

# PUNTO eMANUAL

Electrical Equipment

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## INTRODUCTION

The V.A.S. (Vehicle Alarm System) anti-theft system is a system which offers volumetric and perimeter type protection, it is, in effect, capable of checking the state of the doors and for the presence of a moving object inside the passenger compartment.

In particular, it is capable of:

- adapting its operation to the laws in force in the various markets which regulate the use of alarm systems;
- distinguishing intermittent and permanent errors or faults;
- memorizing the number of times the anti-theft device is activated and the number of times the alarm is set off;
- detecting and memorizing specific faults in the control unit;
- detecting the faults or problems in the system de-activating switch connecting cables.

The anti-theft system is basically composed of: a receiver in the courtesy light, a transmitter (remote control) in the key, volumetric sensors, door/bonnet lid switches and an electronic control unit, located in the engine compartment opposite the battery drip tray, which completes the alarm and the key operated emergency switch (ON-OFF).

## OPERATION

### Switching On - Switching Off

The anti-theft device is **ACTIVATED** by pressing the central locking remote control transmitter switch. The operating range is about 5 m.

The **DEACTIVATION** is obtained by pressing the switch on the remote control again.



*It is not possible to switch on the anti-theft device with the ignition switch in the ON position, but only with it in the OFF or PARK positions.*

The transmitter is an infra red device where the code is constantly transmitted whilst the switch is pressed for a maximum of 5 seconds. For the maximum efficiency of the anti-theft device it is advisable to direct the remote control device towards the courtesy light in the ceiling and keep the transmitter switch pressed until it has switched on or off signalled by the LED and, in certain countries where the law permits, a visual and audible signal.

### Excluding the system

If the transmitter batteries are discharged or the anti-theft system is not working properly it is possible to de-activate the alarm via the emergency key located in the control unit (OFF position).

When the vehicle is handed over, check that the emergency switch in the control unit is in the ON position.

Turn the key to the OFF position if the vehicle is not used for long periods (more than 1 month). When the key is turned to the ON position, if the battery charge is insufficient or if the control unit has been disconnected, the anti-theft device will give out an intermittent audible signal, 10 beeps, (except for the system programmed for Germany).

## Surveillance

During the surveillance the LED flashses at a frequency of 0.8 Hz.

In this state the anti-theft system:

- surveys the doors, the bonnet lid and the tailgate;
- surveys a disconnection of the battery/cables cut;
- surveys the non authorized switching on of the ignition switch;
- surveys movements inside the passenger compartment (volumetric surveillance);
- deactivates the electronic injection control unit (if connected).

## Anti-theft device

### 5.

#### Alarm

The system enters into the alarm mode when one of the surveillance sensors (see previous list) detects an anomalous situation.

The alarm state is manifest by 2 types of action: one signalling via the activation of the alarm for about 28 seconds and the direction indicators for a maximum of three 4.5 minute cycles (only in countries where this is permitted by law); the other counter-measure is (cutting off the electro-stop/petrol pump) and cutting off the starter motor (the latter depending on the key being switched on).

The following emerges from the alarm situation:

- with a transmitter command;
- about 25 minutes after the last entry into the alarm state; if the alarm condition ceases about 25 minutes later the system returns to the surveillance state, during this period the injection, starting, etc. are blocked but there is no visual or audible signal;
- via the emergency key (**N.B.** Inside the control unit the anti-theft device switched on condition remains memorized).

#### Inhibiting volumetric surveillance

● In order to inhibit the volumetric surveillance, before switching on the system, there are two possibilities:

1. with the ignition switch in the ON position **quickly press (0.5 seconds)** the switch on the receiver and then within a maximum time of 8 seconds turn the ignition switch to the OFF position;
2. starting with the ignition switch in the ON position, carry out this manoeuvre strictly in the order given: switch OFF, switch ON and switch OFF;

- The confirmation that the volumetric surveillance has been excluded is given by the LED coming on for 2 seconds.

When switching the key on again (minimum 30 seconds) the volumetric surveillance will be re-enabled.



