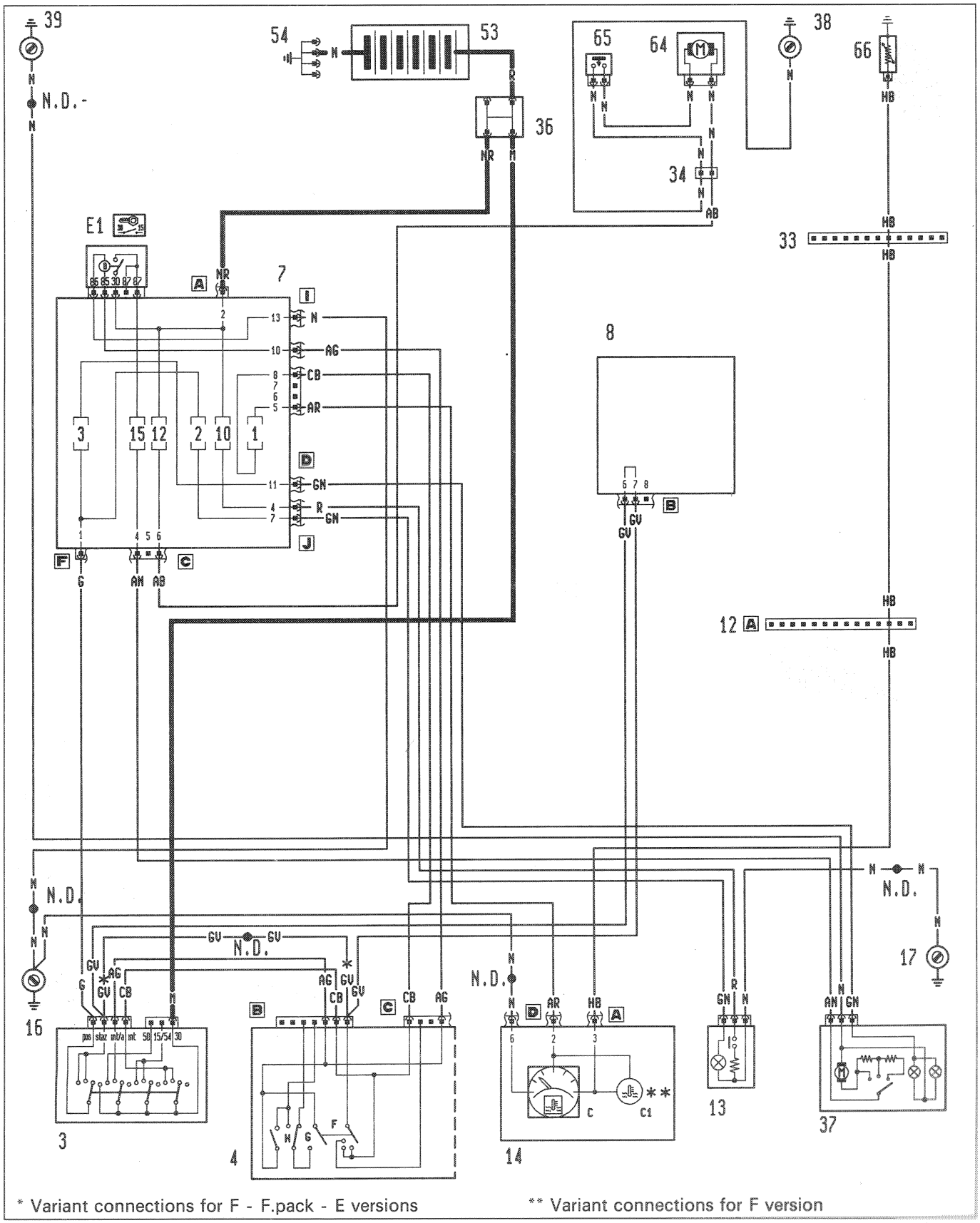
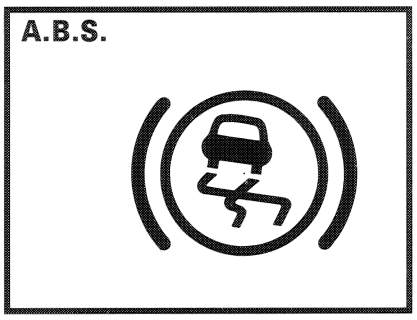


Chart 10



P3M255N01

GENERAL DESCRIPTION
Anti-lock brakes A.B.S.(Bosch 2SH)

The vehicle is equipped with anti-lock brakes (A.B.S.). This system regulates the braking pressure transmitted to the wheels preventing loss of adhesion for all tyre conditions and road surfaces.
The system has been designed to be integrated with and not to replace the normal mechanical braking system, thereby guaranteeing effective safety in the case of problems: it comes into operation using the same fluid as the conventional mechanical circuit braking system. Four sensors, located on the four wheels, send the electronic control unit signals concerning the speed of each wheel, thereby recording situations where the wheels lock, slip or lose adhesion. In these situations the control unit operates the solenoid valves which modulate the pressure in the hydraulic circuit, preventing the wheels from locking and ensuring that the adhesion is maintained, which allows the minimum possible braking distance, without losing control of the steering.

The A.B.S. also includes an autodiagnostic system which constantly checks all the system components and parameters: in the case of failures or malfunctions, the system automatically cuts out, allowing the conventional, mechanical servo-assisted system to operate: this situation is signalled to the driver by means of a special warning light in the instrument panel.

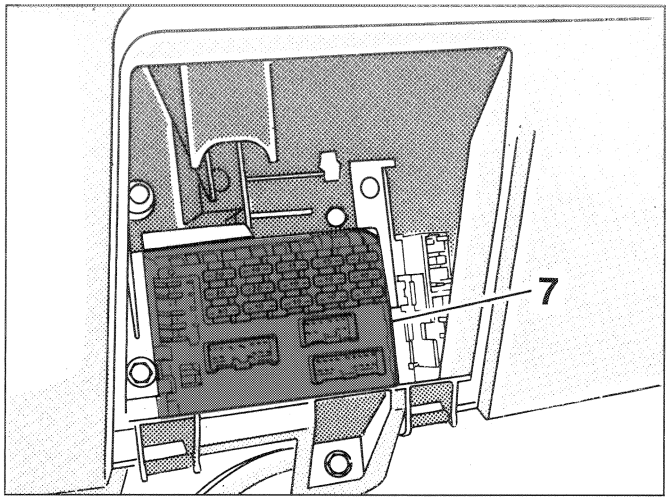
FUNCTIONAL DESCRIPTION

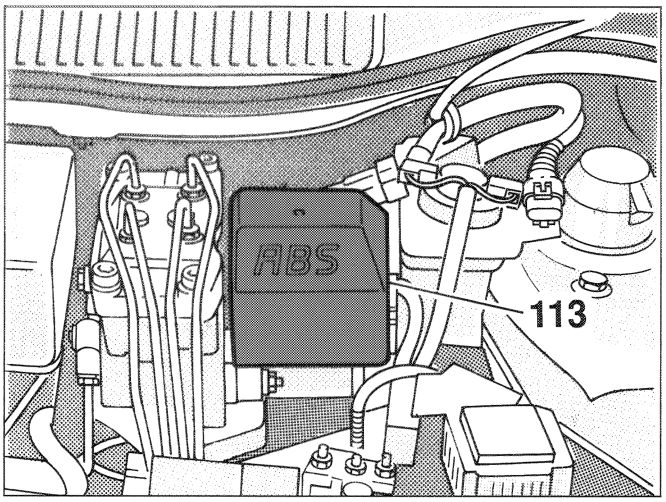
The system is made up of four sensors located on the four wheels, namely on the left front wheel (115), the right front wheel (116), the left rear wheel (117) and lastly the right rear wheel (118); they read the speed of the wheels and are operated by an electronic control unit (113) where, in addtion to the electronic control module there are also two relays, one for controlling the pump and another safety relay.
The module is connected, inside the control unit, to the adjustment solenoid valves, whilst on the outside it is connected to the four sensors which signal the speed of the vehicle and with the brake switch (20) which sends a go ahead signal: in effect the operation of the system is excluded when the brake pedal is not pressed. When the control unit detects problems through the autodiagnostic function by means of the diagnostic socket (114), it sends a signal to the instrument panel (14) which lights up the A.B.S. failure warning light which has the letter (M) on it: this signal depends on the malfunction of the electronic module or the operation of the hydraulic section. The circuit is protected by a 10A fuse (31).

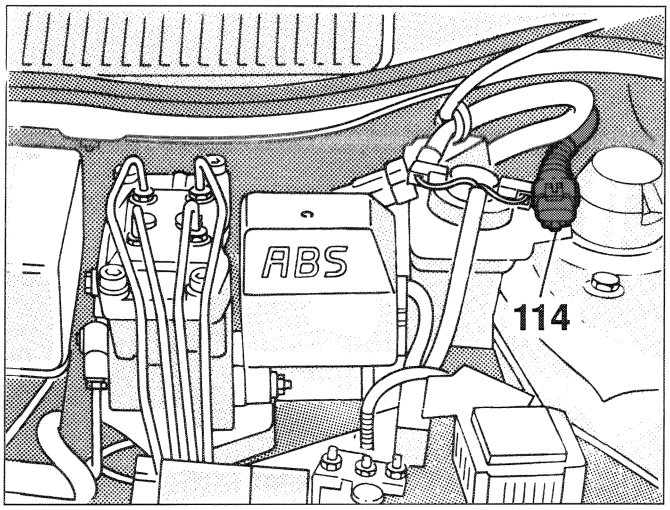
3M155N

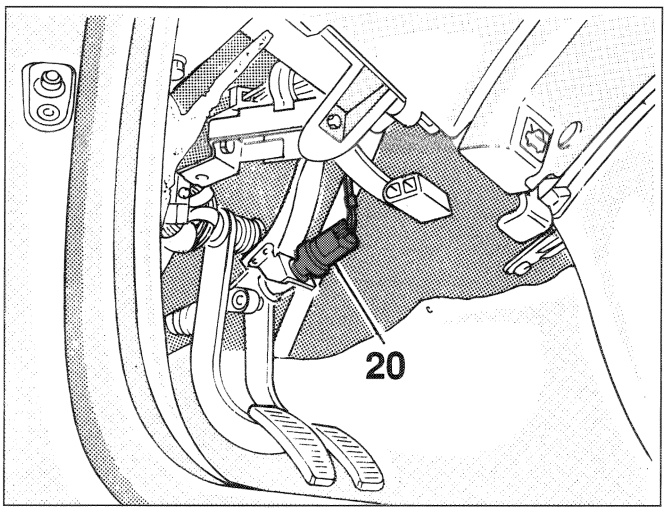
55D.

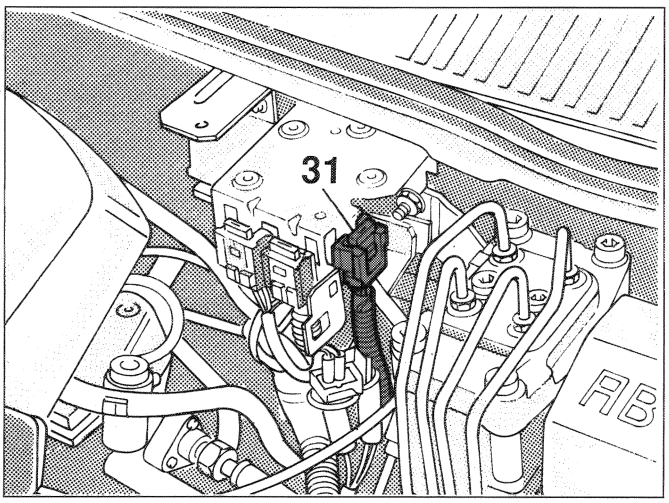
Location of components for anti-lock brakes (A.B.S. 2SH) and failure warning light

