

ANTI-THEFT DEVICE/ALARM

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This section deals with the INFRARED CONTROL alarm system.
For the version with RADIO FREQUENCY CONTROL, refer to the special publication "ALARM SYSTEM PA500500000000".

GENERAL DESCRIPTION

Upon request the car is pre-wired for the installation of an alarm system, combined with the door locking system with remote control.

The V.A.S. (Vehicle Alarm System) is a system which offers both perimeter and interior protection: it is able to survey the state of the doors and note the presence of foreign bodies inside the passenger compartment; the system is controlled by a single compact unit which comprises the electronic control unit and siren.

The system is "universal" as it offers the possibility to configure the control unit according to the requirements of the different countries (alarm sound level and types of light flashing for activation/deactivation).

In addition, a sophisticated self-diagnosis system controls:

- intermittent and permanent errors or faults;
- number of activations of the anti-theft device and the number of alarms sounded;
- specific faults of the control unit;

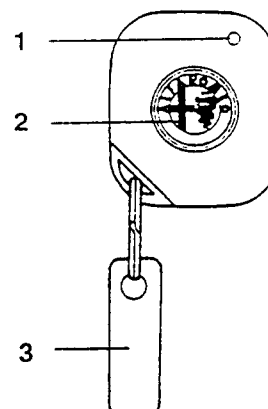
WARNING:

For the 146 the alarm system is supplied in two different versions:

- cars without ALFA ROMEO CODE: V.A.S. ALARM system with volumetric, perimetral protection and internal counter measures in the event of alarm (engine and starter motor lock);
- cars with ALFA ROMEO CODE: V.A.S. ALARM system with volumetric and perimetral protection: without engine control carried out by the above-mentioned system (see the corresponding section "ALFA ROMEO CODE").

COMPONENTS

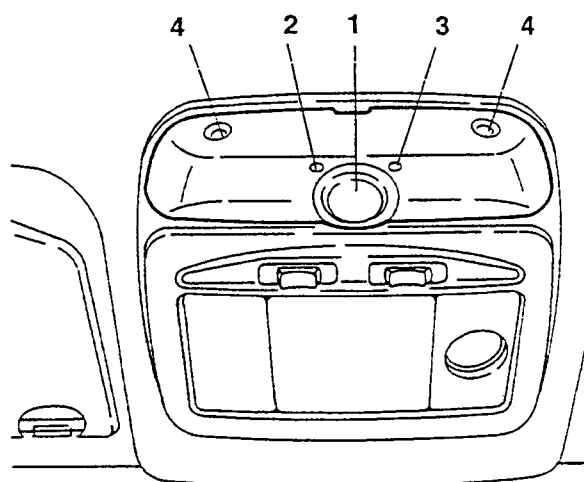
The transmitter, protected by a shockproof rubber cover, comprises a printed circuit and an infrared ray sender; it is battery-powered (2 3V lithium batteries) and, each time the control button is pressed, it sends a beam of rays in the direction in which it is pointed. This infrared ray device continuously transmits the code for the whole time in which the button is pressed. An indicator (led) turns on each time a signal is emitted.



Transmitter

- 1 - Luminous led
- 2 - Control button
- 3 - Transmitter code label

The receiver, incorporated in the front ceiling lamp, is an electronic device that picks up the infrared ray signal through a half-ball protruding from the receiver. There is also a led on the receiver which lights up when the signal is received, while a special button makes it possible to memorise the secret control code. The special half round shape makes it possible to capture the signal through 360 degrees, provided that the transmitter is no more than 5 metres away.



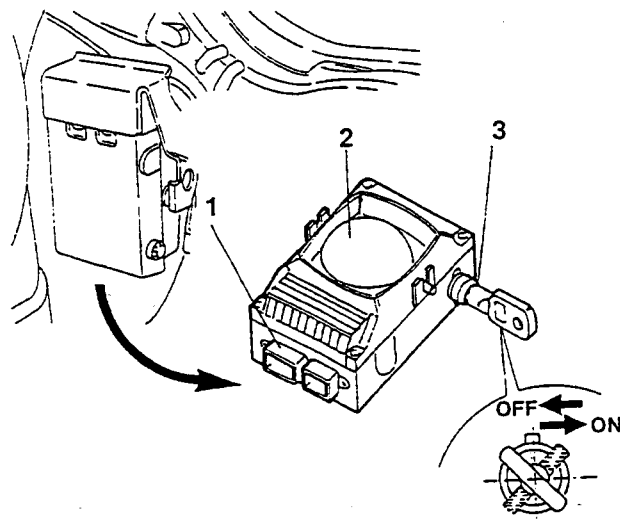
Receiver and volumetric sensors

- 1 - Half-ball receiver
- 2 - Luminous led
- 3 - Memorising button
- 4 - Volumetric sensors

The **electronic control unit** also comprises the compact **siren** : it is to be found at the rear in the luggage compartment.

The siren operates at different intensity depending on the programming for the different countries (see description below).

The **emergency key** for deactivating the system is located on the actual control unit, thus access to it is quick and easy.



Control unit

- 1 - Electronic control unit
- 2 - Siren
- 3 - Emergency key

For the control of the doors and luggage compartment the same switches as for the door locking system are used (see sections "Door locking system" and "Luggage compartment opening control"): all the switches signal when the doors are "not closed" (door open = earth signal to the control unit).

There is a special **switch** on the bonnet which operates with the opposite logic: (bonnet closed = earth signal).

The two **volumetric sensors** enable extra surveillance controlling that there are no intrusions inside the car. They are incorporated in the front ceiling light; one acts as a transmitter and the other as receiver; the beam of ultrasounds emitted by the former (left) must be wholly picked up by the latter (right), after a number of "rebounds" inside the passenger compartment: if not, an alarm signal is sent to the control unit.

The system **signalling led** (red, of the high efficiency type), is located on the dashboard, on the upper half cover of the steering column behind the steering wheel, and it signals the state of the system and any faults (see following description).

OPERATION

ENABLING/DISABLING

It is only possible to enable the alarm when the ignition key is in the **STOP** position.

ENABLING is possible by pressing the button on the transmitter.

DISABLING is obtained by pressing the same button once again.

To obtain the most efficient switching, press the button until a visual and acoustic signal are noted (feedback).

N.B. The system is protected against unauthorised recording of the secret code.

Enabling

Press the button whilst pointing the transmitter towards the receiver dome. Acoustic and optical signals will be noted (for the markets/versions foreseen).

Disabling

Press the button pointing the transmitter towards the receiver dome.

Also for disabling acoustic and optical signals will be noted (for the markets/versions foreseen).

COMPLETE DEACTIVATION OF THE SYSTEM

If the batteries of the transmitter are flat or the system is not working properly, the alarm system can be deactivated using the emergency key on the control unit.

When the car is delivered this emergency key must be in the "ON" position.

Turning the key to "OFF" the system is deactivated completely. In the specific version for some markets, only the batteries inside the control unit/siren are deactivated, leaving the alarm system activated as it is still supplied by the car battery.

With the key at "OFF" the surveillance of the cable cutting/battery disconnection is no longer activated.

Set this key to "OFF" and disconnect the battery cable if the vehicle is left unused for long periods (over 1 month).

