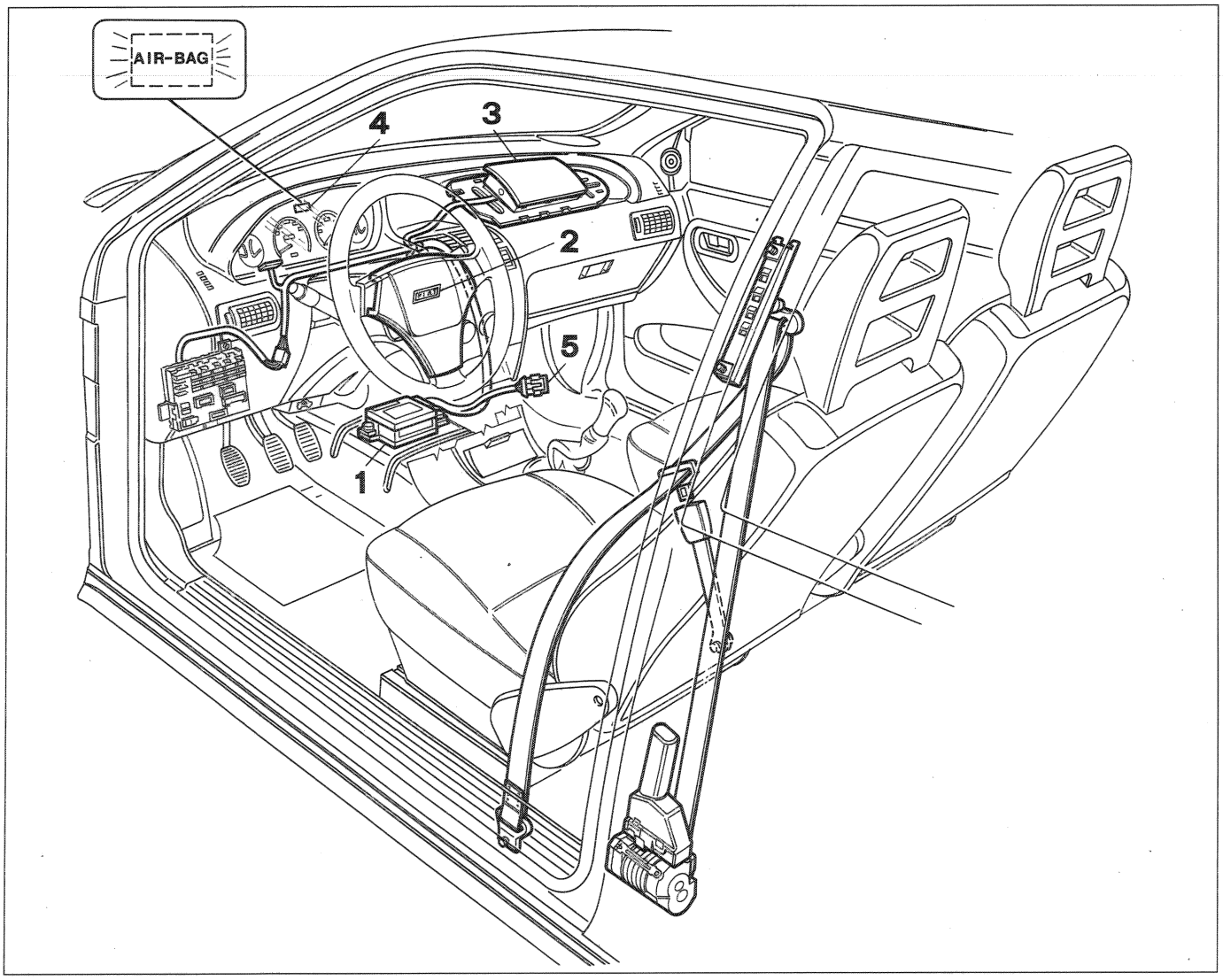
INTRODUCTION

An AIR BAG is a passive safety device made up of one or two bags which, in the case of a frontal impact, automatically inflate and position themselves between the bodies of the occupants of the front seats and the structures in the front part of the passenger compartment.
The AIR BAG system comprises the following components:

1. Electronic control unit:
   - this contains an electronic circuit with two deceleration sensors;
   - it assesses the impact situation, implements the intervention strategies, checks and memorizes any faults
2. Driver's AIR BAG module
3. Passenger AIR BAG module
4. Red warning light in Instrument panel signalling system failures and fault diagnosis codes.
5. Socket for connection to FIAT/LANCIA TESTER

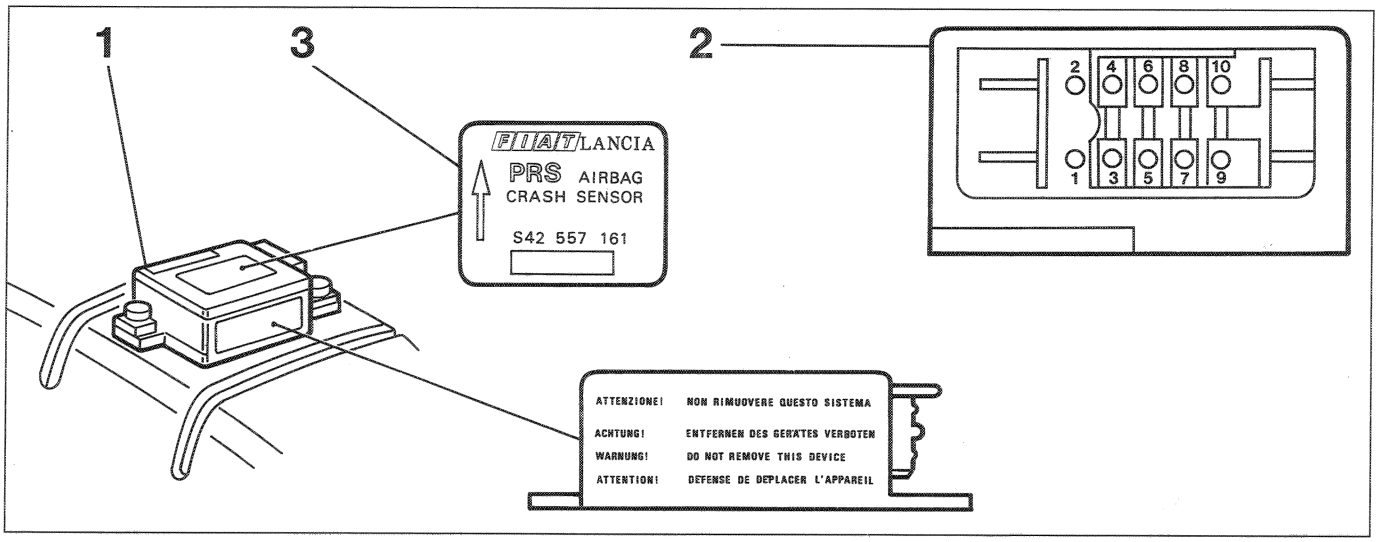
An electronic control unit with suitably calibrated deceleration sensors detects the impact condition and, by means of two electric detonators, sets off the reaction of a chemical compound which produces nitrogen.
The gas inflates the two synthetic fibre bags housed in the centre of the steering wheel and in a housing in the dashboard opposite the front passenger, respectively.



P3M04AL01

Control unit

The electronic control unit (1) is located in the central tray and is fixed rigidly to the floor.
It is equipped with a 10 pin connector (2) with 7 of the pins used for connection to the electrical equipment.
When the ignition is switched on it receives a 12V supply, but it still operates for about 100 msecs after the supply is cut off as a result of an impact.
This is made possible due to the presenceof a buffer condenser inside the circuits which accumulates electrical energy for the normal operation of the control unit and to produce the explosive capsule ignition signal.
The operation of the AIR BAG system is thereby guaranteed even if the impact causes a drop in the system voltage (e.g. battery damaged or broken, supply cables interrupted, etc.).
The control unit should be positioned with the ARROW (3), on the label, in the direction of TRAVEL of the vehicle.
This position should be SCRUPULOUSLY ADHERED TO, because it determines the direction in which the acceleration sensor reads the negative acceleration values to determine the impact condition and implement the operation of the AIR BAG.
There is an accelerometric sensor inside the control unit which emits a signal which, when processed by a microprocessor, makes it possible to determine the severity of an impact and consequently decide whether to implement the operation of the Air Bags.
A second sensor, with safety functions, gives the go ahead to activate the Air Bags.



P3M05AL01

Fault memory

Whilst the vehicle is driving, the electronic control unit carries out a constant fault diagnosis of the system, thereby checking the continuity of the circuits and components.
If a fault is detected, it is memorized and, at the same time, the "Air Bag failure" warning light in the instrument panel comes on.
The fault memory can be consulted in a service situation by connecting the FIAT/LANCIA TESTER or other diagnostic equipment to the diagnostic socket (see details below).

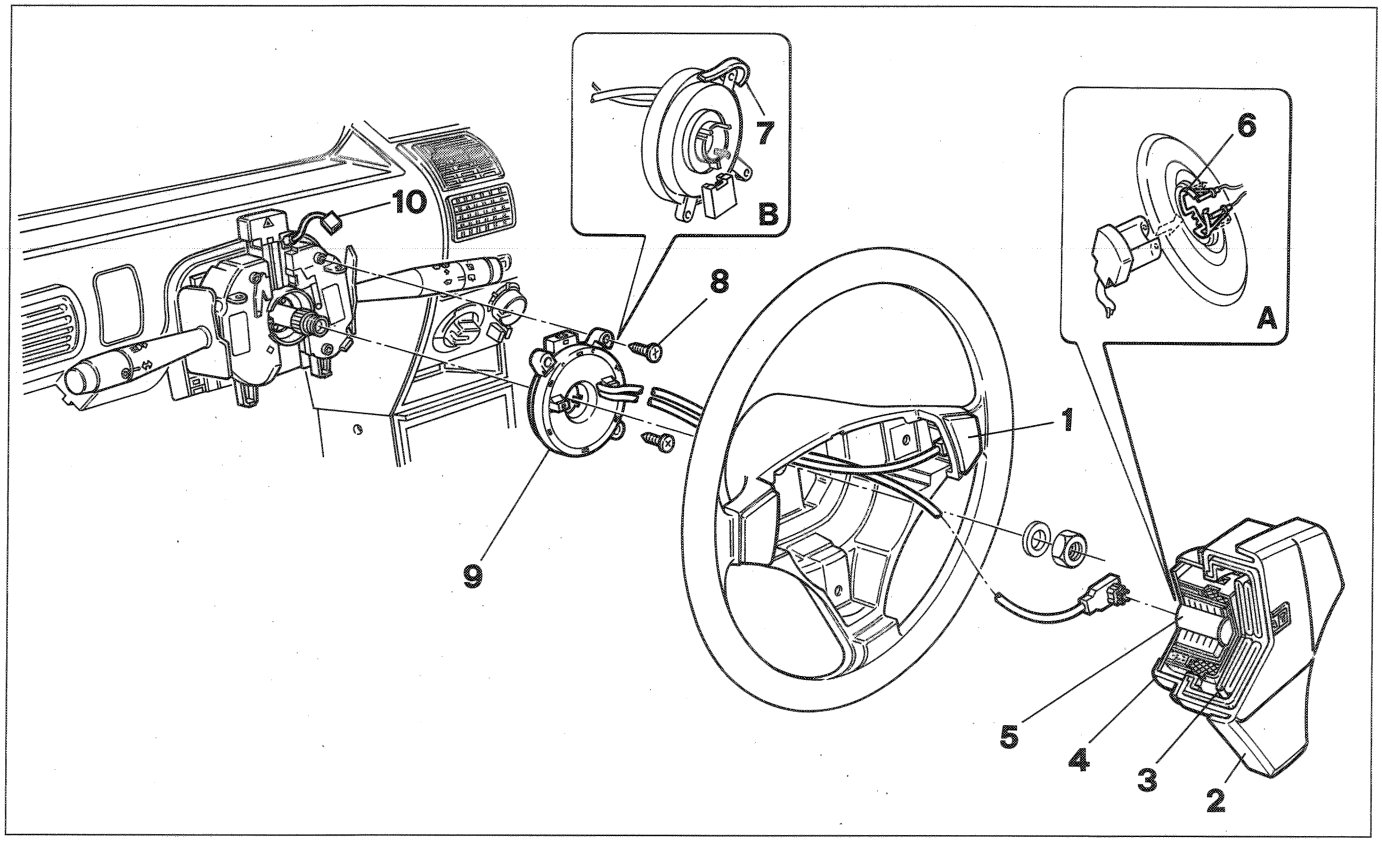
Crash memory

As stated previously, the control unit microprocessor carries out complex algorhythm calculations and checks on the signal coming from the accelerometric sensor and recognizes the degree of severity of an impact. Depending on this degree of severity and, with the go ahead of the safety sensor, it sends an activation signal to the Air Bags.
This activation order is stored in a special crash memory which contains information relating to the exceeding of the intervention thresholds and the go ahead of the safety sensor.