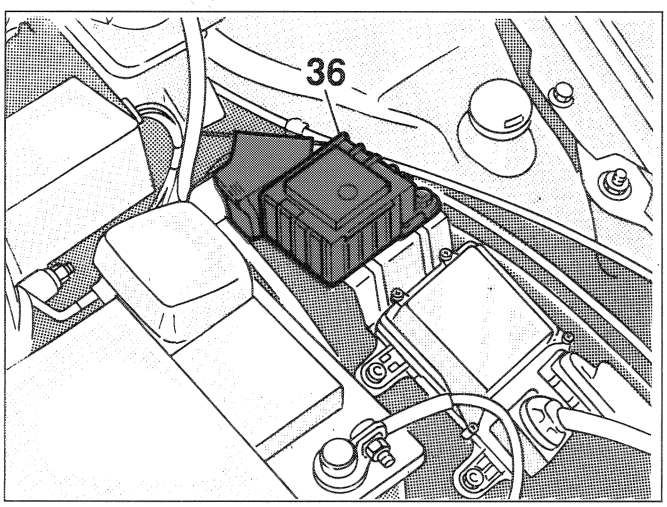








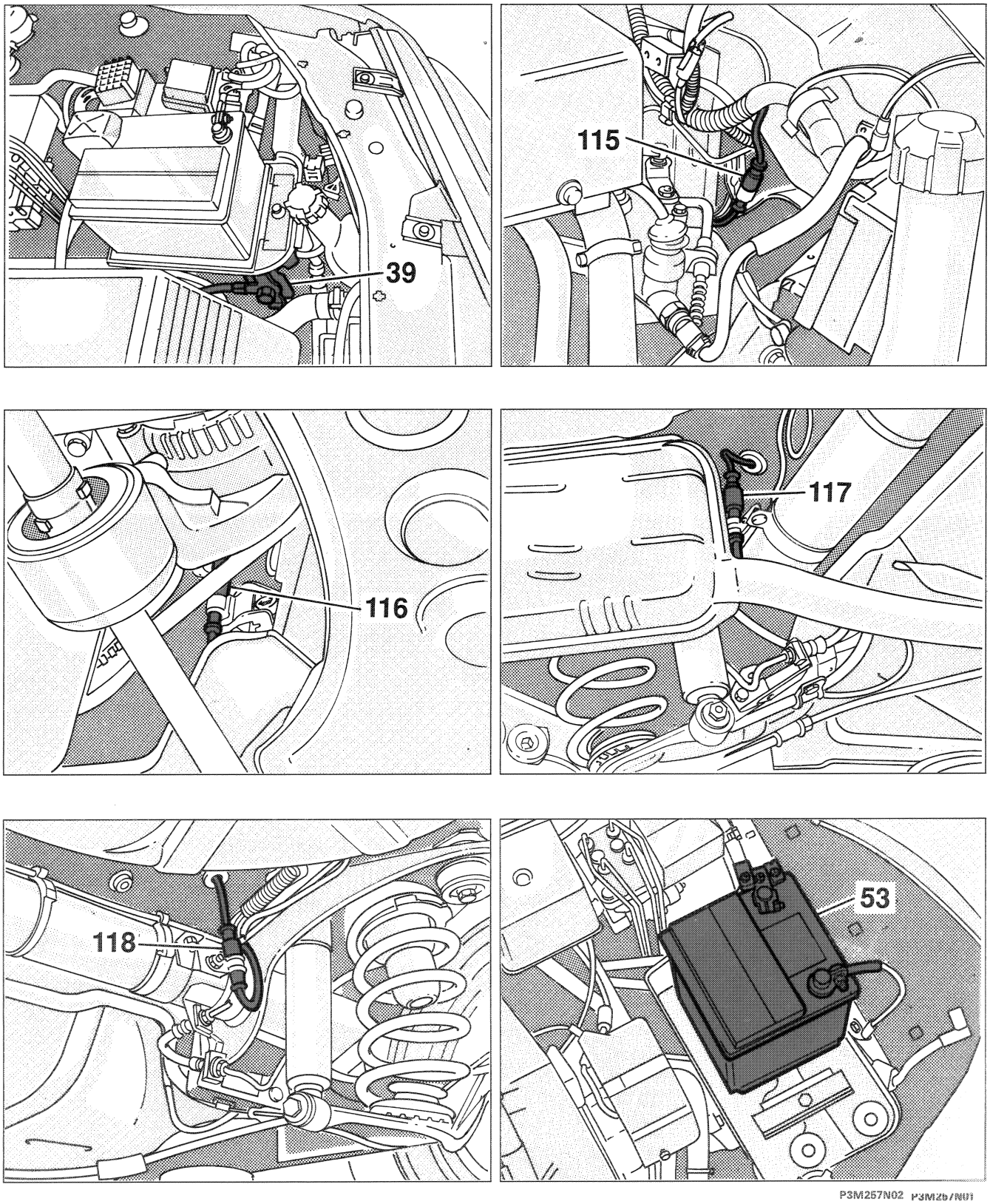




P3M256N02 P3M256N01

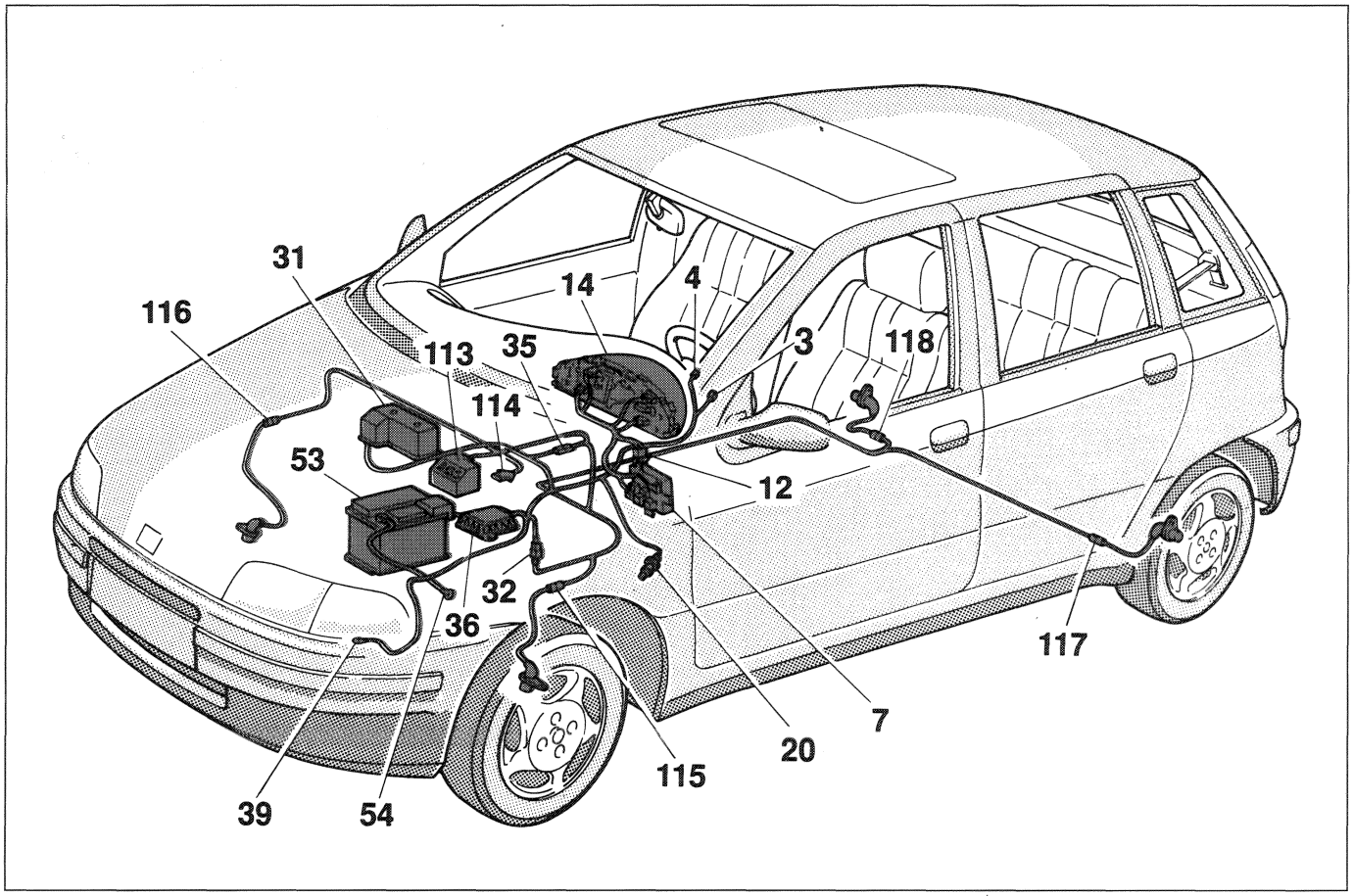
3M156N

Location of components for anti-lock brakes (A.B.S. 2SH) and failure warning light



P3M257N02 P3M2b7N01

3M157N



P3M258N02 P3M258N01

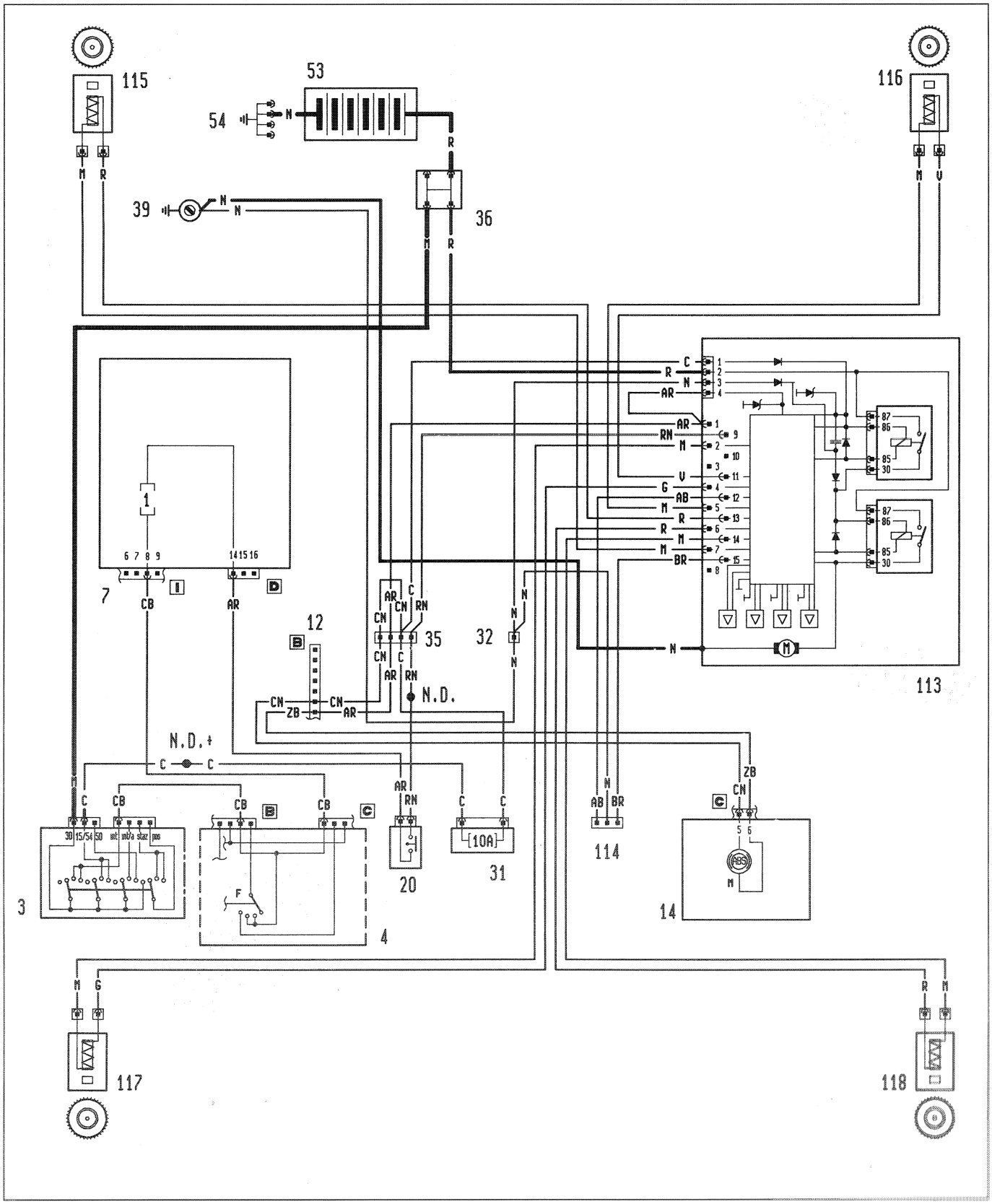
Wiring for anti-lock brakes (A.B.S. 2SH) and failure warning light

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
12 Connection for dashboard cables with front cables
14 Instrument panel :
M Anti-lock braking system failure warning light
20 Brake lights switch
31 10A protective fuse for anti-lock brakes
32 Connection for anti-lock brakes cables
35 Connection between front cables and anti-lock brakes cables
36 Connector block
39 Left front earth
53 Battery
54 Earth for battery
113 Electronic control unit for anti-lock brakes (A.B.S.)
114 Diagnostic socket for anti-lock braking system
115 Sensor on left front wheel (A.B.S.)
116 Sensor on right front wheel (A.B.S.)
117 Sensor on left rear wheel (A.B.S.)
118 Sensor on right rear wheel (A.B.S.)
N.D. Connectors

Version: F.pack - E.pack - 1372 turbo

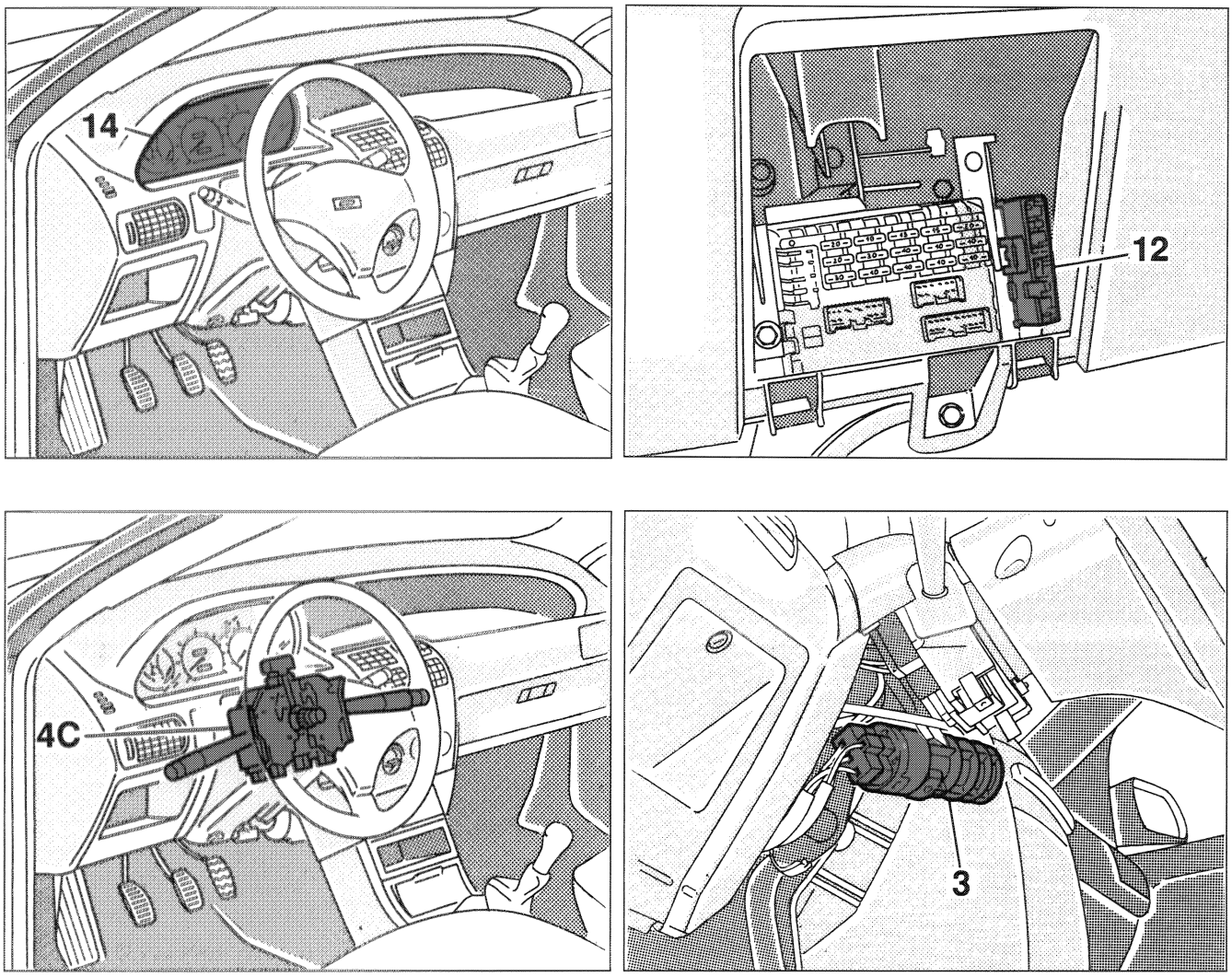
Anti-lock brakes (A.B.S. 2SH) and failure warning light



Accompaniment to illustration table

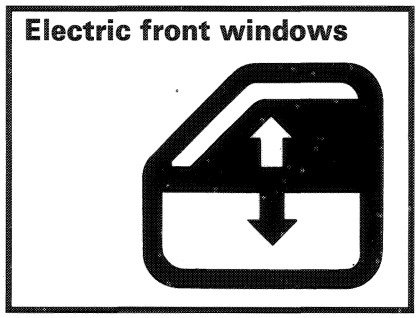
55D.

Location of components for anti-lock brakes (A.B.S. 2SH) and failure warning light



P3M260N02

Chart 11



P3M261N01

GENERAL DESCRIPTION

Electric front windows:
The vehicle may be equipped with electric front windows. The type of operation is automatic, controlled by a control unit which operates in accordance with the following logic: when one of the two buttons is pressed and kept pressed the window opens or closes normally until the button is released.

However, in the case of a quick impulse the motor is operated and only stops automatically in the end of travel position (window completely open or closed).
Lastly there is the case of the button being pressed for less than 50 ms. which is considered by the control unit as an accidental impact and nothing happens.
Both the windows are "controlled by the ignition", but the control unit allows the operation of the left front window even if the ignition is switched off if that door is open. The electrical mechanism which operates the right front window is, however, conventional: when the button is pressed the window goes up or down; there are three control switches: two on the left door and one on the right.

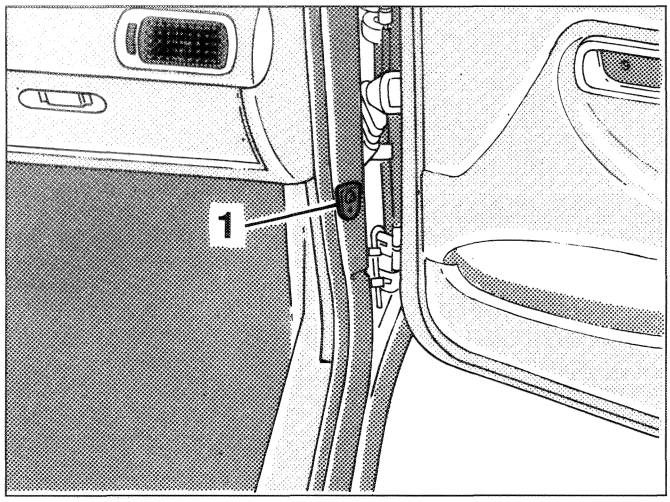
FUNCTIONAL DESCRIPTION

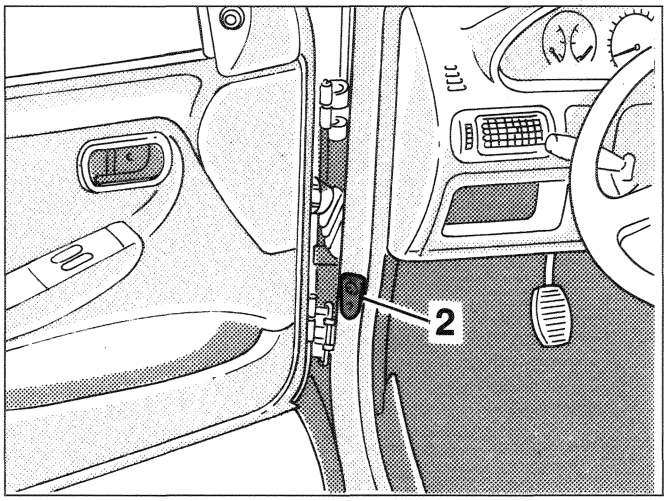
The electrical system for the electric windows is made up of an electronic control unit (E2) fitted on the control unit for the optional equipment (8) which allows the operation of the driver's side window both conventionally and automatically.
With the ignition switch (3) in the ON position, if the driver's sude electric window electric window control button (72) is pressed, the window operates automatically, i.e. the window closes or opens fully even without keeping this button pressed.
The window for the passenger side door can only be operated conventionally by pressing the appropriate control buttons in the driver's side control panel (73) and the passenger side control button (74).
There is a double switch inside the control panel which sends an earth to the control unit and consequently to the left motor (70) or right motor (71) from the section where the contact is closed, thereby determining the direction of rotation of the actual motor.
The circuit is protected by a fuse (10) in the junction unit (7).

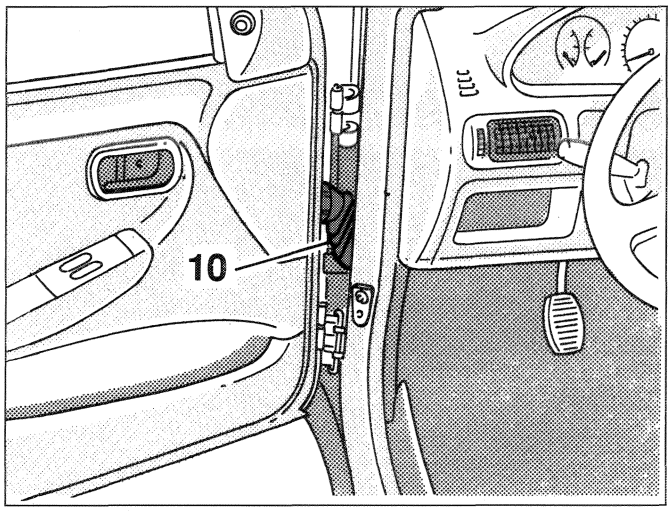
Accompaniment to illustration table

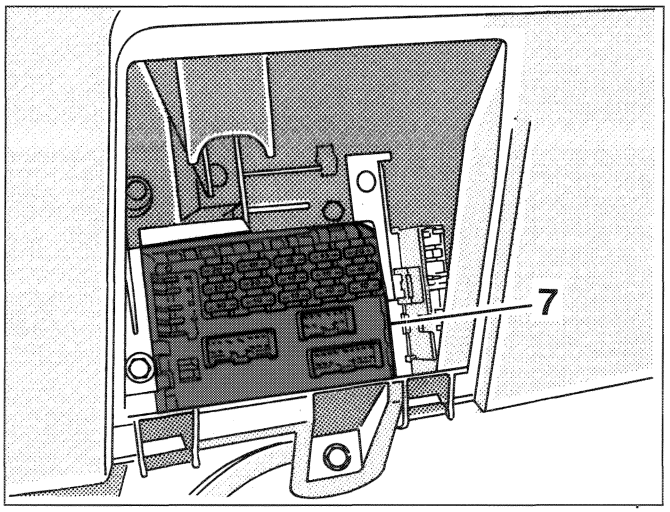
55D.