*It will be possible to switch the key back on within 30 seconds of the last manoeuvre without re-enabling the volumetric surveillance; this function has been included, for example, to allow the electrically operated windows to be closed, if they have been left open accidentally.*

#### PROGRAMMING

The anti-theft device must be programmed as follows:

at the end of the production line the receiver contains a "UNIVERSAL" code which operated by a "UNIVERSAL" transmitter allows the testing and moving of the vehicle in the Factory.

● During the pre-delivery state the receiver must be programmed with the code for the vehicle transmitter.

The anti-theft device signalling methods may vary according to the laws in force in the different countries of registration and it may therefore be necessary to programme the system by entering the country code.

The system "recognizes" the code for remote controls without a limit on quantities, but only the last 4 remain memorized (when the 5th remote control is entered the first is expelled from the memory).

There are 2 programming methods:

- before entering the password: SIMPLIFIED PROGRAMMING
- after entering the password: PROTECTED PROGRAMMING.



*Given the importance of following the programming procedure accurately in the correct order, it is advisable, at least initially, for two people to carry out the operations: one reading the instructions in order and the other carrying them out to the letter. All the programming operations should be carried out with the doors closed.*

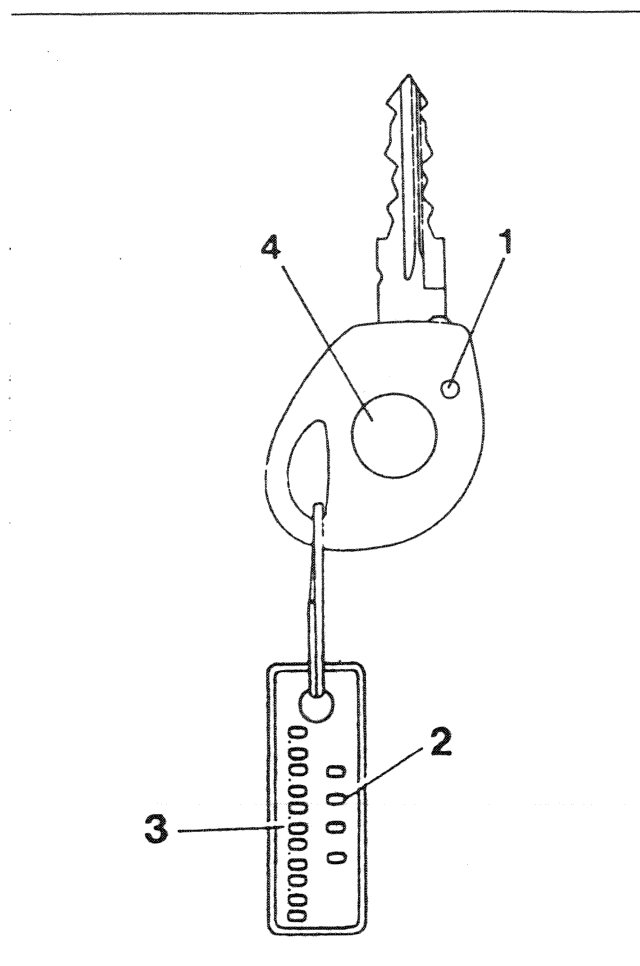
● Each transmitter has a paper label with two codes; the 4 figure code and the **Password** for protection against unauthorized programming (protected programming). The label should be removed by the Customer when the vehicle is purchased and kept in a safe place.