MODULES: Bags and inflation devices

Driver's AIR BAG module

The new type steering wheel is equipped with side controls (1) for the horns and in the centre section there is a housing for fitting the module. It is fixed by means of three bolts to the rear of the steering wheel.
The module (2) is made up of a steel plate covered by a plastic container (4) which makes up the centre of the steering wheel. The container houses houses the suitably folded bag (3) and the inflation device. The inflation device contains an electrically activated detonator (5) and a chemical compound (Sodium nitride) for the formation of the gas (Nitrogen)
The rear of the bag has suitably sized openings to assist the deflation of the bag immediately after inflation.

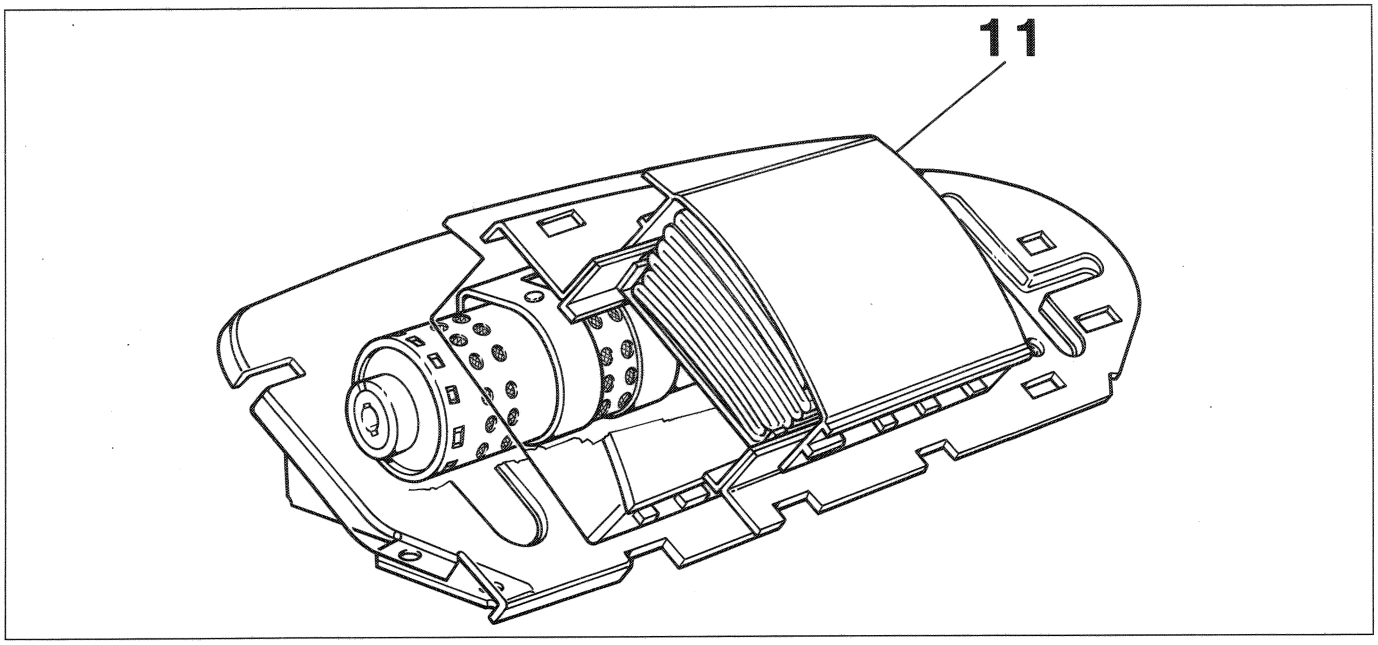


P3M09AL02

Passenger AIR BAG module

The passenger AIR BAG module (11) is also enclosed in a container fixed to a metal frame. Its composition and operating principle are the same as those described for the drivers' Air Bag module. When the connector connecting the AIR BAG modules is disconnected, they automatically short circuit: a device with a spring (6 detail A) incorporated in the connectors for the modules joins the two terminals. This means that it cannot be accidentally activated.

NOTE *AIR BAG modules should be replaced 10 years after they have been fitted which can be determined from the date on the label.*



P3M09AL01

CLOCK SPRING

The clock spring, detail B on the previous page, is a device which is fitted on the steering column switch unit which allows the AIR BAG module connecting cables fitted on the steering wheel, to follow the rotation of the latter without danger of breaking. The device comprises two plates with the lower one fixed to the steering column switch unit by bolts (8). The upper plate is fixed to the steering wheel by two elements on the upper section.
Inside the two plates, the connecting cable for the module and the horn buttons are wound round in a spiral allowing them to follow the movements of the steering wheel.
The clock spring is fitted with a safety device which automatically stops it rotating when the steering wheel is removed. This operation prevents the upper plate which is no longer attached to the steering wheel from rotating freely causing the cables to unwind or wind unexpectedly, with the possibility of them breaking.
When the steering wheel is refitted, the device is automatically released.

WHEN REMOVING AND REFITTING THE CLOCK SPRING IT IS NECESSARY TO MAKE SURE THAT IT IS REFITTED ON THE STEERING COLUMN SWITCH UNIT IN THE SAME POSITION AS WHEN IT WAS REMOVED.

If, for any reason, the upper clock spring plate has rotated in relation to the lower one so that the position during the removal is no longer known, THE CLOCK SPRING MUST BE REPLACED.

If the clock spring is being replaced, it should be fitted with the wheels COMPLETELY STEERED TO THE RIGHT, because this is the position corresponding to the new device. The new device is fitted with a safety tab (7) which keeps it locked. This tab should be removed when fitting the steering wheel to allow the system to rotate correctly.

FAULT DIAGNOSIS

The entire time the vehicle is driving, the electronic control unit carries out an autodiagnosis checking the AIR BAG system and memorizing any failures. The moment a fault is detected, as well as memorizing it, it orders the Air Bag warning light to come on.
On starting, this warning light comes on for around 4 seconds (initial test stage) and then goes out. The warning light NOT coming on or NOT going out after 4 seconds indicates a failure in the Air Bag system.
Activations of the system following an impact of a certain degree of severity are also memorized by the control unit.

Fault diagnosis with FIAT/LANCIA TESTER

The faults memorized in the control unit can be analyzed using the FIAT/LANCIA TESTER or other diagnostic equipment.
The faults memorized in the control unit can be cancelled, after the fault has been repaired, using the FIAT/LANCIA TESTER or other diagnostic equipment.

NOTE *In the cas of an impact which caused the activation of the system, the control unit memory cannot be cancelled and therefore it has to be replaced.*
The warning light in the instrument panel remains on constantly.

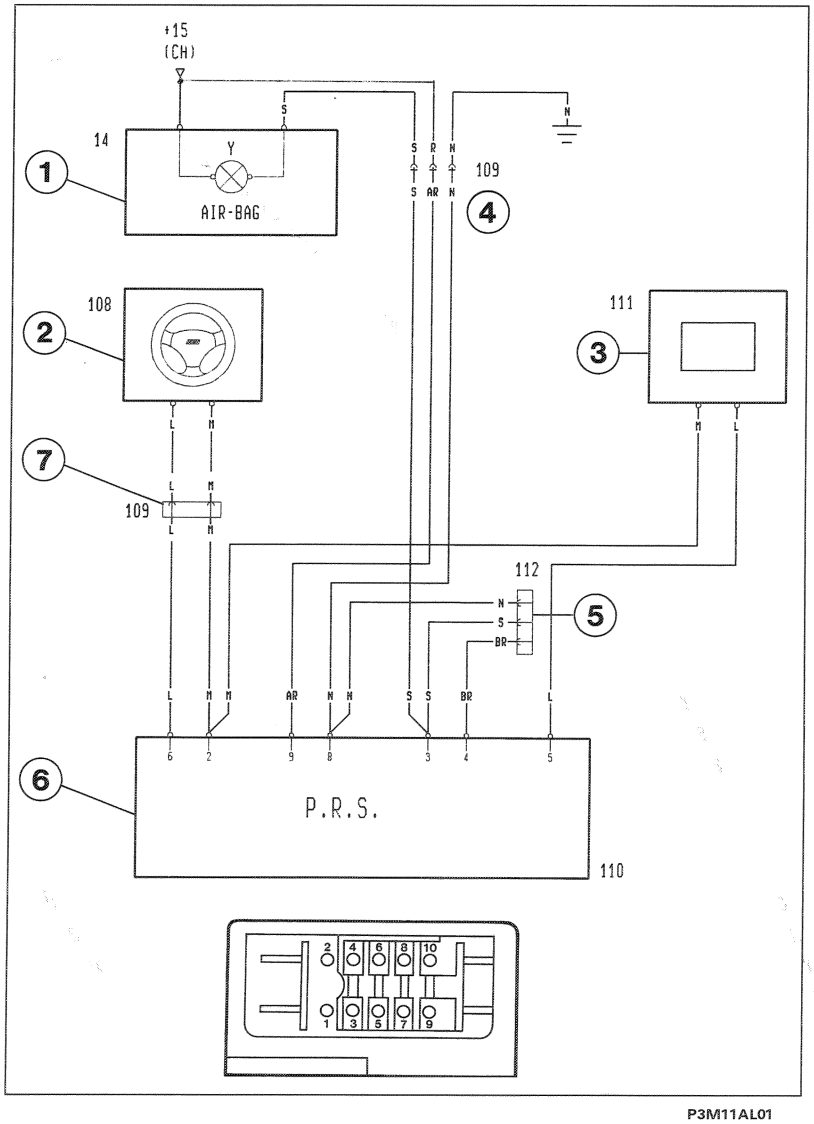
During the fault diagnosis, if it is necessary to take continuity measurements on the module lines, the modules must be disconnected from the wiring and replaced with the appropriate simulation resistances.

System fault diagnosis with blink code (only if FIAT/LANCIA TESTER is not available)

As an alternative to the FIAT/LANCIA TESTER it is possible to carry out a fault diagnosis on the system by interpreting the blink codes emitted by the "AIR BAG" failure warning light in the instrument panel.
To activate the fault diagnosis it is necessary, with the key inserted, to connect terminal n°3 of the electronic control unit to earth for between 1 and 5 seconds. (The warning light signalling AIR BAG system faults is connected to the control unit for terminal n°3).
The table overleaf contains the faults which can be detected and any remedies to adopt, depending on the number of flashes emitted by the warning light.
When the fault has been repaired the test must be repeated to make sure that there are no other faults.
Bear in mind that the control unit communicates faults, one at a time, in descending order, until the system repairs are complete. When the repairs have been carried out the memory must be cancelled, connecting terminal n°3 of the control unit for between 5 and 10 seconds. All the errors memorized should be cancelled, one by one, repeating the procedure each time, until the cancelling of the memory is complete.

Blink Code Table

Flashes	POSSIBLE FAILURE	REMEDIES
1	System OK	
2	Control unit fault	Replace control unit
3	Wiring for module priming circuits in contact with +12V	Check the wiring
4	Wiring for module priming circuits in contact with earth	Check the wiring
5	Resistance for driver's module priming device outside of tolerance	Check wiring or replace driver's module
6	Resistance for passenger module priming device outside of tolerance	Check wiring or replace passenger module
7	Supply voltage below 9.5V	Recharge or replace battery
8	Warning light circuit faulty	Replace warning light bulb - Check the wiring



P3M11AL01

Air Bag System Diagram

1. Instrument panel with AIR BAG failure warning light
2. Driver's AIR BAG module
3. Passenger AIR BAG module
4. Connector connecting AIR BAG system to dashboard cable loom, located under the dashboard, on the left of the heater unit
5. Diagnostic socket for Fiat/Lancia Tester
6. AIR BAG electronic control unit
7. Connector for clock spring

SAFETY INSTRUCTIONS TO BE FOLLOWED WHEN WORKING ON VEHICLES EQUIPPED WITH AIR BAG SYSTEMS

Below are several rules which ***MUST, UNDER ALL CIRCUMSTANCES, BE FOLLOWED*** *when carrying out any sort of operations involving vehicles equipped with Air Bags.*

OPERATIONS ON VEHICLE

It should be remembered that Air Bag modules should be handled with care. Their usage, transportation and storage are governed by the laws dealing with explosives in the countries where the vehicles are marketed.

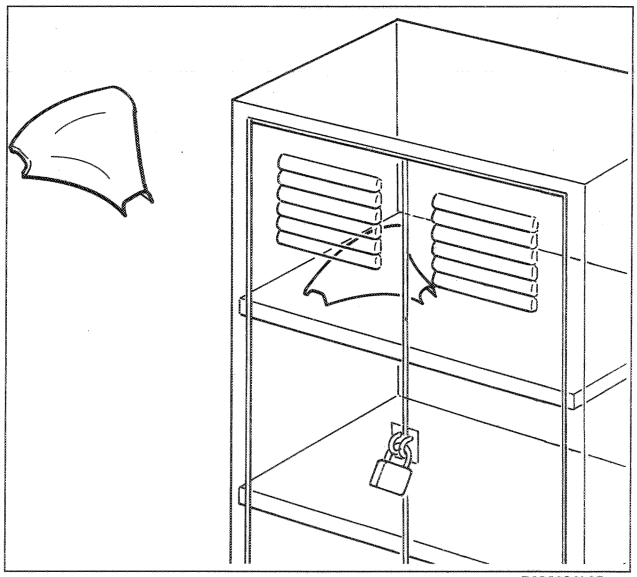
Before starting to carry out:
- bodywork repairs;
- welding operations;
- work which requires the removal of the Air Bag modules, pre-tensioners or the control unit.