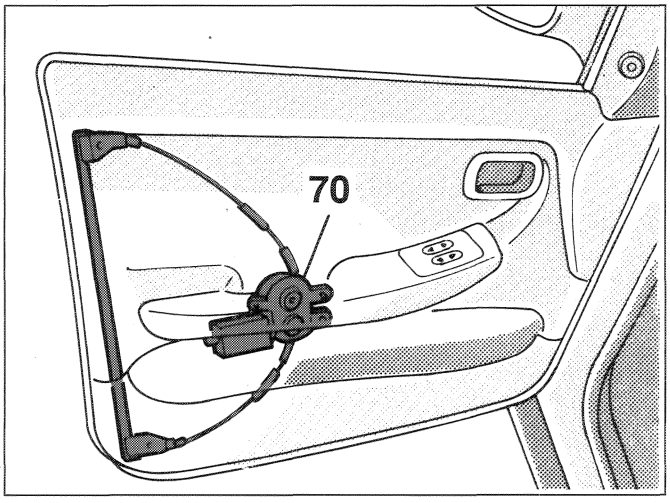
Location of components for electric front windows

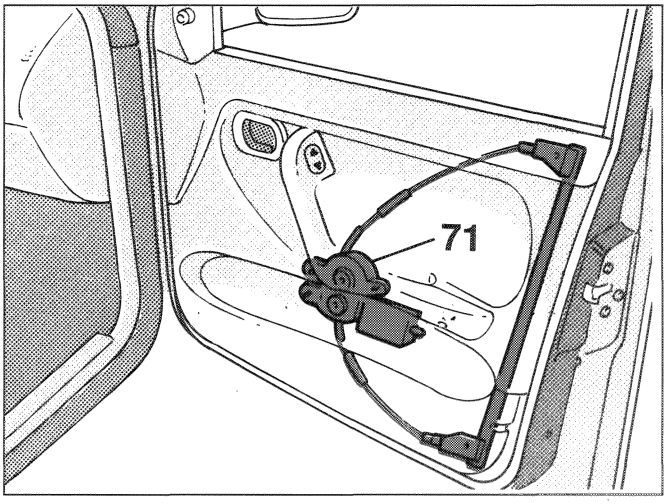








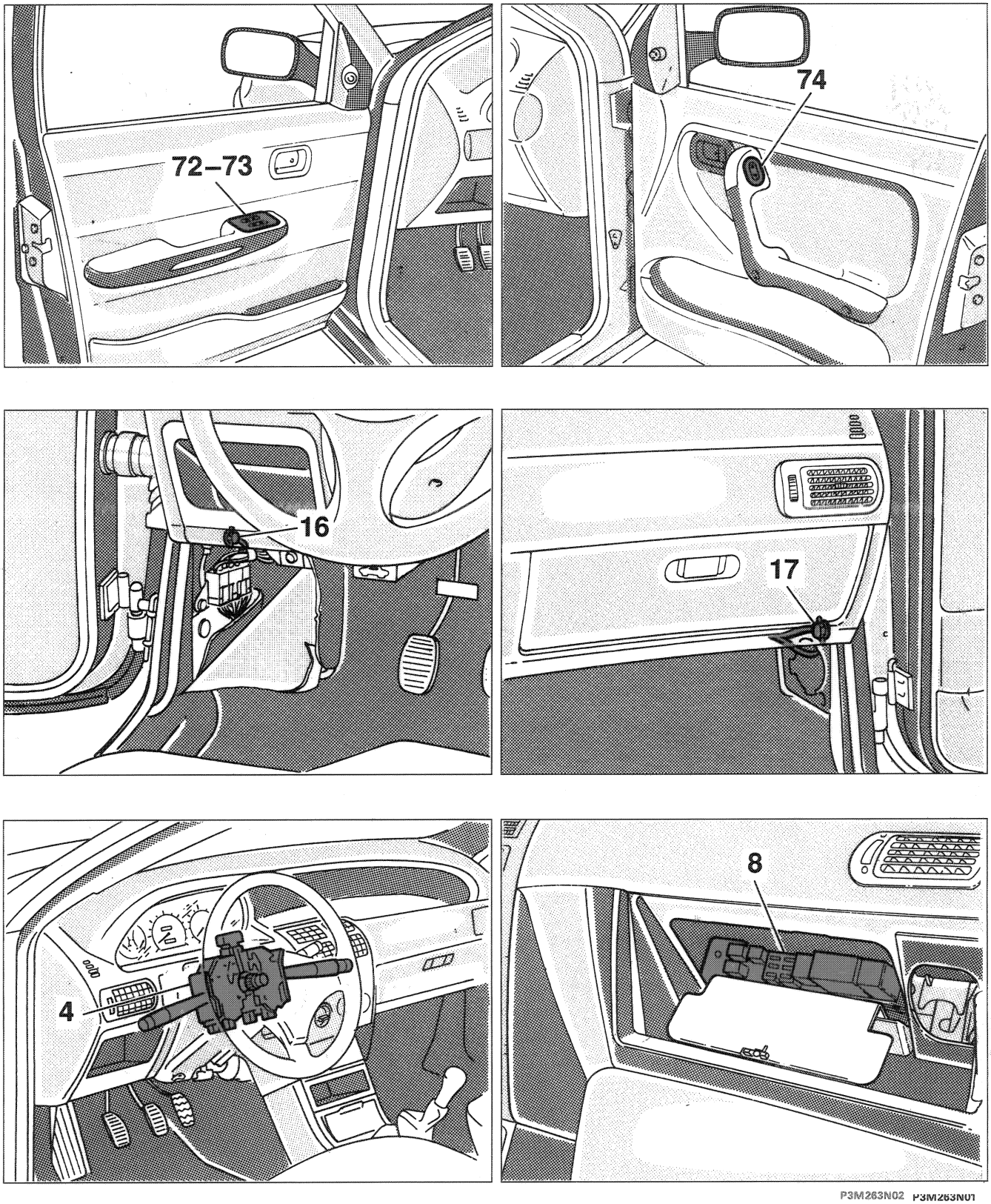




P3M262N02

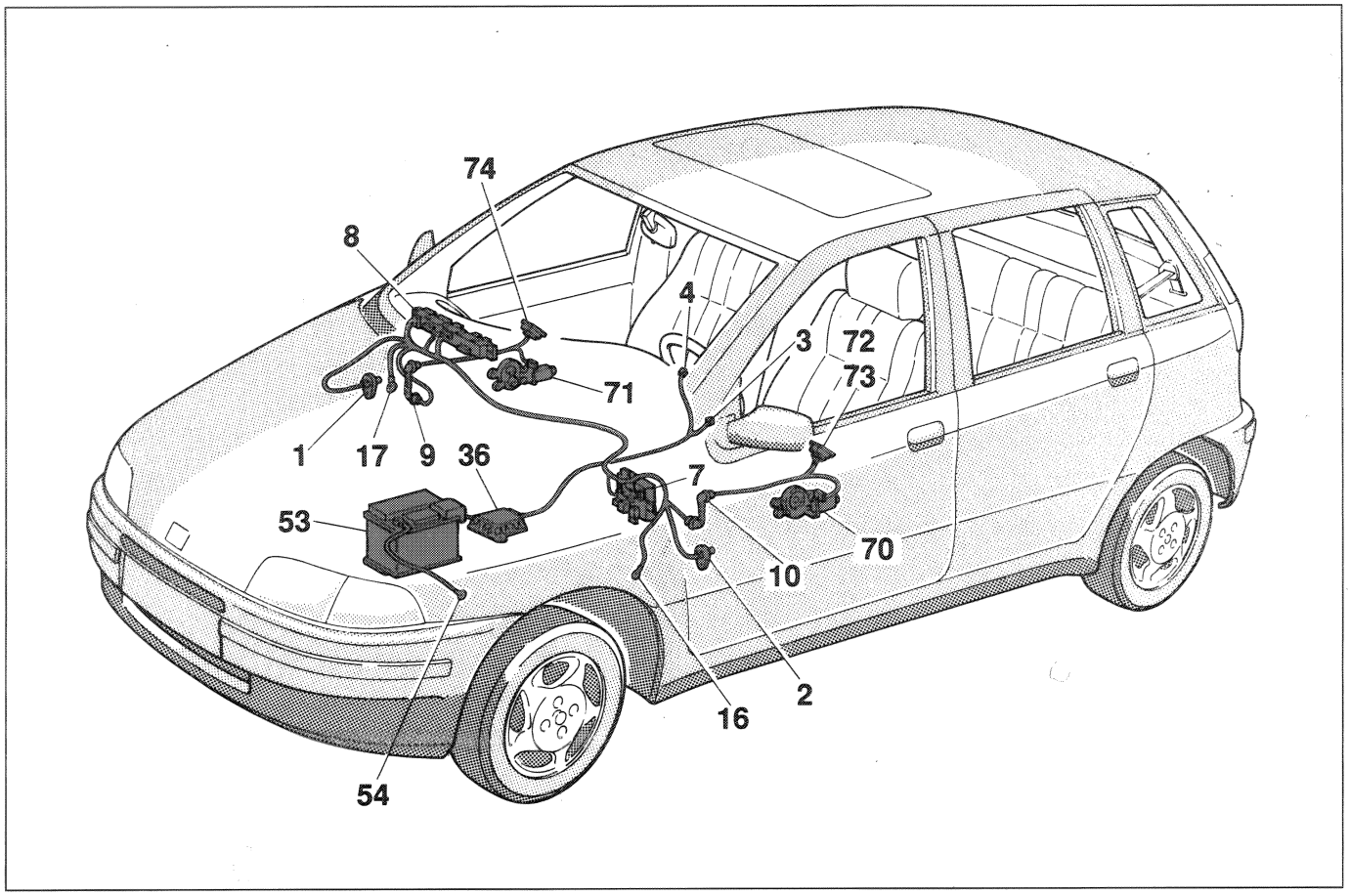
3M162N

Location of components for electric front windows



P3M263N02 P3M263N01

3M163N



P3M264N02 P3M264N01

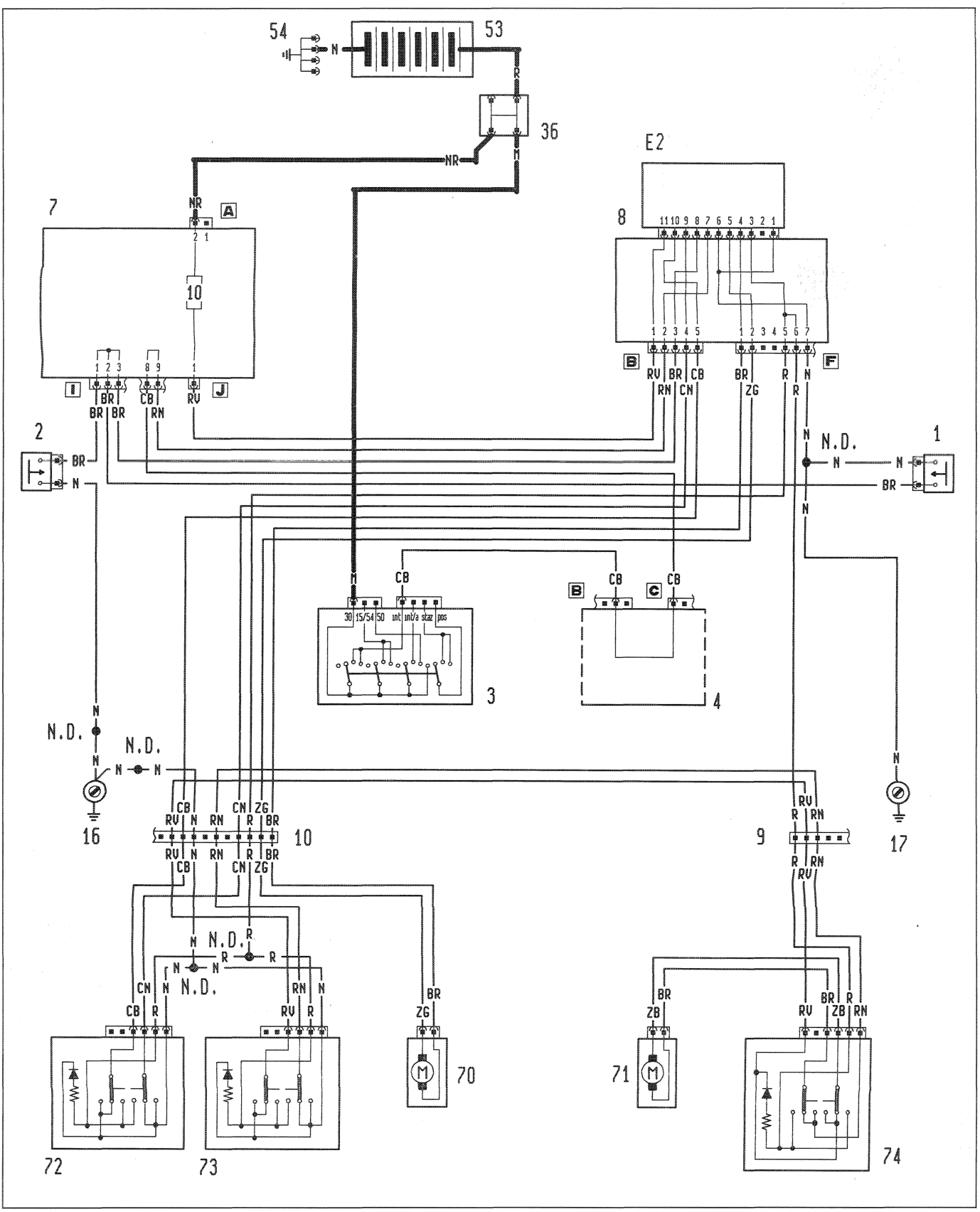
Wiring for electric front windows

Key for components

1 Right front courtesy light button signalling door ajar
2 Left front courtesy light buttotn signalling door ajar
3 Ignition switch
4 Steering column switch unit
7 Junction unit
8 Control unit for optional equipment :
E2 Control unit for electric front windows
9 Connection for passenger side front door dashboard cables
10 Connection for driver's side front door dashboard cables
16 Left dashboard earth
17 Right dashboard earth
36 Connector block
53 Battery
54 Earth for battery
70 Driver's side front electric window motor
71 Passenger side front electric window motor
72 Left front electric window driver's side control panel
73 Right front electric window driver's side control panel
74 Right front electric window passenger side control panel
N.D. Connectors

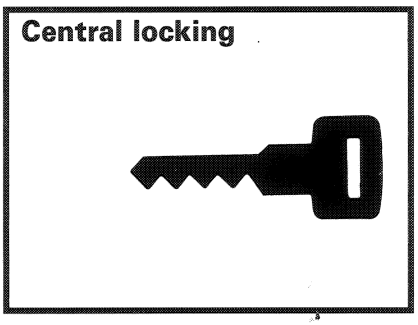
Version: E.pack - 1372 turbo

Electric front windows



P3M265N01

Chart 12



P3M267N01

GENERAL DESCRIPTION

Central locking:
The central locking device is made up of an electronic control unit which controls and operates the door locks; each of them comprises a locking/unlocking geared motor, a control switch (connected only to the electrical circuit for the front doors) and a switch signalling that the door is ajar.
The control unit logic does not allow the locking/unlocking if there is a signal that one of the doors is open.
When all four doors are properly shut the geared motors are able to operate, all four at the same time, acting on the control switches, from inside through the knobs or from outside with the key.
For safety reasons the switches for the rear doors are mechanical only (and only close the appropriate door) and do not come into operation for the electrical locking / unlocking.

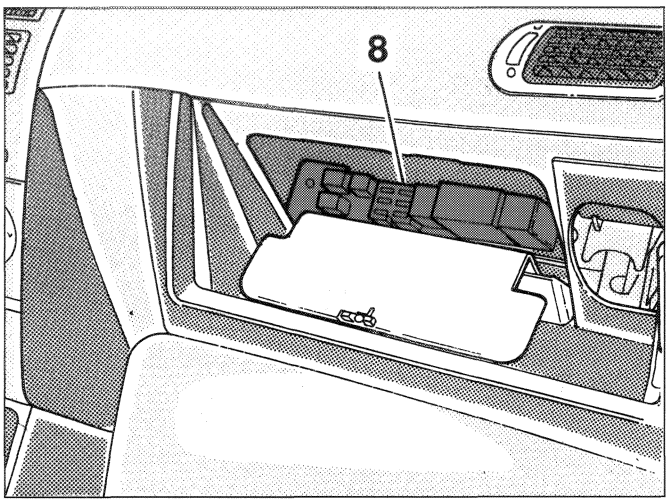
FUNCTIONAL DESCRIPTION

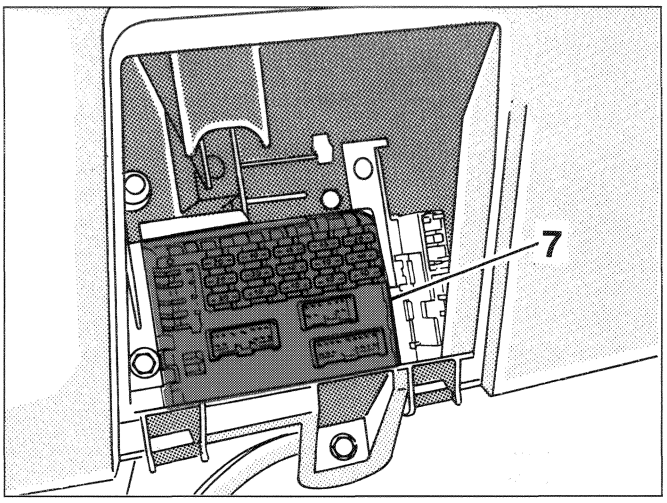
The device is made up of four geared motors (75 - 76 - 79 - 80) in the locks of the four doors.
The system is controlled by an electronic unit (E1) fitted on the control unit for the optional equipment (8).
When a locking operation is carried out, the electronic unit (E1) locks all the locks simultaneously via the front locks (75 - 76). When an unlocking operation is carried out, the locks for the four doors are unlocked.
The electronic control unit (E1) is equipped with an electronic safety circuit which cuts off the supply to the geared motors 15 - 35 secs after a locking or unlocking command has been given. This is to prevent the geared motors from being constantly supplied and burning out if the relay feeds become stuck.
From the moment the integrated circuit detects several consecutive manoeuvres, at least 4 - 10 in the time interval (150 - 250 ms.), the system intervenes activating the manoeuvre restricter. The latter remains inhibited in the release position for 90 to 150 secs.
There is a warning light in the instrument panel (14) marked with the letter R signalling that a door is ajar which remains on each time one of the four doors is accidentally left open (with the ignition switched on) and the warning light is protected by a fuse (1) in the junction unit (7).