"SURVEILLANCE" MODE

During the "surveillance" mode (car closed and alarm activated) the dissuasion led flashes at 0.8 Hz, in this conditions, the system;

- checks the doors, bonnet and tailgate;
- checks that the battery is connected and that the leads are intact;

- checks that the ignition key is not being tampered with;
- checks movements inside the passenger compartment (volumetric sensors);
- only for versions without ALFA ROMEO CODE: cuts off the supply to the starter motor (provided that the key is turned to MARCIA) and deactivates the engine electronic control unit (Boxer 1.7 16 v version).

ALARM MODE

The system enters the alarm mode when one of the surveillance sensors detects an abnormal situation.

The alarm mode can trigger a warning system to the outside (activation of the siren and blinkers, with times varying according to the versions/markets). Only for versions without ALFA ROMEO CODE there are other countermeasures such as: cutting off the engine supply (Motronic control unit supply - Boxer 1.3 and 1.6 version - or stop solenoid valve supply and glow plug warning device - TD version).

The alarm ceases:

- with a command from the transmitter (deactivation);
- 25 min. after the last activation of the alarm mode;
- by turning the emergency key.
(N.B.: in this case the alarm activated condition is stored in the control unit memory).

SELF-DIAGNOSIS

UPON ACTIVATION the system carries out self-diagnosis (indicated by the flashing of the LED at 4 Hz). If a fault is found, the LED will identify it through a special flashing code as shown in table 1.

Table 1: Selfdiagnosis signals

Type of flashing	Meaning
8 Hz, duration 2,5 sec.	Door/bonnet/tailgate left open or faulty switch
Fixed light, duration 2,5 sec.	Faulty volumetric sensors
16 Hz, duration 2,5 sec.	Fault in electronic control unit

When a door or bonnet/tailgate is found to be open/faulty or when a fault is detected on the volumetric sensors, the corresponding sensor is cut off by the surveillance mode and a beep signal is given one second after they are reactivated.

WHEN THE ALARM IS DISABLED the dissuasion LED flashes to indicate which of the sensors triggered an alarm during surveillance (see table 2).

N.B.: the signal is cancelled turning the ignition key to MARCIA

Table 2: Signals indicating alarms

N. Flashes*	Component with alarm
1 Flash	Right front door
2 Flashes	Left front door
3 Flashes	Rh door rear
4 Flashes	LH rear door
5 Flashes	Volumetric sensors on ceiling light
6 Flashes	Bonnet
7 Flashes	Tailgate
8 Flashes	Key-operated supply cut off
9 Flashes	Battery supply cut off
10 Flashes	At least 3 causes of alarm contemporaneously

(*) If there is more than one, the alarm codes are presented in sequence.

The flashes last for 0.5 sec. with an interval of 1.5 sec. between them.

In addition to the automatic SELF-DIAGNOSIS described here, it is also possible to check the system by MANUAL DIAGNOSIS (see "FAULT-FINDING").

INHIBITING THE INTERIOR SURVEILLANCE SYSTEM

It is possible to inhibit interior surveillance in one of the following ways:

a) in close sequence (prior to enabling the alarm system): starting from the MARCIA position, move the key to: STOP, MARCIA, STOP.

Confirmation of the inhibition of the interior surveillance system is given by the lighting up of the dissuasion LED for appr. 2 sec.

b) starting from the key in the MARCIA position, press the button on the receiver (for less than 0.5 sec.) no longer than 8 sec. before turning the key to STOP. Confirmation that the interior surveillance system is deactivated is given by the lighting up of the LED on the ceiling light for appr. 2 sec.

The next time the key is turned to MARCIA the interior surveillance system is re-enabled.

WARNING: It will be possible to turn the key to MARCIA for a maximum of 30 sec. without re-enabling the interior surveillance system (for example to allow the closing of electric windows which may have been left open accidentally).

SELF-ENABLING (only for certain Markets and for versions without ALFA ROMEO CODE)

The self-enabling system ensures that the alarm system is partially enabled automatically after a certain period of time - 4 minutes - from when the car is left by the driver.

This takes place under the following two conditions:

- ignition key moved from MARCIA to STOP;
- opening followed by closing of the driver's door.

The surveillance system operates in the same way as when activated by the remote control with the exception of the following points:

- the doors are not locked;
- interior surveillance is not activated.

The opening of the driver's door before the delay time for self-enabling - 4 minutes - stops and resets the counter: the closing of the door will make the counter resume from the beginning.

In order to regain possession of the car, the owner must disable the system via the remote control, which must be pressed twice in two separate phases:

- the first press activates the alarm system completely;
- the second one deactivates the alarm system and opens the doors.

PROGRAMMING THE TRANSMITTER

Upon leaving the factory the receiver contains a "UNIVERSAL" code which can be controlled by a "UNIVERSAL" transmitter for inspection and moving the car in the factory. On delivery it is therefore necessary to reprogramme the receiver with the transmitter code so that only the owner will have authorised use of the vehicle.

There are two possible programming modes:

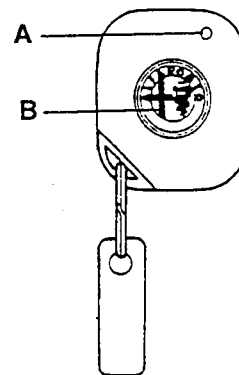
a) before entering the password: **SIMPLIFIED PROGRAMMING**;

b) after entering the password: **PROTECTED PROGRAMMING**;

The memorising of a transmitter must be carried out with:

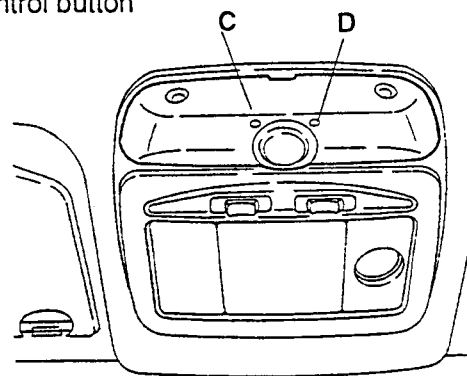
- the alarm system deactivated (by remote control); the warning led on the panel must be off;
- the emergency key at "ON";
- the ignition key at STOP.

Each transmitter has a label with a four-figure number to protect the system from unauthorised programming (protected programming) which must be removed by the customer on delivery of the vehicle and kept in a safe place.



Transmitter

A - Luminous led
B - Control button



Receiver

C - Luminous led
D - memorising button

SIMPLIFIED PROGRAMMING

Simplified programming is for use when no remote controller data has previously been entered in the memory and the system needs to accept all transmitters, i.e. when the memory has not yet been "locked" by protected programming.

In this programming mode as many codes as required are recognised, but only the last four are memorised.

Proceed as follows:

1. press button **D** on the ceiling light: LED **C** flashes;
NOTE: if the led does NOT flash, check that the alarm system is de-activated or that the receiver on the ceiling lamp is correctly powered.

2. keeping the receiver button **D** pushed, press the transmitter button **B**, point it towards the receiver, but at least 20 cm. from it: the led of transmitter **A**, must flash no more than once;

3. LED **C** lights continuously indicating that the code has been memorised: at this point the operator can release button **D** to end programming.

