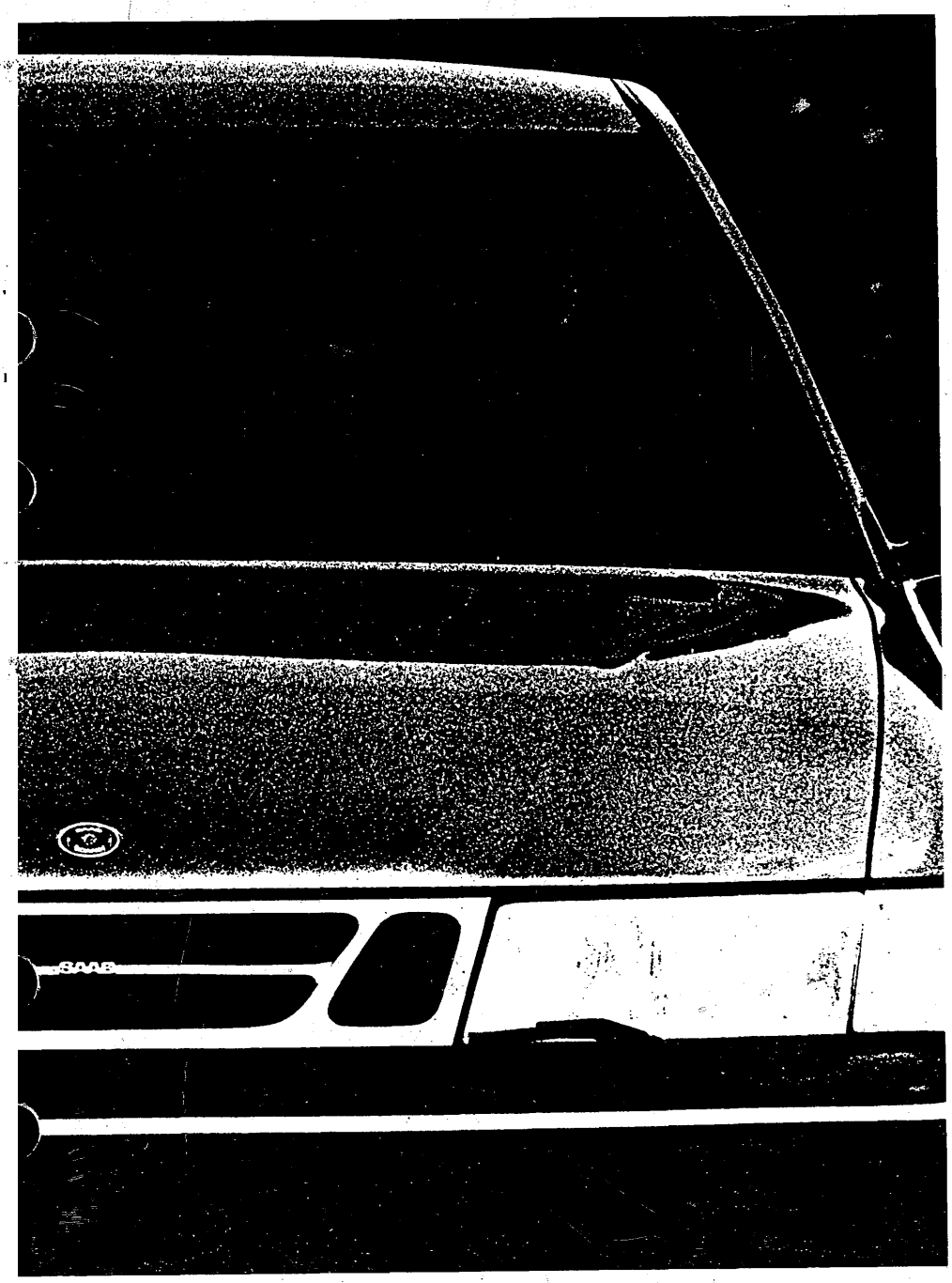
Saab 9000

Service Manual



M 1995–

ENG

3:5 Remote control theft alarm

Saab 9000

SERVICE MANUAL

3:5 Theft Alarm
M 1995

Foreword
All particulars and illustrations in this Service Manual are based on the version of the cars prevailing at the time of going to press. Model variants, technical data and equipment vary from market to market and may be subject to alteration without prior notice.

Saab Automobile AB

Warning, Important and Note

The headings "Warning", "Important" and "Note" occur from time to time in the Service Manual. They are used to draw the attention of the reader to information of special interest and seriousness. The importance of the information is indicated by the three different headings and the difference between them is explained below.

⚠ WARNING

Warns of the risk of material damage and grave injury to mechanics and the driver, as well as serious damage to the car.

Important

Points out the risk of minor damage to the car and also warns the mechanic of difficulties and time-wasting mistakes.

Note

Hints and tips on how the work can be done in a way that saves time and labour. This information is not supplied for reasons of safety.

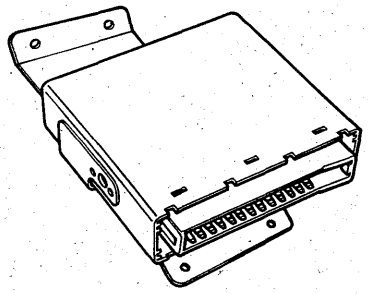
Market codes

The codes refer to market specifications

AT	Austria	GB	Great Britain
AU	Australia	GR	Greece
BE	Belgium	IS	Iceland
CA	Canada	IT	Italy
CH	Switzerland	JP	Japan
DE	Germany	ME	Middle East
DK	Denmark	NL	Netherlands
ES	Spain	NO	Norway
EU	Europe	SE	Sweden
FE	Far East	US	USA
FI	Finland	UC	US California
FR	France		

Production: Service Support, Saab Automobile AB, Trollhättan, Sweden

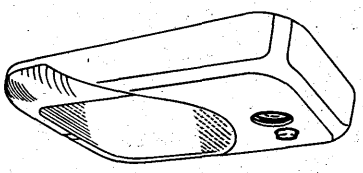
Technical data



C383W-4823

Control module

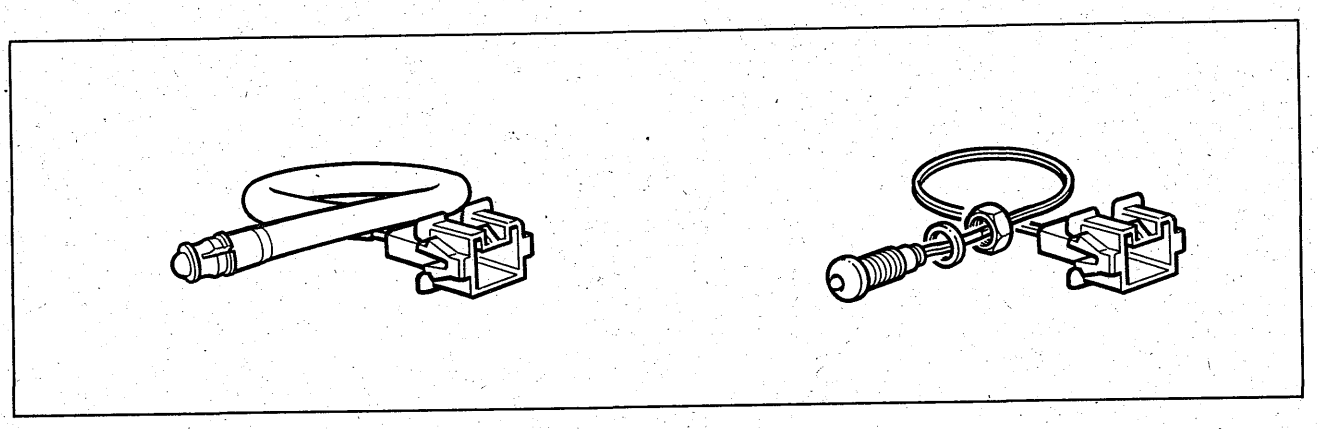
Number of pins		25
Voltage supply +15	pin no.	10
Voltage supply +30	pin no.	25
Ground	pin no.	13
Close circuit consumption	alarm, not armed	<4 mA
Close circuit consumption	alarm, armed	<7 mA



C383W-4824

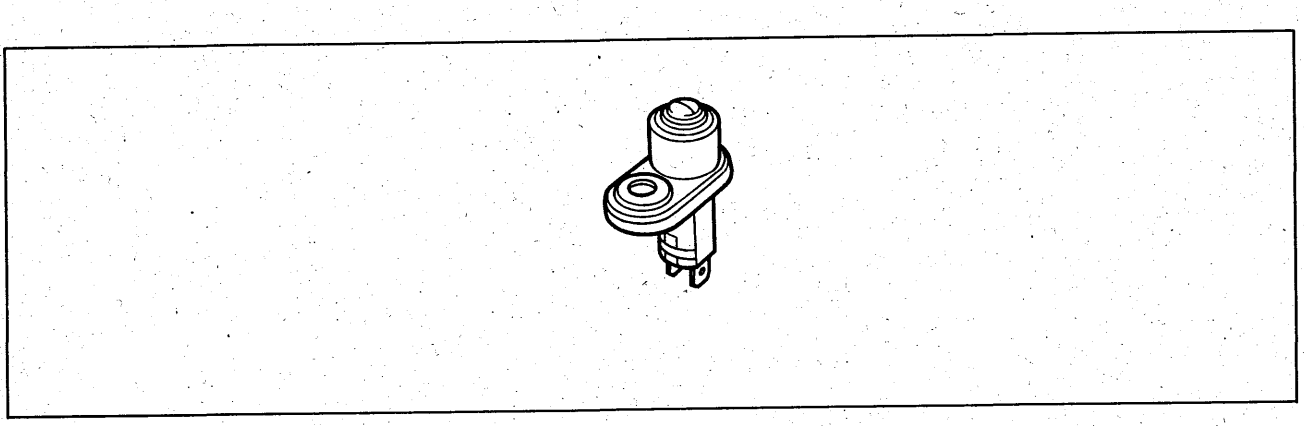
Glass breakage sensor

Location		In the interior lighting lamp
Type		Ultrasound (microphone)
Sensor voltage	pin no.	2
Ground	pin no.	4
Frequency range		40 kHz band



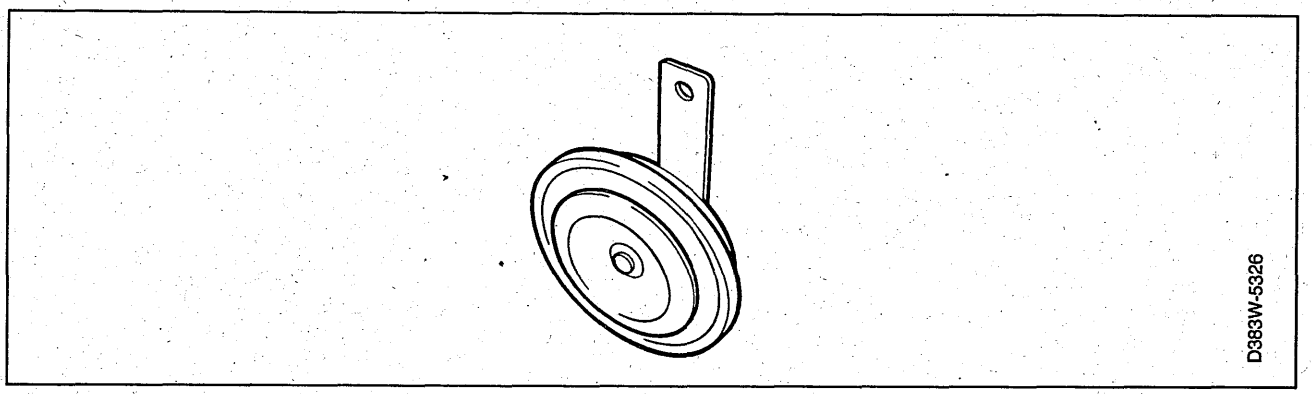
LED

Location		Loudspeaker grille on the driver side
Current cut-off from electronic control module		20 mA
Voltage supply	pin no.	2
Ground	pin no.	1



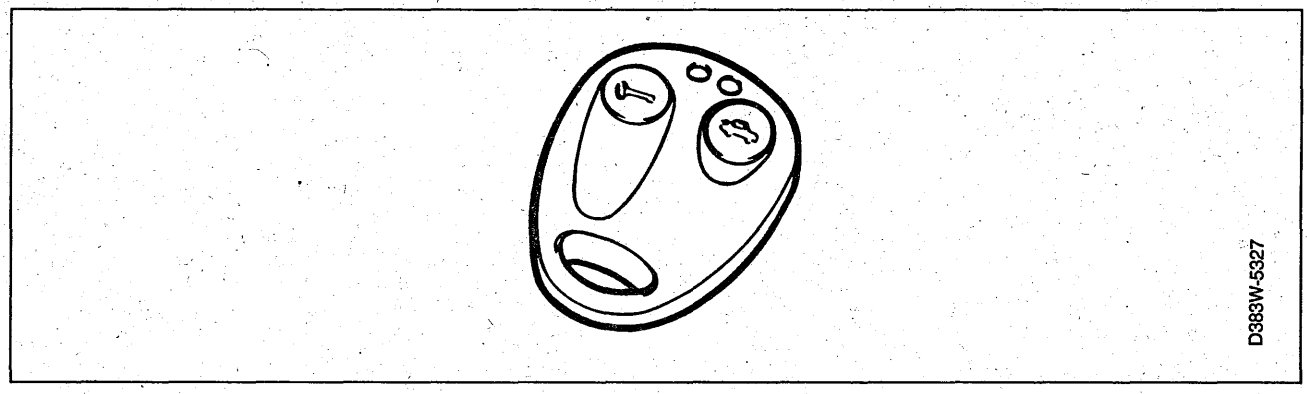
Engine hood switch

Location		Front member
Type		Normally closed
Voltage supply	pin no.	1
Ground	pin no.	2



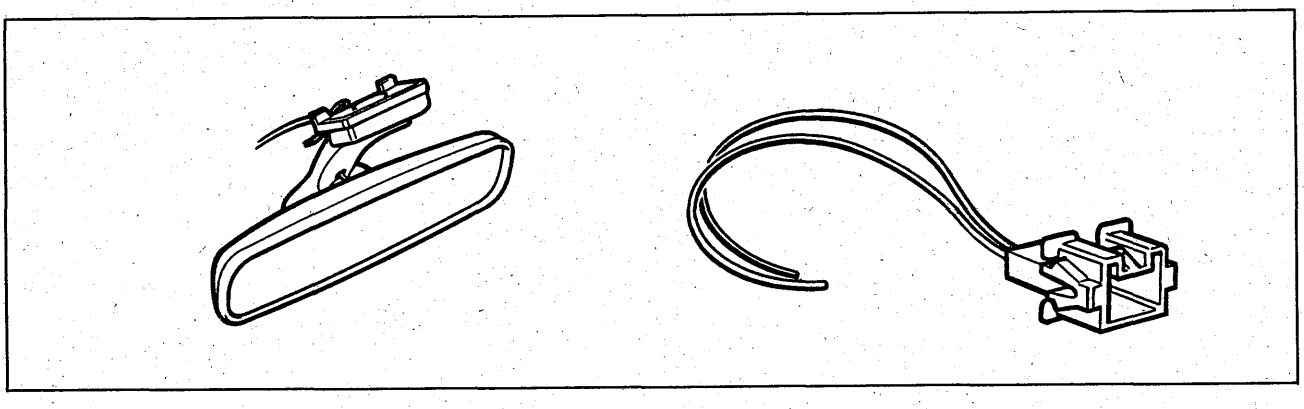
Horn

Location		Left-hand wheel housing
Type		Diaphragm horn
Running voltage		9-12 V
Voltage supply	pin no.	1
Ground	pin no.	2 (via the electronic control module, pin 11)



Remote control

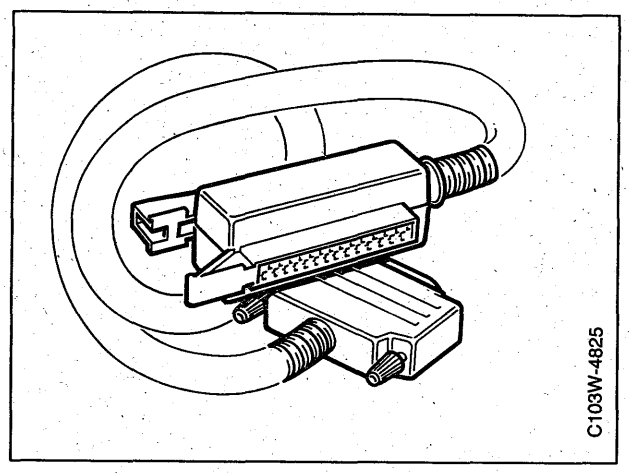
Type		FM modulated RF (Radio Frequency) signal
Frequency (carrier wave)	EU	433,92 MHz
	US/CA	315 MHz
	JA	315 MHz (short range)
Running voltage	battery	2 x Lithium/CR2016 (3 V)



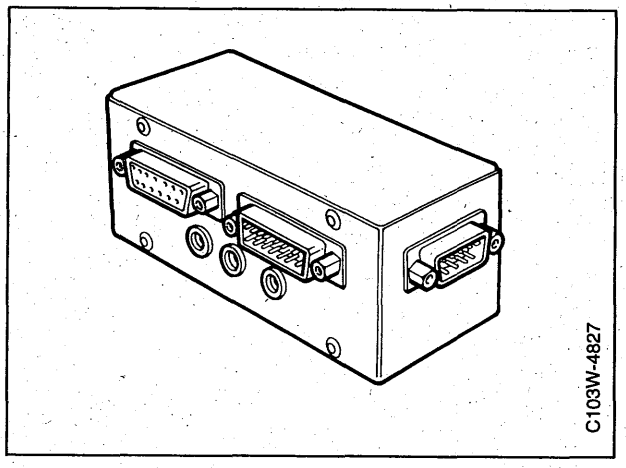
Antenna

Location	JA	Rear-view mirror
	Other	Under the roof console
Type	JA	Conductive
	Other	Dipole (17 cm)
Signal connection	pin no.	1
Ground	pin no.	2

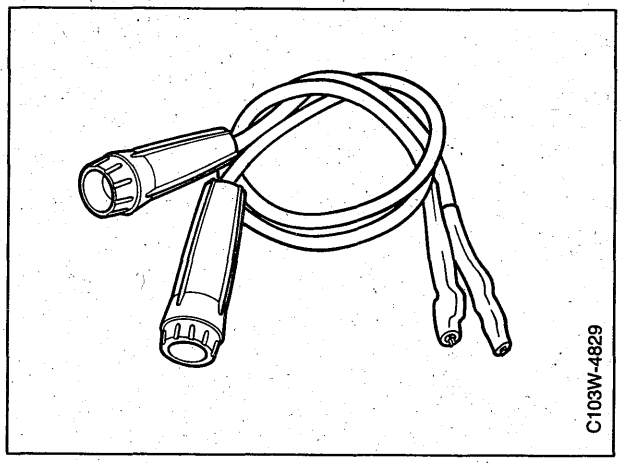
Special tools



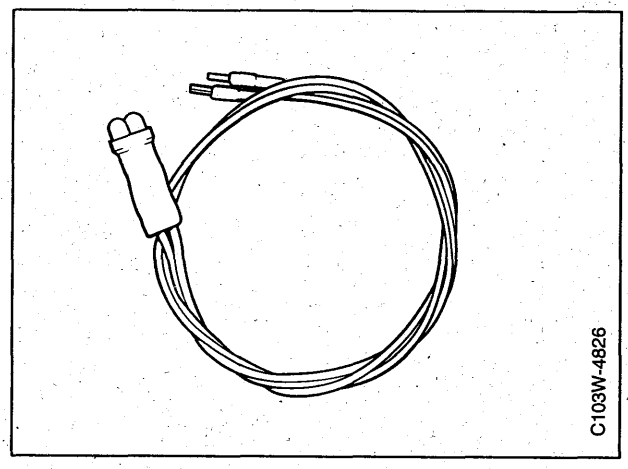
86 11 139 25 pin test lead for Saab Theft Alarm (BOB)



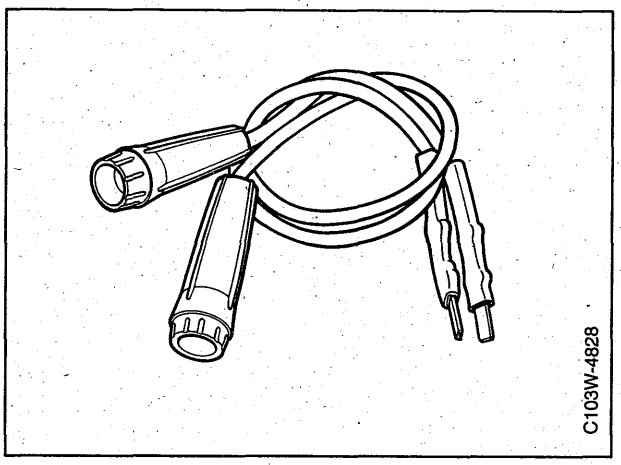
86 11 436 ISAT scan tool adaptor (SDA II)



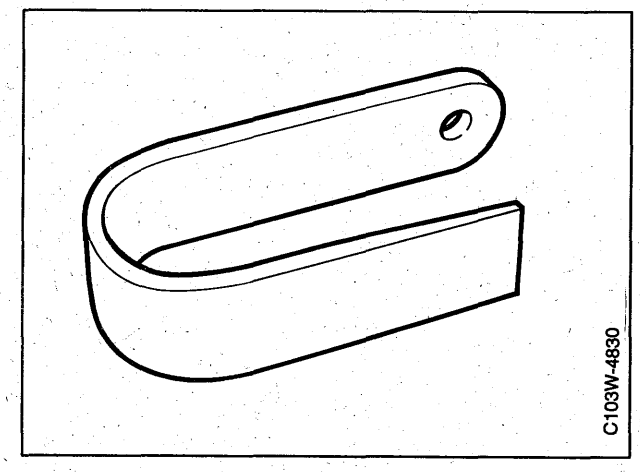
86 11 410 Test leads for pin connection (female)



86 11 352 Test leads for pin connection (male)



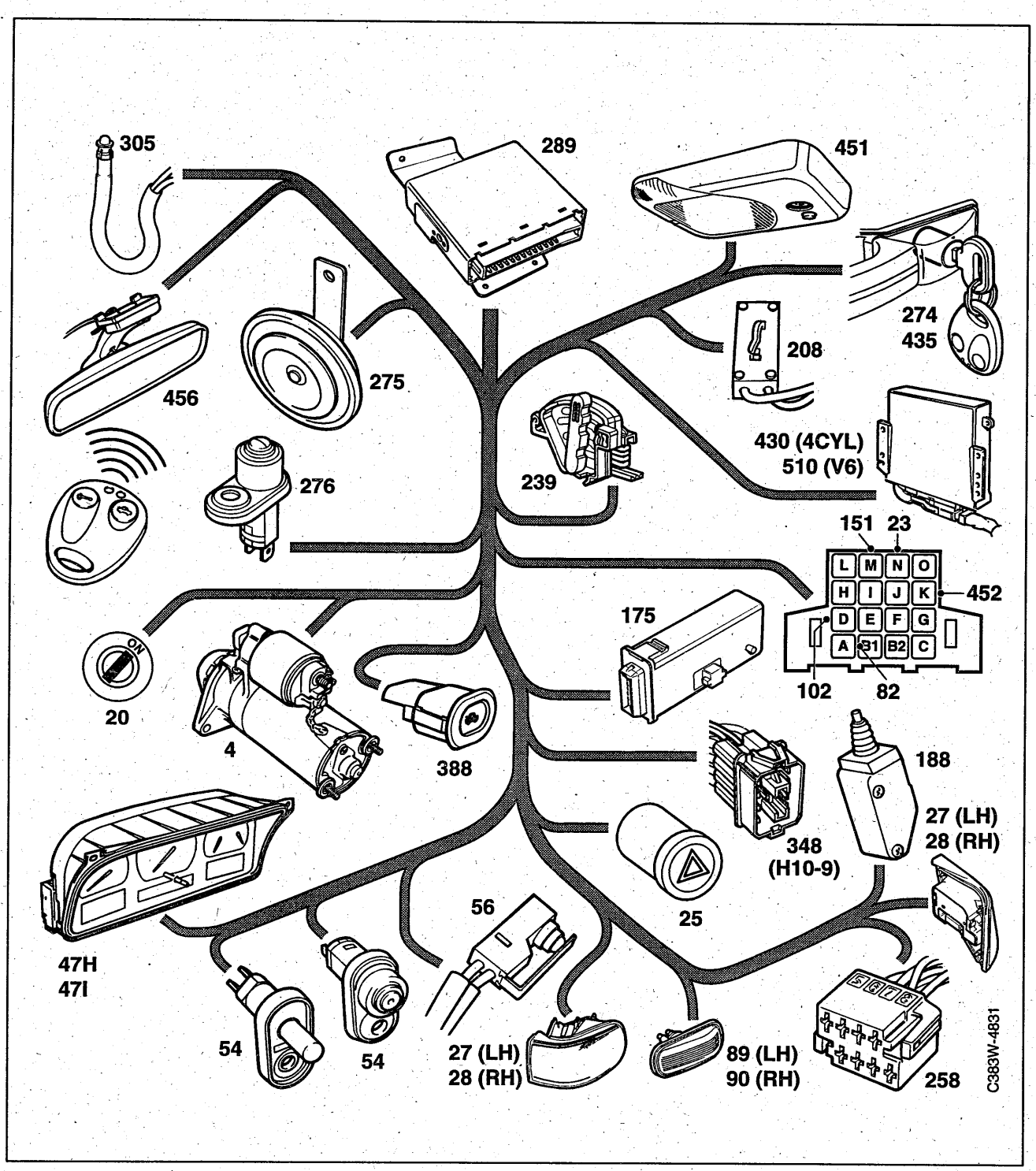
86 11 857 Test lamp



82 92 997 Removal tool for passenger airbag

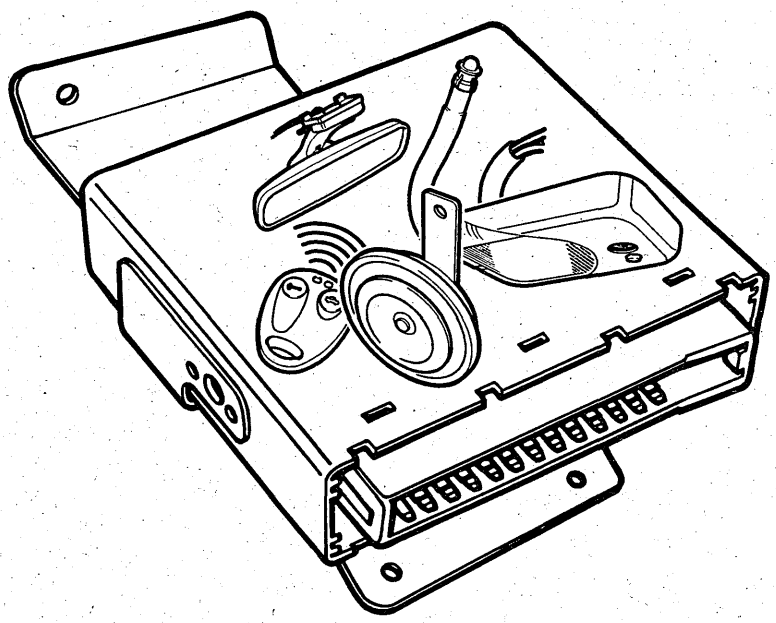
Technical description

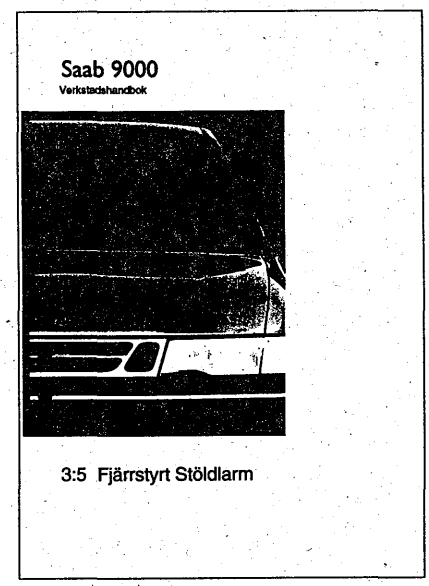
System Overview Theft Alarm 9000



Theft Alarm 9000

System Overview Theft Alarm 9000 (contd)





C383W-4832

Theft alarm 9000 is an alarm and an anti-theft protection system controlled using a remote control.

The theft alarm is available:

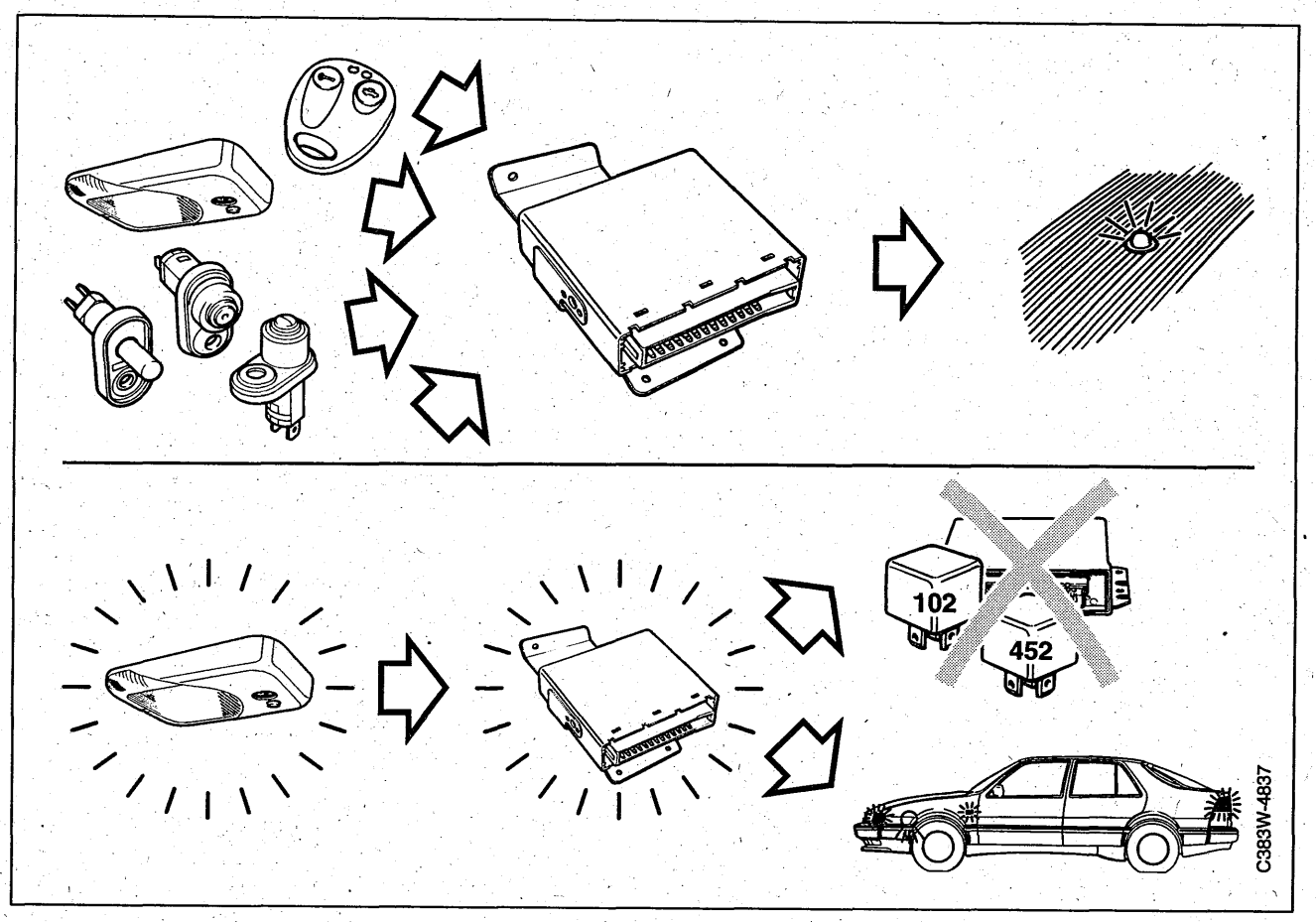
- factory-fitted
- as a retro-fitting kit (there is pre-fitted wiring in all cars)

The alarm includes a number of components, some of which are used exclusively by the alarm, and others of which are parts normally included in the car, but also used by the alarm.

Some of these, such as sensors, have a monitoring function in the system and others set off the alarm. There is an electronic control module that centrally controls the operation of the system.

In order for the theft alarm to comply with different laws in different countries and to meet the requirements of different customers, the alarm is programmable.

Basic functions of Theft Alarm 9000



Regulation and control

The theft alarm has a central electronic control module that controls all the functions of the system.

Sensing

A number of sensors are included in the theft alarm that are connected to the alarm control module via the car's cable assembly. These sense if the car is broken into and transmit this data to the alarm control module.

Alarm signal

When the alarm is set off, this is made apparent with sound by the alarm horn sounding and/or light by all the direction indicators flashing.

3 circuit breaking

The control module also has a 3 circuit breaking function that is activated when the alarm is set off. This prevents the engine being started by immobilizing the car's starter function, fuel supply and engine control system.

Operation

Arming and disarming of the theft alarm is achieved using a remote control or the car key (programmable).

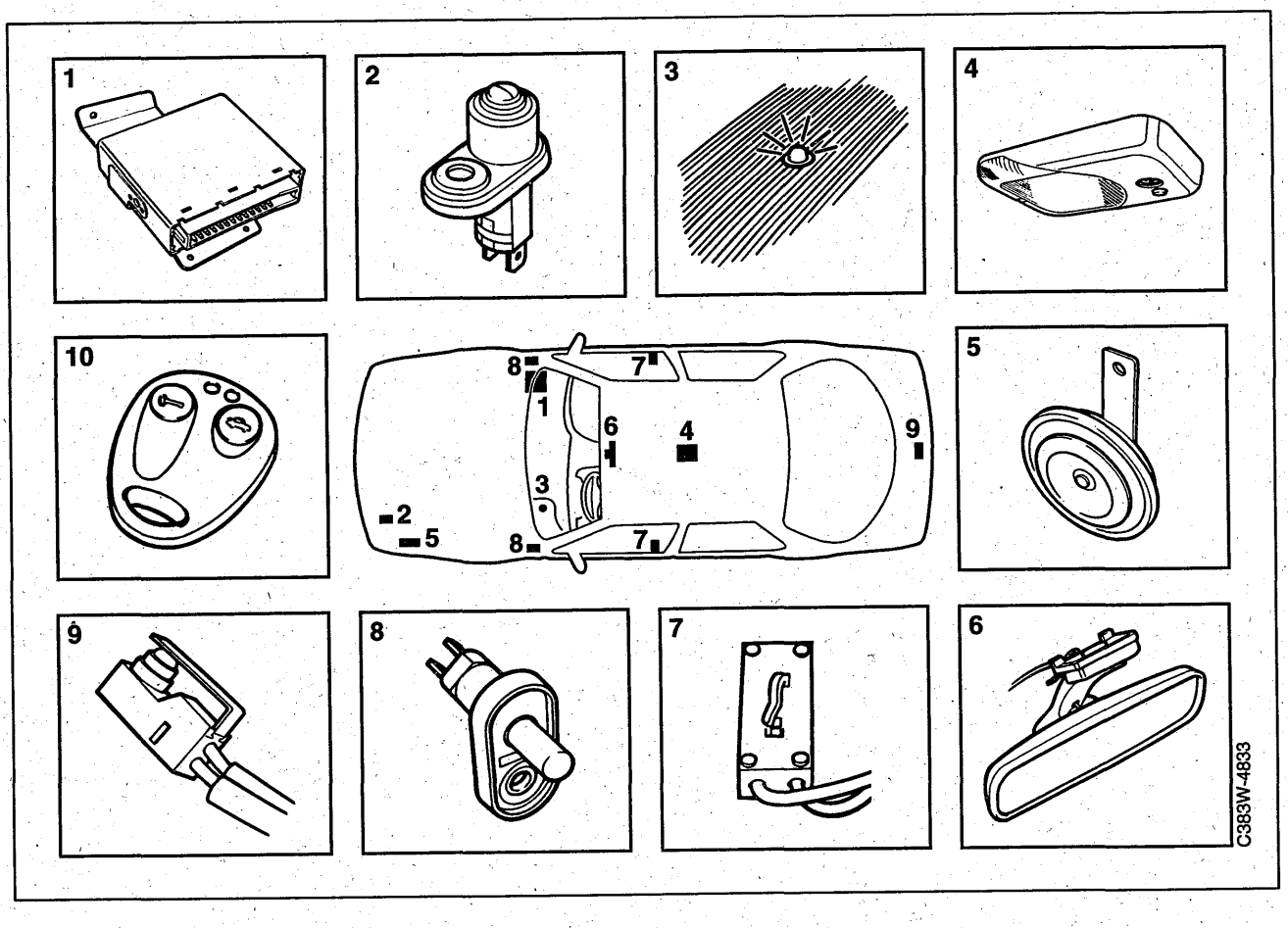
Alarm status

There is an LED in the car to show the status of the alarm. This flashes with different frequencies or is lit continuously depending on the situation.

Programming/scan tool diagnostics

The ISAT scam tool is used for programming and scan tool diagnostics on the theft alarm.

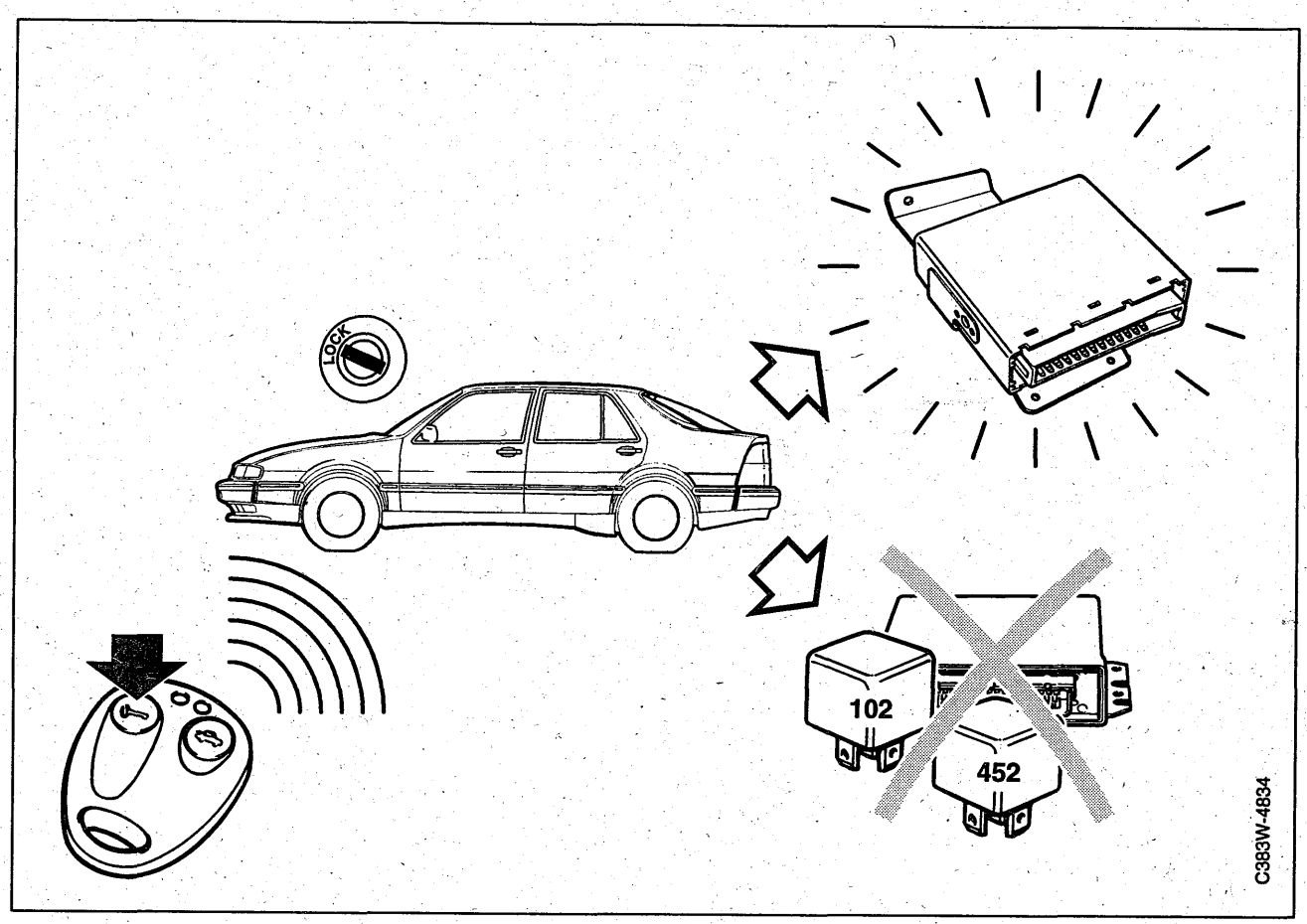
Main components of Theft Alarm 9000



Theft alarm 9000 has the following main components:

1 Control module
2 Engine hood switch
3 LED
4 Glass breakage sensor (integrated in the interior lighting lamp)
5 Horn
6 Remote control antenna (under the roof console and in the rear-view mirror)
7 Pictogram switch, driver door
8 Door switches
9 Microswitch, luggage compartment lock
10 Remote control

Electronic control module, description of function



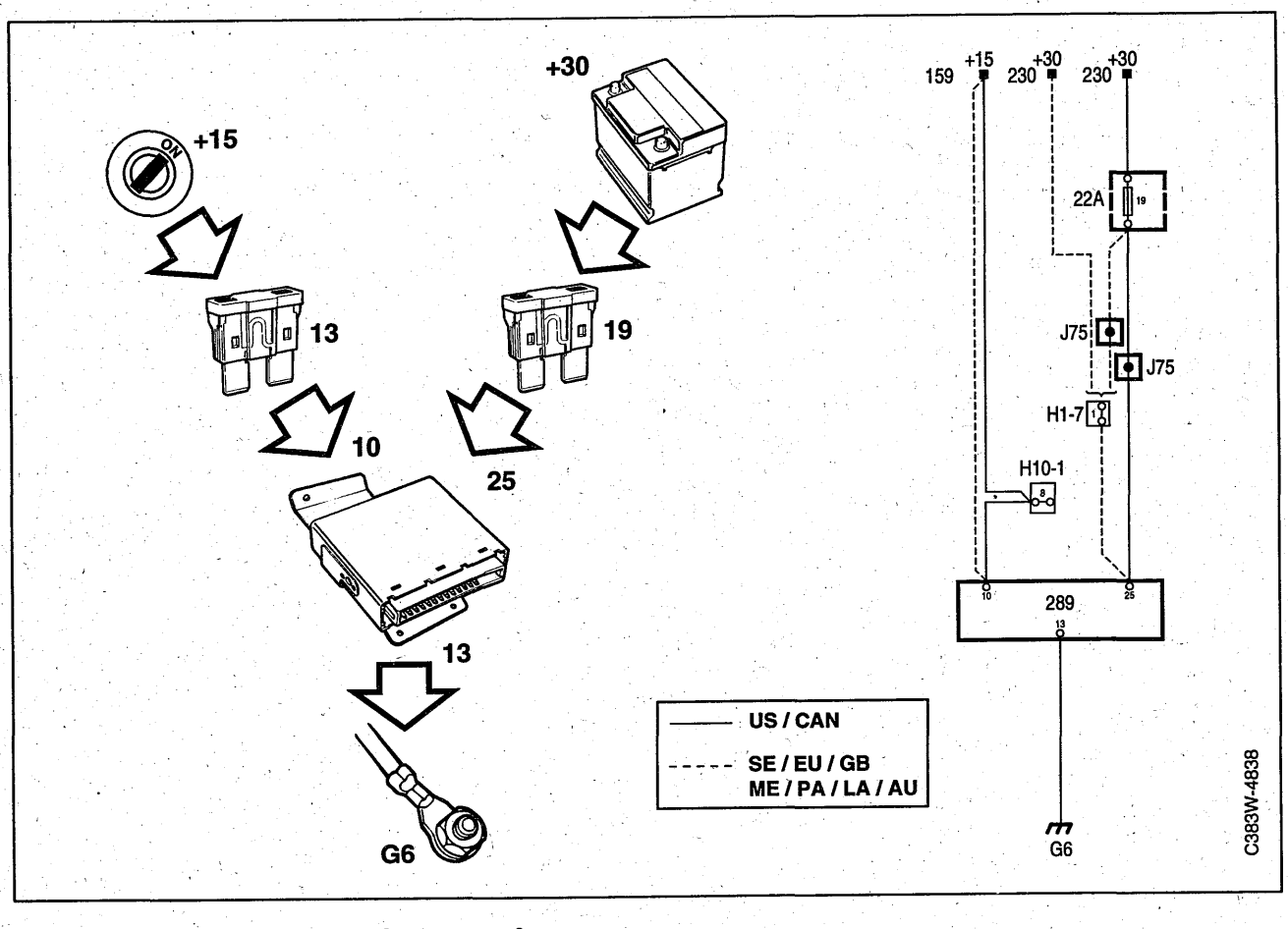
The electronic control module is located in the car behind the glove compartment or behind the passenger airbag. It is connected to all the theft alarm input components via a 25 pin connector.

The main function of the electronic control module is to check the situation of the sensors when the alarm is armed and to set off the alarm with the horn and/or direction indicators and prevent starting with 3 circuit breaking in case of a break-in.

In order to achieve this, there is a central processing unit in the electronic control module, in which a control program is stored in PROM (Programmable Read Only Memory). As different markets have special requirements for the operation of the theft alarm, the theft alarm can be programmed to adapt it to the particular market. In addition, there are several possibilities when programming to adapt the function to the requirements of the customer.

Programming is carried out using the ISAT scan tool and the information is stored in EEPROM (Electrically Erasable PROM).
Earlier programming is erased when data is programmed. Stored programming does not disappear if the voltage is cut.

Description of function, electronic control module voltage supply and ground



Electronic control module voltage supply

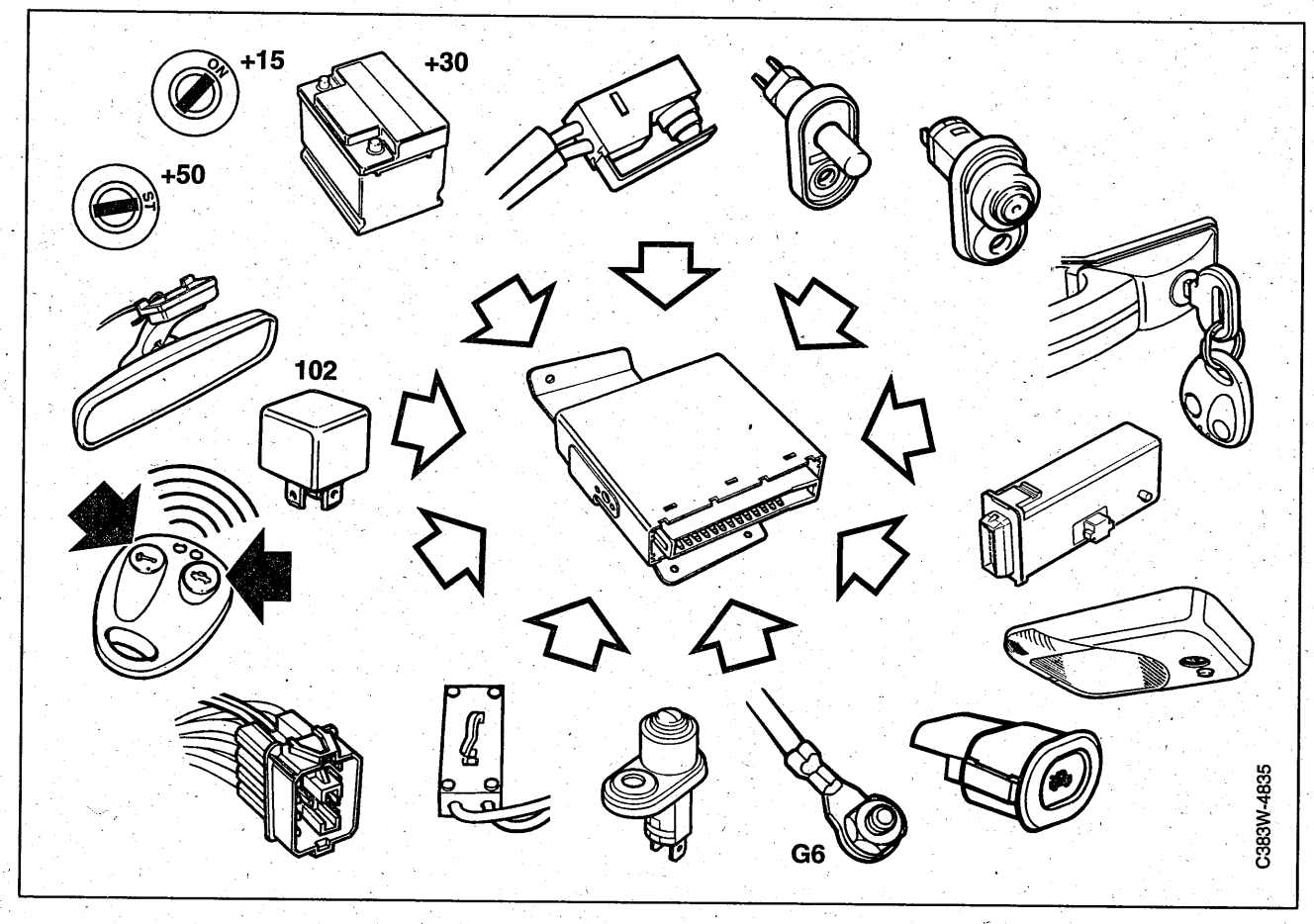
The electronic control module is supplied with +30 on pin 25 from fuse 19. In certain markets, the alarm is not fused.

+30 supplies all the functions of the electronic control module except ignition (+15 and +50).

Electronic control module ground

Electronic control module main ground (pin 13) is connected to grounding point G6.

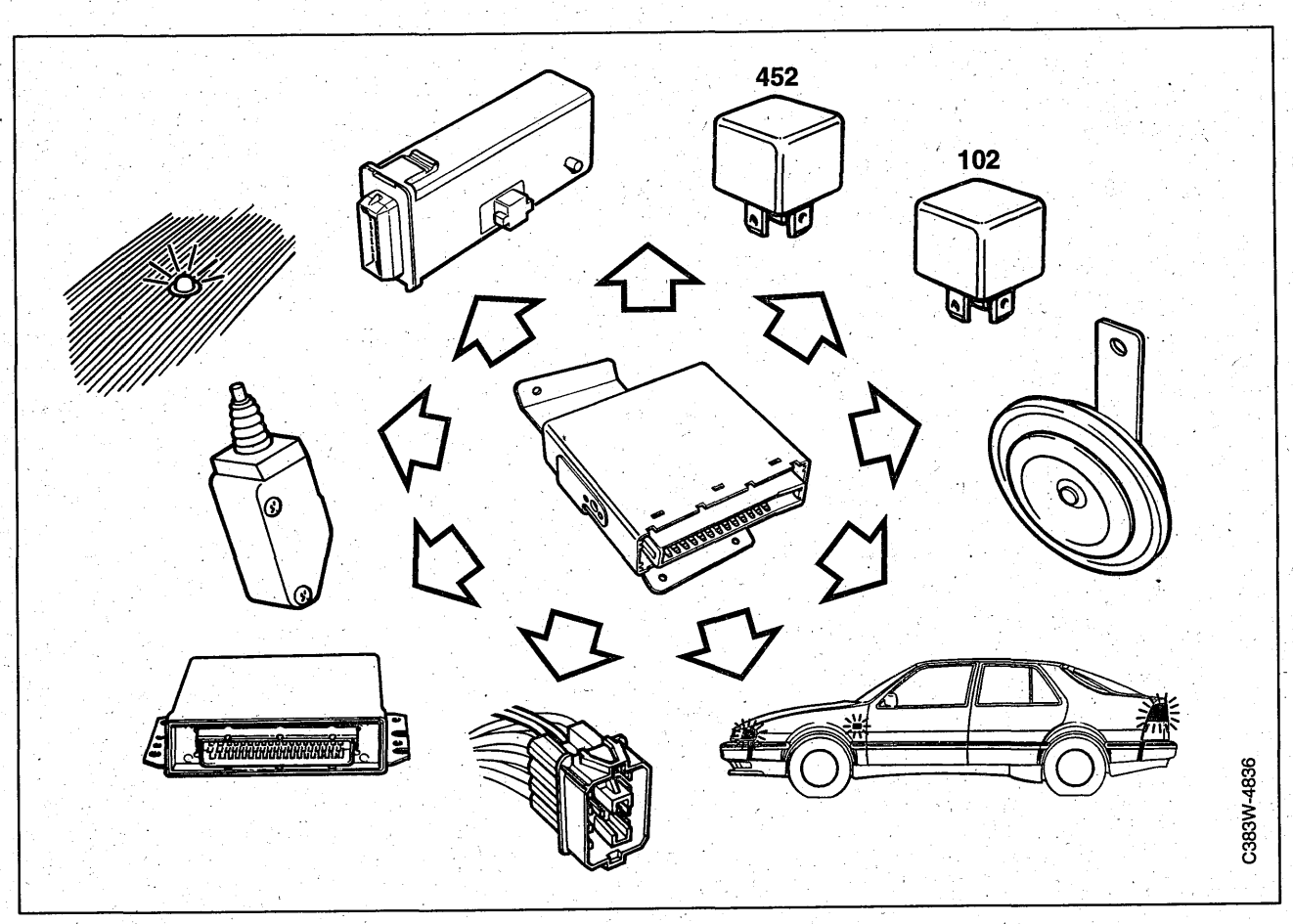
Description of function, electronic control module inputs



Control module inputs

- Remote control antenna, signal, see page 24
- Lighting switch, luggage, see page 15
- Door switches, see page 15
- Glass breakage sensor, ground, see page 16
- Central locking system, unlocking (car key), see page 27
- Glass breakage sensor, signal, see page 16
- Ignition "ON" (+15), see page 18
- Main ground, see page 12
- Remote control antenna, ground, see page 24
- Microswitch, luggage compartment lock, see page 27
- Engine hood switch, see page 15
- Central locking system, locking (car key), see page 27
- Door indication, driver door
- Scan tool diagnostics, ISAT scan tool, see page 32
- Relay, starter motor (ignition "ST", +50), see page 21
- Relay, fuel pump, see page 21
- Luggage compartment switch, see page 15
- Voltage supply +30, see page 12

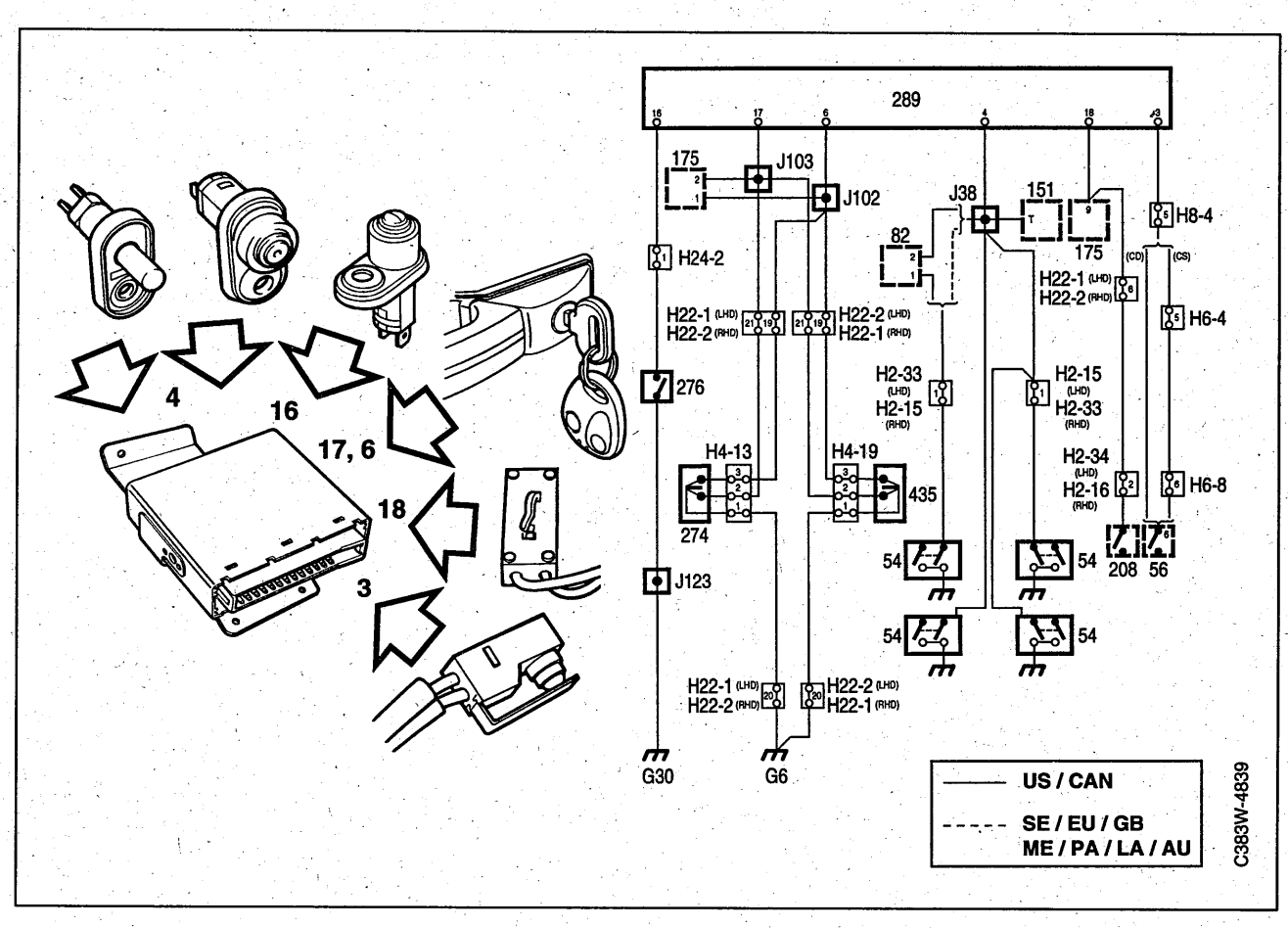
Description of function, electronic control module outputs



Control module outputs

- LED, see page 22
- Central locking system, unlocking (remote control), see page 25
- Relay, starter motor (ignition +50), see page 21
- Relay, fuel pump, see page 21
- Horn, ground, see page 19
- Right-hand direction indicators, see page 20
- Central locking system, locking (remote control), see page 25
- Scan tool diagnostics, ISAT scan tool, see page 32
- Engine control system (ignition +15), see page 21
- Tailgate, unlocking (remote control), see page 26
- Left-hand direction indicators, see page 20

Description of function, door, luggage compartment and engine hood switches



Door and luggage compartment switches

The switches (for interior lighting) are used by the theft alarm as sensors for the doors and tailgate. The switches are mounted in the body in the middle of each door and the tailgate. All door switches are connected to theft alarm control module pin 4 and the luggage compartment switch to pin 3 via the car's cable assembly. The control module thus senses if a door is opened while the alarm is armed by checking the voltage over the switch in the following way:

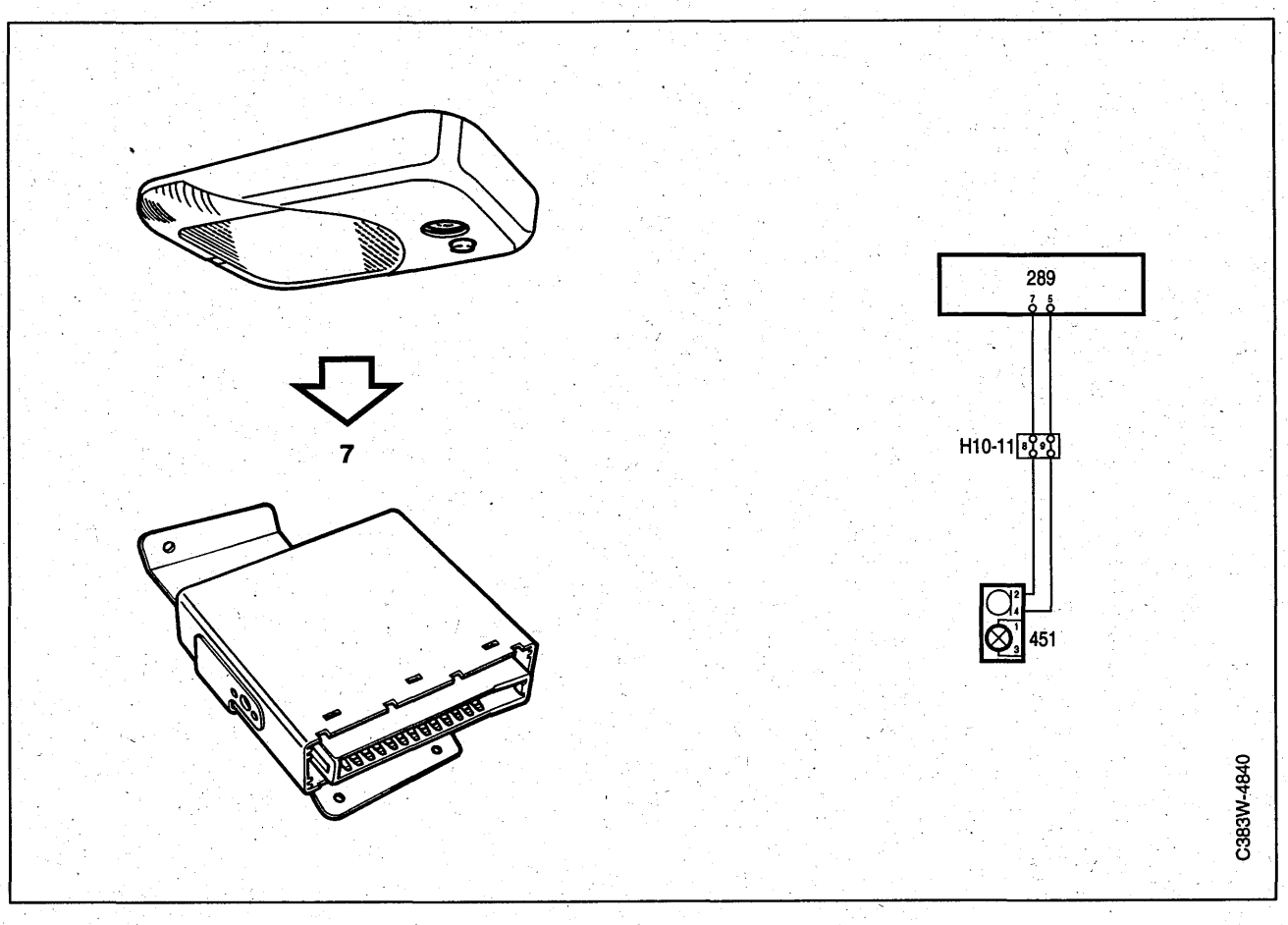
- When the door/tailgate is closed, the voltage between the switch and ground should be 12 V.
- The switch is grounded when the door/tailgate is opened. The voltage between the switch and ground is then 0 V. The alarm is set off.

Engine hood switch

The engine hood switch is located in the engine compartment in the front edge on the left-hand side and acts as a sensor for the engine hood. The switch is connected to the control module (pin 16).

- When the engine hood is closed, the voltage between the switch and ground should be 12 V.
- When the hood is opened, the switch is grounded. The voltage between the switch and ground is thus 0 V. The alarm is set off.

Description of function, glass breakage sensor

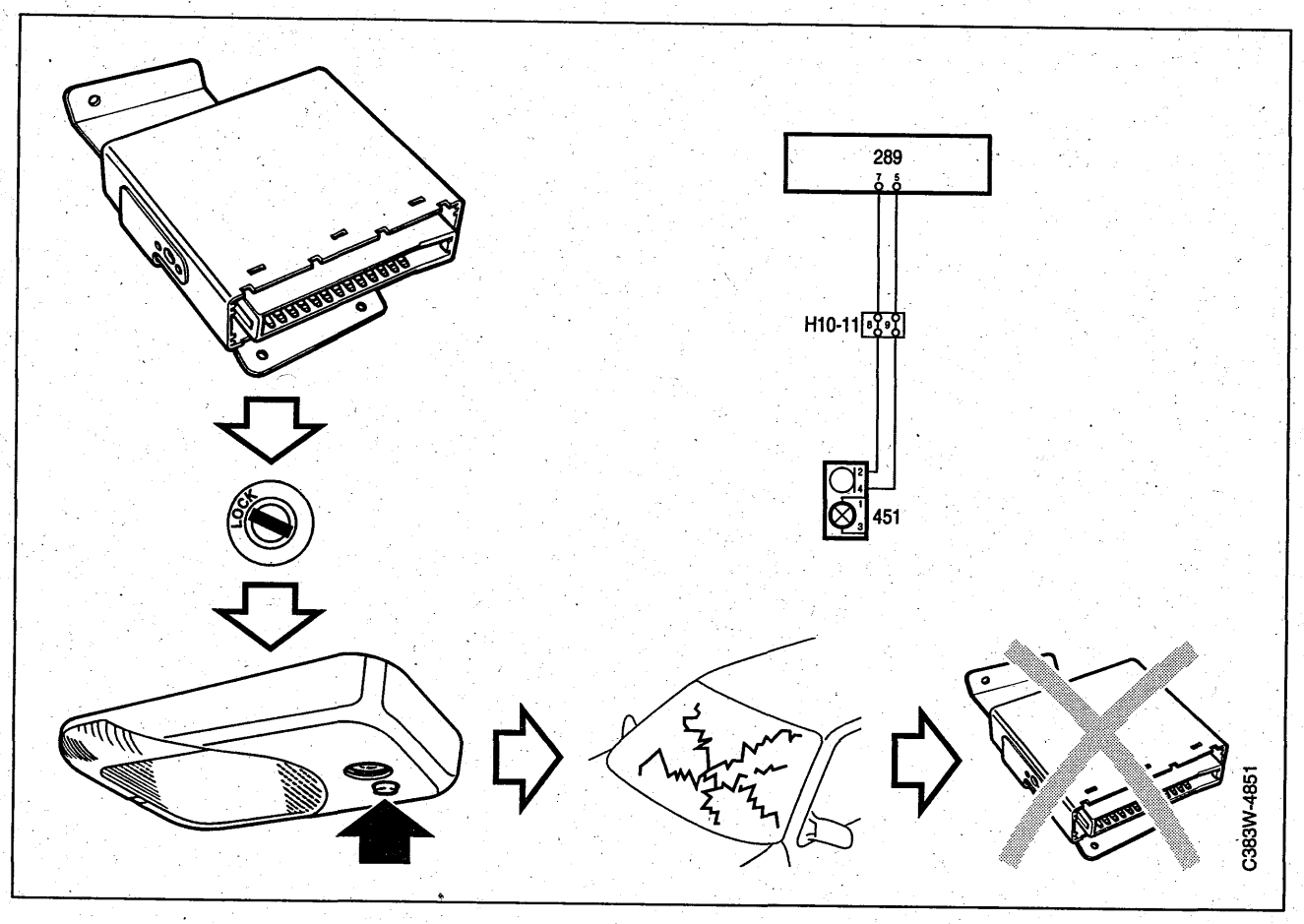


Glass breakage sensor

The sensor is sensitive to noise (microphone) and senses if a car window is broken. It is built into the interior lighting lamp in the roof and is connected to the control module via pin 7 (signal) and pin 5 (ground). The separate ground input for the sensor has a filtering effect to avoid potential differences between the control module's main ground and the sensor's ground input.