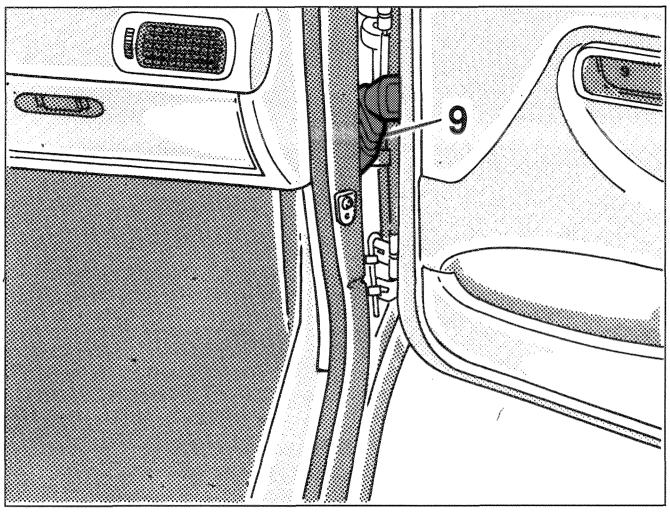
Accompaniment to illustration table

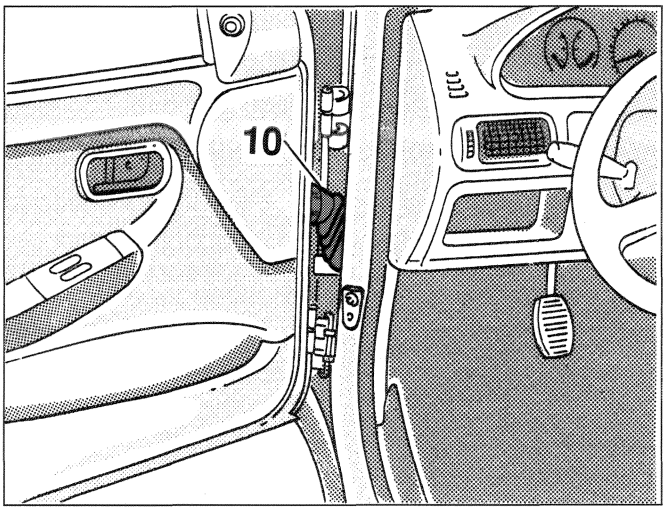
55D.

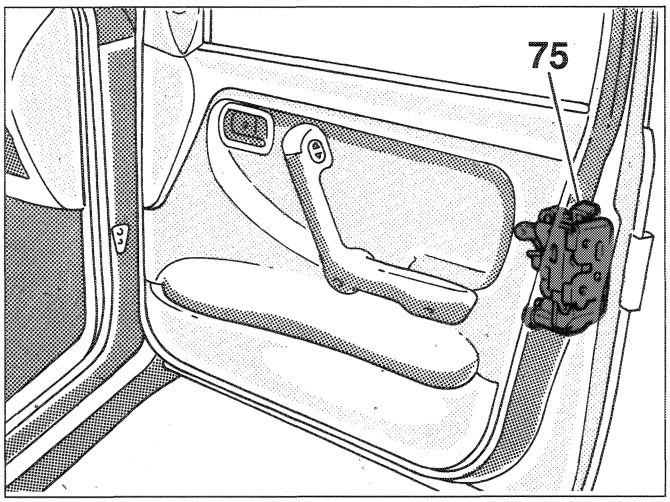
Location of components for central locking - Warning light signalling doors ajar

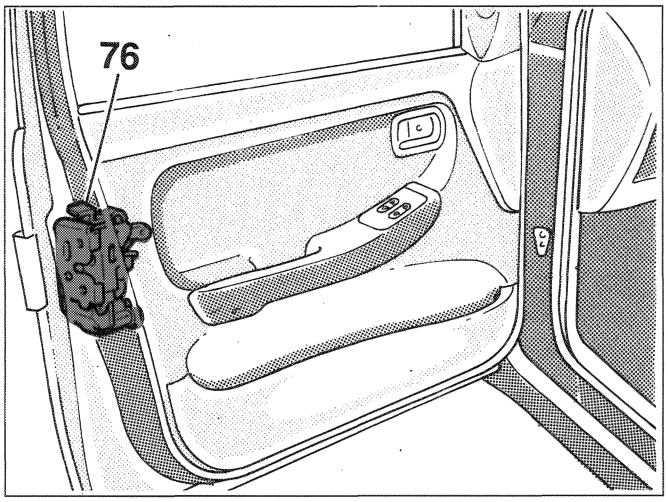








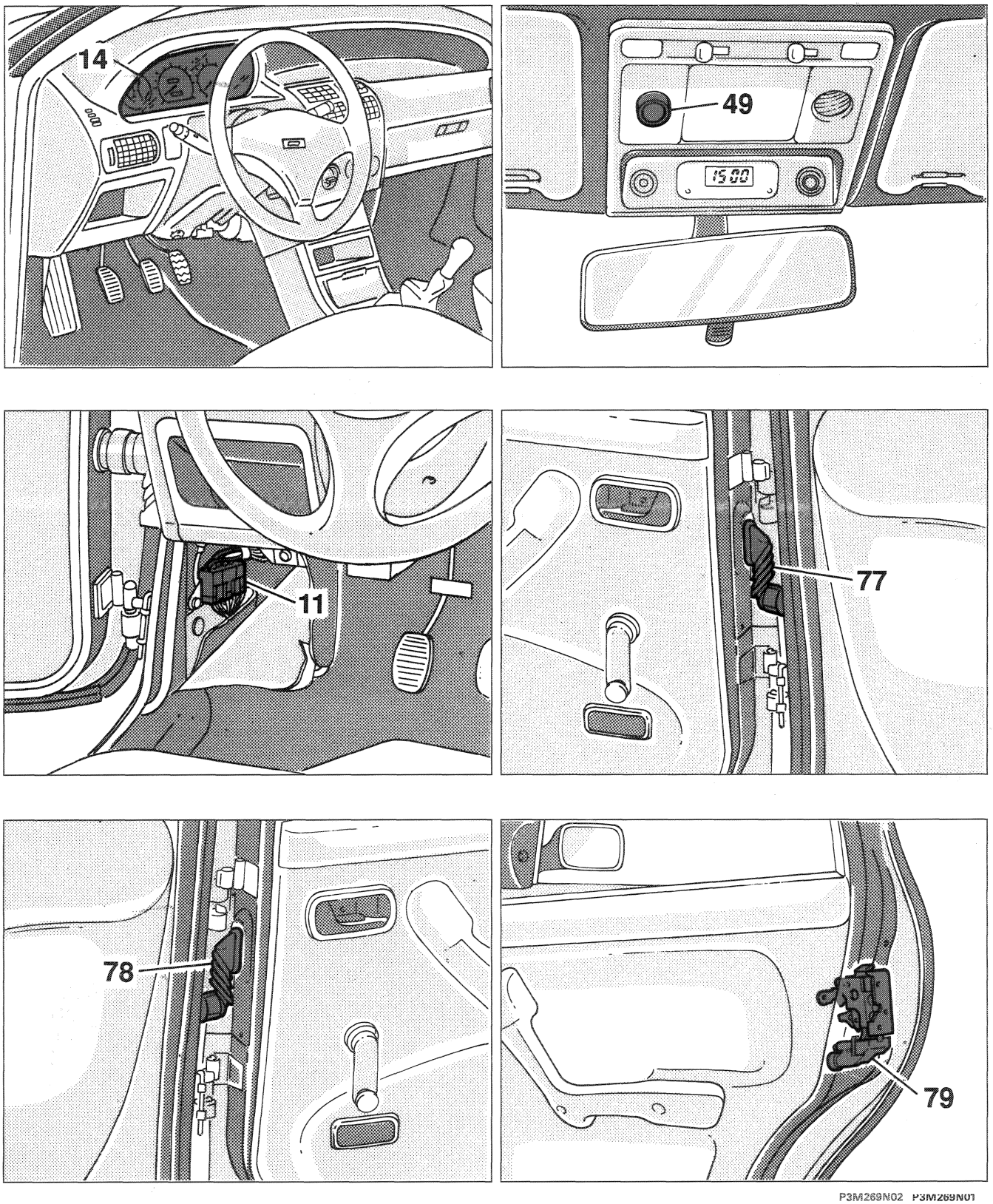




P3M268N02

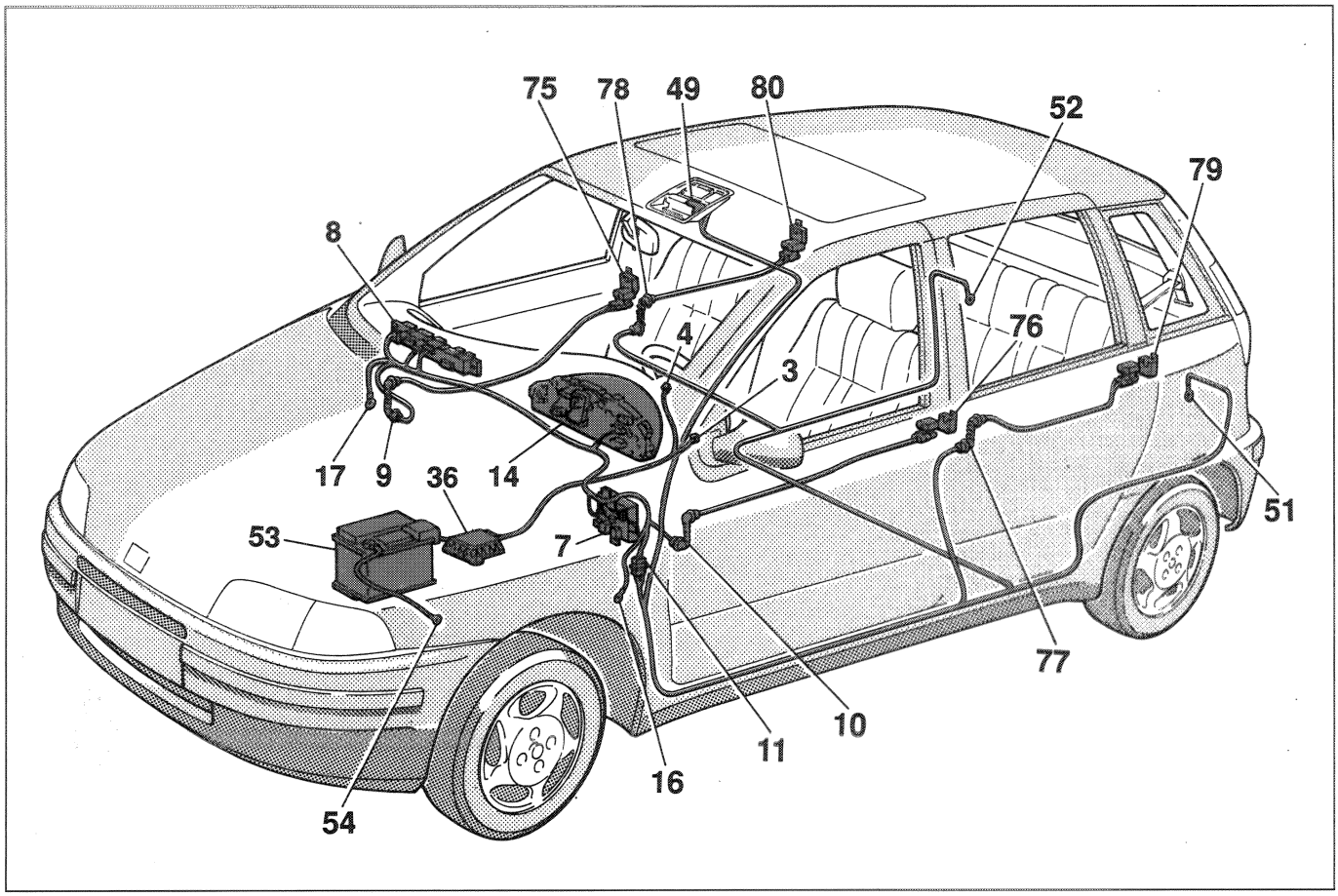
3M168N

Location of components for central locking - Warning light signalling doors ajar



P3M269N02 P3M269N01

3M169N



P3M270N02 P3M270N01

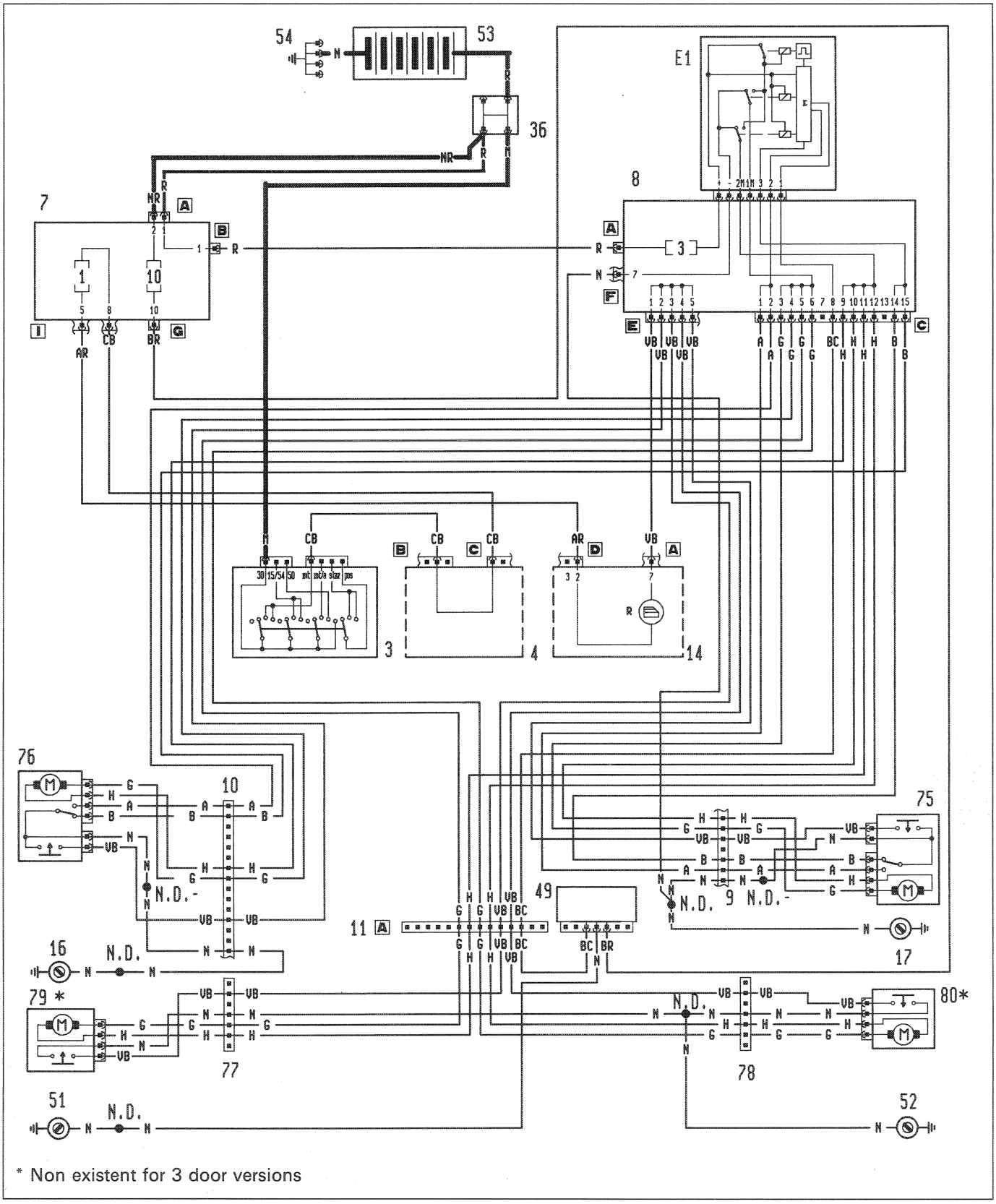
Wiring for central locking - Warning light signalling doors ajar

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
8 Control unit for optional equipment :
E1 Control unit for central locking
9 Connection for passenger side front door dashboard cables
10 Connection for driver's side front door dashboard cables
11 Connection between dashboard cables and rear cables
14 Instrument panel :
R Warning light signalling doors ajar
16 Left dashboard earth
17 Right dashboard earth
36 Connector block
49 Central locking remote control receiver
51 Left rear earth
52 Right rear earth
53 Battery
54 Earth for battery
75 Right front central locking geared motor signalling door ajar
76 Left front central locking geared motor signalling door ajar
77 Connection for left rear door rear cables
78 Connection for right rear door rear cables
79 Left driver's side rear central locking geared motor signalling door ajar
80 Right side rear central locking geared motor signalling door ajar
N.D. Connectors