## Simplified programming



*The memorizing of a transmitter should always be carried out with the:*

- *anti-theft device switched off by the remote control (LED off)*
- *ignition switch in the OFF position*
- *emergency key in the control unit in the ON position.*

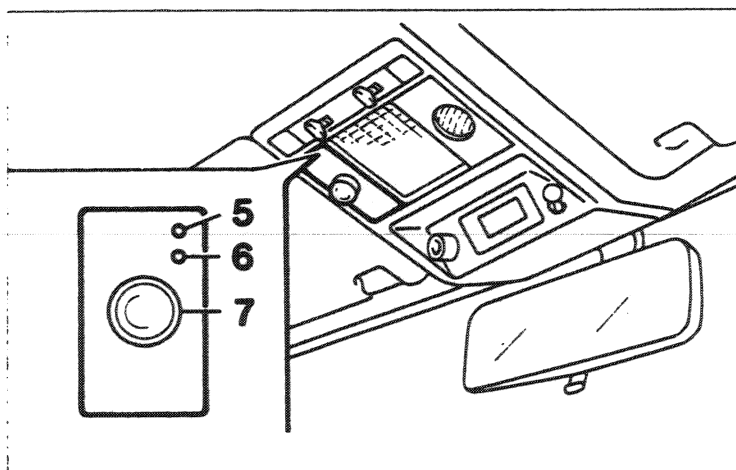


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Simplified programming can only be used when the memory is not yet closed (see chapter on "protected programming").

With this system of programming all the remote control codes, without a limit on quantities, are "recognized", but only the last 4 remain memorized by the anti-theft system in the following way:

1. press the button (6) on the courtesy light (receiver) and keep it pressed; the LED (5) should come on flashing;
2. with the remote control (transmitter) at least 20 cm from the courtesy light, press the remote control switch (4) until the LED (1) flashes for a maximum of twice. Then release the switch (4);
3. Check that the LED (5) in the courtesy light comes on constantly;
4. Then release the button (6) in the courtesy light at the end of the simplified programming cycle.



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1. Transmitter LED
2. Password code, 4 numbers
3. Transmitter code, 6 groups of numbers
4. Control button on transmitter
5. LED in courtesy light
6. Programming button
7. Receiver in courtesy light

#### Programming Country Code

When the simplified programming is over, in the 3 seconds following the release of the switch for the receiver in the courtesy light, a space remains open in the system for the anti-theft system to recognize the code of the Country where it should operate.

This takes place by pressing the receiver switch in rapid succession, see table 3 (below).

If the switch is not pressed, the E.E.C. operating method will automatically be recognized if the operation is being carried out for the first time. If, however, the operation has been carried out previously, the system will operate in accordance with the instructions already memorized.

**N.B.** When programming the Country code it is preferable to use the procedure with the FIAT/LANCIA Tester - M29-A module or the procedure given below.



*If the procedure has been correct the LED in the receiver will flash 6 times, signalling that the code has been memorized both in the courtesy light receiver and in the V.A.S. control unit; if this is not the case, the LED will flash 18 times and all the operations starting from point 1 for the simplified programming will have to be repeated.*

It will also be possible to recognize the Country operating methods via the following other procedure:

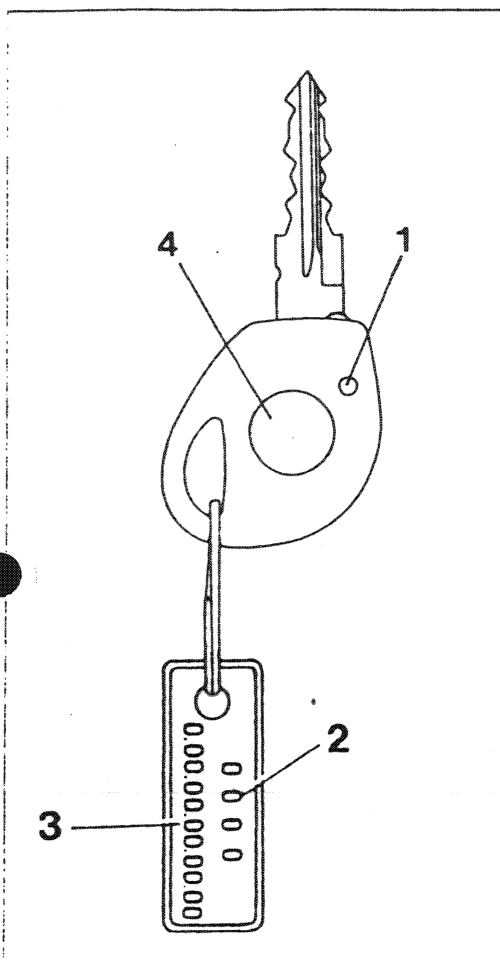
- open the bonnet lid;
- turn the ignition switch from the ON position to the PARK position: within 15 seconds the bonnet lid button should be pressed 7 times in rapid succession in less than 10 seconds; 5 beeps will signal entry into MANUAL DIAGNOSIS (see paragraph on FAULT DIAGNOSIS). During these 5 beeps press the bonnet lid switch again. A last long beep will signal that this new instruction has been accepted;
- keep the switch pressed for the entire duration of the long beep. The latter signals the entry into the Country Programming state and therefore the possibility of subsequently entering the Country code;
- release the switch and press the switch within the next 10 seconds, in accordance with the table below to select the operating method for the desired Country (each time it is pressed there will be a confirmation beep).