When the theft alarm is armed and a window is broken, the sensor sends an analog signal to the control module in order to set off the alarm. There is also a button on the sensor to manually disconnect the glass breakage sensor. When the disconnection button is pressed, disconnection is achieved by the control module sensing a change in the signal level.

Description of function, glass breakage sensor (contd.)



Connection

The sensor is connected when the rest of the theft alarm is armed.

Manual disconnection

The sensor can be disconnected using the disconnection button as follows:

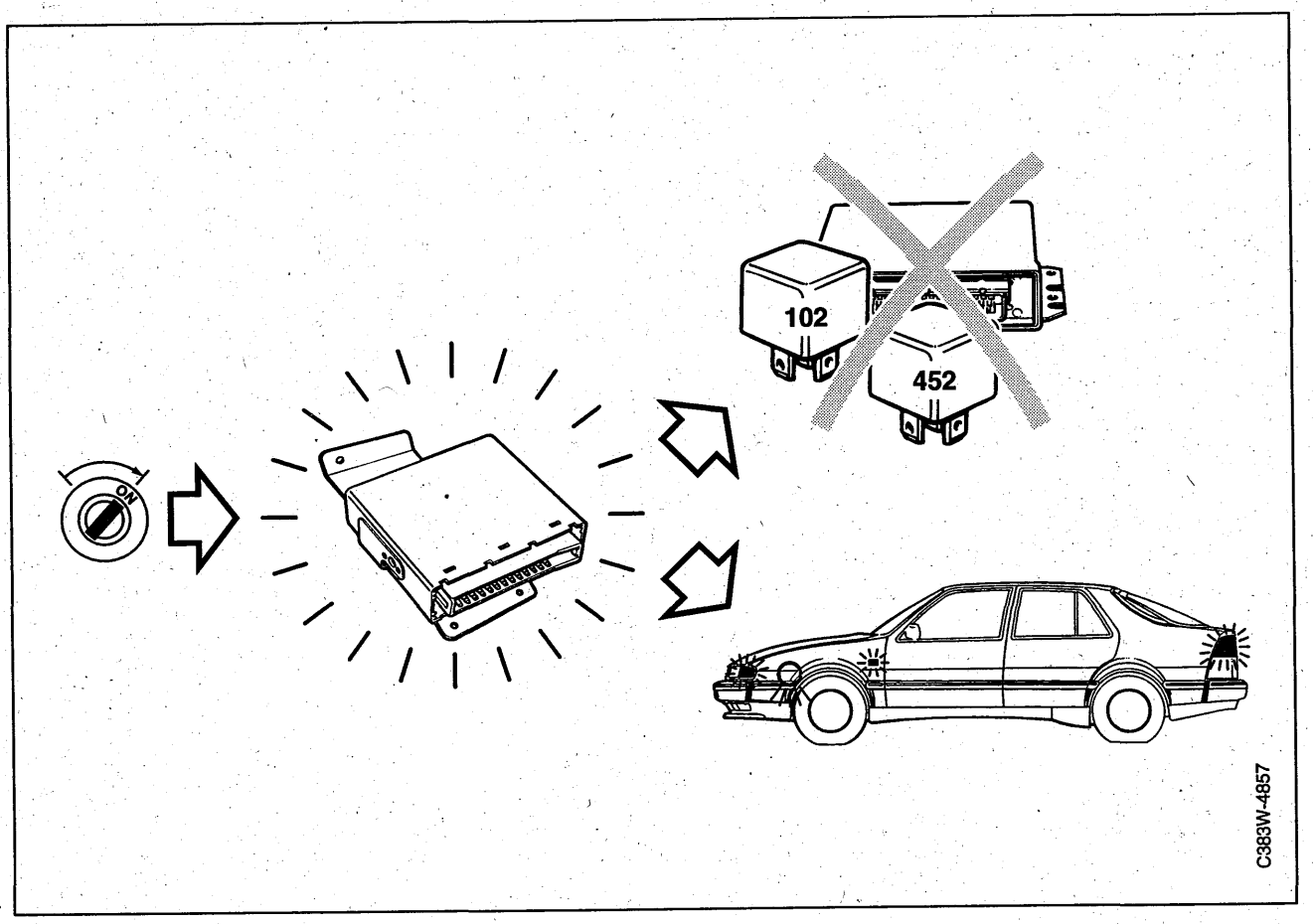
- If the button is pressed when the theft alarm is not armed and the ignition is off, the sensor will not then be connected when the theft alarm is armed. When the button is pressed, the LED flashes once every second for 10 seconds. If the theft alarm is armed before this, the LED goes to being lit continuously (normal 10 second delay).
- The sensor can be reconnected before the alarm is armed by turning the ignition to the "ON" position (+15).
- Otherwise, it is necessary to disarm the alarm and then arm it again so that the sensor will be connected with the rest of the alarm.

Automatic disconnection

The sensor is automatically disconnected in the following cases:

- If the theft alarm is disarmed.
- If only the tailgate is disarmed/unlocked.
- If a door or the tailgate is open as the alarm is armed.
- If the voltage drops to between +7.6 and +8.5 V.

Description of function, ignition



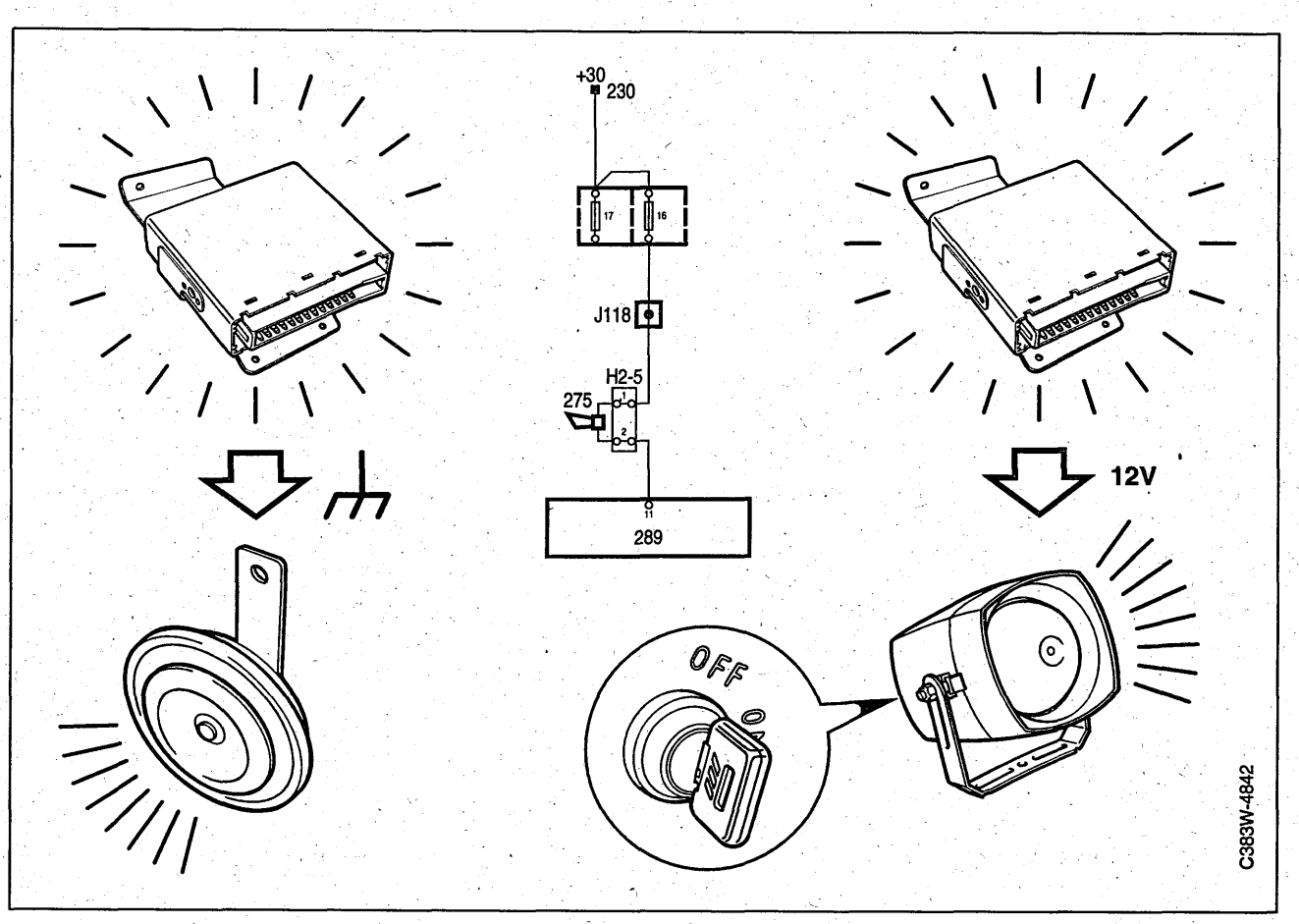
Ignition

The ignition switch is connected to the control module (pin 10) so that the control module senses the voltage (+12 V) if the ignition is turned to the "ON" position (+15). The alarm is set off if the theft alarm is armed. This means that if an attempt is made to start the car, both the alarm and 3 circuit breaking (blocking of operating voltage to the starter and fuel pump relays and +15 to the engine control module) are set off.

Important

- If the ignition is in the "ON" position (+15), the theft alarm cannot be armed.
- If the ignition is turned to the "ON" position (+15) during the alarm delay period, the theft alarm is automatically disarmed.

Description of function, horn and siren



Theft alarm horn

There is a special horn in the sound alarm that sounds when the alarm is set off and also as a confirmation when a button is pressed on the remote control. This is mounted behind the wing liner in the front left-hand wheel housing.

+30 is connected to the horn. If the alarm is set off, the horn sounds by being grounded via the theft alarm control module (pin 11)-

The length of time the horn sounds when the alarm is set off and the configuration of the confirmation is programmable.

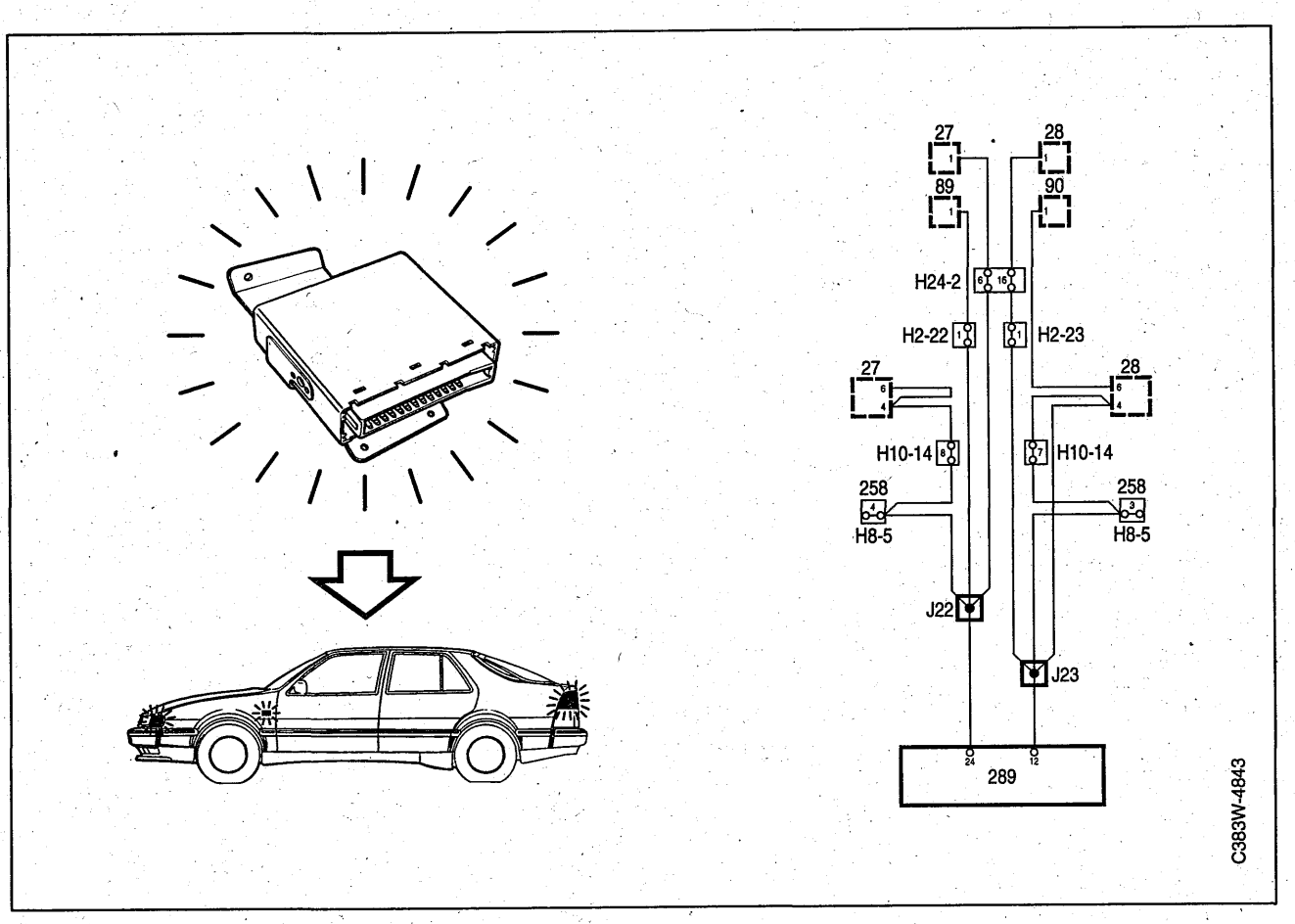
Siren

As an extra option, a siren with battery back-up can be fitted. This is then connected to the same lead (pin 11) as the horn.

Important

The siren and the horn cannot be used at the same time. The control module continuously feeds +12 V to the siren and if this is broken, the alarm is set off. For this, the siren must be specially programmed.

Description of function, direction indicators



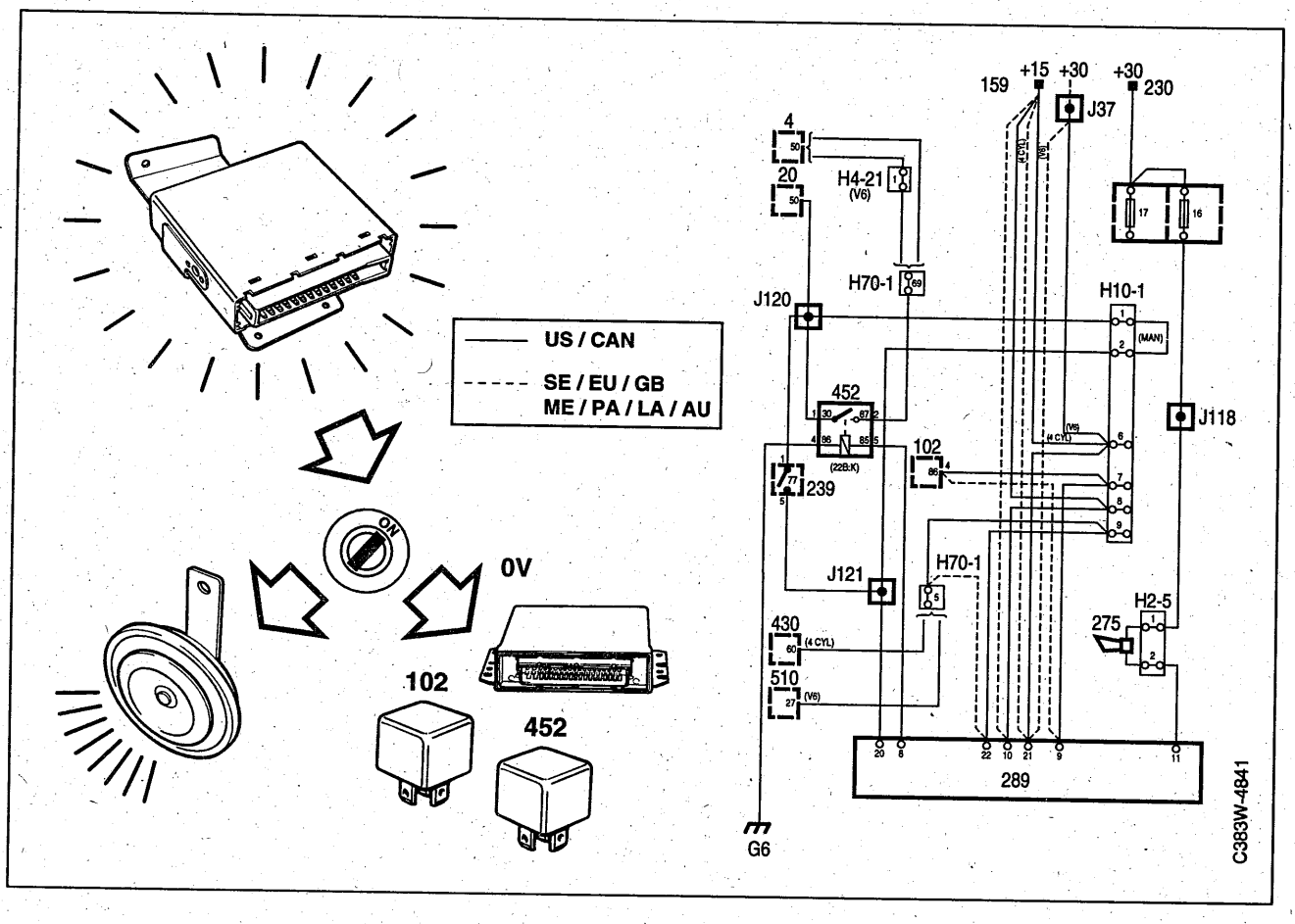
Direction indicators

All the direction indicators on the car are used when the light alarm is set off and also as a confirmation when a button is pressed on the remote control.

It is possible to program whether the direction indicators are included in the alarm and what the flash time should be. The configuration of the light confirmation is also programmable.

The car's direction indicators are connected to the control module (pin 12 right-hand direction indicators and pin 24 left-hand direction indicators). The outputs are protected against short-circuit and are automatically disconnected from the alarm if the control module senses a short-circuit. Only the audio alarm is then maintained. The direction indicators outputs are then reconnected the next time the alarm is armed.

Description of function, 3 circuit breaking



3 circuit breaking

There is a 3 circuit breaking function incorporated in the alarm control module which takes over control of the functions listed below when the alarm is armed. This prevents the engine from being started when the alarm is set off as follows:

- **Starter relay (ignition "ST" 50)** does not receive operating voltage as the alarm control module (pin 8) breaks the voltage if a attempt is made to start the car.
- **The fuel pump relay** receives no operating voltage as the alarm control module (pin 9) breaks the voltage. The car receives no fuel — the car cannot be push started either.
- **Engine control system** does not receive 15 as the alarm control module (pin 22) breaks the voltage.

Connection

3 circuit breaking is connected when the rest of the alarm is armed.

Disconnection

3 Circuit breaking is disconnected when the rest of the alarm is disarmed.

Self-arming, 3 circuit breaking

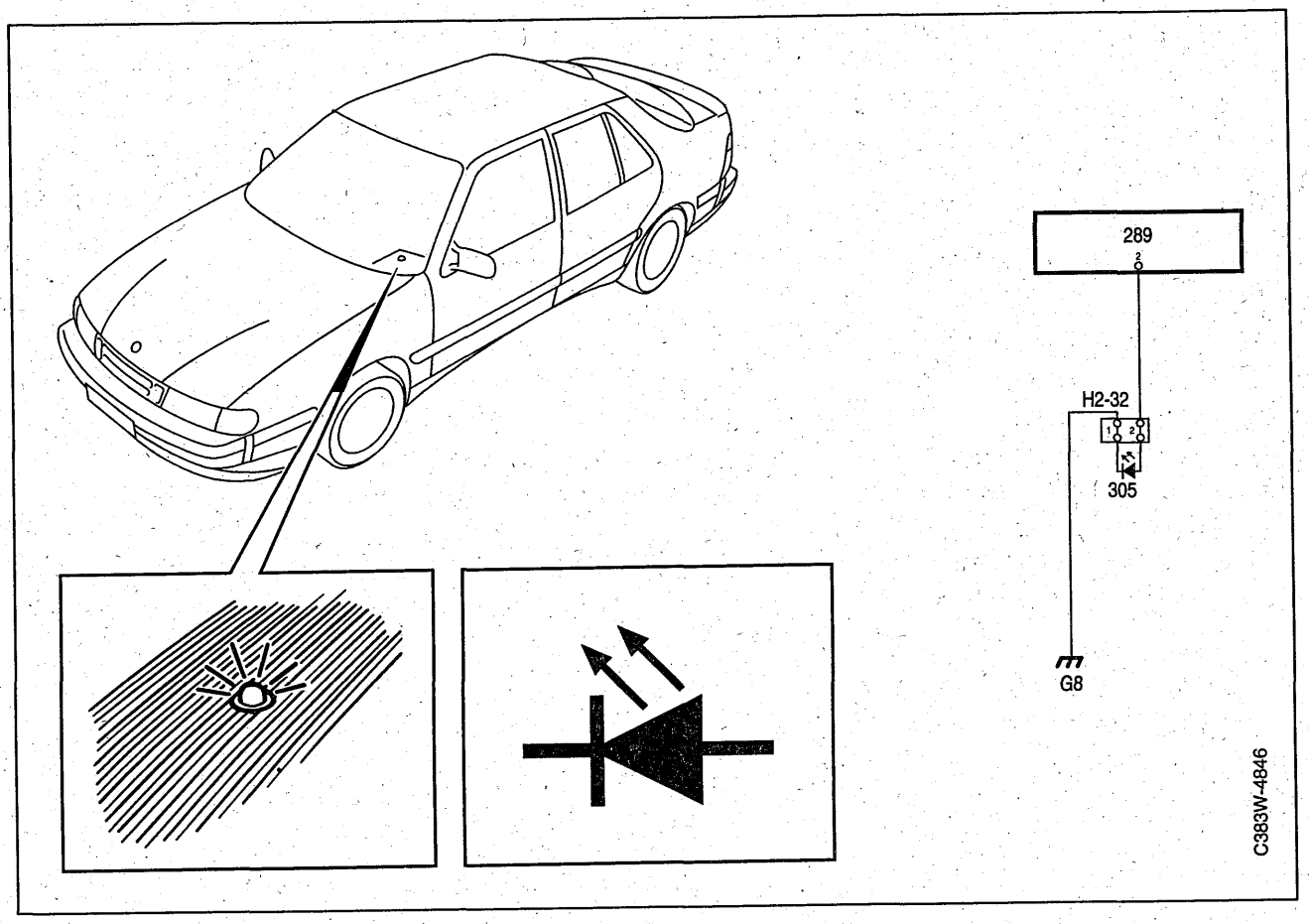
3 circuit breaking can be programmed independently for self-arming, or automatic arming without the use of the remote control or the car key.

Self-arming, theft alarm

The entire theft alarm can also be programmed for self-arming. In this case, 3 circuit breaking is automatically included when the alarm is armed.

Also see the section on "Programming" for further information.

Description of function, LED



As a control for the theft alarm, there is an LED mounted in the loudspeaker grille on the left-hand side of the facia (or on the right-hand side in RHD cars). This is controlled via the control module (pin 2) and flashes (with varying frequency) or lights continuously depending on the different conditions. A number of normal cases are shown in the table on the next page.

Important

Delay period (10 sec) does not start until the delayed interior lighting goes out (approx. 18 sec).

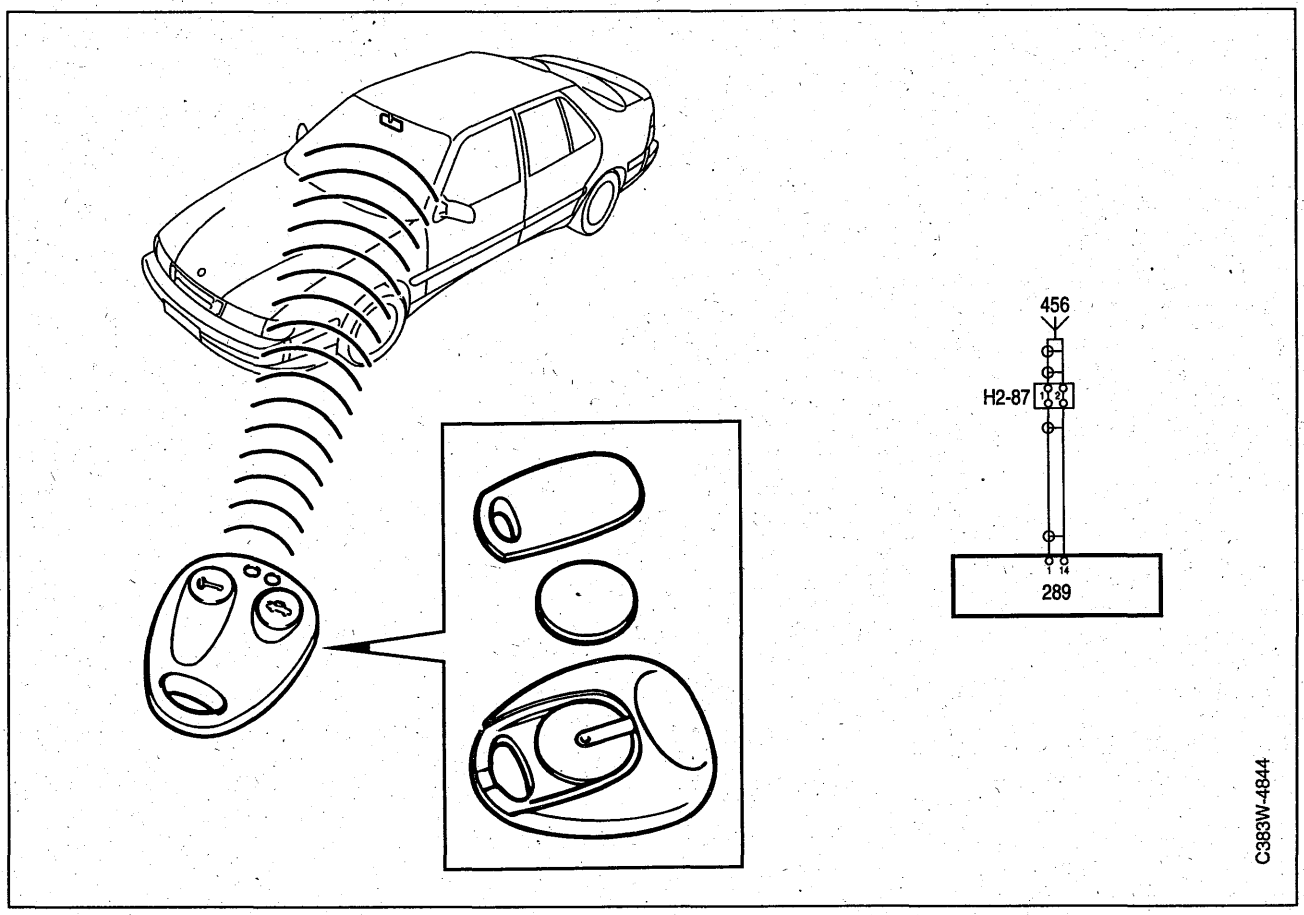
Self diagnostics

Each time the alarm is armed, a self diagnostic test is conducted during the delay period (10 sec) while the LED is lit. If a fault is revealed, a diagnostic trouble code is stored in the control module and the LED flashes once every second. Other alarm functions are not affected.

Description of function, LED (contd.)

Function	LED	Time	Flash frequency
Arming	lit continuously	10 sec (delay period)	
Alarm, armed	flashes		1 flash/2 sec
Door, tailgate or hood open when arming takes place.	flashes	10 sec	1 flash/sec
Door, tailgate or hood open during delay period.	lit continuously — flashing	10 sec	1 flash/sec
Door, tailgate or hood closed during delay period.	flashes — lit continuously	10 sec	
Tailgate closed after delay period.	flashes — lit continuously	10 sec	
Tailgate opened after delay period.	flashes		1 flash/2 sec
Disconnection of glass breakage sensor (button)	flashes	10 sec	1 flash/sec
Self-arming, 3 circuit breaking	flashes		double flash/2 sec
Self-arming, theft alarm	flashes		1 flash/2 sec
Disarmed alarm	lit continuously	1 sec	
Fault in system	flashes	during delay period	1 flash/sec

Description of function, remote control



Remote control

The basic model of the theft alarm can be operated (armed/disarmed) using the remote control and the car key. Arming/disarming using the car key can be deprogrammed in markets where this is necessary.

There is an antenna mounted next to or inside the rear-view mirror in the car for remote control. This is connected to the control module (pin 1 signal, pin 14 ground). Point the remote control towards the antenna. The range is normally about 8 m but can be much further in favorable conditions. To meet legal requirements, the remote control for JA is equipped with a weaker transmitter to achieve a shorter range. The remote control is of the RF (Radio Frequency) type.

The remote control transmits a 64 bit code. This is compared with a list of valid codes (max 4) in the control module. If the code is valid, the control module acts on the command.

There are two buttons on the remote control for remote control of the alarm:

- **Button (left-hand)** used to lock/unlock and arm/disarm the theft alarm.
- **Button (right-hand)** used to unlock the tailgate and to disarm the tailgate if the alarm is armed.

Changing the battery

The remote control is powered by two batteries which should last for about 2 years of normal use. The batteries should be changed when the range of the remote control gets shorter.

For safety reasons, it is recommended that the batteries are changed every year.

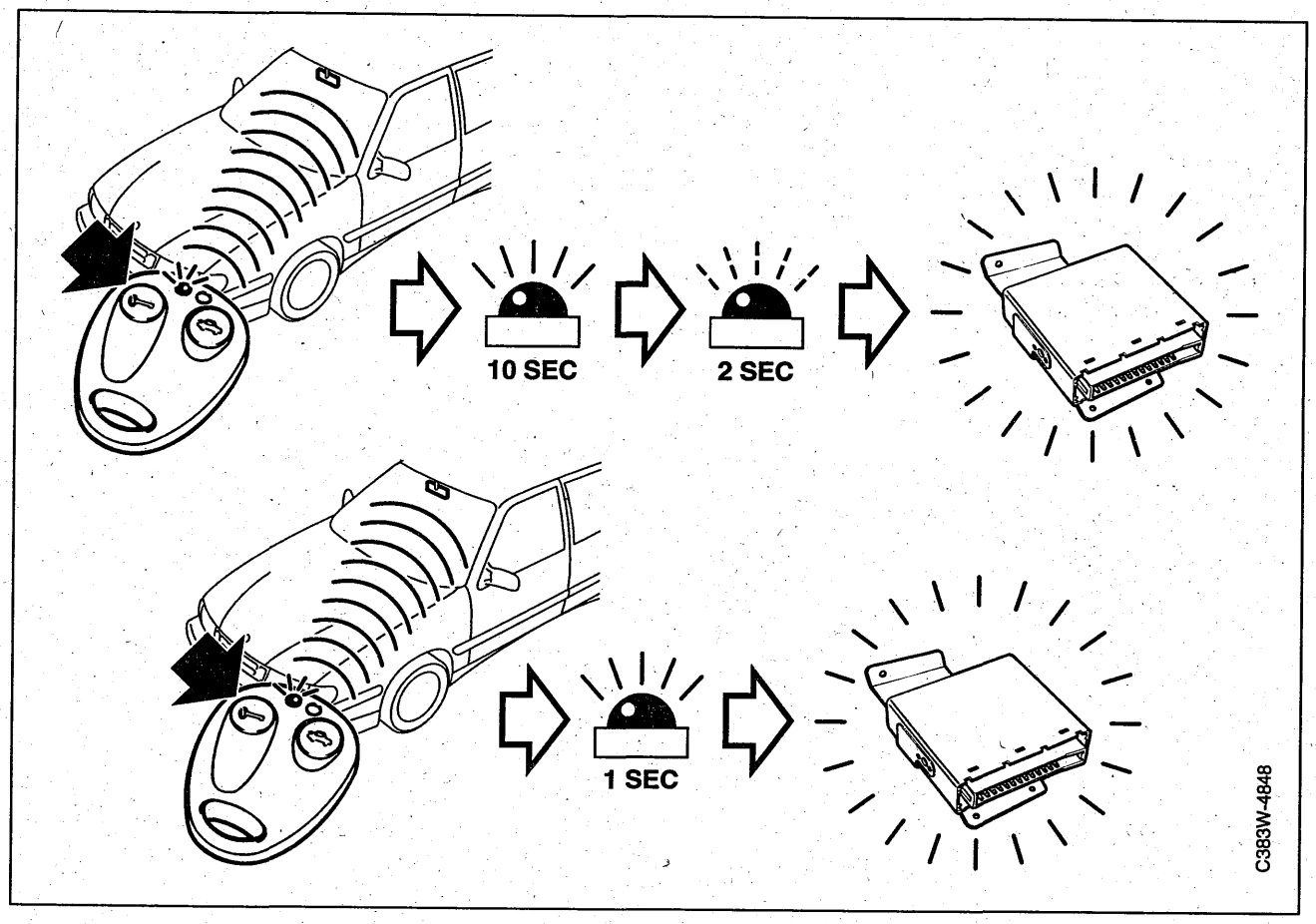
Important

After the batteries have been changed, the left-hand button on the remote control must be pressed five times in a row.

New remote control

If the remote control has been lost and a new one is to be used, it must first be programmed (encrypted) with the theft alarm before it is used.

Description of function, remote control (contd.)



Arming the theft alarm

1 When arming using the remote control, press the left-hand button. When the button is pressed, a light confirmation is given by the car's direction indicators flashing once. The flasher/sound confirmation for this function is programmable.

2 The car's theft alarm is then armed and all doors are locked by the central locking system which has received a signal from the alarm control module (pin 17). The tailgate is also armed if it is closed.

3 When the alarm is armed, the LED lights continuously for 10 seconds. During this so-called delay period, the alarm is not armed and the passenger doors (not the driver door), the tailgate or the hood can be open without the alarm being set off. After the delay period, the LED goes over to flashing 1 flash/2 seconds which shows that the alarm is armed.

4 If the driver door is opened during the delay period, the alarm is automatically disarmed. If the driver door is open or if the ignition is on, it is not possible to lock/unlock the car and arm/disarm the alarm using the remote control.

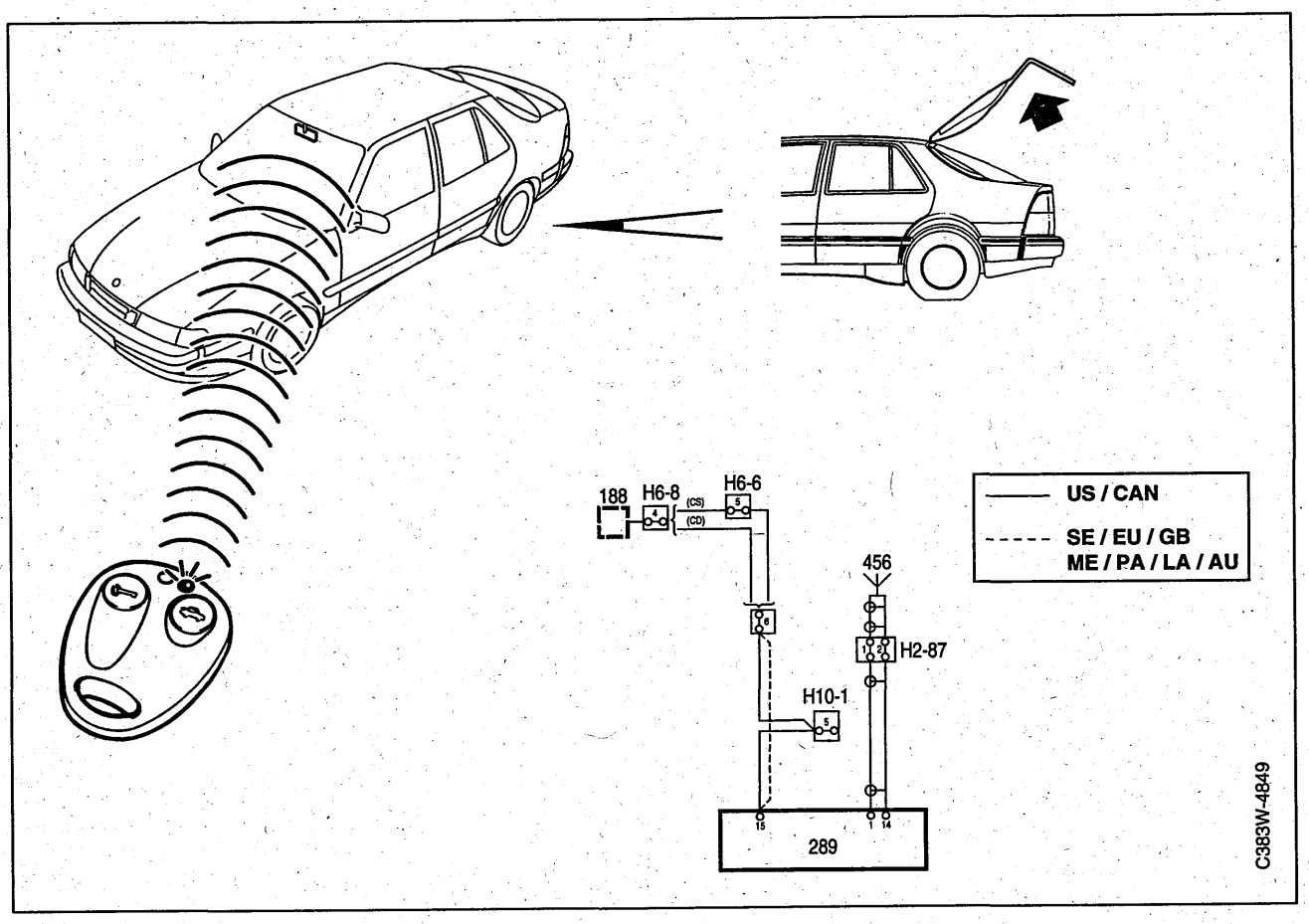
Disarming the theft alarm

1 To disarm using the remote control, press the left-hand button. When this button is pressed, a light confirmation is given by the car's direction indicators flashing three times (if the alarm has been set off while it was armed, the direction indicators flash five times). The flash/sound confirmation of this function is programmable.

2 The car's theft alarm is then disarmed and all doors (except the tailgate) are unlocked by the central locking system which receives the unlock signal from the alarm control module (pin 6).

3 When the alarm is disarmed, the LED lights for 1 second and then goes out.

Description of function, remote control (contd.)



Disarming/unlocking the tailgate

1 Disarming and unlocking the tailgate independently is achieved by pressing the right-hand button on the remote control. The rest of the alarm is not affected. The flash/sound confirmation for this function is programmable.

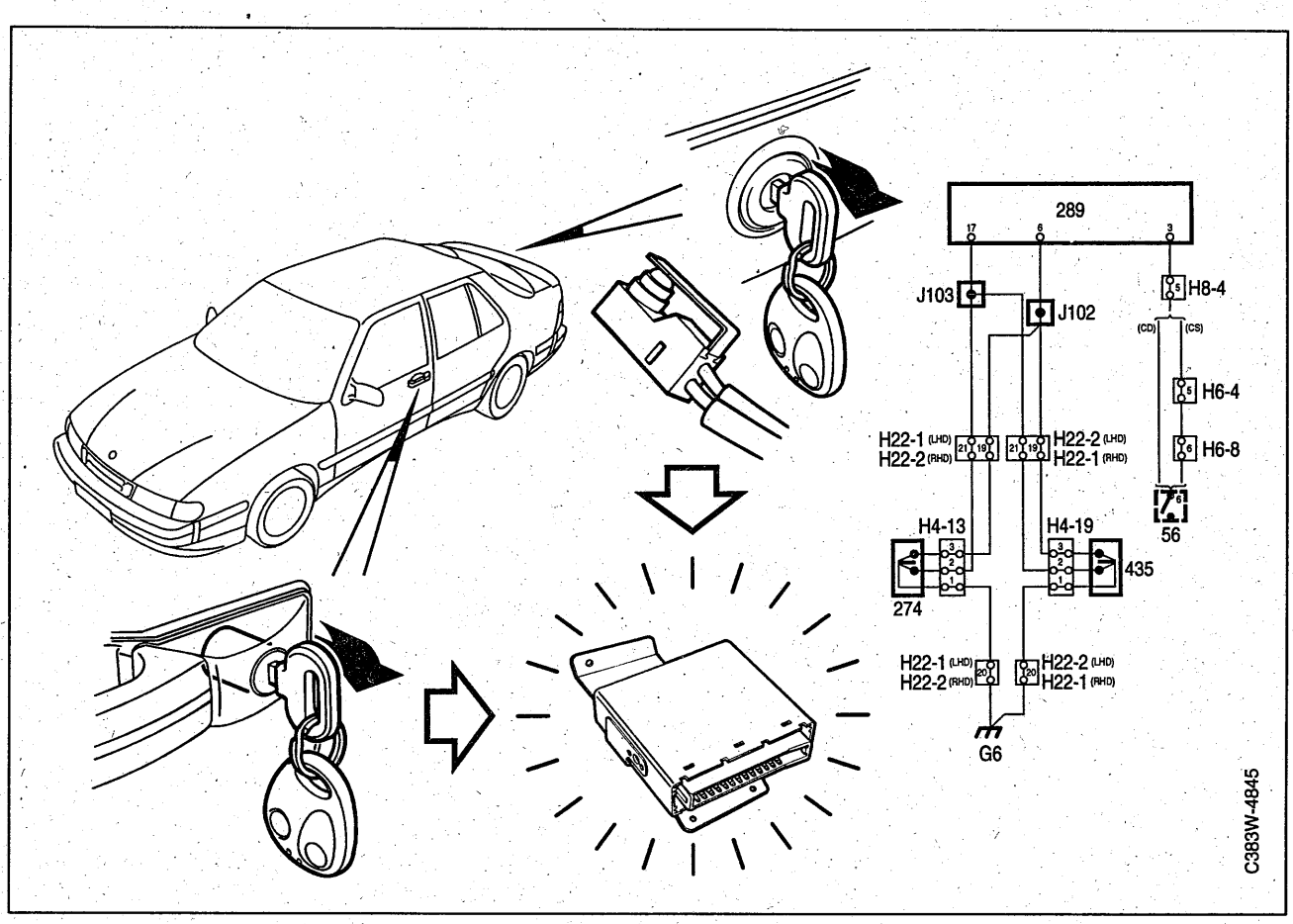
2 If the alarm was armed, the tailgate is then excepted from the alarm. If the rest of the alarm is armed and the disarming/unlocking takes place after the delay period, the LED flashes 1 flash/2 seconds. The tailgate is unlocked with a signal from the control module (pin 23).

3 When the tailgate is closed, a new delay period for the tailgate starts (10 seconds). It is then once again alarmed if the rest of the alarm was armed.

Important

It is not possible to open the tailgate using the remote control if the ignition is on. On the other hand, this can be achieved with special programming.

Description of function, manual control with car key



With the car key in the door lock

The theft alarm can be manually armed/disarmed with the car key in the front door locks. This function can be programmed out for markets that demand this.

Arming the theft alarm

1 When arming using the car key, this is inserted into the lock in the door and turned 45 degrees to the locked position.

2 A microswitch beside the door's lock cylinder sends a locking signal to the central locking system control module and a signal to the alarm control module (pin 17) to arm the alarm. The car doors are locked.

Disarming the theft alarm

1 When disarming using the car key, this is inserted into the door lock and turned 45 degrees to the unlocked position.

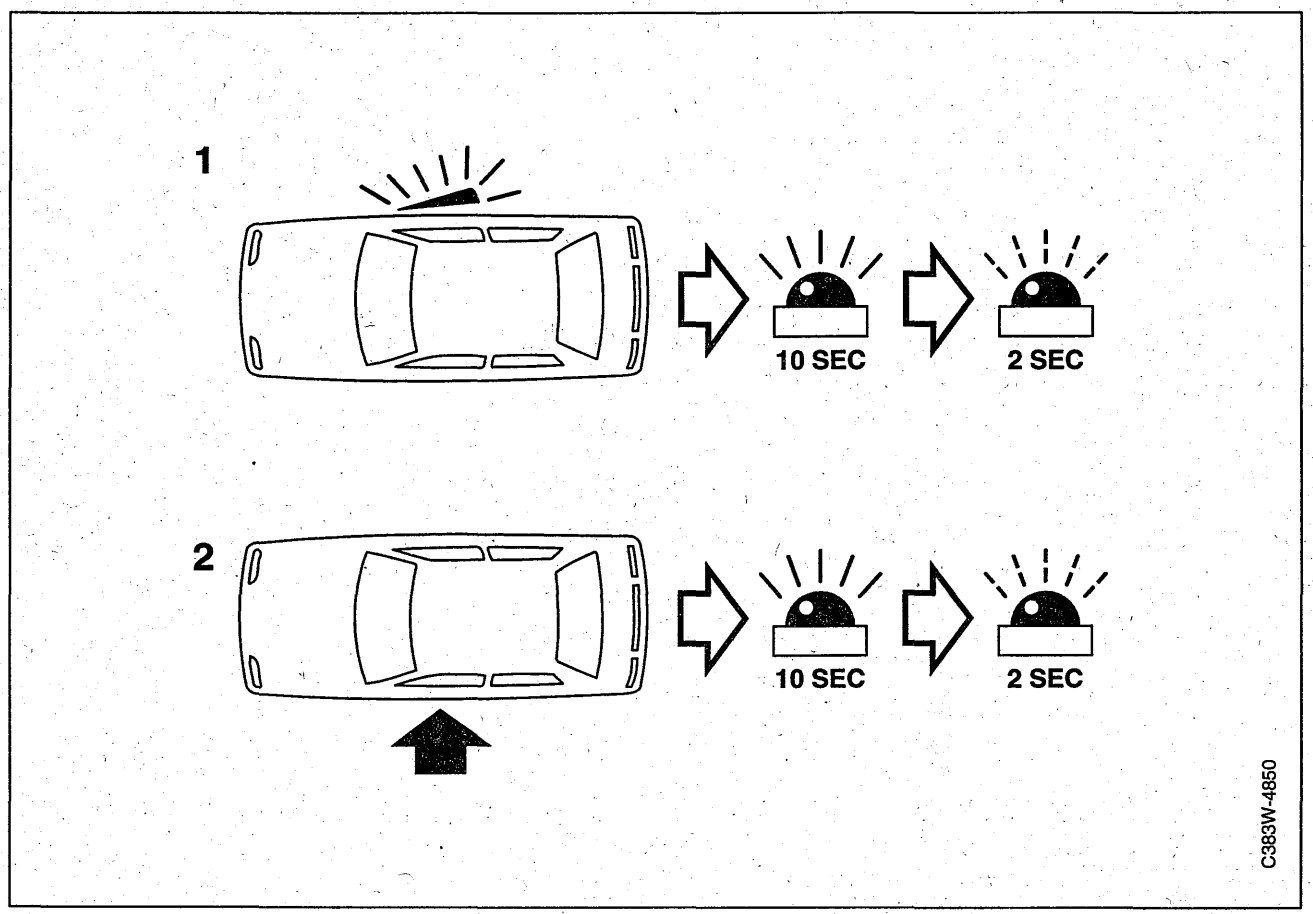
2 The microswitch by the door lock cylinder sends an unlock signal to the central locking system control module and a signal to the alarm control module (pin 6) to disarm the alarm. The car doors are unlocked.

Disarming the tailgate

1 It is possible to independently disarm and unlock the tailgate using the car key after special programming. The other alarm functions are not affected. Flash/sound confirmation for this function is programmable.

2 The microswitch in the luggage compartment lock supplies voltage to the luggage compartment lock motor so that this unlocks the tailgate, and sends a signal to the alarm control module (pin 15) to disarm the alarm.

Description of function, special cases of arming/disarming



The theft alarm normally functions according to the instructions on the previous pages, but if for instance a passenger door were open when the alarm was armed, or be opened during the delay period, the following happens:

Doors (except driver door), hood and tailgate

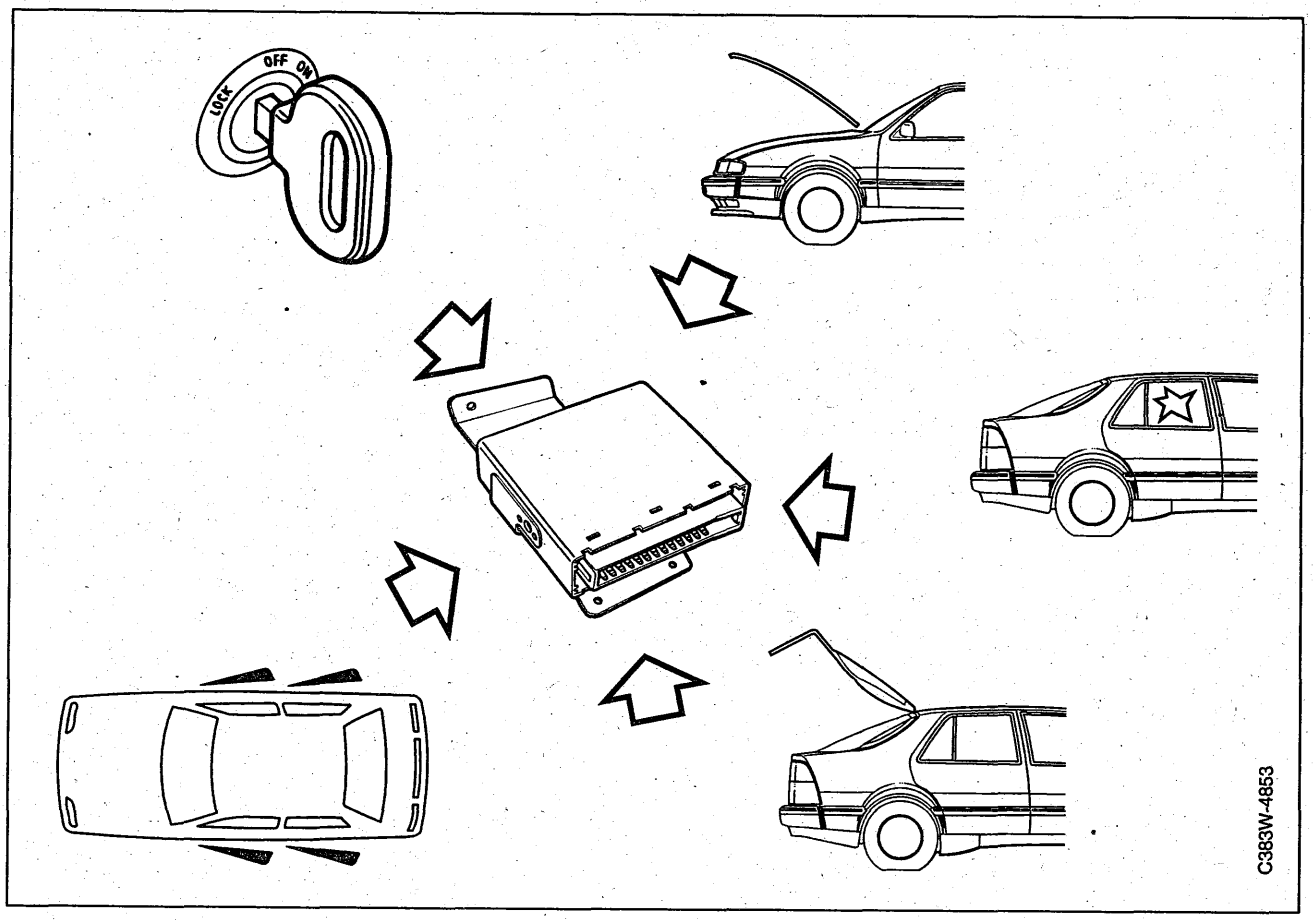
1 Door, hood or tailgate are open or are opened during the delay period when arming is taking place:

- The LED flashes (1 flash/second) for 10 seconds and then goes over to normal indication for armed alarm (1 flash/2 sec).
- The door, the hood or the tailgate is then excepted from the alarm monitoring.

2 Door, hood or tailgate are closed while the alarm is armed:

- The LED goes over from flashing to being lit continuously for 10 seconds, that is to say a new delay period specifically for the door, hood or tailgate that was closed.
- After the delay period, the door/hood or tailgate is once again covered by the alarm monitoring. The LED goes over to normal indication for armed alarm (1 flash/2 sec).

Description of function, setting off the alarm



When the alarm is armed, it is set off if alarm data is received by the control module on the following connections:

- The door switch is grounded (pin 4).
- The hood switch is grounded (pin 16)
- The luggage compartment switch is grounded (pin 3).
- Signal from the glass breakage sensor (pin 7)
- Signal from the sensor disconnecting button (pin 7)
- Connecting or bypassing the ignition, "ON" position (+15) on the ignition switch (pin 10).

When the alarm is set off, the horn sounds for 30 seconds and the direction indicators flash for 5 minutes.

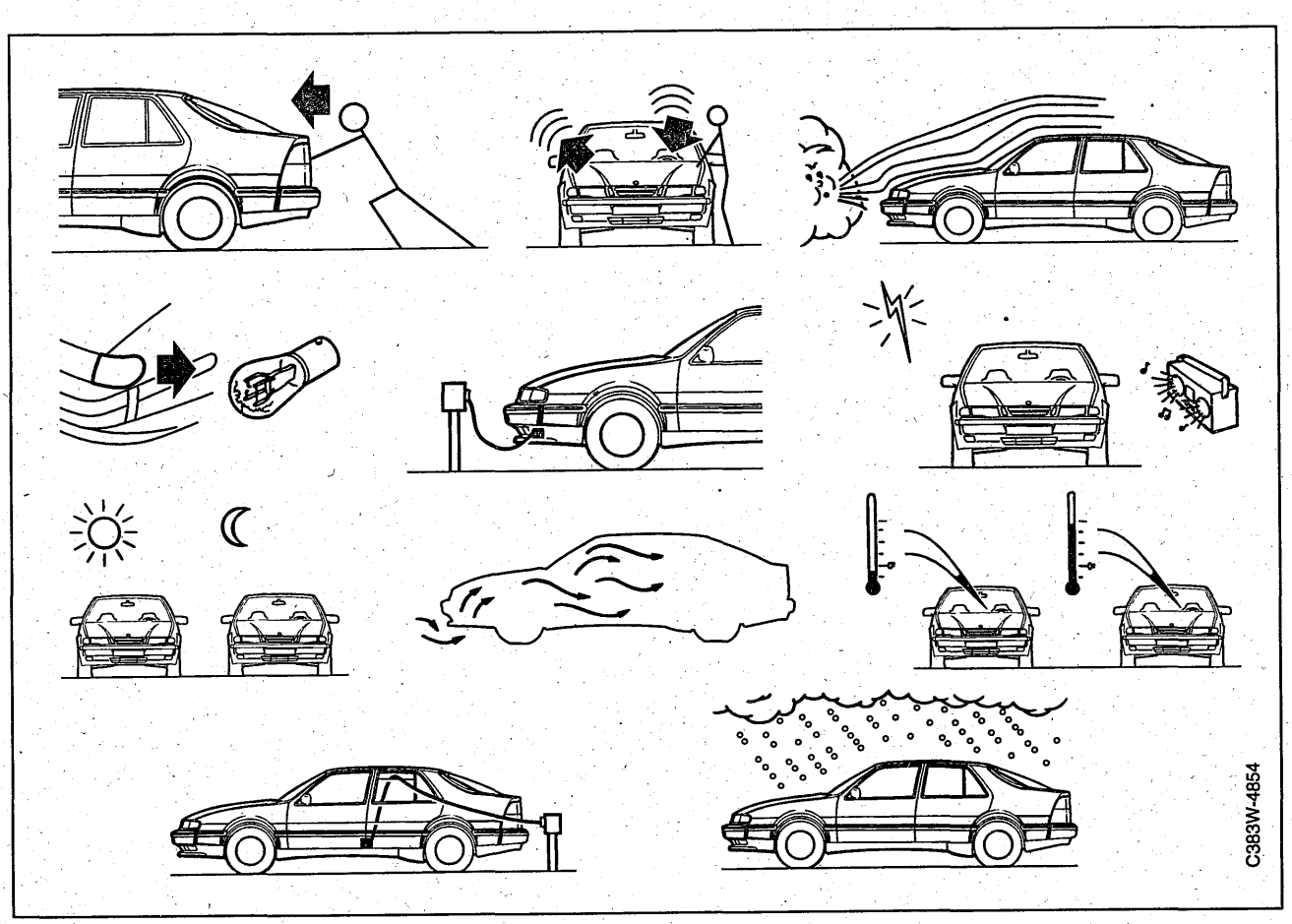
Starter and fuel pump relays as well as engine control system +15 are immobilized for 30 minutes. Each attempt to start the car extends the immobilization time by 30 minutes. If the ignition is on, these will be continuously immobilized as long as the alarm is armed.

To switch off an alarm that has been set off, it is disarmed in the normal way with the remote control or the car key.

Important

This type of alarm tripping is standard (at delivery). Flash and sound times can be reprogrammed as required by the local market.

Description of function, false alarm



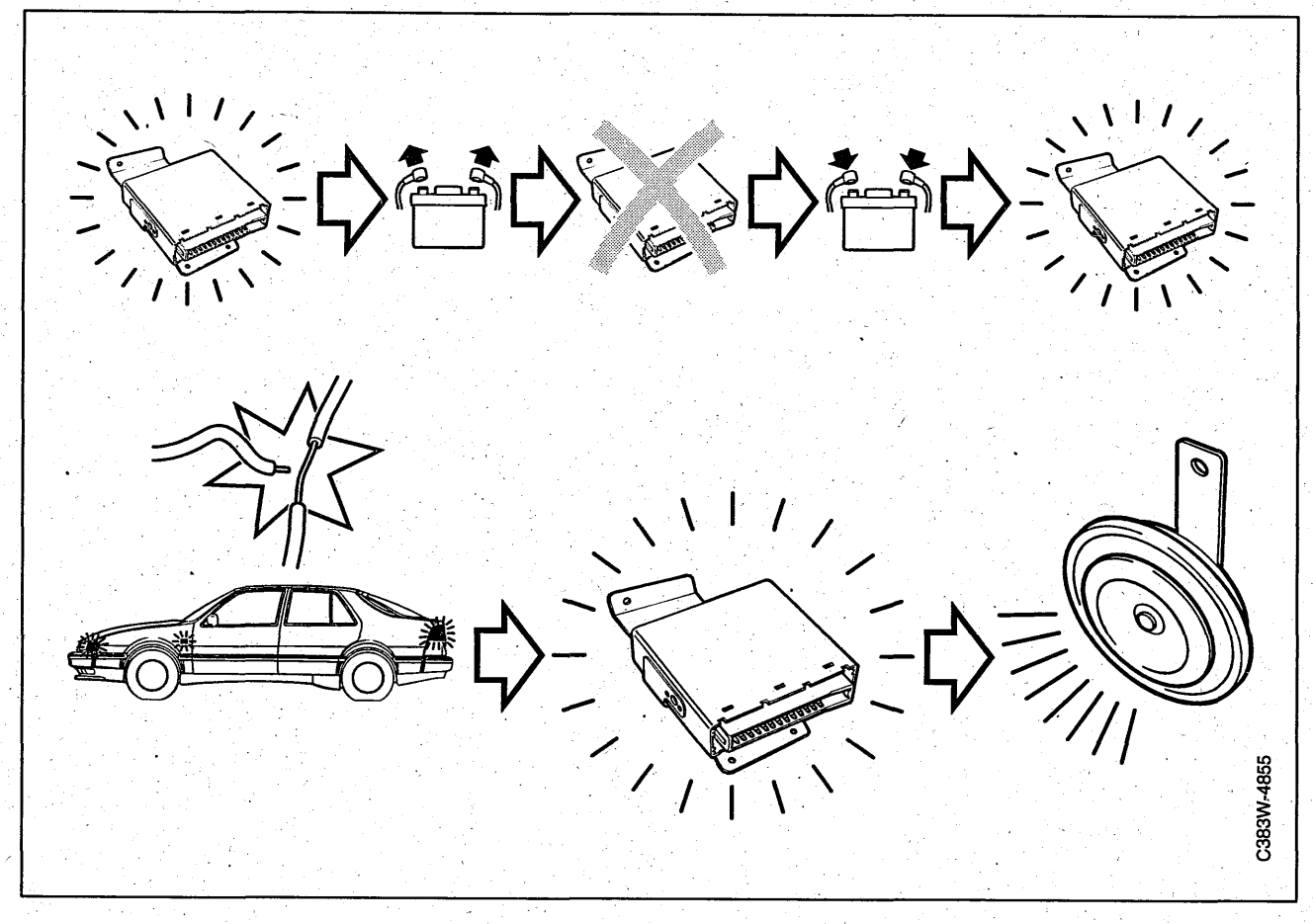
The armed alarm is protected against the following:

- Knocks to the car.
- Vibration of the car.
- Wind load (external pressure waves)
- Automatic switching on and off of other electrical equipment in the car.
- External noise.
- Changes in the internal/external light intensity.
- Air flow and turbulence in the car.
- Temperature changes inside the car.
- Fan noise from original/extra heaters inside the car.
- Noise transferred from outside through the body to the inside of the car (e.g. rain and hail).

Important

This is the case provided that all doors/sunroof/windows in the cabin are closed.

Description of function, functional safety



Operating voltage drop -i30 for armed alarm

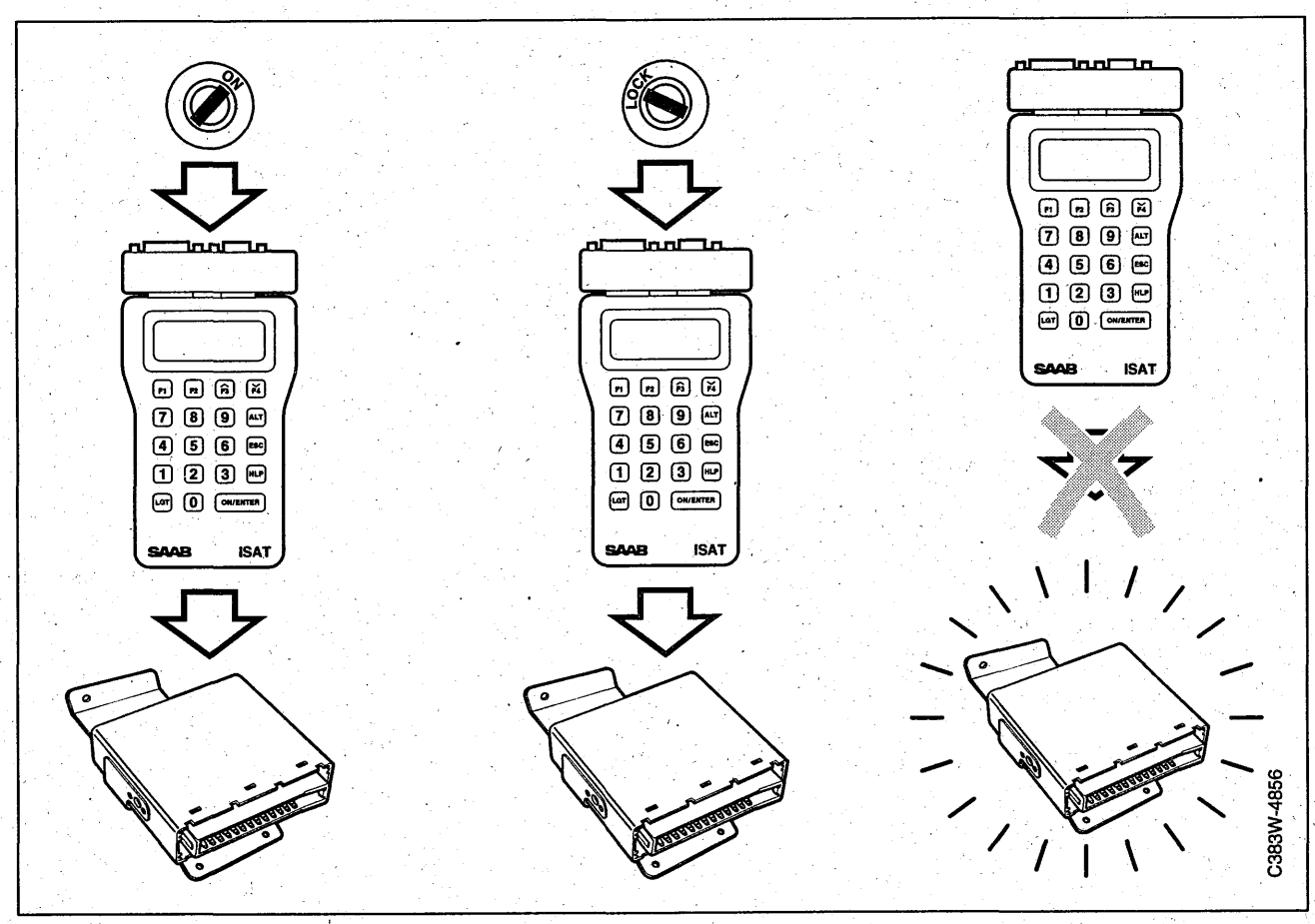
If battery positive voltage drops, for instance due to disconnection or discharge of the battery when the alarm is armed, the alarm is no longer armed. When the voltage returns to normal, the alarm is once again armed as it was before disconnection.

Short-circuit protection for direction indicators

The theft alarm control module can detect a short-circuit in any of the direction indicator circuits.

If there is a short-circuit, the alarm is set off with sound only and the direction indicator signals are not activated.