A Turn the ignition key to the OFF position and extract it. Disconnect the battery, i.e.: DISCONNECT THE LEADS (- and +) from the terminals and INSULATE THEM THOROUGHLY.

B Disconnect the connector for the control unit waiting at least 10 minutes after disconnecting the battery.

C When removing the inflation device for a bag, scrupulously observe the following procedure:

1. Wait at least 10 minutes after disconnecting the battery before starting to remove the module.
2. Undo the fixing bolts.
3. Detach the socket for the inflation devices.
4. Place the devices, with the cover facing upwards, in a lockable, metal cupboard. This cupboard should be designed exclusively for this purpose; it should not, under any circumstances, be used for storing other types of material, especially if they are inflammable. The cupboard should meet the requirements for housing pyrotechnic charges (metal, impact-resistant with vents to allow natural ventilation) and should have signs on the outside in accordance with the laws in force (DANGER EXPLOSIVES - NO NAKED FLAMES - TO BE OPENED BY AUTHORIZED PERSONNEL ONLY).



P3M094L05

NOTE *All the connectors use and wired for the Air Bag modules have a short circuit clip inside. Until the Air Bag modules are connected, via a suitable connector, to an appropriate energy source, there is no possibility of accidental activation.*

A system component which is NOT activated in the case of an accident should still be considered as "active", therefore components which have not been exploded because they are defective or have reached the end of their warranty or have to be replaced for other reasons, should be returned to the special centre following the procedure described below.

The refitting and dismantling of safety system components should ONLY be carried out by skilled, authorized personnel.
The failure to adhere to the instructions given below could involve the system being activated involuntarily resulting in unneccesary injury to persons or repairs to the system.
DISMANTLING AIR BAG MODULES INTO THEIR COMPONENTS IS STRICTLY FORBIDDEN.

NOTE *All the system components have been specifically designed to work on a particular marque and type of vehicle, therefore modules and pre-tensioners cannot be adapted, reused or installed on other vehicles, but only on those for which they havve been specially designed and produced. Any attempt to reuse, adapt or install a system on a different type of vehicle can cause injury to the occupants of the vehicle in the case of an accident.*

Replacing an Air Bag (because of defects or expiry of the warranty)

If an Air Bag module is being replaced because it is defective or because the warranty has expired, it is necessary to:
1. Remove the sticker from the new module, stick it in a special file (register) with the vehicle details (chassis no., registration date, model, etc.) and add the serial number of the old module. This file with the registration data should be kept for any future checks.
2. Before being stuck on top of the existing sticker, the new sticker should be perforated at the month and for the ten years following the year in which the module is fitted (e.g. from 1996 to 2006).
3. Connect the module to the appropriate connector coming out of the steering wheel.
4. Fit the Air Bag module in the special housing in the steering wheel checking that the connecting cable is correctly connected and tighten the bolts to the recommended torque.

Replacing the control unit

The electronic control unit should ALWAYS be replaced in the case of an impact which involves the activation of the system.

Do not, under any circumstances, attempt to reuse the electronic control unit.

If the control unit is being replaced, the sticker on the control unit must be removed and stuck in the special file following the procedure described above.

NOTE *After having carried out repairs to the system, check its operation using the FIAT/LANCIA TESTER.*

Operations after an accident

If any of the safety system components are damaged following an accident, they SHOULD BE replaced. Do not attempt to repair the control unit, the clock spring or the Air Bag modules.

Accidents where the Air Bag system is or is not activated

Several of the safety system components should be inspected if the system has been activated and if it has been partly activated or if it has not been activated at all.
These components are the:
- steering column;
- steering column supports;
- area where the electronic control unit and modules are secured;
- clock spring;
- dashboard (in the area of the passenger air bag module).

If the component is distorted, broken or bent, it should be replaced.

Accidents where the Air Bag system is activated

Several of the safety system components should be replaced if the vehicle suffers a frontal impact where the safety system is activated.

These components are the:
- Air Bag modules;
- electronic control unit.

As far as the wiring and the connectors are concerned, they should be inspected to identify signs of burning, melting of the external insulation or damage due to excessive heat.
Any signs of damage to the clock spring or in the area where the electronic control unit and Air Bag modules are secured will involve the replacement of the damaged components.

Painting operations

There are no particular safety regulations to be observed for painting operations and drying in the oven, given that the safety system (Air Bag and pre-tensioners) have been designed so that they are not damaged when the exterior of the vehicle gets hot in normal paint drying systems.

The use of naked flames near modules is forbidden.
All electronic control units (including the one for the Air Bag system) should, however, always be removed in case the temperature in certain environments may reach or exceed 85°C).

DANGERS TO HEALTH

The precautions to be observed when handling activated Air Bag modules, are listed below:
1. Wear protective gloves and safety goggles.
2. After having touched Air Bag units, wash your hands and exposed parts of the body with soap and water.

EFFECTS OF OVER EXPOSURE

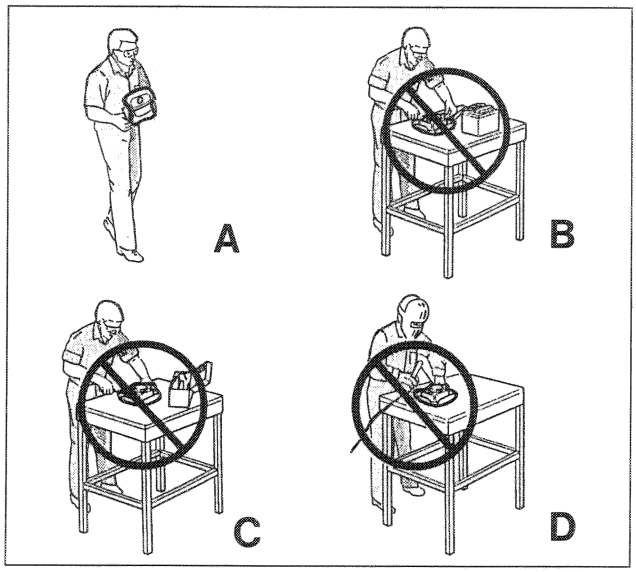
There is no potential danger in exposure to the propellants as the system is completely sealed.
The mixture of propellants is in a solid state, therefore inhalation is impossible even if the gas generator cartridge were to break.
If there is an escape of gas, this presents no danger to health (for humans).
Contact with skin should be avoided and do not swallow the propellant.

In case of
- ***Contact with skin:*** *wash immediately with soap and water.*
- ***Contact with eyes:*** *wash the eyes immediately with plenty of water for at least 15 minutes*
- ***Inhalation:*** *move the patient immediately into the fresh air.*
- ***Swallowing:*** *make the person vomit if they are conscious.*

Under these circumstances it is always necessary to seek medical assistance.

SAFETY INSTRUCTIONS FOR HANDLING AIR BAG MODULES

In normal circumstances the driver's and passenger Air Bags are activated through the electronic command during impact. The gas which is produced in these conditions is mainly nitrogen which is not toxic.
It is important that whoever carries out operations to devices fitted on the vehicle observes the safety instructions listed below.
Only suitably trained personnel should be allowed to work on devices.



P3M098L06

- When removing and replacing open (exploded) Air Bags, only move one module at a time and wear protective gloves and goggles for the removal operations.
- At the end of the operations, wash your hands thoroughly with neutral soap and, in the case of possible contact with residual powder from the device with your eyes, rinse immediately with plenty of running water.
- Once the Air Bag has exploded, the metal components are very hot. Avoid touching them for several minutes (about 20) after the Air Bag has been activated.

A When removing and replacing UNEXPLODED Air Bags, always rest the Air Bga module with the opening flap and the pre-breakage splining facing upwards. Never place anything on top of this flap.

B Do not, under any circumstances, supply an Air Bag module with an electric current.

The system components can only have continuity measurements taken after the modules have been replaced with simulation resistances

C Do not carry out repairs to Air Bag modules. All defective modules should be sent to the supplier.

D Never subject an Air Bag module to heat, for example through welding, percussion, drilling, mechanical machining, etc.

- Never install Air Bag units which have been dropped or which show signs of any sort of damage on vehicles.
- It is forbidden to store Air Bag modules together with inflammableor combustible materials.
- The gas generators should not come into contact with acid, grease or heavy metals: contact with these substances could cause the formation of poisonous or harmful gases or explosive compounds.
- Spare parts must be stored in their original packaging and their temporary storage must be in accordance with the same procedure as for an Air Bag module which has been removed from the vehicle and not activated, i.e. in a specially designed, lockable metal cupboard (impact-resistant with special vents to allow natural ventilation). The cupboard should have special notices on the outside (DANGER EXPLOSIVES - NO NAKED FLAMES - TO BE OPENED BY AUTHORIZED PERSONNEL ONLY).
- It is forbidden, on all versions with Air Bags, to carry out repairs to the front seats, unless the system has been previously been rendered inoperative by switching OFF the ignition, extracting the key, disconnecting and insulating the baattery and then waiting for 10 minutes.
- If, on account of exceptional weather conditions (flooding, high tides, etc.), water and mud reach such a height as to affect the device components, then it must be replaced.

DISPOSING OF AIR BAG MODULES

Air Bag modules fitted in vehicles should NOT be scrapped with the actual vehicle, but removed previously.
Air Bag units cannot be disposed of without being activated first.
If, during an accident, the Air Bag module is not activated, then the device must be considered as still charged. All unexploded material should be sent to GEMCA in Chivasso, stating the following on the accompanying docket:
"AIR BAG/PRE-TENSIONER CONTAINING PYROTECHNIC CHARGE TO BE DEACTIVATED".

The devices must be sent to GEMCA in the same packaging as the spare parts are received in and, if this packaging is no longer available, it can be ordered from the Parts Warehouse in Volvera.
Obviously, if AIR BAGS - PRE-TENSIONERS are being replaced, the original packaging should be kept intact for sending the device which has not been activated to GEMCA.

Foreign markets

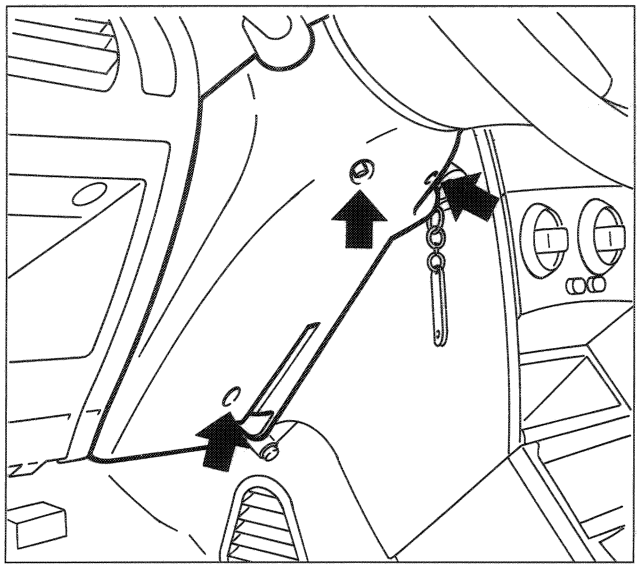
As far as foreign markets are concerned, check the laws in force and notify the network.

Not complying with the procedures listed below can cause involuntary activation of Air Bag units and injury to persons. Air Bag units which have not been activated should NOT be disposed of via the usual means. Air Bag units which have not been activated contain substances which are dangerous to health and can cause injury if the sealed container is damaged during disposal. The disposal of Air Bag units which is not carried out in accordance with these procedures could be in violation of laws in force on the subject.

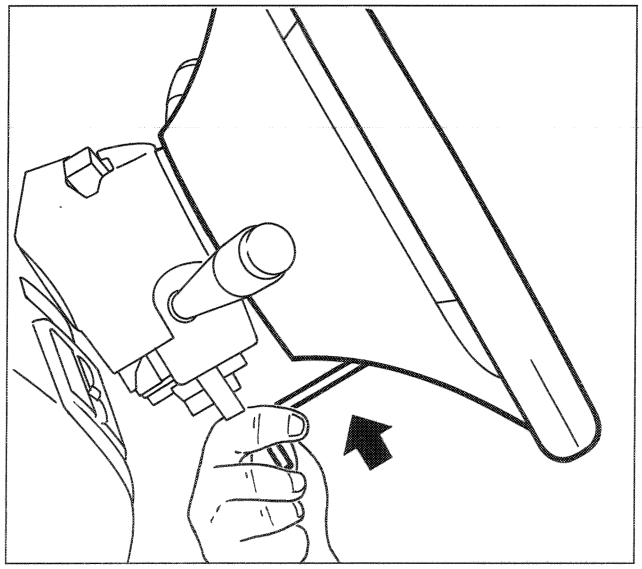
Ordering instructions

If necessary, the devices should be requested, from time to time, from the After Sales Parts Division--Volvera using the V.O.R. procedure only because the Network must not keep stocks of these components. In any case, as mentioned previously, a register is kept, for internal movements, recording the module identification numbers and details of the vehicle (chassis number, registration date, model, etc.).