**N.B.** To enter a subsequent remote control, repeat the operations from point 1 for the simplified programming.

**Table 3. Country Programming**

SWITCH PRESSED	OPERATING METHODS
1	ITALY
2	GERMANY
3	FRANCE
4	SWITZERLAND
5	UNITED KINGDOM
6	HOLLAND
7	USA
8	CEE
9	ESP.A
10	ESP.B

The regulations which govern the operation of anti-theft devices in the various markets are given in the table on page 83.



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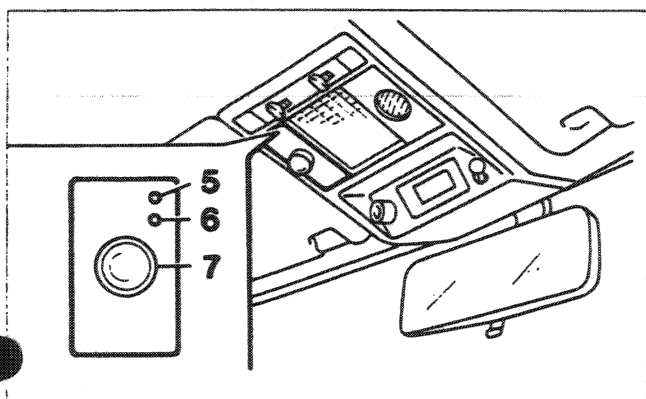
### PROGRAMMING CODES WITH MANUAL ACCESS

#### Opening the memory

From the moment when the memory is "closed" the introduction of further remote control codes takes place via the "manual opening of the memory".

The opening of the memory should be carried out by performing the operations indicated from point 1 to point 10 rapidly in the order given:

1. press the button on the receiver for around 2 seconds; the LED will flash the entire time the button is pressed;
2. release the button; about 2 seconds later the LED will flash briefly indicating that the first figure of the Password can be introduced;
3. press the receiver button as many times as indicated by the first figure of the Password (if for example the Password is 5.2.0.3. press it 5 times). It should be noted that each time the button is pressed the LED will come on briefly to give visual confirmation (feed back);
4. about 2 seconds after the last time it is pressed (the fifth in the example) the LED will flash again to request the input of the next figure;
5. proceed from point 3 to enter all four figures (if the figure is "0", there is no need to press, but wait for the next request);
6. if the Password has been entered correctly (opening of the memory) the LED will start to flash; if, on the other hand, it comes on constantly, the cycle must be repeated from point 1;
7. whilst the LED is flashing press the button (6) in the courtesy light and keep it pressed, the LED (5) will continue to flash;
8. with the remote control at least 20 cm from the courtesy light, press the switch (4) for the remote control until the LED (1) flashes for a maximum of twice. Then release the button (4);
9. check that the LED (5) in the courtesy light remains on constantly;
10. then release the button (6) on the courtesy light at the end of the programming cycle.



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*If the procedure has been correct, the LED in the receiver will flash 6 times, signalling that the code has been memorized both in the courtesy light receiver and in the V.A.S. control unit; if this is not the case, the LED will flash 18 times and it will be necessary to repeat all the operations starting from point 1.*

After entering the new remote control code the memory will return to the closed position.