Description of function, scan tool diagnostics

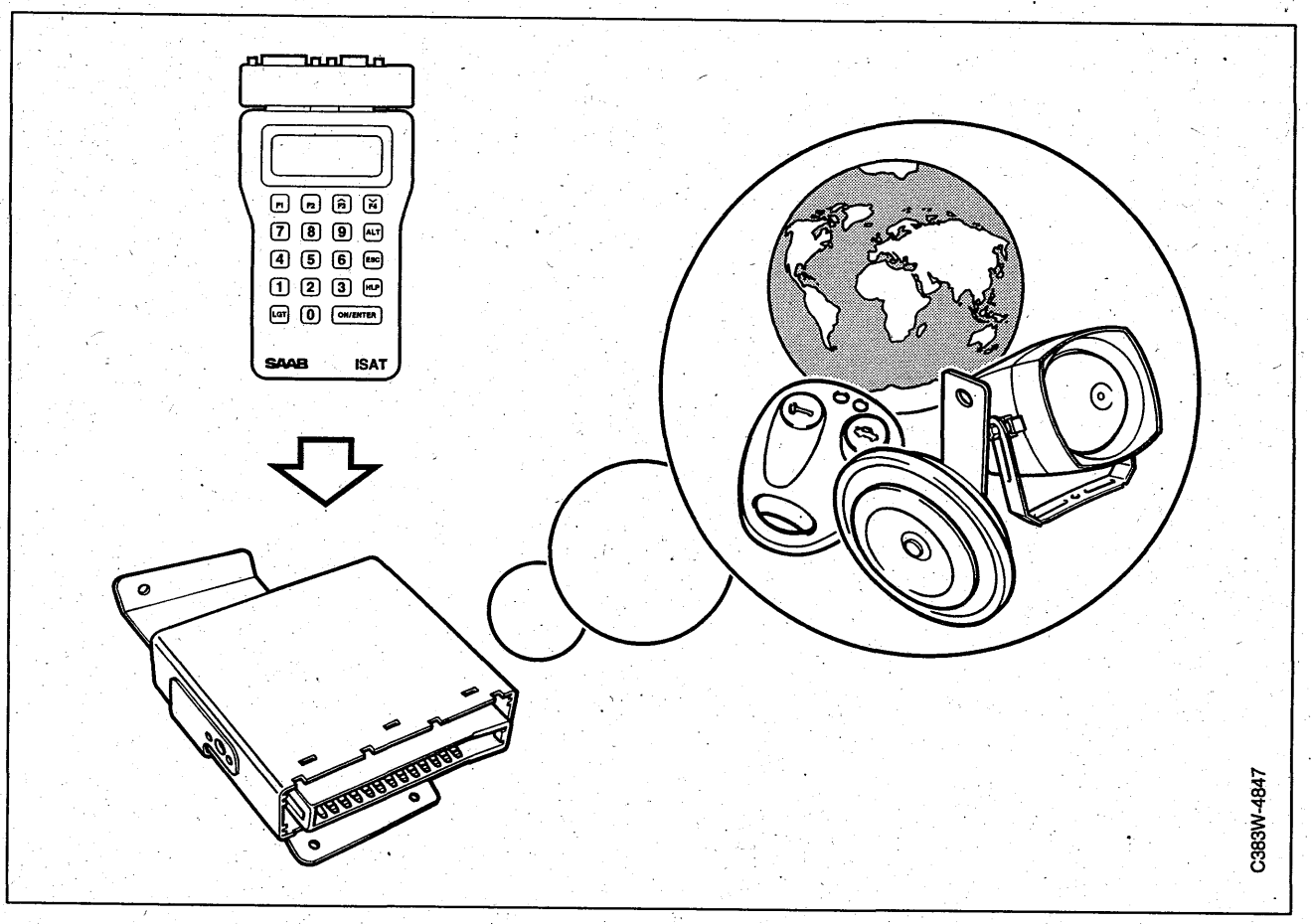


The theft alarm control module communicates with the ISAT scan tool via pin 19. The communication is two-way and as such is both input and output signal.

The ISAT scan tool can communicate with the theft alarm when the ignition in the "ON" position (15), but communication normally takes place with the ignition "OFF".

Communication between the ISAT scan tool and the theft alarm is not possible if the alarm is armed.

Description of function, scan tool diagnostics (contd.)



Programming options

- Country-adapted alarm signal/personalized option for alarm signal.
- Coding the remote control (max 4).
- Self-arming (+15 off, +15 off door closed, no)
- Self-immobilization. (yes/no)
- Flash/sound confirmation for remote control. (Yes/no)
- Flash/sound confirmation, adjusting (Time)
- Arming/disarming with car key.
- Programming for siren. (Yes/no)
- Panic alarm. (Yes/no)
- Tailgate opening with ignition "ON" (+15). (Yes/no)
- Sound adjustment (sound characteristics)

For input data, see section on "Programming".

Fault diagnosis

Diagnostic trouble code table

Diagnostic trouble code	Faulty function/ component	Text on ISAT scan tool display	Action see page
B1193	Horn Break/open circuit	FAULT XX B1193 HORN OPEN	45
B1605	Control module internal fault	FAULT XX B1605 CONTR MODULE INTERN	47

ISAT scan tool menu structure

READ VALUES

- LAST ALARM CAUSE
- UNLOCK SIGNAL
- LOCK SIGNAL
- DRIVER DOOR
- IGNITION +15
- TAILGATE SWITCH
- TAILGATE LOCK
- BONNET
- PASSENGER DOOR
- GLASS BRK SENS BUT
- +30
- GLASS BREAK SENSOR
- CONTROL

ANTI-THEFT ALARM

- **READ FAULT CODES**
- **READ VALUES**
- **ACTIVATE**
- **PROGRAMMING**
- **ADJUSTMENT**
- **READ SYSTEM INFO**
- **CLEAR FAULT CODES**
- **END**

ACTIVATE

- START DETENT
- HORN
- FLASHERS
- LED
- TAILGATE
- LOCK SIGNAL
- UNLOCK SIGNAL

ADJUSTMENT

- FLASH/BUZZ
- PANICALARM
- LUGGAGE AT +15
- SOUND DURATION

PROGRAMMING

- COUNTRY CODE
- CONTROL
- SELF-ARMING
- SELF-IMMOBILIZING
- FLASH/BUZZ
- LOCK DEACTIVATION
- DISENGAGE BOOT
- SIREN

READ SYSTEM INFO

- SAAB PART NUMBER
- SOFTWARE VERSION
- COUNTRY CODE
- DATE OF MANUFACT

Command menu "READ VALUES"

ISAT scan tool command	Function	ISAT scan tool display
LAST ALARM CAUSE	Displays the last 10 alarm causes. There are 6 possible alarm causes: 1. Tailgate 2. Hood 3. Driver door 4. Passenger doors 5. Glass breakage sensor 6. Ignition	1. TAILGATE 2. BONNET 3. DRIVER DOOR 4. PASSENGER DOOR 5. GLASS BREAK SENSOR 6. IGNITION 10. ----
UNLOCK SIGNAL	Displays "ON" when the door receives unlock signal, otherwise "OFF" is displayed.	ON OFF
LOCK SIGNAL	Displays "ON" when the door receives locking signal, otherwise displays "OFF".	ON OFF
DRIVER DOOR	Shows if the door is open or closed.	OPEN CLOSED
IGNITION +15	Shows if the ignition is on or off.	ON OFF
TAILGATE SWITCH	Shows if the tailgate is open or closed.	OPEN CLOSED
TAILGATE LOCK	Shows if the tailgate is locked or unlocked.	OPEN CLOSED
BONNET	Shows if the hood is open or closed.	OPEN CLOSED
PASSENGER DOOR	Shows if any of the passenger doors is open or closed.	OPEN CLOSED
GLASS BRK SENS BUT	Shows if the glass breakage sensor has been disconnected with the button.	ON OFF
+30	Shows the condition of the battery. "LOW" =less than 9 V "OK" =more than 9 V	ON OFF
GLASS BREAK SENSOR	Shows the value from the glass break sensor.	0 - 255
CONTROL	Shows which button has been pressed on the remote control. Also functions on a remote control that has not been programmed.	NO BUTTON LH BUTTON RH BUTTON

Command menu "ACTIVATE"

ISAT scan tool command	Function	ISAT scan tool display
START DETENT	"ON" activates the starter immobilizer. Otherwise it shows if the theft alarm control module output is active or not.	ON OFF
HORN	"ON" activates the horn. It otherwise shows if the theft alarm control module output is active or not.	ON OFF
FLASHERS	"ON" activates the direction indicators. It otherwise shows if the theft alarm control module output is active or not.	ON OFF
LED	"ON" activates the LED. It otherwise shows if the theft alarm control module output is active or not.	ON OFF
TAILGATE	"ON" activates the unlocking of the tailgate. It otherwise shows if the theft alarm control module output is active or not.	ON OFF
LOCK SIGNAL	"ON" activates the locking of the doors with the central locking system. It otherwise shows if the theft alarm control module output is active or not.	ON OFF
UNLOCK SIGNAL	"ON" activates the unlocking of the doors with the central locking system. It otherwise shows if the theft alarm control module output is active or not.	ON OFF

Command menu "PROGRAMMING"

ISAT scan tool command	Function	ISAT scan tool display
COUNTRY CODE	To select a country-adapted or customized alternative for the alarm and to select siren with battery back-up.	GERMANY GREAT BRITAIN SWITZERLAND HOLLAND OWN ALTERNATIVE SIREN
CONTROL	To program and deprogram one or more (max. 4) remote controls for the car. "PROGRAMMING" to program a remote control. "DEPROGRAMMING" to deprogram a remote control. "DEPROGRAM ALL" to simultaneously deprogram all remote controls.	PROGRAMMING DEPROGRAMMING DEPROGRAM ALL
SELF-ARMING	To select the self-arming function. "OFF" to deselect the function. "AT +15 OFF" the moment when the function is connected. "+15 OFF, DOOR CLOSED" the moment when the function is connected. "TIME BEFORE ACTIV." to select the delay before self-arming. "ACTIVATION TIME" to select the time the function is to be activated.	OFF AT +15 OFF +15 OFF, DOOR CLOSED TIME BEFORE ACTIV. ACTIVATION TIME
SELF-IMMOBILIZING	To select the self-immobilizing function (3 circuit breaking). "ON" to select the function. "OFF" to deselect the function. "TIME BEFORE ACTIV." to select the delay before self-immobilization. "ACTIVATION TIME" to select the time the function is to be activated.	ON OFF TIME BEFORE ACTIV. ACTIVATION TIME
FLASH/BUZZ	Allows the option of changing the configuration of the flash/sound confirmation when one of the remote control buttons is pressed. "ORIGINAL VALUE" gives the same configuration as at delivery. "ADJUSTMENT" allows the option of changing the configuration of the confirmation.	ORIGINAL VALUE ADJUSTMENT

Command menu "PROGRAMMING" (contd.)

ISAT scan tool command	Function	ISAT scan tool display
LOCK DEACTIVATION	Allows the alarm to be armed/disarmed with the key. "OFF" if only the remote control is to be used. "ON" if the car key and the remote control should be able to be used.	OFF ON
DISENGAGE BOOT	Allows the option of opening the tailgate using the key when the alarm is armed. "OFF" if only the remote control is to be used. "ON" if the car key and the remote control should be able to be used.	OFF ON
Siren	Programming for siren with battery back-up. "ON" if the siren is to be included. "OFF" to deselect the siren.	ON OFF

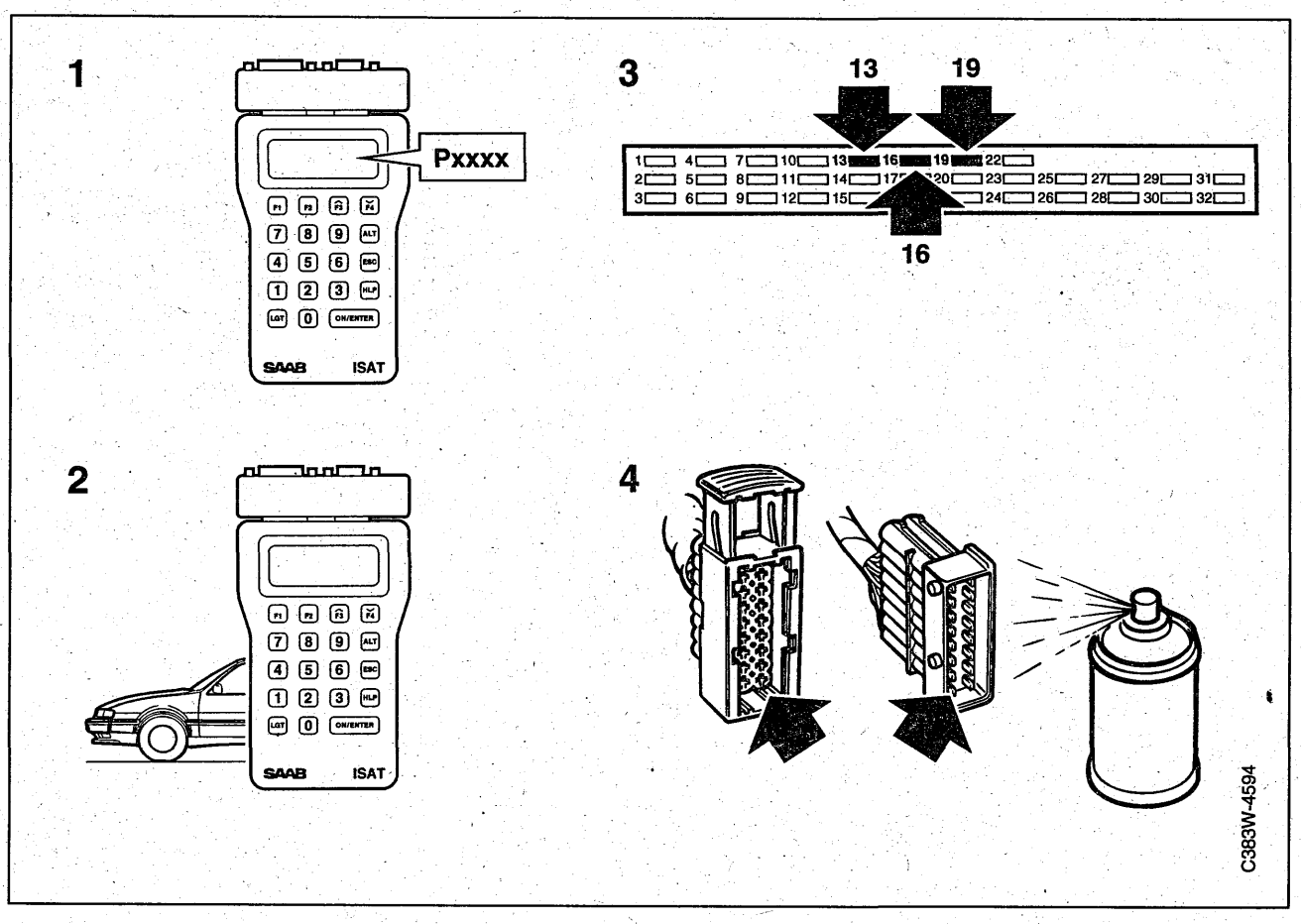
Command menu "ADJUSTMENT"

ISAT scan tool command	Function	ISAT scan tool display
FLASH/BUZZ	To adjust the configuration of the flash/sound confirmation if "ADJUSTMENT" is selected when programming "FLASH/BUZZ". "LOCK" allows adjustment of the confirmation when locking. "UNLOCK" allows adjustment of the confirmation when unlocking. "SEL FLASH TIME (F3)" to adjust the flash confirmation. "SEL SOUND TIME (F3)" to adjust to sound confirmation.	LOCK UNLOCK SEL FLASH TIME (F3) SEL SOUND TIME
PANICALARM	The panic alarm function quickly sets off the alarm when the remote control's left-hand button is pressed for 2.25 seconds. "OFF" to deselect the function. "ON" to select this function.	PANICALARM OFF ON
LUGGAGE AT +15	Allows the possibility of opening the tailgate with the ignition "ON". "OFF" to deselect the function. "ON" to select this function.	LUGGAGE AT +15 OFF ON
SOUND DURATION	Allows the possibility of changing the character of the sound by selecting different sound times. "5 - 10 -15 -20 - 25 - 30 msec"	SOUND DURATION 10 ms

Command menu "READ SYSTEM INFO"

ISAT scan tool command	Function	ISAT scan tool display
SAAB PART NUMBER	Shows the Saab part number for the theft alarm	PART NUMBER: XX XXX XXX
SOFTWARE VERSION	Shows which software version the theft alarm control module is equipped with.	SOFTWARE VERSION: XX XXX XXX
COUNTRY CODE	Shows the selected country code and the option to select another country code.	VALUE IS GERMANY
DATE OF MANUFACT	Shows the date of manufacture of the control module.	DATE OF MANUFACT: XX XX XX

Fault diagnosis schedule



To bear in mind when diagnosing faults

It is not possible to give any general rules for carrying out fault diagnosis in each individual case. Depending on the symptom of the fault and other information available, one method may be best under one set of circumstances but less suited under another set of circumstances.

On the other hand, the following points may act as a guide when conducting fault diagnosis on the theft alarm system.

1 Always start fault diagnosis by reading any diagnostic trouble codes using the ISAT scan tool. Use the command "ALL SYSTEMS" to read all the diagnostic trouble codes. Note the diagnostic trouble codes and save them in the ISAT scan tool internal memory by using the command "SAVE FAULT CODES".

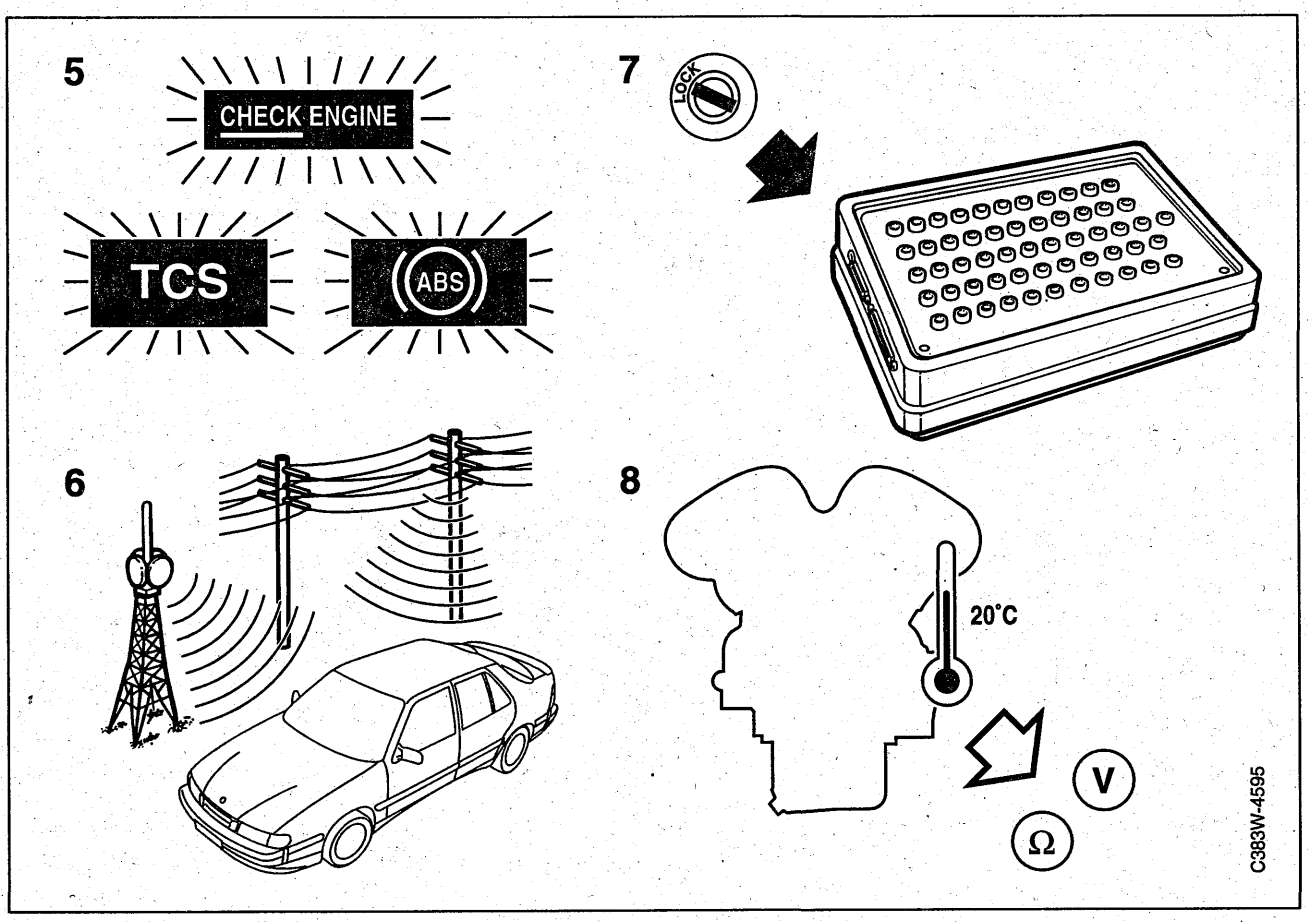
   Internally stored diagnostic trouble codes can be read using the command "RECALL FAULT CODES".

2 Certain fault diagnosis procedures involve unplugging connectors while the ignition is in the ON position. This can result in diagnostic trouble codes. Always therefore erase any diagnostic trouble codes when work is finished. Erase all diagnostic trouble codes by using the "CLEAR" command.

3 Check fuses 13, 16 and 19.

4 Check connectors, especially for oxidized contact pins, gaps, loose contacts or anything else that may negatively affect the connection. If connector problems are suspected, always use contact spray KONTAKT 61 (part no. 45-30 04 520) on the female contacts in the connectors.

Fault diagnosis schedule (contd.)



5 Note whether the malfunction indicator (CHECK ENGINE) lamp lights or if any other warning lamp is lit.

6 Faults may be permanent or intermittent.

A permanent fault continuously meets fault criteria, that is to say that the fault exists.

An intermittent fault temporarily meets fault criteria, that is to say that the fault only exists under certain circumstances. Examples of such circumstances are:

- Faulty connectors (see point 4).
- Electromagnetic interference.
  Interference may be both radiation emitted from the car's own equipment and radiated interference when the car passes particular places where there are strong transmitters, for example at airports, radio and TV masts or high voltage cables.
- Faulty components
  The switch function in relays, solenoids etc. can cause interference due to sparking.

Intermittent faults require careful analysis so that a fault-free components are not changed.

7 In general:

- The BOB is connected with the ignition in the OFF position.
- Connectors are unplugged with the ignition in the OFF position.
- Resistance measurement is done with the ignition in the OFF position.

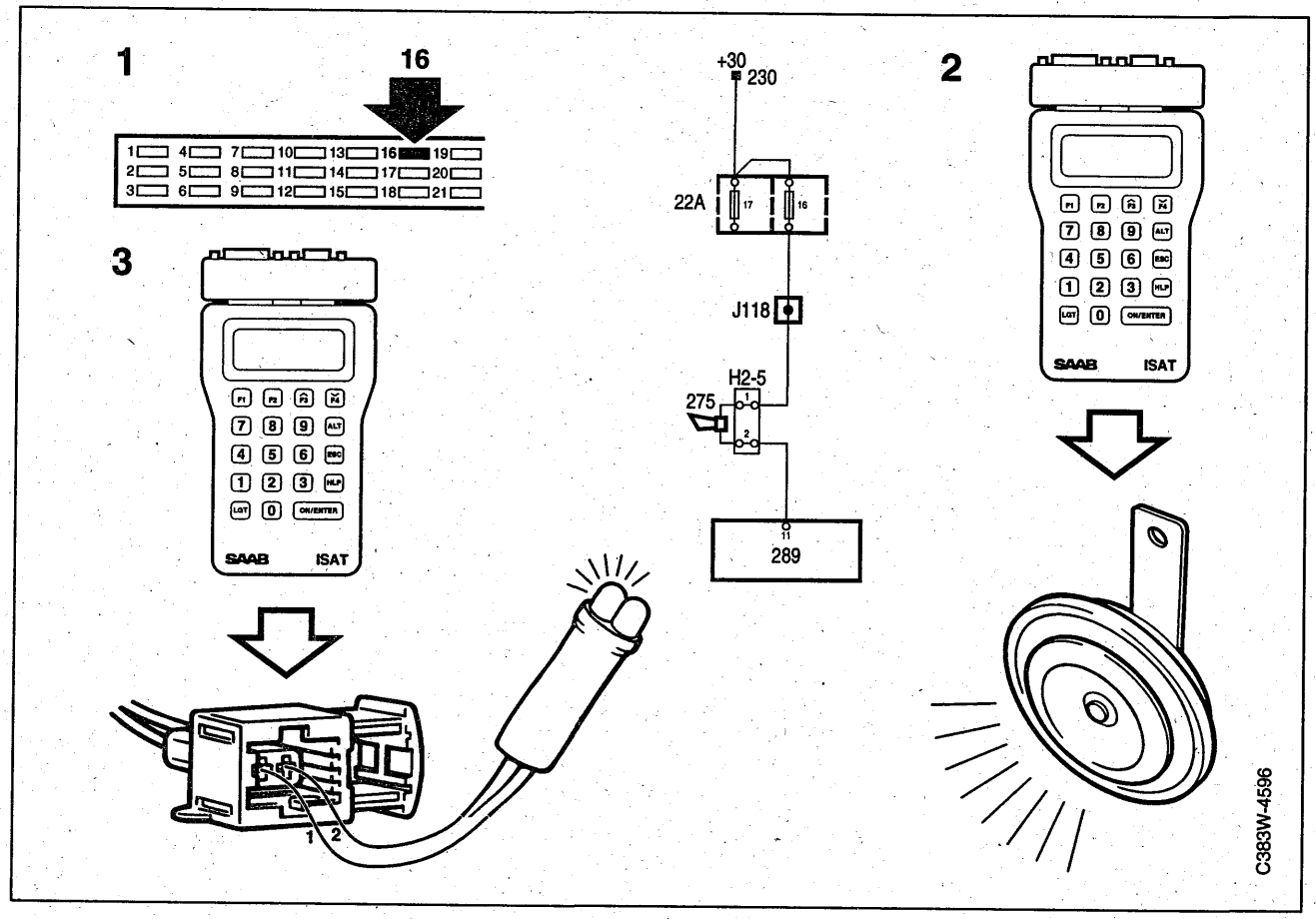
8 Measuring the resistance of valves/relays.

The nominal resistance is specified at 20 °C (68°F). Winding resistance is highly temperature-dependant, and increases with increasing temperature.

Be careful when assessing the result of such Ohm measurements.

Diagnostic trouble code B1193

Horn, open-circuit



Fault symptom

The horn does not work
The LED flashes during the delay period

Conditions

Open-circuit registers diagnostic trouble code

Action

1 **Check fuse 16**

2 **Check to see if the horn works**
Connect the ISAT scan tool.
Select "ACTIVATE".
Select "HORN".
Select "ON".

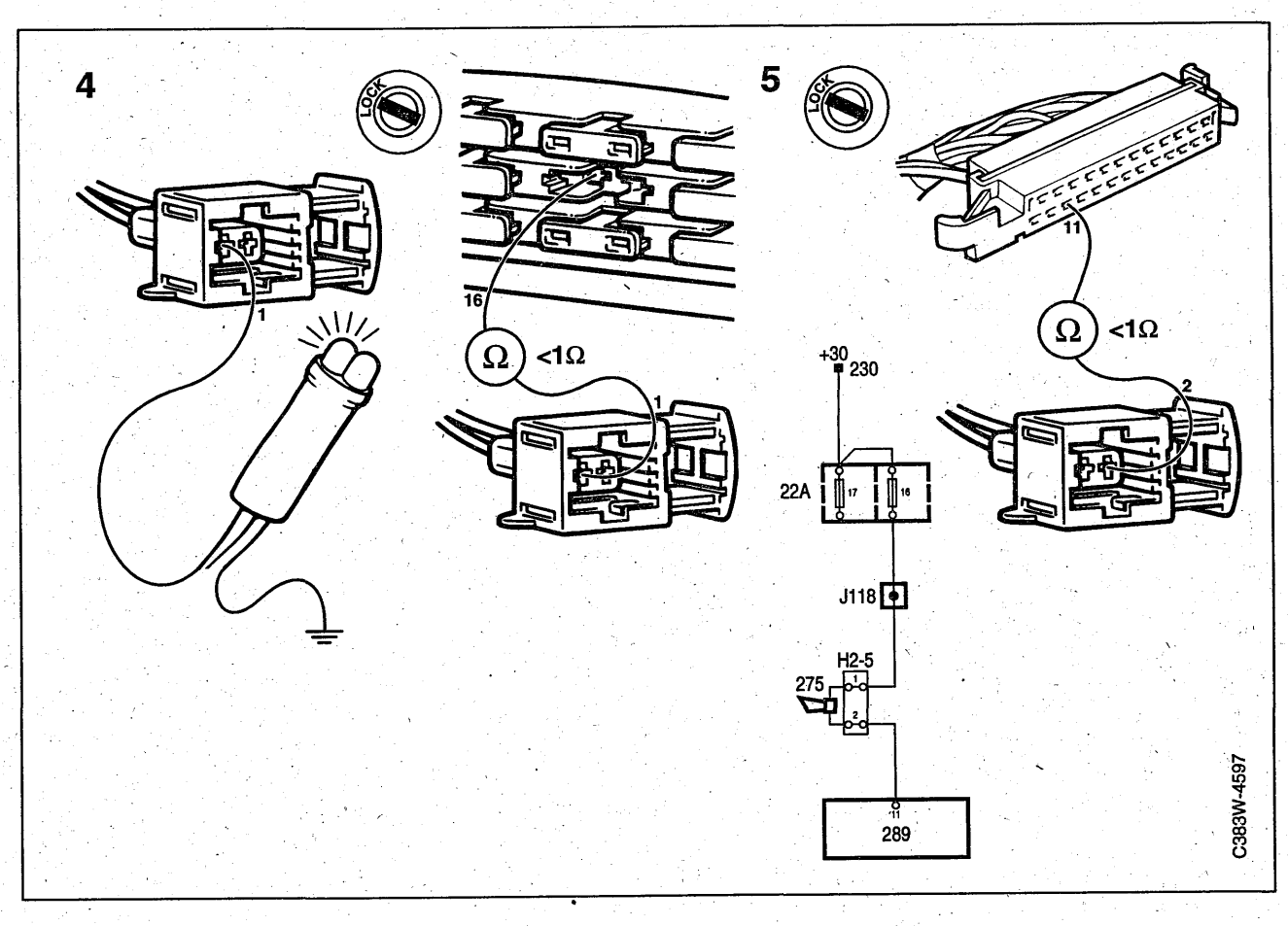
If the horn functions correctly, proceed to point 6. If not, proceed to point 3.

3 **Check the voltage supply to the horn**
Disconnect the horn.
Connect the test lamp in the 2 pin horn connector.
Repeat the ISAT scan tool command as in point 2.
When "ON" is selected, the test lamp should light.

If the test lamp lights, change the horn.
If not, proceed to point 4.

Diagnostic trouble code B1193 (contd.)

Horn, open-circuit



Action (contd.)

4 **Check the horn +30 supply**
Connect the test lamp between the horn 2 pin connector , pin 1 and a safe grounding point.
The test lamp should light.

If the test lamp does not light, check the continuity of the cable assembly between connector pin 1 and fuse 16 and take action on this.
If the test lamp lights, proceed to point 5.

5 **Check the horn grounding**
Control module, pin 11 grounds the horn when it is activated.
Conduct a continuity test on the cable assembly between connector pin 2 and control module pin 11.
The resistance should be <1 Ohm.

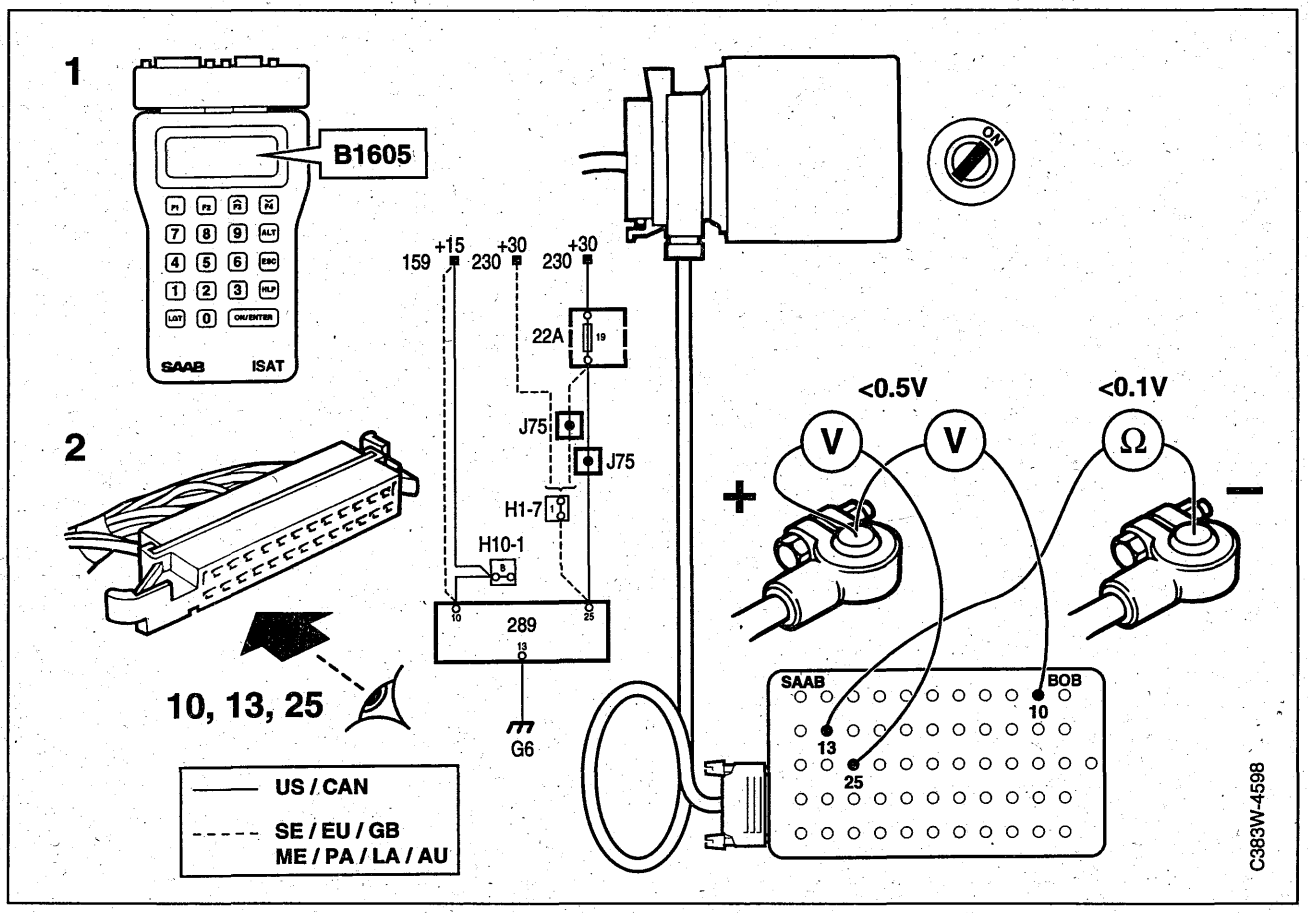
If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 6.

6 **Check if a diagnostic trouble code is registered**
Erase the diagnostic trouble code, test drive the car and check to see if the diagnostic trouble code is re-registered.

If the diagnostic trouble code is registered, proceed to page 85.
If the diagnostic trouble code is not registered, the action taken is correct or the fault is of intermittent type.

Diagnostic trouble code B1605

Fault in the electronic control module



Fault symptom

The theft alarm is not working at all
Unspecified (due to an internal memory fault/programming fault, different functions can be affected)

Conditions

Electronic control module fault (internal) generates diagnostic trouble code

Action

1 **Check if a diagnostic trouble code is registered**
Erase the diagnostic trouble code, test drive the car and check to see if the diagnostic trouble code is re-registered.

If the diagnostic trouble code is registered, proceed to point 2.
If the diagnostic trouble code is not registered, the fault is intermittent.

2 **Check the theft alarm control module connector**
Remove the control module.

- Check the connector for loose contact sleeves.
- Check the control module ground and voltage-supply:

  pin 25 (+30)
  pin 10 (+15)
  pin 13 (GND)

Refit the control module, proceed to point 3.

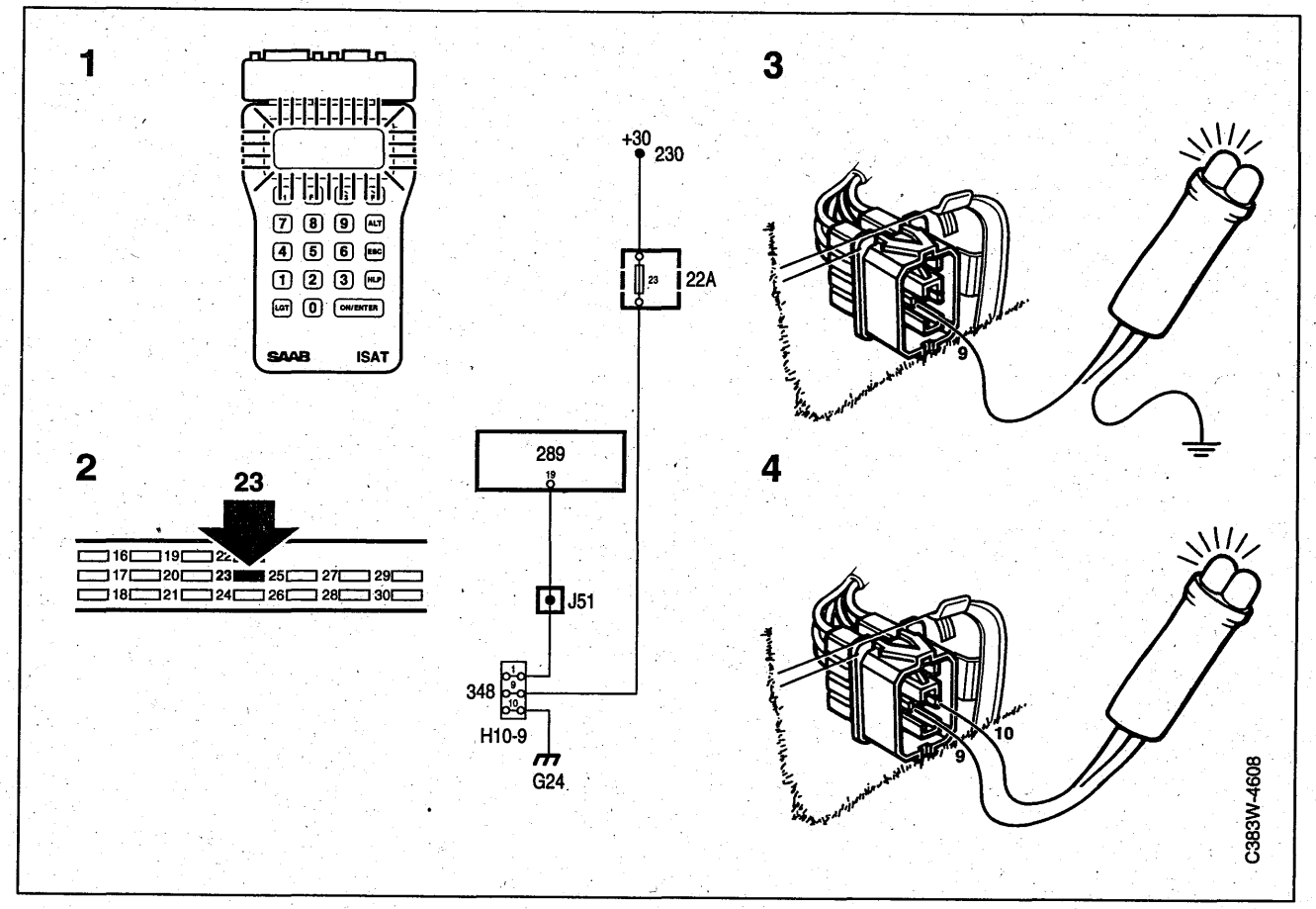
3 **Check if a diagnostic trouble code is registered**
Erase the diagnostic trouble code, test drive the car and check to see if the diagnostic trouble code is re-registered.

If the diagnostic trouble code is registered, proceed to page 85.
If the diagnostic trouble code is not registered, the action taken is correct or the fault is of intermittent type.

Fault diagnosis without diagnostic trouble codes

Fault symptom	Function	see page
ISAT scan tool does not make contact with the control module	Fault diagnosis, data link connector	49
Starter motor not working The alarm does not trip when the theft alarm is armed The starter motor runs at different ignition positions	Fault diagnosis, starter immobilizer +50	51
The alarm is not set off when the ignition is switched on	Fault diagnosis, +15 supply	54
Fuel pump relay not working	Fault diagnosis, +15/+30 supply to fuel pump relay	56
LED not lighting	Fault diagnosis, LED	58
Doors disconnected from alarm	Fault diagnosis, door switches in central locking system	60
Alarm not set off if the hood is opened when the alarm is armed	Engine, hood switch	62
Remote control not working	Fault diagnosis, remote control	64
Glass breakage sensor not working	Fault diagnosis, glass breakage sensor	65
Direction indicators lit continuously/do not light	Fault diagnosis, direction indicators	67
XThe horn sounds continuously	Fault diagnosis, horn	69
Tailgate disconnected from alarm LED flashes during delay period	Fault diagnosis, luggage compartment illumination switch	70
Not possible to disarm tailgate/driver door using key	Fault diagnosis, remote control, tailgate opening	72
Central locking system, tailgate	Fault diagnosis, microswitch in tailgate, opening with key	75
Door indication not working when driver door opened	Fault diagnosis, door indication, driver door	78
The alarm is not armed after the interior lighting with time delay	Fault diagnosis, delayed arming due to interior lighting with time delay	81
Alarm sounds falsely	Fault diagnosis false alarm	82

Fault diagnosis, data link connector



Fault symptom

No ISAT scan tool communication.

Action

1 **Check the ISAT scan tool connection**
Connect the ISAT scan tool
The ISAT scan tool display should light.

If the display lights, proceed to point 5.
If not, proceed to point 2.

2 **Check fuse 23.**

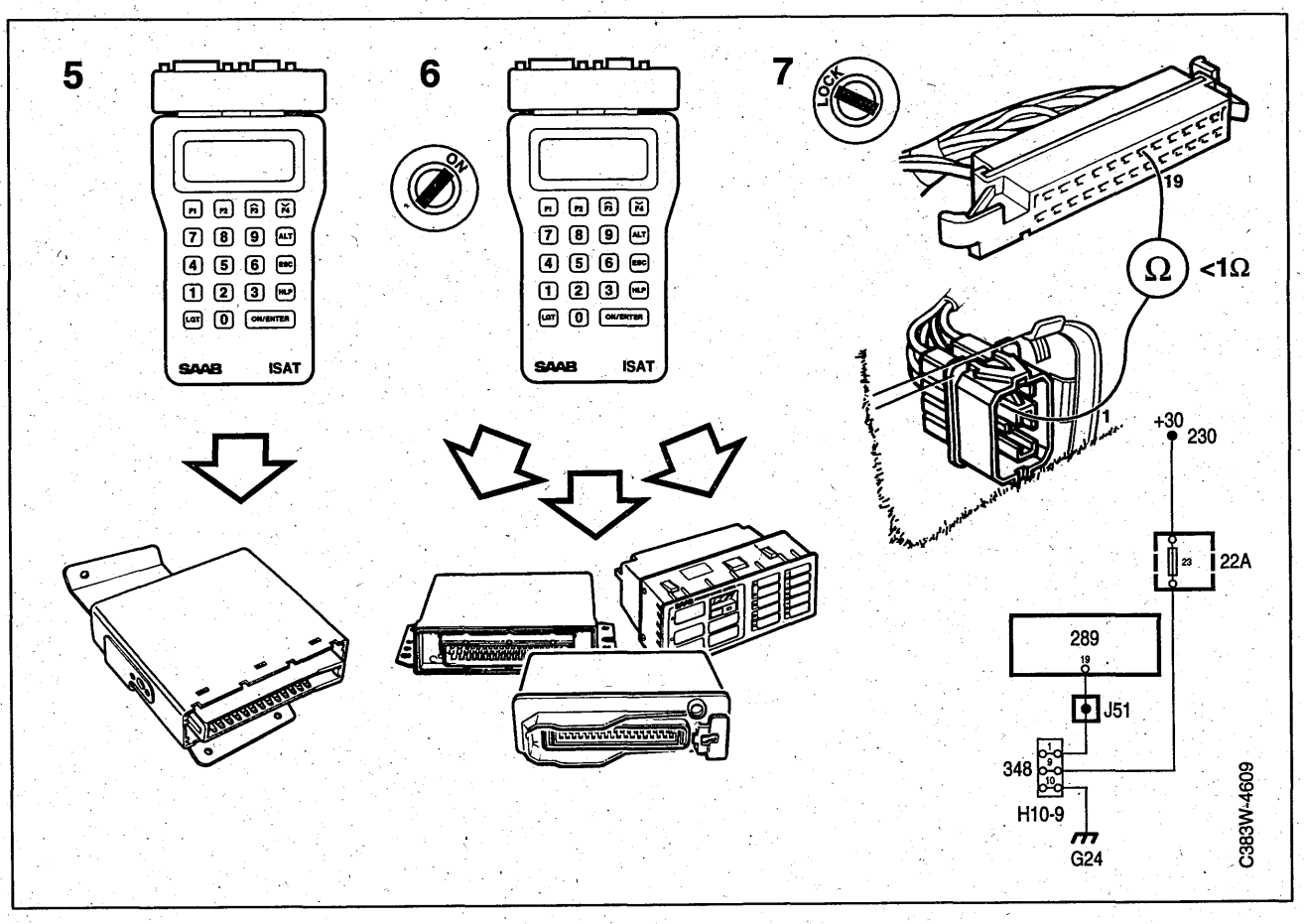
3 **Check +30 supply to the data link connector**
Connect the test lamp between pin 9 in the data link connector and a safe grounding point.
The test lamp should light if there is +30.

If the lamp lights, proceed to point 4. If not, check the cable assembly between pin 9 and fuse 23 and if necessary take action on this. If there is no fault in the cable assembly, continue fault diagnosis in Service Manual 3:2 Electrical system, "Power supply +30".

4 **Check the ground connection in the data link connector**
Connect the test lamp between pins 9 and 10 in the data link connector.
The test lamp should light if there is a ground connection.

If the lamp lights, check the ISAT scan tool.
If not, take action on the cable assembly between pin 10 and grounding point G24.

Fault diagnosis, data link connector (contd.)



Action (contd.)

5 **Check the ISAT scan tool contact with the theft alarm**
Note that the theft alarm must not be armed.
Select "ANTI-THEFT ALARM".
The ISAT scan tool should show the menu for the theft alarm, see page 36.

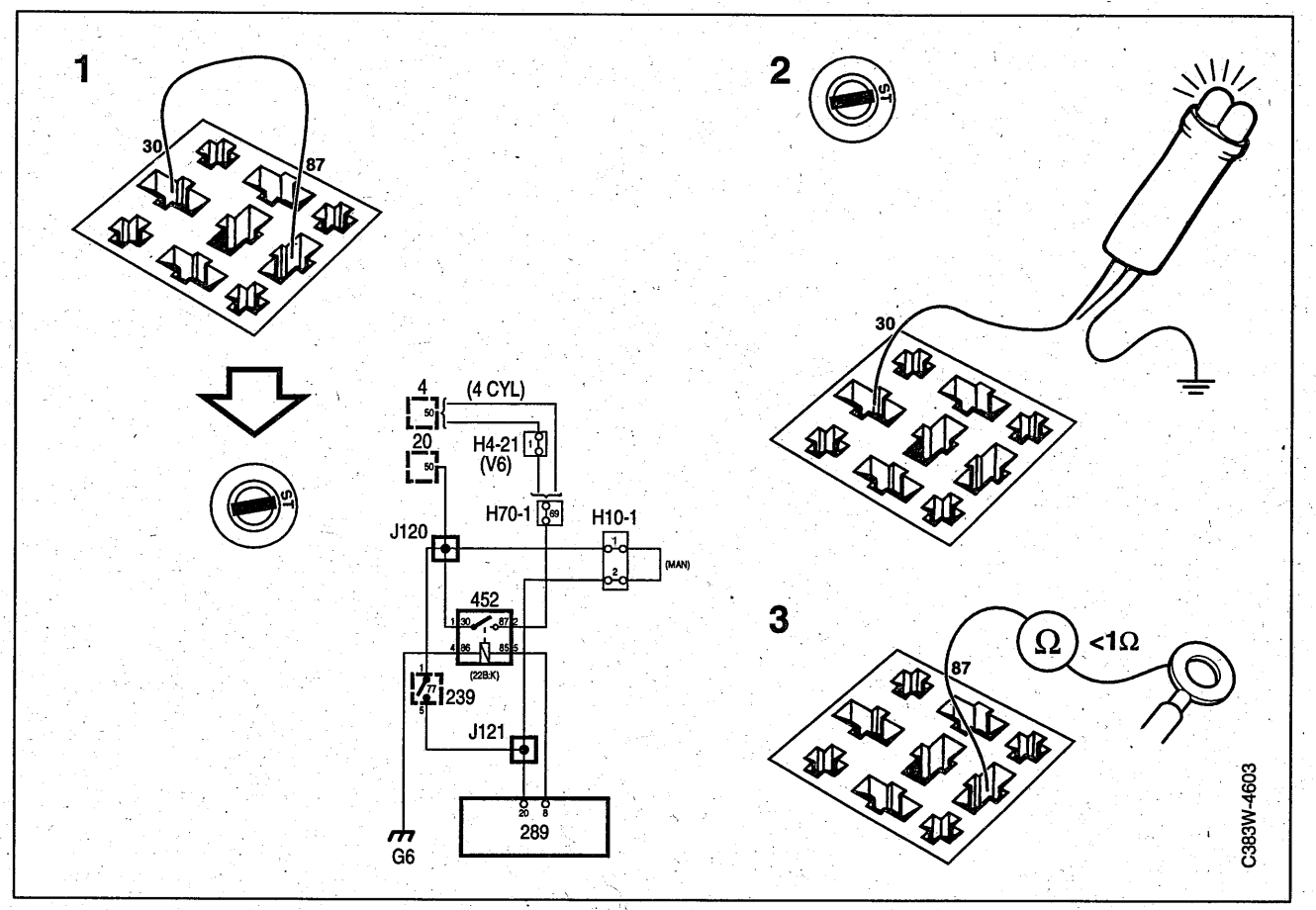
If contact is made, the fault is of intermittent type.
Proceed to page 85.
If not, proceed to point 6.

6 **Check the ISAT scan tool contact with another system**
Select another system that the car is equipped with.
The ISAT scan tool should display the menu for the system selected.
If contact is made, proceed to point 7.
If not, check the ISAT scan tool.

7 **Check the cable assembly**
Conduct a continuity test on the cable assembly between data link connector pin 1 and the theft alarm control module, pin 19.
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to page 85.

Fault diagnosis, starter immobilizer -I50



Fault symptom

The starter motor does not work
The alarm is not set off in the start position with the alarm armed
The starter motor runs at different ignition positions

Important

If the LED flashes, the car may be self-immobilized.

Action

1 **Check the -I50 supply to the starter motor**
Disconnect the starter relay.
Connect jumper between pins 30 and 87 in the relay holder.
Turn the ignition key to the "ST" position (-I50).

If the starter motor works, proceed to point 4.
If not, proceed to point 2.

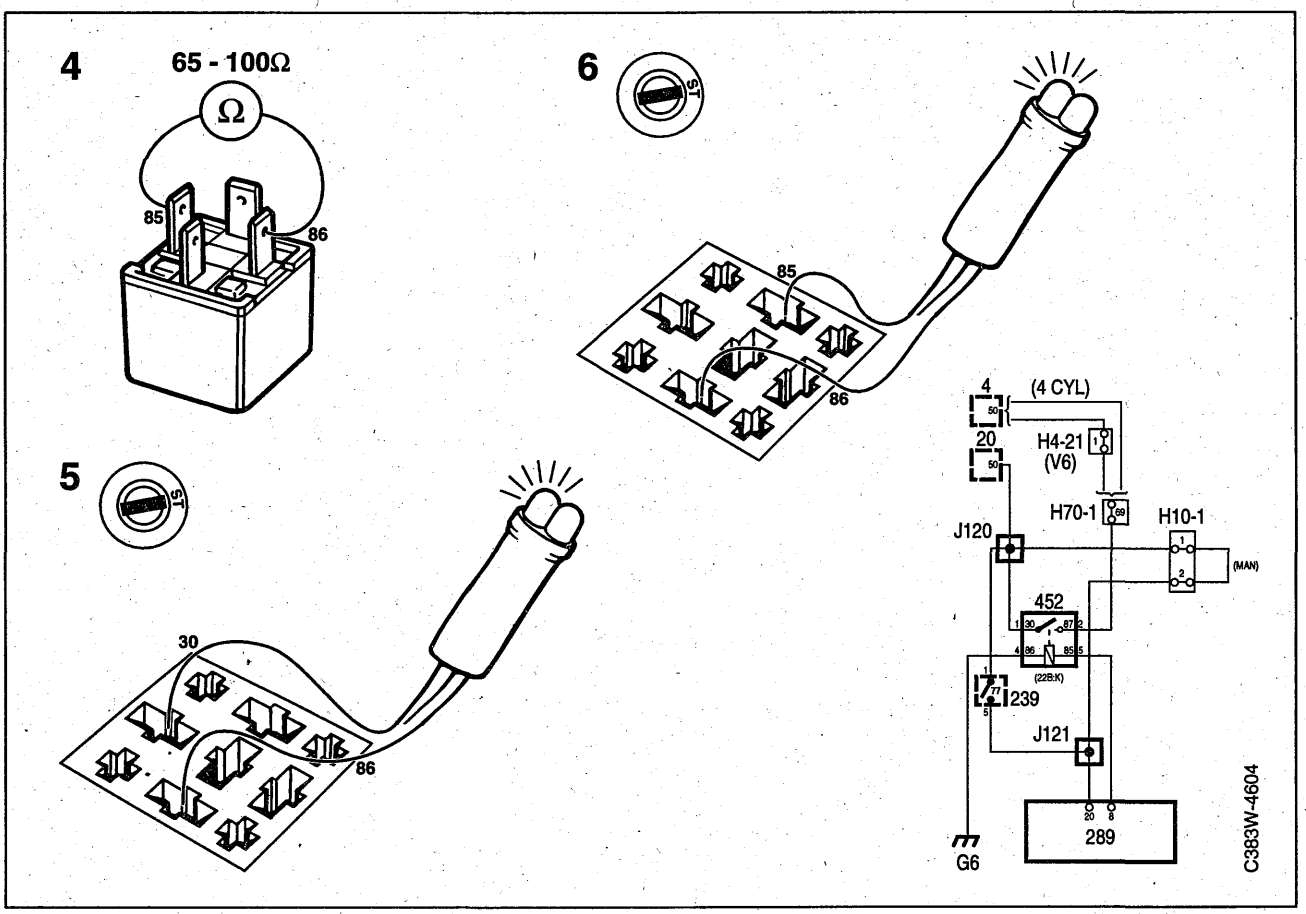
2 **Check the -I50 supply to the starter relay**
Connect the test lamp between pin 30 in the relay holder and a safe grounding point.
Turn the ignition key to the "ST" position (-I50).

If the test lamp lights, proceed to point 3.
If not, conduct a continuity test on the cable assembly between the starter relay connection, pin 30 and the ignition switch.

3 **Check the cable assembly to the starter motor**
Conduct a continuity test on the cable assembly between starter relay connection, pin 87 and starter motor, connection 50.
The resistance should be <1 Ohm.

If the resistance is incorrect, check the cable assembly including connectors and take the necessary action.
If the cable assembly is fault-free, check the starting system.
See Service Manual 3:2 Electrical system, "Starting and charging systems".

Fault diagnosis, starter motor interlock -I50 (contd.)



Action (contd.)

4 **Check the starter relay**
Measure the resistance over the relay winding.
Measure the resistance between relay pins 85 and 86.
The resistance should be 65 — 100 Ohms.

If the resistance is incorrect, change the relay.
If the resistance is correct, proceed to point 5.

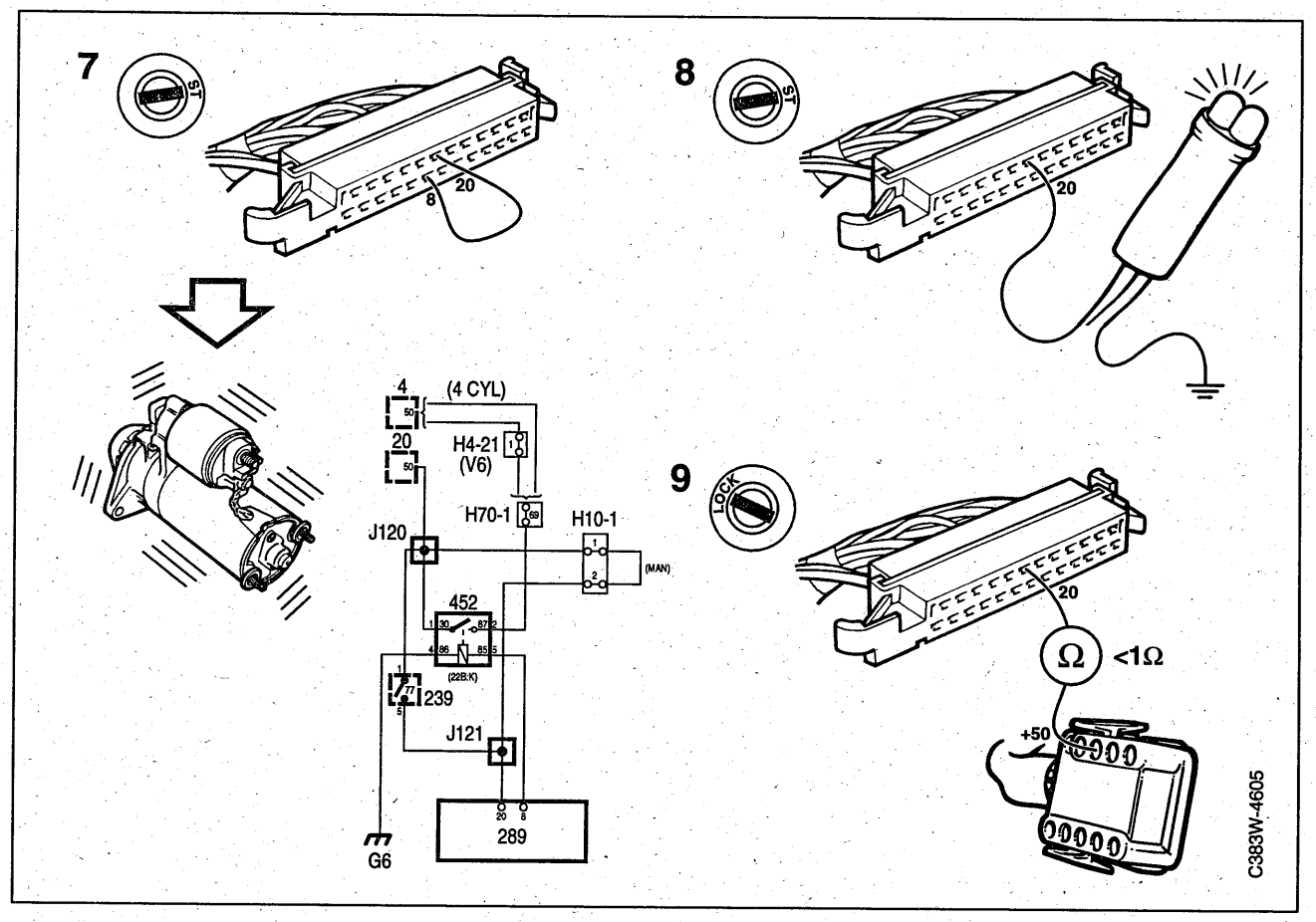
5 **Check the starter relay ground connection**
Connect the test lamp between pins 30 and 86 in the relay holder.
Turn the ignition key to the "ST" position.

If the test lamp lights, proceed to point 6.
If not, check the cable assembly including grounding point G6 and take the necessary action.

6 **Check the voltage supply to the starter relay**
Connect the test lamp between pins 86 and 85 in the relay holder.
Turn the ignition key to the "ST" position.

If the test lamp lights, change the starter relay.
If not proceed to point 7.

Fault diagnosis, starter motor interlock +50 (contd.)



Action (contd.)

7 **Check the function of the electronic control module**
Refit the starter relay.
Remove the control module.
Connect jumper between pin 20 and pin 8 in the control module connector.
Turn the ignition key to the "ST" position (+50).

If the starter motor works, proceed to point 10.
If not, proceed to point 8.

8 **Check the +50 supply to the control module**
Connect the test lamp between a safe grounding point and the control module connector, pin 20.
Turn the ignition key to the "ST" position (+50).

If the test lamp lights, check the cable assembly between control module connector, pin 8 and starter relay, pin 85 and take the necessary action.
If not, proceed to point 9.

9 **Check the cable assembly**
(cars with manual gearbox)
Conduct a continuity test on the cable assembly between the control module connector, pin 20 and the ignition switch +50, including all connectors, and take the necessary action.

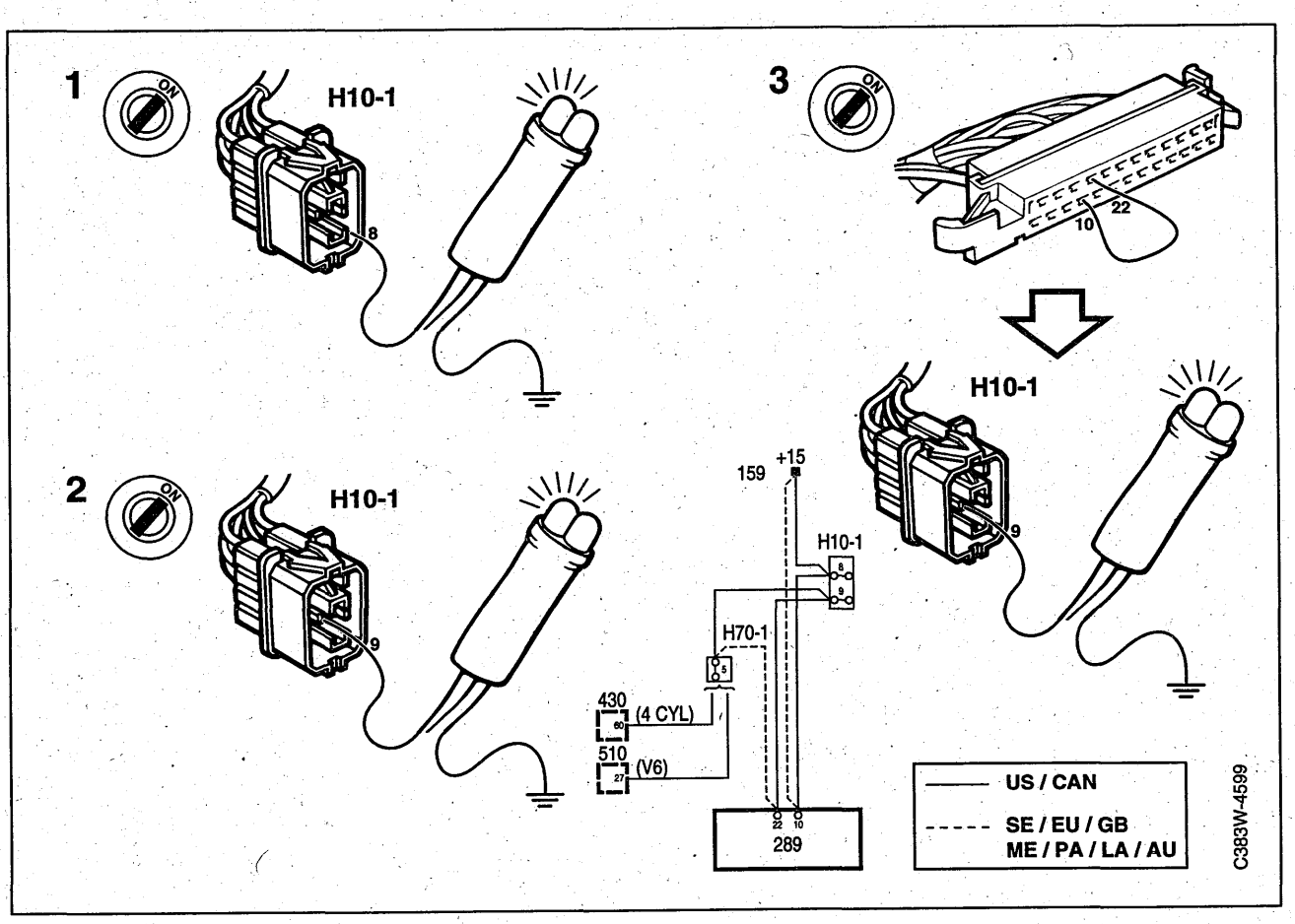
(Cars with automatic transmission)
Conduct a continuity test on the cable assembly between the control module connector, pin 20 and the ignition switch +50, including the starting interlock switch, and take the necessary action.

Important
The starting interlock contacts are closed in transmission range positions P and N, and open in all other transmission range positions.

10 **Final test**
Start the car and check if the fault symptom remains.

If the problem remains, proceed to page 85.

Fault diagnosis, +15 supply



Fault symptom

The alarm is not set off when the ignition is switched on and the alarm is armed.

Action

1 **Check +15 supply to the control module**
Connect the test lamp between pin 8 in connector H10-1 and a safe grounding point.
Ignition at "ON" (+15).
The test lamp should light.

If the test lamp lights, proceed to point 2.
If not, check the cable assembly between connector H10-1, pin 8 and power supply +15 and take the necessary action as described in Service Manual 3:2.