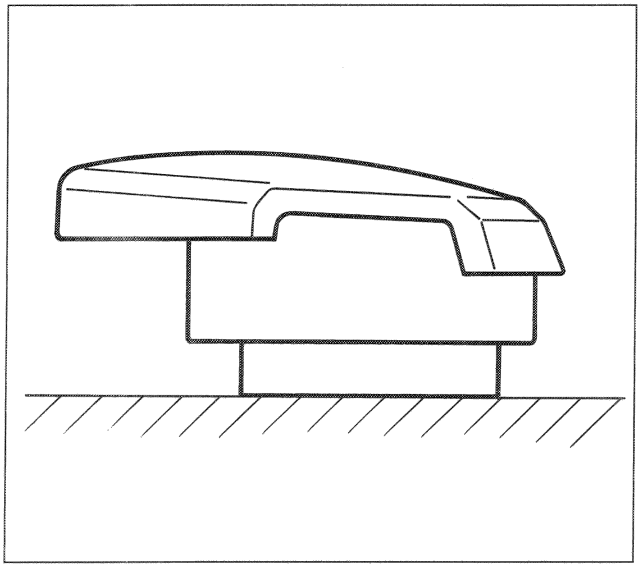
NOTE *For foreign markets the local laws must be checked and the network notified.*



P3M137L01



P3M137L02



P3M137L03

REMOVING AN AIR BAG

Safety measures

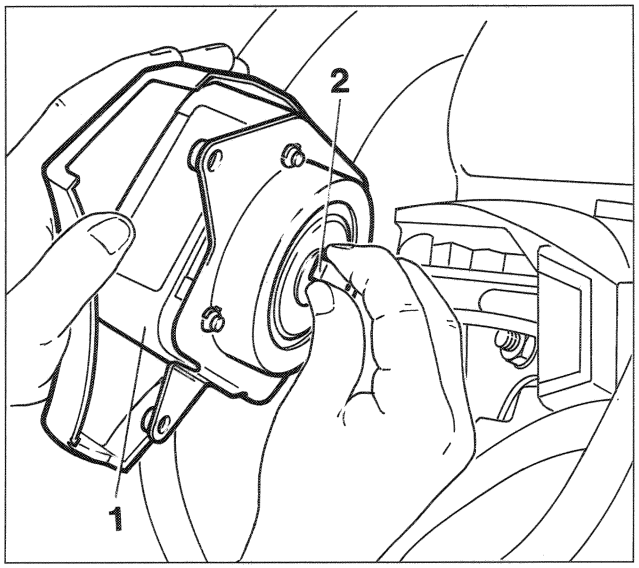
Operations to the Air Bag system components should be carried out by suitably trained personnel, SCRUPULOUSLY following the safety measures listed below.
Polythene gloves and protective goggles must be worn during removal and replacement operations.
Before proceeding with the removal of an Air Bag, disconnect the battery leads and wait at least 10 minutes.
Do not use naked flames near an Air Bag or the system components.
Damaged or defective individual system components should not be repaired or tampered with in any way, but always replaced in one piece.
For more detailed information on the safety instructions, see the previous pages.

Order of operations

- Remove the lower steering shaft cover, undoing the 3 bolts shown by the arrows;

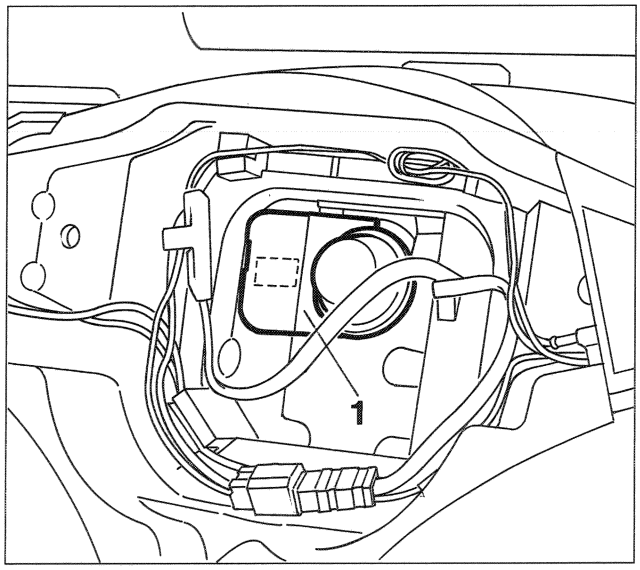
- undo the three 5 mm bolts, located at the rear of the steering wheel; to gain access to each bolt, rotate the steering wheel, positioning it as illustrated in the diagram;

After they have been removed, Air Bag modules which have not been activated should be immediately placed in a suitably marked, lockable cupboard.
The figure illustrates the way the module should be positioned with the metal part resting on the surface.



P3M138L01

- extract the device (1), turning it over towards the left whilst keeping it vertical, then disconnect the white 2 way connector (2) and detach the Air Bag device.



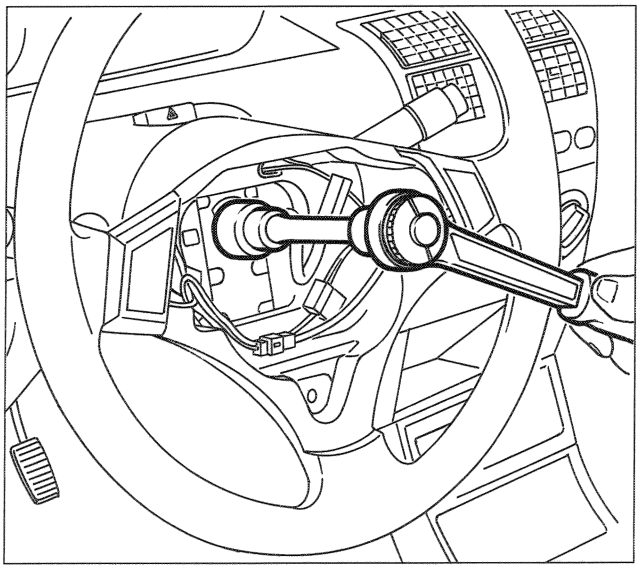
P3M138L02

REMOVING CLOCK SPRING

Removing steering wheel

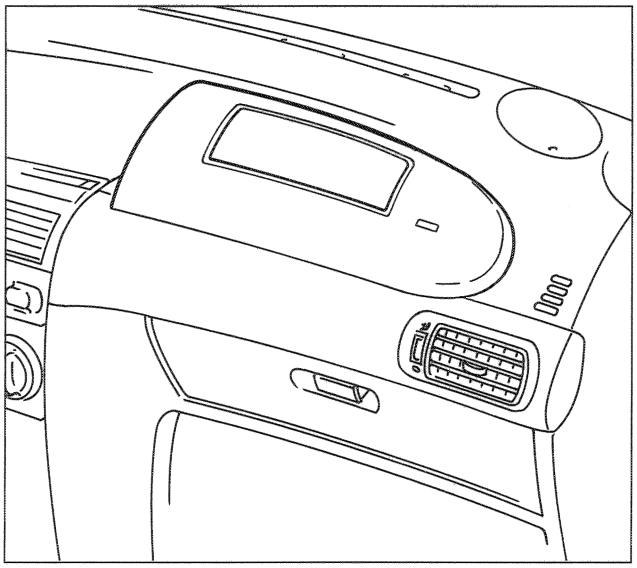
- If fitted, remove the rubber shield (1) fitted on the fixing nut;

When fitting, if the vehicle is found to be without a shield, one should be supplied.



P3M138L03

- remove the staking and loosen the nut fixing it to the steering column, then turn the steering wheel completely to the right;

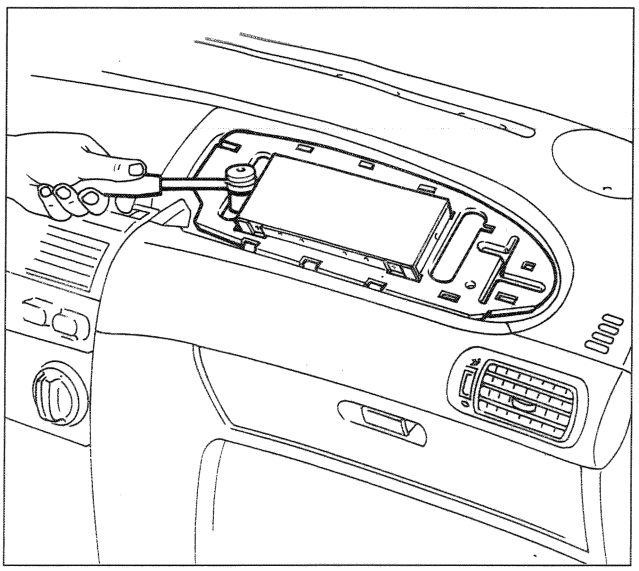


P3M124L04

REMOVING-REFITTING PASSENGER AIR BAG

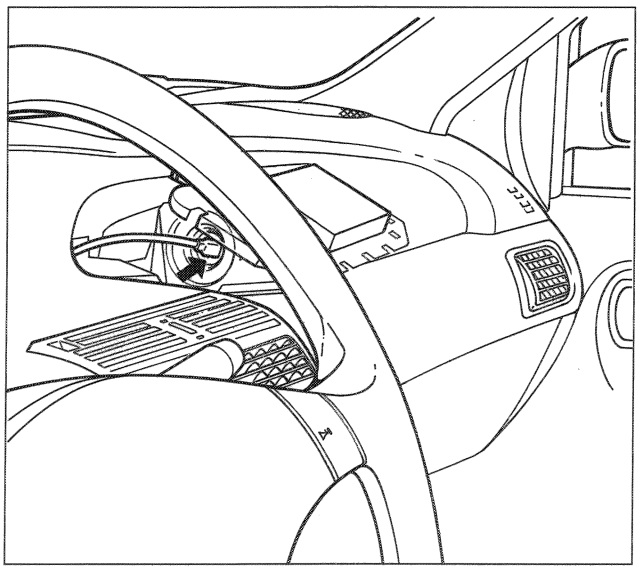
The operations on the AIR BAG system components should be carried out SCRUPULOUSLY following the safety instructions given on page 94.

- Detach the fixing cover from the support;



P3M124L02

- undo the bolts fixing the Air Bag support;
- disconnect the connector then extract the Air Bag device.



P3M124L03

NOTE *To refit, simply reverse the order of the operations carried out for the removal.*

DO NOT CONNECT THE BATTERY UNTIL IT IS CORRECTLY FITTED

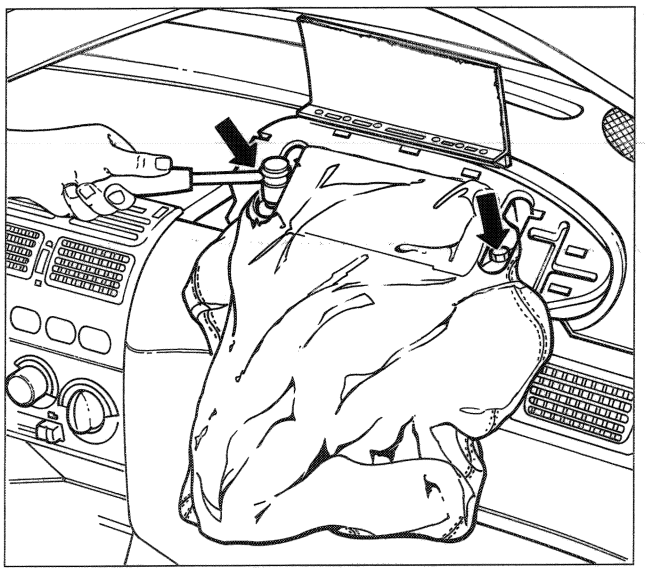
NOTE *After the operation, check the operation of the system using the FIAT/LANCIA TESTER or other diagnostic equipment*

P3M103L01

REPALCING PASSENGER AIR BAG

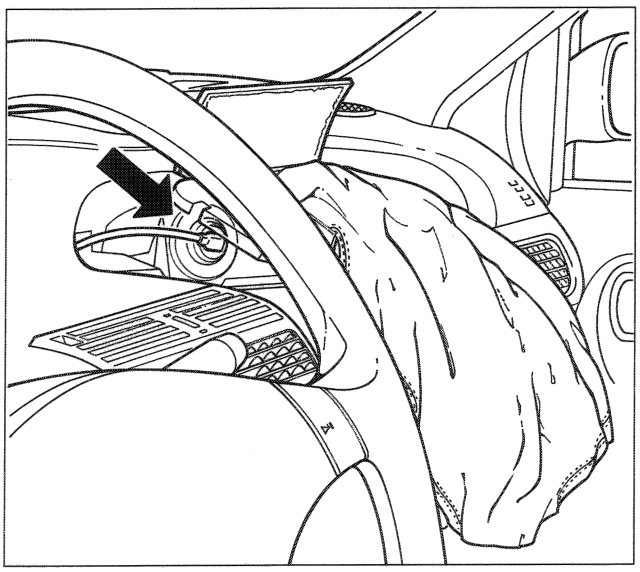
Operations on AIR BAG system components should be carried out SCRUPULOUSLY following the safety instructions given on page 94.