In the 3 sec. following the release of the button, it is possible to programme the country code to suit the country in which the car will be used.

This is performed by pressing in quick succession the button of the receiver **D**, as shown in table 3.

If the button is not pressed, the country code defaults to E.E.C. In the event of further memory storage operations, the last one remains in the memory.

If the procedure has been carried out correctly, the LED on receiver **C** will flash 6 times, indicating that the code has been memorised on both the ceiling light receiver and in the control unit, if not, LED **C** will flash 18 times and it will be necessary to repeat the entire procedure starting from point 1 of simplified programming, after checking the correct connection between the control unit and the ceiling lamp

Table 3: Country Codes

No. of presses	Country
1	ITALY
2	GERMANY (*)
3	FRANCE
4	SWITZERLAND
5	UNITED KINGDOM
6	HOLLAND
7	USA
8	EEC
9 / 10	Others

(*) Not used in this country, for versions without ALFA ROMEO CODE, because in this country a specific control unit with a special operating logic is foreseen.

As it is not easy to carry out this procedure in such a short time as 3 seconds, a **different procedure** for

entering the Country code is recommended. To do this, proceed as follows:

- open the bonnet;
- turn the ignition key from MARCIA to STOP: within 15 seconds the bonnet button must be pressed 7 times in quick succession in less than 10 seconds; 5 beeps will indicate entry in MANUAL DIAGNOSIS (see FAULT-FINDING). During these 5 beeps press the bonnet switch once again. A last long beep will signal the acceptance of this new operation;
- keep the button pressed throughout the duration of the long beep. The latter signals entry into the country programming mode, thus the possibility to enter the country code;
- release the switch and press it within 10 seconds the number of times mentioned in table 3 to select the operating mode of the country required (each press will have a feedback beep).

N.B. To enter another remote control repeat the operations from point 1 of simplified programming, provided that the memory has been "locked" as described below.

PROTECTED PROGRAMMING

To prevent unauthorised persons from entering their own code, it is necessary to protect ("lock") the memory; this operation takes place automatically after 256 activations/deactivations of the alarm system, or by entering the password (locking the memory manually).

Locking the memory manually

Protected programming can be entered by the Owner by entering the Password (four digit code on the transmitter label) before 256 activations/deactivations (for example on a new car during pre-delivery, when all the codes of the remote controls given to the Customer have been entered).

To enter the Password:

1. Press the button on receiver **D** for appr. 2 seconds; LED **C** will flash for the whole time in which the button is pressed.
2. Release button **D**: after appr. 2 seconds LED **C** will flash once indicating the possibility to enter the first digit of the password.
3. Press the button of the receiver **D** the number of times corresponding to the first figure of the password (for example if the Password is 5.2.0.3. press 5 times). Each time the button is pressed LED **C** lights up briefly to confirm;
4. After appr. 2 seconds from the last press on button **D** (the fifth in the example) led **C** will flash again to ask for the next figure.

5. Proceed as described above for all the other figures.

NOTE:

When the password (see example) contains a "0" there is no need to press button **D**, simply wait for the request for confirmation of entry indicated by the next flash.

When the four figures of the Password have been entered, the LED on the receiver **C** can behave as follows:

- **it does not light up**: this means that the Password has been entered correctly and that it belongs to one of the codes of the remote controls memorised;
- **it stays on continuously** for several seconds meaning that the password has not been entered correctly or it does not correspond to any of the remote controls memorised. In this case, when LED **C** goes off, the correct Password should be entered beginning from point 1.

With the correct entry of the password the memory is "locked".

From now onwards, if attempts are made to memorise a new remote control, after transmitting the new code, LED **C** on the ceiling light will stop flashing to indicate that the operation is unsuccessful.

In this case, to enter the code of the new remote control the memory has to be "re-opened" by the following procedure.

Memory opening

When the memory has been "locked" further remote control codes are entered by "**manual memory opening**".

The memory is opened as follows:

1. press the button on receiver **D** for appr. 2 seconds; LED **C** will flash for the whole time in which the button is pressed;
2. Release button **D**: after appr. 2 seconds LED **C** will flash once indicating the possibility to enter the first digit of the password.
3. Press the button of the receiver **D** the number of times corresponding to the first figure of the password (for example if the Password is 5.2.0.3. press 5 times). Each time button **D** is pressed LED **C** lights up briefly to confirm;
4. After appr. 2 seconds from the last press on button **D** (the fifth in the example) led will flash again to ask for the next figure.
5. Proceed as described above for all the other figures. It should be noted that when the password (see example) contains a "0" there is no need to press the button, simply wait for the next request.

When the Password has been entered, the LED **C** can behave as follows:

- **it stays on continuously** meaning that the password has not been entered correctly or it is not present in the memory. Repeat the memory opening operations (with the correct password) from point 1;
- **it starts flashing**; this means that the password has been entered correctly (memory opening) and that it belongs to one of the remote control codes memorised.

At this point to memorise the code of the new transmitter proceed as described at point 1 of "Simplified programming".

When the new remote control has been entered the memory returns to the "locked" mode.

N.B.: The alarm system is activated/de-activated only by the code of the last transmitter memorised correctly (with the key at "ON").

In fact this code is memorised contemporaneously by both the receiver and the alarm control unit.

Any transmitters memorised previously in the receiver, though they have different codes, utilise the code of the last transmitter memorised to control the theft alarm. If previously the receiver and alarm system were regularly controlled by a transmitter and subsequently another transmitter is memorised with the alarm system key at "OFF", the code of this subsequent transmitter is memorised by the receiver, which regularly operates central door locking, while the code of the first transmitter remains in the control unit. Under these conditions, the alarm system can no longer be controlled by the transmitter, which can only operate door opening/closing.