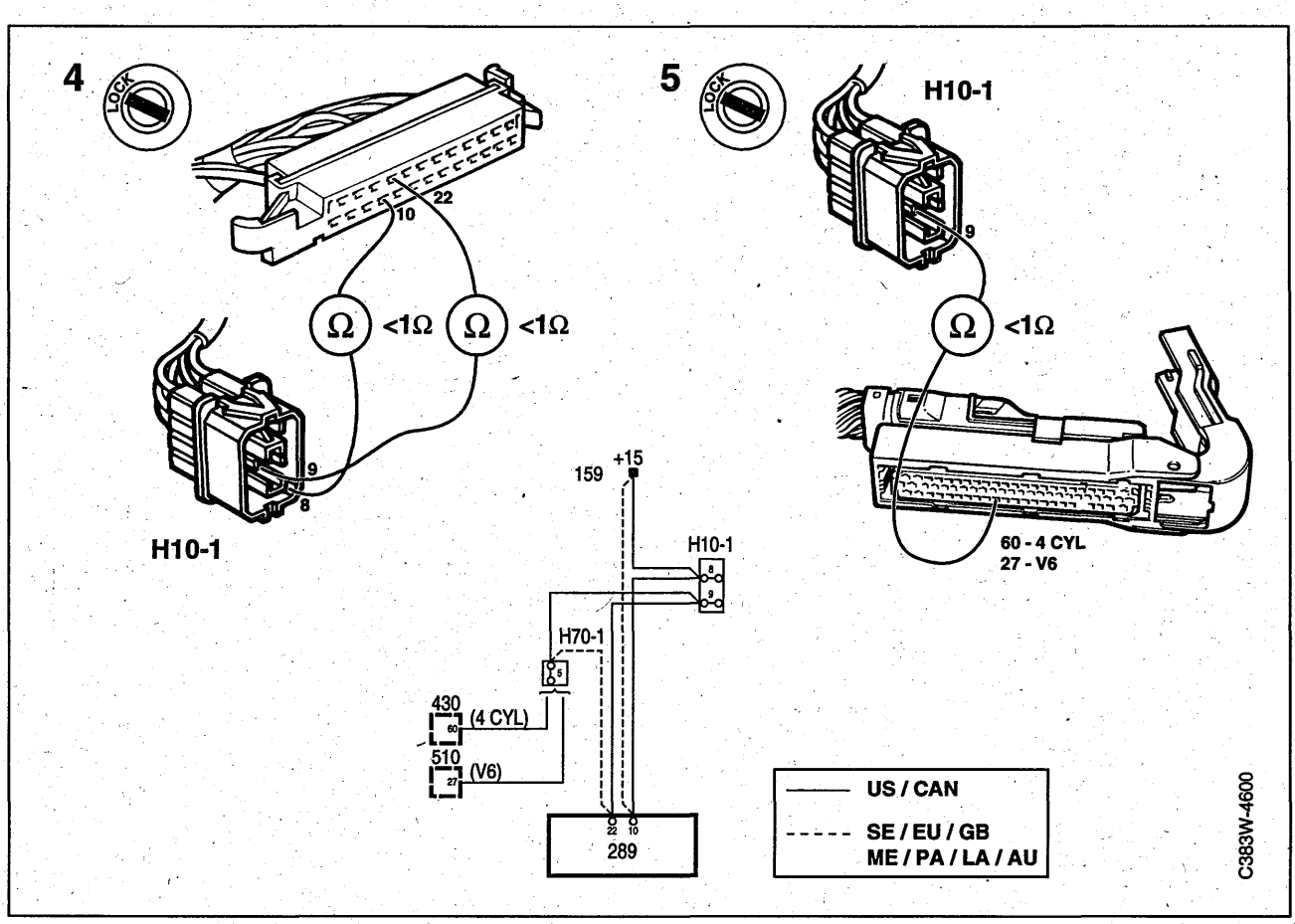
2 **Check +15 supply to the engine control system**
Connect the test lamp between pin 9 in connector H10-1 and a safe grounding point.
Ignition at "ON" (+15).
The test lamp should light.

If the lamp lights, proceed to point 5.
If not, proceed to point 3.

3 **Check the function of the electronic control module**
Remove the theft alarm control module.
Connect jumper between pin 10 and pin 22 in the control module connector.
Connect the test lamp between pin 9 in connector H10-1 and a safe grounding point.
Ignition at "ON" (+15).
The test lamp should light.

If the test lamp lights, proceed to point 6.
If not, proceed to point 4.

Fault diagnosis, +15 supply (contd.)



Action (contd.)

4 **Check the cable assembly**
Conduct a continuity test and take the necessary action on the cable assembly between:

- connector H10-1, pin 8 and the theft alarm control module, pin 10.
- connector H10-1, pin 9 and the theft alarm-control module, pin 22.

The resistance should be <1 Ohm.

5 Conduct a continuity test on the cable assembly between:

EU
- the control module connector, pin 22 and Trionics connector, pin 60 (4-cyl cars).
- the control module connector, pin 22 and Motronics connector, pin 27. (6-cyl cars)

US/CAN
- connector H10-1, pin 9 and Trionics connector, pin 60. (4-cyl cars)
- connector H10-1, pin 9 and Motronics connector, pin 27. (6-cyl cars)

The resistance should be <1 Ohm.

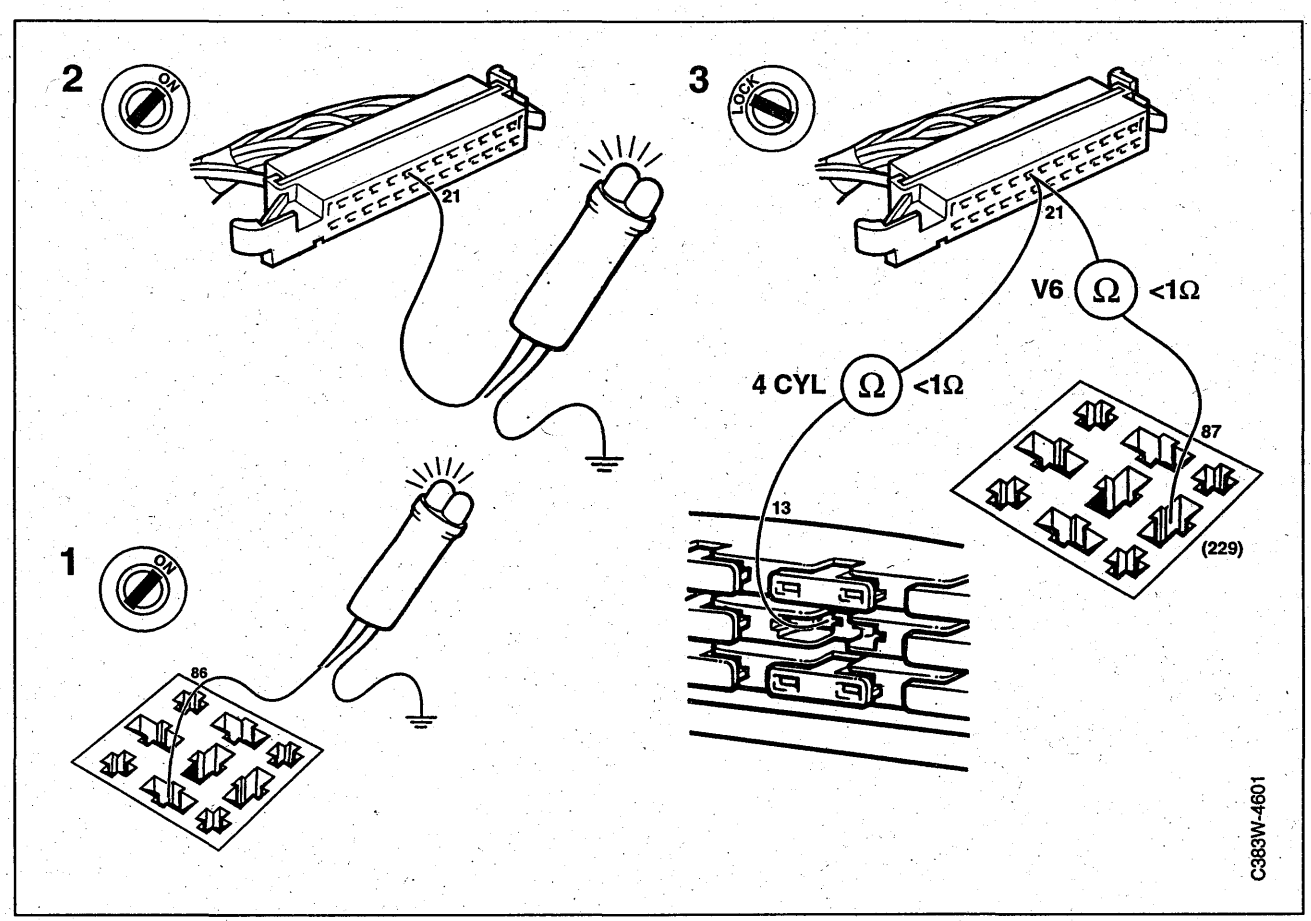
If the resistance is incorrect, remedy the cable assembly including connectors.

If the resistance is correct, continue fault diagnosis in Service Manual 2:7, "Action before changing a control module".

6 **Final test**
Start the car and check if the fault symptom remains.

If the problem remains, proceed to page 85.

Fault diagnosis, +15/+30 supply to fuel pump relay



Fault symptom

Fuel pump relay not working

Important

In 4-cyl cars, the fuel pump relay is supplied with +15, and
in 6-cyl cars, the fuel pump relay is supplied with +30.

Action

1 **Check the fuel pump relay voltage supply**
Unplug the fuel pump relay.
Connect the test lamp between the relay holder, pin 86 and a safe grounding point.
The alarm should be disarmed.
Ignition at "ON" (+15).
The test lamp should light.

If the test lamp lights, continue fault diagnosis in Service Manual 2:7 "Engine control system", Trionic (4-cyl cars) or Motronic (6-cyl cars).
If the test lamp does not light, proceed to point 2.

2 **Check +15/+30 supply to the control module**
Remove the theft alarm control module.
Connect the test lamp between pin 21 in the control module connector and a safe grounding point.
Ignition at "ON" (+15).
The test lamp should light.

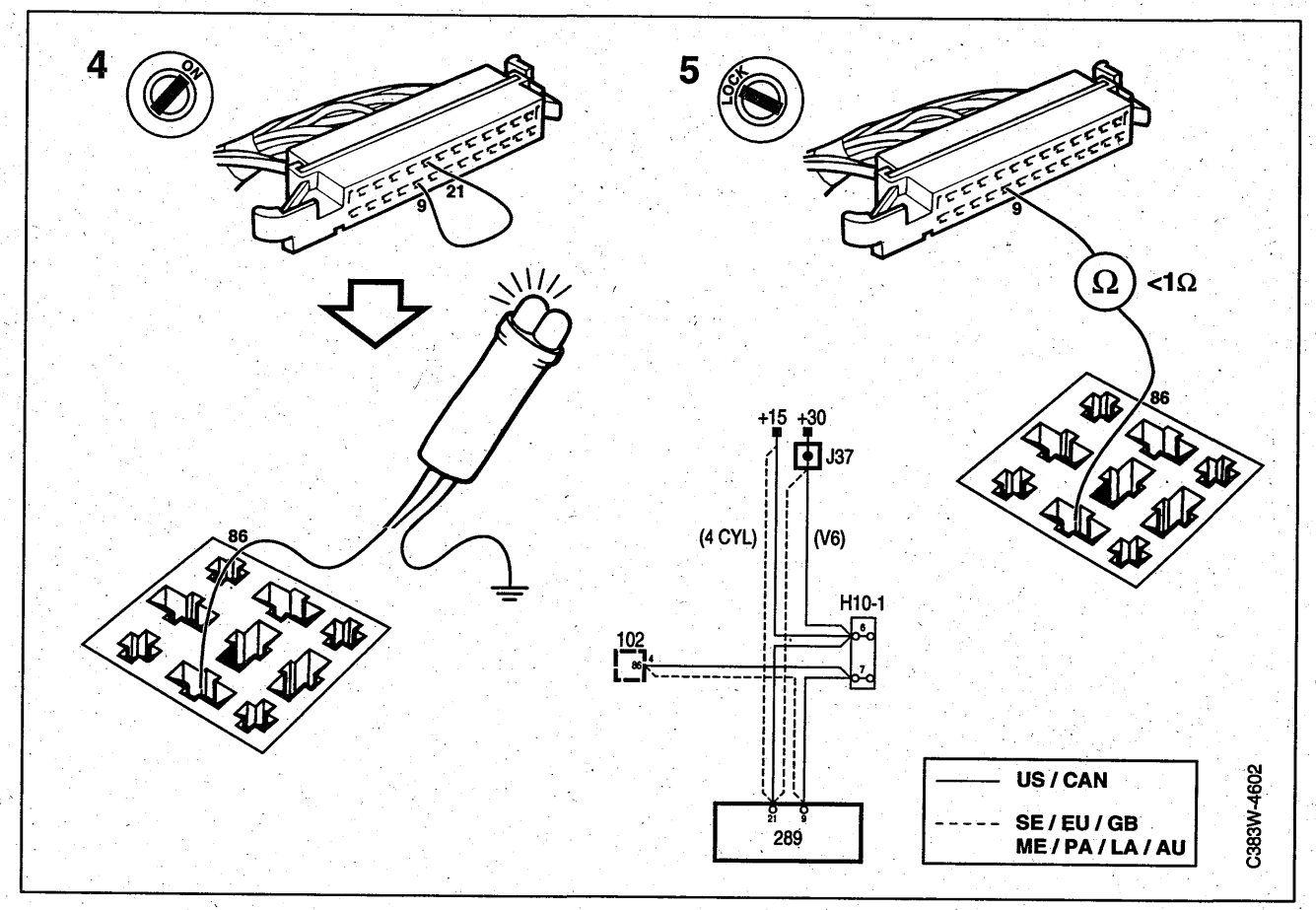
If the lamp lights, proceed to point 4. If not, proceed to point 3.

3 **Check the cable assembly**
Conduct a continuity test and remedy the cable assembly between the control module connector, pin 21 and:

- main relay, pin 87 (6-cyl)
- fuse 13 (4-cyl)

The resistance should be <1 Ohm.

Fault diagnosis, +15/+30 supply to the pump relay (contd.)



Action (contd.)

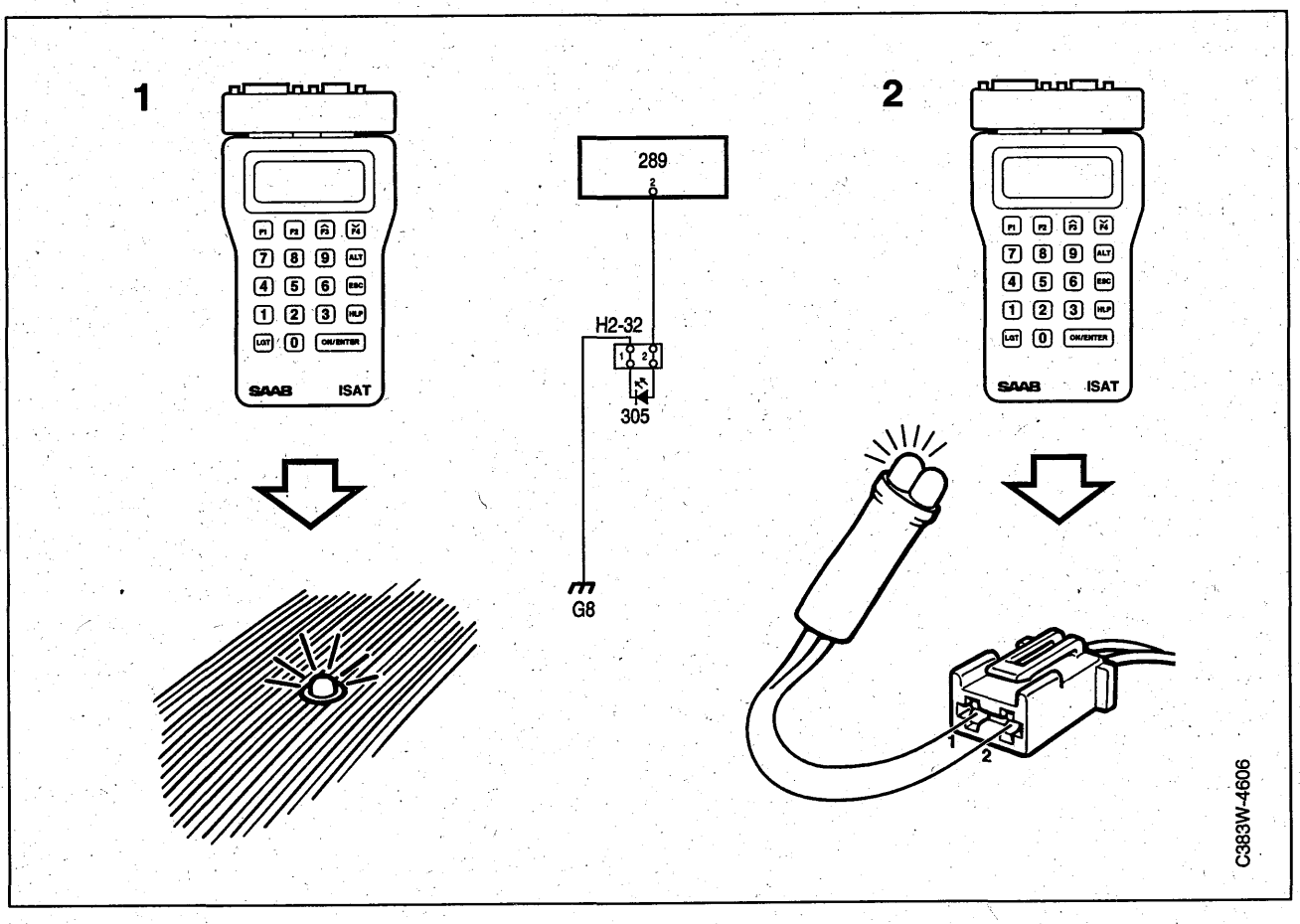
4 **Check the function of the electronic control module**
Connect jumper between pin 21 and pin 9 in the control module connector.
Unplug the fuel pump relay.
Connect the test lamp to connector pin 86 and a safe grounding point.
Ignition at "ON" (+15).
The test lamp should light.

If the lamp lights, proceed to point 6.
If not, proceed to point 5.

5 **Check the cable assembly**
Conduct a continuity test and remedy the cable assembly between the control module connector, pin 9 and the fuel pump relay, pin 86.
The resistance should be <1 Ohm.

6 **Final test**
Start the car and check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, LED



Fault symptom

LED does not light

Action

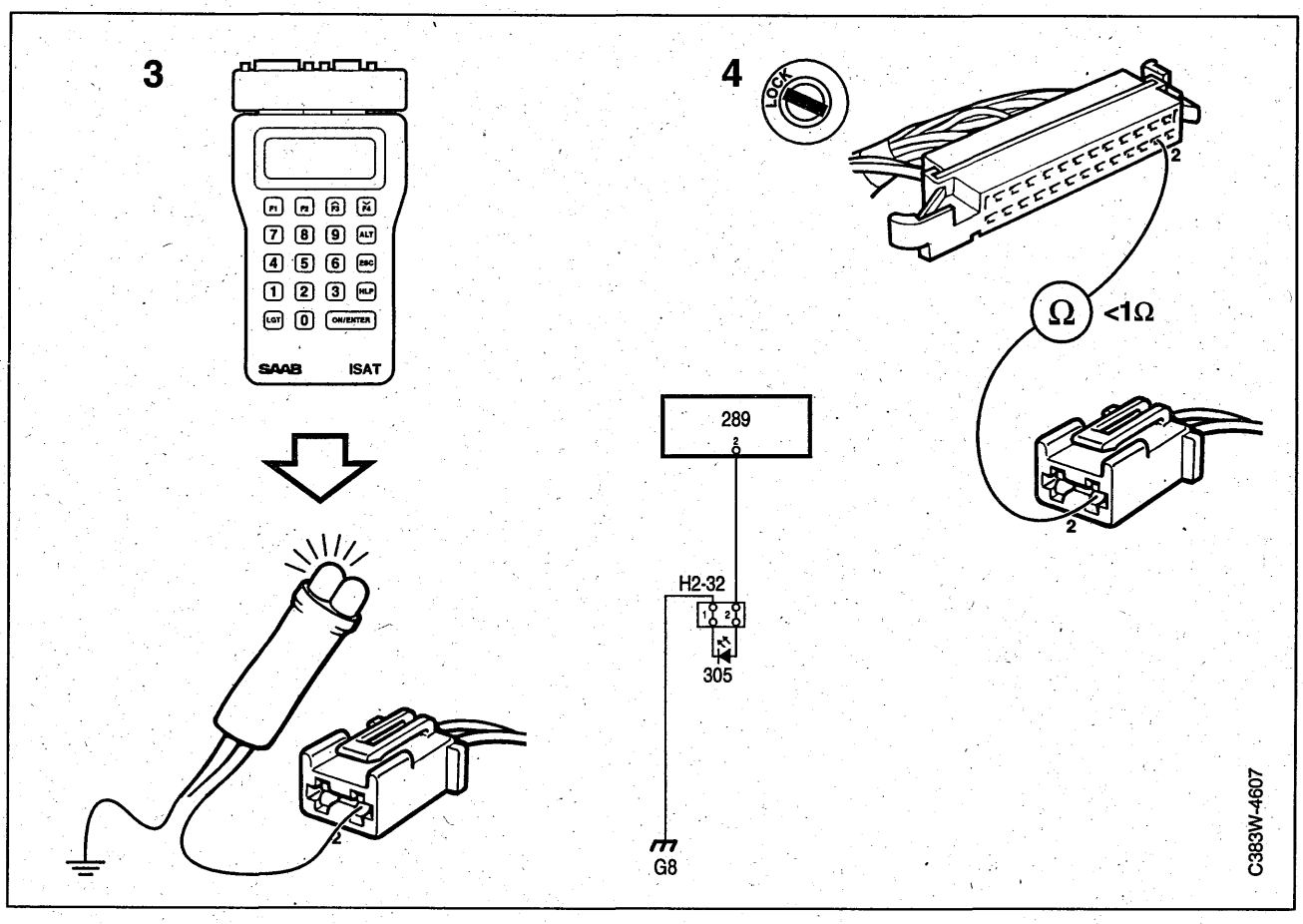
1 **Check to see if the LED works**
Connect the ISAT scan tool.
Select "ACTIVATE".
Select "LED"
Select "ON".
The LED should light.

If the LED lights, the fault is of intermittent character,
proceed to point 5.
If not, proceed to point 2.

2 **Check the voltage supply to the LED**
Disconnect the LED.
Connect the test lamp to the LED's 2 pin connector.
Repeat the ISAT scan tool command as in point 1.
The test lamp should light.

If the test lamp lights, change the LED.
If not, proceed to point 3.

Fault diagnosis, LED (contd.)



Action (contd.)

3 **Check the voltage supply to the LED**
Connect the test lamp between the LED's 2 pin connector, pin 2 and a safe grounding point.
Repeat the ISAT scan tool commands as in point 1.
The test lamp should light.

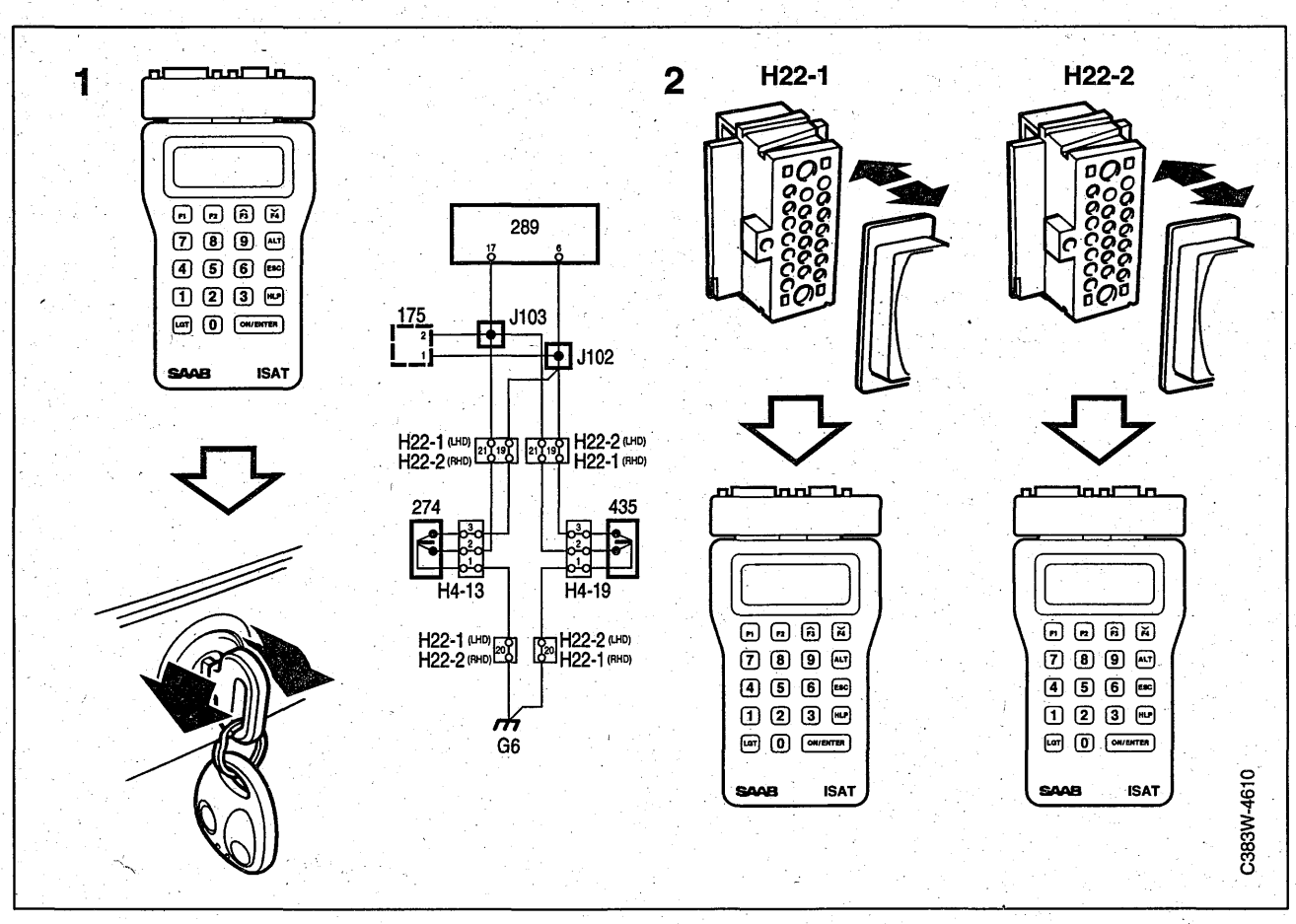
If the test lamp does not light, proceed to point 4.
If the test lamp lights, remedy the ground lead between the LED's 2 pin connector, pin 1 and grounding point G8.

4 **Check the cable assembly**
Conduct a continuity test on the cable assembly between the LED connector, pin 2 and the control module, pin 2.
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 5.

5 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, door switches in central locking system



Fault symptom

Central locking system not working

Action

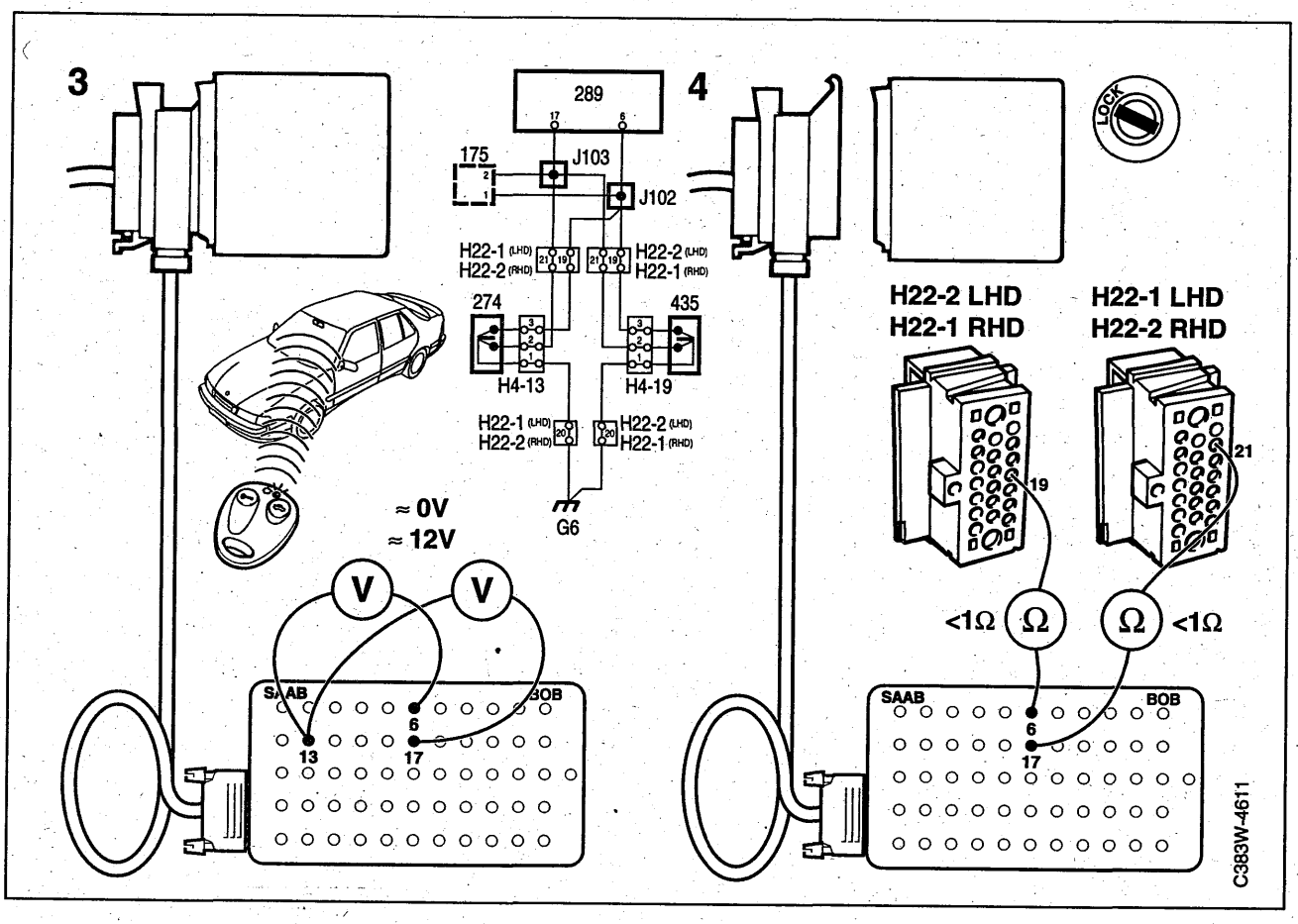
1 **Check the function of the central locking system**
Connect the ISAT scan tool.
Select "READ VALUES"
Select "LOCK SIGNAL" or "UNLOCK SIGNAL".
Lock or unlock the central locking system using the door key lock.
The ISAT scan tool should display "INACTIVE" in the key's normal position and "ACTIVE" when the key is turned.

If the ISAT scan tool has the correct display for locked or unlocked central locking system, proceed to point 5.
If not, proceed to point 2.

2 **Check the function of the central locking system (contd.)**
Unplug connector H22-1.
Select "LOCK SIGNAL" or "UNLOCK SIGNAL".
When the connector is open, the ISAT scan tool should display "INACTIVE".
same ISAT scan tool command again.
When the connector is open, the ISAT scan tool should display "ACTIVE".

If the ISAT scan tool displays "INACTIVE", proceed to point 3.

Fault diagnosis, door switches in central locking system (contd.)



Action (contd.)

3 **Check the voltage levels**
Connect the BOB.
Check the voltage by measuring between:

- control module, pin 17 and pin 13 when locking the central locking system.
- control module, pin 6 and pin 13 when unlocking the central locking system.

The voltage should be BPV for about 750 ms and then 0 V.

If the voltage is correct, proceed to point 5.
If the voltage is incorrect, proceed to point 4.

4 **Check the cable assembly**
Conduct a continuity test on the cable assembly between:

- control module, pin 17 and
  connector H22-1, pin 21 (LHD)
  connector H22-2, pin 21 (RHD)
- control module, pin 6 and
  connector H22-2, pin 19 (LHD)
  connector H22-1, pin 19 (RHD)

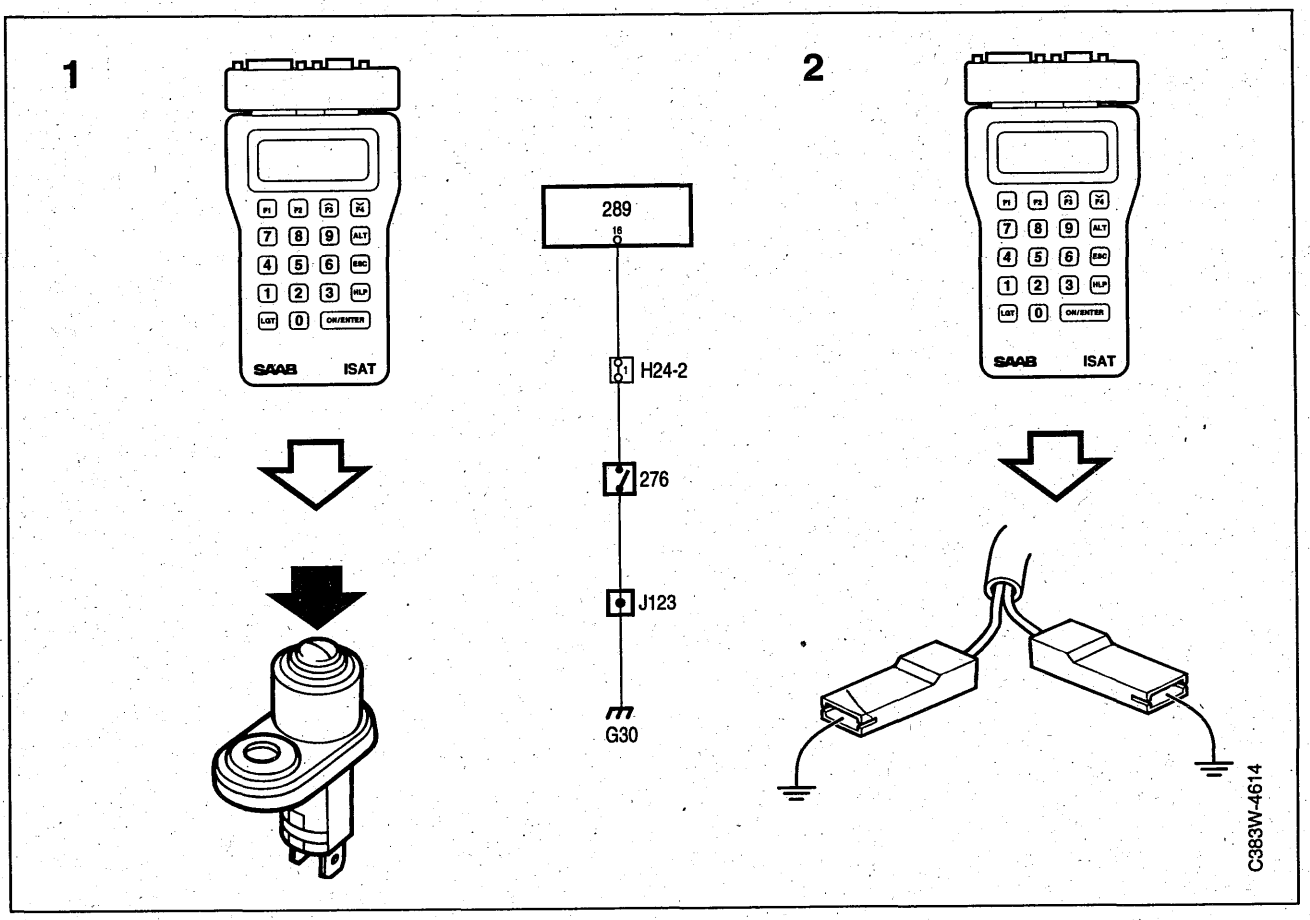
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 5.

5 **Final test**
Check if the fault symptom remains.

If the problem remains, proceed to page 85.

Engine, hood switch



Fault symptom

The alarm does not sound when the hood is opened and the alarm is armed.

Action

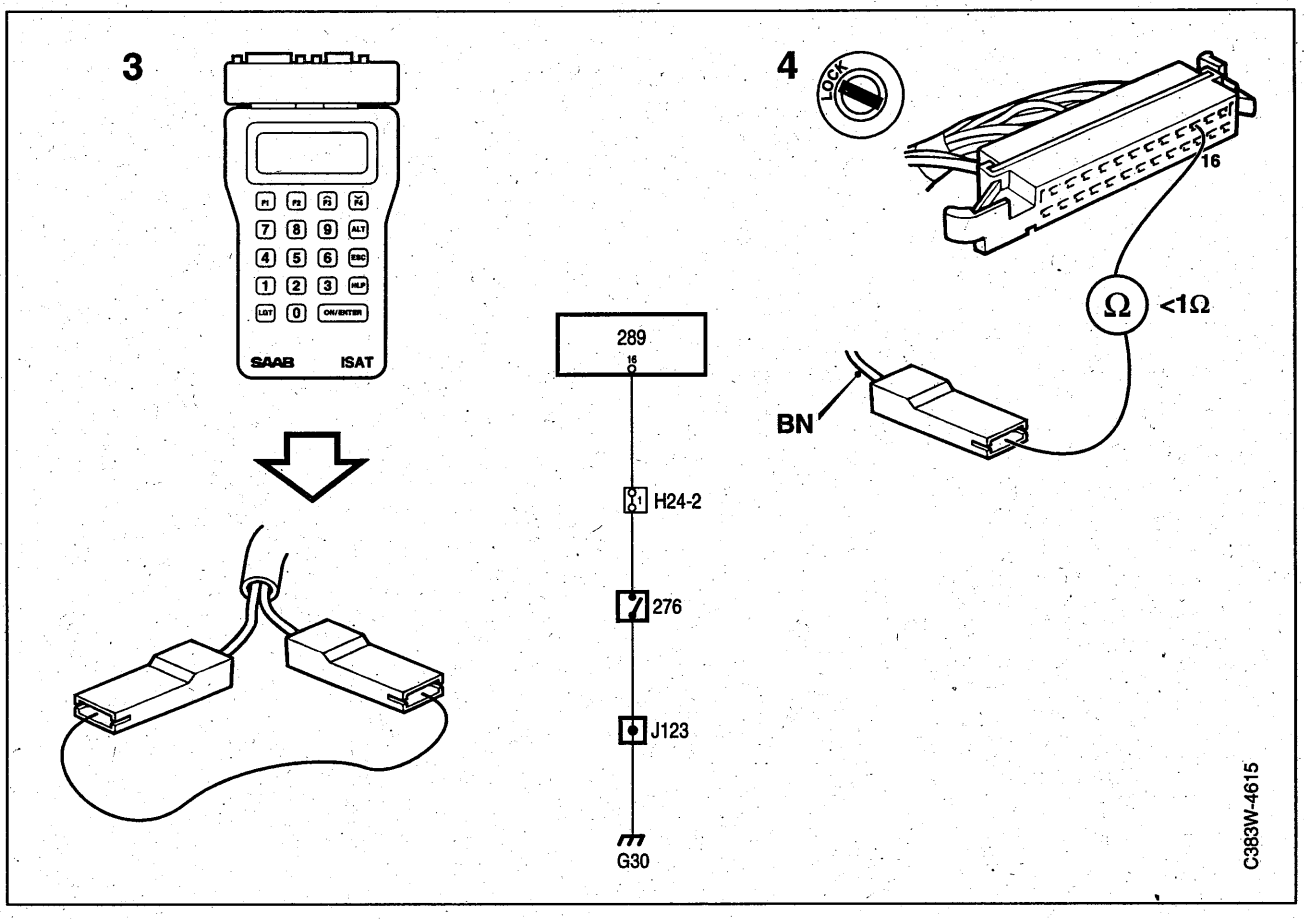
1 **Check the function, open/closed hood**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "BONNET".
Open/close the hood and check the ISAT scan tool display at the same time.
The ISAT scan tool should display "OPEN" or "CLOSED", respectively.

If the ISAT scan tool display is correct for open/closed hood, the fault is intermittent, proceed to point 5. If not, proceed to point 2.

2 **Check the voltage, open/closed hood.**
Unplug the connector to the hood switch.
Ignition "ON" (+15).
Repeat the ISAT scan tool commands as in point 1.
When the connector is open, the ISAT scan tool should display "OPEN".
Connect jumper between the respective connector pins and a safe grounding point.
The ISAT scan tool should display "CLOSED".

If this works correctly, proceed to point 3.
If this does not work, proceed to point 4.

Fault diagnosis, hood switch (contd.)



Action (contd.)

3 **Check the hood switch**
Select "BONNET".
Connect jumper between both the pins in the connector.
The ISAT scan tool should display "CLOSED".

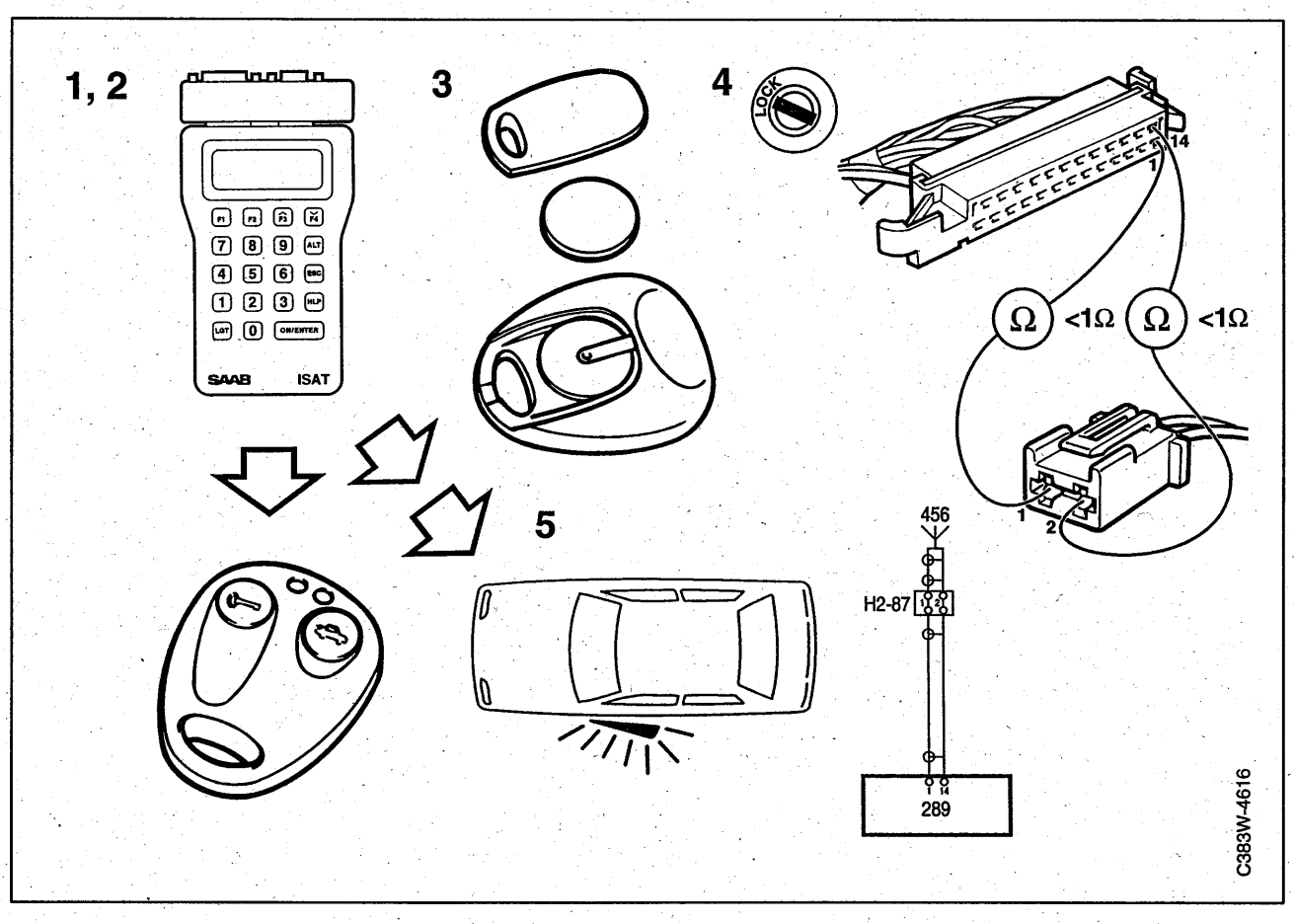
If the ISAT scan tool shows "CLOSED", change the hood switch.
If not, conduct a continuity test and take action between the hood switch connector, pin 2 and grounding point G30.

4 **Check the cable assembly**
Conduct a continuity test on the cable assembly between the hood switch connector, pin 1 and the theft alarm control module, pin 16.
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 5.

5 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, remote control



Fault symptom

The remote control does not work.

Action

1 **Check the function of the remote control**
The driver door should be closed.
Connect the ISAT scan tool.
Select "READ VALUES".
Select "CONTROL".
Press the left-hand/right-hand button and check the display on the ISAT scan tool at the same time. The ISAT scan tool should display "LH BUTTON" or "RH BUTTON", and "NO BUTTON" in the normal position.

If the ISAT scan tool shows the correct display for left-hand/right-hand button, proceed to point 5. If not, proceed to point 2.

2 **Check using a new remote control**
Program the remote control. Repeat the ISAT scan tool commands as in point 1.

If this works, proceed to point 3,
If not, proceed to point 4

3 **Check the old remote control**
Change the batteries, then check the function. Repeat the ISAT scan tool commands as in point 1.

If it does not work, change the remote control.

4 **Check the antenna cable**
Conduct a continuity test on the cable assembly between:

- connector H2-87, pin 1 and the alarm control module, pin 1.
- connector H2-87, pin 2 and the alarm control module, pin 14.

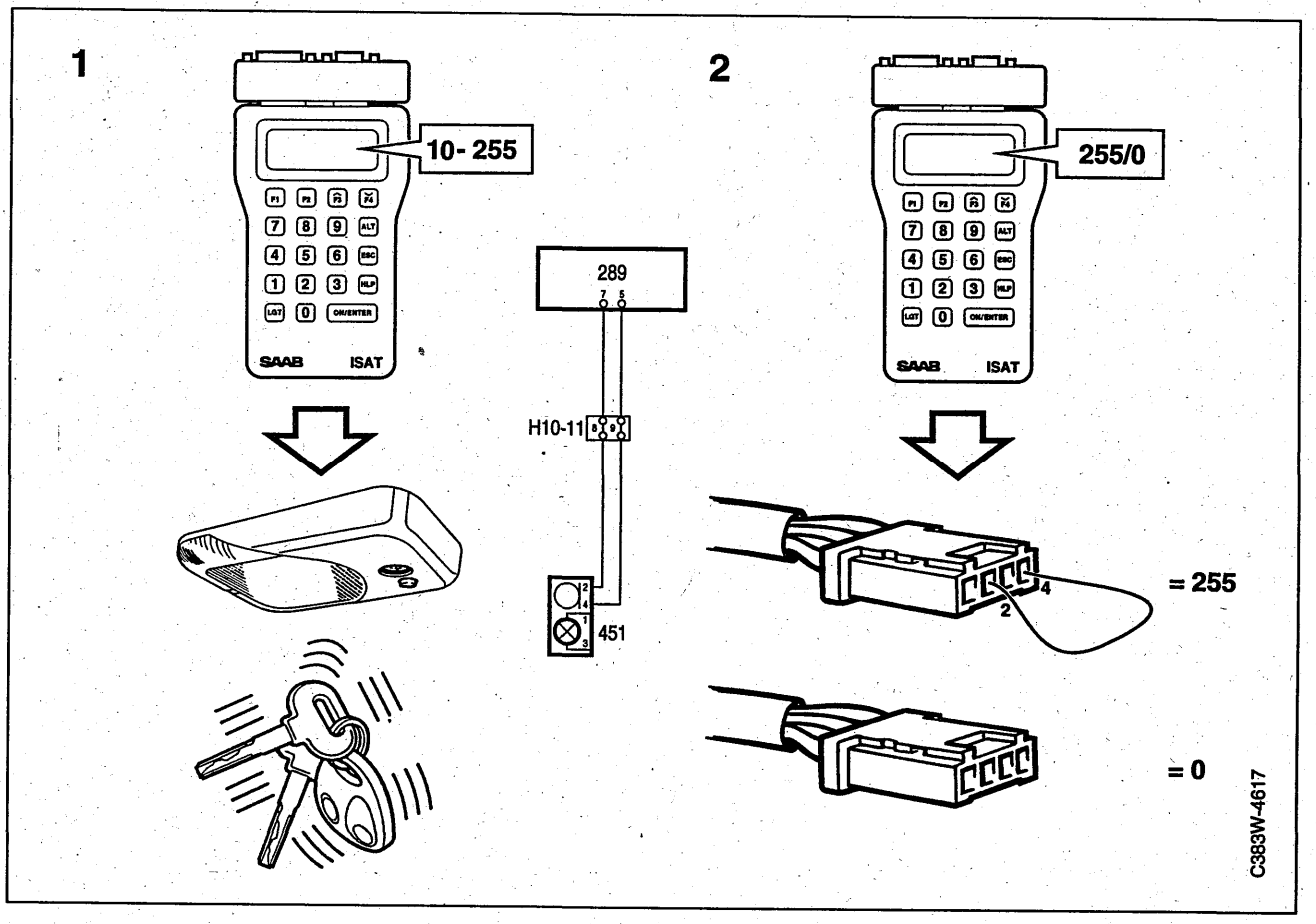
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 6.

5 **Check the breaker on the driver door**
Select "DRIVER DOOR"
Open and close the driver door.
The ISAT scan tool should display "OPEN" and "CLOSED" respectively.
If the ISAT scan tool shows the correct display, proceed to point 6.
If not, proceed to "Fault diagnosis, door indication, driver door".

6 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, glass breakage sensor



Fault symptom

Grass breakage sensor does not trip the alarm.

Action

1 **Check the function of the glass breakage sensor**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "GLASS BREAK SENSOR".
Jingle a set of keys next to the sensor.
The ISAT scan tool should display between 10 and 255.

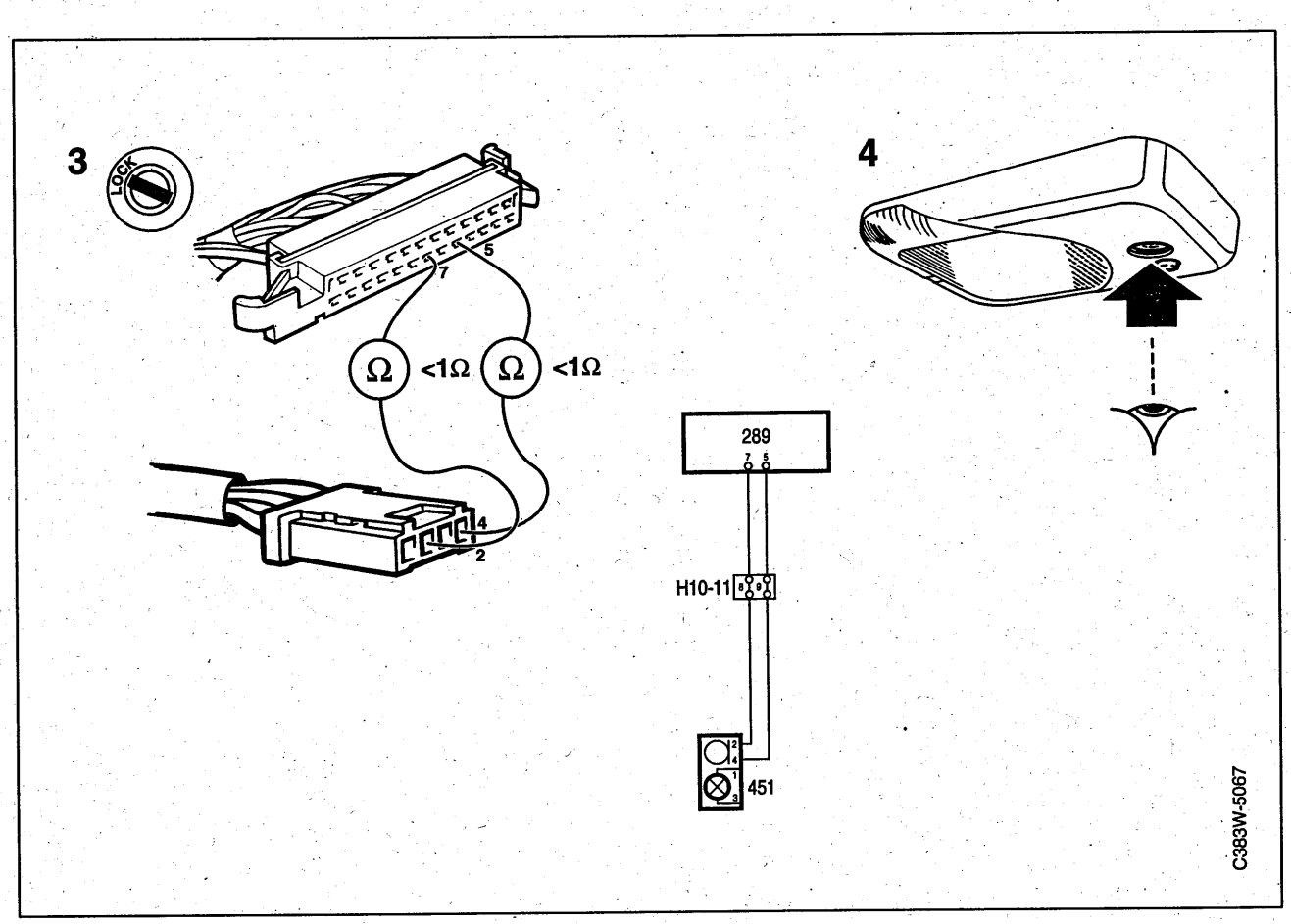
If the ISAT scan tool shows the correct value, proceed to point 5.
If the ISAT scan tool shows an incorrect value or if the value remains unchanged, proceed to point 2.

2 **Check the function of the glass breakage sensor**
Disconnect the glass breakage sensor by unplugging the 4 pin connector.
Select "READ VALUES".
Select "GLASS BREAK SENSOR"

If the connector remains open, the ISAT scan tool should display "0".
Connect jumper between pins 2 and 4 in the connector and the ISAT scan tool should display 255.

If the ISAT scan tool displays the correct value, proceed to point 4.
If not, proceed to point 3.

Fault diagnosis, glass breakage sensor (contd.)



3 **Check the cable assembly**
Conduct a continuity test on the cable assembly between:

• connector, pin 2 and alarm control module, pin 7. • connector, pin 2 and alarm control module, pin 5.

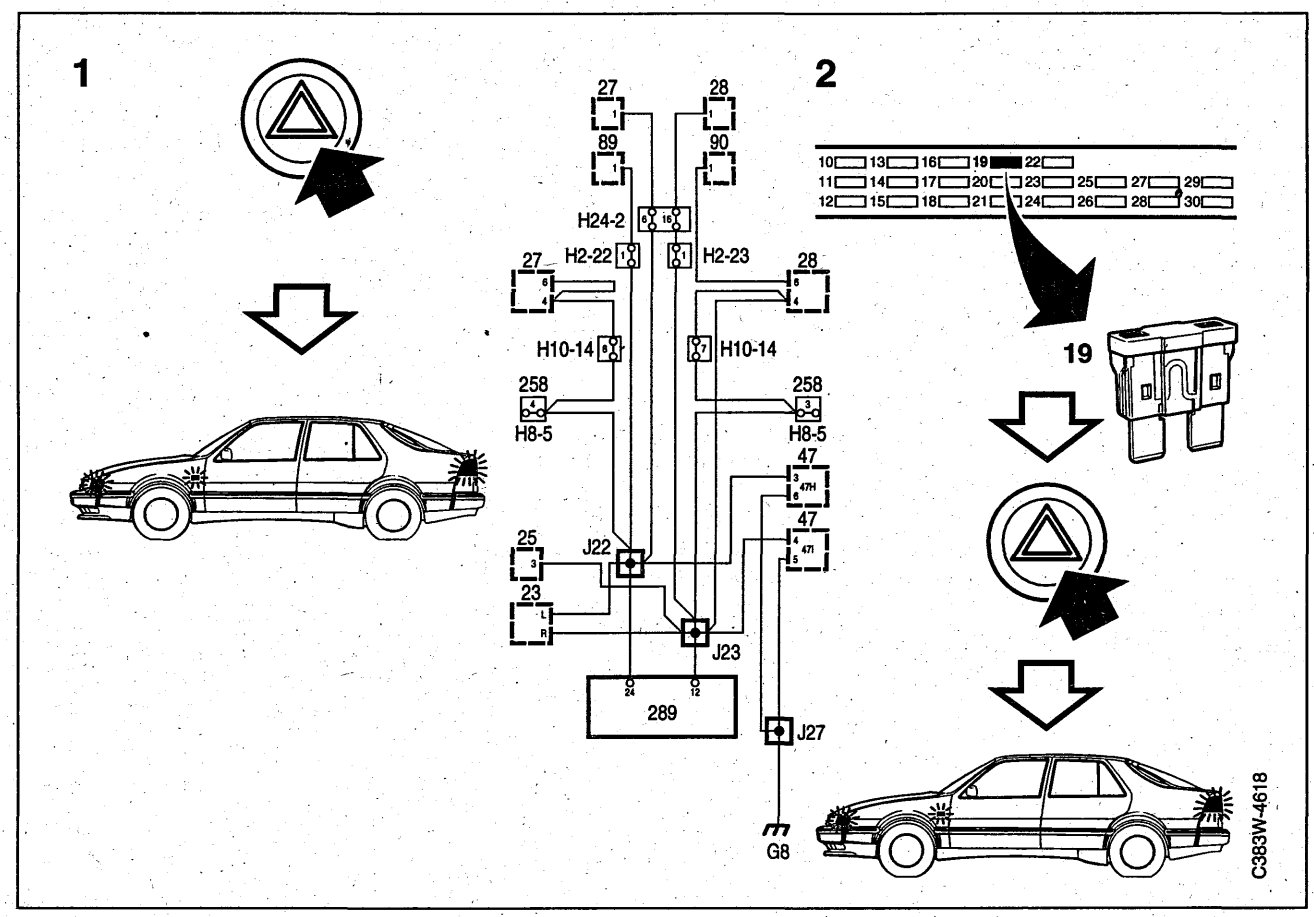
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 5.

4 **Check the glass breakage sensor**
Make a visual inspection of the sensor and connector. If nothing can be seen that can be remedied, change the glass breakage sensor.

5 **Final test**
Disconnect the ISAT scan tool.
Close all doors.
Arm the alarm and wait until the LED flashes 1 flash/2 seconds.
Jingle the set of keys next to the sensor.
If the alarm is not set off, proceed to page 85.

Fault diagnosis, direction indicators



Fault symptom

Direction indicators lit continuously.
Direction indicators do not light.

Action

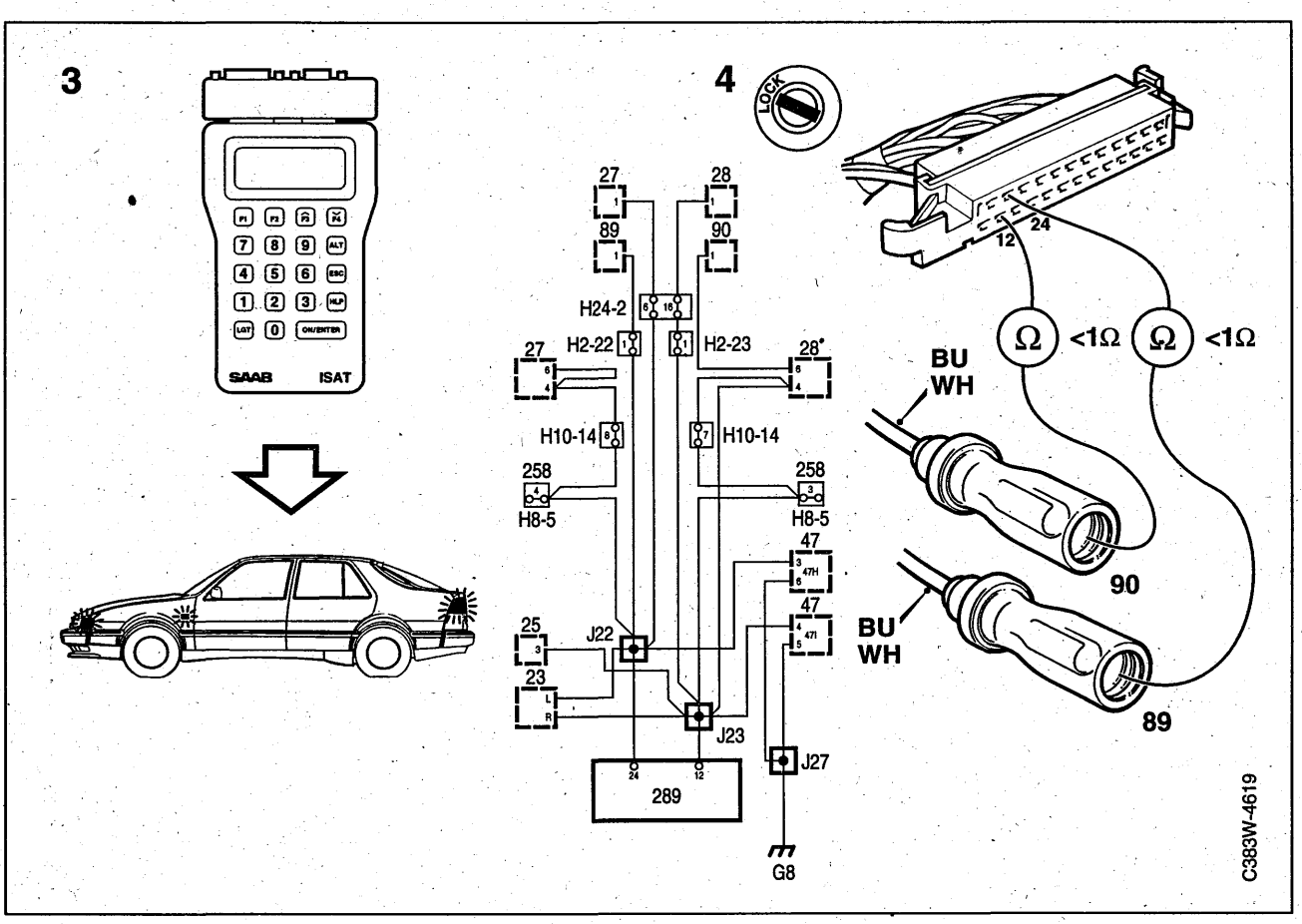
1 **Check the normal direction indicator function**
Switch on the hazard flashers.

If this works correctly, proceed to point 3.
If not, proceed to point 2.

2 **Check the normal direction indicator function (contd.)**
Disconnect the theft alarm.
Remove fuse 19.
Switch on the hazard flashers.

If the function id correct, proceed to point 4.
If not, continue fault diagnosis in Service Manual 3:2, "Direction Indicators".

Fault diagnosis, direction indicators (contd.)



Action (contd.)

3 **Check the function of the direction indicators using the ISAT scan tool.**
Connect the ISAT scan tool.
Select "ACTIVATE".
Select "FLASHERS".
Select "ON".
The direction indicators should light continuously.

If the function is faulty, proceed to point 4.
If the function is correct, the fault is intermittent, proceed to point 5.

4 **Check the cable assembly**
Remove the alarm control module.
Conduct a continuity test between:

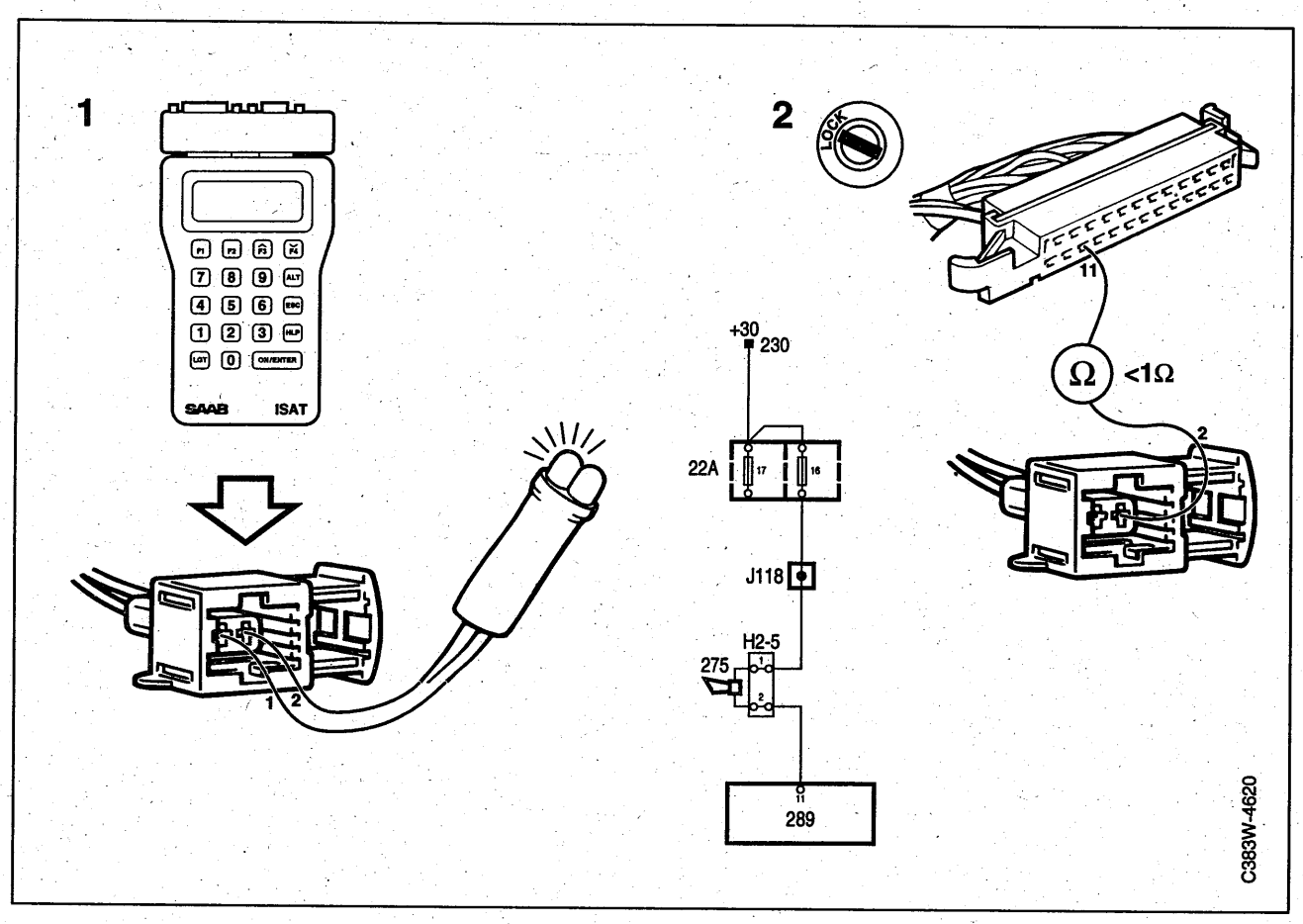
- control module pin 24 and the connector, left-hand side direction indicators.
- control module pin 12 and connector, right-hand side direction indicators.

The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 5.

5 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, horn



Fault symptom

Horn sounds continuously.

Action

1 **Check the horn**
Disconnect the horn.
Connect the test lamp to horn connector, pin 2 and BPV.