- Detach the fixing cover from the support;



P3M103L02

- undo the bolts fixing the Air Bag support;
- gently extract the assembly;
- disconnect the connector then extract the Air Bag device;
- fit the new device, reversing the order of the operations carried out for the removal.



P3M103L03

NOTE *To refit, simply reverse the order of the operations carried out for the removal.*

DO NOT CONNECT THE BATTERY UNTIL IT IS CORRECTLY FITTED

NOTE *After the operation, check the operation of the system using the FIAT/LANCIA TESTER or other diagnostic equipment.*

55.

INTRODUCTION

A seat belt PRE-TENSIONER is a device integrated in the reel assembly which, in the case of a frontal impact, recovers the inevitable extension of the belt due to the action of the weight of the body, keeping the latter close to the seat backrest.
Impacts, vibrations or localized heat in the area of the pre-tensioner can cause its activation; the vibrations produced by road conditions or accidentally driving over small obstacles (e.g. pavements) do not come enter this equation.

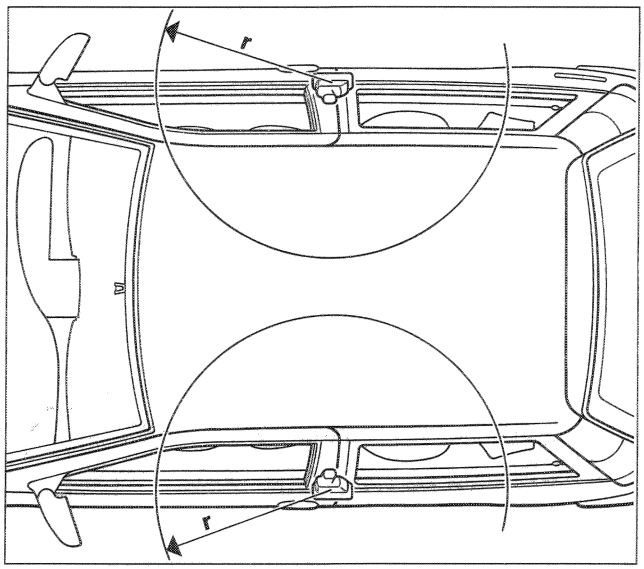
Seat belt pre-tensioners are mechanically operated pyrotechnic devices which intervene in the case of an impact, recovering the extension of the seat belt due to pressure from the body.

It is vital for the seat belt to remain as close as possible to the body in order to gradually absorb the kinetic energy produced during an impact.

The main reasons why a seat belt may, during an impact, no longer ensure that the body is held against the backrest are listed below:

- delay in the intervention of the inertia locking device,
- stretching of the belt fibres,
- "wrapping" of the belt around the reel (spooling effect),
- thick clothing creating an excessive gap between the belt and the chest.

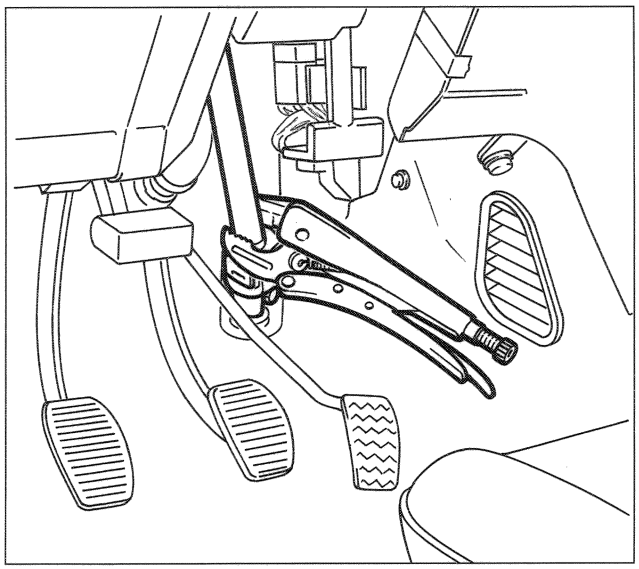
Putting together all these causes it is easy to understand that the belt would only be effective after the body has moved forwards a certain amount.
Pre-tensioners are fitted as standard on front seat belts.



P3M104L01

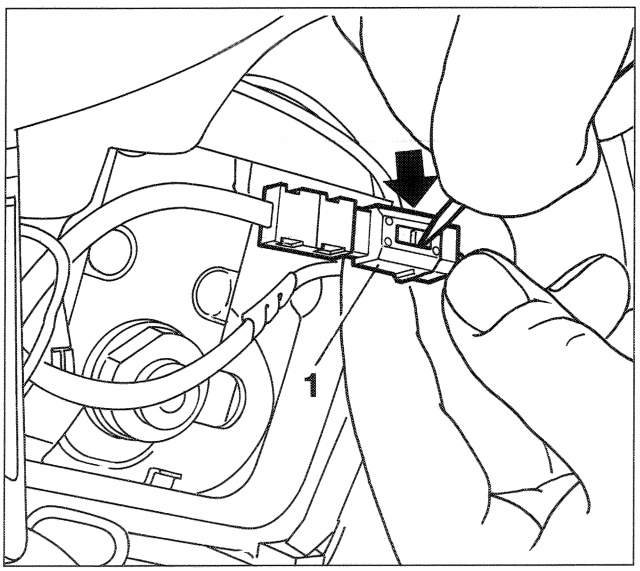
Safety instructions to be scrupulously followed

- Do not subject the area surrounding the pre-tensioners (60-70 centimetre radius) to serious impacts due to bodywork repairs (for example the use of a hammer); if necessary, remove the complete reel - pre-tensioner assembly (see Section 70 - Bodywork on page 47 onwards);
- if repairs are being carried out to the vehicle in different areas to those mentioned above, simply remove the reinforcement rod following the instructions given on 106 onwards;
- if heating lamps need to be used for painting operations in the area surrounding the pre-tensioner, then the complete reel - pre-tensioner assembly should be removed (see Section 70 - Bodywork page 47 onwards).



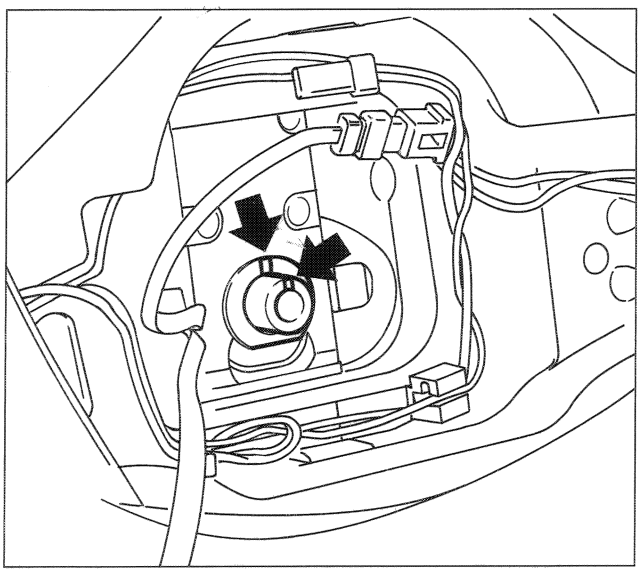
P3M139L01

- with the steering wheel turned completely to the right, lock the wheels in place using a special tool (one possible solution is illustrated in the diagram);



P3M139L02

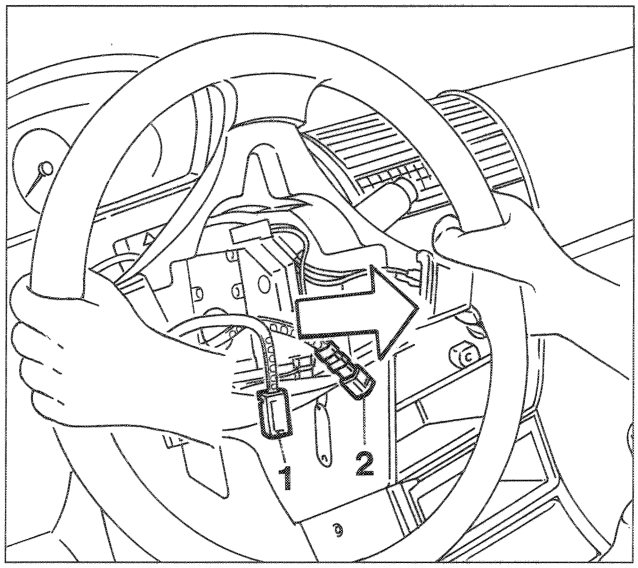
- disconnect the black 2 way connector supplying the horns (1), acting on the tab as illustrated in the diagram;



P3M139L03

- completely undo the nut fixing the steering wheel and mark the reciprocal position between the steering wheel hub and the steering column;

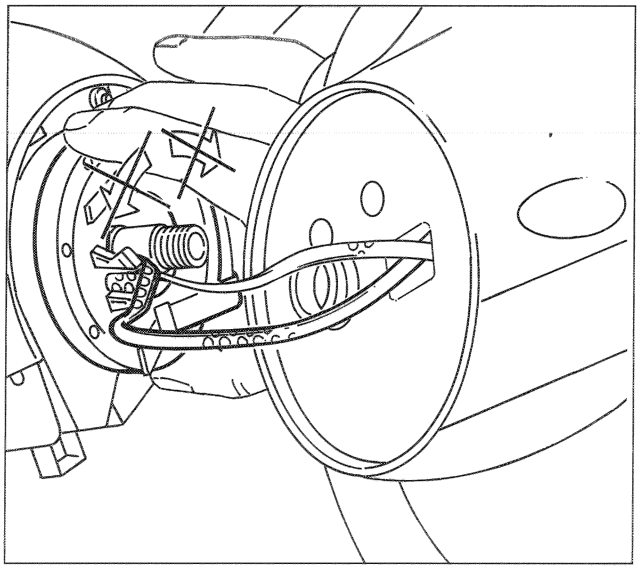
3M136L



P3M140L01

- completely extract the steering wheel without removing the 2 cables for the clock spring (1) and (2);

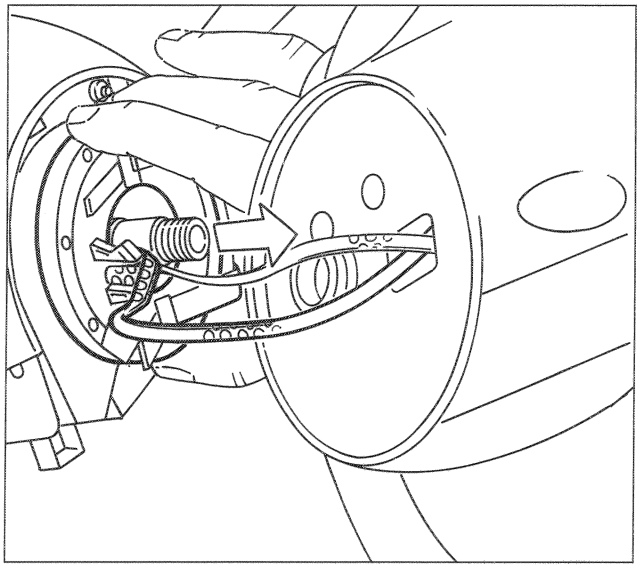
During the removal operation, take care not to strike the steering wheel with force.