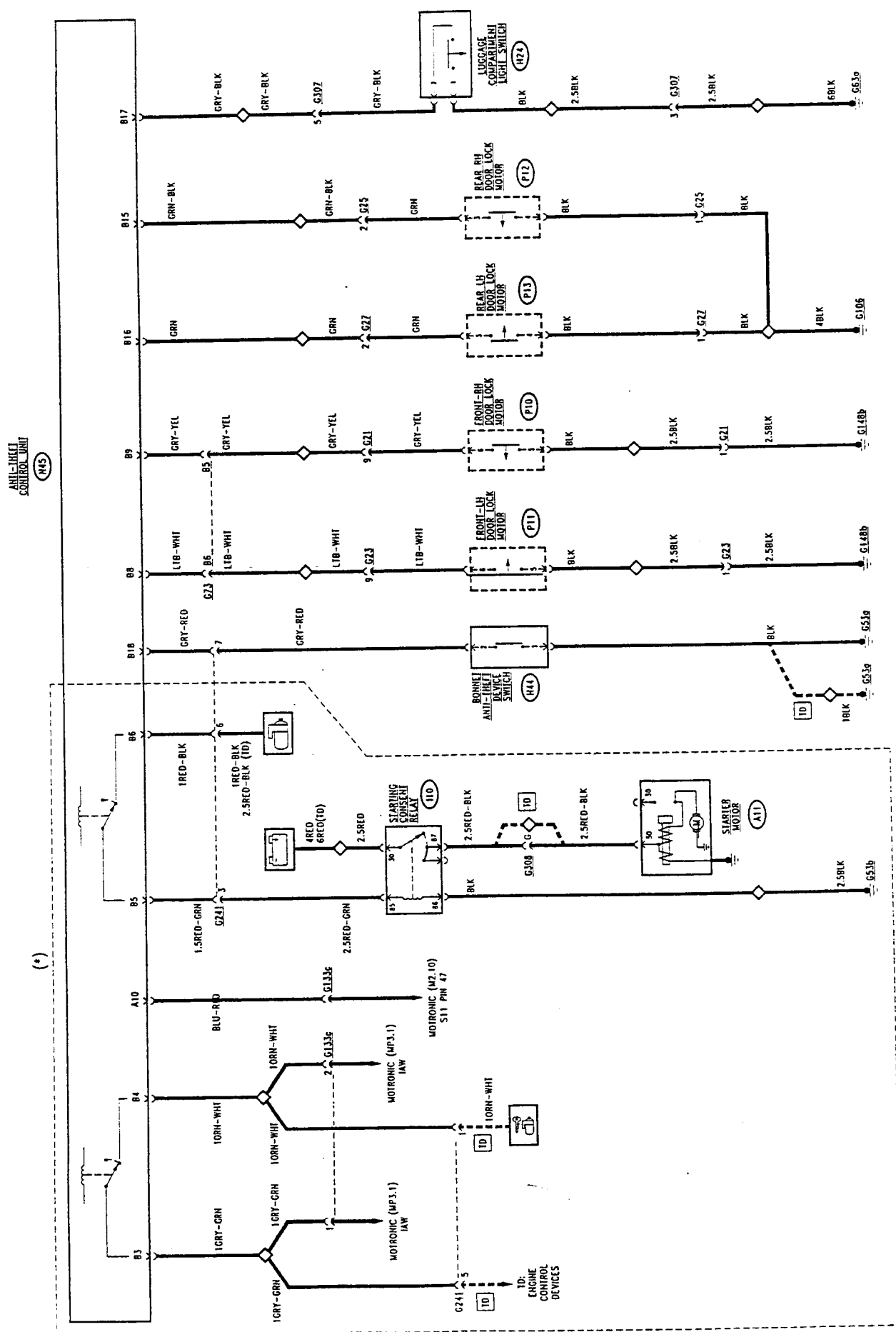
Simply setting the alarm system key to "ON" and memorising another new transmitter, the problem remains unsolved, as the system can duly memorise a new code only if this has been memorised with the alarm system key at "ON" and in succession after the first transmitter. It is necessary to "open the memory" (as described previously) with the first transmitter, and then correctly enter the other transmitters.

WARNING: It should be noted that each single component of the anti-theft system installed on the car becomes an integral part of it and must not be altered or tested on other cars, even if of the same model.

Therefore, never exchange control units and/or receivers between two vehicles. If a control unit is replaced, the memorising procedure must be repeated "re-opening" the memory. If a receiver (ceiling lamp) is changed, simplified programming must be carried out followed by protected programming.

9-1994

WIRING DIAGRAM B



(*) only versions without ALFA ROMEO CODE

FUNCTIONAL DESCRIPTION

The anti-theft system is controlled by electronic control unit **N45** integrated with the siren and the emergency key.

The control unit is supplied directly by the battery at pin A3; the key-operated supply reaches pin B12. Through fuse **F1** of fusebox **G1** pin B7 is supplied (blinker supply).

Pin A9 is earthed (**G53b**).

The system activation signal is sent from the receiver **N67** to pin A2 of the control unit; the same **serial connection line** is used to control the volumetric sensors, inserted with the receiver inside the ceiling light.

Through the receiver **N67** door opening/closing is controlled, by means of the door lock control unit **N11** of fusebox **G1** (for further details see "Door locking System").

The control unit controls the closing of doors and bonnets via switches **P10**, **P11**, **P12** and **P13** of the doors (which are the same for the door locking device) which send an earth respectively to pins B8, B9, B15 and B16. The bonnet is controlled by switch **H44**, which is connected at pin B18, and the luggage compartment by switch **H24** (the same that turns on the luggage compartment light) which is connected at pin B17.

In addition to the closing of the doors, carried out directly by the receiver **N67**, the control unit activates the blinkers (hazard warning lights flashing) sending an intermittent signal: from pin B1 for the right-hand lights and from pin B2 for the left-hand lights.

Pin A1 of the control unit sends a duty-cycle signal to led **D31** when conditions so require.

ONLY FOR VERSIONS WITHOUT ALFA ROMEO CODE : the anti-theft system "intercepts" the key in the STARTING position signal (pin B6) which is "referred" to the starter motor **A11** (from pin B5) only if the system is **not** in an alarm condition.

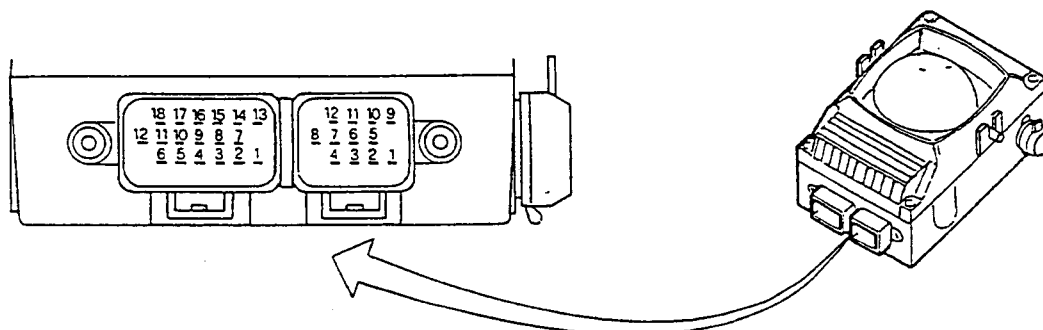
In addition, in the case of alarm, the injection control unit supply is inhibited; this supply (12 V) reaches pin B4 and it is "returned" by pin B3 (Boxer 1.3 and 1.6 versions).

Pin A10 sends a specific block signal to the control unit (only Boxer 1.7 16V version).

For further details see the sections concerning engine ignition/injection.

For the TD version, the key-operated supply for the engine stop solenoid valve and glow plugs reaches pin B4, and it is "returned" by pin B3. For further details see "TD engine control devices".