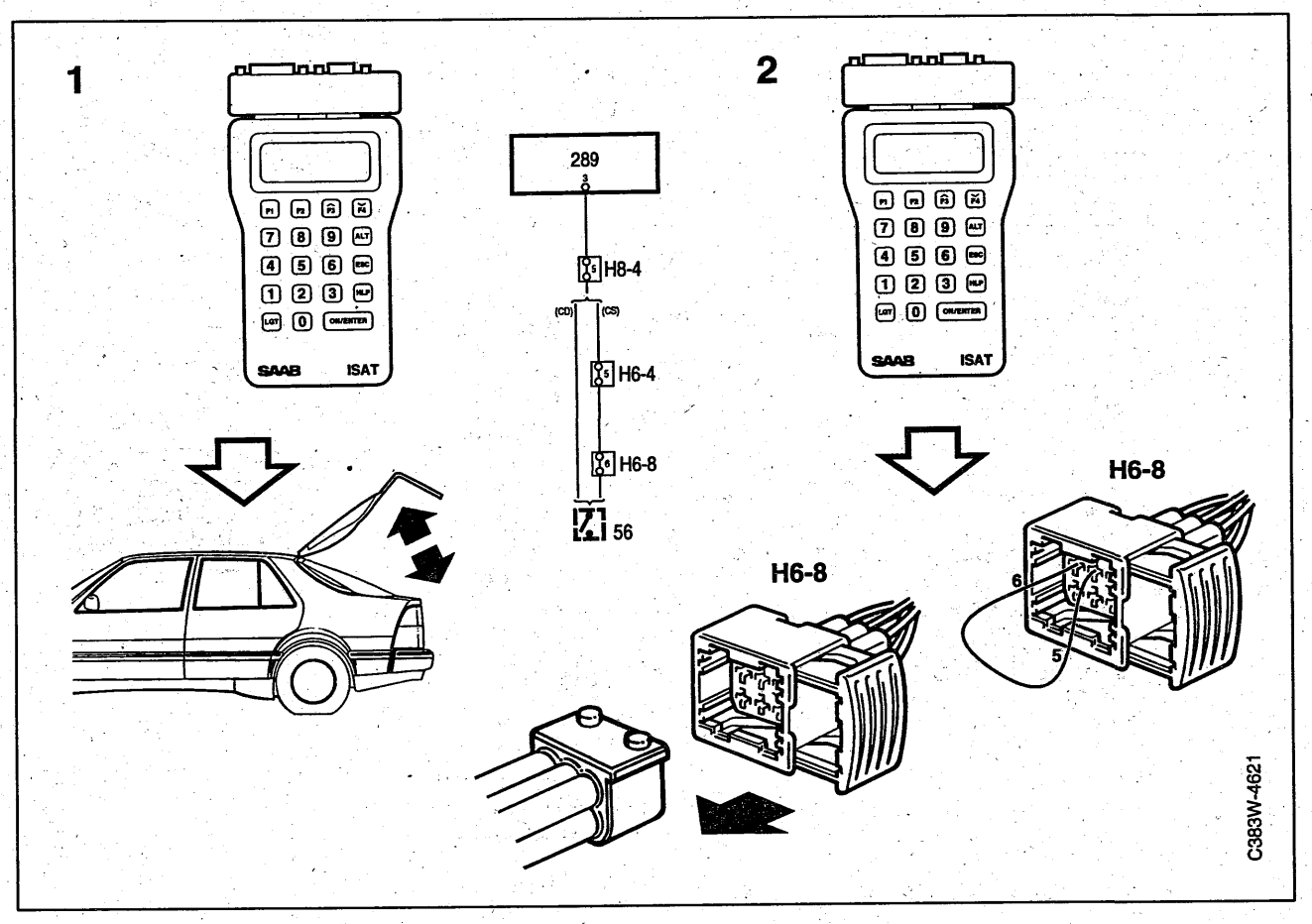
If the lamp lights, proceed to point 2.
If not, change the horn.

2 **Check the horn grounding**
Conduct a continuity test between the horn connector, pin 2 and the alarm control module, pin 11.
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 3.

3 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, luggage compartment illumination switch



Fault symptom

Tailgate disconnected from alarm.
LED flashes during the delay period.

Action

1 **Check the function, open/close tailgate**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "TAILGATE SWITCH".
Open/close the tailgate and check the ISAT scan tool display at the same time.
The ISAT scan tool should display "OPEN" or "CLOSED", respectively.

If the ISAT scan tool shows the correct display for open/closed tailgate,
proceed to point 6.
If not, proceed to point 2.

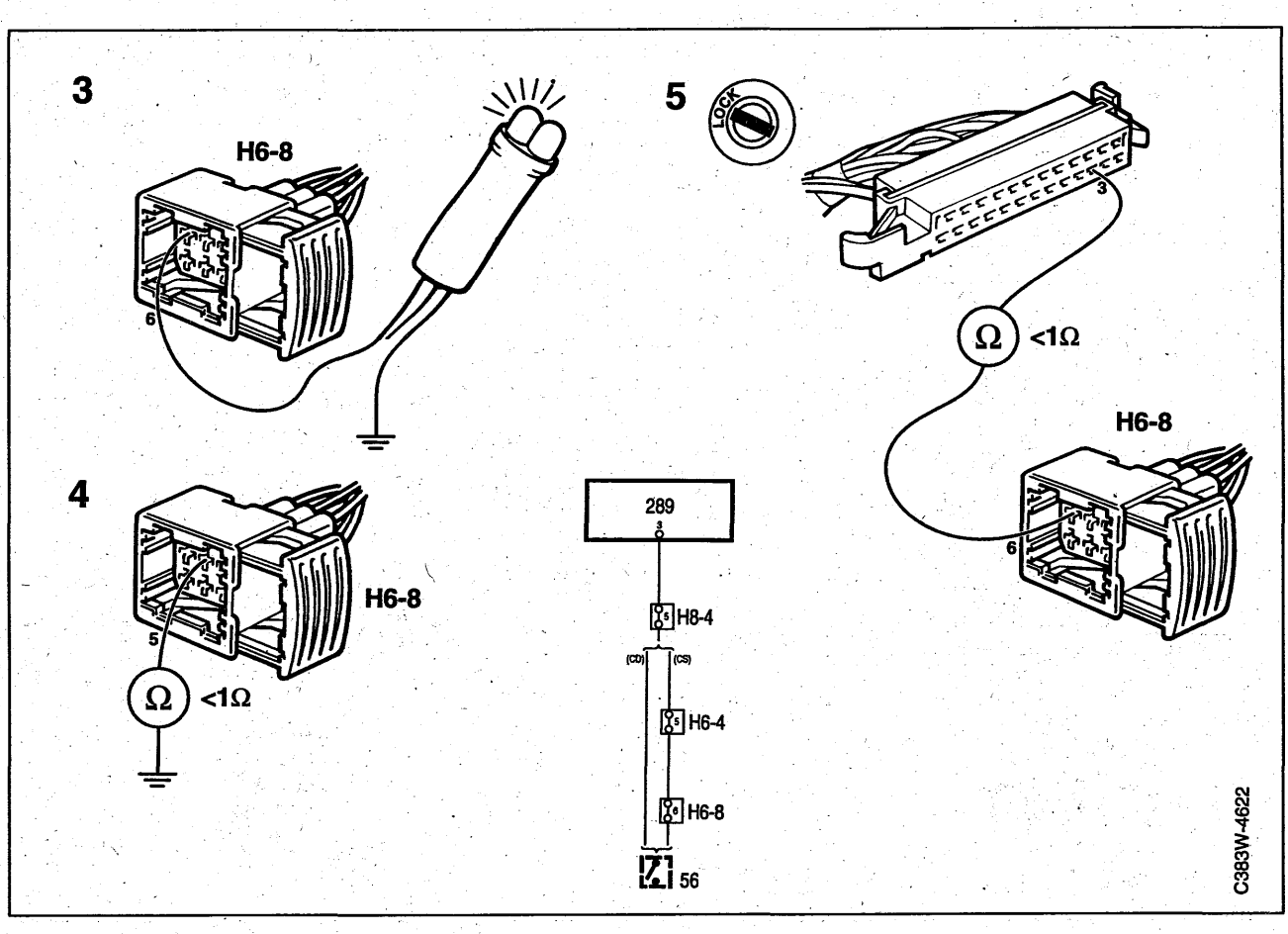
2 **Check the microswitch**
Unplug the luggage compartment switch, H6-8.
Select "TAILGATE SWITCH".
The ISAT scan tool should show "OPEN".
Connect jumper inside switch H6-8, between pins 5 and 6.
The ISAT scan tool should display "CLOSED".

If the ISAT scan tool shows an incorrect value, proceed to point 3.

3 **Check the voltage supply to the microswitch**
Connect the test lamp to connector H6-8, pin 6 and a safe grounding point.

If the test lamp lights, proceed to point 4.
If the test lamp does not light, proceed to point 5.

Fault diagnosis, luggage compartment illumination switch (contd.)



Action (contd.)

4 **Check the ground connection**
Check lamp, connector and cable assembly.
Conduct a continuity test between connector pin 5 and a safe grounding point.
The resistance should be <1 Ohm.

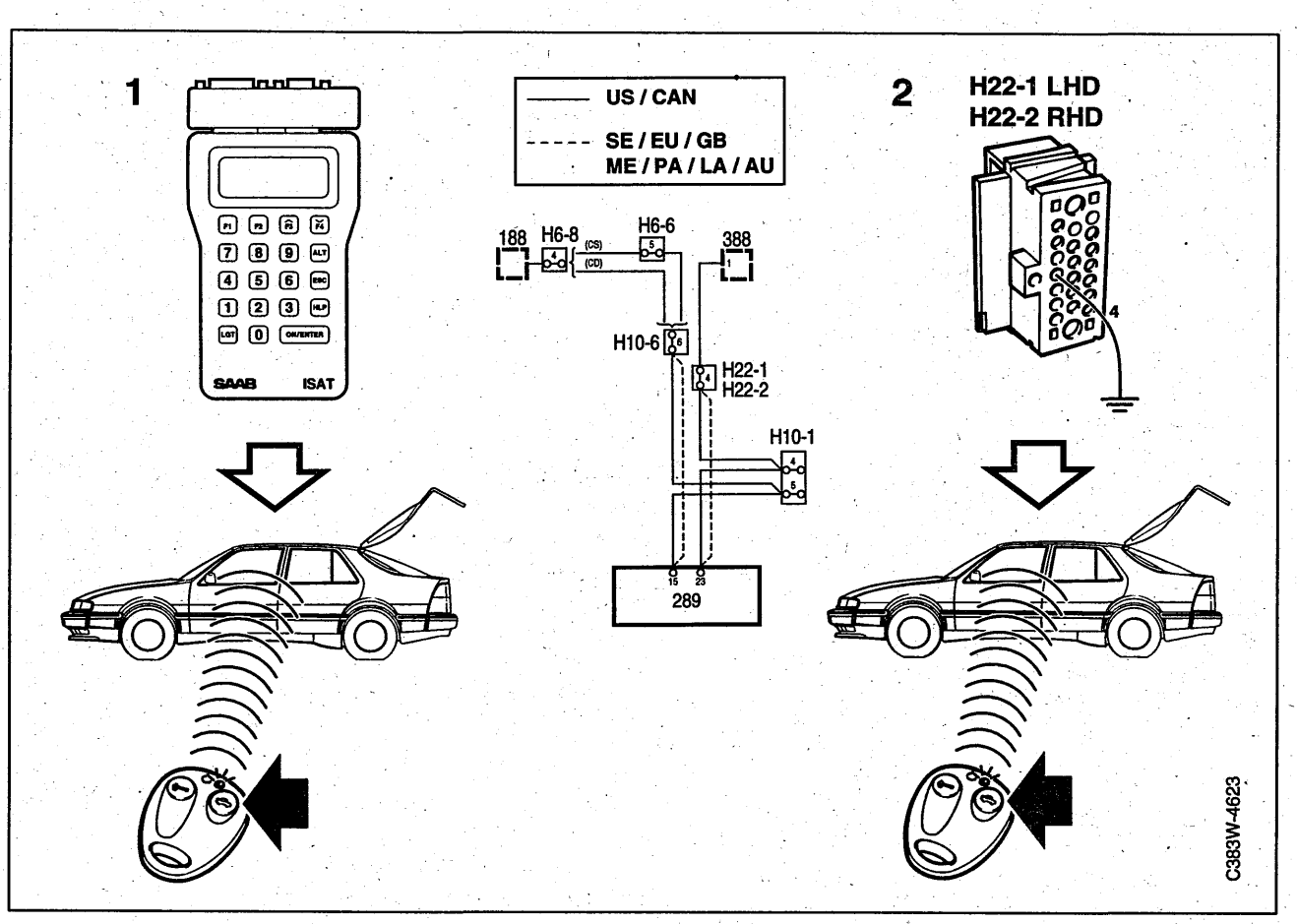
Remedy any fault.

5 **Check the cable assembly**
Conduct a continuity test on the cable assembly between connector pin 6 and the alarm control module, pin 3.
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 6.

6 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, remote control, tailgate opening



Fault symptom

Not possible to disarm/open tailgate.

Action

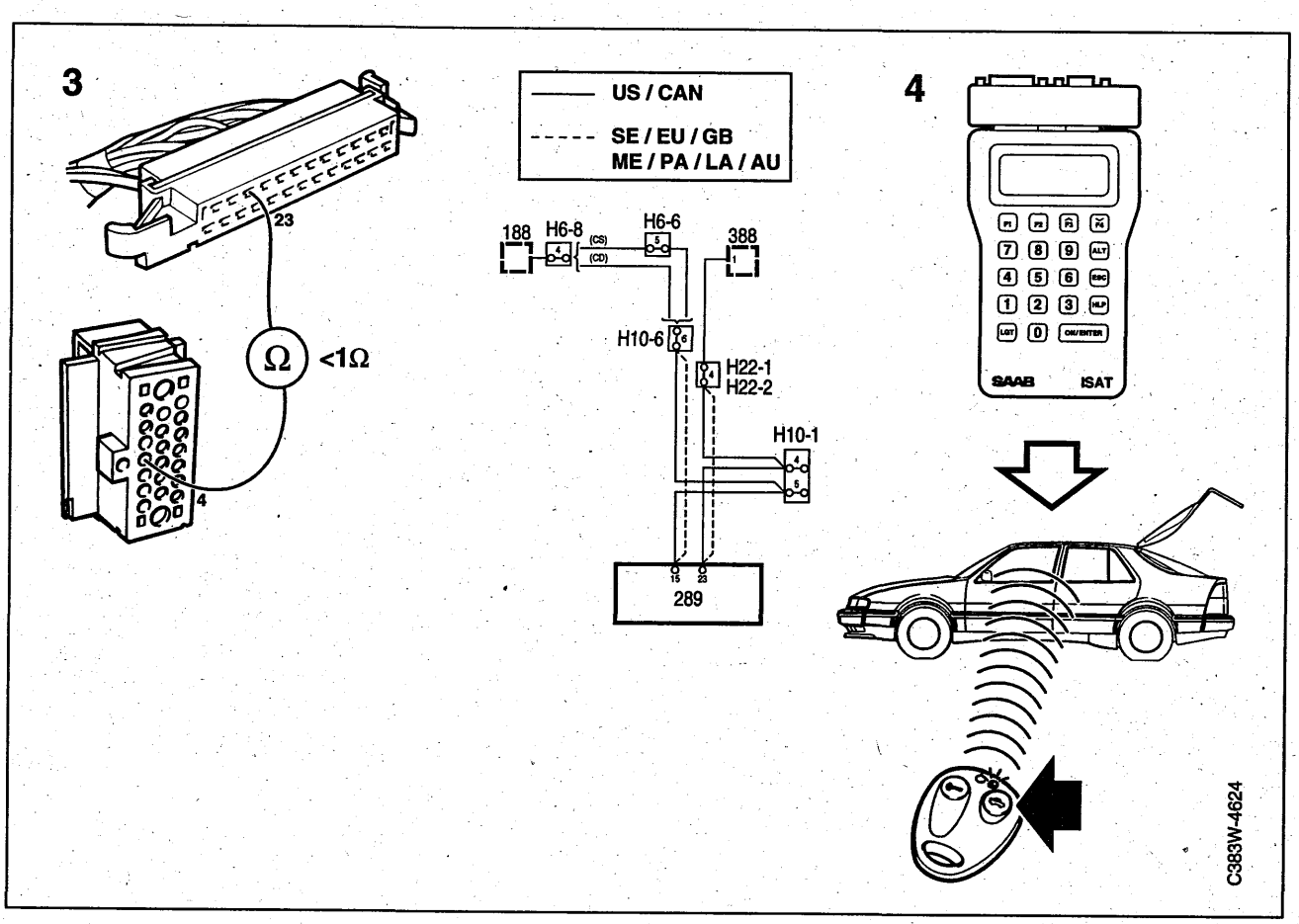
1 **Check the unlock tailgate function**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "TAILGATE LOCK"
The ISAT scan tool should display "CLOSED".
Press the right-hand button on the remote control.
The ISAT scan tool should display "OPEN" for about 3 seconds and the tailgate motor should be activated.

If the ISAT scan tool displays "OPEN" for about 3 seconds, but the tailgate motor does not work, proceed to point 2.
If the ISAT scan tool displays "CLOSED", proceed to point 4.
If this works correctly, proceed to point 7.

2 **Check the unlock signal from the control module**
Unplug connector H22-1.
Connect the test lamp between connector H22-1, pin 4 and a safe grounding point.
Press the right-hand button on the remote control.

If the test lamp lights, continue fault diagnosis in Service Manual 3:2 "Central locking system, electric tailgate release".
If the test lamp does not light, proceed to point 3.

Fault diagnosis, remote control, tailgate opening (contd.)



Action (contd.)

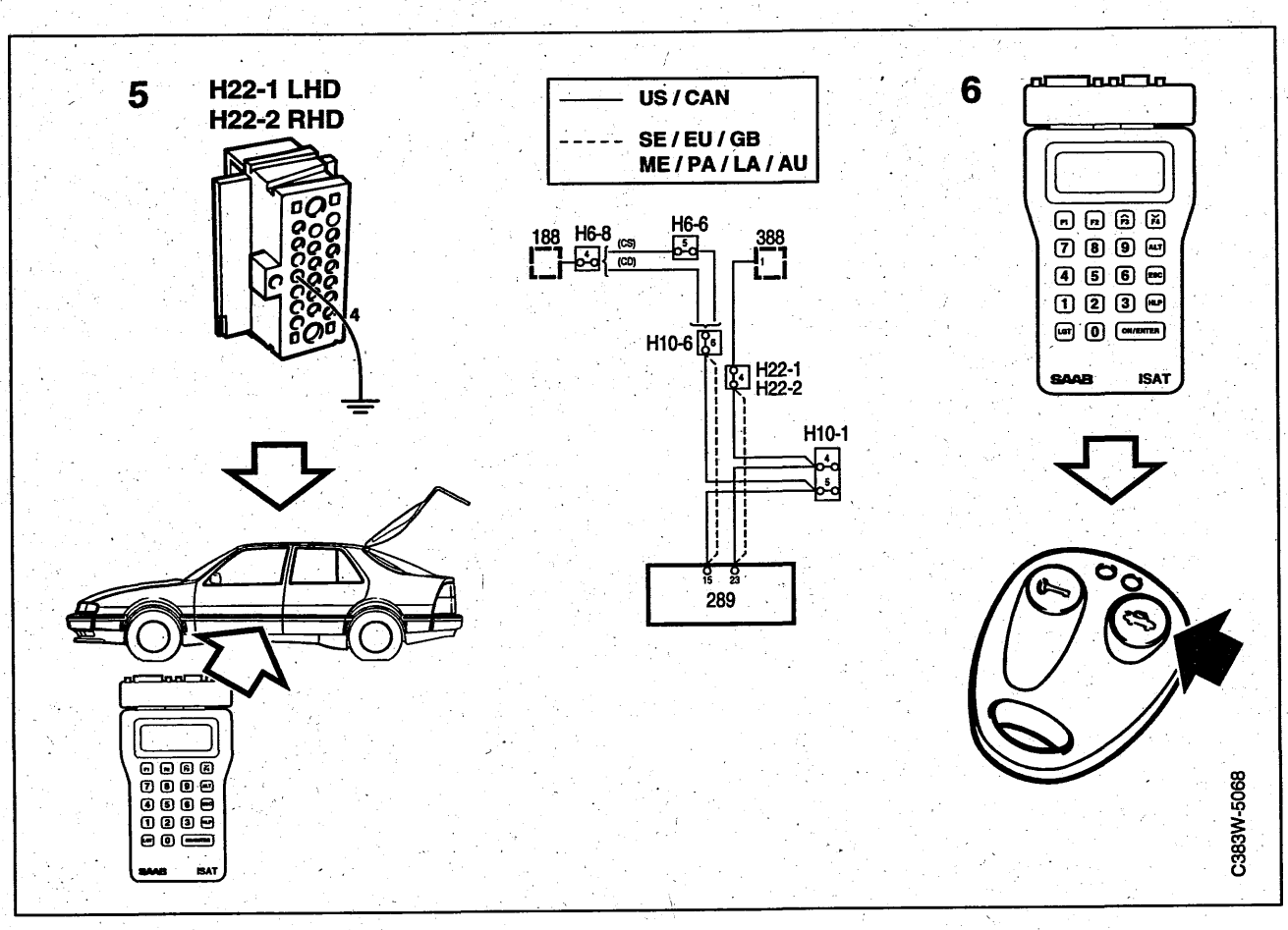
3 **Check the cable assembly**
Conduct a continuity test on the cable assembly between the alarm control module, pin 23 and connector H22-1, pin 4.
The resistance should be <1 Ohm.

If the resistance is incorrect, remedy the fault in the cable assembly.
If the resistance is correct, proceed to point 7.

4 **Check the unlocking function**
Select "ACTIVATE".
Select "TAILGATE".
Select "ON", and the tailgate motor should be activated.

If the tailgate is not unlocked, proceed to point 5.
If the tailgate is unlocked, proceed to point 6.

Fault diagnosis, remote control, tailgate opening (contd.)



Action (contd.)

5 **Check the unlocking function**
Unplug connector H22-1.
Connect the test lamp between connector H22-1, pin 4 and a safe grounding point.
Select "ACTIVATE".
Select "TAILGATE".
Select "ON", and the test lamp should light.

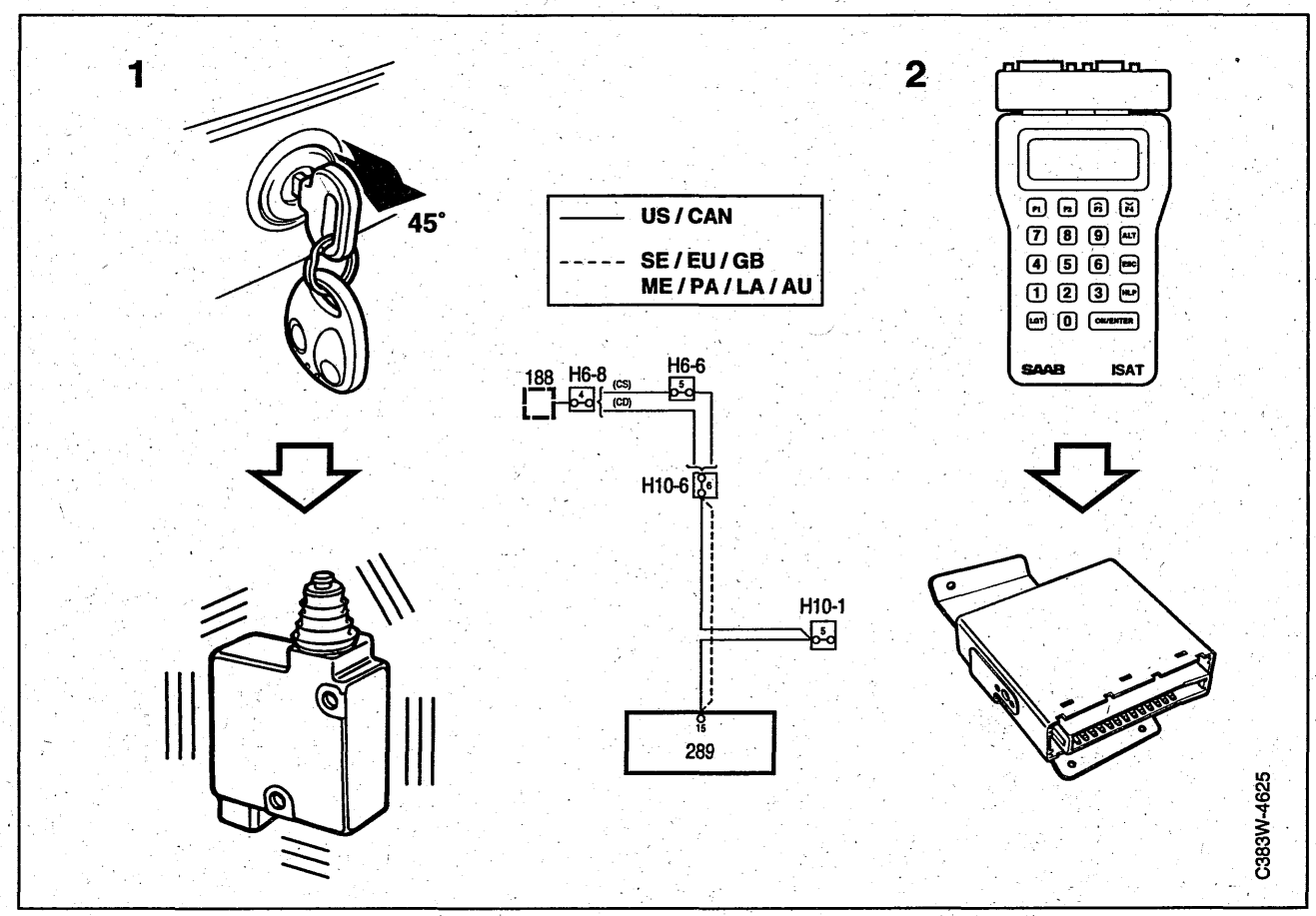
If the test lamp lights, try changing the remote control.
If the test lamp does not light, proceed to point 7.

6 **Check the remote control**
Select "READ VALUES".
Select "CONTROL".
Press the right-hand button on the remote control.
The ISAT scan tool should display "RH BUTTON" when this button is pressed.

If the ISAT scan tool displays a different text, try changing the remote control.
If the ISAT scan tool displays the correct text, proceed to point 7.

7 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, microswitch in tailgate, opening with key



Fault symptom

The alarm cannot be disarmed with the key in the tailgate.

Action

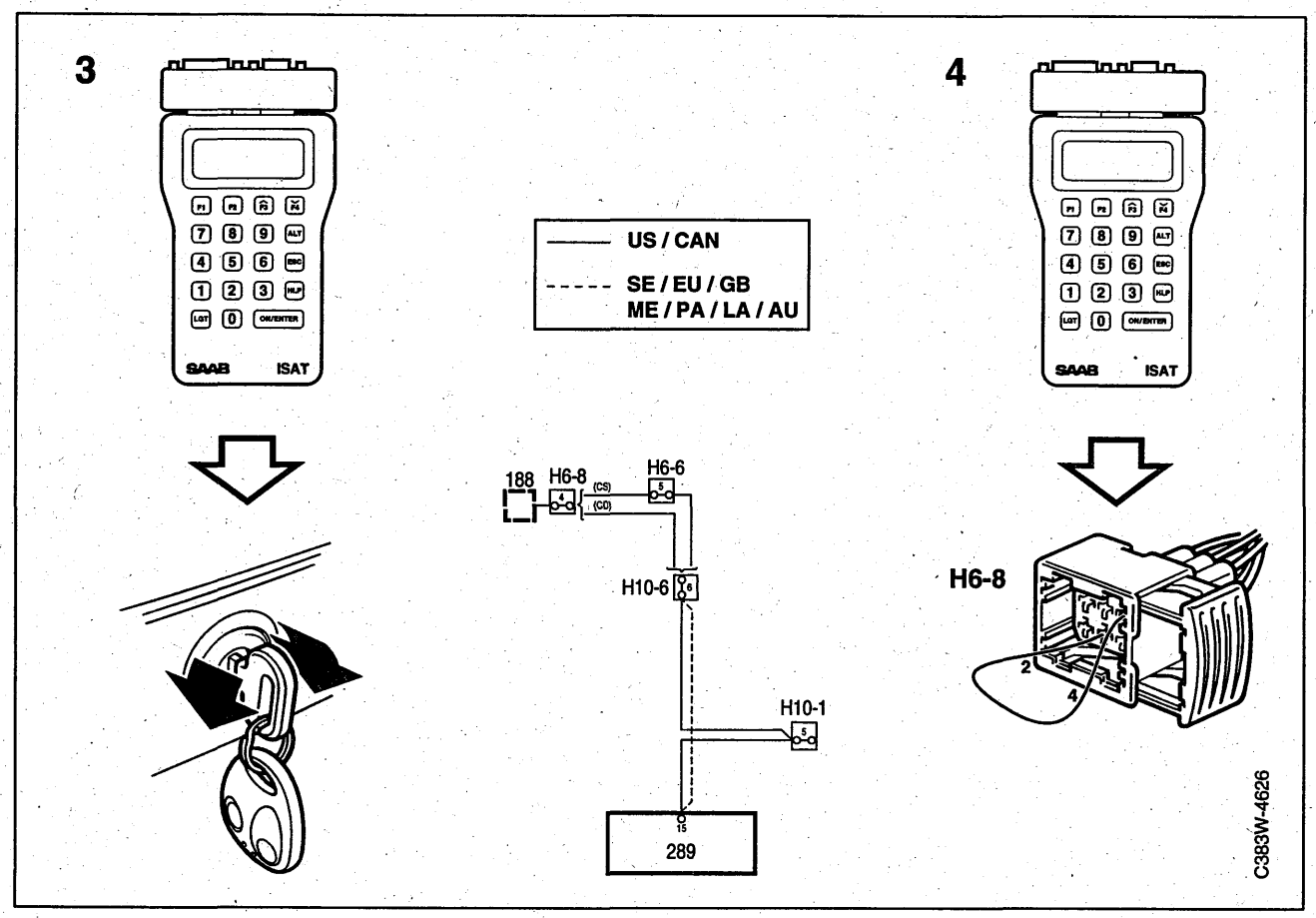
1 **Check the function of opening the tailgate with the key**
Check that the tailgate motor is activated when the key is turned 45 degrees.

If this works correctly, proceed to point 2.
If this does not work correctly, check fuse 17. If the fuse is intact, proceed to point 3.

2 **Check the programming**
Connect the ISAT scan tool.
Select "PROGRAMMING"
Select "DISENGAGE BOOT".
Check to see how the control module is programmed. See command menu "PROGRAMMING", page 39.

If the programming is incorrect, change from "OFF" to "ON".
If the programming is correct ("ON"), proceed to point 7.

Fault diagnosis, microswitch in tailgate, opening with key (contd.)



Action (contd.)

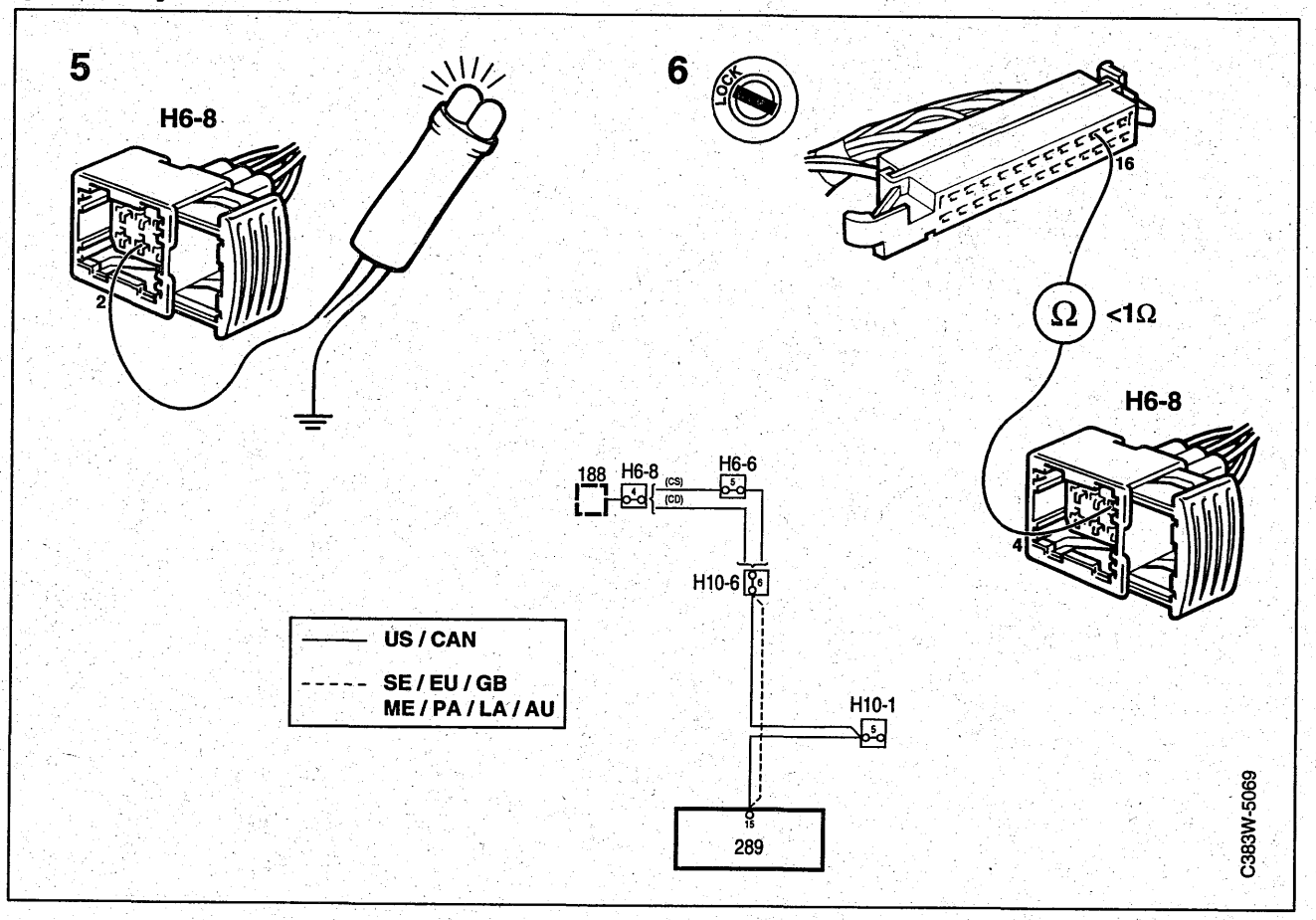
3 **Check the function of the tailgate**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "TAILGATE LOCK".
Unlock and lock the tailgate using the key.
Check at the same time that the ISAT scan tool display shows "OPEN" or "CLOSED" respectively.

If this works correctly, proceed to point 4.
If not, proceed to point 7.

4 **Check the microswitch for unlocking the tailgate**
Unplug connector H6-8 (in the tailgate).
Select "READ VALUES".
Select "TAILGATE LOCK".
The ISAT scan tool should show "OPEN".

If the ISAT scan tool shows the correct text, change the microswitch.
If the ISAT scan tool shows incorrect text, proceed to point 5.

Fault diagnosis, microswitch in tailgate, opening with key (contd.)



Action (contd.)

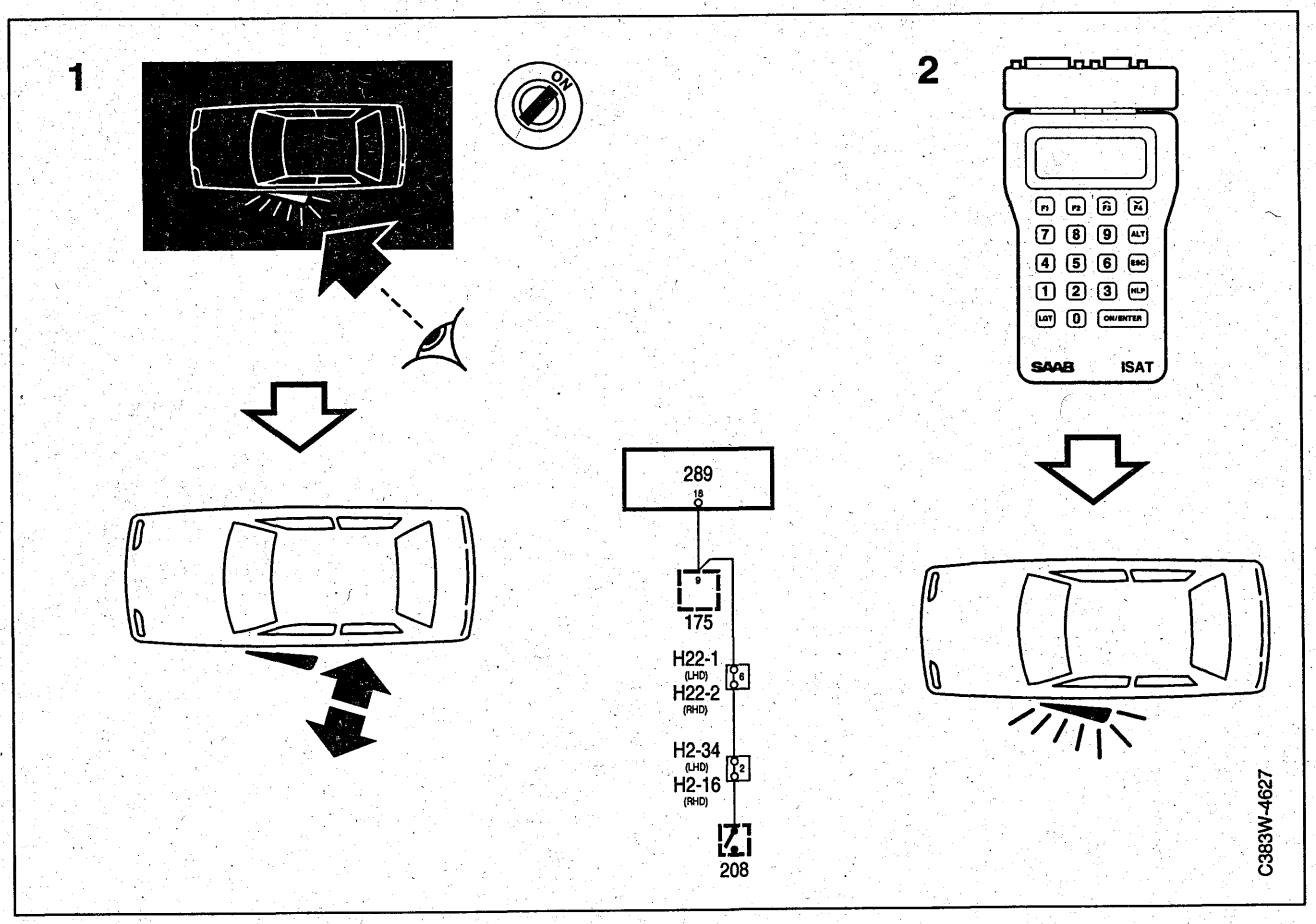
5 **Check the +30 supply to the microswitch**
Connect the test lamp to connector H6-8, pin 2 and a safe grounding point.
If the test lamp lights, proceed to point 6.
If the test lamp does not light, continue fault diagnosis in service Manual 3:2 "Central locking system, electric tailgate release".

6 **Check the cable assembly**
Conduct a continuity test on the cable assembly between pin 4 in the connector and the alarm control module, pin 15.
The resistance should be <1 Ohm.

If the resistance is incorrect, fix the cable assembly.
If the resistance is correct, proceed to point 7.

7 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, door indication, driver door



Fault symptom

Door indication not working.
Remote control not working

Action

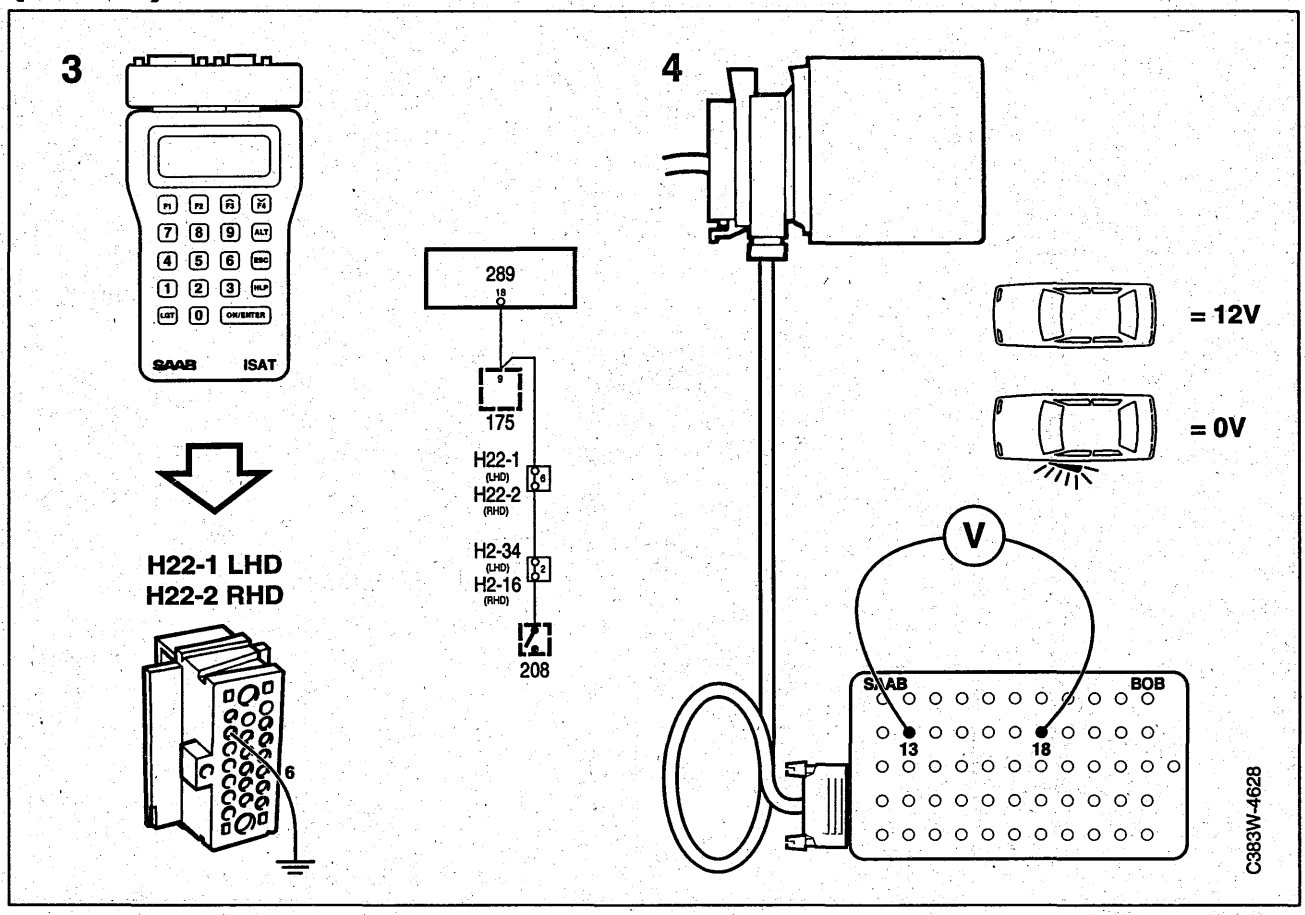
1 Check the pictogram
Open and close the driver door and check the pictogram in the instrument.
The other doors should be closed.

If the pictogram is correct, proceed to point 4.
If the pictogram is faulty, proceed to point 2.

2 **Check the function**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "DRIVER DOOR".
Open and close the driver door.
The ISAT scan tool should display "OPEN" or "CLOSED", respectively.

If the function is correct, the fault is of intermittent type, proceed to point 6.
If not, proceed to point 3.

Fault diagnosis, door indication, driver door (contd.)



3 **Check the function (contd.)**
Unplug connector H22-1.
Select "DRIVER DOOR".
The ISAT scan tool should display "CLOSED".
Connect jumper between pin 6 in connector H22-1 to a safe grounding point.
The ISAT scan tool should display "OPEN".

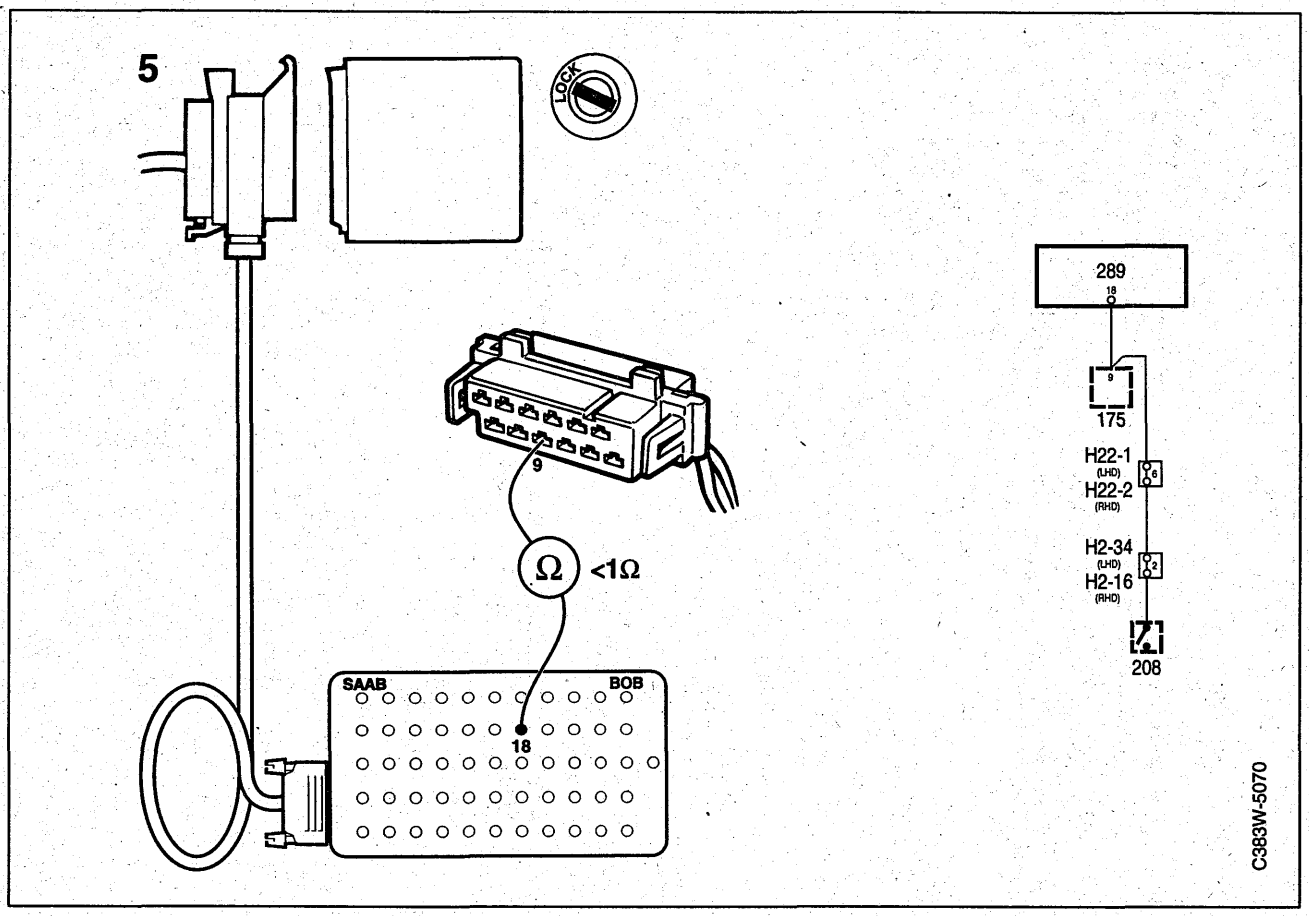
If the ISAT scan tool displays the correct text, proceed to point 5.
If the ISAT scan tool displays incorrect text, proceed to point 4.

4 **Check the control module voltage levels**
Connect a BOB.
Connect a voltmeter between pins 18 and 13.
Open/close the driver door and check the voltage.

Closed =12 V
Open =0 V

If the function is correct, proceed to point 6.
If not, proceed to point 5.

Fault diagnosis, door indication, driver door (contd.)



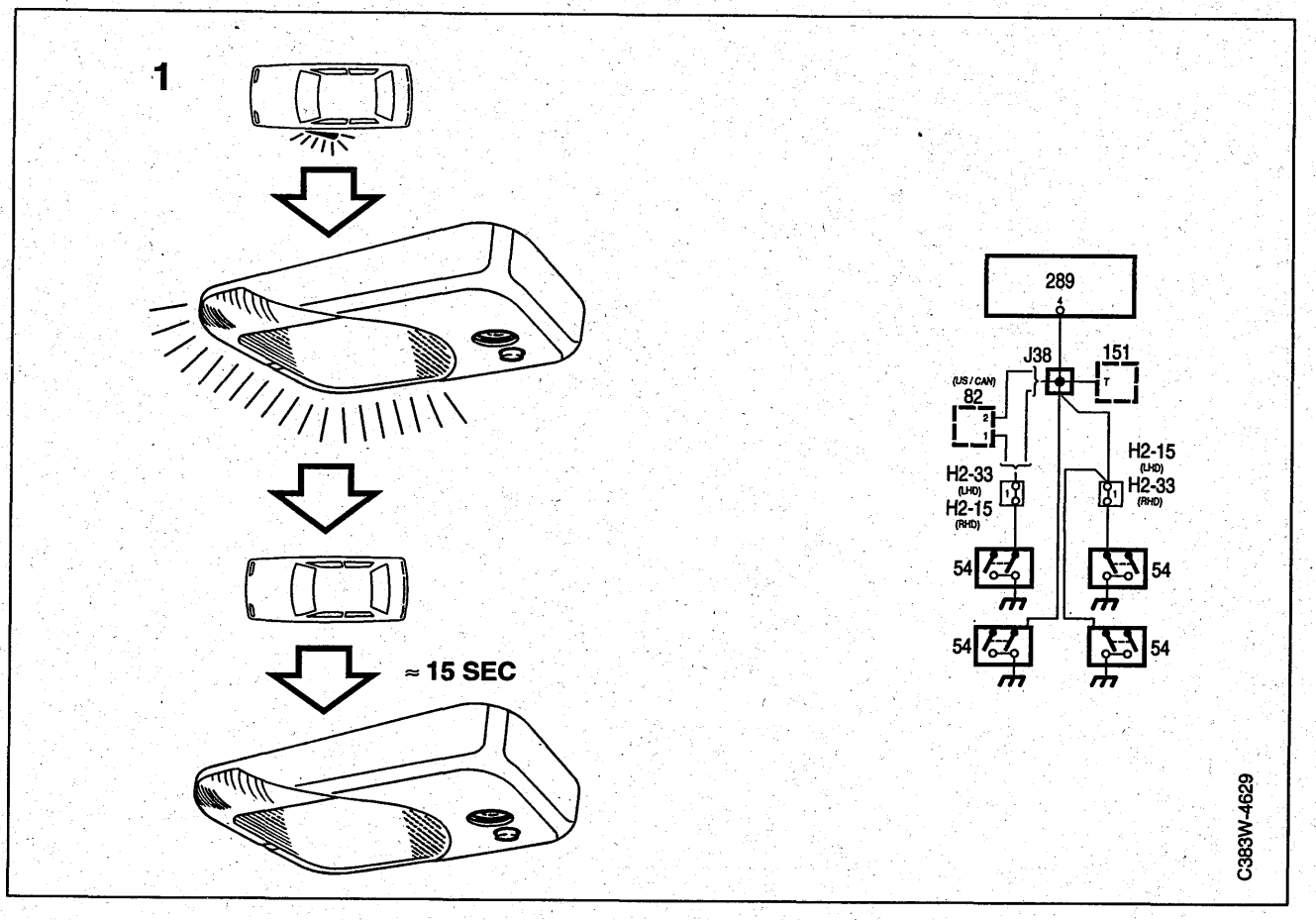
Action (contd.)

5 **Check the cable assembly**
Conduct a continuity test on the cable assembly between the alarm control module, pin 18 and the central locking system control module, pin 9. The resistance should be <1 Ohm

If the resistance is correct, continue fault diagnosis in Service Manual 3:2 "Central locking system, electric tailgate release".
If not, fix the cable assembly.

6 **Final test**
Check to see if the fault symptom remains.
If the problem remains, proceed to page 85.

Fault diagnosis, delayed arming due to delayed interior lighting



Fault symptom

Alarm not armed

Action

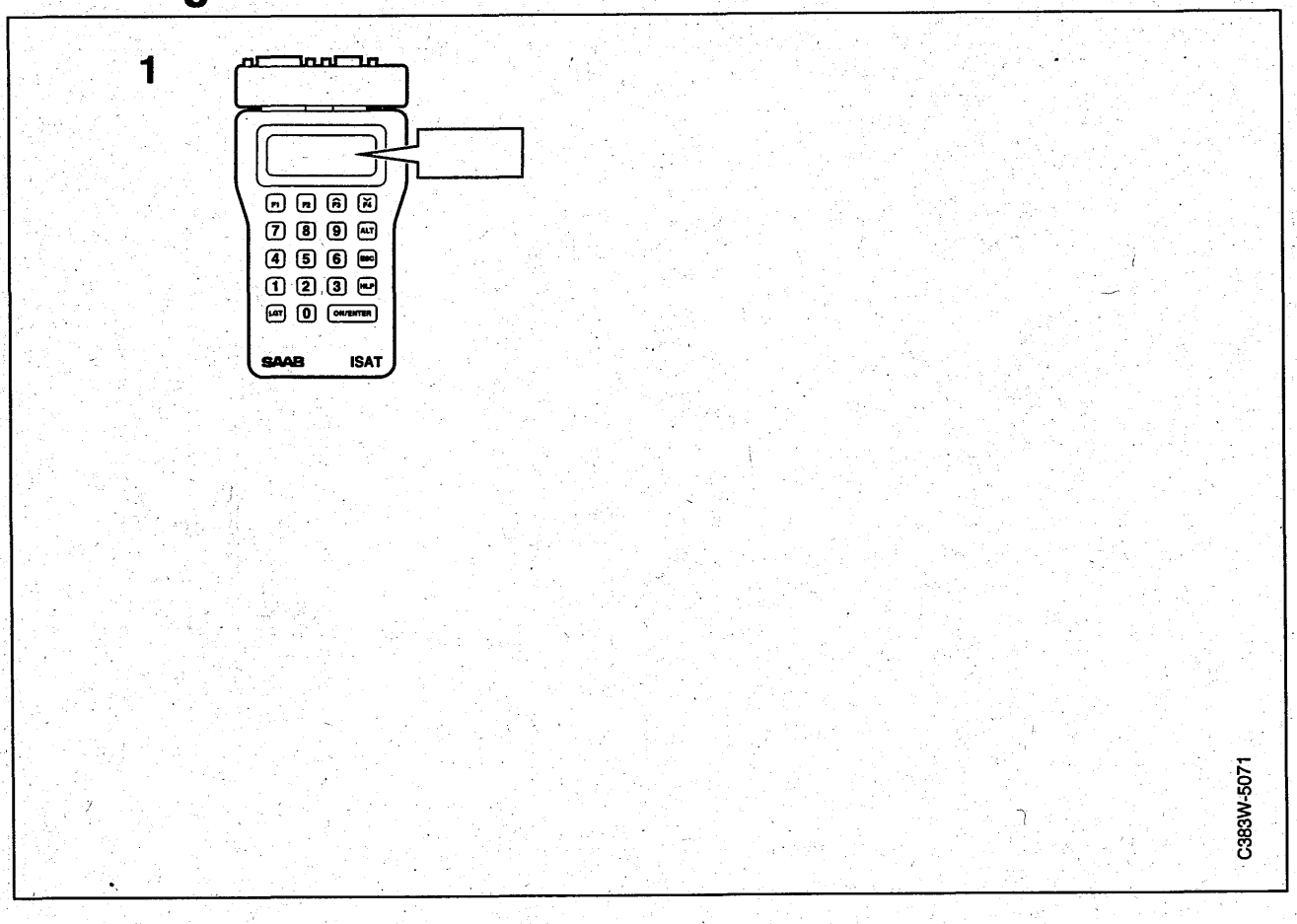
1 ***Check the function***
Close the door.
Check that the interior lighting goes out after about 15 seconds

If this function is correct, proceed to page 85.
If not, continue fault diagnosis in Service Manual 3:2, "Interior lighting".

Important

If there is no fault on the electrical circuit for interior lighting, check the cable assembly between the control module, pin 4 and the time relay, pin 1 for short-circuit to ground.

Fault diagnosis false alarm



Fault symptom

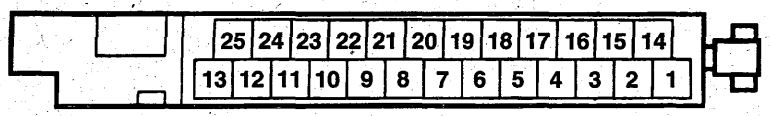
Alarm sounds falsely
(without any break in attempt)

Action

1 **Check the cause of the alarm**
Connect the ISAT scan tool.
Select "READ VALUES".
Select "LAST ALARM CAUSE".

If the cause of the alarm is registered, continue fault diagnosis on the fault symptom that this points to.
If no alarm cause is registered, proceed to page 85.

Measured values, control module connections



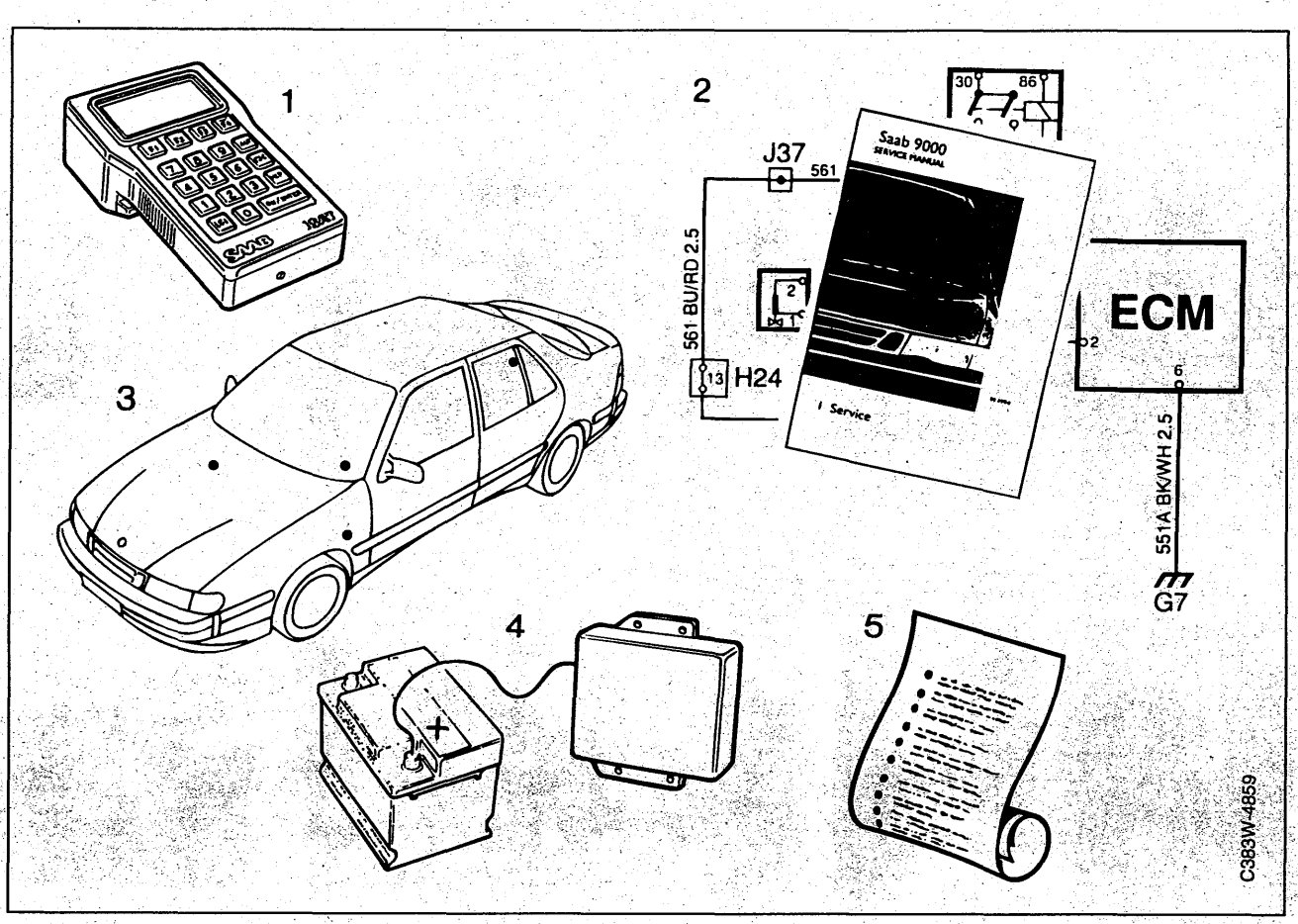
C383W-4861

Pin	Component/ function	In/out	Measuring conditions	Between	Measured value	Function/ fault diagnosis
1	Antenna remote transmitter, signal	IN				24/64
2	LED	OUT	Activate with ISAT scan tool Select "LED" "OFF" "ON"	 2—13 2—13	 <0.5 V 2 V	22/58
3	Tailgate switch	IN	Tailgate closed Tailgate open	3—13 3—13	12 V 0 V	15/70
4	Door switches	IN	Door closed door open Delay approx. 18 s	4—13 4—13	12 V 0 V	15/60
5	Glass breakage sensor, ground	IN	Ignition "OFF"	5—13	<5 Ohms	16/65
6	Central locking system, unlocking	IN	Disarm alarm using key, front doors - normal position - key position, unlock	 6—13	 12 V 0 V for 0.75 sec	27/60
7	Glass breakage sensor, input	IN	Central locking system unlocking (car key)	7—5	0.3 V	16/65
8	Starter relay, +50 supply	OUT	Starter motor cranking Ignition "ON" (+15)	13—8	12 V 0 V	21/51
9	Fuel pump relay	OUT	Ignition "ON" (+15) Alarm armed (when idling)	13—9	12 V 0 V	21/56
10	+15	OUT	Ignition "ON" (+15)	10—13	12 V	18/68
11	Horn	OUT	Activate using ISAT scan tool Select "HORN" "OFF" "ON"	 11—13 11—13	 12 V 0 V	19/69
12	Direction indicators	OUT	Activate using ISAT scan tool Select "FLASHERS" "OFF" "ON"	 12—13 12—13	 0 V 12 V	20/67

Measured values, control module connections (contd.)

Pin	Component/ function	In/out	Measuring conditions	Between	Measured value	Function/ fault diagnosis
13	Power ground	IN		13-Batt-	<0.1 V	12/--
14	Antenna ground	IN	Ignition "OFF"	14-13	<5 Ohms	24/64
15	Key, tailgate	IN	Arm alarm Locked position Unlocked position Key in tailgate lock	15-13	12 V	27/75
16	Switch, hood	IN	Hood open Hood closed	16-13	0 V 12 V	15/62
17	Central locking system, locking	IN	Arm alarm from driver door normal position key position lock	17-13	12 V 0 V for 0.75 sec	27/60
18	Door indication, driver door	IN	Open door Closed door	18-13	0 V 12 V	--/78
19	Diagnostics, comm. line	In/out	ISAT scan tool connected ISAT scan tool not connected	19-13	12 V 0 V	32/49
20	+50	IN	Starter motor cranking Ignition "ON" (+15)	20-13	12 V 0 V	21/51
21	+15 (4-cyl) +30 (6-cyl)	IN	Ignition "ON" (+15)	BPV -21	<0.5 V	18/56
22	+15 (4-cyl) +30 (6-cyl) Voltage supply Trionic/ Motronic	OUT	Ignition "ON" (+15)	BPV -22	<0.5 V	21/56
23	Unlocking tailgate using remote control	IN	Activate using ISAT scan tool Select "TAILGATE" "ON" "OFF" or remote control	23-13	12 V 0 V	26/72
24	Direction indicators	OUT	Activate using ISAT scan tool Select "FLASHERS" "OFF" "ON"	24-13 24-13	0 V 12 V	20/67
25	+30	IN		BPV -25	<0.5 V	12/--

Action before changing electronic control module



When all controls have been carried out according to the action schedule under the appropriate diagnostic trouble code or by manual fault diagnosis and no fault has been detected, it is natural to assume that the control module is faulty.

For this reason, run carefully through the following points before definitely deciding that the theft alarm control module is the cause of the fault.

1 Check one more time that all the points in the fault diagnosis schedule for the relevant diagnostic trouble code or fault symptom have been followed.

2 Study the wiring diagram for the circuit in question and make sure that you understand it. If necessary, refer to appropriate parts of the technical description and the electrical function description in Service Manual "3:2 Wiring diagrams".