P3M140L02

Removing clock spring

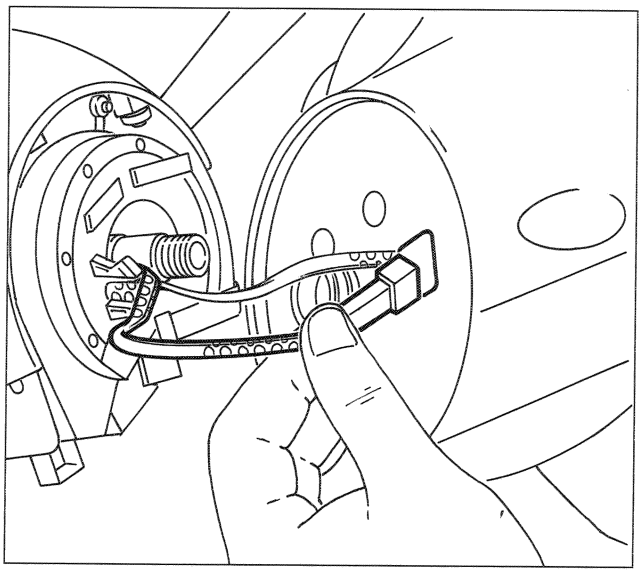
- Make sure that the removal of the steering wheel has resulted in the upper ring for the clock spring device stopping its rotation being raised;



P3M140L03

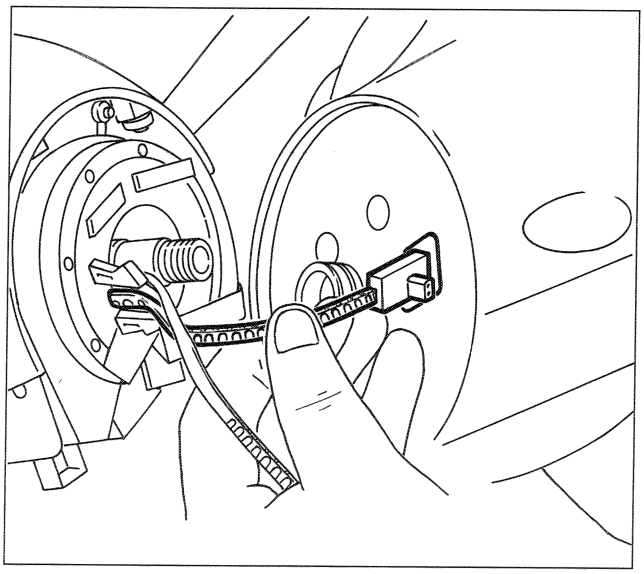
3M137L

- if the upper clock spring ring rotates, it should be pulled upwards handling it by the diameter: it should be heard to click into place;



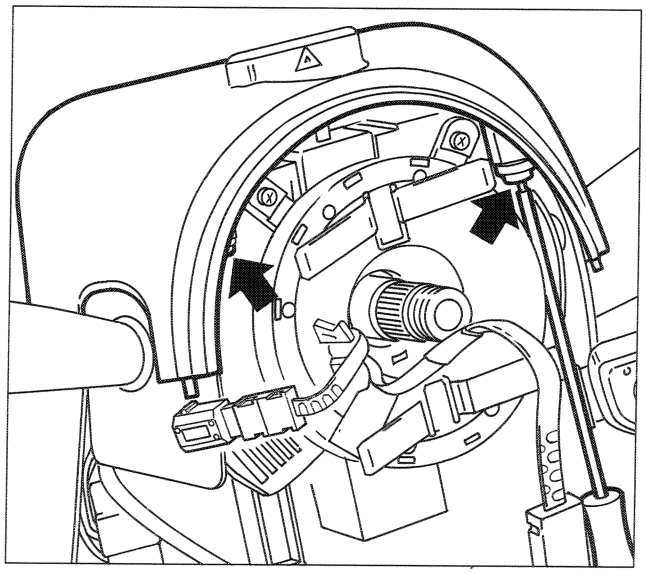
P3M141L01

- carefully extract the supply cable for the horns with the 2 way black connector through the slit in the steering wheel hub;



P3M141L02

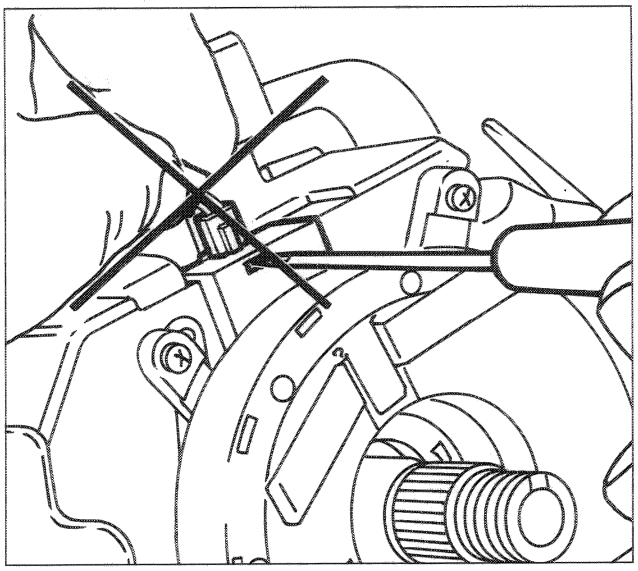
- carefully extract the supply cable for the Air Bag with the 2 way white connector through the slit in the steering wheel hub;



3M138L

P3M141L03

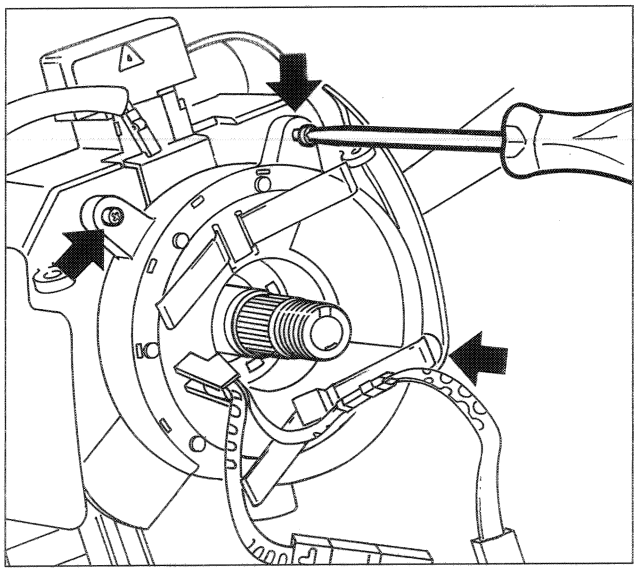
- undo the two 3 mm bolts, shown in the diagram, and remove the upper steering column cover;



P3M142L01

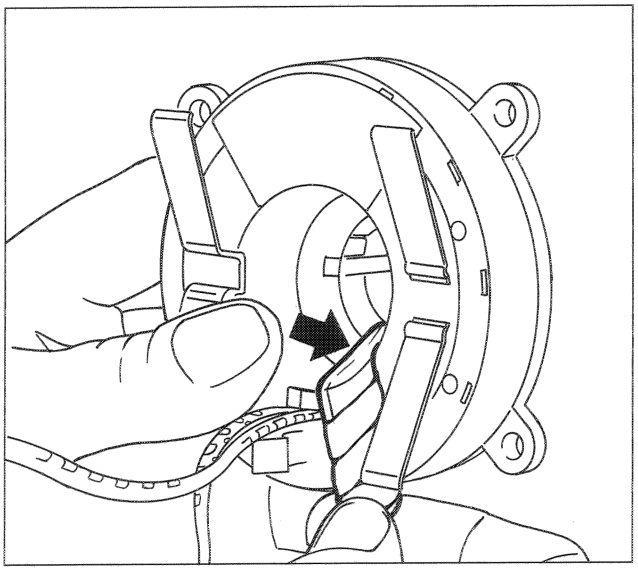
- acting on the tab, disconnect the connector for the cable with the yellow outer casing which connects the clock spring to the Air Bag control unit;
- remove the above mentioned cable from the spring (if fitted) located on the upper part of the steering column switch unit;

To extract the connector, always act on the tab and never the electric cable.



P3M142L02

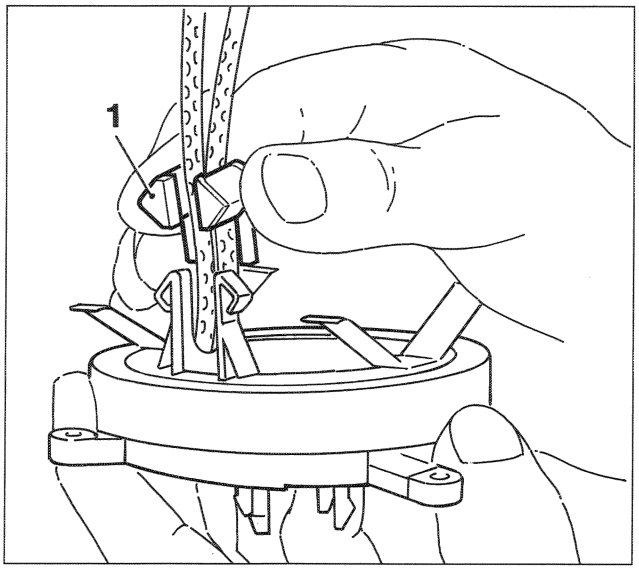
- undo the 3 bolts fixing the clock spring to the steering column switch unit, using a suitable spanner;



P3M142L03

- to avoid any tampering, the clock spring must be removed without rotating the upper ring and locked in position using a band or adhesive tape.

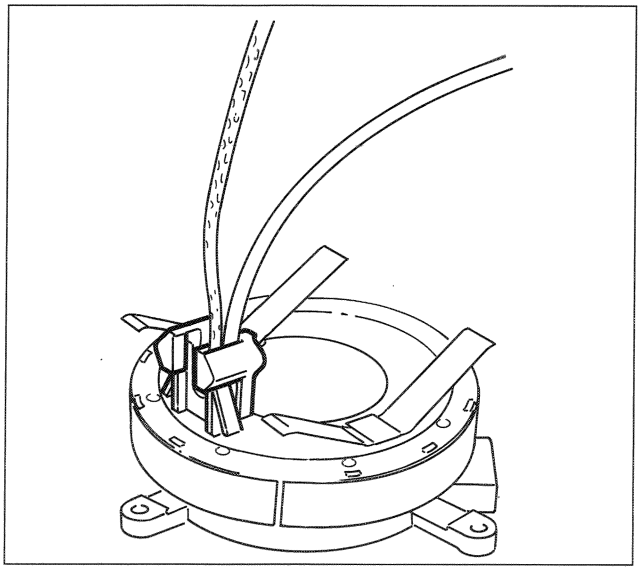
3M139L



P3M143L01

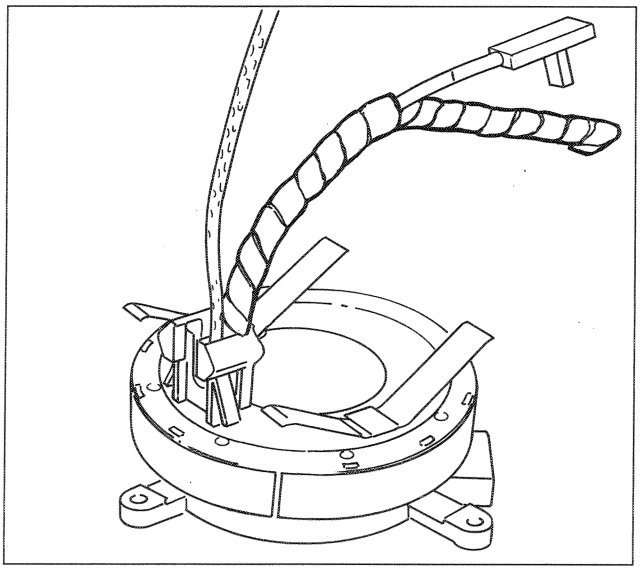
When dismantling there are 4 possible different clock spring configurations:
- clock spring without fixed cable turrets and spiral outer casing on white connector;
- clock spring with fixed cable turrets and without spiral outer casing on white connector cable;
- clock spring with fixed cable turrets and spiral outer casing on white connector cable;
- clock spring with fixed cable turrets and tubular outer casing on white cable connector.

If the clock spring does not have cable turrets, proceed as follows when refitting:
- fit the 2 cables in the moving turret;



P3M143L02

- fit the moving turret on the clock spring upper ring fixing spring;

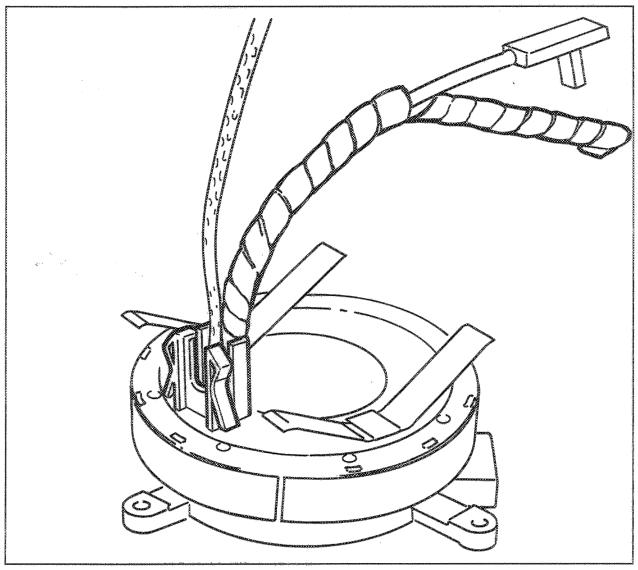


P3M143L03

- wind the spiral outer casing around the Air Bag supply cable (white connector);

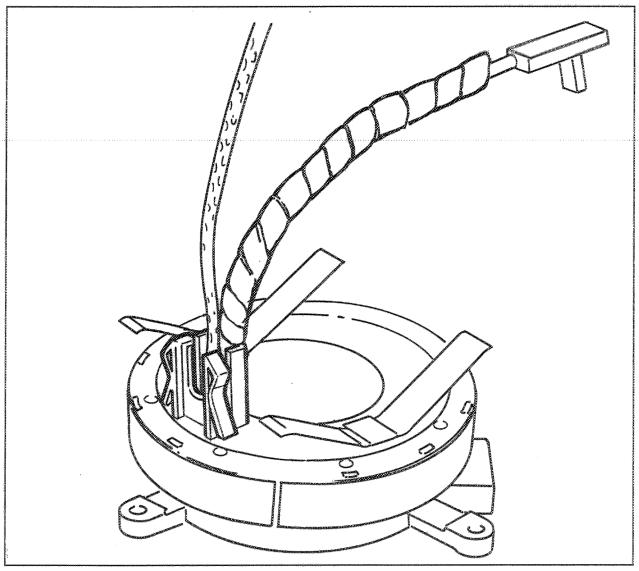
3M140L

55.