Version: E.pack - 1372 turbo

Central locking - Warning light signalling doors ajar



* Non existent for 3 door versions

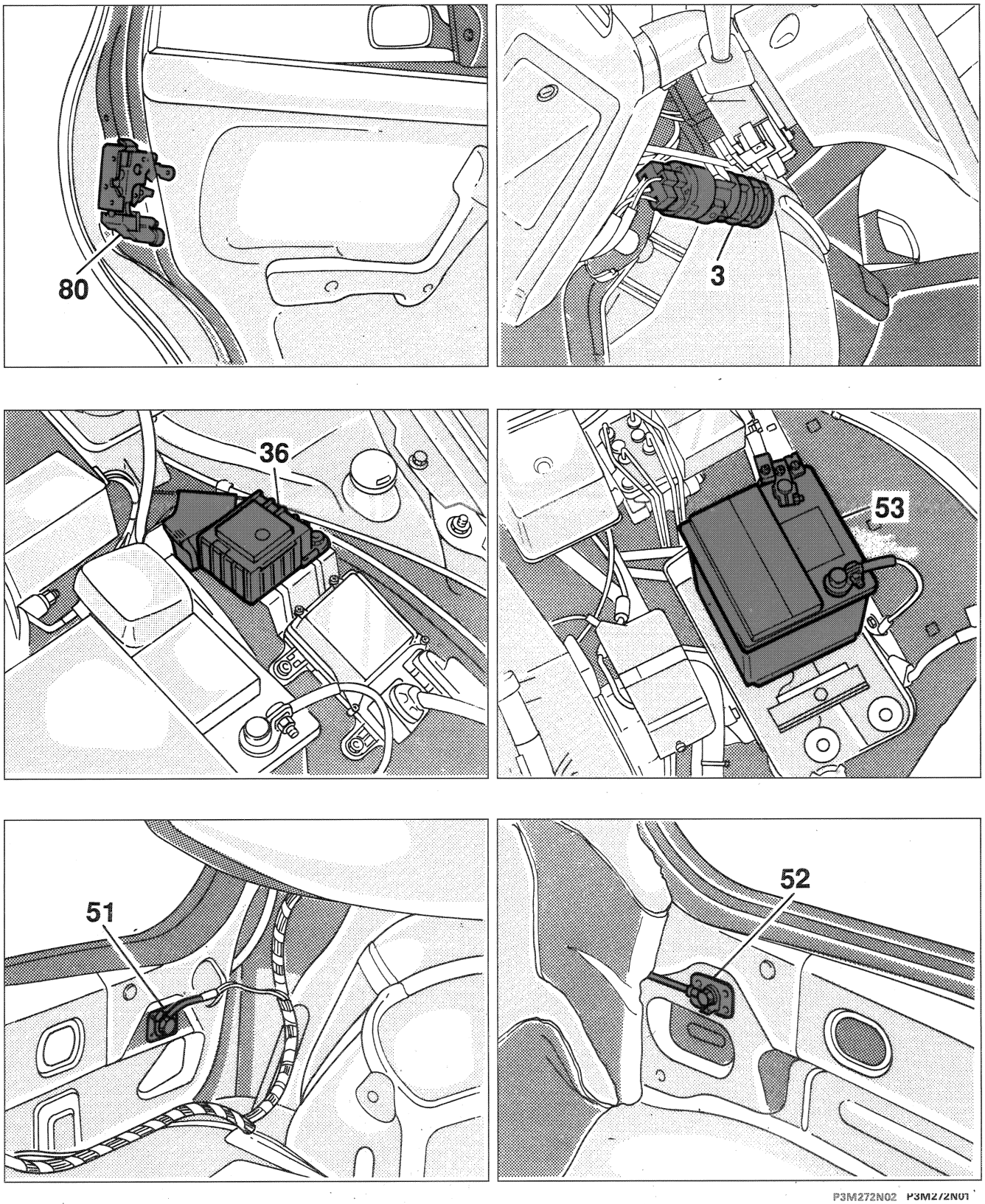
P3M271N01

3M171N

Accompaniment to illustration table

55D.

Location of components for central locking - Warning light signalling doors ajar

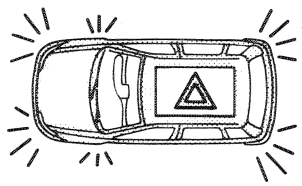


P3M272N02 P3M272N01

3M272N

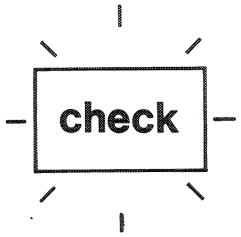
Chart 13

Hazard warning lights



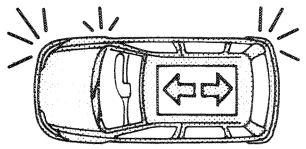
P3M273N03

Control-system



P3M273N01

Direction indicators



P3M273N02

GENERAL DESCRIPTION

Direction indicators and hazard warning lights:

The right or left direction indicators are switched on by raising or lowering the special lever on the left of the steering column switch unit; the hazard warning lights (left and right direction indicators operating at the same time) are switched on by means of the special switch, behind the steering wheel close to the instrument panel.

The direction indicators only work with the ignition switch in the ON position, the hazard warning lights, on the other hand, are supplied directly by the battery, for safety reasons.

Two warning lights in the panel, which are also intermittent, signal that the left or right indicators are on.

As far as the hazard warning lights are concerned the actual switch lights up.

Reversing lights:

These come on automatically, by means of a special switch on the gearbox. The lights only come on with the ignition switch in the ON position, independently of the other lights.

Brake lights and problem warning light (check):

The brake lights (stop lights) are activated each time the brake pedal is pressed. The lights come on automatically via the special switch on the brake pedal; they are activated in all conditions even with the ignition switched off. Their correct operation is checked by the "CHECK - PANEL" which signals any malfunction of the circuit by the warning light coming on.

FUNCTIONAL DESCRIPTION

Operating the steering column switch unit (4) lever which controls a switch (A) positioned on it, causes either the right indicators (23), (5) and (43) or the left indicators (24), (6) and (44) to come on depending on which side the switch is closed from. There is only one warning light (H) located in the instrument panel (14) which comes on each time the left indicator or the right indicator operates.

There is a switch (C) on the steering column switch unit (4) which controls the hazard warning lights supplying the right and left lights at the same time and the warning light in the switch (E). There is a timer (D) located in the steering column switch unit for both lights.

As far as the circuit for the reversing lights is concerned it is supplied with the ignition on through the fuse (1) in the junction unit (7). When reverse gear is engaged the switch (21) closes and the lights in the right (43) and left (44) light clusters come on.

The circuit for the brake lights is supplied directly by the battery (53) through the fuse (1) in the junction unit (7). The brake lights switch (20) is closed when the pedal is not pressed and signals the continuity of the circuit to the Check - Panel control unit (A). When the brake pedal is pressed the brake lights in the right (43) and left (44) light clusters are supplied.

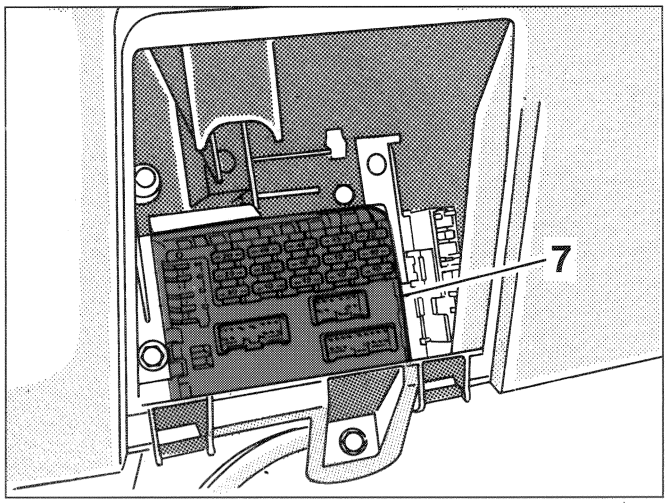
Signals leave these circuits for the control unit which checks the condition of the lights; if there is a problem the warning light (A1) in the panel (14) comes on.

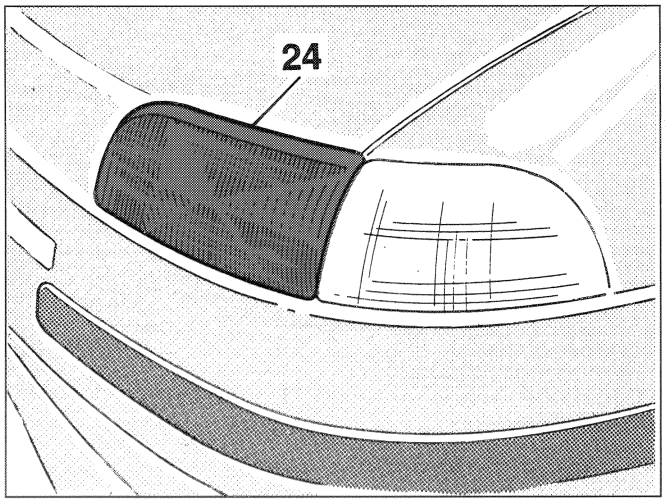
3M173N

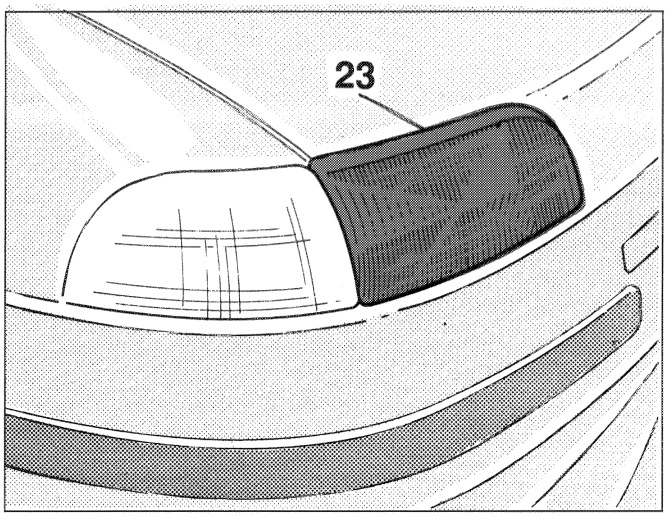
Accompaniment to illustration table

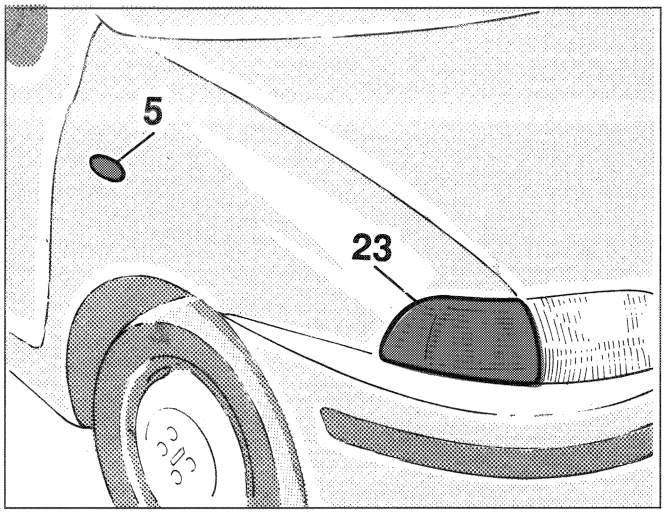
55D.

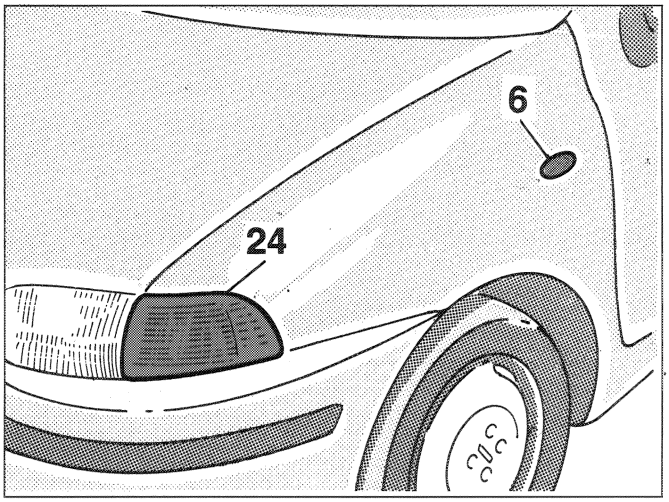
Location of components for control-system - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Brake lights and warning light (check)

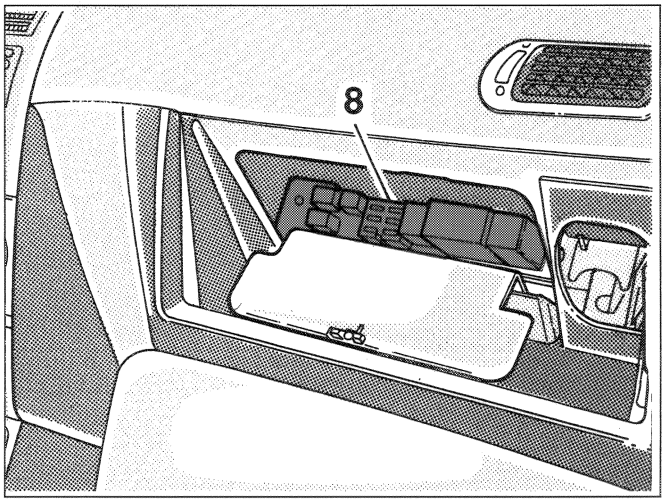








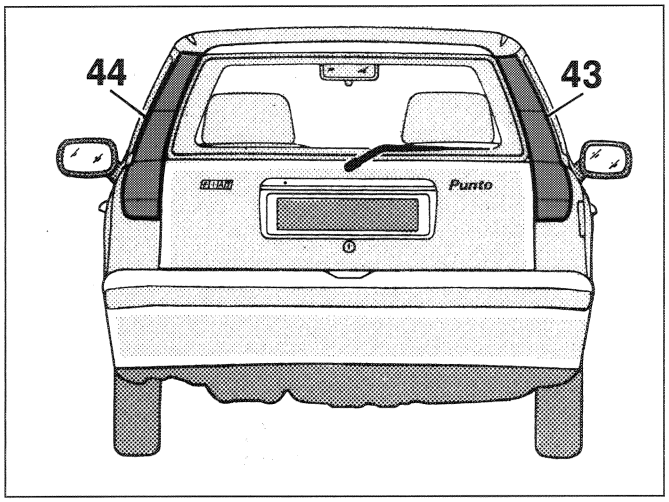


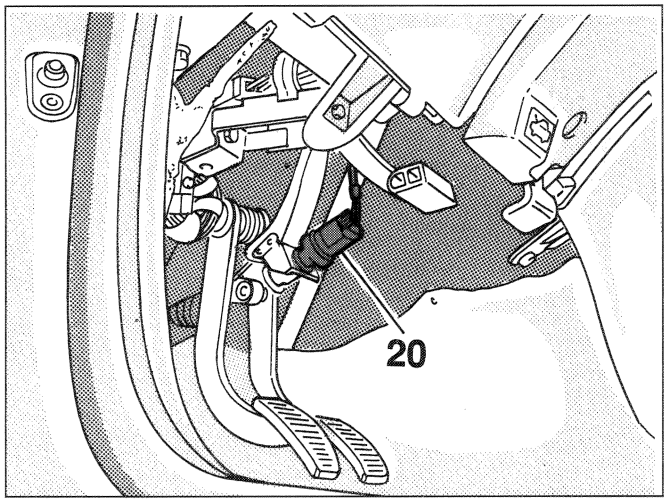


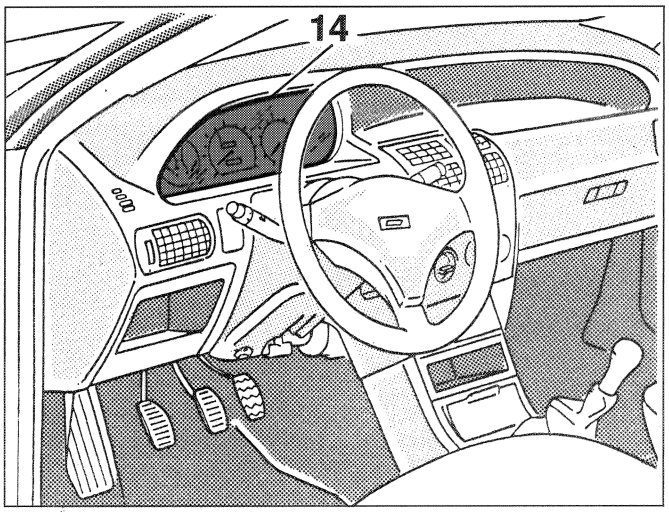
P3M274N02 P3M274N01

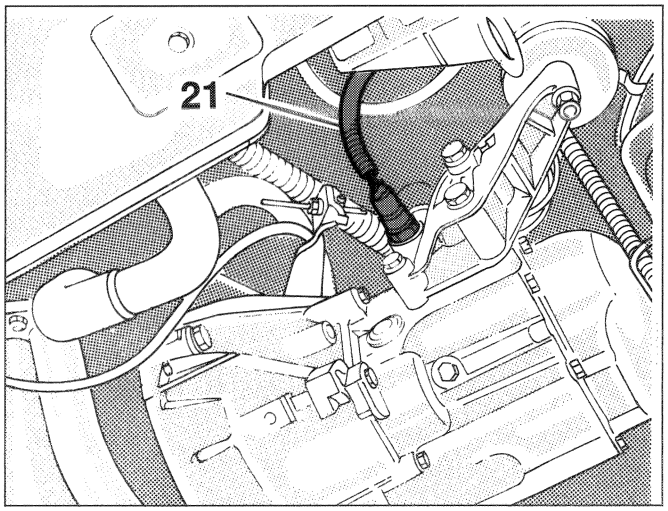
3M174N

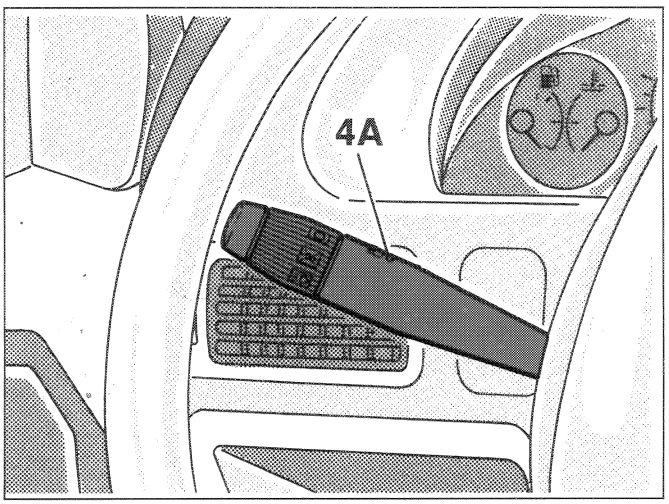
Location of components for control-system - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Braking lights and warning light (check)