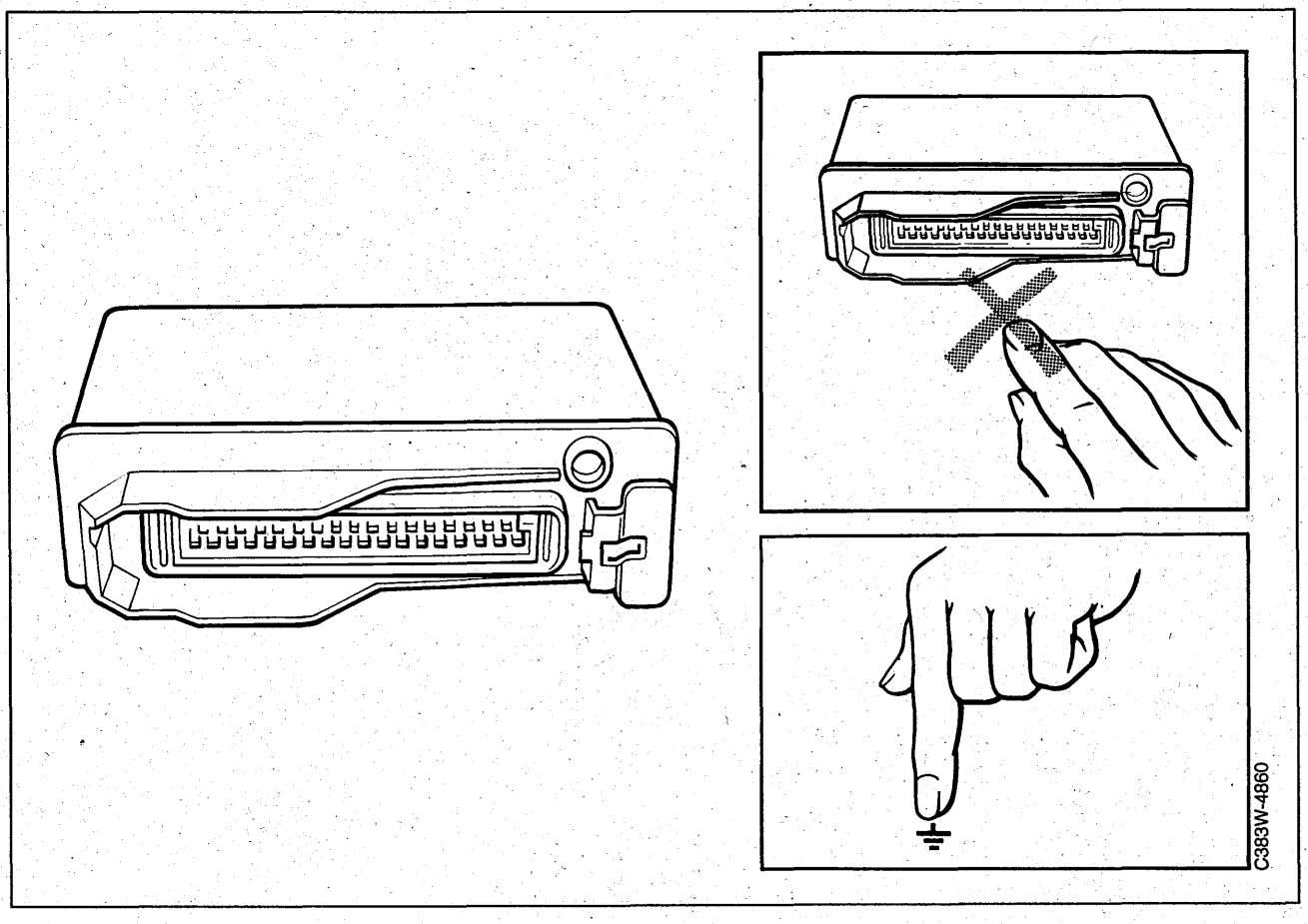
3 Check all grounding points. If you have already done this, do it again. Check that the power ground and the sensor are mechanically and electrically isolated.

4 Check the voltage supply to the control module.

5 Experience from M93 shows that most of the control modules returned for warranty repairs were not faulty.
Be restrictive when changing control modules. Unnecessary changing of control modules constitutes a large expense to Saab Automobile and its dealers. Think through possible causes of the fault before changing the control module.

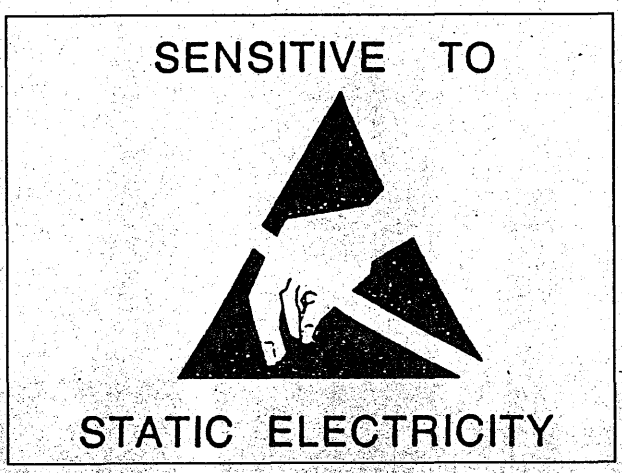
6 If the original fault remains despite this, the theft alarm control module must be changed.

Handling electronic control modules



All control modules are more or less sensitive to static electricity and can, if they are handled incorrectly, be so seriously damaged as to be rendered unserviceable. It is therefore important that the following rules are always followed when a control module is to be removed or changed for whatever reason.

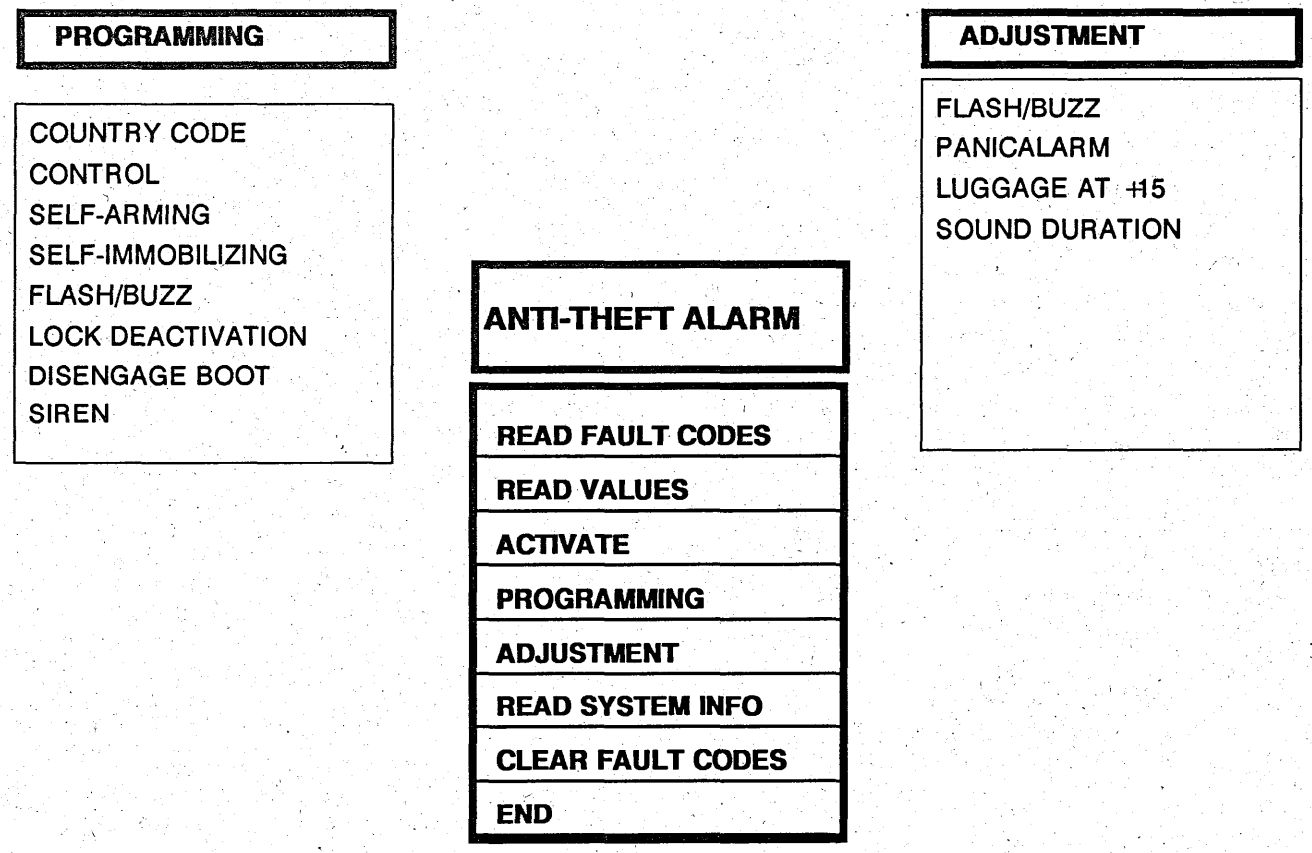
- Avoid unplugging or removing the control module if it is not absolutely necessary.
- Never touch the connector pins and never place the control module so that the connector pins may come into contact with anything else.
- Before unpacking a new control module, ground the packaging to the car body and open the packaging as short a time as possible before fitting.
- When working with the control module it is important to regularly ground yourself. This is especially important when you have been sitting in the car, when you have changed position or moved around the car and is especially important in climatic conditions with very dry air (e.g. in the winter in cold markets).



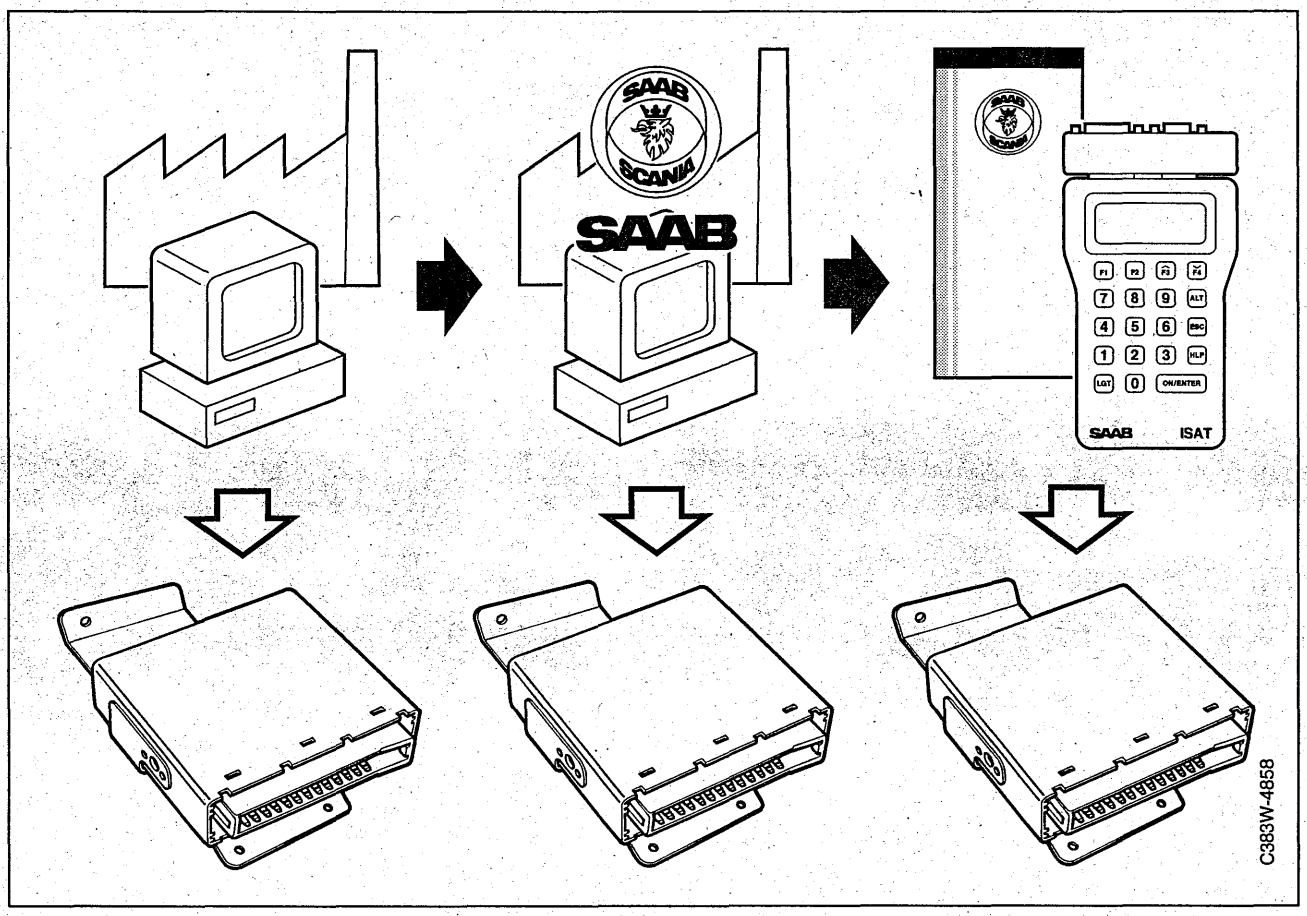
- Avoid wearing clothes of synthetic materials.
- Avoid shoes with insulating rubber soles.
- Always handle control modules suspected of being defective in the same way. This significantly increases the possibility of localizing the cause of the fault.

Programming and adjusting

ISAT scan tool menu structure



Theft alarm basic programming



The theft alarm control module has a basic program from the supplier. EOL programming is then carried out in the factory. This cannot however meet the requirements of all countries which means that further programming must be done at **delivery service** , see the table on the next page. When changing a control module, the alarm must be programmed as **spare part programming** , see the table on page 90.

Instructions and descriptions of the functions are on pages 91-103. Where there is no cross in the tables, the unit is pre-programmed from the supplier.

Important

If new values are programmed at the request of a customer or for any other reason, it is up to the mechanic to make sure that these do not break any laws or insurance requirements that might apply.

Theft alarm basic programming (contd.)

Programming at delivery service

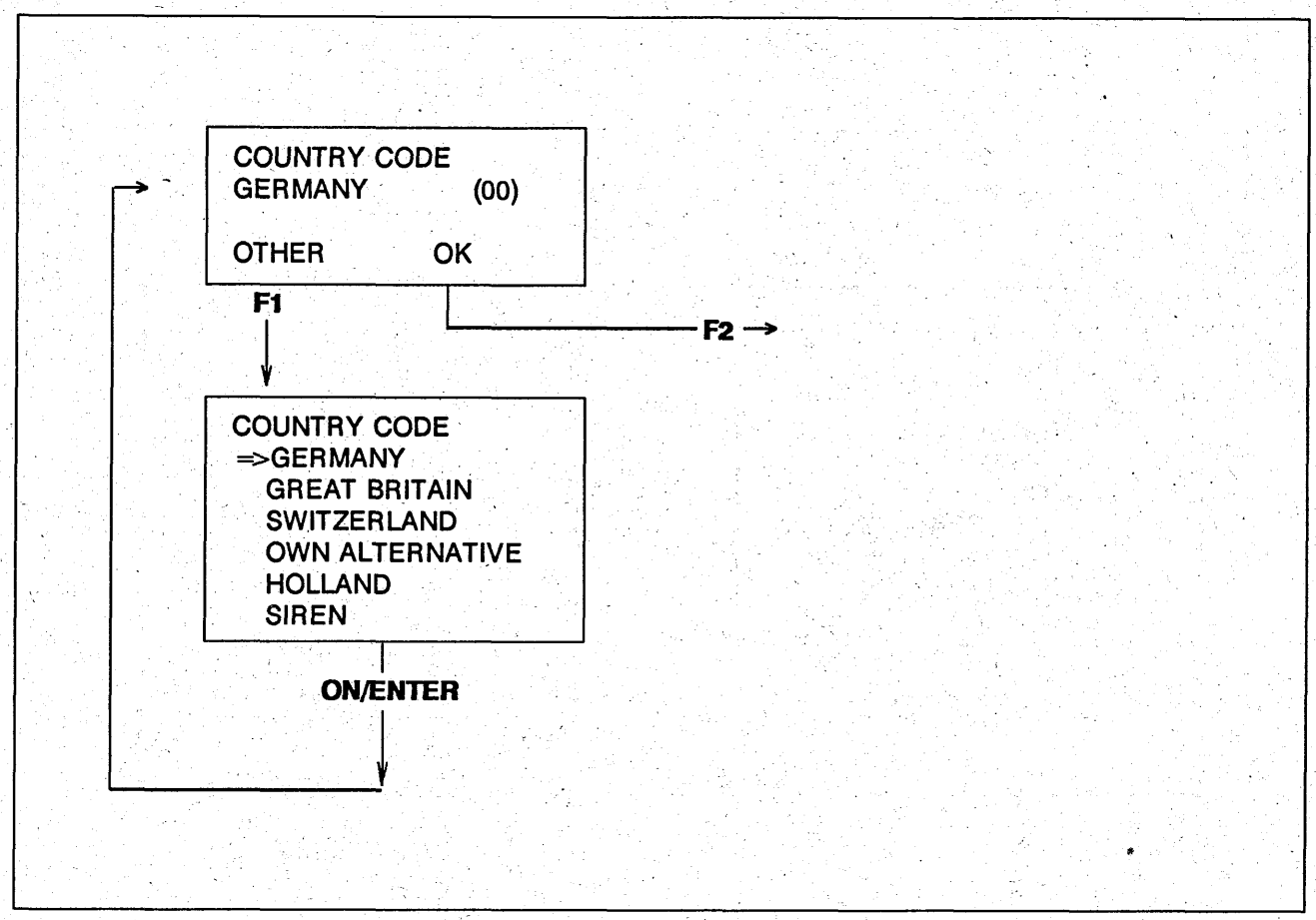
ISAT scan tool command	Market										
PROGRAMMING	**US**	**PA**	**JP**	**SE**	**D**	**GB**	**NL**	**CH**	**BE**	**FR**	**Other**
COUNTRY CODE select between:											
GERMANY											
GREAT BRITAIN						X					
SWITZERLAND								X			
OWN ALTERNATIVE											
HOLLAND							X				
SIREN (always selected if included)											
CONTROL select:											
PROGRAMMING											
SELF-ACTIVATING select between:											
OFF											
AT +15 OFF											
AT +15 OFF, DOOR CLOSED											
TIME BEFORE ACTIV.											
ACTIVATION TIME											
SELF-IMMOBILIZING select between:											
OFF											
ON					X	X	X		X	X	
TIME BEFORE ACTIV. (m=min)					6 m	30 s	30 s		30 s	30 s	
ACTIVATION TIME (m=min)					60 m	60 m	60 m		60 m	60 m	
FLASH/SOUND select between:											
ORIGINAL VALUE											
ADJUSTMENT											
LOCK DEACTIVATION select between											
OFF											
ON											
DISENGAGE BOOT select between:											
OFF											
ON											
SIREN select between:											
OFF											
ON (selected if siren fitted)											
PROGRAMMING	**US**	**PA**	**JP**	**SE**	**D**	**GB**	**NL**	**CH**	**BE**	**FR**	**Other**

Theft alarm basic programming (contd.)

Programming spare part

ISAT scan tool command	Market										
PROGRAMMING	**US**	**PA**	**JP**	**SE**	**D**	**GB**	**NL**	**CH**	**BE**	**FR**	**Other**
COUNTRY CODE select between:											
GERMANY											
GREAT BRITAIN						X					
SWITZERLAND								X			
OWN ALTERNATIVE											
HOLLAND							X				
SIREN (always selected if included)											
CONTROL select:											
PROGRAMMING	X	X	X	X	X	X	X	X	X	X	X
SELF-ACTIVATING select between:											
OFF											
AT +15 OFF											
AT +15 OFF, DOOR CLOSED											
TIME BEFORE ACTIV.											
ACTIVATION TIME											
SELF-IMMOBILIZING select between:											
OFF											
ON					X	X	X		X	X	
TIME BEFORE ACTIV. (m=min)					6 m	30 s	30 s		30 s	30 s	
ACTIVATION TIME (m=min)					60 m	60 m	60 m		60 m	60 m	
FLASH/SOUND select between:											
ORIGINAL VALUE	X	X	X	X	X	X	X	X	X	X	X
ADJUSTMENT											
LOCK DEACTIVATION select between											
OFF											
ON											
DISENGAGE BOOT select between:											
OFF											
ON											
SIREN select between:											
OFF											
ON (selected if siren fitted)											
PROGRAMMING	**US**	**PA**	**JP**	**SE**	**D**	**GB**	**NL**	**CH**	**BE**	**FR**	**Other**

Alarm signal, country-adapted/own alternative/siren



The theft alarm is pre-programmed for the requirements of 4 different countries on how an alarm is given. The operation thus fulfills the laws and insurance requirements that apply in these countries. For countries with other requirements, and for different customer requirements, individual programming is available under "OWN ALTERNATIVE" in the menu.

Programming

Country-adapted

1 Connect the ISAT scan tool.
Select "PROGRAMMING"

2 Select "COUNTRY CODE".

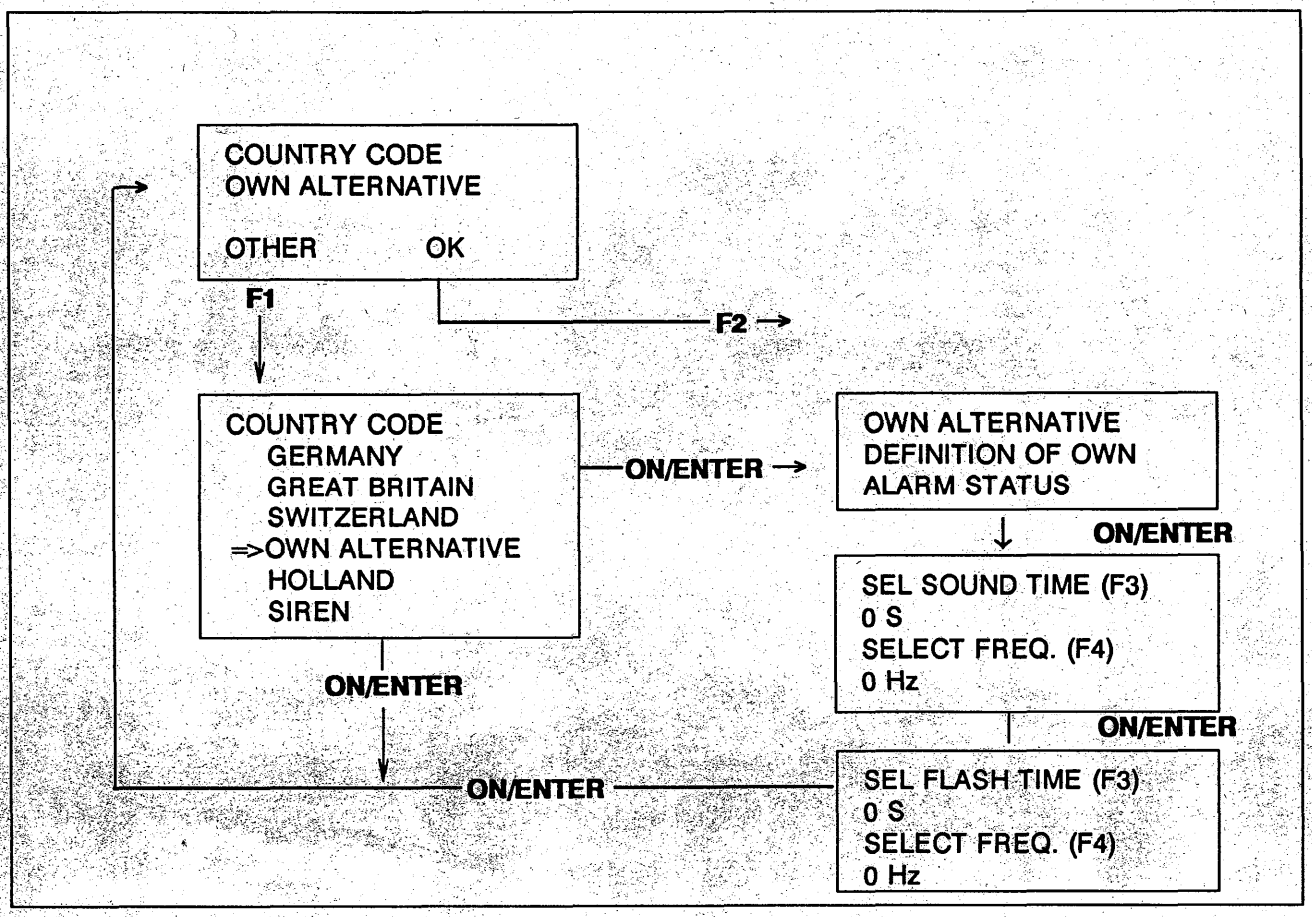
3 Select country.

The values that apply for each country are given in the table to the right. For "OWN ALTERNATIVE" or "SIREN", see the description on the next page.

Country	Sound time	Flash time
Germany	30 sec(*	5 min
Great Britain	30 sec(*	does not flash
Switzerland	30 sec(**	does not flash
Own alternative		
Holland	30 sec(**	5 min
Siren		

*) Sound repeated at intervals.
**) Sound repeated continuously.

Alarm signal: Country-adapted/own alternative/siren (contd.)



Programming (contd.)

Own alternative

1 Select "COUNTRY CODE".
Select "OWN ALTERNATIVE".

2 Select the desired value for the alarm signal (sound and/or flash) according to the table below.

Sound time: 0-30-60-90-120-180-240-300 sec
Sound frequency: 0-0.5-1-2 signals/sec
Flash time: 0-60-120-180-240-300 sec
Flash frequency: 0-0.5-1-2-4 signals/sec

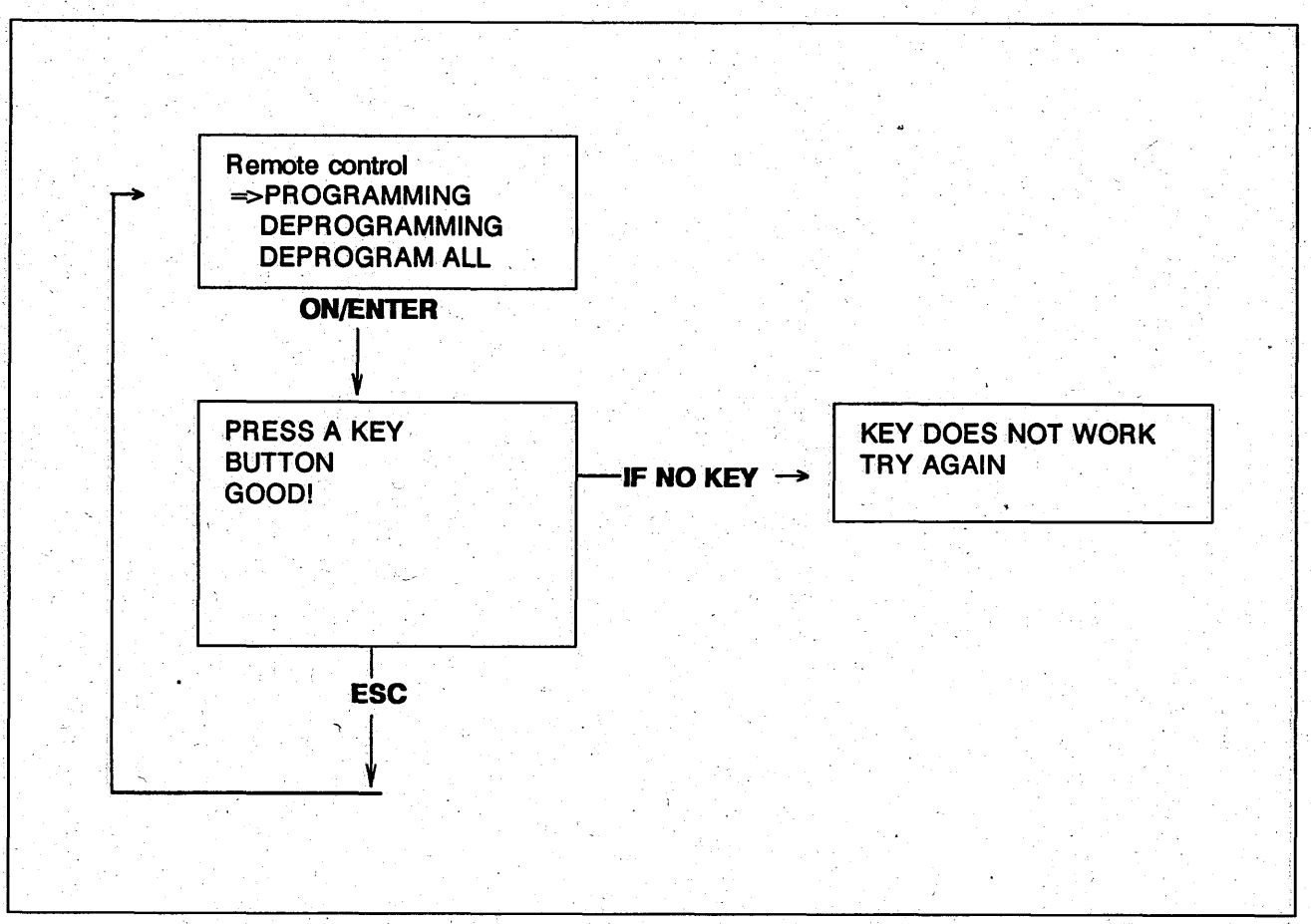
Siren

If a siren with battery back-up is fitted, this must be selected in the country code menu. The "SIREN" command, last in the programming menu is also selected "ON". Continue on page 100.

Important

The alarm horn must be disconnected when a siren with battery back-up is fitted.

Programming for remote control



The remote control that is used for the car theft alarm must be programmed (coded) for the particular car. When the car is delivered, 2 preprogrammed remote controls are included. It is also possible to program a further two remote controls (a total of 4 remote controls can be programmed) for the car.

Programming

A remote control

1 Connect the ISAT scan tool.
Select "PROGRAMMING".

2 Select "CONTROL".
Select "PROGRAMMING".

3 Point the remote control at the antenna and press on of the buttons within 5 seconds of selecting the ISAT scan tool command.

Deprogramming a remote control

1 Select "CONTROL".
Select "DEPROGRAMMING".

2 Point the remote control at the antenna and press on of the buttons within 5 seconds of selecting the ISAT scan tool command.

Deprogramming all remote controls

1 Select "CONTROL".
Select "DEPROGRAM ALL".

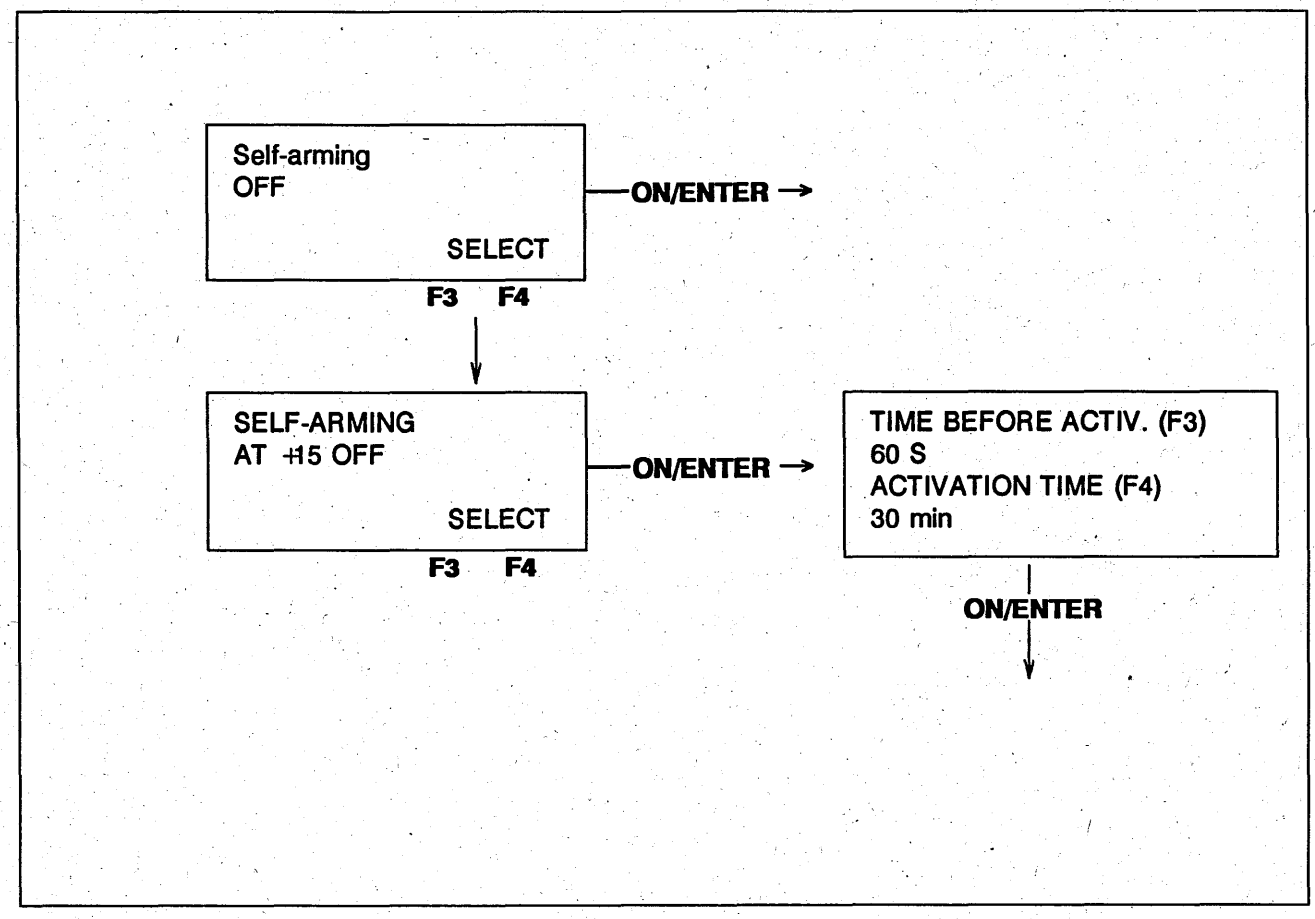
2 All programmed remote controls are then deprogrammed.

Important

Make a habit of always having the ignition in the drive position when deprogramming all remote controls. This is to avoid deprogramming while the car is armed.

If a remote control is lost, all remote controls can be deprogrammed. This means that the customer must take all remote controls for reprogramming.

Self-arming



The theft alarm can be programmed for self-arming where the alarm automatically starts monitoring without the use of the remote control. There are two types of self-arming. For both alternatives, the time before the function becomes active should be specified. A so-called activation time must also be specified. The activation time is the time the 3 circuit breaking is active without the alarm being set off.

When the alarm is set off, the selected country code will apply. The LED will start its delay period according to the specified "TIME BEFORE ACTIV." and then go over to indicating that the alarm is armed.

Programming

Self-arming

Connect the ISAT scan tool.
Select "PROGRAMMING".
Select "SELF-ARMING" and then:

1 "OFF" in order to deselect self-arming.
2 "AT +15 OFF" to select the self-arming function to be connected when the ignition is "OFF".
3 "+15 OFF DOOR CLOSED" to select the self-arming function to be connected with the ignition "OFF" and the driver door closed.

Time before self-arming

1 Select "TIME BEFORE ACTIV.".
2 Select time: 30, 60, 120, 180, 300 or 600 seconds as the time before the alarm self-arms.

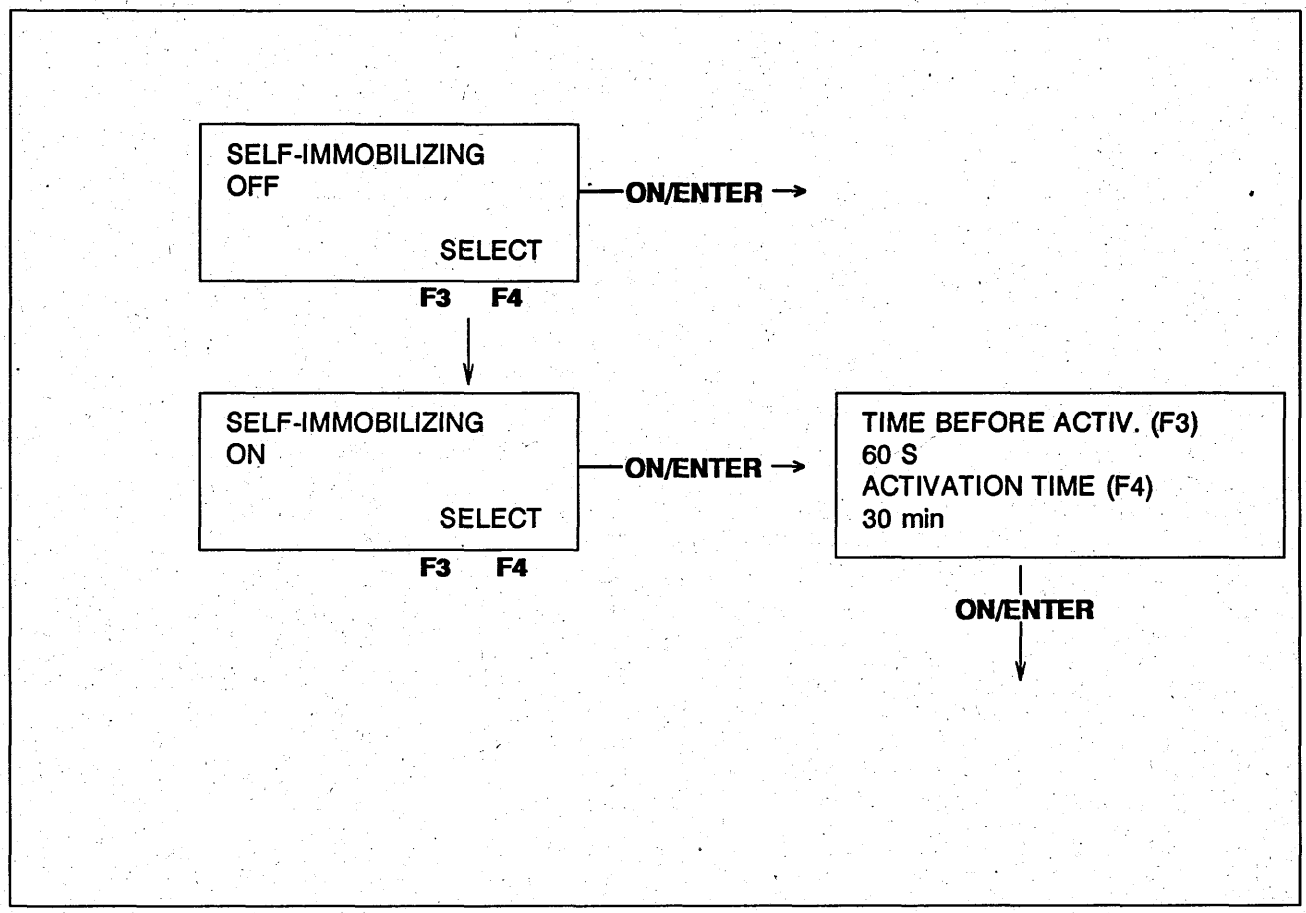
Arming time

Select "ACTIVATION TIME": 30, 45 or 60 minutes.

Important

When self-arming has been selected, "self-immobilizing", or the so-called 3 circuit breaking will also be automatically included in the arming.

Self-immobilization (3-circuit breaking)



The theft alarm can be programmed for self-immobilizing alone, and in this case, only the alarm 3 circuit breaking is activated. This happens automatically without the use of the remote control.

This function is only used when self-arming has been disabled. When self-arming is selected, the function is automatically included. Only two choices are possible and if the "ON" selection is made, it will be connected in accordance with the previously selected self-arming alternative. If no self-arming alternative is selected, the function will be connected when the ignition is off and the door closed.
When the function is active, this is indicated by the LED flashing 1 flash/second. This happens after "TIME BEFORE ACTIV.".

Programming

Self-immobilizing

Connect the ISAT scan tool.
Select "PROGRAMMING".
Select "SELF-IMMOBILIZING" and then:

1 "ON" to select self-immobilizing.

2 "OFF" to deselect self-immobilizing.

Time before self-immobilizing

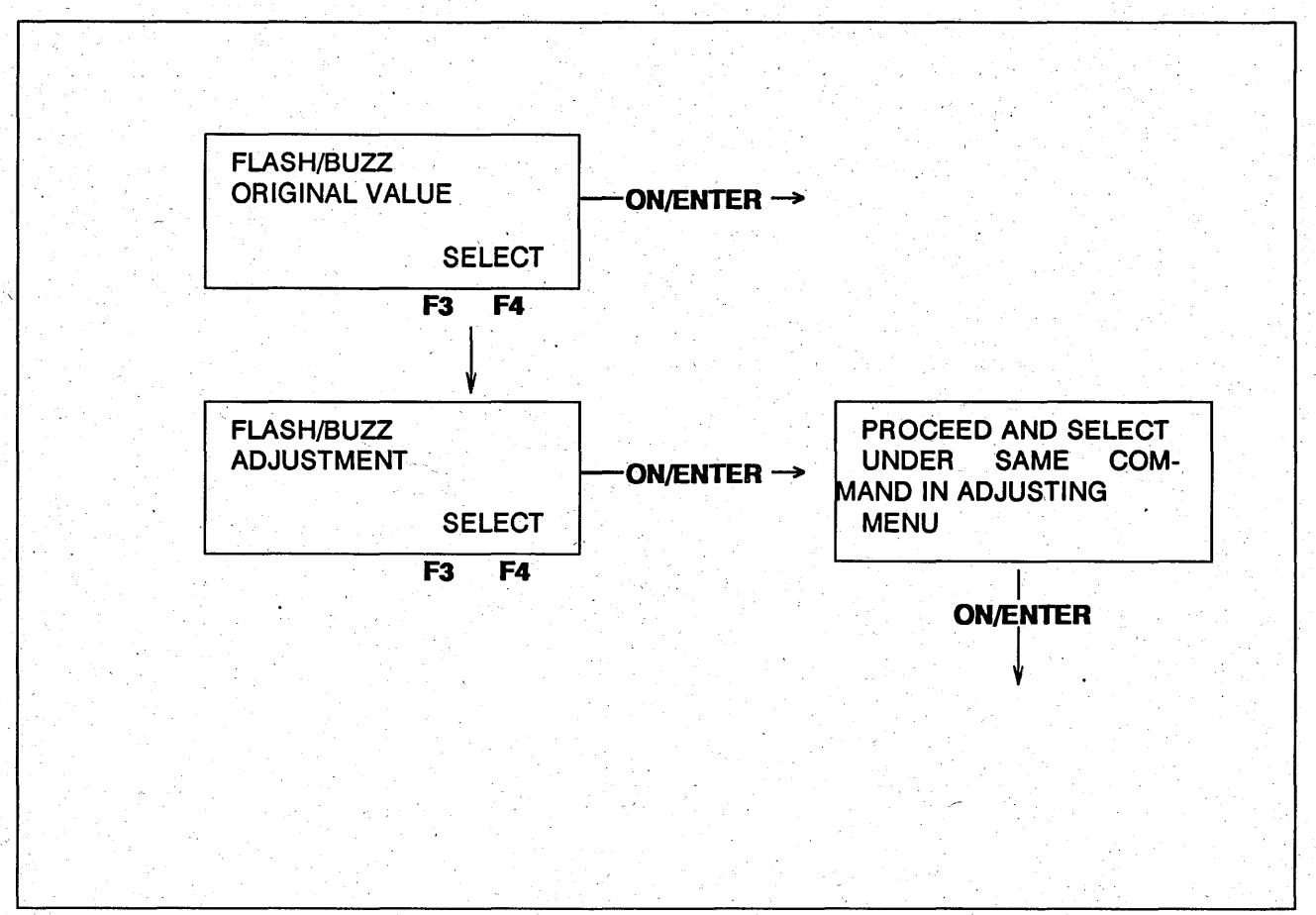
1 Select "TIME BEFORE ACTIV." if "ON" was selected above.

2 Select time: 30, 60, 120, 180, 300 or 600 seconds as the time before the self-immobilizing is armed.

Immobilizing time

Select "ACTIVATION TIME": 30, 45 or 60 minutes.

Remote control: flash/sound confirmation



When arming/disarming/unlocking the tailgate using the remote control, a flash/sound confirmation can be received. These are programmable and can be limitedly selected.

The following is the case at delivery:

- if the **LH button** is pressed to arm the car, the car's direction indicators will flash once for 0.5 seconds. If the LH button is used for unlocking/ disarming, this is indicated by the car's direction indicators flashing 3 times. If the car alarm has been set off, this is shown by 5 flashes when disarming.
- if the **RH button** is pressed to unlock the tailgate, this is not indicated. It is however possible to program a flash/sound confirmation for this function.

Programming

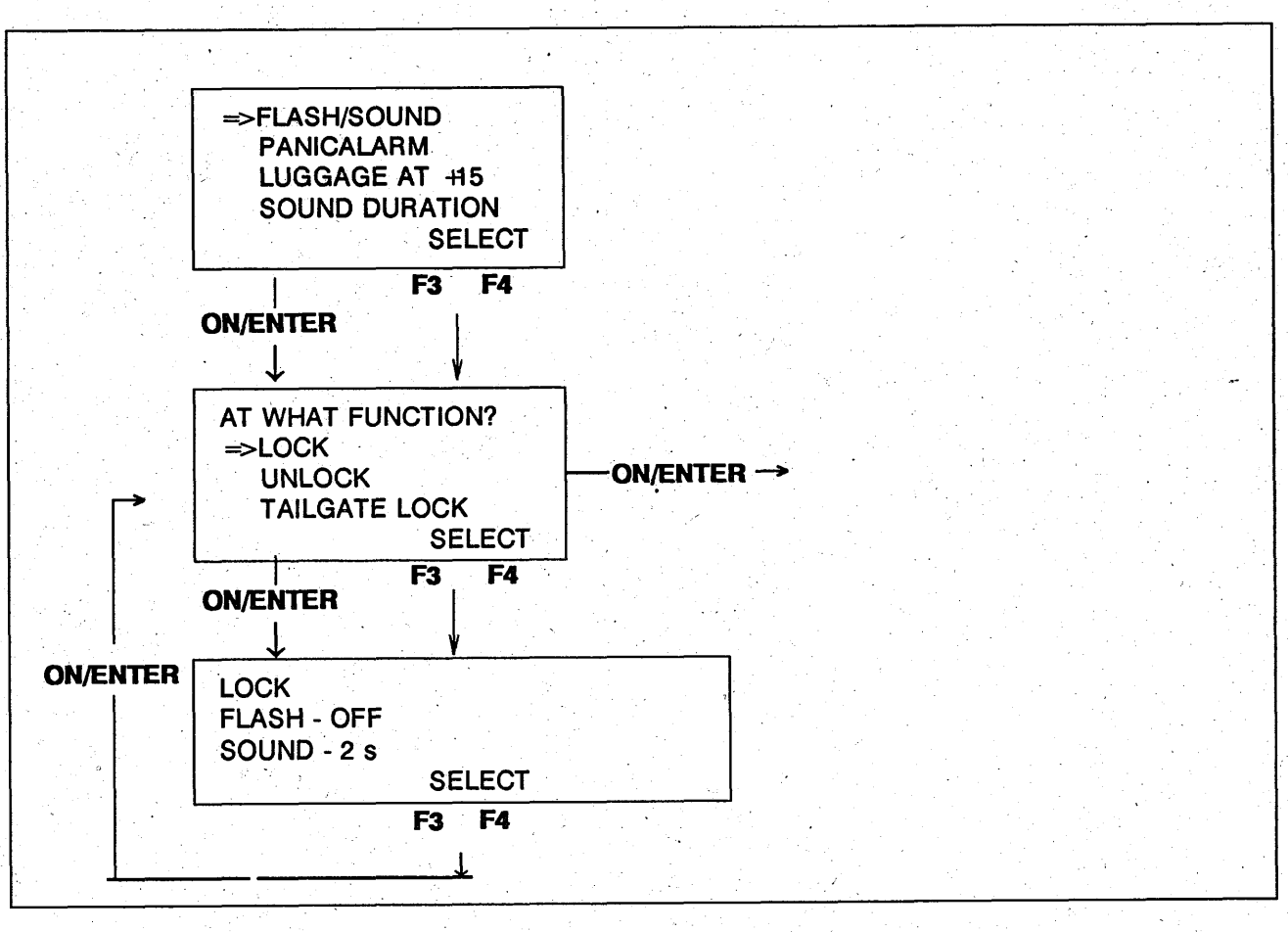
LH button

Connect the ISAT scan tool.
Select "PROGRAMMING".
Select "FLASH/SOUND" and then:

1 "ORIGINAL VALUE" to select programming as at delivery from factory (see above). It is also possible to select sound confirmation for the 3 functions.

2 "ADJUSTING" to select programming other than the factory selection. See next page.

Remote control: adjusting flash/sound confirmation



If "ADJUSTMENT" is selected in the programming menu on the previous page, new settings can be made as described below. These settings will then apply.

Programming

Arming (lock)

1 Select "ADJUSTMENT".
Select "FLASH/SOUND".
Select "LOCK".

2 Select the setting for the direction indicators:

OFF — no direction indicators
0.5 s — direction indicators light for 0.5 sec.
2 s — direction indicators light for 2 sec
5 s — direction indicators light for 5 sec

3 Select the setting for sound (horn):

OFF — does not sound
1 — sounds once
2 — sounds twice
3 — sounds three times

Dis-arming (unlock)

1 Select "ADJUSTMENT"
Select "FLASH/SOUND".
Select "UNLOCK".

2 Select direction indicator setting as previously.

3 Select sound setting (horn) as previously.

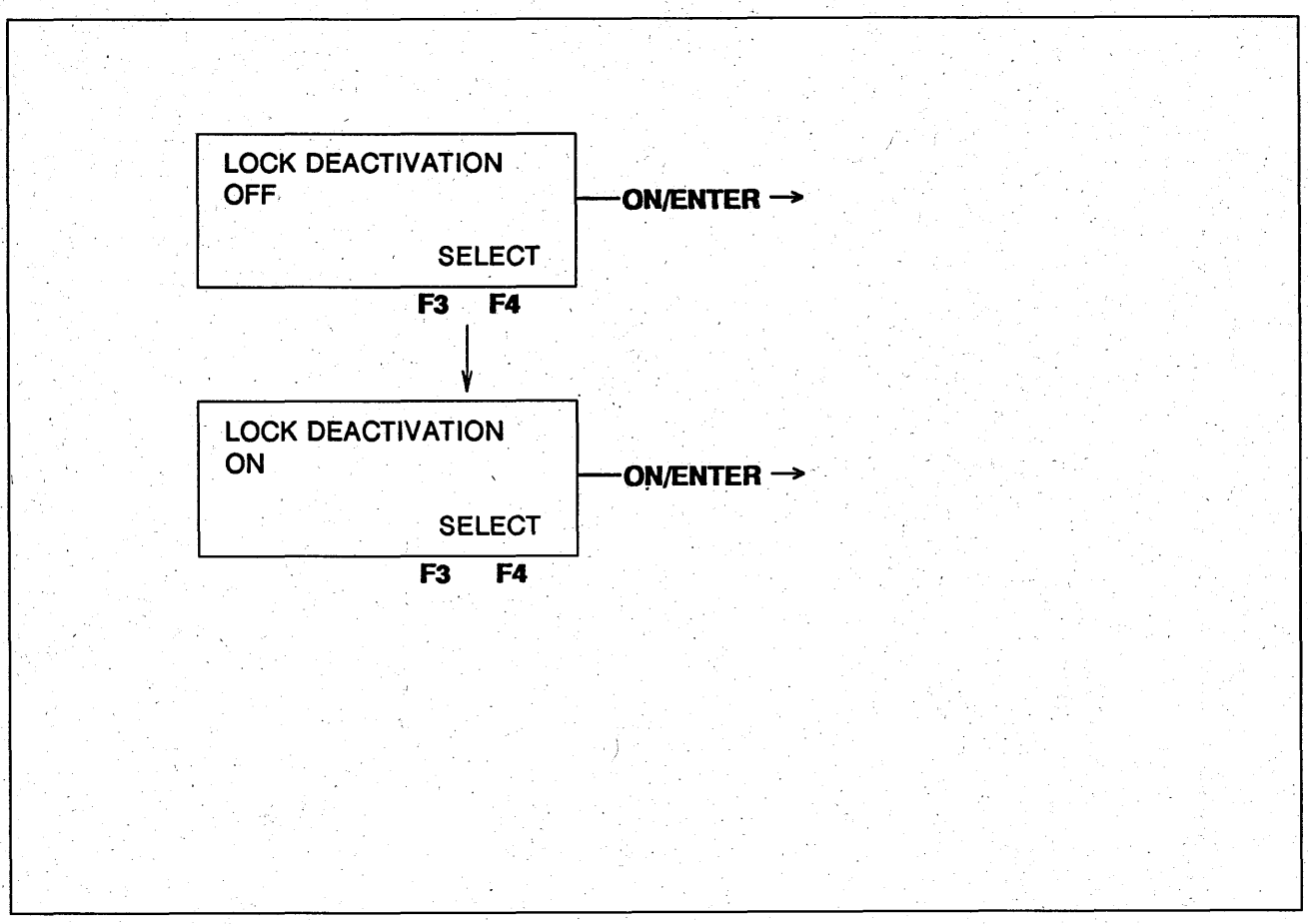
Unlocking tailgate

1 Select "ADJUSTMENT".
Select "FLASH/SOUND".
Select "TAILGATE LOCK".

2 Select direction indicator setting as previously.

3 Select sound setting (horn) as previously.

Programming for car key



The basic version of the theft alarm can be armed/disarmed with the remote control and the car key. Arming/disarming with the car key can be deprogrammed for countries that require this.

Programming

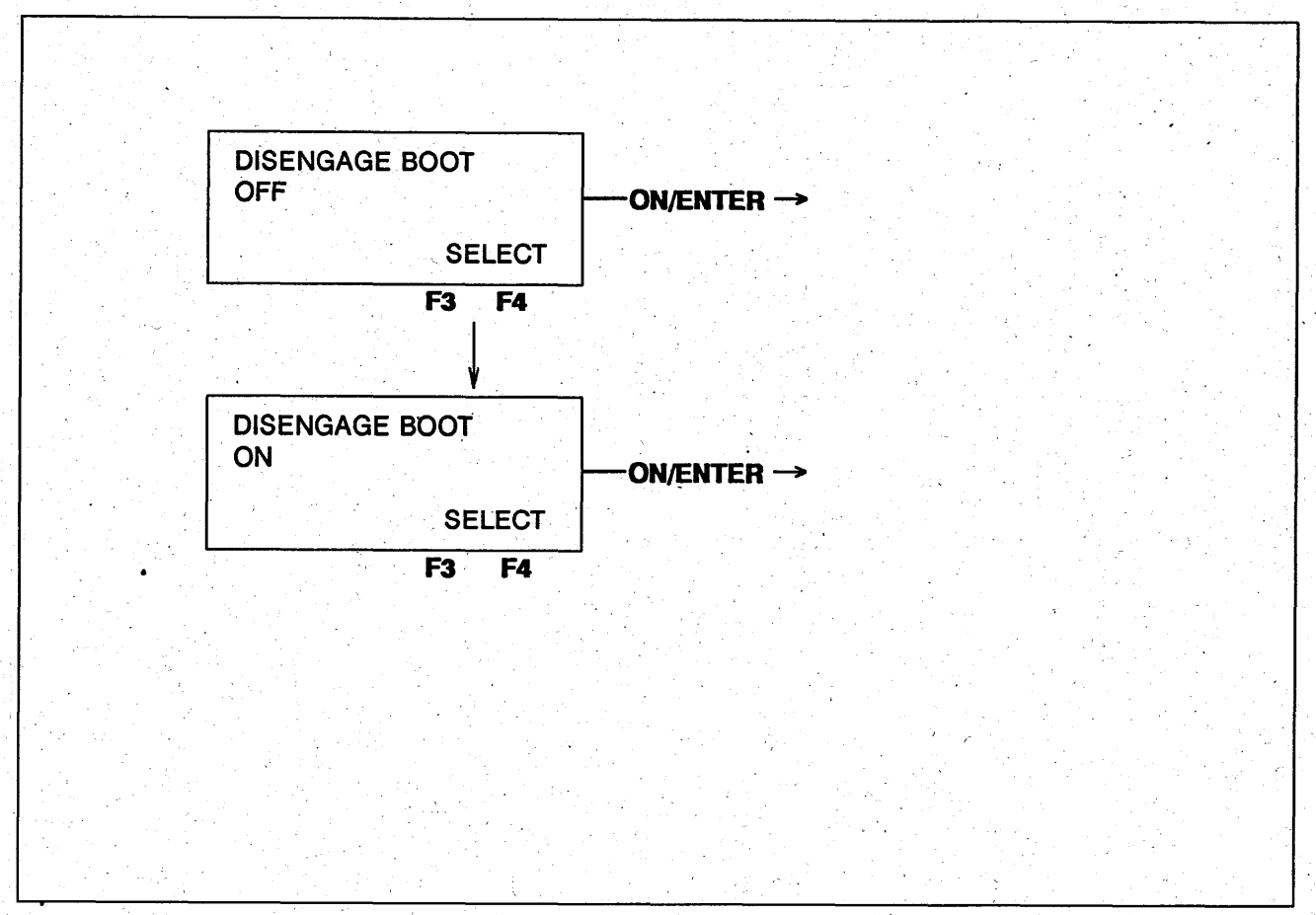
Car key for arming/disarming the alarm

Connect the ISAT scan tool.
Select "PROGRAMMING".
Select "LOCK DEACTIVATION" and then:

1 "OFF" if only the remote control is to be able to be used to arm/disarm the alarm.

2 "ON" if the car key and the remote control are to be able to be used to arm/disarm the alarm.

Programming for car key (contd.)



Car key to arm/disarm the tailgate

Select "PROGRAMMING".
Select "DISENGAGE BOOT" and then:

1 "OFF" if only the remote control is to be able to be used.

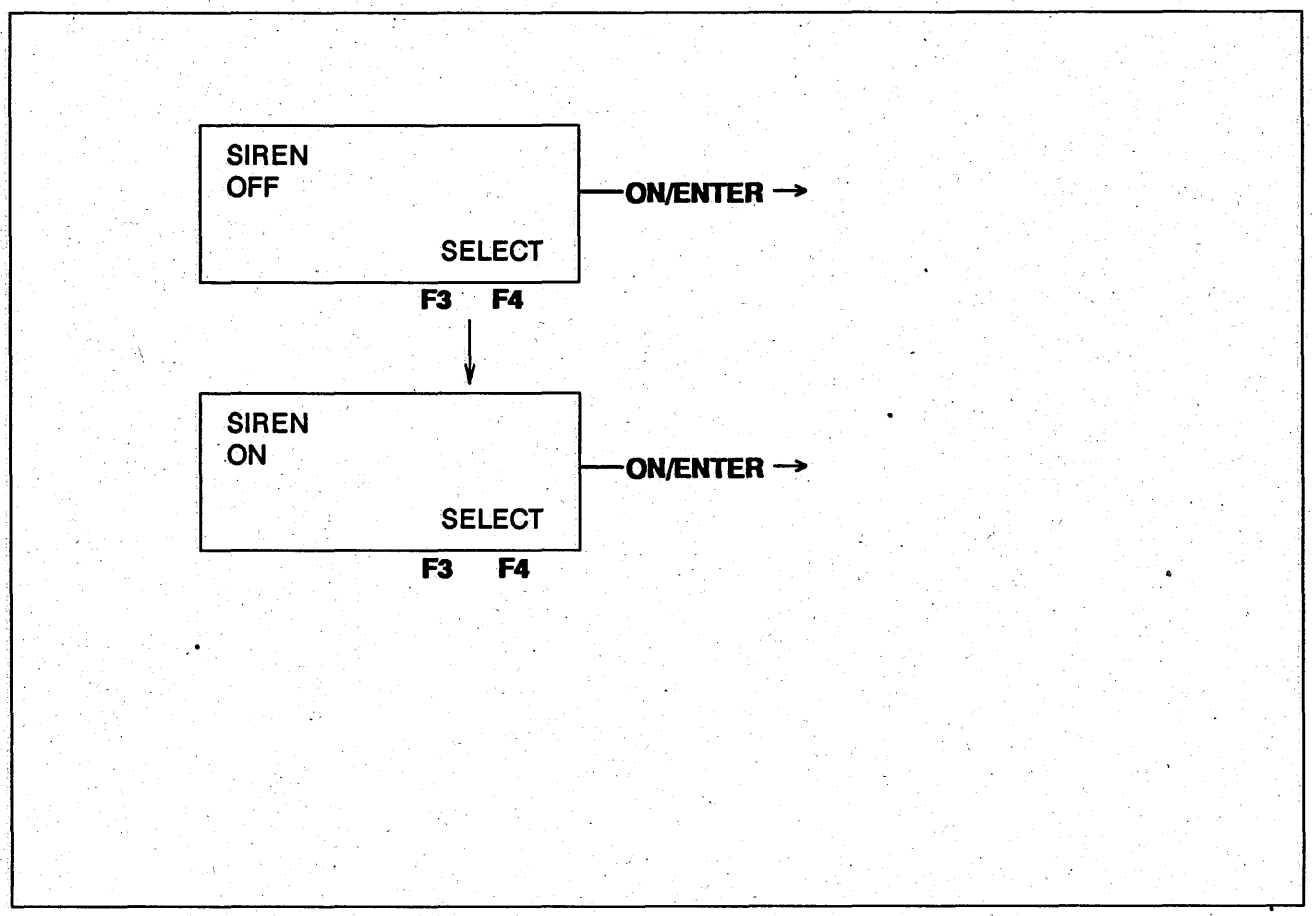
2 "ON" if the car key and the remote control are to be able to be used to open the tailgate when the car is armed.

When the tailgate is opened, it is removed from alarm monitoring. When it is closed, it is included in the alarm monitoring after the delay period.

Important

If this function is selected "OFF", the alarm will be set off by any attempt to open the tailgate using the key.

Programming for siren



In the basic version, only the alarm's special horn is used for the sound alarm. However, in certain markets it is required that a siren with battery back-up is fitted. The alarm **horn** is activated via a relay output in the electronic control module. This means that the horn is activated by being grounded. The **siren** must be continuously supplied with 12 V, and if this is cut, the siren starts. In order to achieve this, the alarm must be programmed for the siren. In order to function correctly, the siren must be selected in the "COUNTRY CODE" menu. See programming "COUNTRY CODE".

Programming

Connect the ISAT scan tool.
Select "PROGRAMMING".
Select "SIREN" and then:

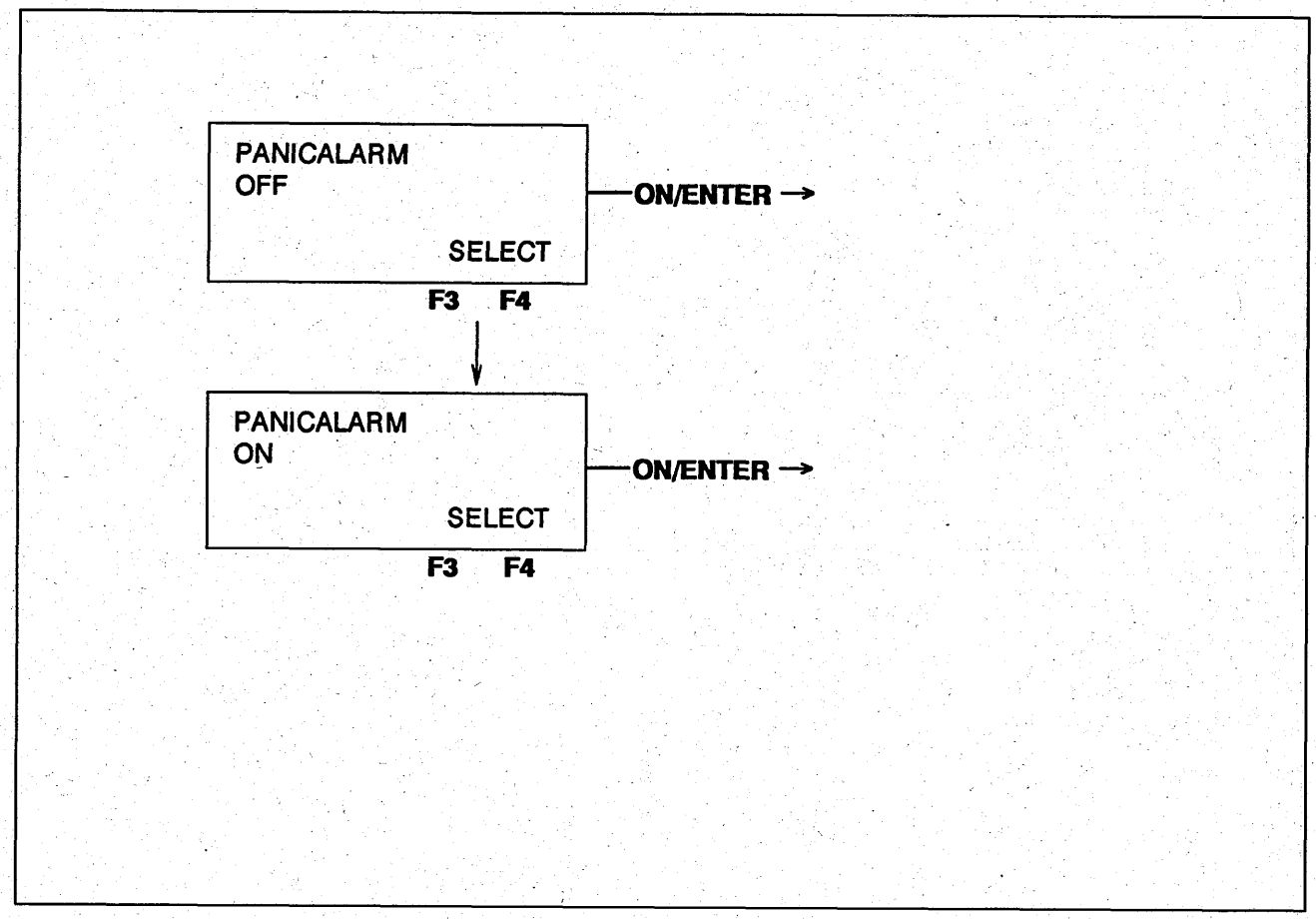
1 "ON" if the siren is to be included.

2 "OFF" if the siren is not to be included.

Important

IF "ON" is selected, the sound confirmation not available.

Panic alarm



The theft alarm has a programmable "panic function". This means that the alarm can be quickly set off using only the remote control if for instance an attempted break-in is discovered.

- The alarm is set off if the left-hand button on the remote control is held depressed for at least 2.25 sec.
- The alarm is according to the country code selected.
- Press the LH button again to switch off the panic alarm.