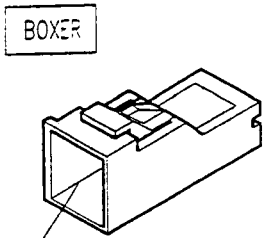
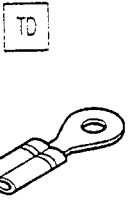
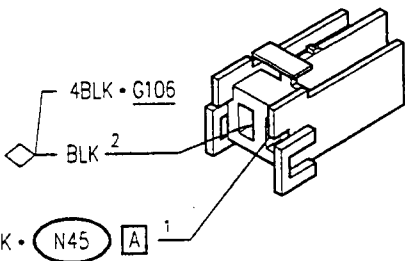
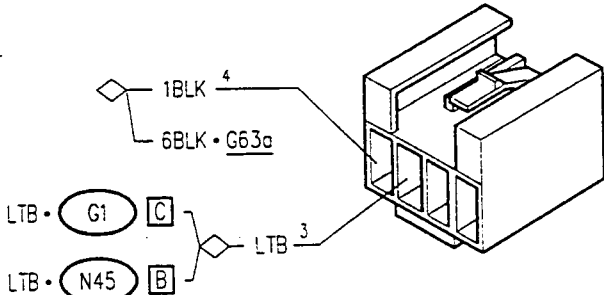
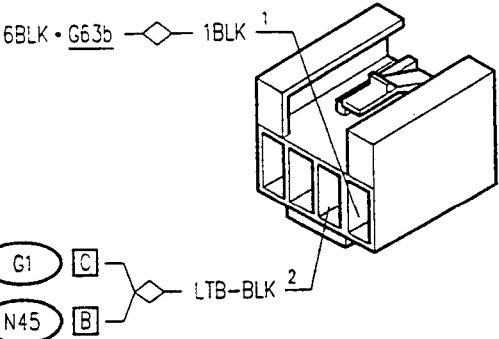
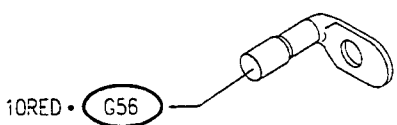
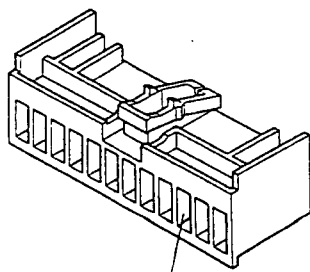
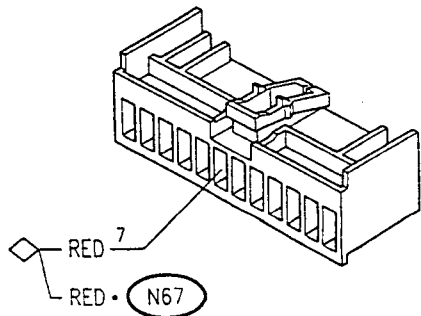
Lastly the system can be connected with the Alfa Romeo Tester through connector **T7**; the diagnosis signal - line K - leaves from pin A6 of the control unit.

**ANTI-THEFT CONTROL UNIT PIN-OUTS**

- A1 Signalling led control
- A2 Serial connection line with receiver (ceiling light)
- A3 Direct supply
- A4 N.C.
- A5 N.C.
- A6 Diagnosis line K
- A7 N.C.
- A8 N.C.
- A9 Control unit earth
- (*) A10 Engine control inhibition (only for Boxer 1.7 16v)
- A11 N.C.
- A12 N.C.
- B1 RH direction indicators control
- B2 LH direction indicators control
- (*) B3 Fuel pump/injection supply consensus (Boxer 1.3 and 1.6) - "key-operated" supply for engine electric stop and glow plug warming (TD)

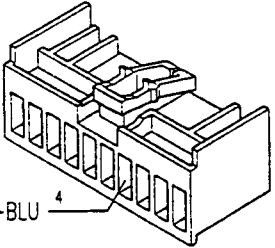
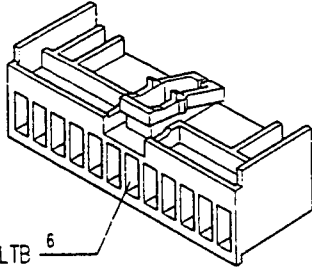
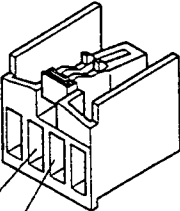
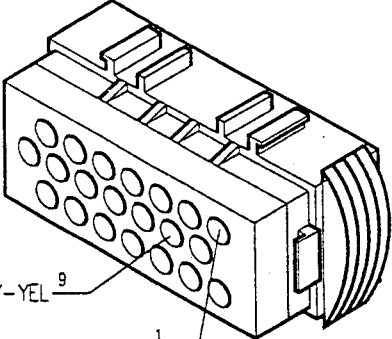
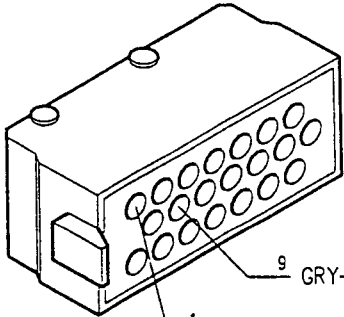
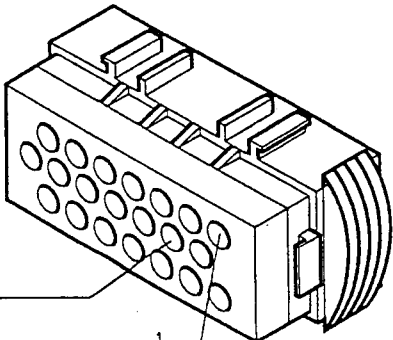
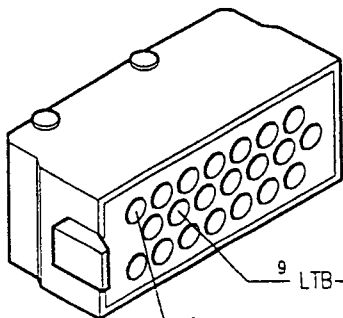
- (*) B4 Fuel pump/injection supply consensus (Boxer 1.3 and 1.6) - "key-operated" supply for engine electric stop and glow plug warming (TD)
- (*) B5 Starter motor supply
- (*) B6 STARTING signal from ignition switch
- B7 Blinker supply
- B8 LH front door open signal
- B9 RH front door open signal
- B10 N.C.
- B11 N.C.
- B12 "Key-operated" supply
- B13 N.C.
- B14 N.C.
- B15 RH rear door open signal
- B16 LH rear door open signal.
- B17 Tailgate open signal
- B18 Tailgate closed signal
- (*) Connected only for versions without ALFA ROMEO CODE

COMPONENTS AND CONNECTORS

Starter motor (*)		A11	
			
Car alarm led	D31	RH rear light	E19 A
			
LH rear light	E20 A	Fusebox	G1
			
Fusebox	G1 D	Fusebox	G1 E
			

(*) Only for versions without ALFA ROMEO CODE

COMPONENTS AND CONNECTORS (cont.d)