**NOTES AND FEATURES OF THE SYSTEM**

The anti-theft system is capable of signalling any faults in the system to the Owner by the LED coming on constantly or flashing:

**A. During switching on:**

- LED on constantly to indicate faults in the volumetric sensor circuits
- LED on intermittently, slow speed, to indicate faults in the door and lid switches
- LED on intermittently, fast speed, to indicate fault in the anti-theft device control unit

**B. During switching off:**

- impulse cycles (number of impulses from 1 to 100) to indicate the cause of the operation of the anti-theft device (see de-coding in table 2, page 84).

If the LED signals problems, the Owner should seek assistance from the Fiat Service Network.

The system is equipped with a special diagnostic socket for connection with the FIAT/LANCIA Tester and memory module M29-A (see explanatory notes in I.S. n° 7-8/93).

It should be remembered that during service operations to the vehicle or in the case of problems with the anti-theft system that activate the alarm, it can be excluded by turning the switch on the control unit from the ON position to the OFF position.

**When this operation is completed, always return the switch to the ON position and always re-tighten the protective cap on the control unit.**



*It should be borne in mind that each individual component (in the anti-theft system) fitted on the vehicle becomes an integral part of it and should not be fitted or tested on other vehicles, even if they are the same model.*

CAR ALARM OPERATING RESTRICTIONS: NATIONAL REGULATIONS

COUNTRY	ENABLING/DISABLING		ALARM							INSTALLATION RESTRICTIONS
	VISUAL INDICATOR (INDI- CATOR FLASHES)	ACOUSTIC	ACOUSTIC				OPTICAL			
			MAXIMUM VOLUME	FREQUENCY RANGE	tone	MAXIMUM DURATION	LIGHT TYPE	ACTION	MAXIMUM DURATION	
GERMANY	PROHIBITED (An indicator light outside the vehicle is allowed)	PROHIBITED	115-118 dBA at 2 m	1800-3550 Hz	- SINGLE intermittent 2.5( ±0.5-1.5)Hz	30 s	- INDICATOR LIGHTS - INTERIOR LIGHTS	FLASHING	5 min	
FRANCE	-	-	<100 dBA at 2 m	1800-3550 Hz	- SINGLE intermittent - MODULATED	30 s	- INDICATOR LIGHTS - HEADLAMPS	FLASHING	-	
SWITZERLAND	-	-	-	-	- SINGLE continuous	30 s	FOGLIGHTS	-	5 min	
GREAT BRITAIN	PERMITTED	PERMITTED	> 90 dBA at 1 m	<1500 Hz	- SINGLE interm.modul.	30 s	FRONT LIGHTS	-	-	
BELGIUM	PERMITTED	-	>115 dBA at 1 m	-	-	30 s	- INDICATOR LIGHTS - HEADLIGHTS	-	30 s	
HOLLAND	OBLIGATORY (internal and external)	PROHIBITED	> 118 dBA at 1 m	1800-3550 Hz	- MODULATED	30 s	- INDICATOR LIGHTS - HEADLIGHTS	-	30 s	- Siren and control unit must be in two separate modules - The control unit must be mounted in the passenger compartment (TNO)
SWEDEN	OBLIGATORY (internal and external)	-	-	-	- SINGLE intermittent - MODULATED	30 s	- INDICATOR LIGHTS - HEADLIGHTS	-	5 min	
ITALY	PERMITTED	-	-	-	-	-	- INDICATOR LIGHTS - SIDE LIGHTS	FLASHING	5 min	
IP. NORM. EUROPE	PERMITTED	PERMITTED < 60 dBA	> 008 dBA at 1 m	1800-3550 Hz	- SINGLE - MODULATED	30 s	- INDICATOR LIGHTS - SIDE LIGHTS	FLASHING	5 min	



## 55.

### FAULT DIAGNOSIS

#### Self-test

When the system is switched on, it will conduct a self-test, recognized by the flashing of the dissuasion LED at 4 Hz. If there is a fault or breakdown in the system, the LED indicates it in accordance with the methods stated in Table 1.