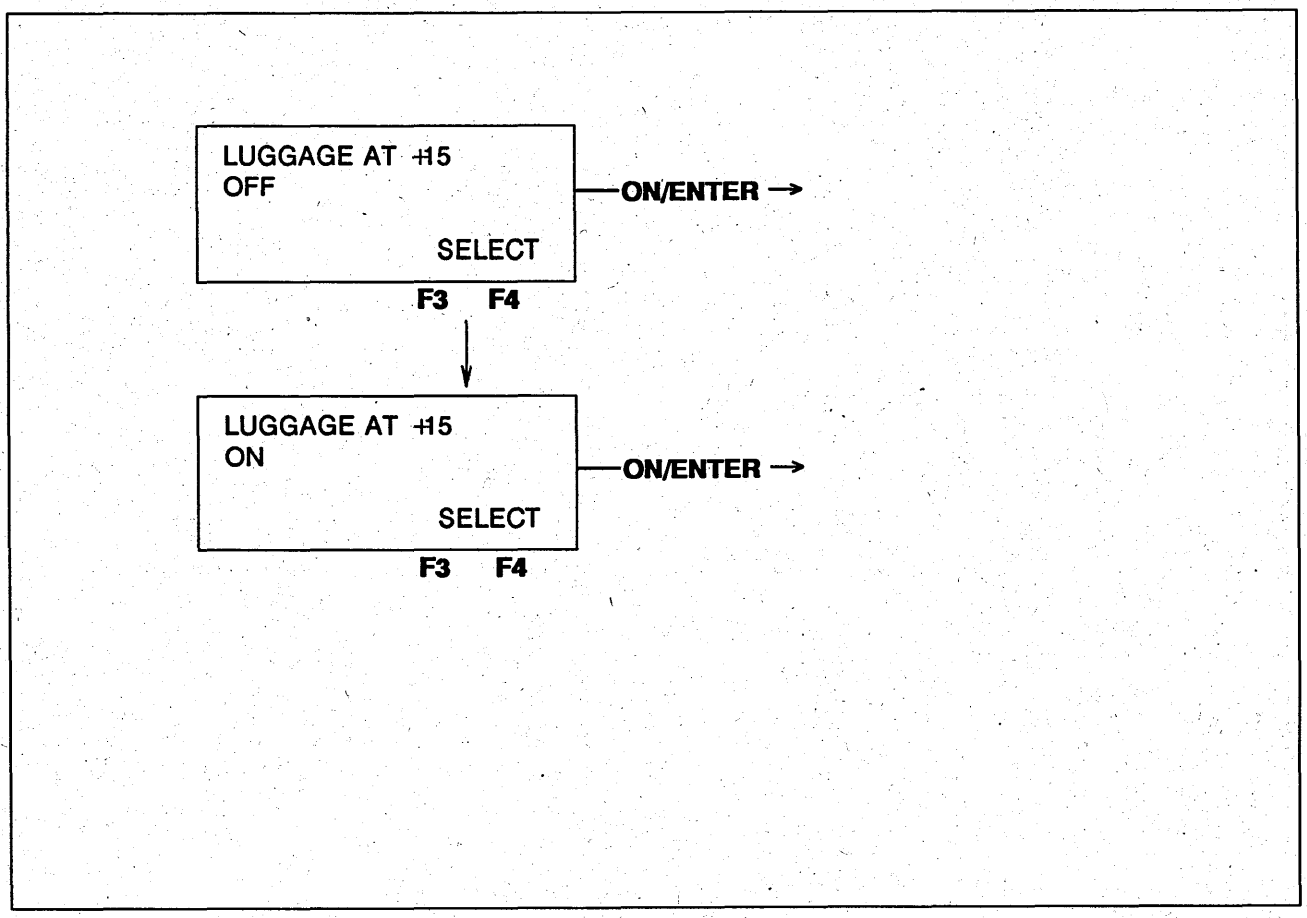
Programming

Connect the ISAT scan tool.
Select "ADJUSTING"
Select "PANICALARM" and then:

1 "OFF" if the function is not to be included.

2 "ON" if the function is to be included.

Opening tailgate at ignition +15



The tailgate cannot normally be opened using the remote control if the ignition is on. This is made possible with the following programming.

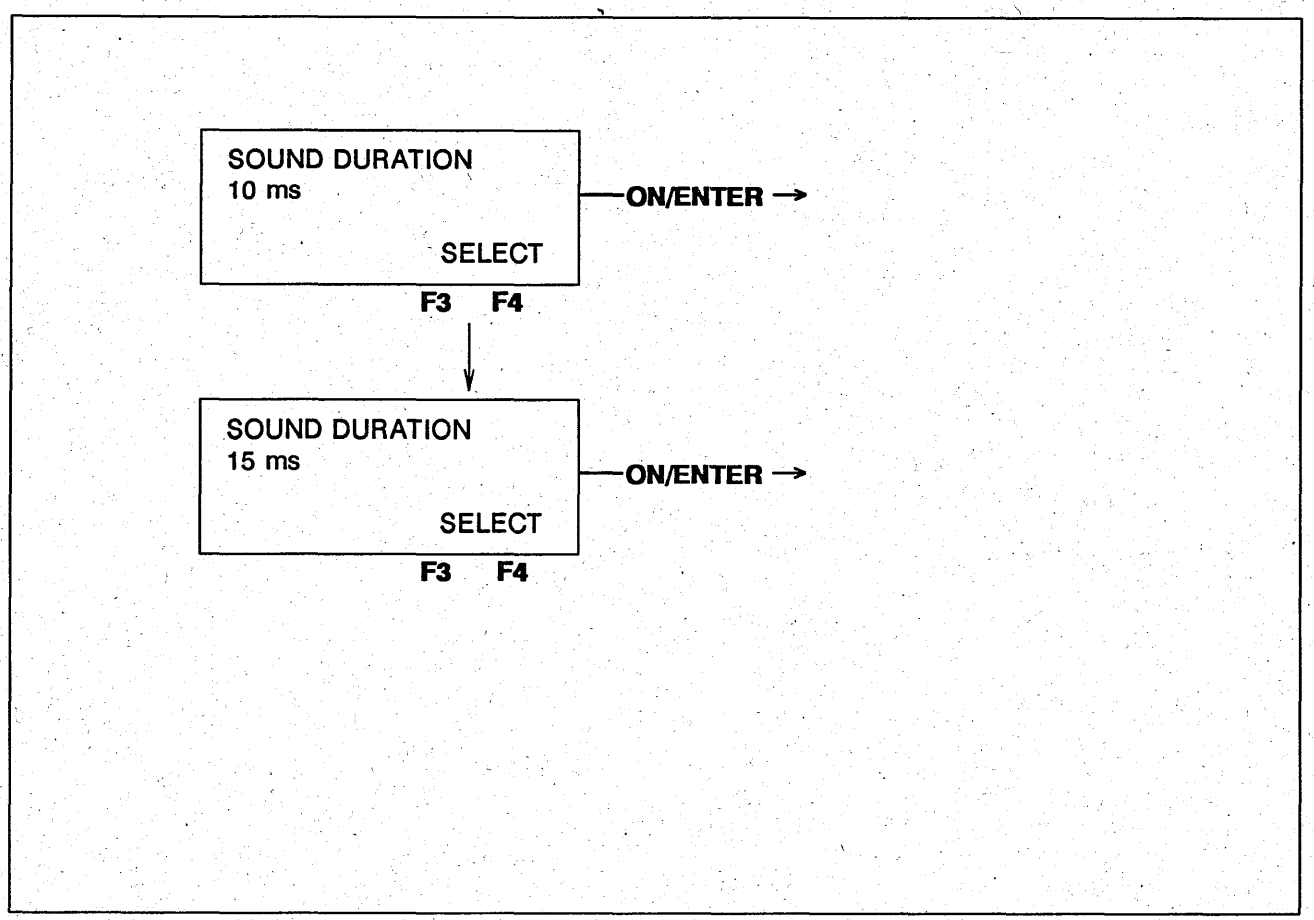
Programming

Connect the ISAT scan tool.
Select "ADJUSTMENT".
Select "LUGGAGE AT +15" and then:

1 "OFF" if the tailgate is not to be able to be opened with the ignition in +15 position (ON).

2 "ON" if the tailgate is to be able to be opened with the ignition in the +15 position (ON).

Sound adjustment (sound characteristics)



When setting with the "FLASH/SOUND" menu, only the number of times the sound signal sounds is changed. With this function, the character of the sound can be changed by changing the time (sound length for each sound signal).

Programming

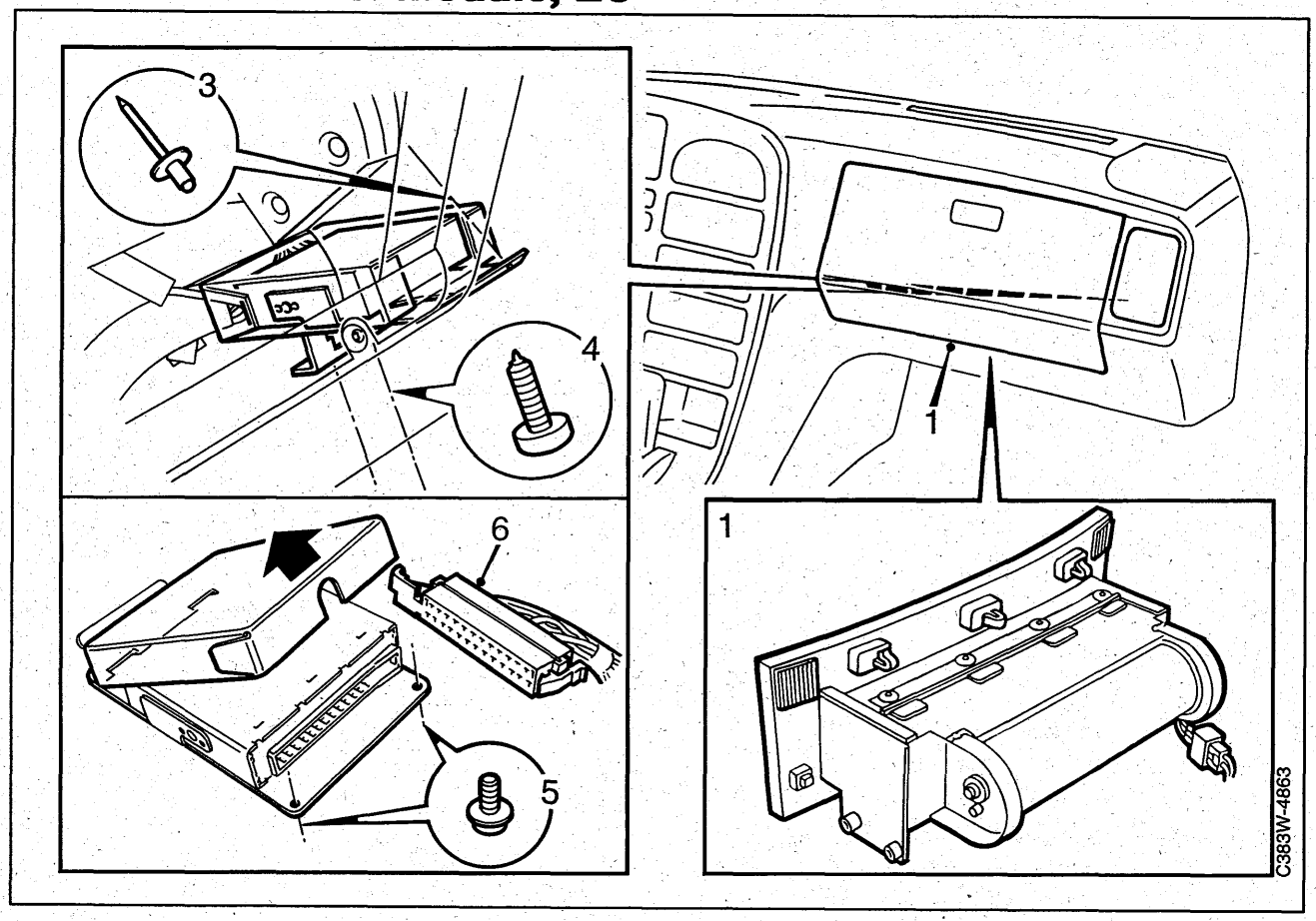
Connect the ISAT scan tool.
Select "ADJUSTMENT".
Select "SOUND DURATION".
Select time:

5-10-15-20-25-30 msec.

A low value will be a heard as a low volume and a high value as a high volume.

Changing components

Electronic control module, EU



1 **Cars without passenger airbag**
Remove the glove compartment and air distribution damper.

Cars with passenger airbag
Remove the complete airbag, including the bracket and the air distribution damper.

2 Carefully push up the air duct on the passenger side.

3 Drill out the pop rivet securing the electronic control module. Use a drill with a drilling stop.

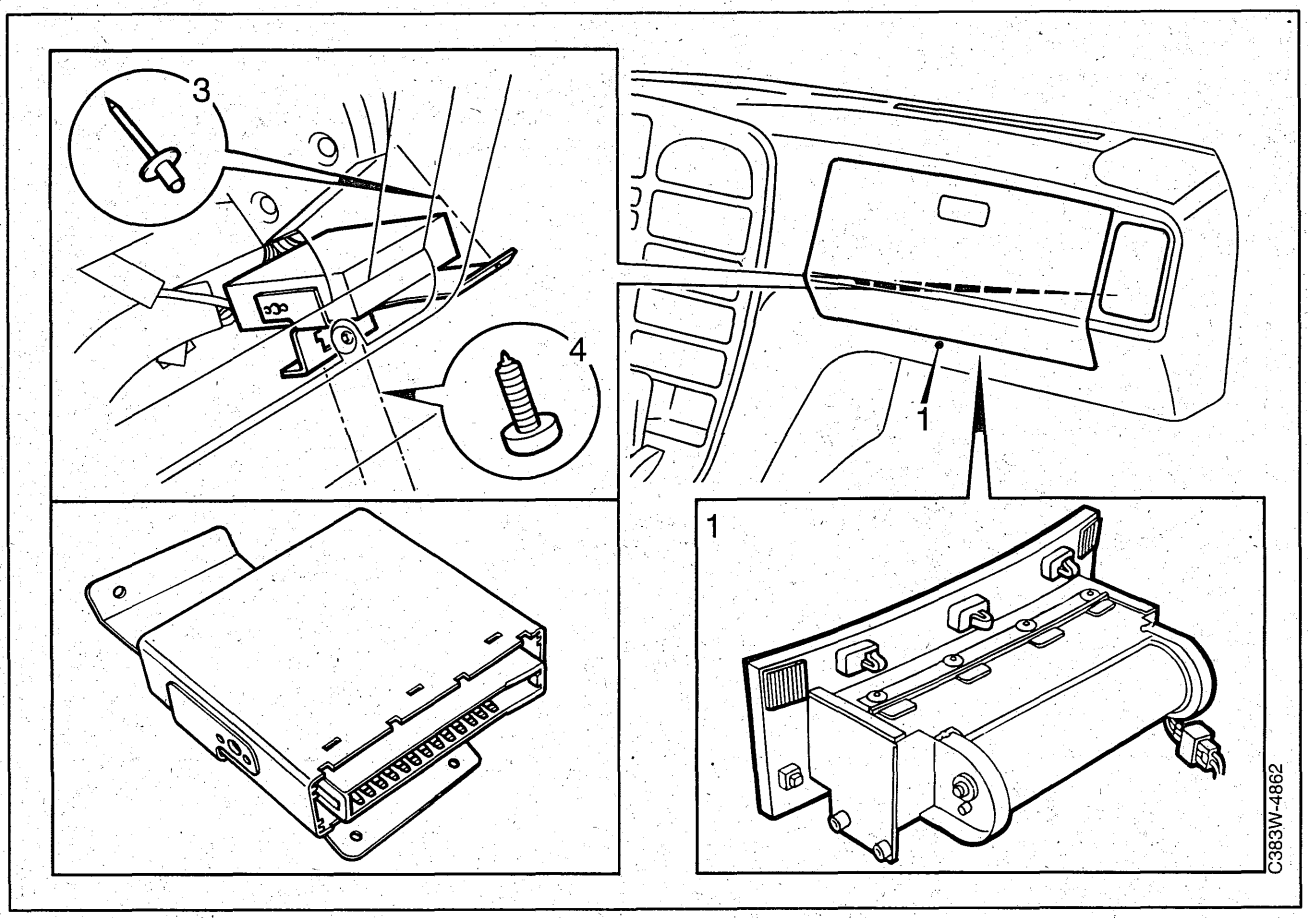
4 Remove the two screws on the electronic control module (from underneath). Lift out the electronic control module.

5 Drill out the screws on the electronic control module casing and remove the lid. Pull out the plate between the electronic control module and the bracket.

6 Unplug the connector to the electronic control module.

7 Fit in reverse order

Electronic control module, SE/US/CA



1 **Cars without passenger airbag**
Remove the glove compartment and air distribution damper.

Cars with passenger airbag
Remove the complete airbag, including the bracket and the air distribution damper.

2 Carefully push up the air duct on the passenger side.

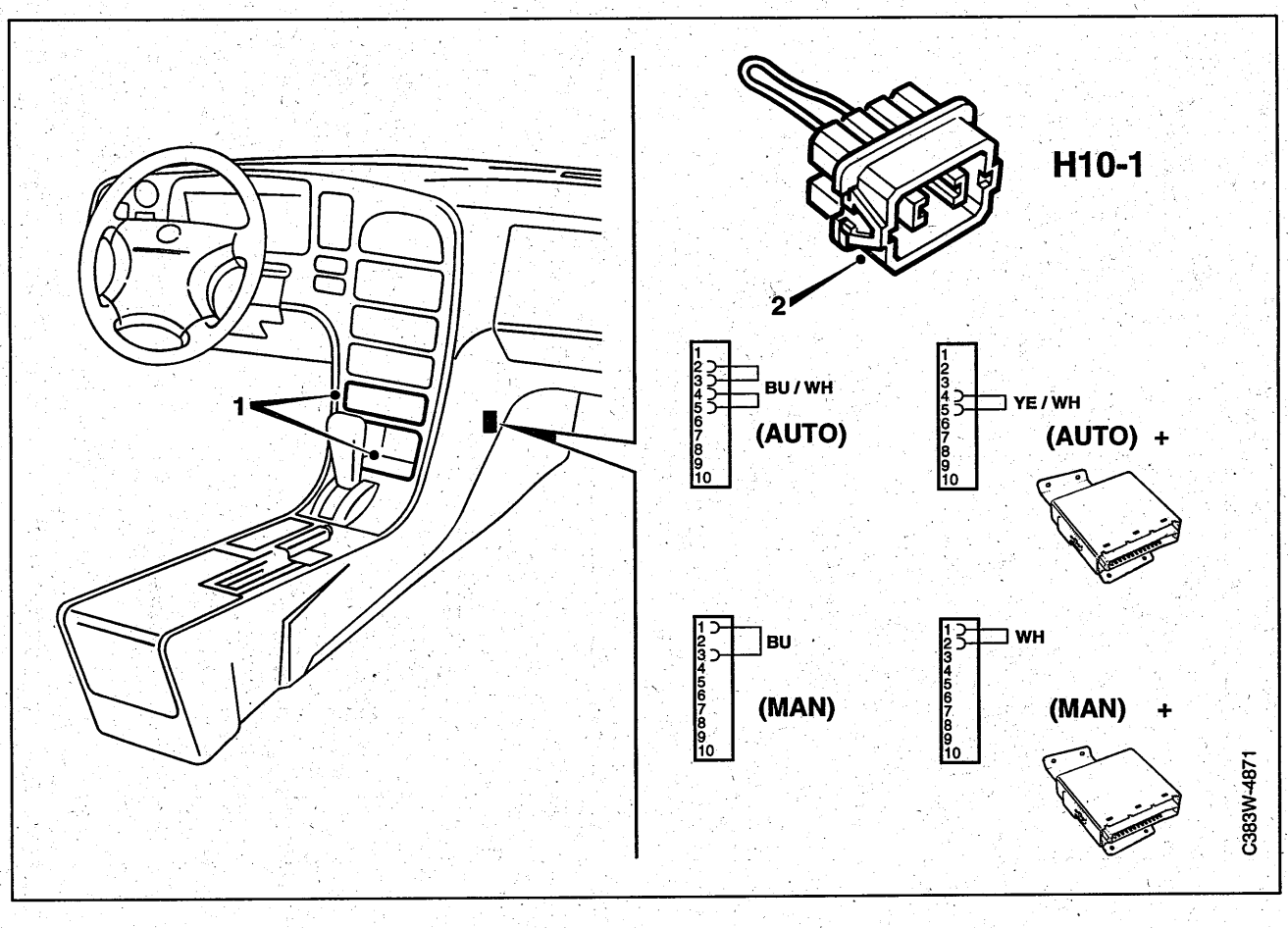
3 Drill out the pop rivet securing the electronic control module. Use a drill with a drilling stop.

4 Remove the two screws on the electronic control module (from underneath). Lift out the electronic control module.

5 Unplug the connector to the electronic control module.

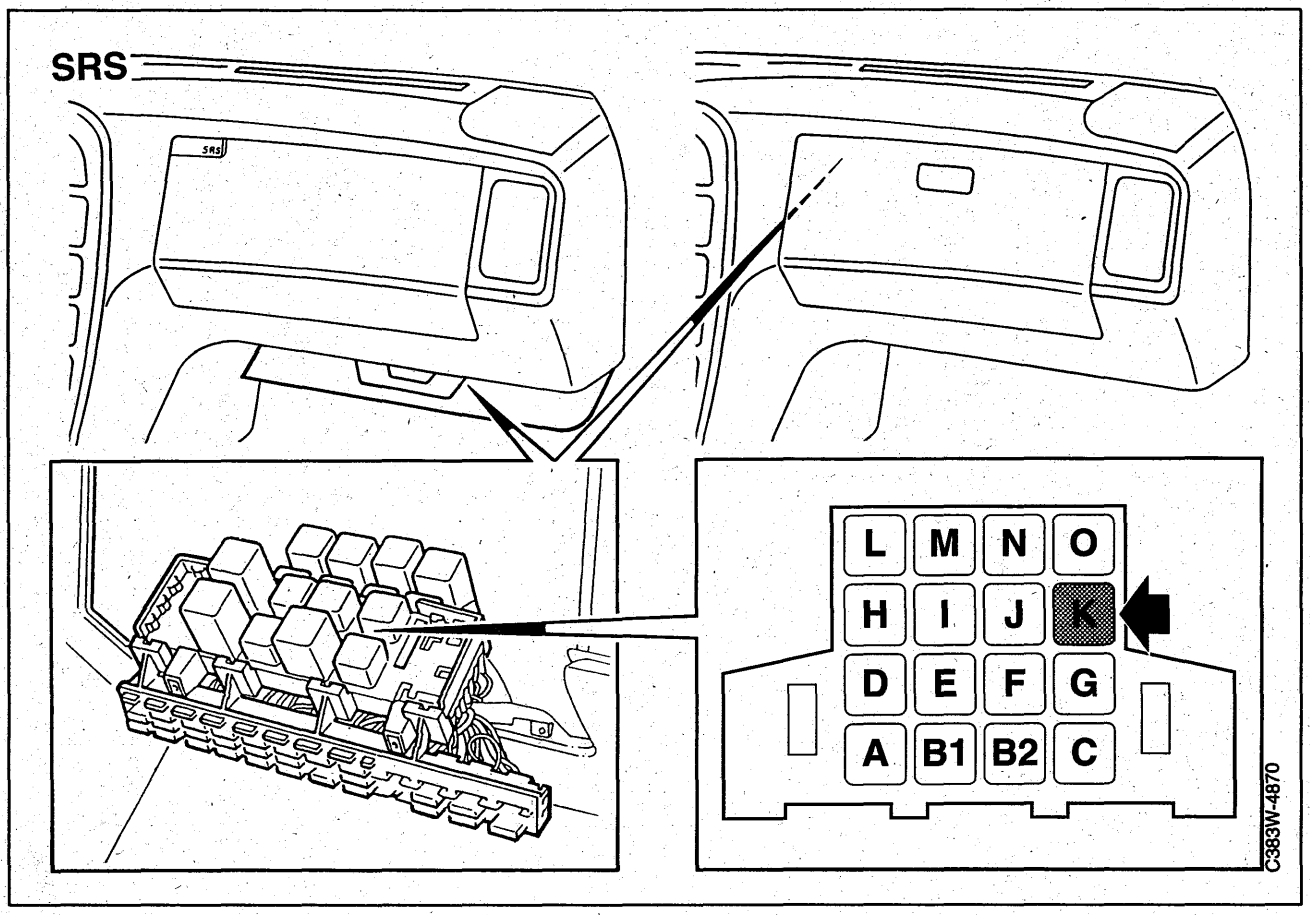
6 Fit in reverse order

Jumper connector



1 Remove the two lower storage compartments in the center console.
2 Remove the jumper connector.
3 Fit in reverse order

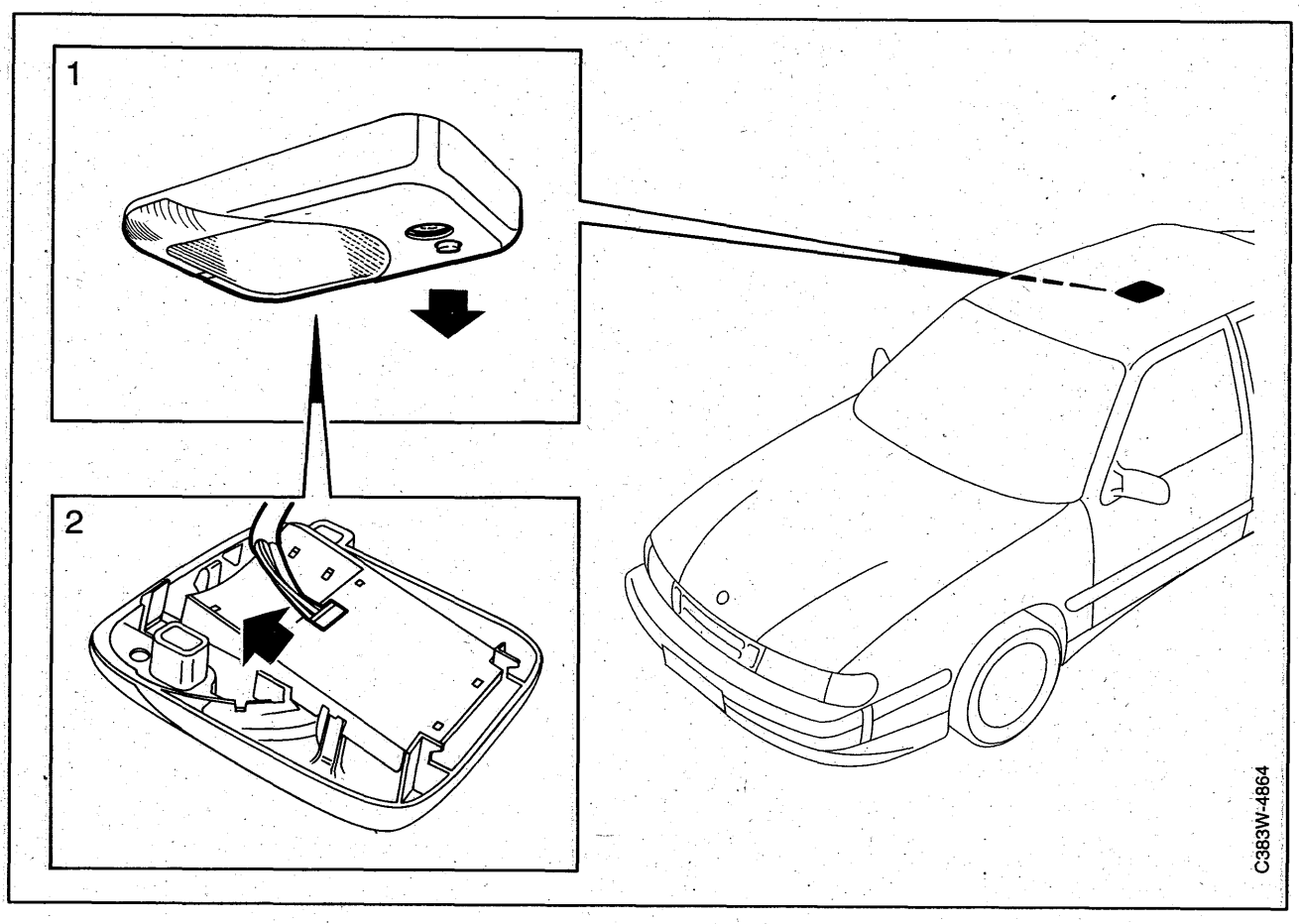
Starter relay



Cars without passenger airbag
The relay board is located behind the glove compartment.

Cars with passenger airbag
The relay board is located under the airbag module.

Glass breakage sensor

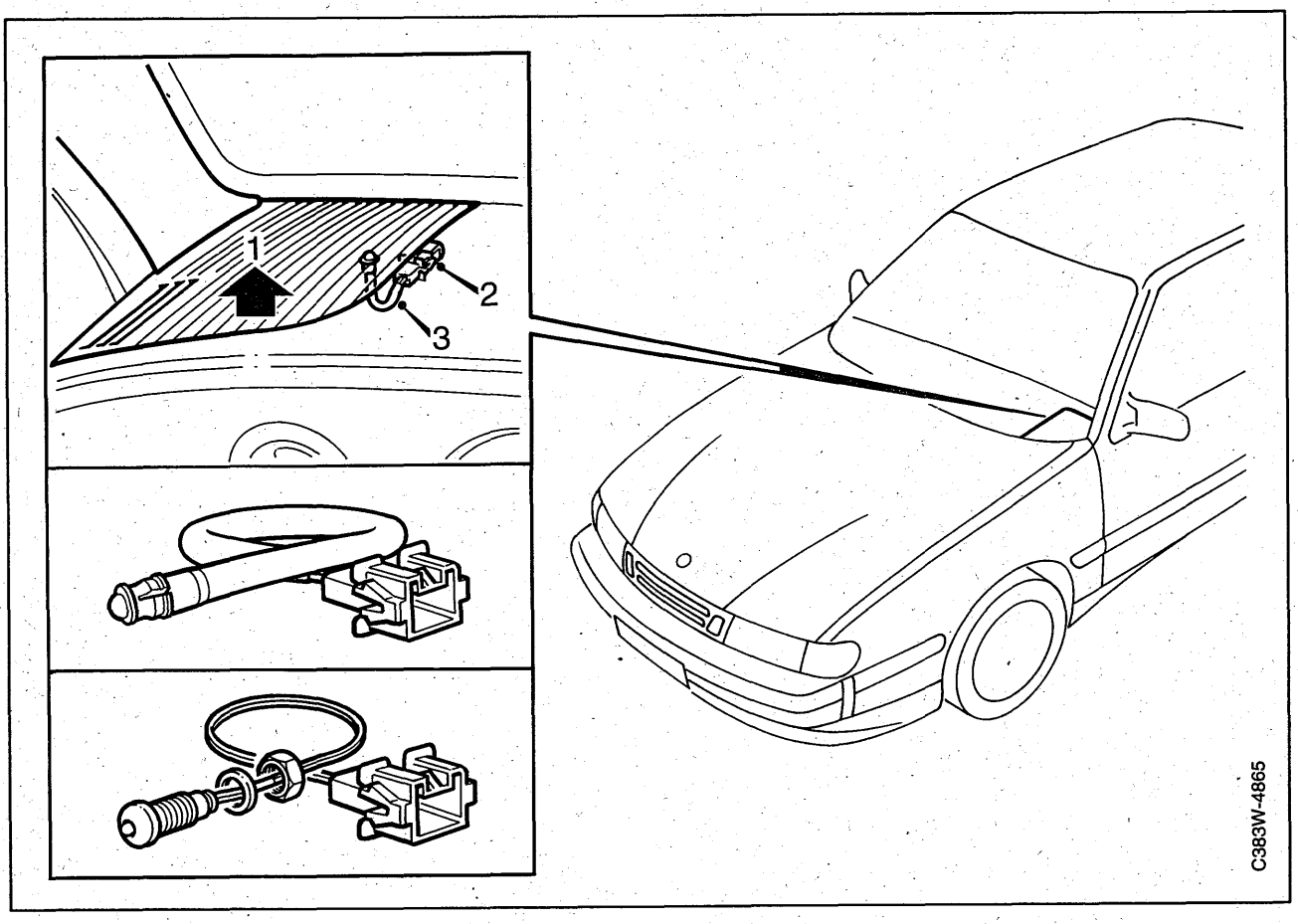


1 Remove the interior lighting lamp in the roof.

2 Unplug the connector to this.

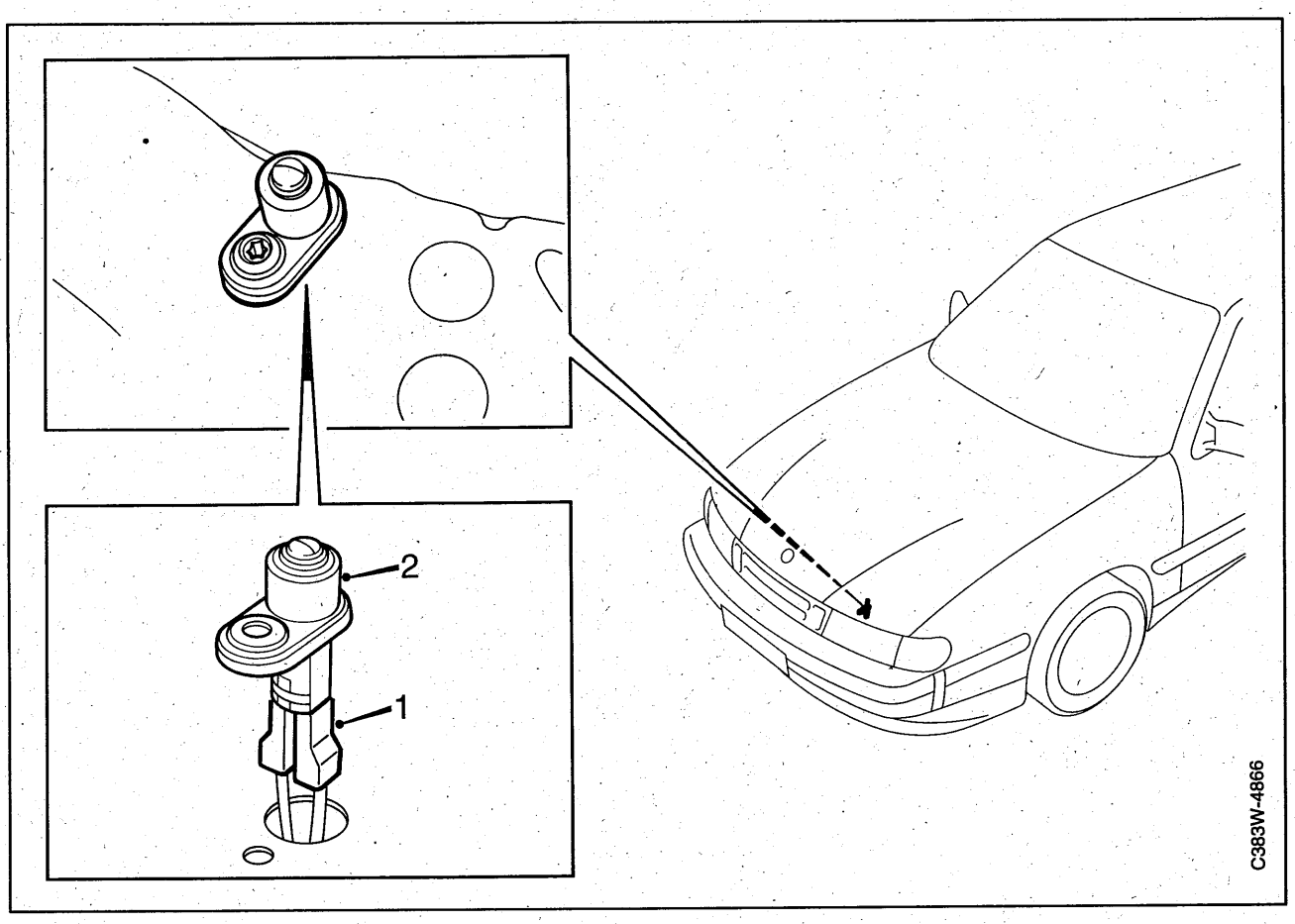
3 Fit in reverse order.

LED



1 Remove the loudspeaker grille in the facia on the driver side.
2 Unplug the connector to the LED.
3 Remove the LED.
4 Fit in reverse order.

Engine hood switch

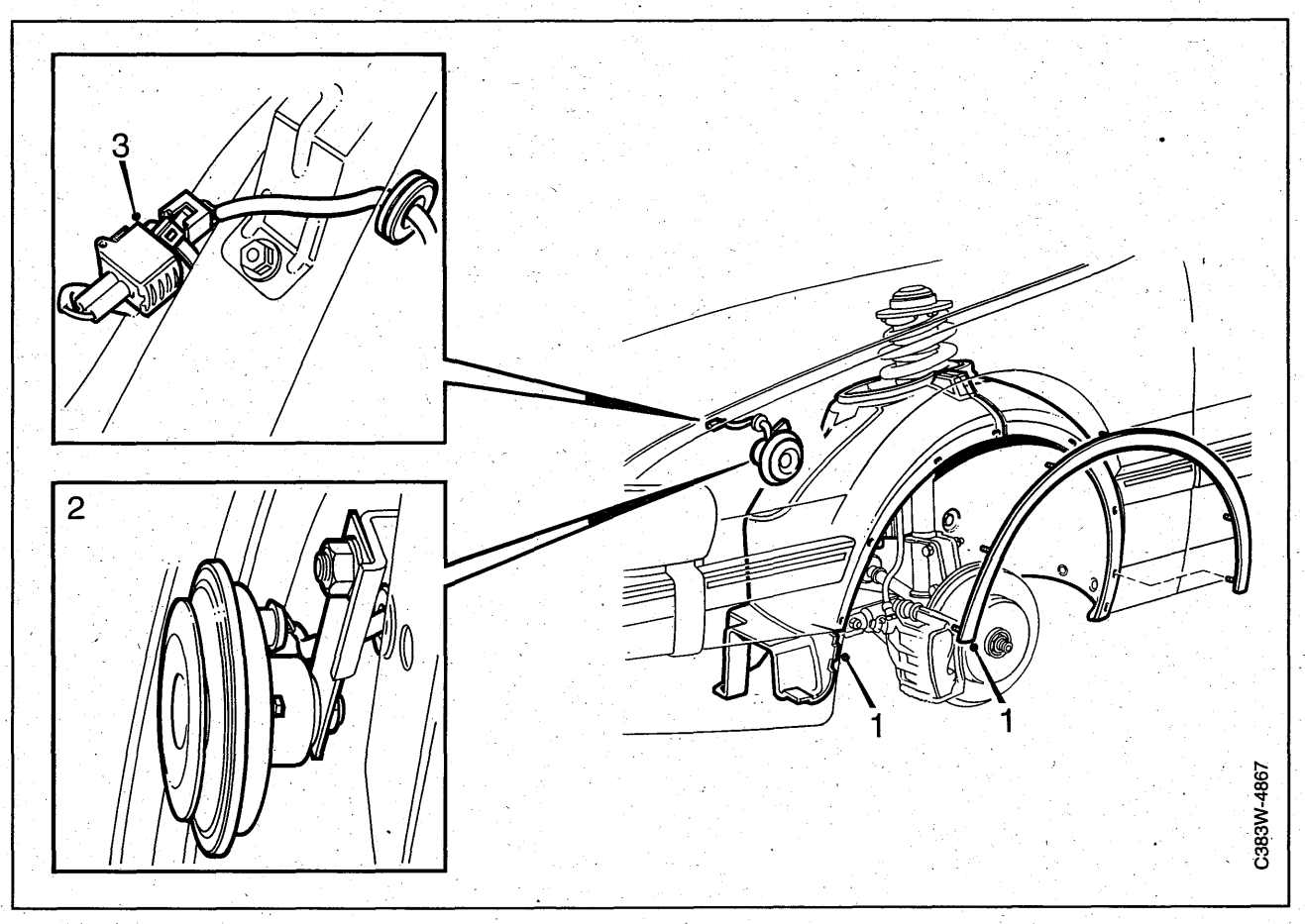


1 Unplug the electrical connections to the hood switch.
2 Remove the hood switch.
3 Fit in reverse order.

Important

Make sure that the rubber protector (under the radiator crossmember) is pushed over the cable shoes.

Horn



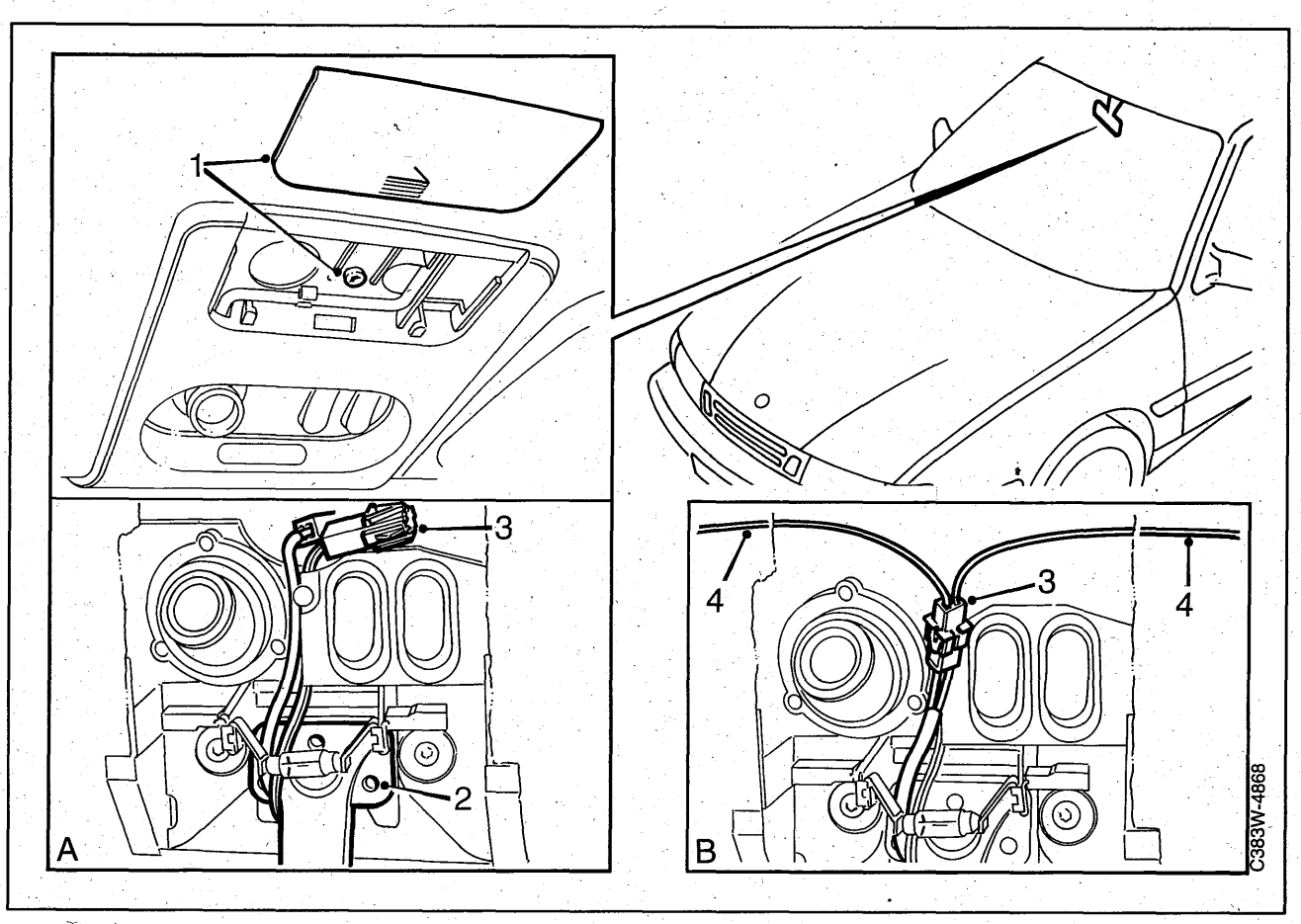
1 Remove the front part of the wing liner in the front left-hand wheel housing.

2 Remove the nut securing the horn and lift out the horn.

3 Unplug both the 1 pin connectors.

4 Fit in reverse order.

Antenna for remote control



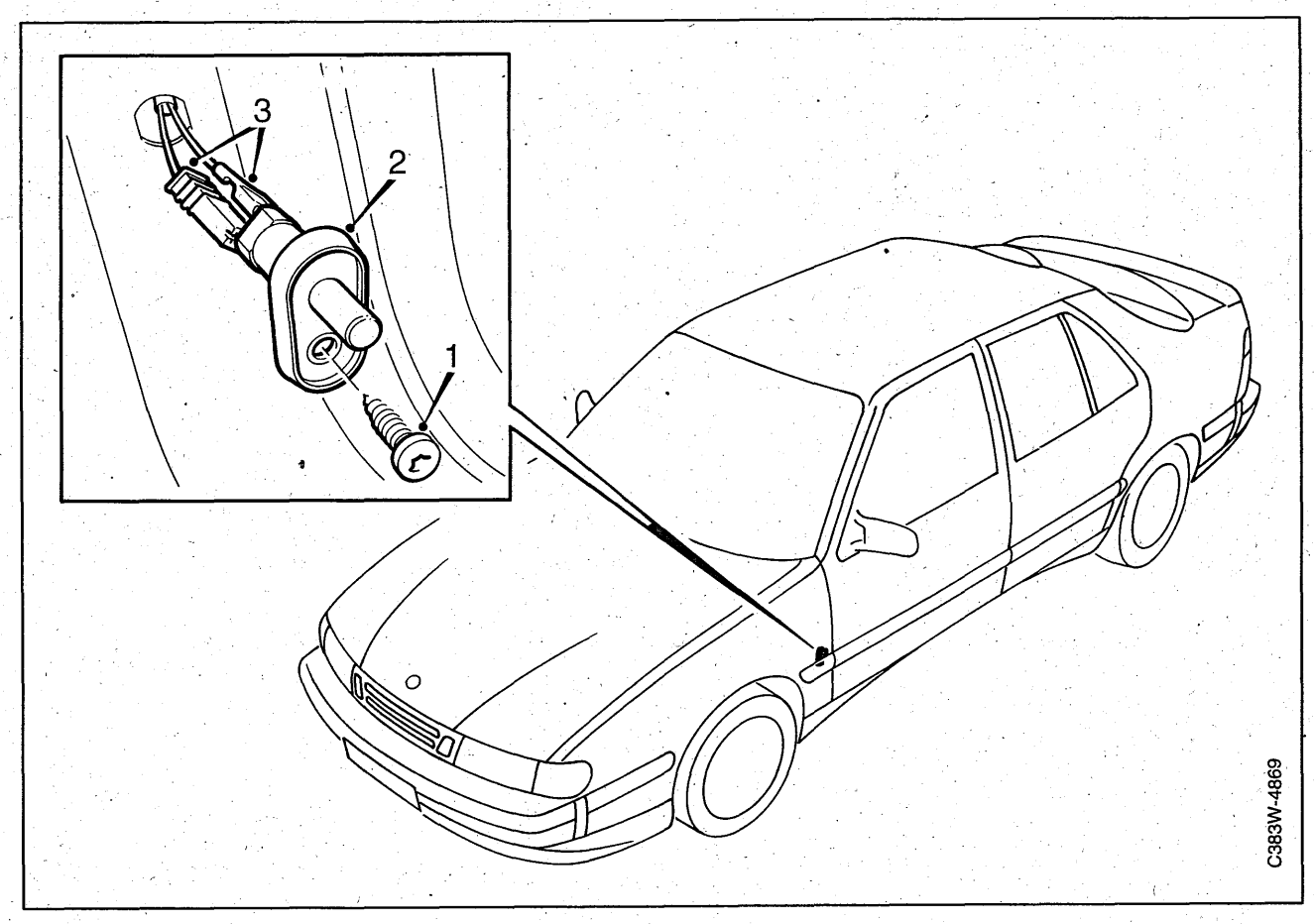
A Antenna integrated in the rear-view mirror (JA)

1 Remove the roof console cover.
2 Remove the rear-view mirror as shown.
3 Unplug the connectors.
4 Fit in reverse order.

B Dipole antenna

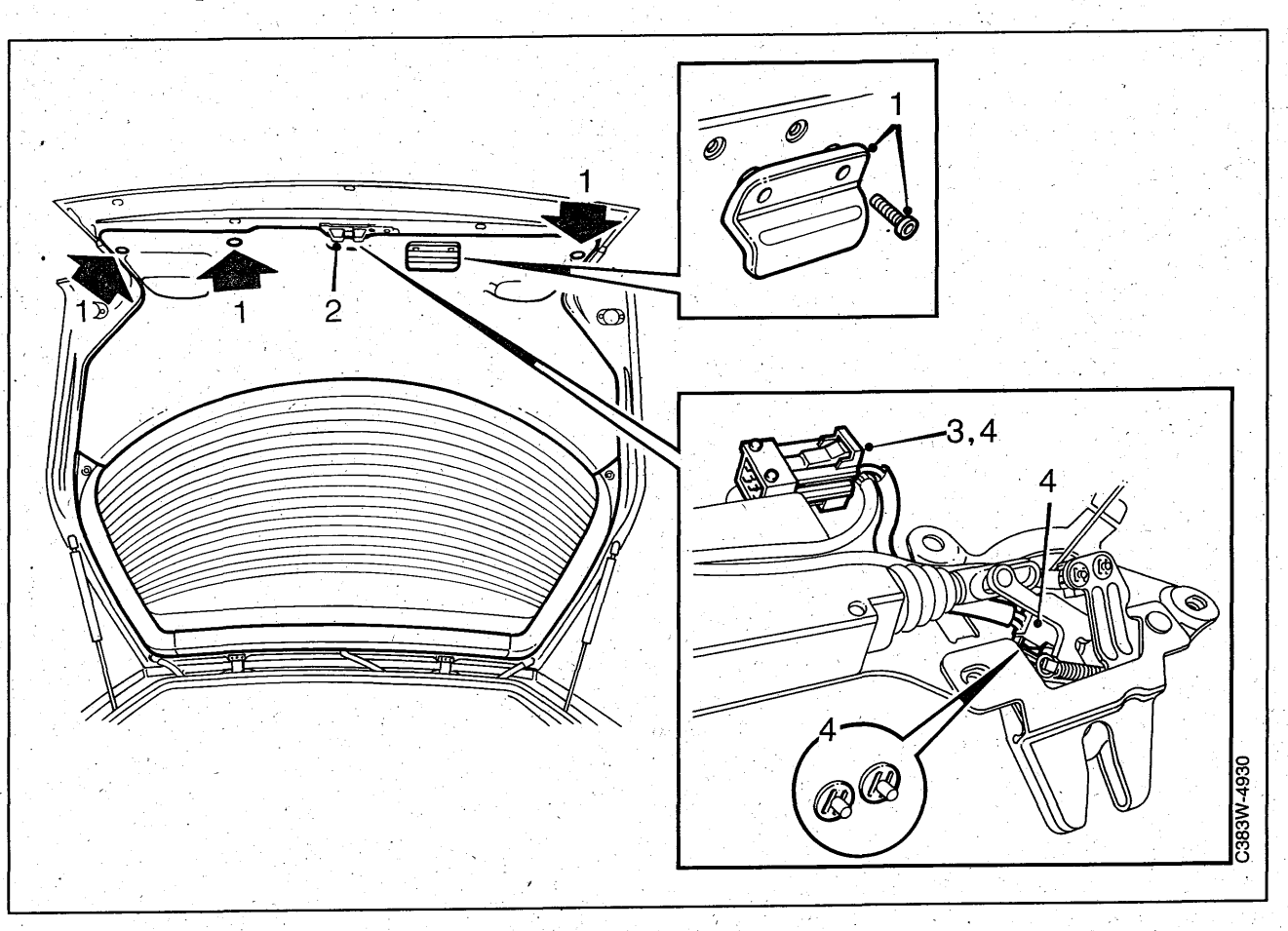
1 Remove the roof console cover.
2 Remove the sun visor snap fastener.
3 Unplug the connectors.
4 Remove the antenna (bear in mind that the new antenna is fitted in the same way).
5 Fit in reverse order.

Door switches



1 Remove the screws securing the door switch.
2 Lift out the door switch from the hole in the body.
3 Unplug the connector.
4 Fit in reverse order.

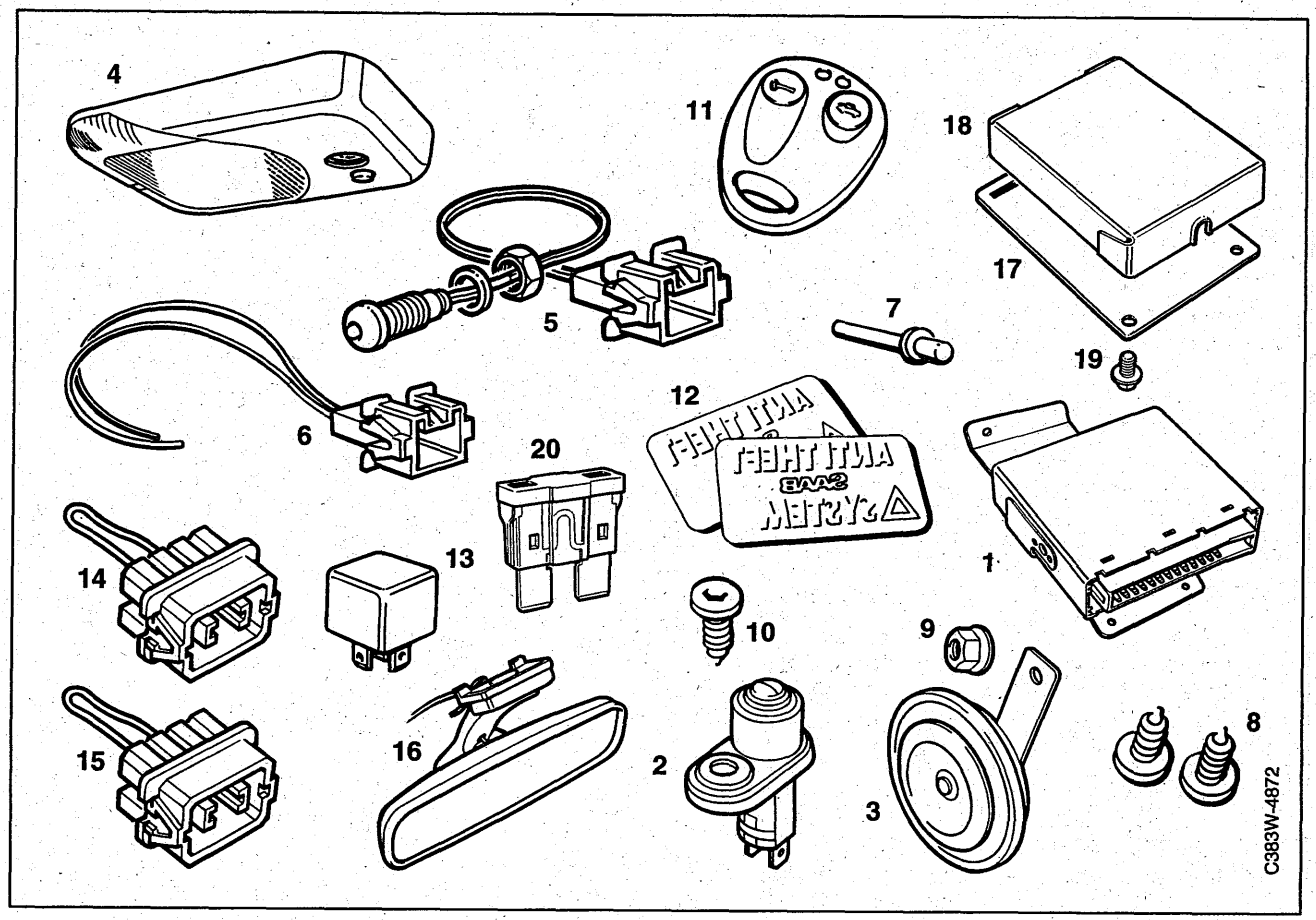
Microswitches in the tailgate



1 Remove the door pull and trim.
2 Remove the plastic cover over the lock.
3 Unplug the 6 pin connector.
4 Remove the two pins for the microswitch from the connector. Remove the microswitch (the plastic buttons securing the microswitch are removed first).
5 Fit in reverse order.

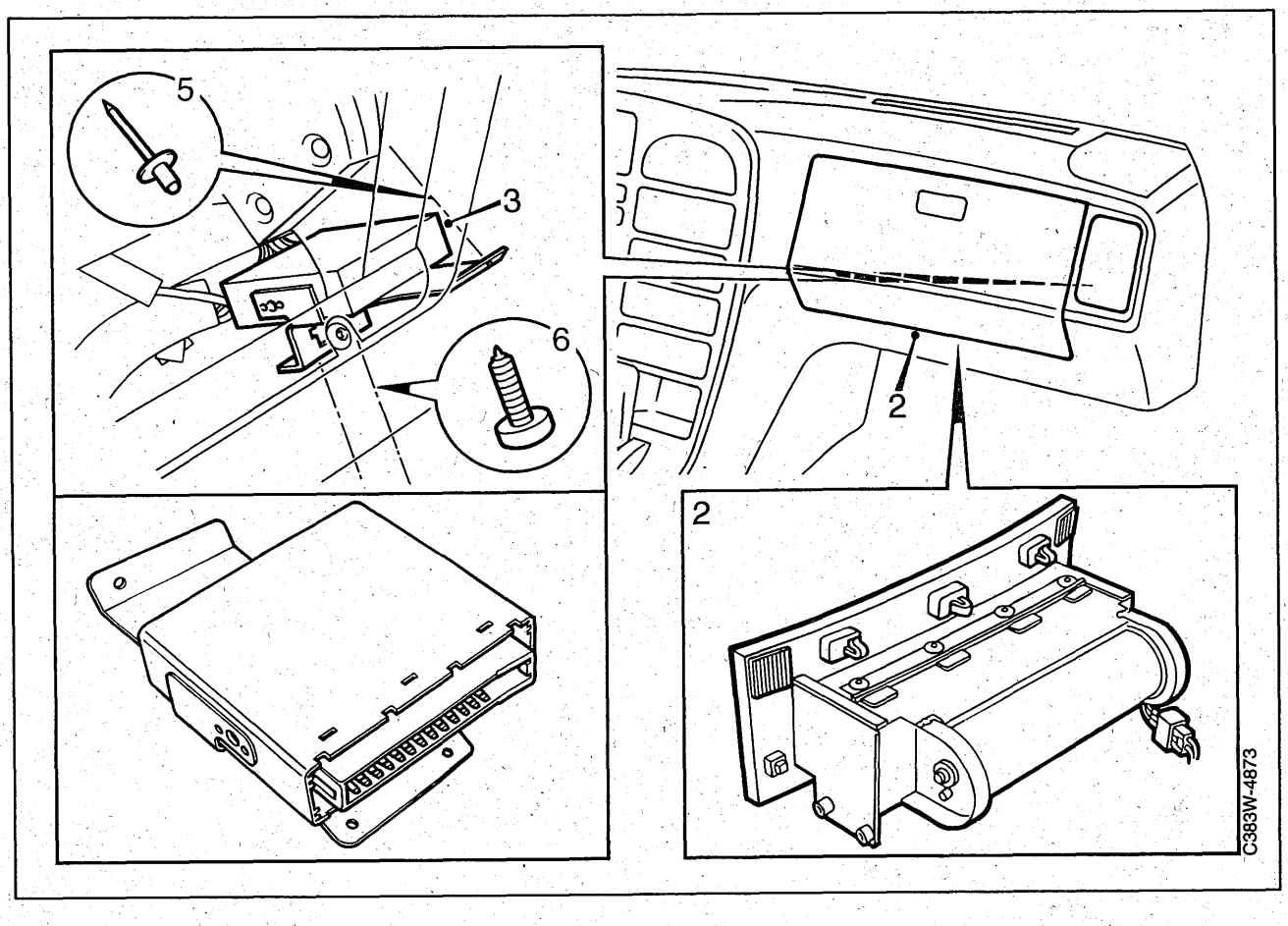
Fitting kit

Components included



1 Control module
2 Engine hood switch
3 Horn
4 Glass breakage sensor
5 LED
6 Antenna, dipole type
7 Pop rivets
8 Screws (2)
9 Nut, horn
10 Screw, hood switch
11 Remote control
12 Labels
13 Starter relay
14 Jumper connector, MAN
15 Jumper connector, AUTO
16 Rear-view mirror with integrated antenna, JA
17 Under section, casing for electronic control module, EU
18 Upper section, casing for electronic control module, EU
19 Screw (2) for casing, EU

Electronic control module, SE/US/CA



1 Disconnect the negative lead (-) from the car battery.

2 **Cars without passenger airbag**
Remove the glove compartment and air distribution damper.

Cars with passenger airbag
Remove the complete airbag, including bracket and
air distribution damper.

3 Lift down the electronic control module.

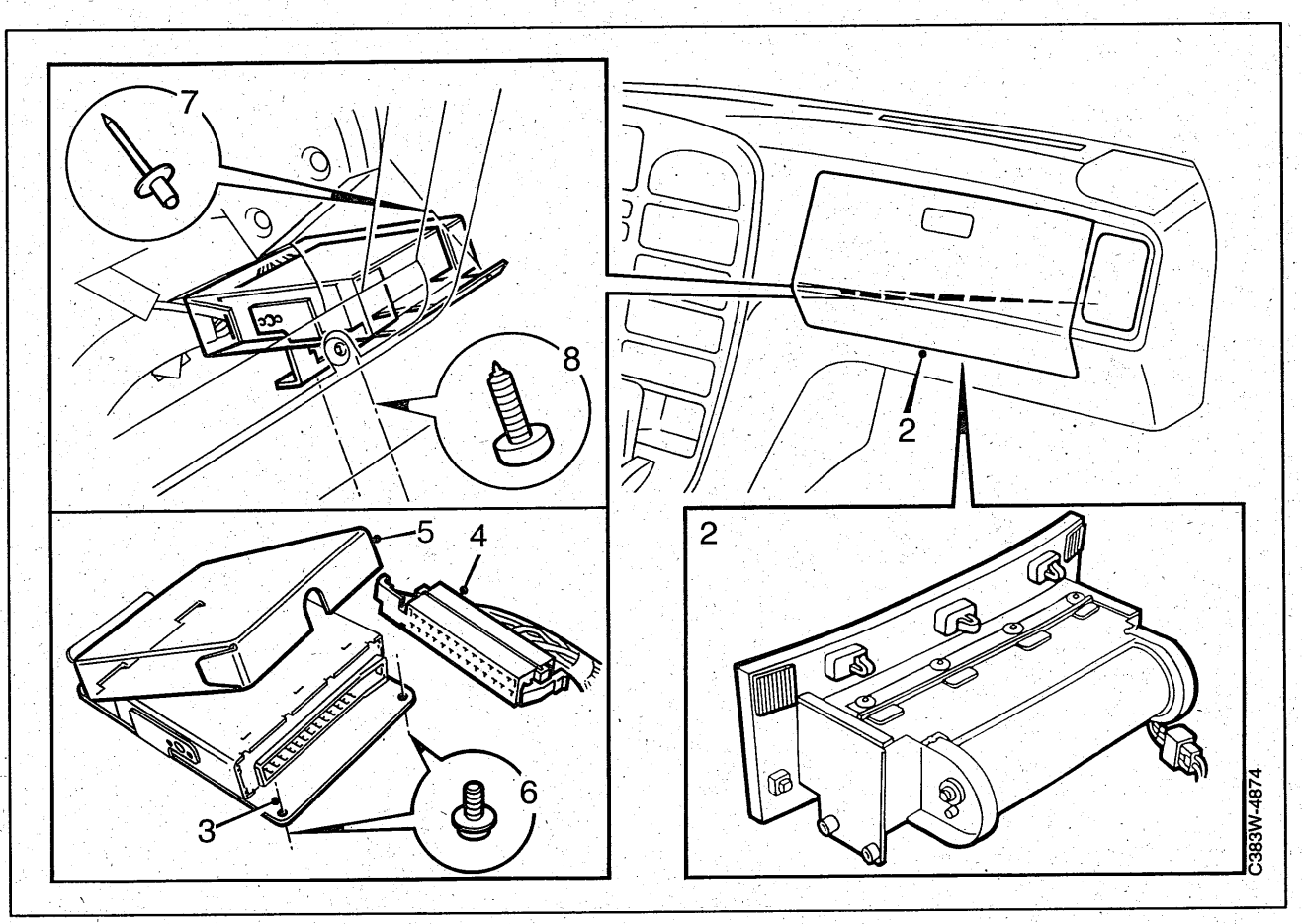
4 Plug in the 25 pin connector to the electronic control module.

5 Fit the pop rivets.

6 Screw down the electronic control module using the two screws.

Proceed to point 9 on page 120.

Electronic control module, EU



1 Disconnect the negative lead (-) from the car battery.

2 **Cars without passenger airbag**
Remove the glove compartment and air distribution damper.

Cars with passenger airbag
Remove the complete airbag, including bracket and
air distribution damper.

3 Insert the plate (under section of casing) between the electronic control module and the bracket.

4 Plug in the 25 pin connector to the electronic control module

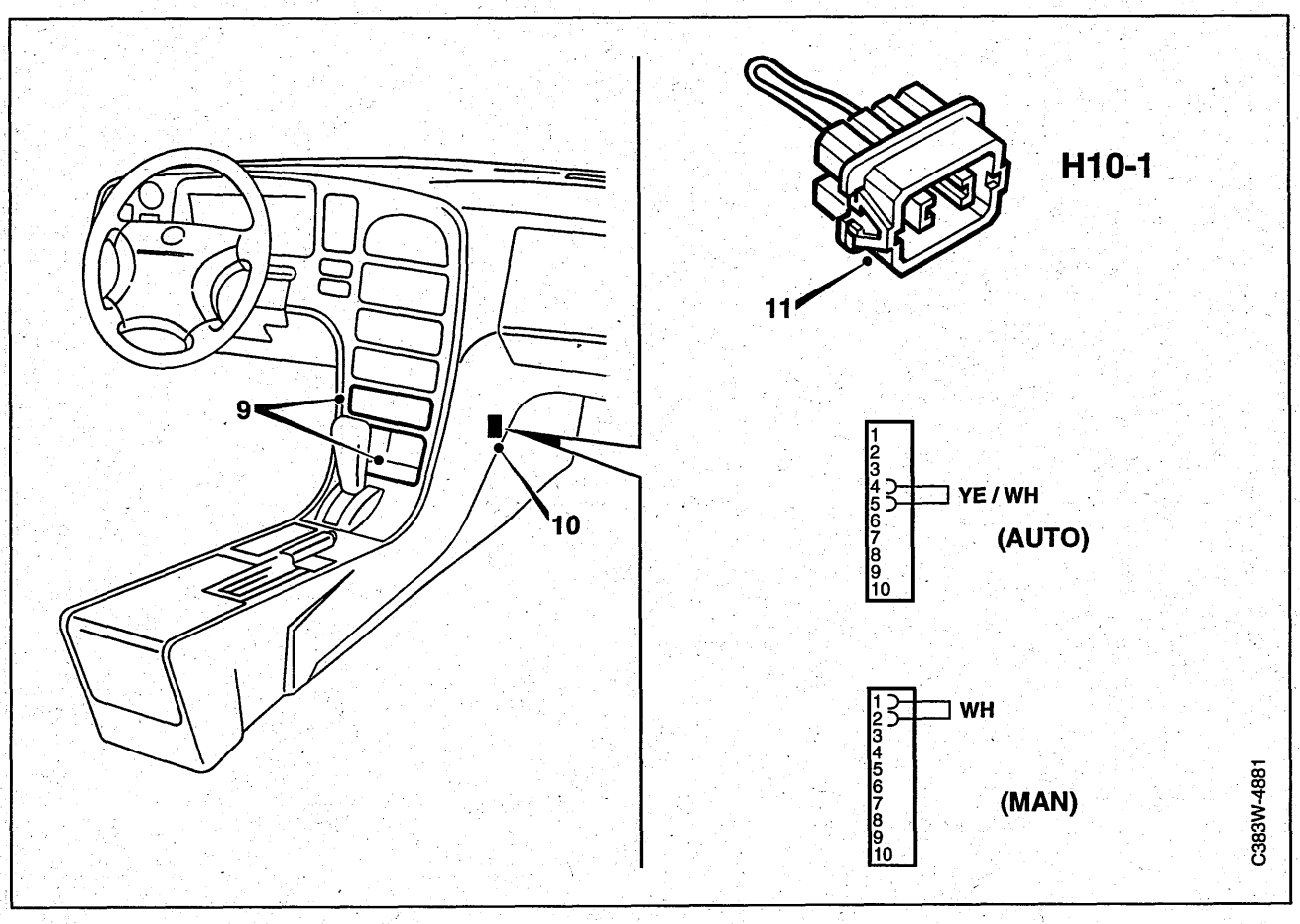
5 Fit the lid (hook on, upper section of casing) on the electronic control module.