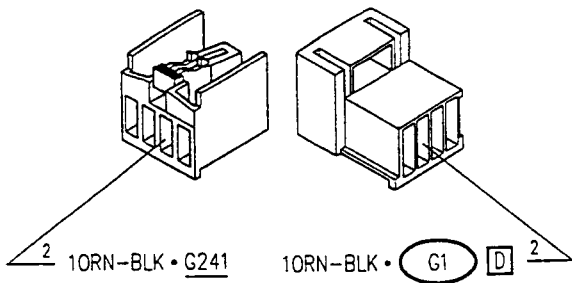
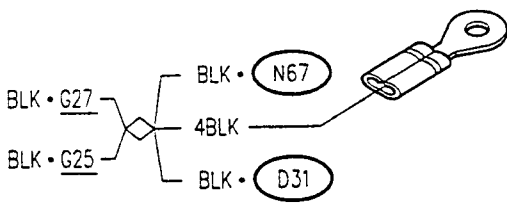
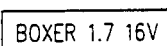
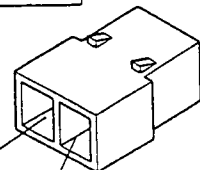
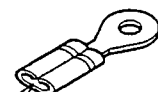
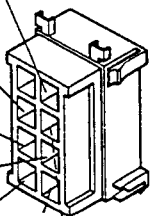
<p>Fusebox</p> <p>G1 G</p>  <p>1WHT-RED • G73 B —◇— 10RN-BLU 4</p>	<p>Fusebox</p> <p>G1 H</p>  <p>1.50RN-LTB 6 1.5GRY-BLK • B1 A</p>
<p>Fusebox</p> <p>G1 M</p>  <p>WHT • N67 3 LTB • N67 2</p>	
<p>RH front door wiring connector</p> <p>G21</p>  <p>GRY-YEL • G73 B —◇— GRY-YEL 9 2.5BLK • G148b 1</p>  <p>GRY-YEL • P10 9 2.5BLK —◇— BLK • P10 1</p>	
<p>LH front door wiring connector</p> <p>G23</p>  <p>LTB-WHT • G73 B —◇— LTB-WHT 9 2.5BLK • G148b 1</p>  <p>LTB-WHT • P11 9 2.5BLK —◇— BLK • P11 1</p>	

COMPONENTS AND CONNECTORS (cont.d)

RH rear door wiring connector	G25	LH rear door wiring connector	G27
RH engine compartment earth	G53a	LH engine compartment earth (*)	G53b
RH rear earth	G63a	LH rear earth	G63b
Rear services connector			G73 B

(*) only for versions without ALFA ROMEO CODE
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COMPONENTS AND CONNECTORS (cont.d)

Dashboard/engine wiring connector		G99	Seat crossrail earth	G106	
					
Electr. injection wiring connector C(*)					G133c
					
Earth under LH dashboard					G148b
					
Anti-theft wiring connector					G241
					

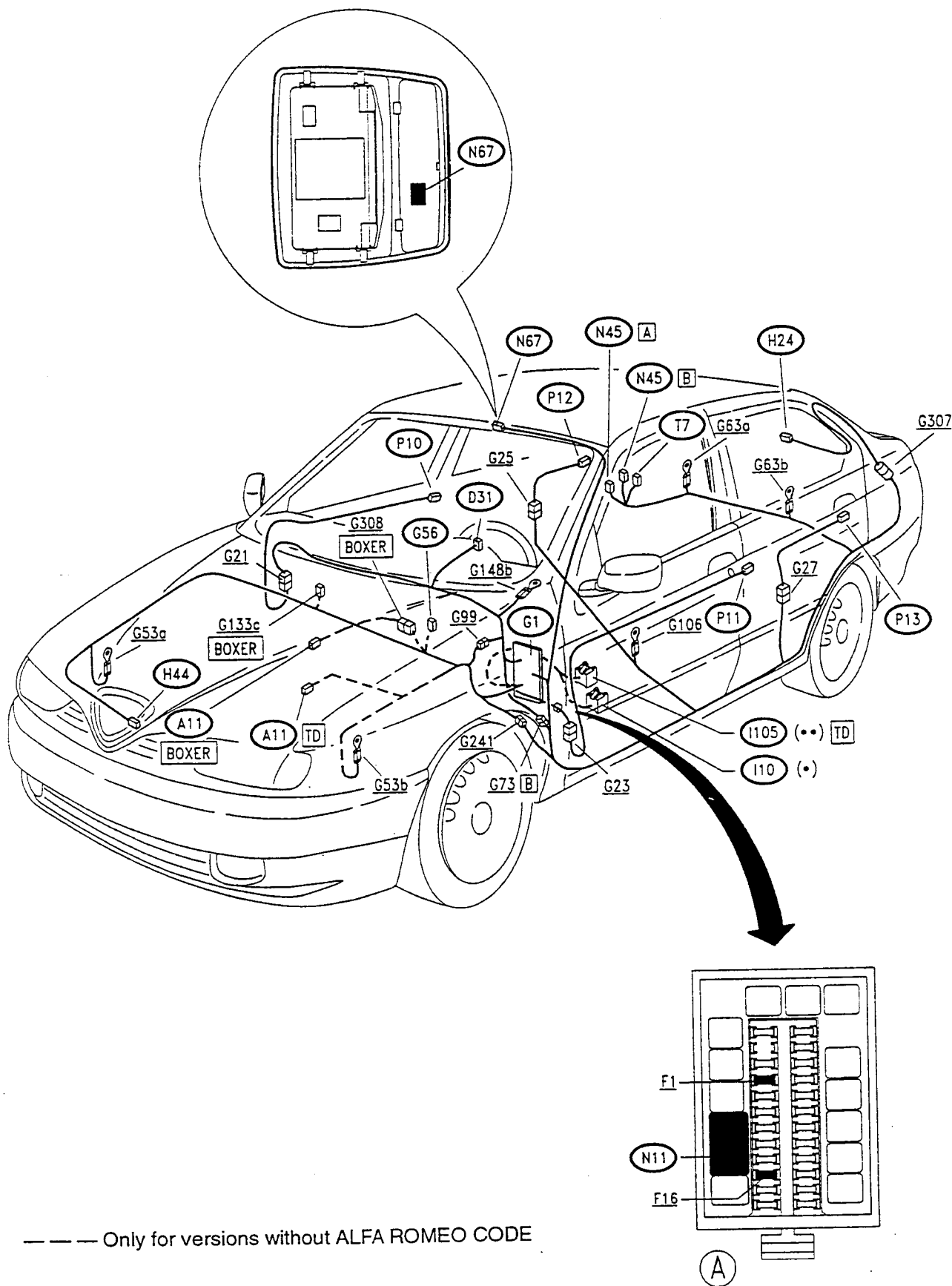
*) only for versions without ALFA ROMEO CODE

COMPONENTS AND CONNECTORS (cont.d)

COMPONENTS AND CONNECTORS (CONT.)		Rear/luggage compt. wiring connector		G307
Engine sensors connetor (*)		G308		
Luggage compartment light switch	H24	Bonnet anti- theft switch	H44	
Starting consensus relay (*)	I10	Anti-theft control unit	N45	A

*) only for versions without ALFA ROMEO CODE

LOCATION OF COMPONENTS



(•) yellow base

(••) grey base

FAULT-FINDING

reveals certain possible faults by flashing the led as shown below:

When the system is activated and deactivated it automatically carries out **SELF-DIAGNOSIS** which

ACTIVATION:

Type of led flashing	Meaning	Test procedure
8 Hz, duration 2,5 sec.	Door/bonnet/tailgate left open or faulty switch	Check that doors and bonnets are correctly shut. Activate and deactivate the system. Count the number of flashes of the led and proceed as described in the next table
Fixed light, duration 2,5 sec.	Faulty volumetric sensors.	Check and if necessary change the electronic control unit contained in the front ceiling light. If necessary carry out test J
16 Hz, duration 2,5 sec.	Fault in the control unit electronics	Change the control unit N45
No flash	Fault of led	B

DEACTIVATION:

No. of Flashes of led	Component with alarm	Test to be carried out
1 Flash	RH front door	C
2 Flashes	LH front door	D
3 Flashes	RH rear door	E
4 Flashes	LH rear door	F
5 Flashes	Volumetric sensors on ceiling light	Check and if necessary change the electronic control unit contained in the front ceiling light. If necessary, carry out test H
6 Flashes	Bonnet	G
7 Flashes	Tailgate	H
8 Flashes	Key-operated supply cut off	A
9 Flashes	Battery supply cut off	A
10 Flashes	At least 3 causes of alarm contemporaneously	Repeat activation/deactivation of the system. If necessary, carry out all the above-mentioned tests.