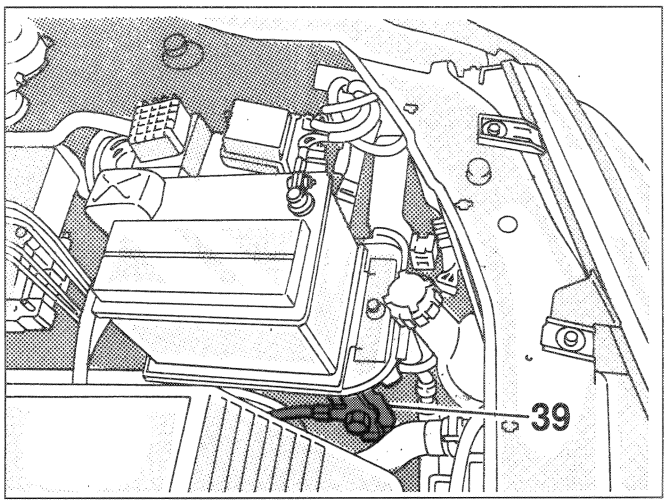






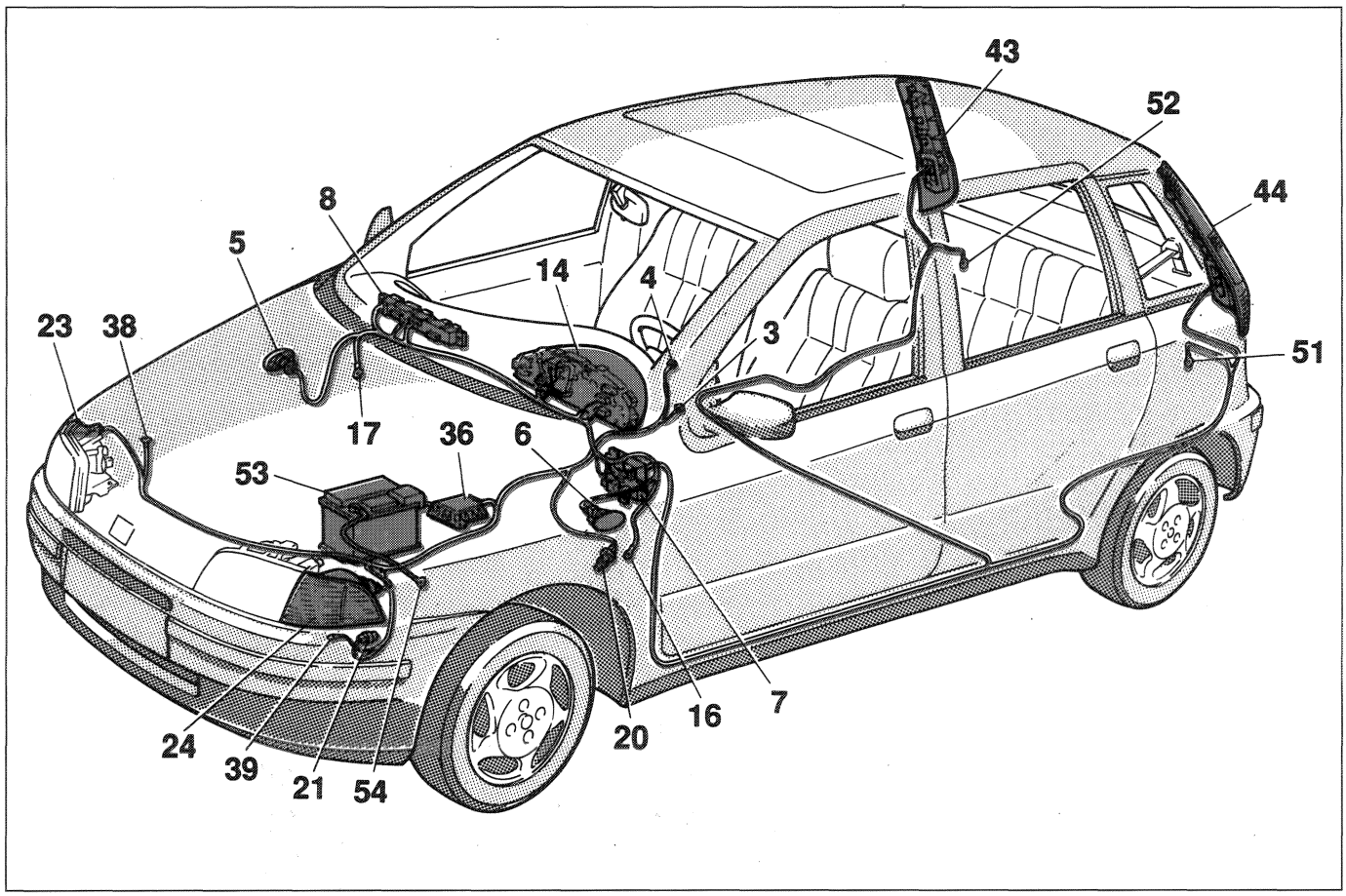






P3M275N02 P3M275N01

3M176N



P3M276N02 P3M276N01

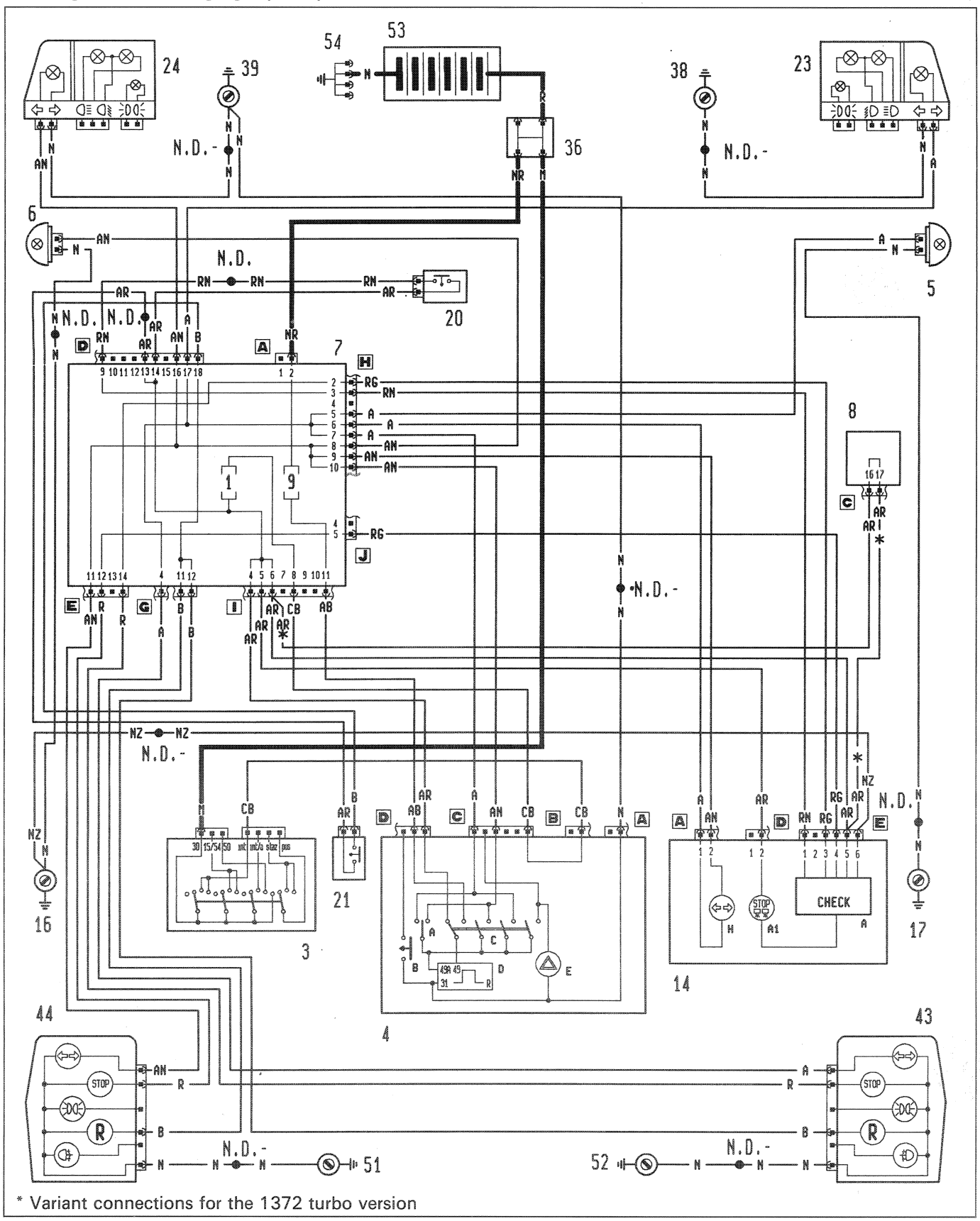
Wiring for control-system - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Brake lights and warning light (check)

Key for components

3 Ignition switch
4 Steering column switch unit:
A Direction indicators control switch
C Hazard warning lights switch
D Direction indicators/hazard warning lights timer
E Hazard warning lights warning light
5 Right front side direction indicator
6 Left front side direction indicator
7 Junction unit
8 Control unit for optional equipment
14 Instrument panel :
A Check-panel module
A1 Warning light signalling brake lights failure
H Direction indicators warning light
16 Left dashboard earth
17 Right dashboard earth
20 Brake lights control switch
21 Reversing lights control switch
23 Right front light cluster
24 Left front light cluster
36 Connector block
38 Right front earth
39 Left front earth
43 Right rear light cluster
44 Left rear light cluster
51 Left rear earth
52 Right rear earth
53 Battery
54 Earth for battery
N.D. Connectors

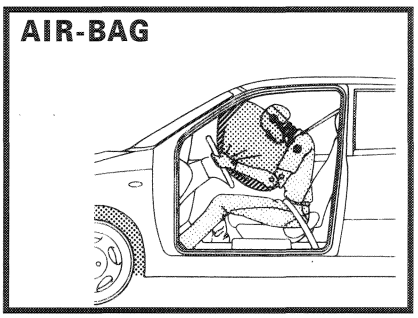
Version: E.pack - 1372 turbo

Control-system - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Brake lights and warning light (check)



P3M277N01

Chart 14



P3M279N01

GENERAL DESCRIPTION

AIR - BAG:

The Air - Bag is a passive safety device made up of one or two cushions which inflate automatically in the case of a frontal impact positioning themselves between the bodies of the occupants of the front seats of the vehicle and the front section of the passenger compartment.
The systmem is made up of the following components:
an electronic control unit which contains an electronic circuit with two deceleration sensors; having assessed the impact situation it implements the interventiona strategies and checks and memorizes any problems. There is also a driver's side and passenger side AIR-BAG module, a warning light which signals any problems and a diagnostic socket for connection to the Fiat / Lancia Tester.
The electronic control unit equipped with suitably calibrated deceleration sensors, detects the impact condition and sets off a chemical reaction which produces nitrogen by means of two electrical detonators. The gas inflates the synthetic fibre cushions housed in the centre of the steering wheel and in a casing in the dashboard in front of the front passenger, respectively.
The system intervenes when the deceleration of the vehicle corresponds to that for a frontal impact at a speed of about 20 - 25 kph against a fixed barrier.
The electronic control unit is located in the central tray for the vehicle and receives a 12V supply when the ignition switch is in the ON position.

FUNCTIONAL DESCRIPTION

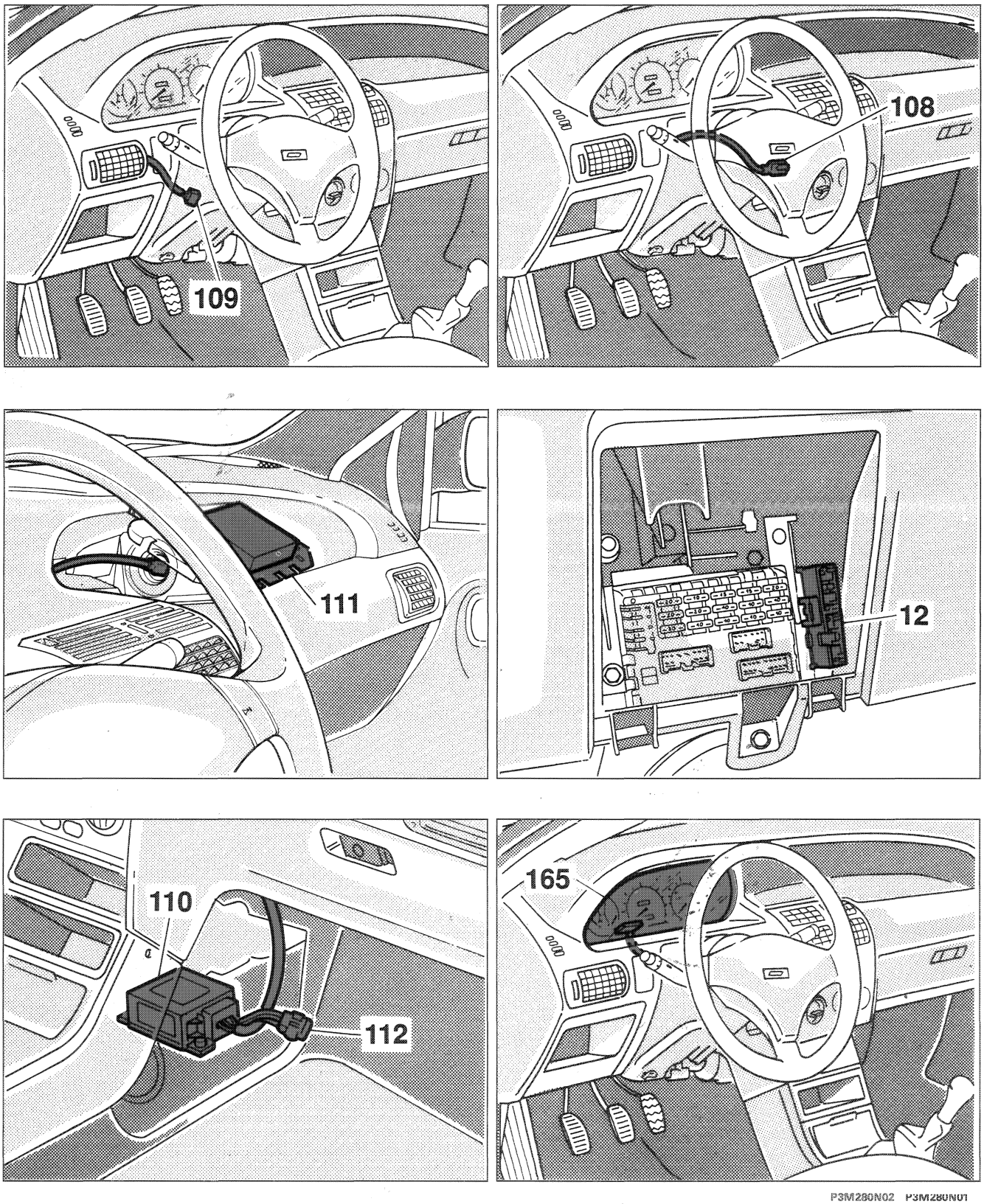
The entire circuit is controlled by the ignition and is protected by the fuse (1) in the junction unit (7).
The circuit inclues two cushions, one located on the driver's side (in the middle of the steering wheel) (108) and one in front of the passenger (11); there is also a control unit (110) which, whilst the vehicle is driving, carries out a constant diagnosis of the system, checkig the continuity of the circuits and the components.
When a fault or malfunction is detected in the system, the type of problem is memorized and the Air-Bag warning light (Y) in the instrument panel (14) comes on thereby alerting the driver to the problem.
Lastly, there is a connection which acts as a diagnostic socket (112) which when connected to the Fiat / Lancia Tester detects any problems in the system.

3M179N

Accompaniment to illustration table

55D.