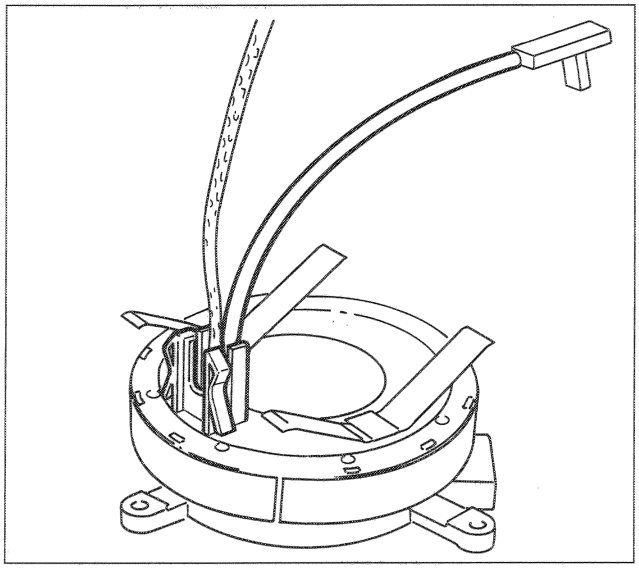
P3M144L01

- in the case of a clock spring with fixed turrets and without an outer casing, wind the Air Bag supply spiral outer casing (white connector);



P3M144L02

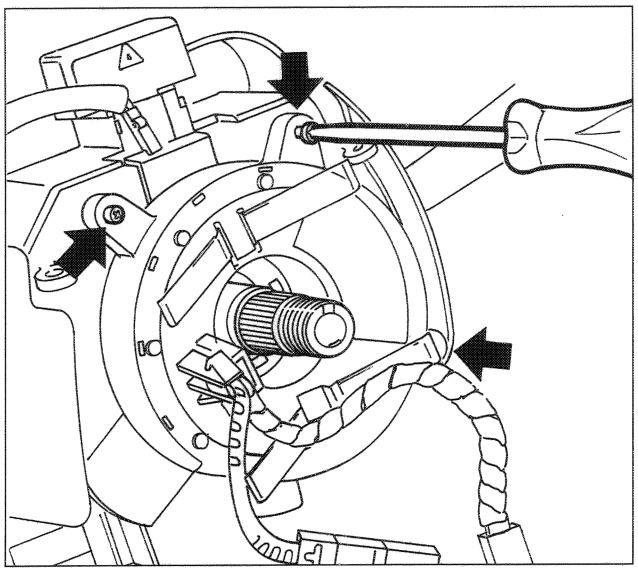
- if the clock spring has fixed turrets and a spiral outer casing on the Air Bag supply cable, no intervention is needed;



P3M144L03

- if the clock spring has fixed turrets and a tubular outer casing on the Air Bag supply cable then no intervention is required.

3M141L

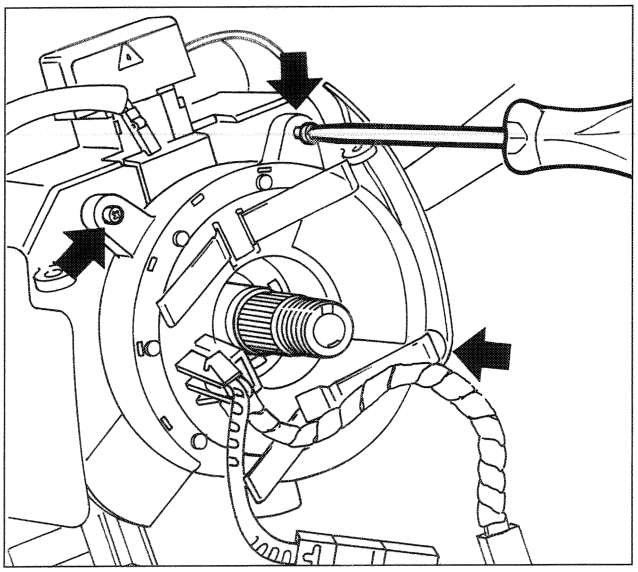


P3M145L01

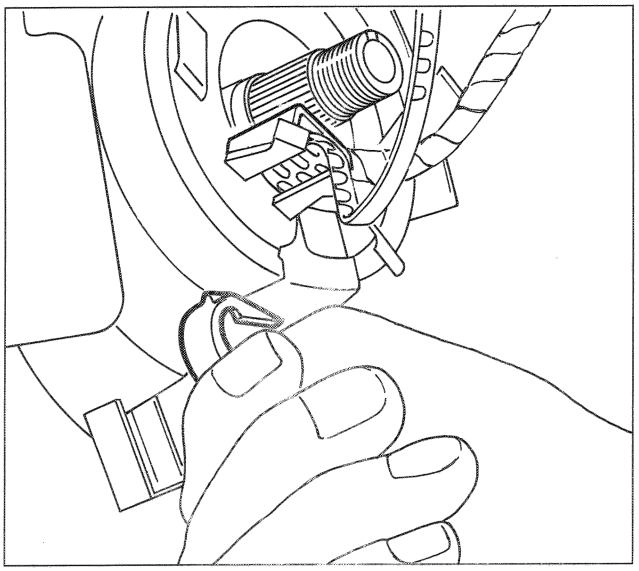
REFITTING CLOCK SPRING

- If the clock spring does not have to be replaced, refit it after having removed the adhesive tape or the band fitted previously, without rotating the upper ring, then tighten the 3 fixing bolts.
  If, during fitting, the upper ring should get stuck, simply pull it upwards until a click is heard indicating that it has locked into place;

The lower casing of the clock spring comes in two different colours:
Black for vehicles with power assisted steering.
White for vehicles without power assisted steering.



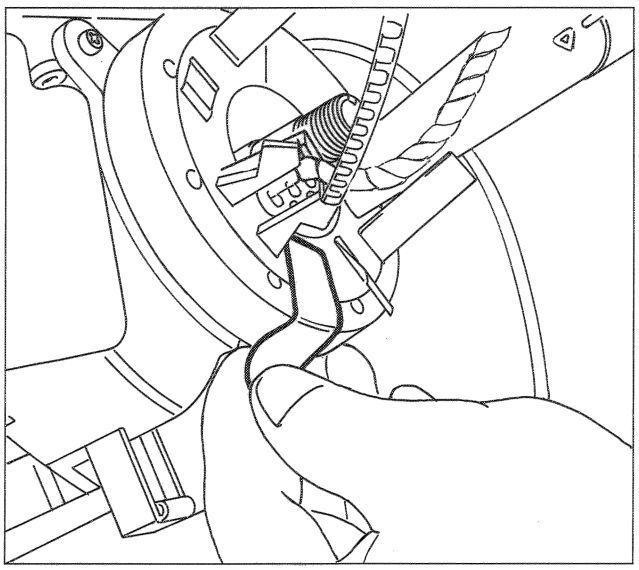
When a new clock spring is being fitted, fix it to the steering column switch unit using the 3 bolts shown in the diagram at the side.



P3M145L02

- tear off the plastic safety tab for locking the new clock spring upper ring, checking that the ring does not rotate; if this is not the case, pull the ring upwards until a click is heard;

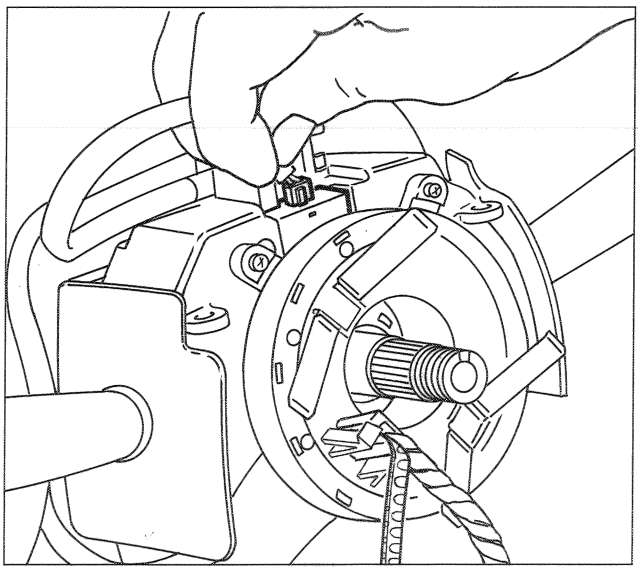
3M142L



P3M146L01

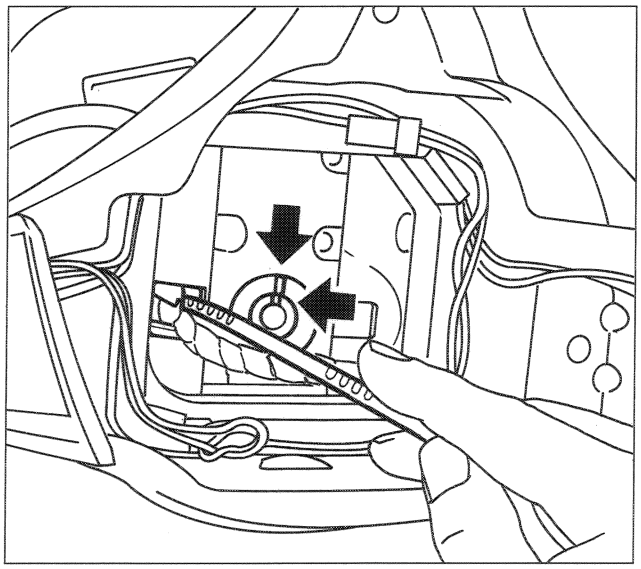
- completely remove the red coloured warranty adhesive tape;

If this tape is not properly removed it could cause noise through interference with the upper part of the steering column switch unit when the steering wheel is rotated.



P3M146L02

- if the clock spring is replaced or refitted, connect the connector for the cable with the yellow outer casing to the clock spring and check that it is attached;
- if fitted, fit the cable with the yellow outer casing on the fixing spring located on the upper part of the steering column switch unit.



P3M146L03

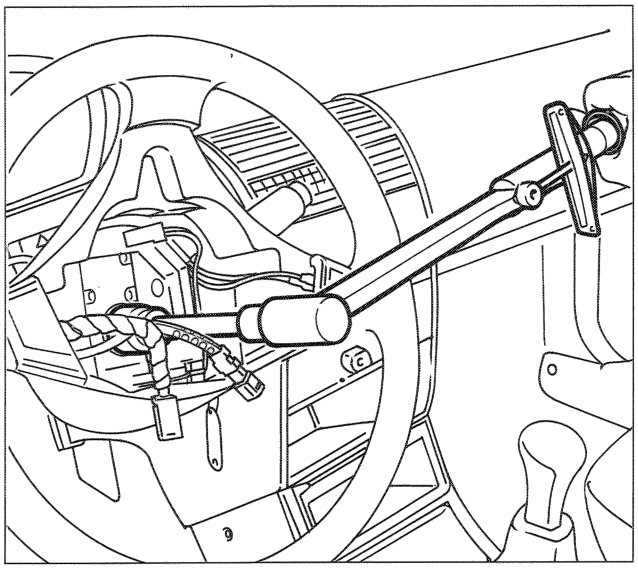
3M143L

Refitting steering wheel

Make sure that the wheels are completely steered to the right.

- Carefully introduce firstly the cable with the white connector and then the cable with the black connector through the special square shaped slit in the steering wheel hub;
- fit the steering wheel ensuring that the references marked previously coincide;

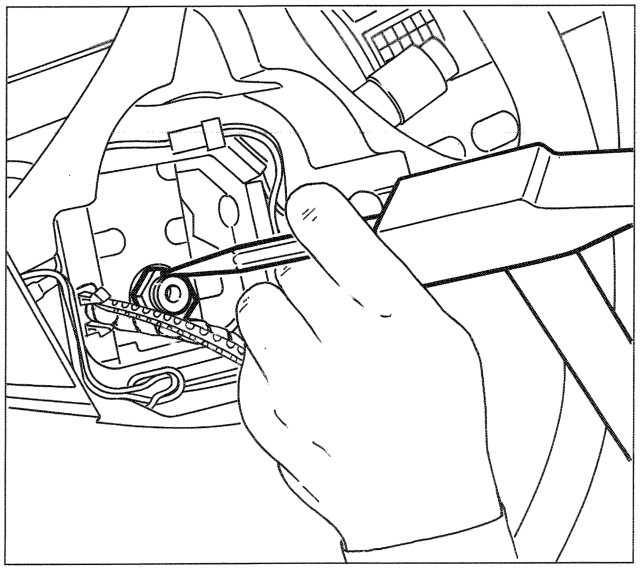
When refitting the steering wheel, pay attention to the clock spring centering tabs which should pass through the slit without force.