Lastly, other tests are suggested by failures which can be noted directly and pointed out by the customer.

Fault	Test to be carried out	
Siren not working. Emergency key not working	Change the control unit N45	
Warning led not working	B	
Anti-theft fails to activate the blinkers(*)	I	
Anti-theft fails to activate the door locking device	J	
Remote control fails to operate	K	
Anti-theft blocks the engine completely (°)	Boxer 1.7 16v Boxer 1.3 and 1.6 TD	L M N
Anti-theft blocks the starter motor completely(°)	P	

(*) not foreseen for all Markets

(°) **WARNING:** function present only for versions without ALFA ROMEO CODE.

MANUAL DIAGNOSIS

It is possible to carry out MANUAL DIAGNOSIS, opening the bonnet and turning the ignition key from MARCIA to STOP: within 15 seconds the bonnet pushbutton must be pressed 7 times in rapid succession in less than 10 seconds; 5 beeps will then be heard signalling the start of manual diagnosis. After 10 seconds the blinkers will flash once (500 ms).

Entering this mode, the self-diagnosis procedure of the volumetric sensors connected to the control unit is started automatically. If the test result is positive the direction indicators will flash 3 times and 3 beeps will be heard from the control unit. After this first check, trigger the various switches of the doors, bonnet and tailgate: each triggering will correspond to a brief flash of the direction indicators and by a beep, accompanied by a flash of the warning LED. When the ignition switch is turned to MARCIA the siren will sound briefly (500 msec.) and the blinkers will flash (2.5 sec.).

This last operation concludes the manual diagnosis procedure. It is also possible to exit MANUAL DIAGNOSIS by not triggering any sensor for 30 seconds: exit from manual diagnosis will be signalled by the turning on of the direction indicators for appr. 2.5 seconds and a beep.

FAULT-FINDING USING THE ALFA ROMEO TESTER

In addition to the above, it is also possible to quickly located any faults connecting to the control unit through the Alfa Romeo Tester using the special cartridge.

N.B.: Beforehand, carry out TEST A.

PRELIMINARY CONTROL UNIT CHECK (N45)

TEST A

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
A1	CHECK FUSES	OK ►	Carry out step A2
	– Check the intactness of fuses F1 and F16 of fusebox G1	OK ►	Change fuses F1 and/or F16
A2	CHECK VOLTAGE	OK ►	Carry out step A3
	– Check for 12 V at pin A3 of control unit N45	OK ►	Restore the wiring between pin A3 of N45 and the branch terminal board
A3	CHECK VOLTAGE	OK ►	Carry out step A4
	– With the ignition key turned, check for 12 V at pin B12 of control unit N45	OK ►	Restore the wiring between pin B12 of N45 and the fusebox G1
A4	CHECK EARTH	OK ►	Carry out step A5
	– Check that pin A9 of control unit N45 is earthed (0 V)	OK ►	Restore the wiring between pin A9 of N45 and earth G63b
A5	CHECK SERIAL CONNECTION	OK ►	Carry out step A6
	– Check the continuity of the connection between pin A2 of N45 and pin 2 of receiver N67	OK ►	Restore the wiring between N67 and N45
A6	CHECK CONTINUITY	OK ►	CONNECT TO THE DIAGNOSIS SOCKET T7 AND CONTINUE OPERATIONS WITH THE ALFA TESTER, OR FOLLOW THE INSTRUCTIONS OF THE LED THAT SIGNALS THE RESULTS OF SYSTEM SELF-DIAGNOSIS
	– Check the continuity of the cables: - between pin A6 of N45 and pin 3 of diagnosis connector T7 - between pin 2 of T7 and earth G63b	OK ►	Restore the wiring between T7, N45 and G63b

CHECK WARNING LED (D31)	TEST B
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TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK LED – Disconnect led D31 and check that it is working (applying for example, 5 V at the terminals)	<div>OK ►</div> <div>OK ►</div>	Carry out step B2 Change the led D31
B2 CHECK CONTINUITY – Check continuity between: - one of the terminals of led D31 and earth G106 - the other terminal of led D31 and pin A1 of control unit N45	<div>OK ►</div> <div>OK ►</div>	Change the control unit N45 Restore the wiring between: - D31 and earth G106 - D31 and pin A1 of N45

CHECK RH FRONT DOOR CONTACT (P10)	TEST C
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TEST PROCEDURE	RESULT	CORRECTIVE ACTION
C1 CHECK DOOR LOCKING DEVICE – Check that the door locking device is working properly, with regard to the RH front door	<div>OK ►</div> <div>OK ►</div>	Carry out step C2 Follow the instructions in FAULT-FINDING in the section "DOOR LOCKING SYSTEM"
C2 CHECK EARTH – With the door open, check for 0 V (earth at pin B9 of anti-theft control unit N45)	<div>OK ►</div> <div>OK ►</div>	Change the control unit N45 Restore the wiring between pin B9 of control unit N45 and door lock P10

CHECK LH FRONT DOOR CONTACT (P11)

TEST D

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
D1	CHECK DOOR LOCKING DEVICE	OK ►	Carry out step D2
	– Check that the door locking device is working properly, with regard to the LH front door	OK ►	Follow the instructions given in FAULT-FINDING of the "DOOR LOCKING DEVICE" section
D2	CHECK EARTH	OK ►	Change the control unit N45
	– With the door open, check for 0 V (earth at pin B8 of the anti-theft control unit N45)	OK ►	Restore the wiring between pin B8 of control unit N45 and the door lock P11

CHECK RH REAR DOOR CONTACT (P12)

TEST E

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
E1	CHECK DOOR LOCKING DEVICE	OK ►	Carry out step E2
	– Check that the door locking device is working properly, with regard to the rear RH door	OK ►	Follow the instructions in FAULT-FINDING in the section "DOOR LOCKING SYSTEM"
E2	CHECK EARTH	OK ►	Change the control unit N45
	– With the door open, check for 0 V (earth at pin B15 of anti-theft control unit N45)	OK ►	Restore the wiring between pin B15 of control unit N45 and door lock P12

CHECK LH REAR DOOR CONTACT (P13)

TEST F

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
F1	CHECK DOOR LOCKING DEVICE	OK ►	Carry out step F2
– Check that the door locking device is working properly, with regard to the LH rear door		OK ►	Follow the instructions given in FAULT-FINDING of the "DOOR LOCKING DEVICE" section
F2	CHECK EARTH	OK ►	Change the control unit N45
– With the door open, check for 0 V (earth) at pin B16 of the anti-theft control unit N45		OK ►	Restore the wiring between pin B16 of control unit N45 and the door lock P13