**Table 1. Automatic diagnosis display**

FLASHING MODE	MEANING
8 Hz, duration 2.5 s	Door/bonnet/boot open or faulty switch
Permanently lit, duration 2.5 s	Volumetric sensors faulty
16 Hz, duration 2.5 s	Fault in the control unit's electronics

If a door, the bonnet or the boot are open or if a fault in the volumetric sensors is detected, the relevant sensor is excluded from surveillance and a warning acoustic signal (beep) is emitted one second after switching on.

At the time of switching off, if an alarm has been triggered during surveillance (see Table 2), the system indicates by the flashing of the dissuasion LED which sensor has triggered the alarm.

**Table 2. Alarm signalling**

N° PULSES	MEANING
1 Pulse	Front right door
2 Pulses	Front left door
3 Pulses	Rear right door
4 Pulses	Rear left door
5 Pulses	Additional sensors - ceiling u.s. sensors
6 Pulses	Bonnet
7 Pulses	Boot
8 Pulses	+15
9 Pulses	+30
10 Pulses	At least 3 alarm causes

The flashing codes are presented in sequence.

These codes are spaced by a 1.5 s pause.

#### Manual diagnosis

MANUAL DIAGNOSIS can also be conducted, by opening the bonnet and setting the ignition switch from the MARCIA (ON) position to the STOP position; within 15 s the bonnet protection button must be pressed 7 times in succession in less than 10 s; 5 beeps will indicate the start of the manual diagnosis procedure. After 10 s, there will be an indication in the form of 1 flash or the direction indicators.

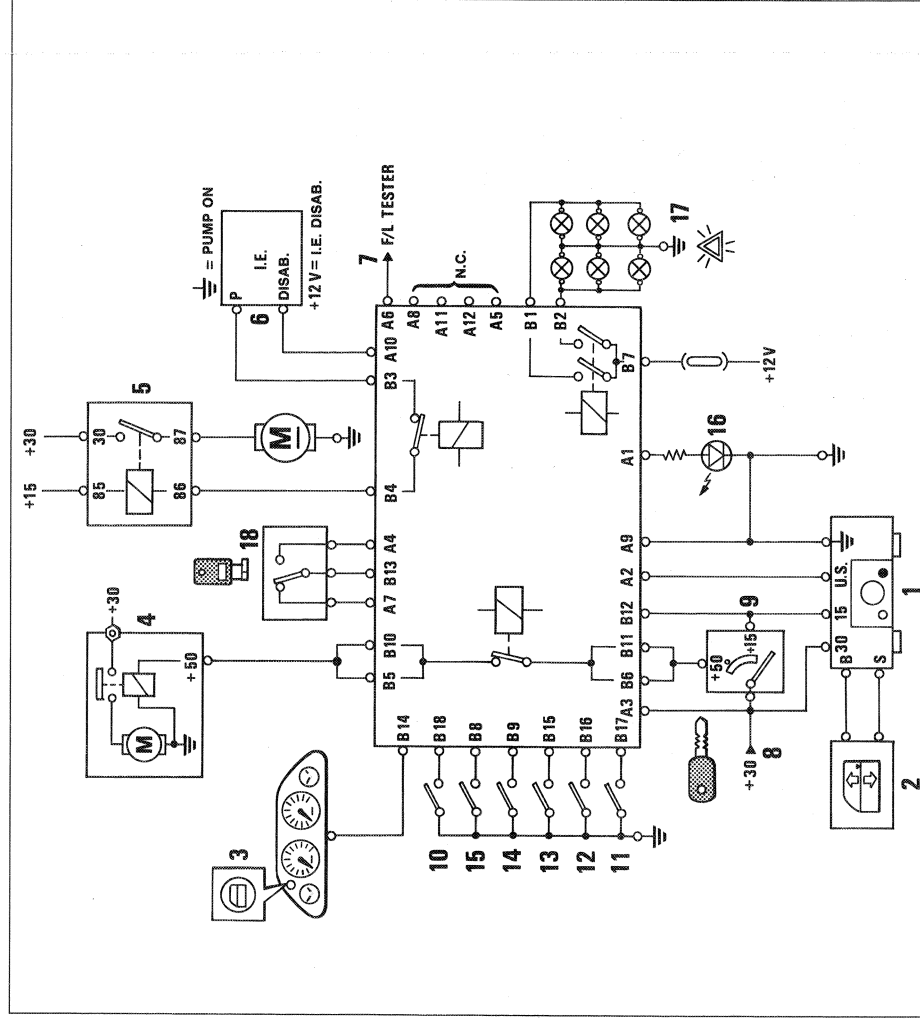
When this mode is entered, the self-test procedure of the volumetric sensors connected to the control unit is automatically activated. If the test is OK, the direction indicators will flash 3 times and 3 beeps of the siren will be heard at the same time.