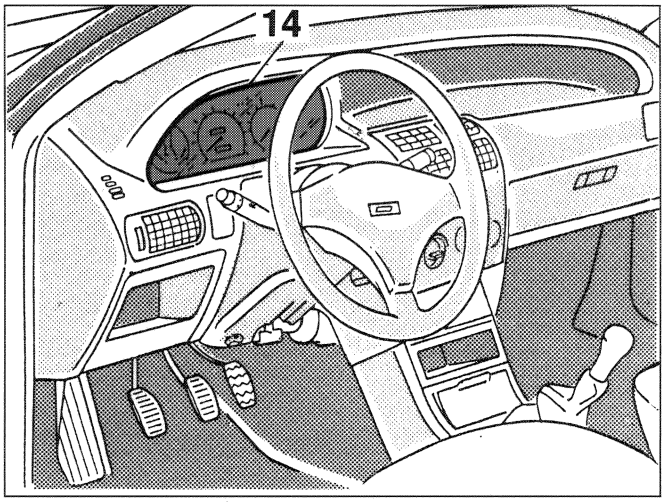
Location of AIR-BAG components and warning light

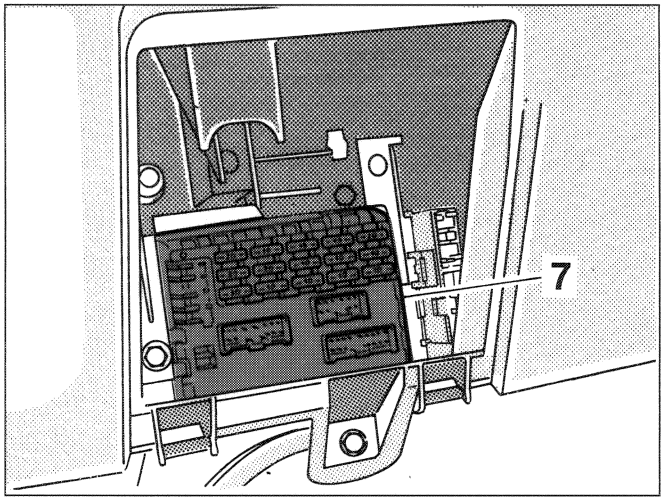


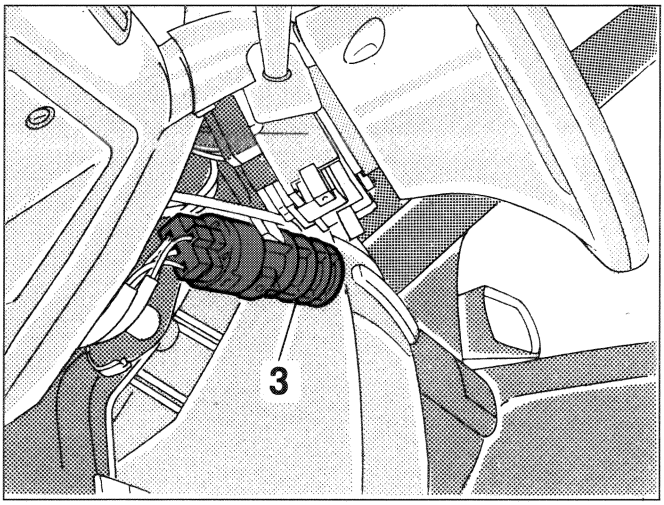
P3M280N02 P3M280N01

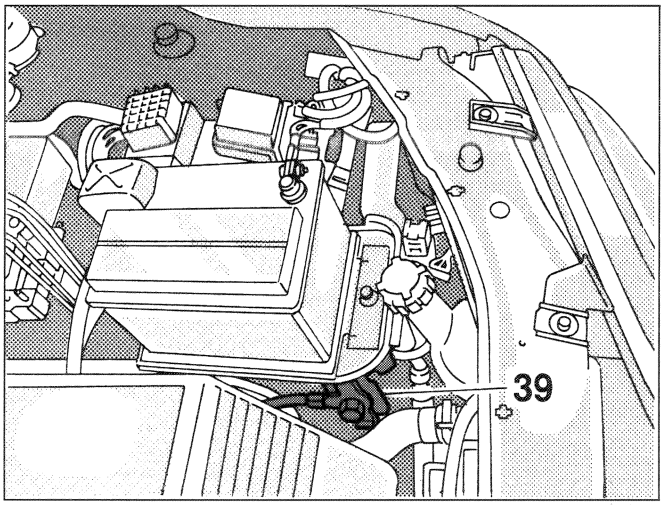
3M180N

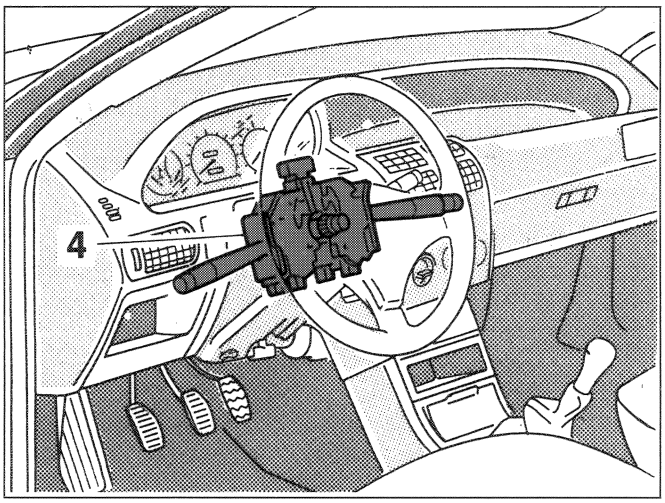
Location of AIR-BAG components and warning light





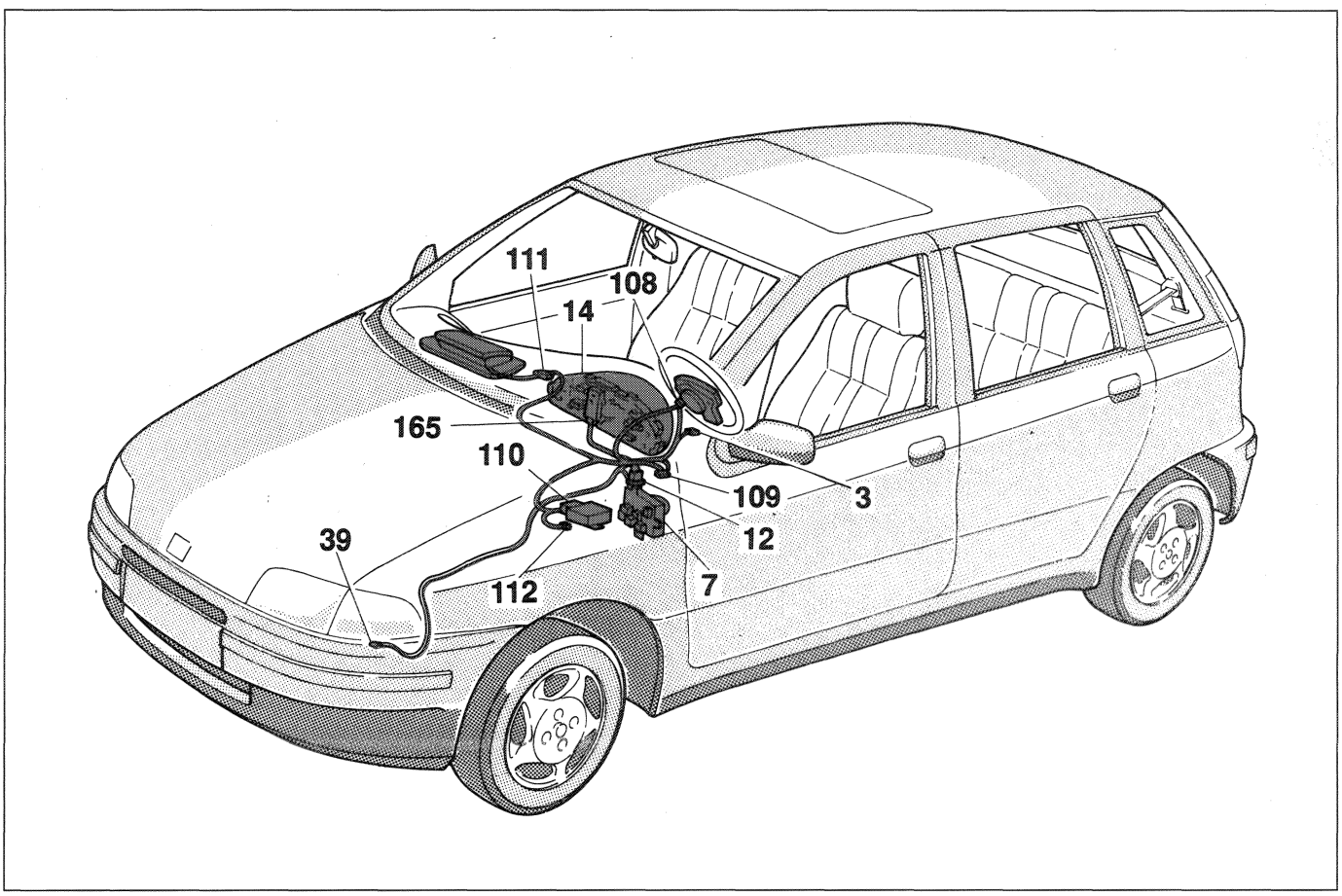






P3M281N02 P3M281N01

3M181N



P3M282N02 P3M282N01

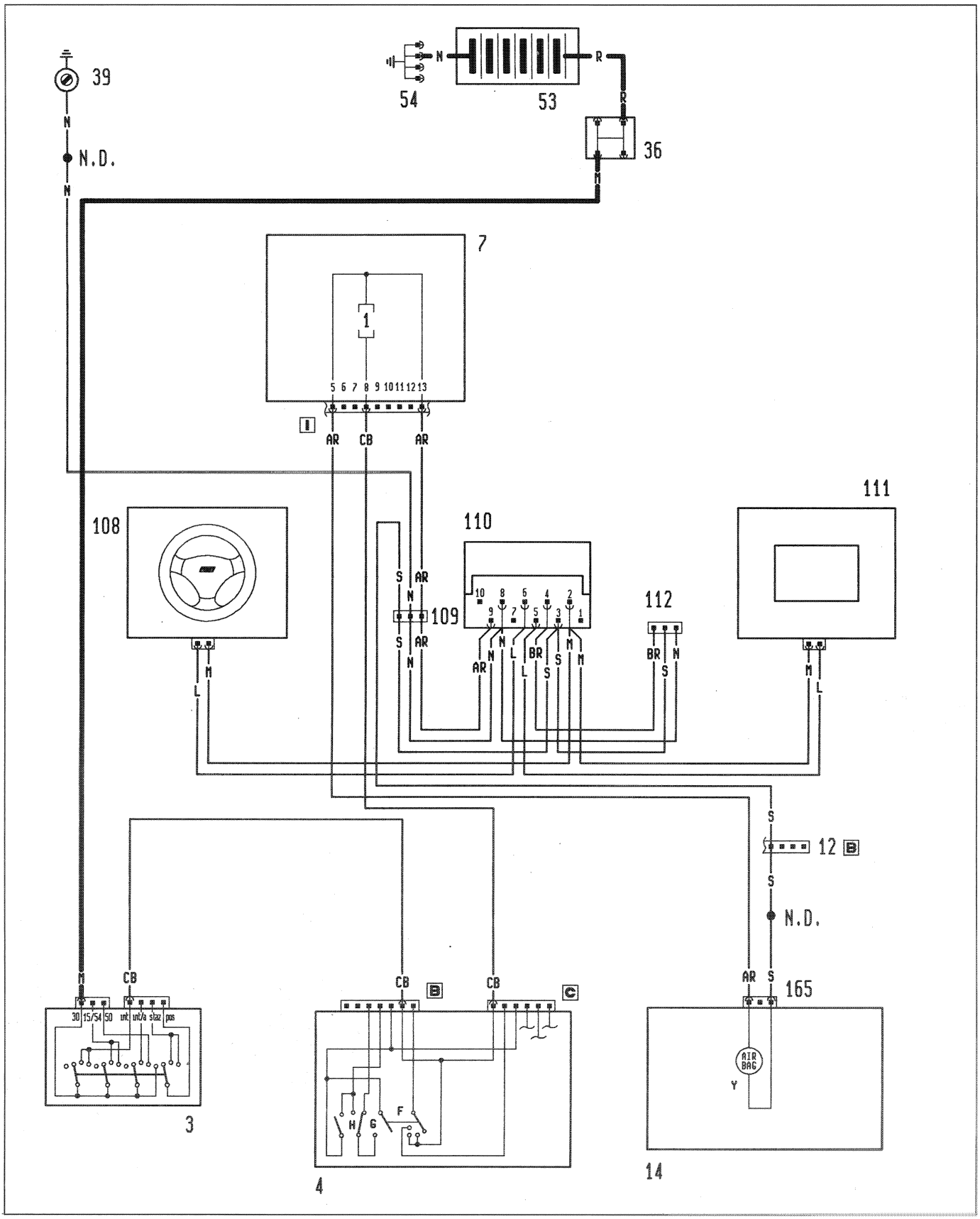
Wiring for AIR-BAG and warning light

Key for components

3 Ignition switch
4 Steering column switch unit
7 Junction unit
12 Connection between dashboard cables and front cables
14 Instrument panel :
Y AIR-BAG circuit failure warning light
36 Connector block
39 Left front earth
53 Battery
54 Earth for battery
108 AIR-BAG charge (driver's side)
109 Connection for AIR-BAG cables
110 AIR-BAG electronic control unit
111 AIR-BAG charge (passenger side)
112 Diagnostic socket for AIR-BAG
165 Connection for AIR-BAG cables
N.D. Connectors

Version: All

AIR-BAG and warning light

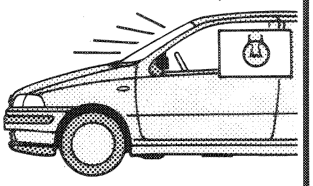


P3M283N01

3M183N

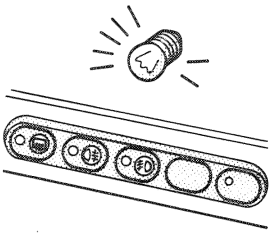
Chart 15

Car interior lighting



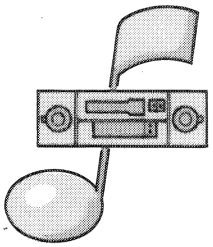
P3M285N03

Ideogram lights



P3M285N01

Preparation for radio



P3M285N02

GENERAL DESCRIPTION

The numerous lighting points ensure that the passenger compartment is well lit in all conditions and that the controls can be easily read.
The wiring diagram for this fault diagnosis includes:
- the courtesy lights, i.e. courtesy light on the ceiling and the luggage compartment light operated when one or more doors or the tailgate is opened.
- the ideogram lights, or all those lights which light up the ideograms, the controls and the switches with the side lights switched on.
- the supply of the digital clock in the ceiling.
- the preparation for the radio with the possibility of connection to up to six speakers.
  The aerial is located on the roof in an opening by the courtesy light in the ceiling and it is connected to the radio by a cable.
  The circuit for the radio is always supplied therefore the radio can be switched on at any time, even with the ignition switched off.

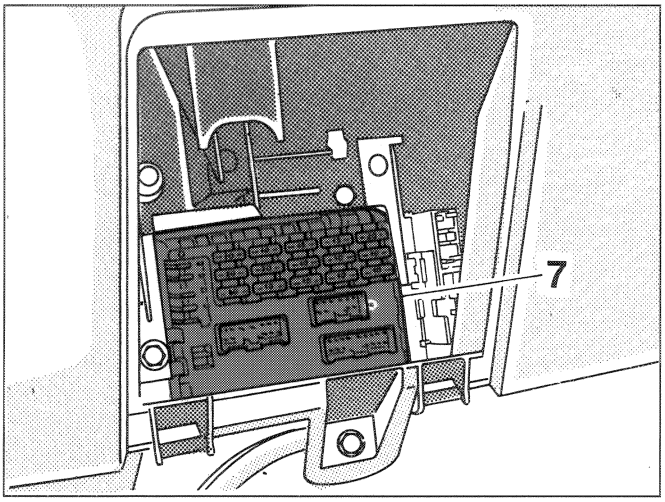
FUNCTIONAL DESCRIPTION

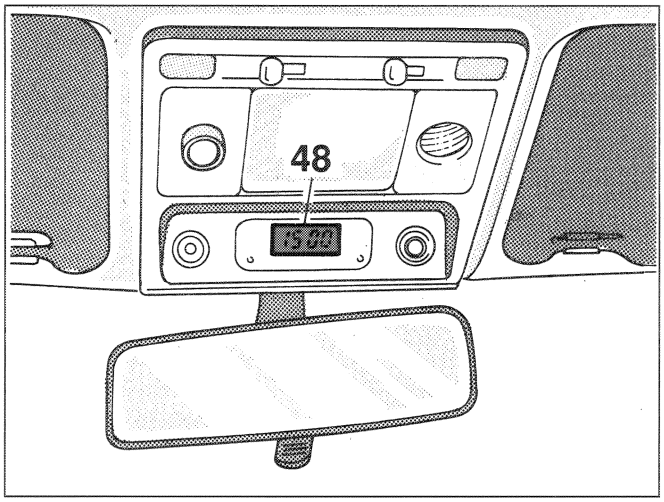
With the side lights on, the following controls and ideograms are lit up:
The ideograms on the steering column switch unit (4) and on the air vents; the heater or air conditioner controls, the ashtray (13), the switches for the fog lights, rear fog lamps and heated rear windscreen (15) and the instrument panel (14).
When either of the front doors is opened the courtesy light (45) comes on and remains on until the door is closed.
The courtesy light in the ceiling can also be operated manually, through a special switch.
In the same assembly there is also an adjustable map reading light, connected, by means of a fuse (10) in the junction unit (7), to the battery, making it possible to read without disturbing the driver.
There is a special courtesy light (46) for the luggage compartment which comes on when the tailgate is opened.
The vehicle is available, on request, with preparation for a radio.
The electrical equipment for this version is made up of a radio (mod.DC 710/64S PHILIPS) with a removable front section, with four cables, two connected to the left speaker (59) and two connected to the right speaker (58), both with a 165 mm double cone in the front doors.
The same cables go to the dashboard and are connected to two tweeters one in the left section of the dashboard (62) and one in the right section (63).
There are also another four cables going from the radio, two connected to the left speaker (61) and two to the right speaker (60), both in the rear section of the rear parcel shelf. These speakers are 100 mm double cone types.
The speakers are connected by means of connector (B) in the rear part of the radio.
There is another connector in the rear part and connector (A) used for connecting the battery supply through fuse (10). This connector also connects the radio in the case of the so-called "heavy" version by means of two cables to the controls on the steering wheel; these controls operate the volume (min. - max.) (N,O), the band (Q) and the tuning (P) or programme selection.