CHECK BONNET CONTACT (H44)

TEST G

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
G1	CHECK CONTACT	OK ►	Carry out step G2
– Check the correct fastening of contact H44 and of the striker on the bonnet		OK ►	Fix or change contact H44 or the corresponding striker
G2	CHECK EARTH	OK ►	Carry out step G3
– With the bonnet closed (switch pressed), check for an earth on both terminals of switch H44		OK ►	Restore the wiring between H44 and earth G53a
G3	CHECK EARTH	OK ►	Change the control unit N45
– With the bonnet closed, check for 0 V (earth) at pin B18 of anti-theft control unit N45; opening the bonnet (releasing the switch) the signal becomes appr. 12 V		OK ►	Restore the wiring between switch H44 and pin B18 of control unit N45

CHECK TAILGATE CONTACT

(H24)

TEST H

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
H1	CHECK LUGGAGE COMPARTMENT LIGHT	OK ►	Carry out step H2
	– Check that the light turns on when the tailgate is opened F5	OK ►	Follow the instructions given in FAULT-FINDING in the "CEILING LIGHTS" section
H2	CHECK EARTH	OK ►	Change the control unit N45
	– With the tailgate open, check for 0 V (earth at pin B17 of anti-theft control unit N45)	OK ►	Restore the wiring between contact H24 and pin B17 of control unit N45

THE ANTI-THEFT SYSTEM DOES NOT FLASH THE BLINKERS

TEST I

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
I1	CHECK OPERATION OF BLINKERS	OK ►	Carry out step I2
	– Check that the hazard warning lights (blinkers) are working properly when activated manually	OK ►	Follow the instructions in FAULT-FINDING of the "DIRECTION INDICATORS AND HAZARD WARNING LIGHTS" section
I2	CHECK VOLTAGE	OK ►	Carry out step I3
	– Check for 12V at pin B7 of N45	OK ►	Restore the wiring between N45 and G1
I3	CHECK CONTINUITY	OK ►	Change the control unit N45
	– Check continuity between: - pin B1 of control unit N45 and the right rear light E19 - pin B2 of N45 and the left rear light E20	OK ►	Restore any faulty wiring

THE ANTI-THEFT FAILS TO OPERATE THE DOOR LOCKS

TEST J

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
J1	CHECK OPERATION OF THE DOOR LOCKING DEVICE	OK ►	Carry out step J2
	– Check that the door locking device is working properly engaging the key in the door locks	OK ►	Follow the instructions in FAULT-FINDING of the "DOOR LOCKING DEVICE" section
J2	CHECK CONTINUITY	OK ►	Check the connection between receiver N67 and the anti-theft control unit N45 (pin A2)
	– Check the continuity of the cables between fusebox G1 - pin 3 and 2 of connector M - and receiver N67 - pin 5 and 6 respectively	OK ►	Restore the wiring

REMOTE CONTROL NOT WORKING

TEST K

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
K1	CHECK REMOTE CONTROL	OK ►	Carry out step K2
	– Check that the remote control is working properly: pressing the button the led should turn on	OK ►	Check the transmitter batteries. If necessary change the transmitter. N.B. In this case it will be necessary to <u>reprogramme</u> the whole system (see "Programming the transmitter")
K2	CHECK RECEIVER	OK ►	Carry out step K2
	– Check that the receiver is working properly: pressing the button of the transmitter suitably pointed at the receiver N67 the receiver led should light up to indicate that the signal has been received	OK ►	Change the transmitter N67 located in the front ceiling light
K3	CHECK FUSE	OK ►	Carry out step K4
	– Check the intactness of fuse F16 of fusebox G1	OK ►	Change the fuse F16
K4	CHECK VOLTAGE	OK ►	Carry out step K2
	– Check for 12 V "direct" at pin 3 of N67 and 12 V "key-operated" at pin 7 of N67	OK ►	Restore the wiring between N67 and fusebox G1
K5	CHECK EARTH	OK ►	Change the receiver N67
	– Check that pin 4 of N67 is earthed	OK ►	Restore the connection between N67 and earth G63b

THE ANTI-THEFT BLOCKS THE ENGINE COMPLETELY (Boxer 1.7 16v) (*)

TESTL

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
L1	CHECK EARTH SIGNAL	OK ►	Restore the wiring between pin A10 of N45 and the Motronic system (pin 47 of control unit S11) (For further details see the section "Motronic M2.10.1")
– With the ignition key at MARCIA and the anti-theft deactivated, check for 0 V at pin A10 of control unit N45; if the anti-theft "alarms" the signal becomes "high" (appr. 12 V)		OK ►	Change the control unit N45

THE ANTI-THEFT BLOCKS THE ENGINE COMPLETELY (Boxer 1.3 and 1.6) (*)

TEST M

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
M1	CHECK VOLTAGE	OK ►	Carry out step M2
– With the ignition key at MARCIA and the anti-theft deactivated, check for 12 V at pin B3 of control unit N45		OK ►	Restore the wiring between pin B3 of N45 and the injection system (pin 86 of relay I29 for Boxer 1.3 - pin 20 of control unit S11 for Boxer 1.6)
M2	CHECK VOLTAGE	OK ►	Restore the wiring between pin B4 of N45 and the injection system (pin 1 of connector G133a for Boxer 1.3 - pin 85 of relay S12a for Boxer 1.6) (For further details see the corresponding sections "IAW" and "Motronic MP3.1")
– With the ignition key at MARCIA and the anti-theft deactivated, check for 12 V at pin B4 of control unit N45		OK ►	Change the control unit N45

(*) **Warning:** this function is active only for versions without ALFA ROMEO CODE.

THE ANTI-THEFT BLOCKS THE ENGINE COMPLETEDLY (TD version) (*)

TEST N

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
N1	CHECK VOLTAGE	OK ►	Carry out step N2
	– With the ignition key at MARCIA, check for 12 V at pin B4 of control unit N45	OK ►	Restore the wiring between pin B4 of N45 and the ignition switch B1
N2	CHECK VOLTAGE	OK ►	Restore the wiring between pin B3 of N45 and the relay for the diesel engine control devices I105 (see the section "DIESEL ENGINE CONTROL DEVICES")
	– With the ignition key at MARCIA, and anti-theft deactivated check for 12 V at pin B3 of control unit N45	OK ►	Change the control unit N45

THE ANTI-THEFT BLOCKS THE STARTER MOTOR COMPLETELY (*)

TEST P

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
P1	CHECK VOLTAGE	OK ►	Carry out step P2
	– With the key at START, check for 12V at pin B6 of control unit N45	OK ►	Restore the wiring between pin B6 of N45 and the ignition switch B1
P2	CHECK VOLTAGE	OK ►	Check that the starter motor A11 is working properly with the corresponding supply cables: if necessary also check the starting consensus relay I10: see the section "STARTING AND RECHARGING"
	– With the key turned to START and the anti-theft deactivated, check for 12 V at pin B5 di N45	OK ►	Change the control unit N45

(*) **Warning:** this function is active only for versions without ALFA ROMEO CODE.