After this first stage, any change in switch status will be accompanied by a brief flashing of the direction indicators and a beep, accompanied by flashing of the warning LED on the dashboard.

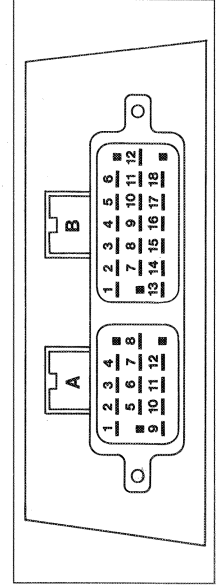
If the ignition key is set to the STOP position, the siren will sound briefly (500 ms) and the direction indicators will flash (2.5 s).

This final operation will lead to exiting from the manual diagnosis procedure. It is also possible to exit from MANUAL DIAGNOSIS by not performing any actions for 30 s; the exit will be indicated by the direction indicators coming on for about 2.5 s and a beep.

WIRING DIAGRAM OF ANTI-THEFT SYSTEM



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**INPUT AND OUTPUT SIGNALS TO AND FROM ANTI-THEFT CONTROL UNIT**

<b>PIN</b>	<b>I/O</b>	<b>I Max (A)</b>	<b>FUNCTION</b>
B1	OUT	6	Relay n.o. contact: controls right blinker branch
B2	OUT	6	Relay n.o. contact: controls left blinker branch
B3	OUT	8	Relay n.c. contact: disables diesel pump electrostop control + plug pre-heating / +15 fuel injection wiring / fuel pump
B4	IN	8	Relay n.c. contact: +15 for B3
B5	OUT	25/2	Relay n.c. contact: +50 output supplying starter motor
B6	IN	25/2	Relay n.c. contact: +50 for B5 and B10
B7	IN	12	Blinker relay shared contact: +30 blinker supply
B8	IN	-	Switch detecting front left door open (= closed)
B9	IN	-	Switch detecting front right door open (= closed)
B10	OUT	25/2	Relay n.c. contact: +50 output supplying starter motor
B11	IN	25/2	Relay n.c. contact: +50 for B5 and B10
B12	IN	2	Key-controlled positive (+15)
B13	IN	-	Remote key: shared
B14	OUT	0.3	Check panel driver: door(s) open indication
B15	IN	-	Switch detecting rear left door open (= closed)
B16	IN	-	Switch detecting rear right door open (= closed)
B17	IN	-	Switch detecting tailgate open (= closed)
B18	IN	-	Switch detecting bonnet open (= closed)
A1	OUT	0.034	Driver of indicating flashing LED anode
A2	IN	-	Courtesy light VAS serial line
A3	IN	-	Direct supply positive (+30)
A4	IN	-	Remote key: internal supply
A5	N.C.	-	Screen for serial lines (earth)
A6	I/O	-	Line K-Fiat tester
A7	OUT	-	Remote key: internal supply
A8	OUT	-	Expansion modules positive supply
A9	IN	2	VAS control unit earth
A10	OUT	-	Motor control disablement (top = disabled)
A11	OUT	-	External modules earth
A12	IN	-	Alarm signal from external modules (bottom = alarm)