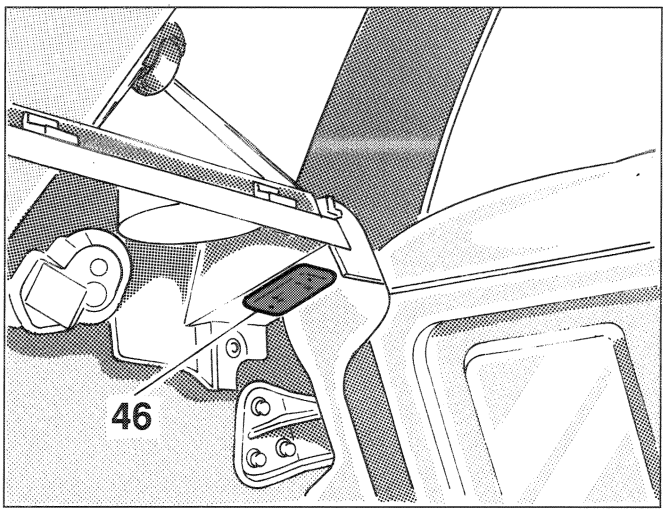
Accompaniment to illustration table

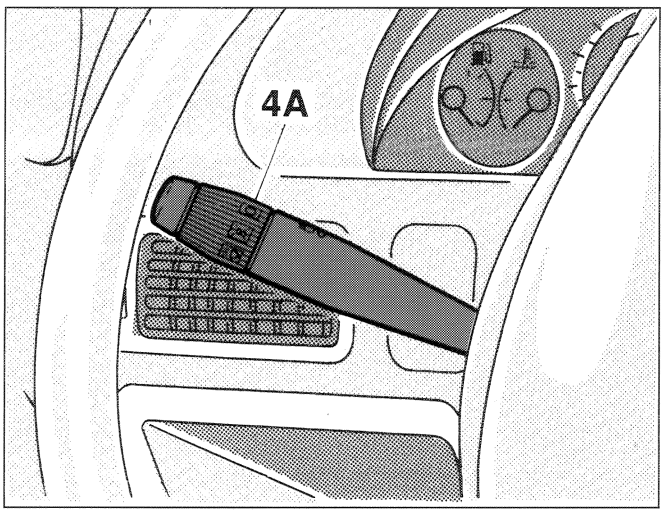
55D.

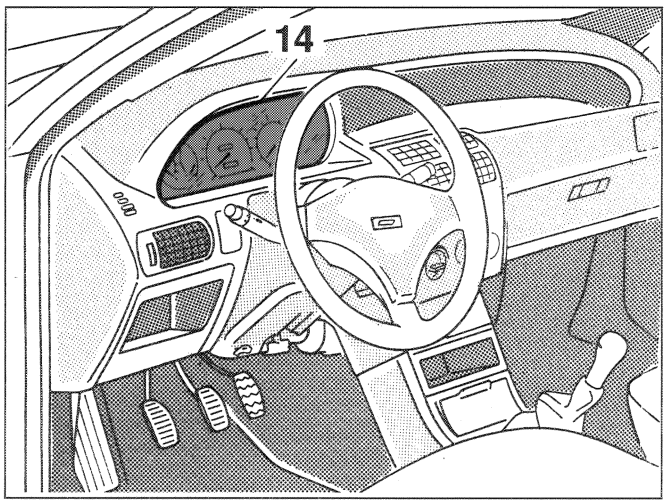
Location of components for radio preparation - Car interior lighting - Ideogram lights

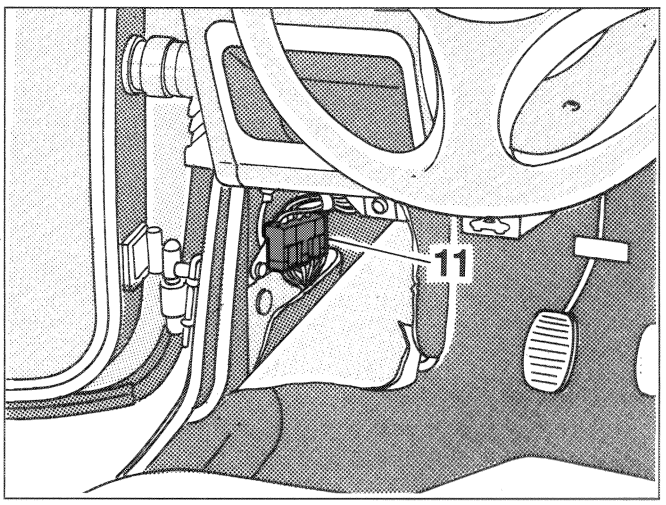








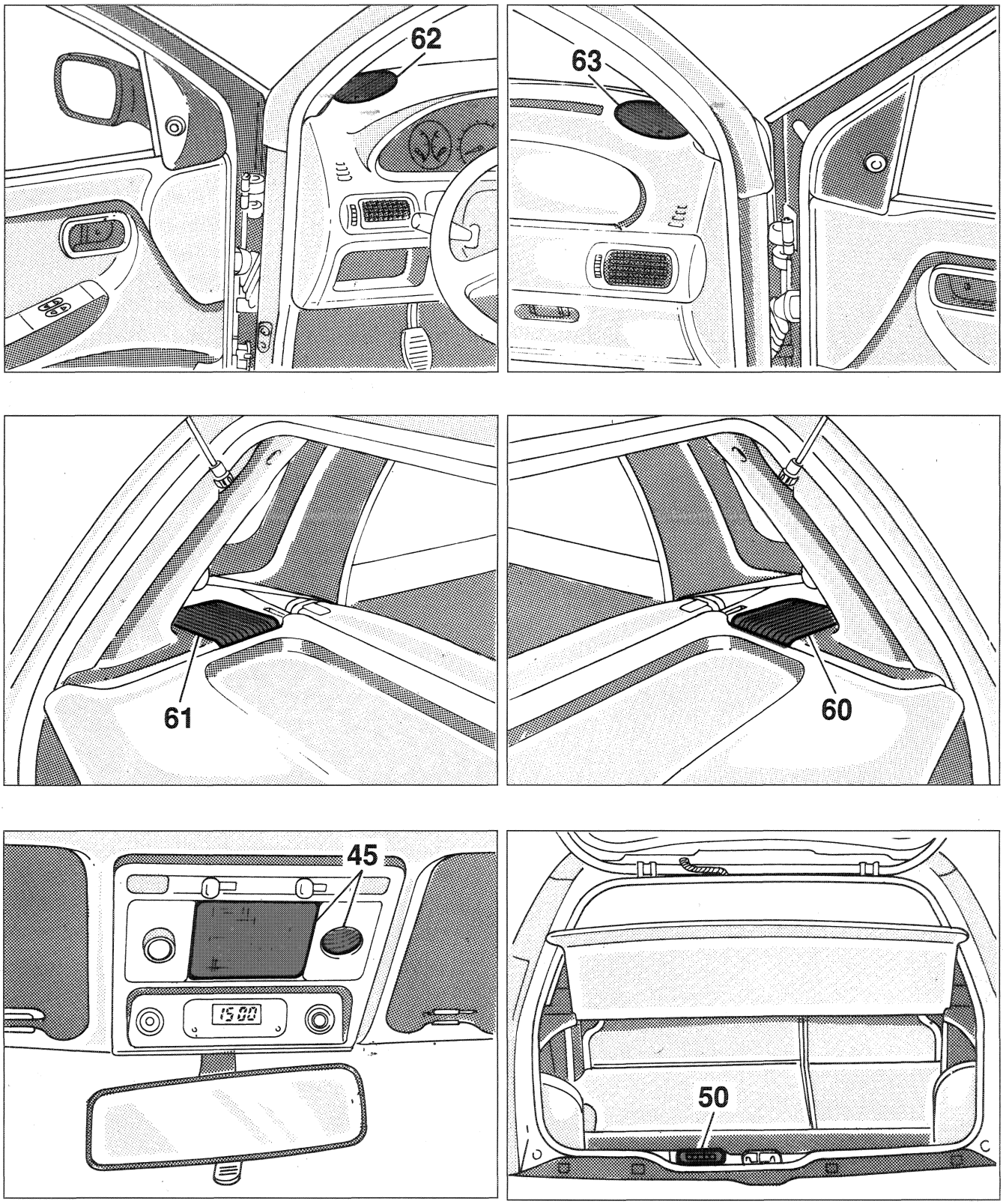




P3M286N02 P3M286N01

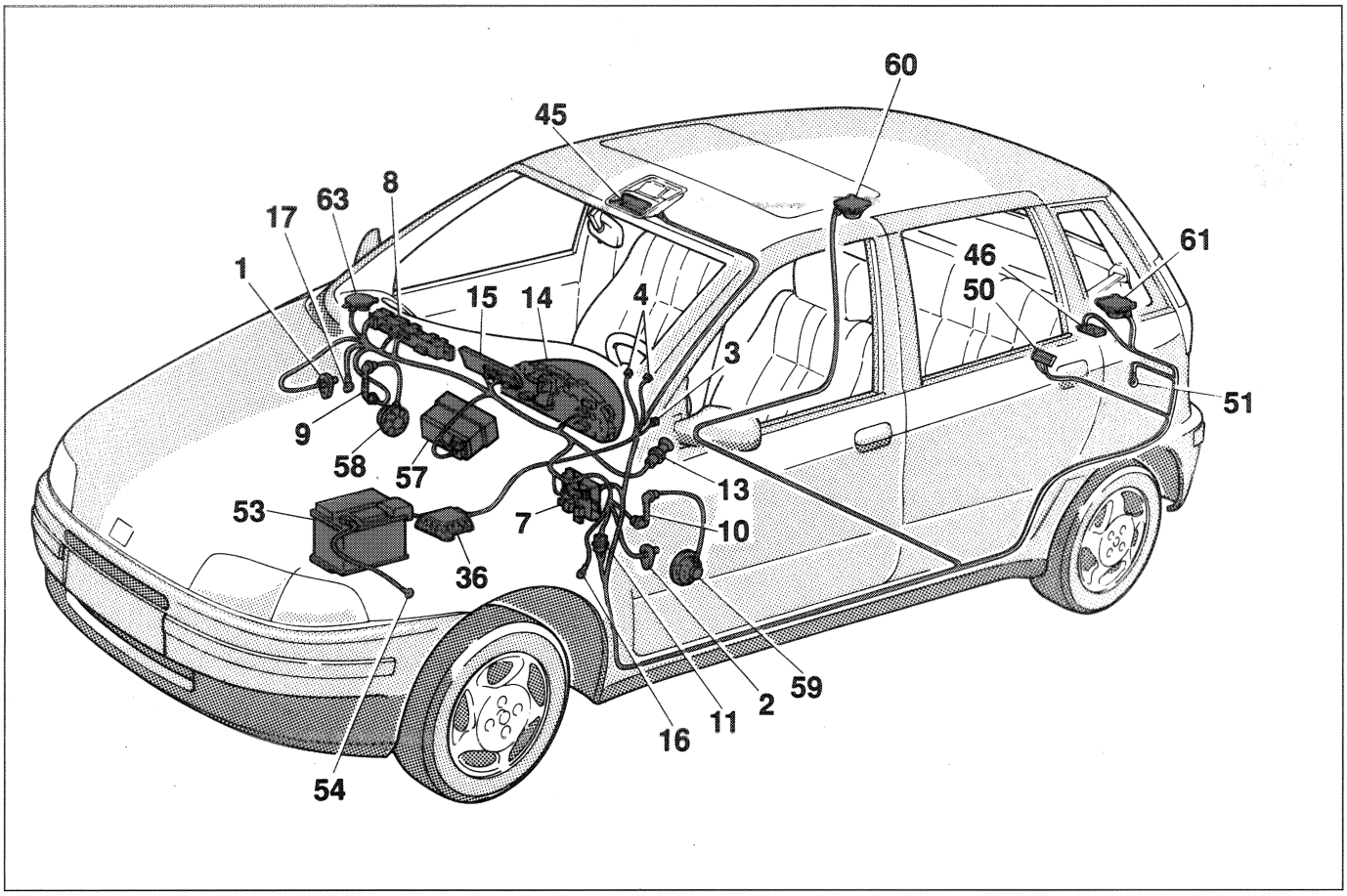
3M186N

Location of components for radio preparation - Car interior lighting - Ideogram lights



P3M287N02 P3M287N01

3M171N



P3M288N02 P3M288N01

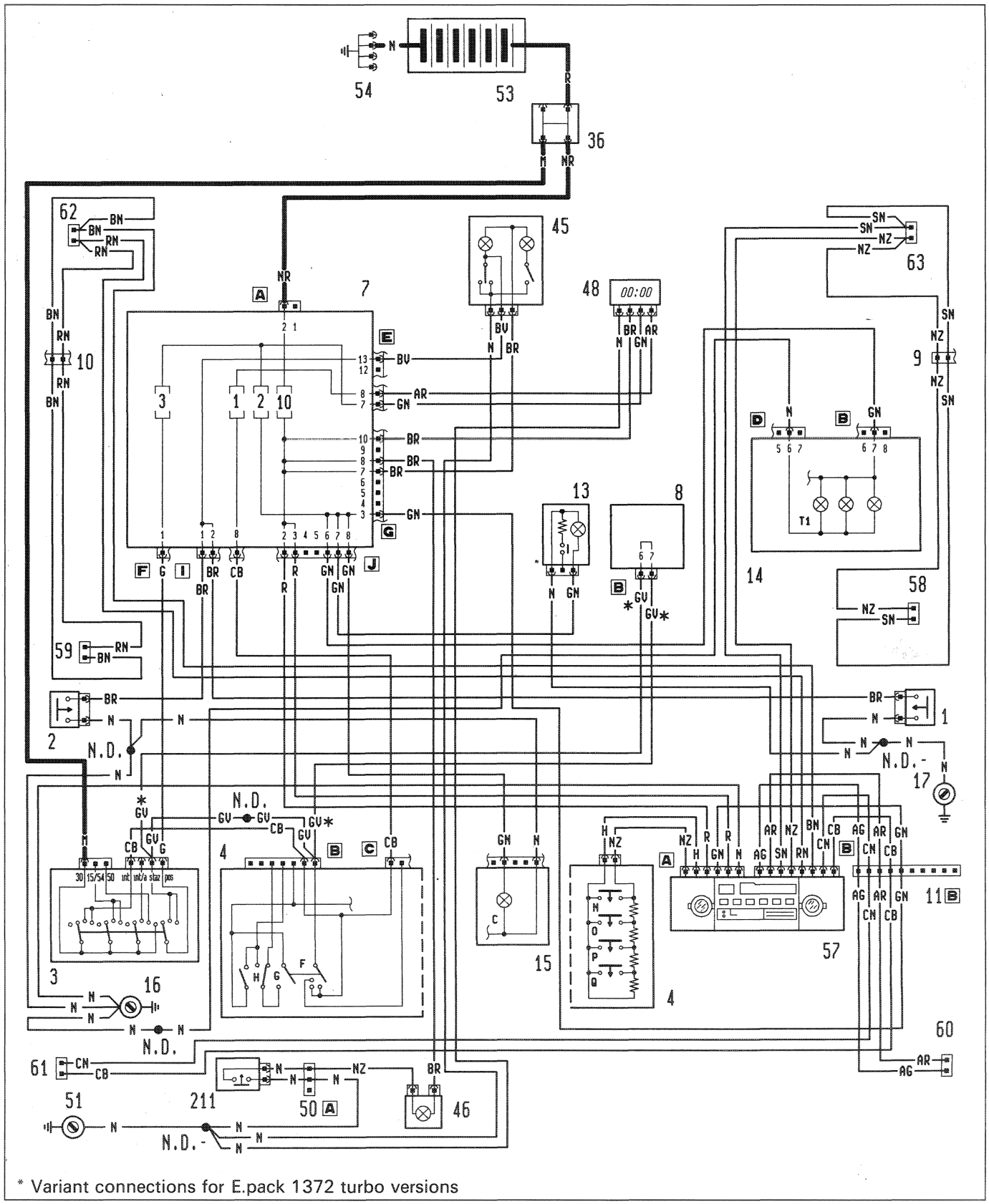
Wiring for radio preparation - Car interior lighting - Ideogram lights

Key for components

1 Right front courtesy light button and door ajar signal
2 Left front courtesy light button and door ajar signal
3 Ignition switch
4 Steering column switch unit:
F Side lights/dipped headlamps control switch
G Dipped beam headlamps/main beam headlamps control switch
H Main beam headlamps control
N Volume increase control (on steering wheel)
O Volume decrease control (on steering wheel)
P Programme selection control (on steering wheel)
Q Band section control (on steering wheel)
7 Junction unit
8 Control unit for optional equipment
9 Connection for passenger side front door dashboard cables
10 Connection for driver's side front door dashboard cables
11 Connection between dashboard cables and rear cables
13 Cigar lighter
14 Instrument panel :
T1 Ideogram light bulbs
15 Switch unit :
C Switch unit ideogram light
16 Left dashboard earth
17 Right dashboard earth
36 Connector block
45 Courtesy lights
46 Luggage compartment light bulb
48 Digital clock
50 Connection for rear cables
51 Left rear earth
53 Battery
54 Earth for battery
57 Radio
58 Speaker in right front door
59 Speaker in left front door
60 Right rear speaker
61 Left rear speaker
62 Left front speaker
63 Right front speaker
211 Switch for luggage compartment light and anti-theft device
N.D. Connectors

Version: 1242 - 1697 (3p) F.pack - 1242 MPI E - E.pack - 1372 turbo

Preparation for radio - Car interior lighting - Ideogram lights



* Variant connections for E.pack 1372 turbo versions

3M189N

P3M289N01