P3M147L01

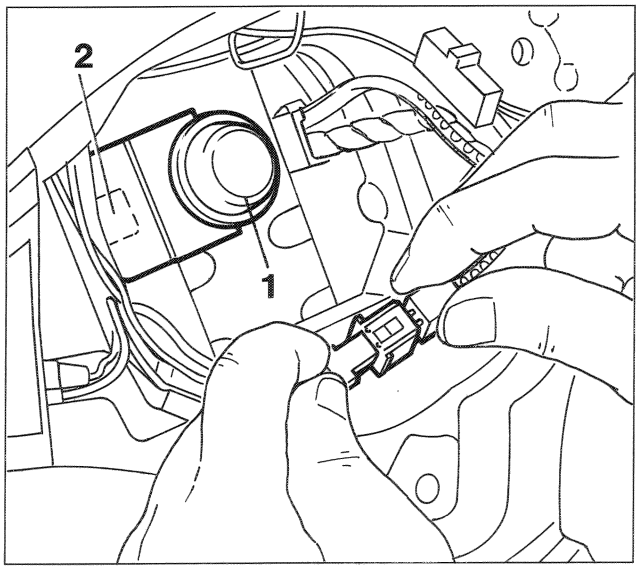
5,5 daNm

- push the steering wheel downwards in the tapered housing; the upper clock spring ring should automatically lock in place;
- tighten a new nut fixing the steering wheel to a torque of 5.5 daNm;



P3M147L02

- stake the new nut securing the steering wheel to the steering column;



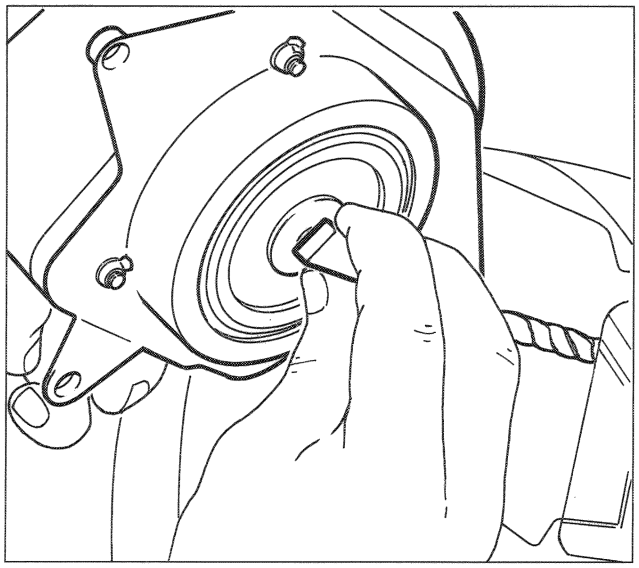
P3M147L03

Release the wheels and realign them.

- fit the rubber shield (1) on the nut checking that the projection (2) on the lower face engages in the smaller slot in the steering wheel hub;
- connect the 2 way black connector to the horn cable;

Pass the cable for the horns through the special recesses in the edges of the steering wheel housing, to avoid any possible interference.

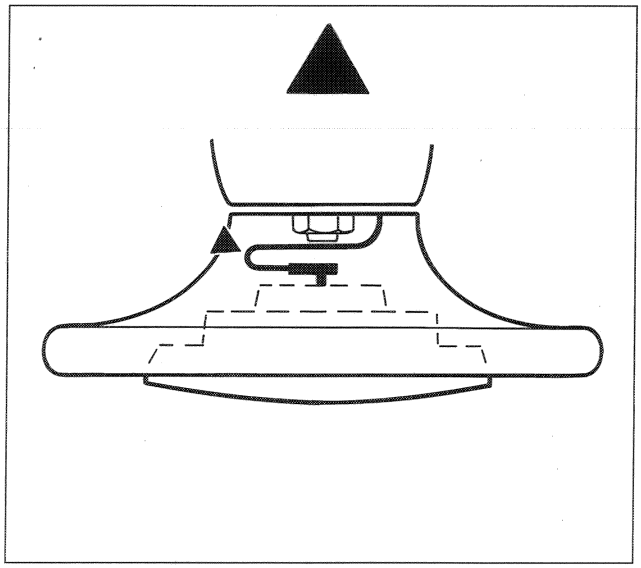
3M144L



P3M148L02

REFITTING AIR BAG DEVICE

- place the Air Bag device in the fitting position on the steering wheel, then turn it over towards the left;
- connect the white 2 way connect in the housing in the Air Bag device capsule (see diagram at the side);
- fit the Air Bag device in its housing, checking that the cable for the white 2 way connector is correctly routed as shown in the diagram;
- tighten the three 5 mm bolts and fix the Air Bag device to the steering wheel.



P3M148L03

DO NOT CONNECT THE BATTERY UNTIL IT HAS BEEN CORRECTLY FITTED

NOTE *After the operation, check the operation of the system using the FIAT/LANCIA TESTER or other diagnostic equipment*

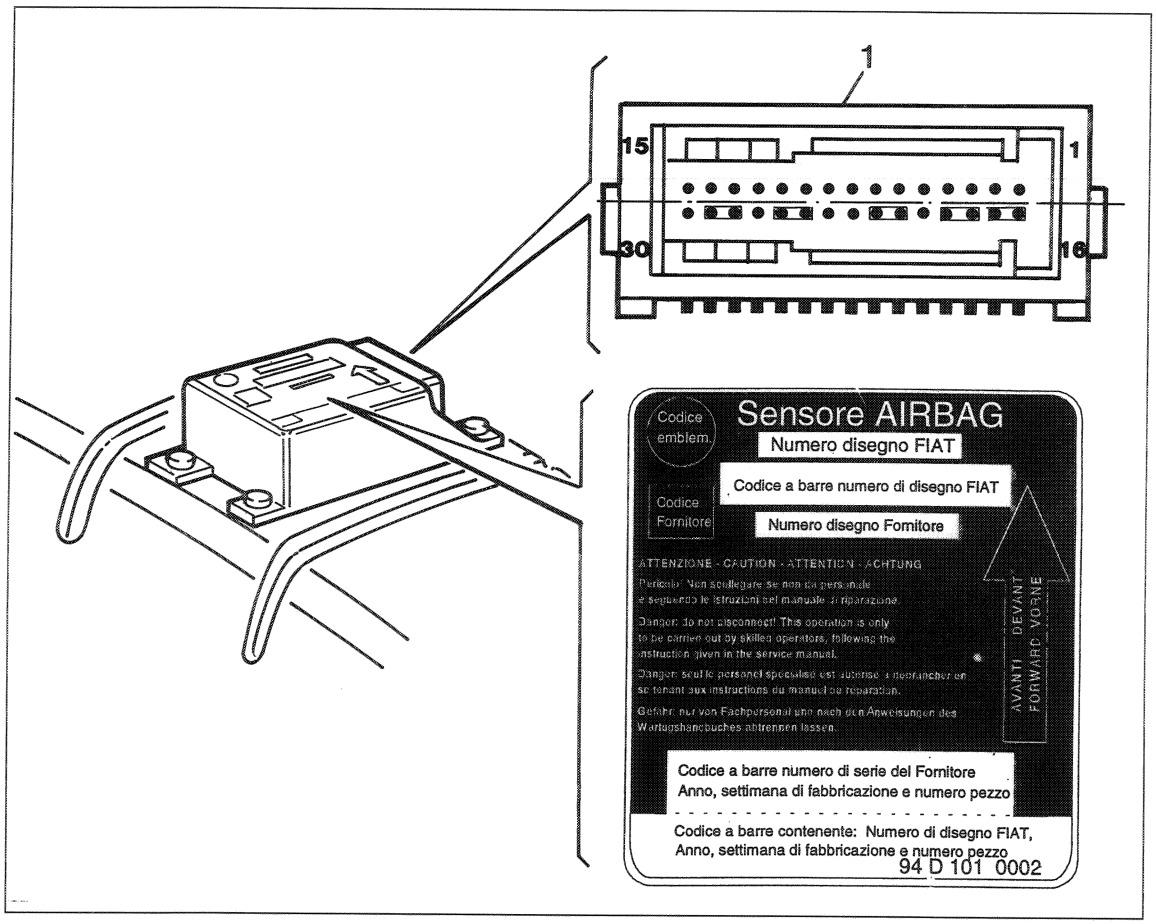
ADOPTION OF NEW AIR BAG SYSTEM

The PUNTO range has a new AIR BAG system which differs from the previous version (Print no. 506.003/03) through the following features:

The connector (1) for the electronic control unit has 30 pins, 9 of which are used for electronic connections.

The AIR BAG warning light, in the instrument panel, is supplied via the ignition switch in the ON position and is placed to earth through terminal 13 of the electronic control unit.

The system fault diagnosis cannot be carried out using the blink code (see page 92).

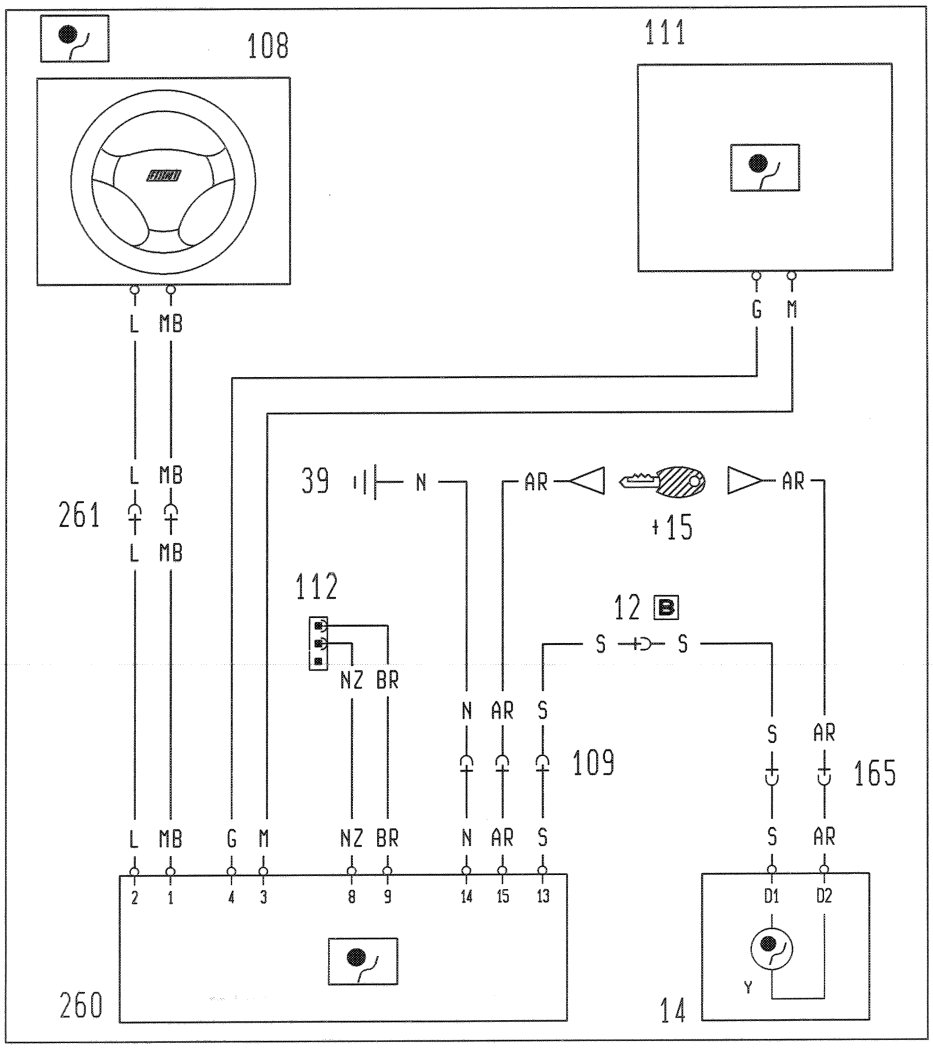


P3M125L06

3M155L

55.

The CLOCK SPRING comprises two shims: the lower one is fixed to the steering column switch unit, whilst the upper one is in one piece with the steering wheel with a turret on the upper part.



Key

14. Instrument panel with AIR BAG failure warning light
108. Driver's air bag module
109. Connector connecting AIR BAG system to the dashboard cable loom, under the dashboard, to the left of the heater unit
111. Passenger air bag module
112. Diagnostic socket for Fiat/Lancia Tester
266. AIR BAG electornic control unit
267. Connector for CLOCK SPRING

Pin No.	Description	Colour
1	Driver's Air Bag (-)	MB
2	Driver's Air Bag (+)	L
3	Passenger Air Bag (-)	M
4	Passenger Air Bag (+)	G
8	Earth for Fiat-Lancia Tester	NZ
9	Serial line (k) for Fiat-Lancia Tester	BR
13	Failure warning light	S
14	System earth	N
15	Ignition (+ 15)	AR

3M156L