6 Screw together lid and plate with the two screws.

7 Fit the pop rivets.

8 Screw down the electronic control module using the two screws.

Jumper connector

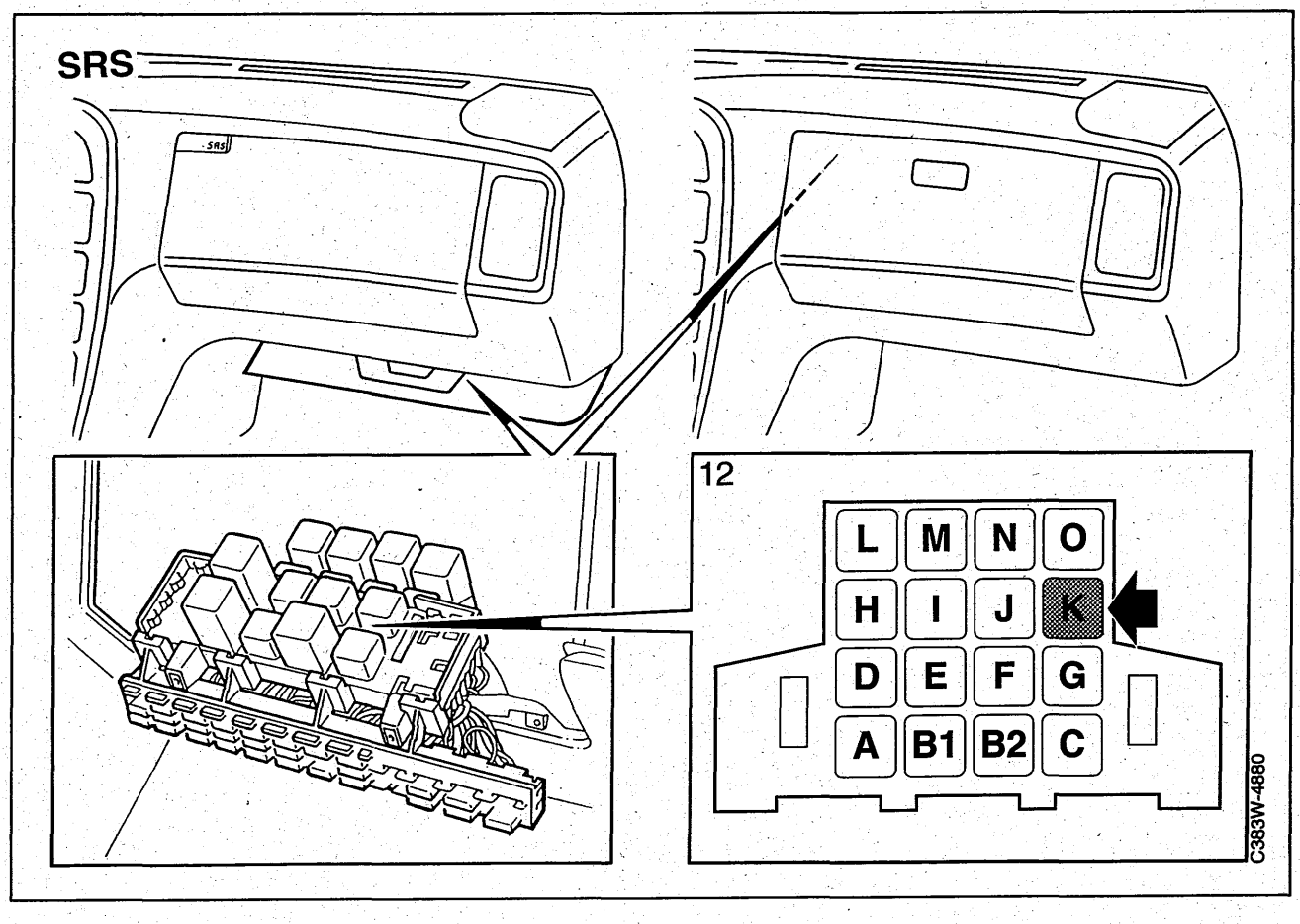


9 Remove the two lower storage compartments in the center console.

10 Remove the 10 pin jumper connector.

11 Fit the correct jumper connector.

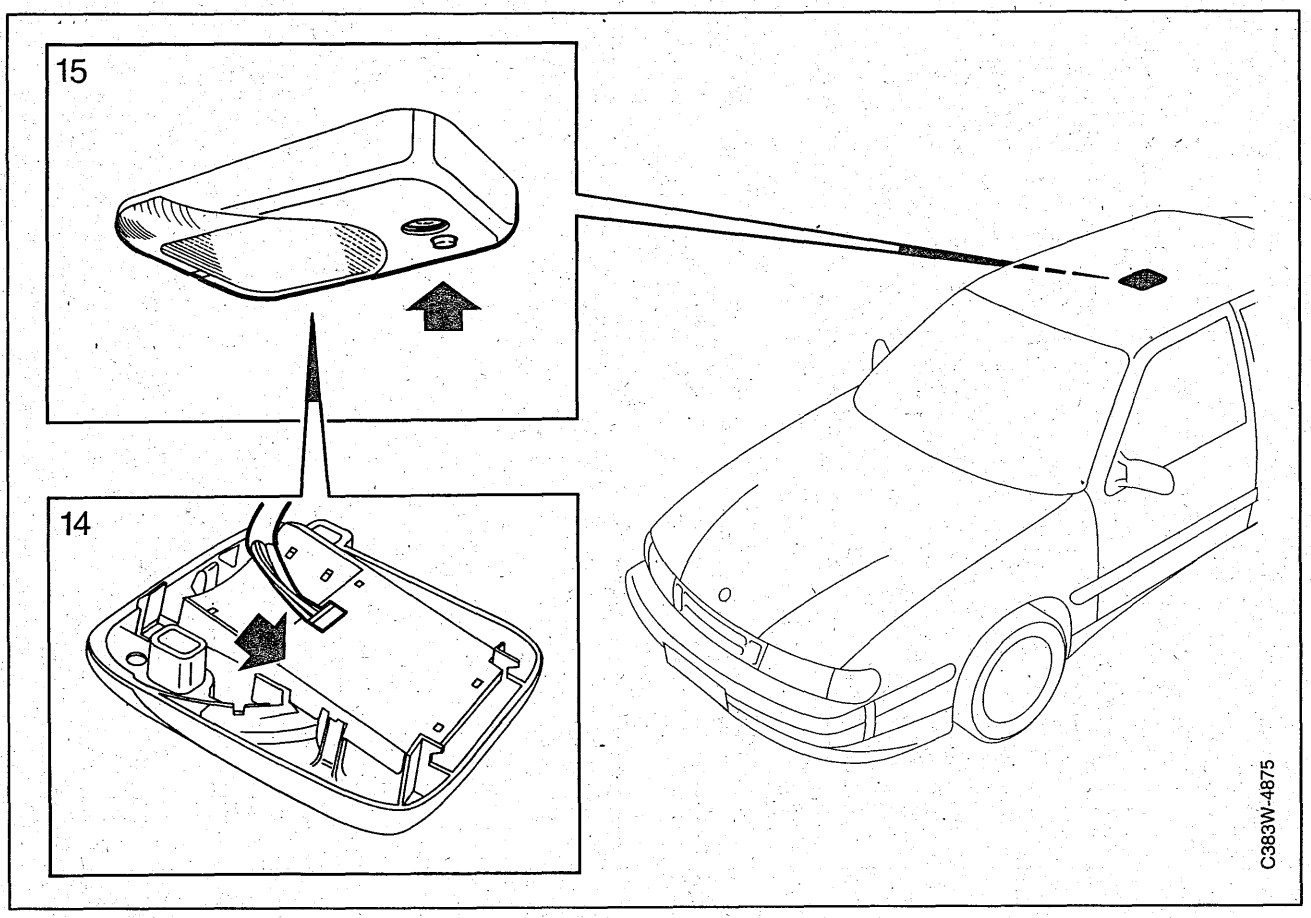
Starter relay



12 **Cars without passenger airbag**
Fit the starter relay.
The relay board is located behind the glove compartment.

Cars with passenger airbag
Fit the starter relay.
The relay board is located under the airbag module.

Glass breakage sensor

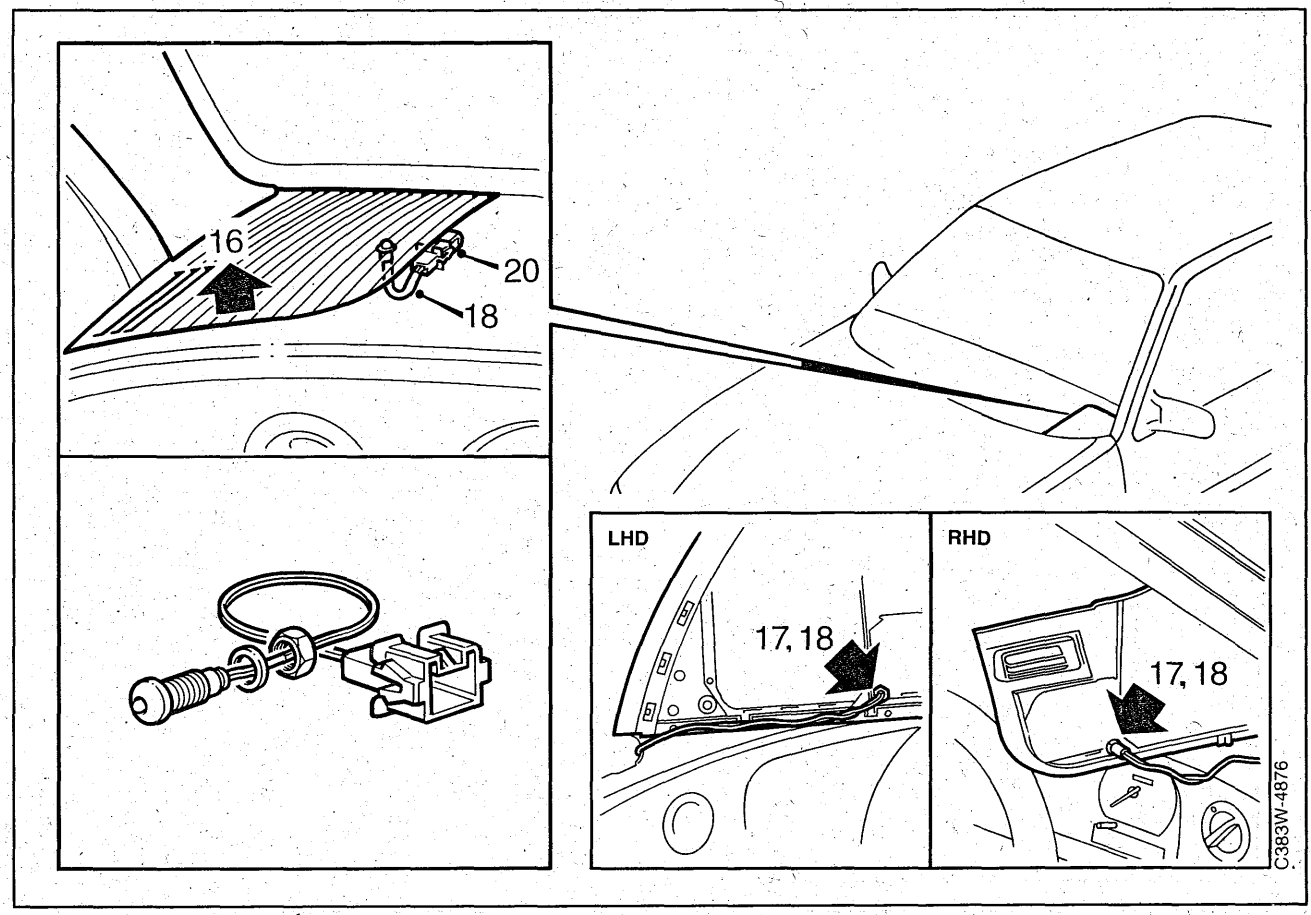


13 Remove the existing interior lighting in the roof and unplug the connector. Tape down the old cable.

14 Plug in the other connector (in the space) to the new interior lighting.

15 Press this into position.

LED



16 Remove the speaker grille on the driver side.

17 Drill a hole (8 mm diameter) in the speaker grille as shown in the picture.

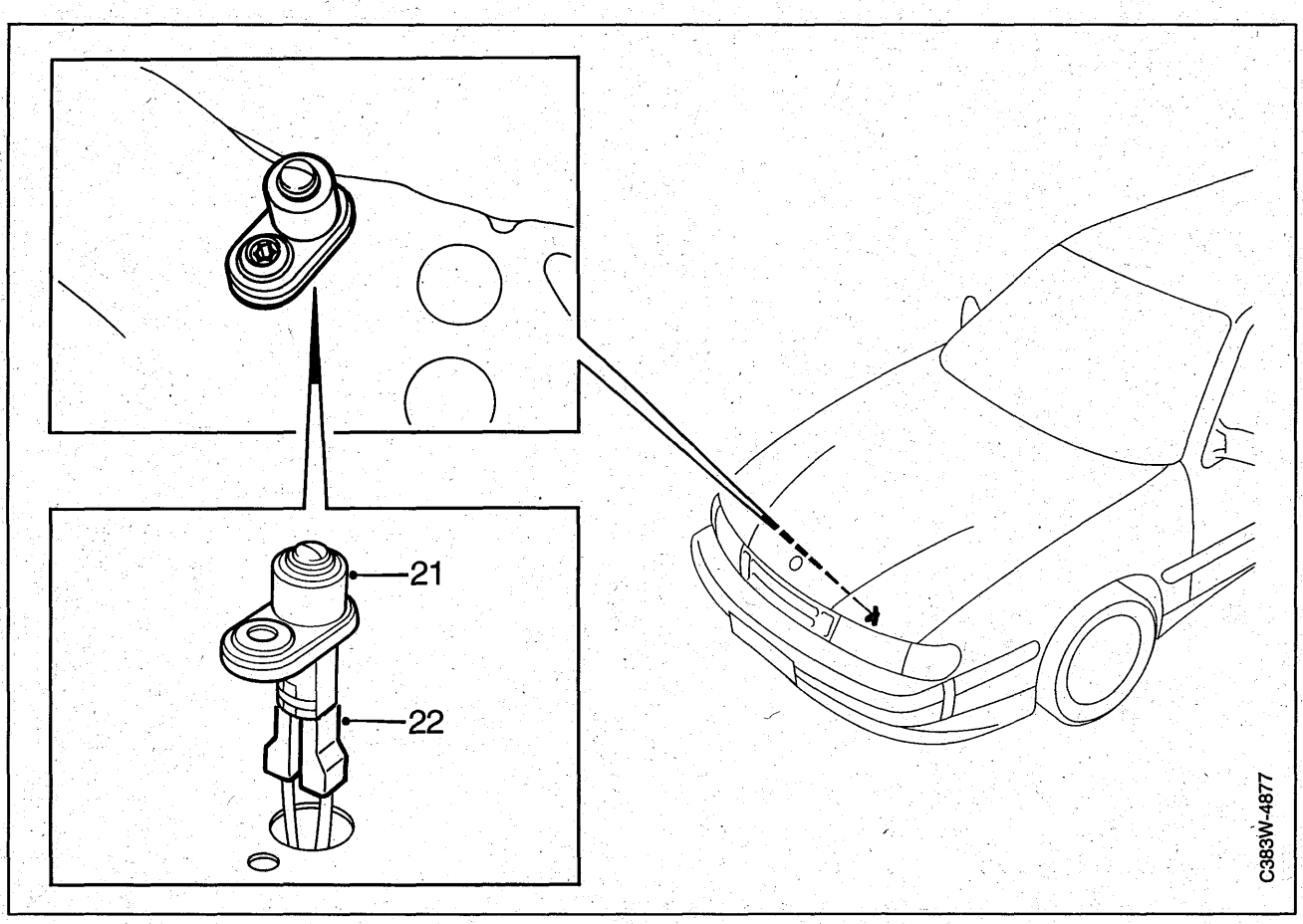
18 Fit the LED by threading the leads down into the hole (from above). Secure with washer and nut.

19 Fit the cable shoes included onto the ends of the leads. Plug the leads (with cable shoes) into the connector as follows:

Red - pin 2
Black - pin 1

20 Connect the contact. Refit the speaker grille.

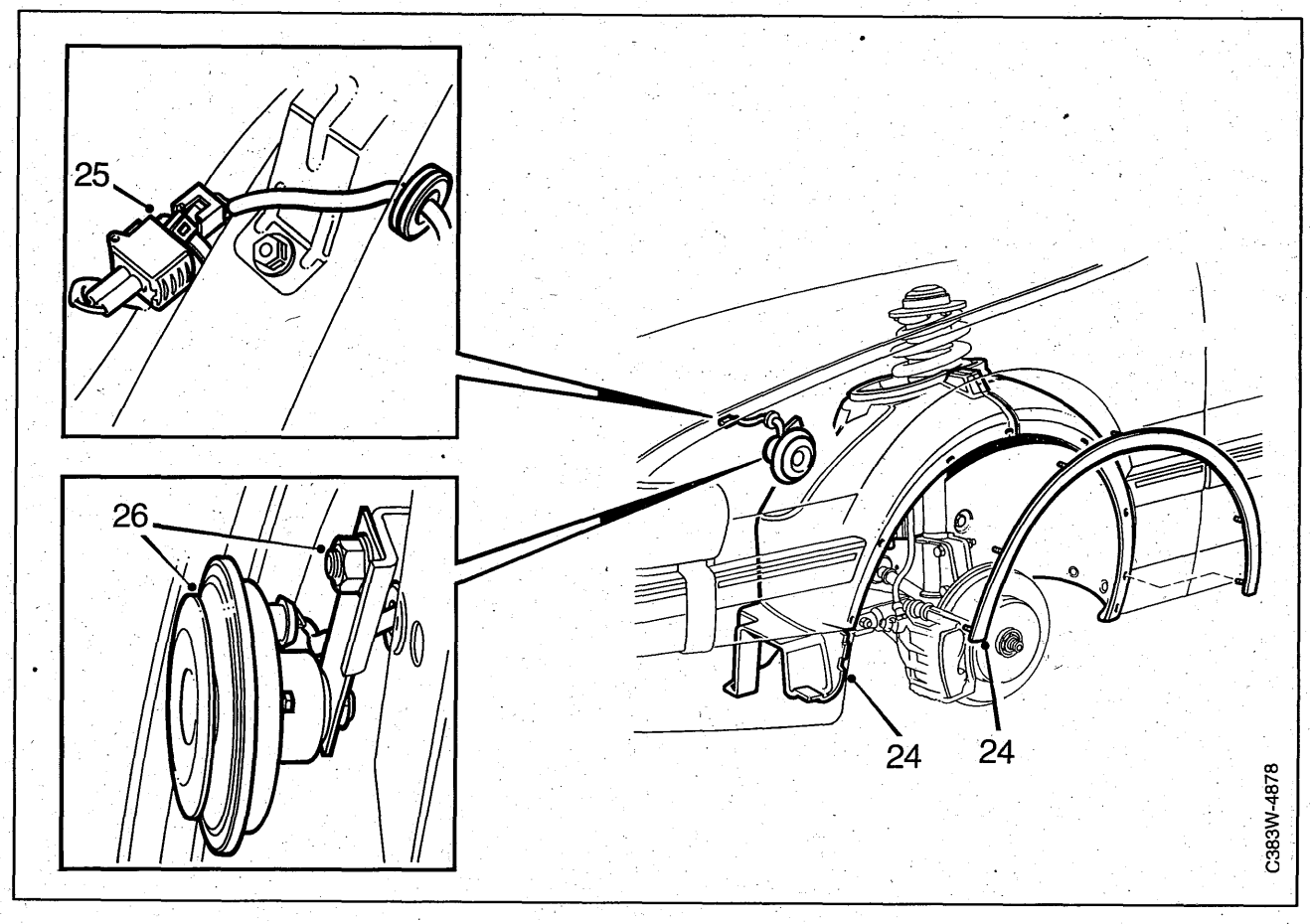
Engine hood switch



21 Fit the hood switch.

22 Connect the contact.

Horn



23 Raise the car and remove the front left-hand wheel.

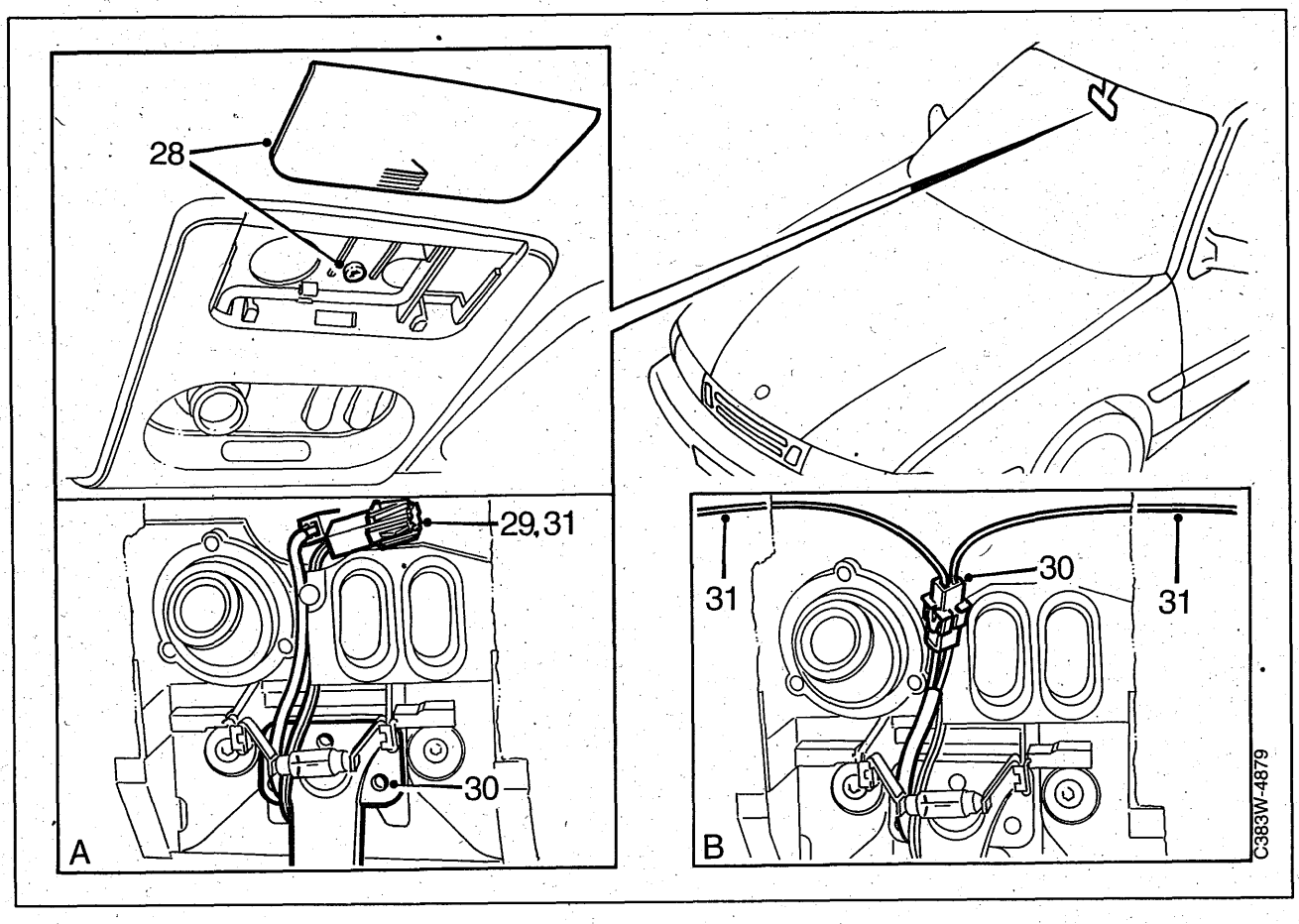
24 Remove the front part of the wing liner and the plastic clip securing the upper part of the wing liner in the wheel housing.

25 Locate two 1 pin connectors in the wheel housing.

26 Connect the contacts to the horn and screw the horn in place with nut and washer.

27 Refit the wing liner and the left-hand front wheel and lower the car.

Antenna



A Rear-view mirror with integrated antenna (JA)

28 Remove the roof console cover.

29 Unplug the connectors to the rear-view mirror.

30 Remove the existing rear-view mirror and fit the rear-view mirror included in the fitting kit.

31 Connect the contacts for the rear-view mirror.

32 Refit the cover.

B Dipole antenna

33 Remove the roof console cover.

34 Remove the sun visor snap fastener.

35 Connect the antenna.

36 Attach the antenna wires using tape as illustrated. Note that the location of the antenna is between plate and headlining.

37 Refit the cover.

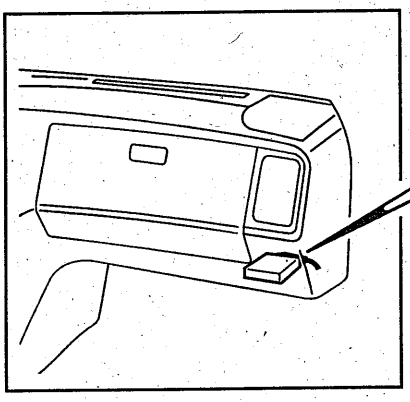
38 Wipe clean and attach labels.

39 Program the alarm according to the instructions in this service manual.

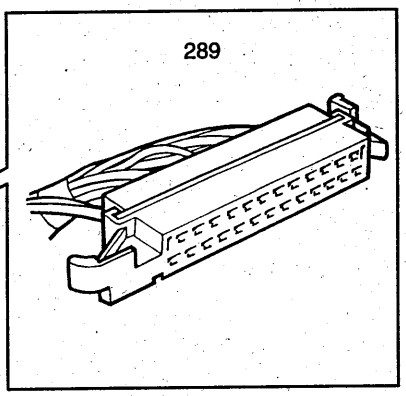
40 Check that it is working by activating the alarm as described in the owner's manual.

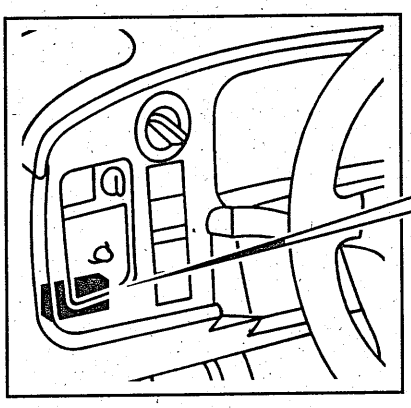
41 Refit all parts that have been removed.

Connectors and grounding points



289





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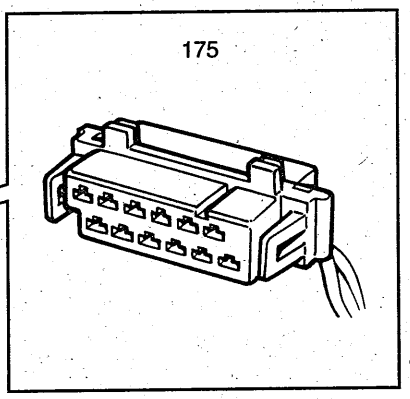
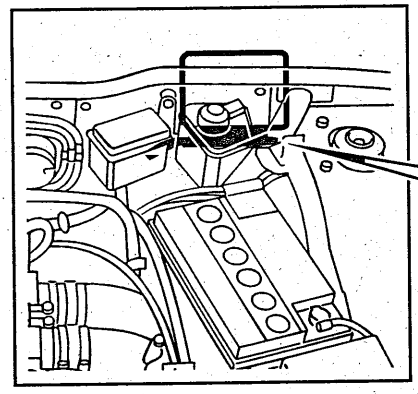
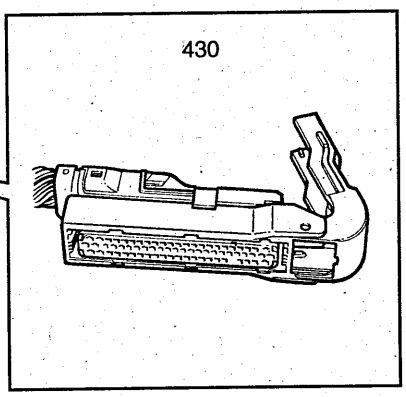
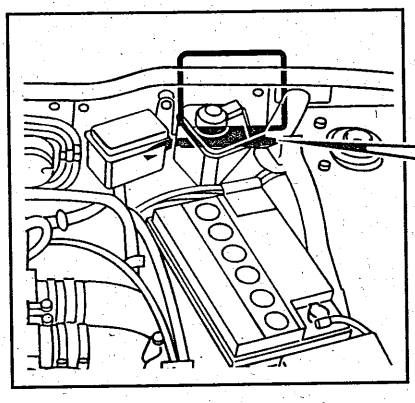


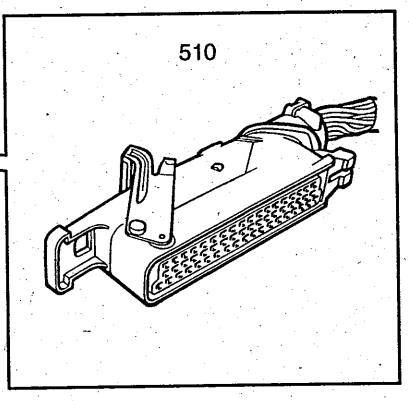


430





510



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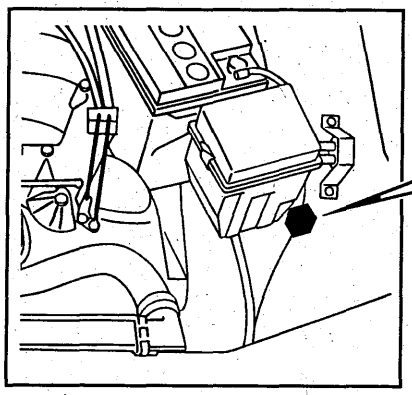
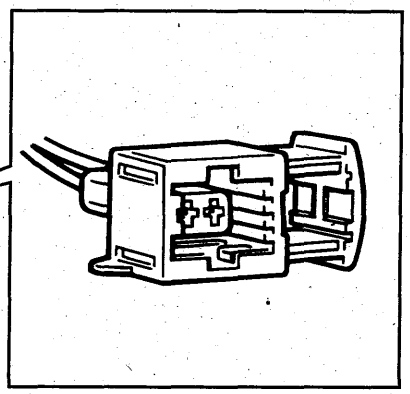
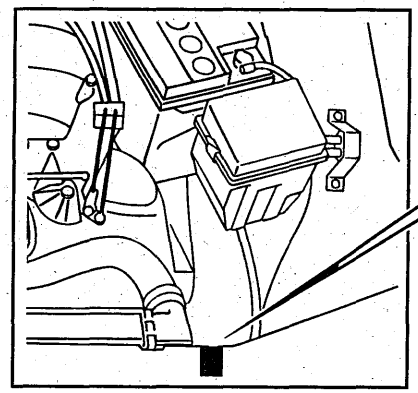
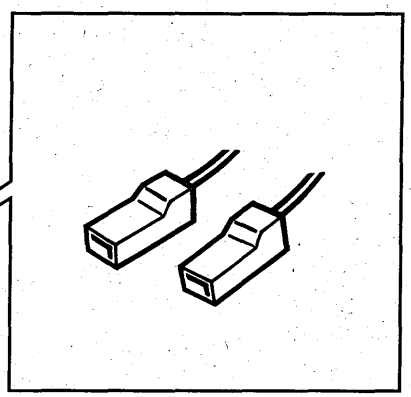




275 (H2-5)

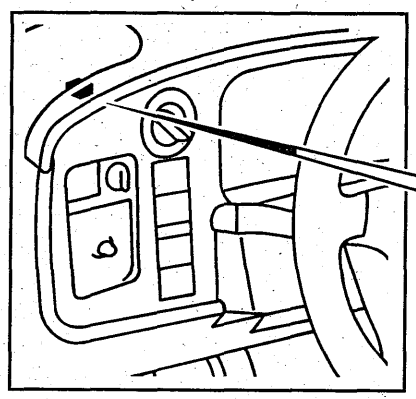
1	2
YE	BK

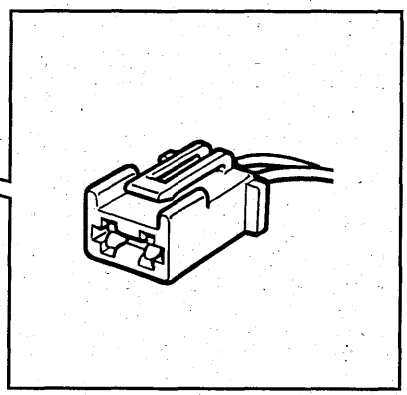




276

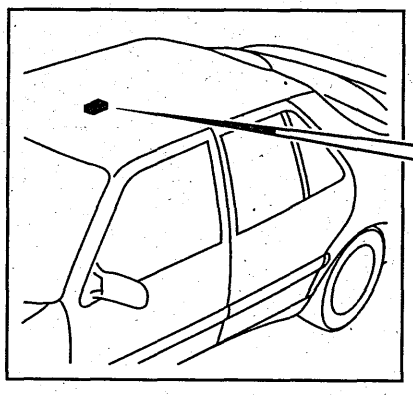
1	1
BN	BK

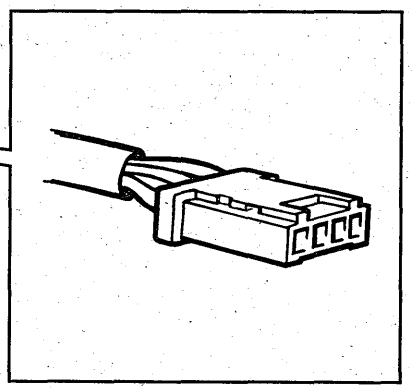




305 (H2-32)

1	2
BK	BU

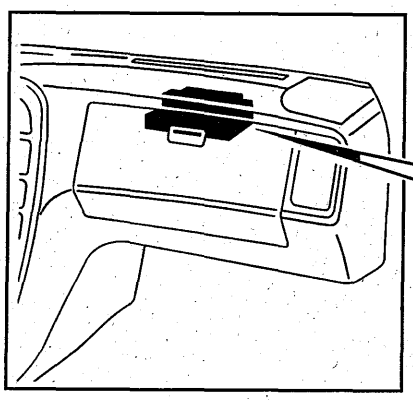




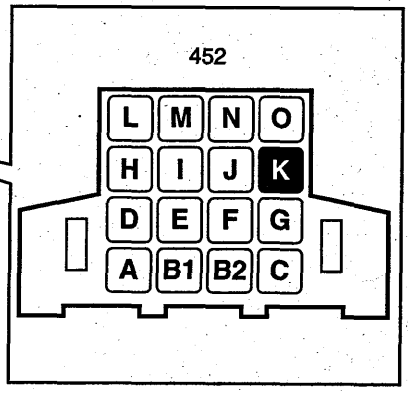
451

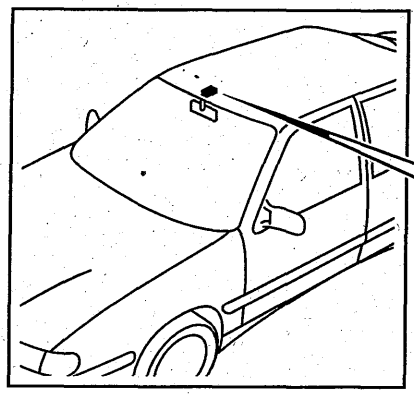
1	2	3	4
GN	GN WH	WH	BK

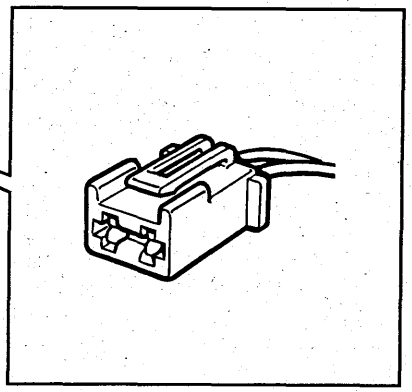
C383W-4883



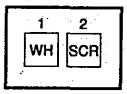
452

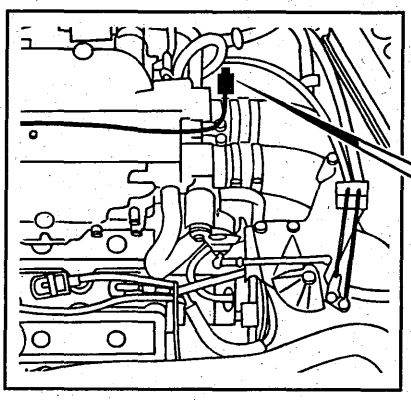


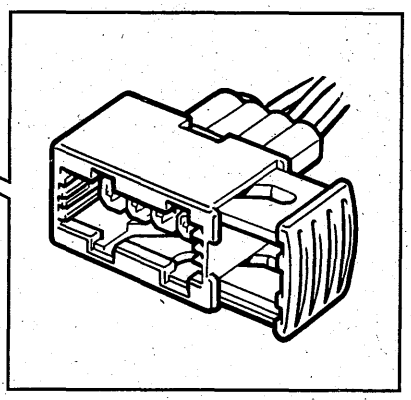




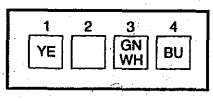
456 (H2-87)

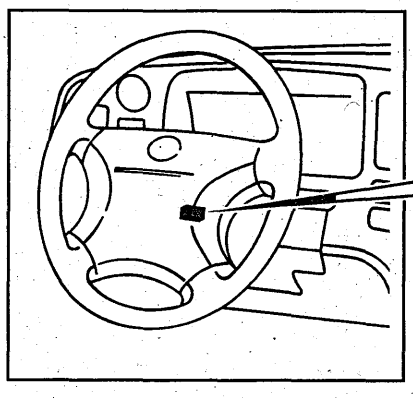


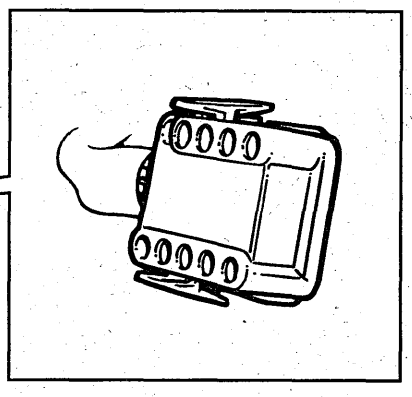




4 (H4-21 V6)







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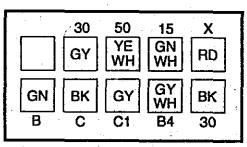

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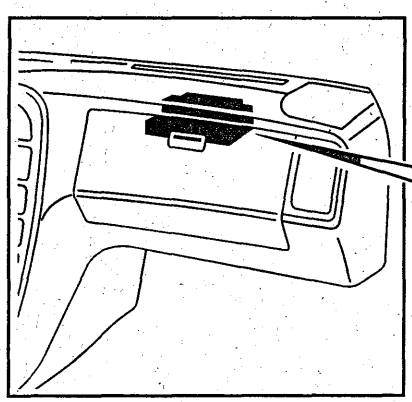
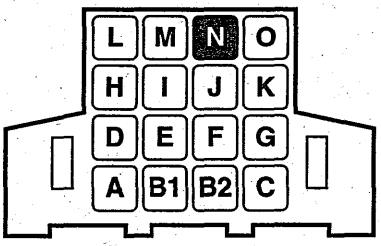
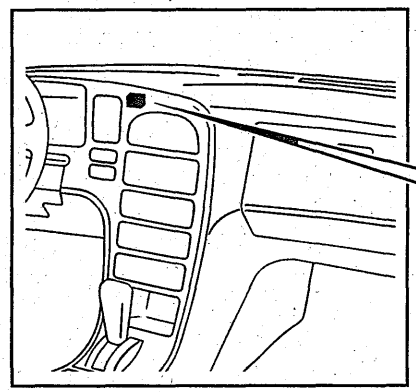
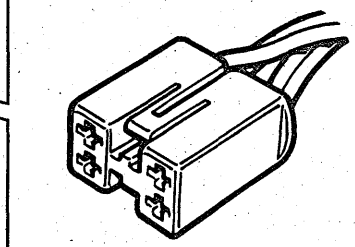


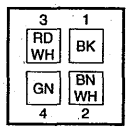
23

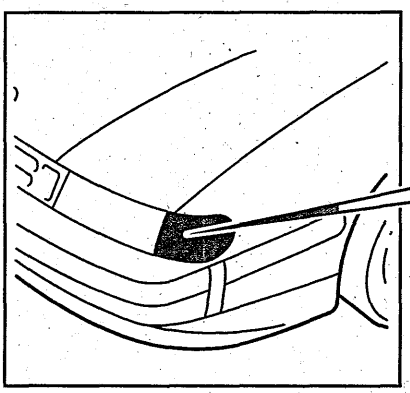


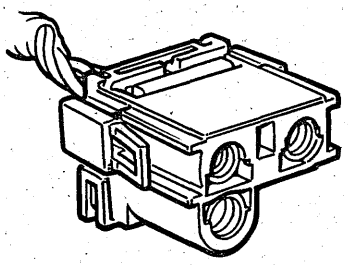




25







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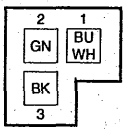

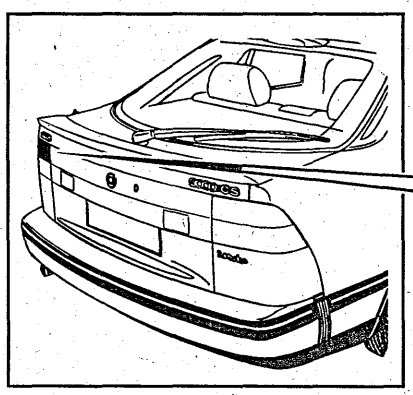

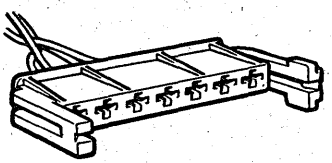

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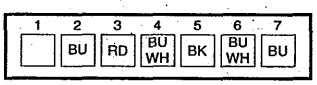

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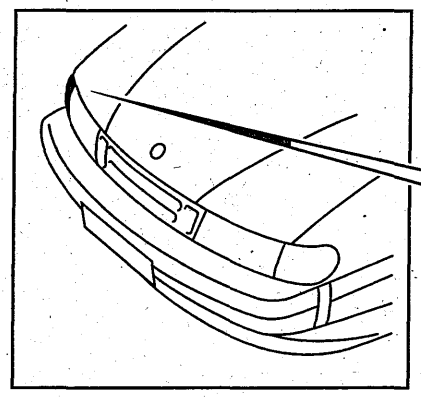
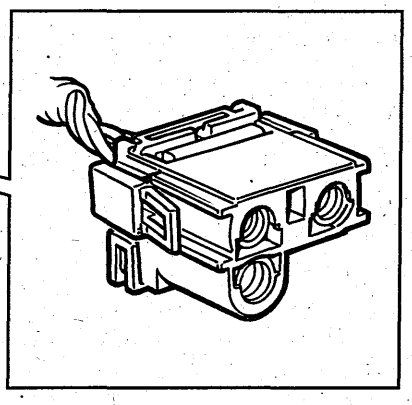
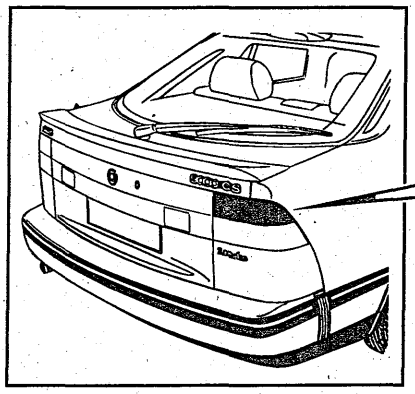
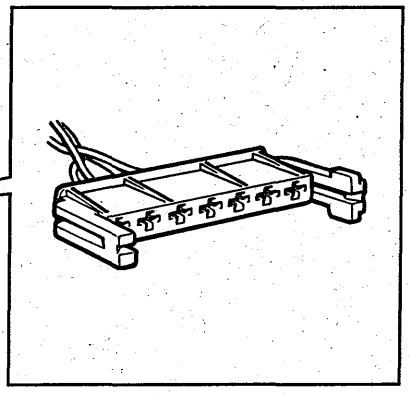




28

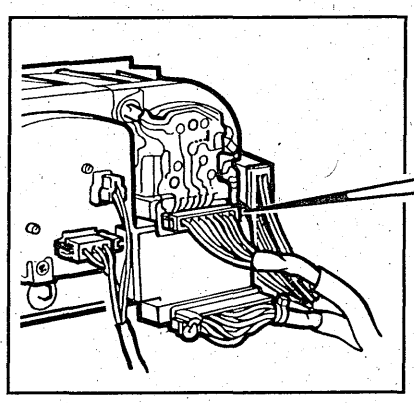
2	1
GN	RD WH
BK	
3	

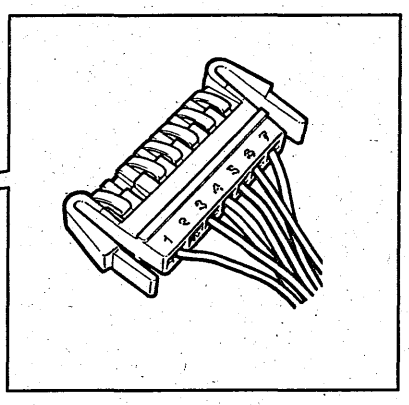




28

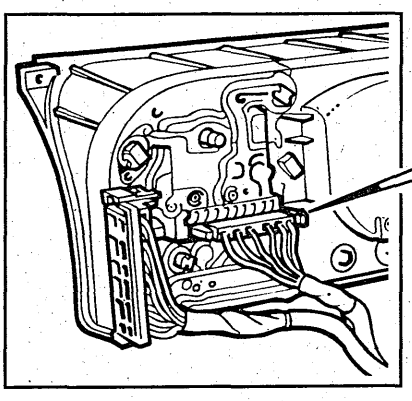
1	2	3	4	5	6	7
	GN	RD WH	RD WH	BK	RD WH	GN

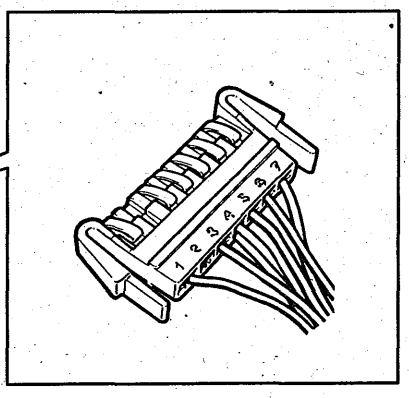




47 (47H)

1	2	3	4	5	6	7
GN WH	OG	BU WH	BN WH	GN RD	BK	BN WH
	BU		BN RD			

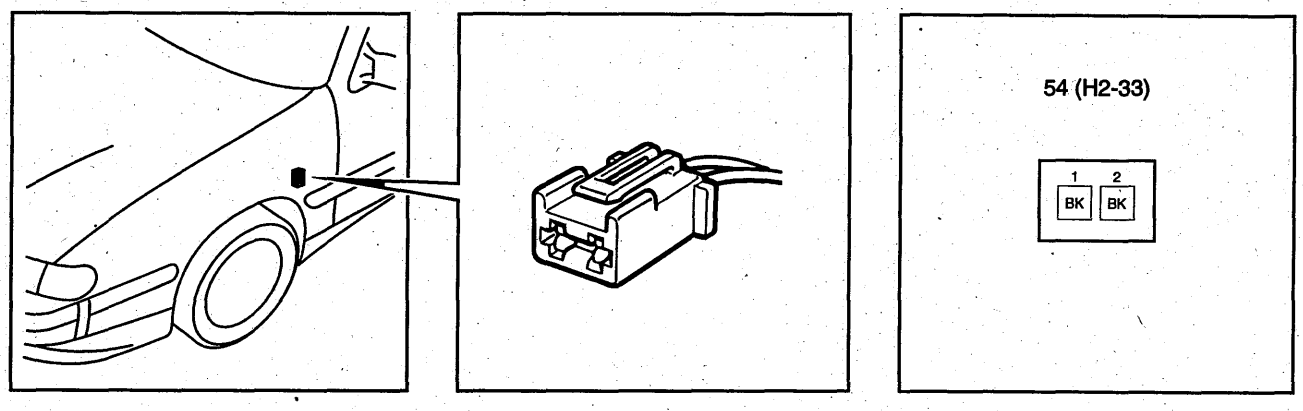


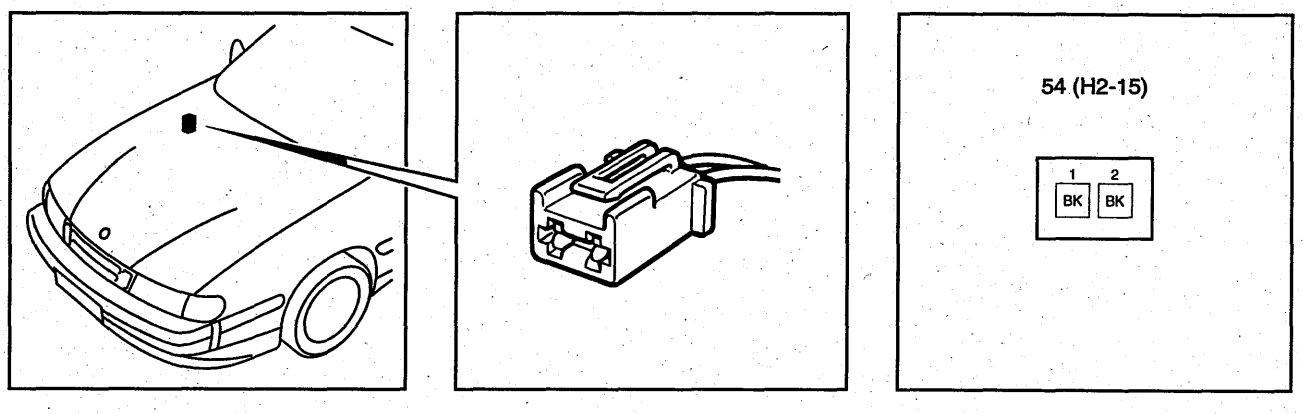


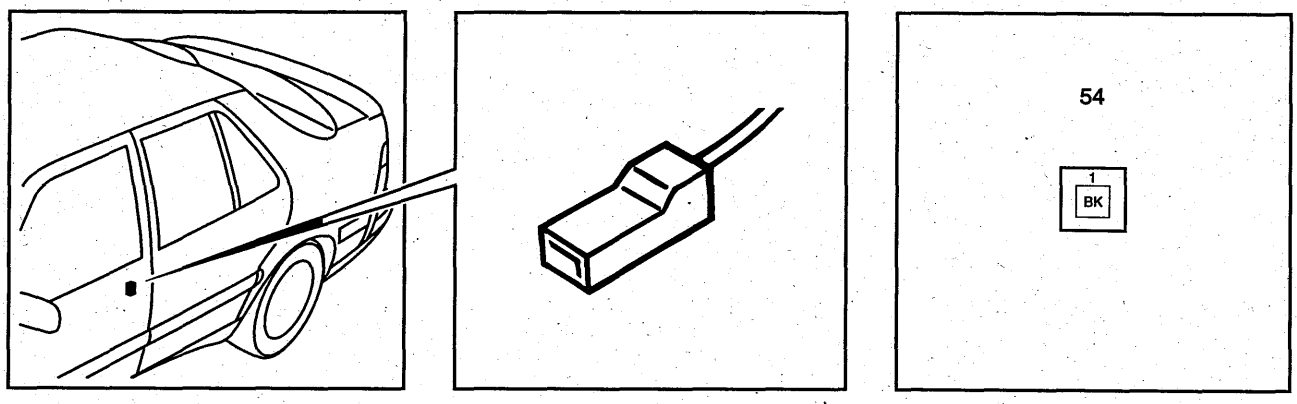
47 (47I)

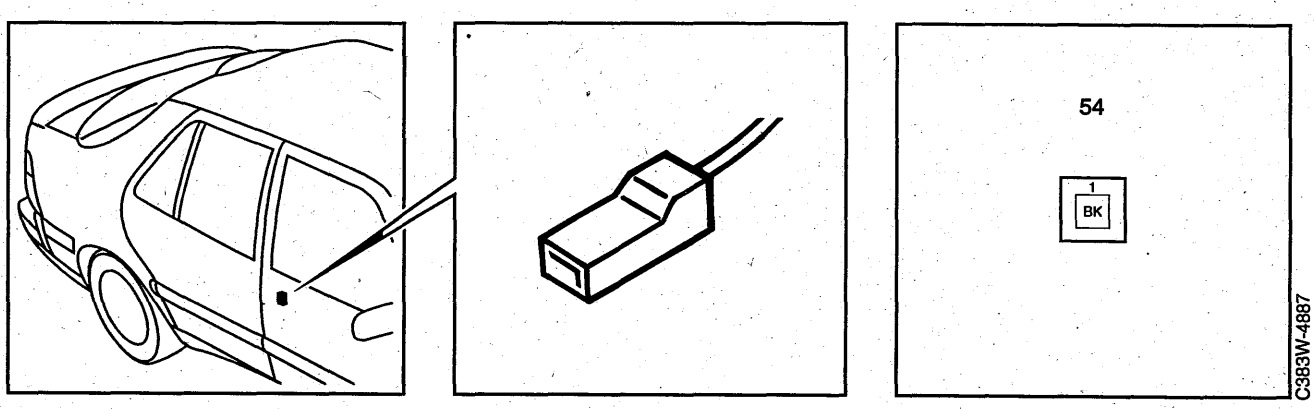
1	2	3	4	5	6	7
GN	GN WH	GY	RD WH	BK	BN WH	YE

C383W-4866

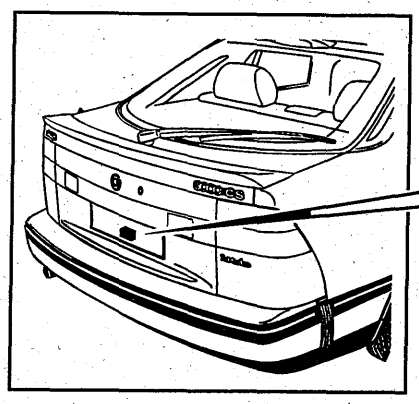


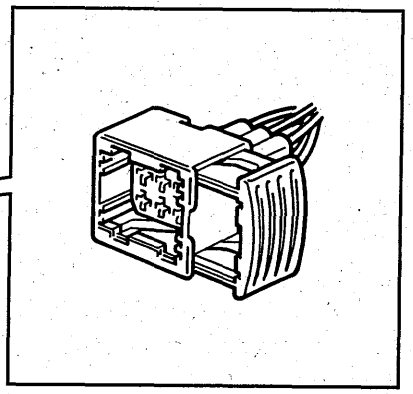






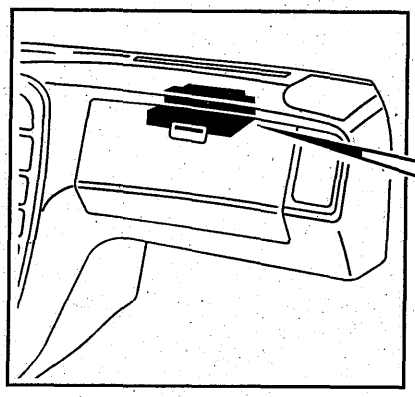
C383W-4887

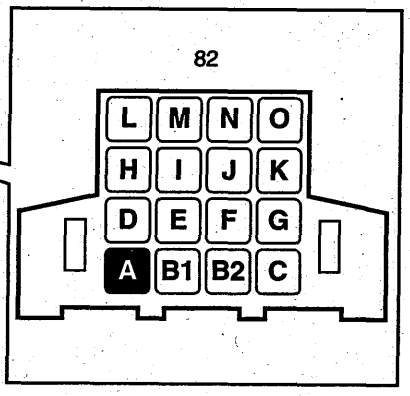


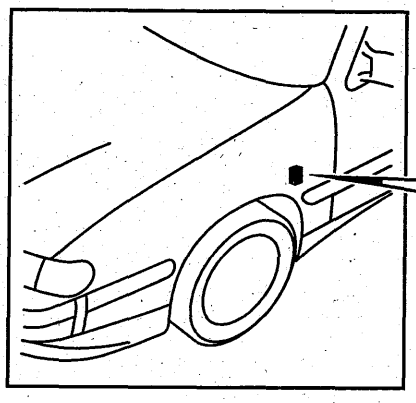


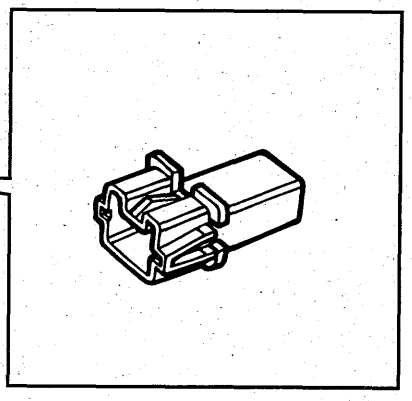
56 (H6-8)

6	5	4
BN	BK	GY
BK	BN WH	VT
3	2	1



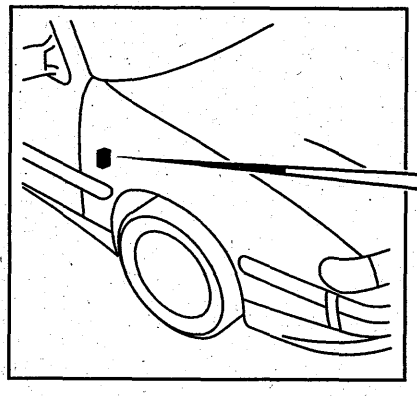


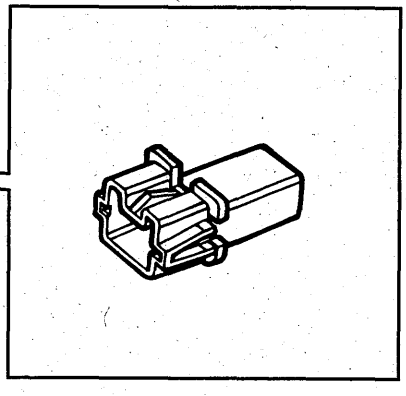




89 (H2-22)

1	2
BU WH	BK

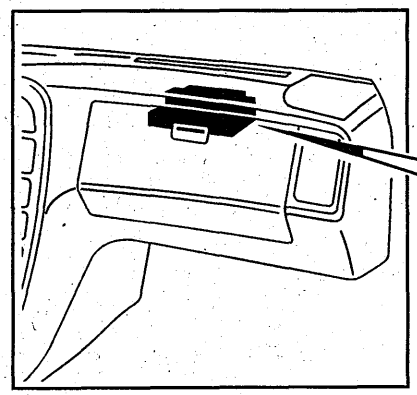




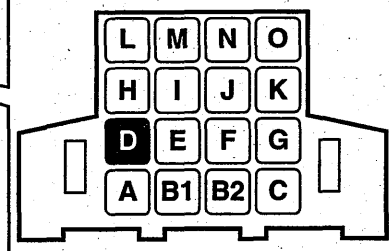
90 (H2-23)

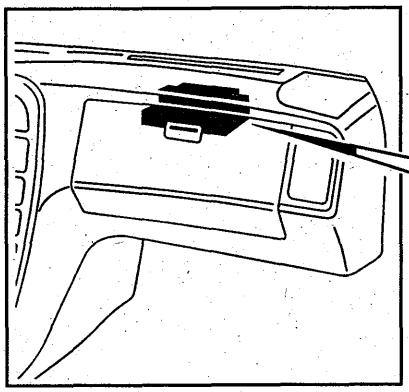
1	2
RD WH	BK

C383W-4888

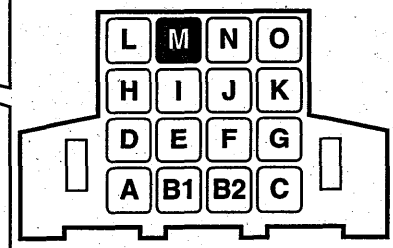


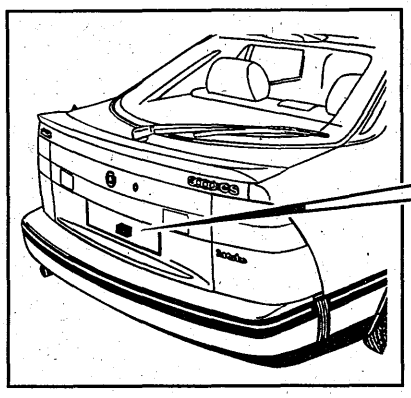
102

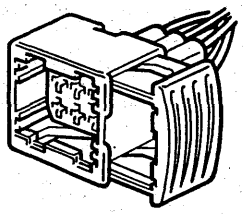




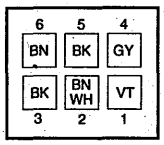
151

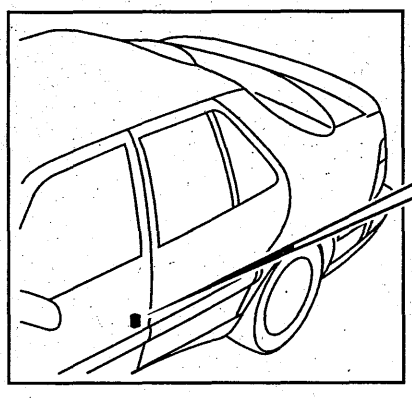


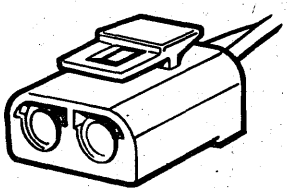




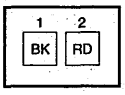
188 (H6-8)



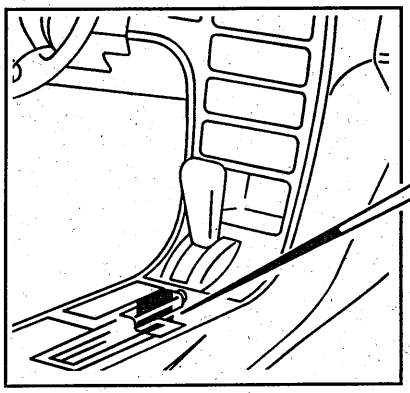


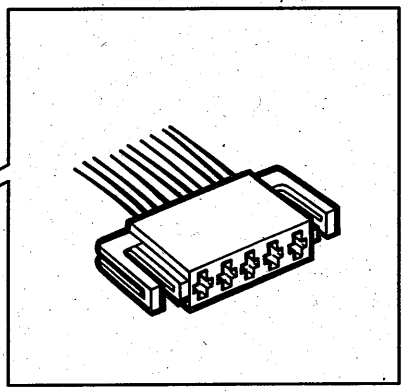


208 (H2-34)



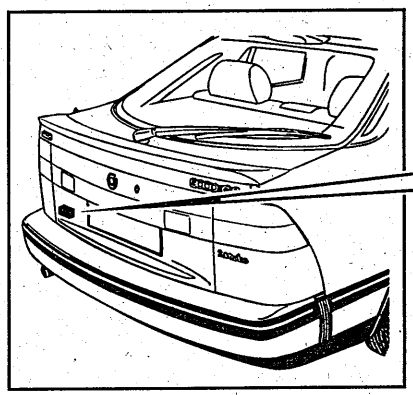
C383W-4889

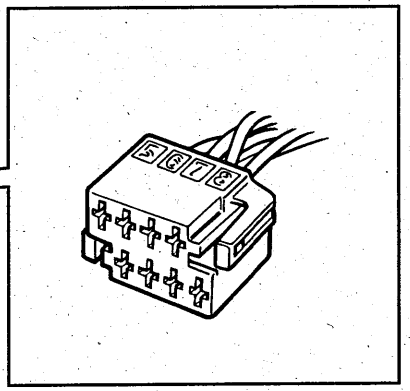




239 (77)

1	2	3	4	5
YE WH	GN WH	WH	OG	YE WH

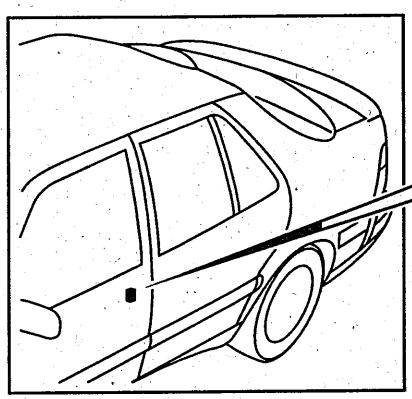


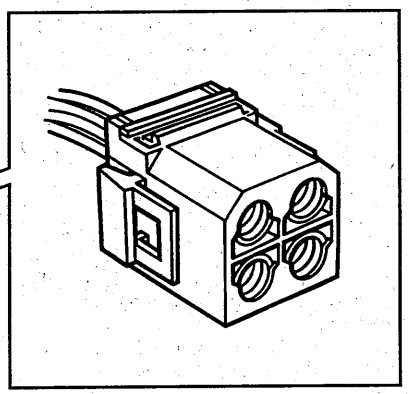


258 (H8-5)

4	3	2	1
BU WH	RD WH	GN	WH

8	7	6	5
BU		BU	BU RD

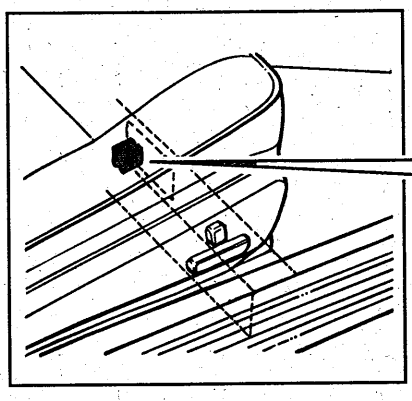


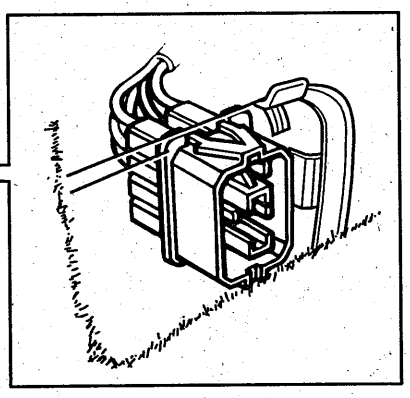


274 (H4-18)

1	2
BK	YE
RD	

3	4

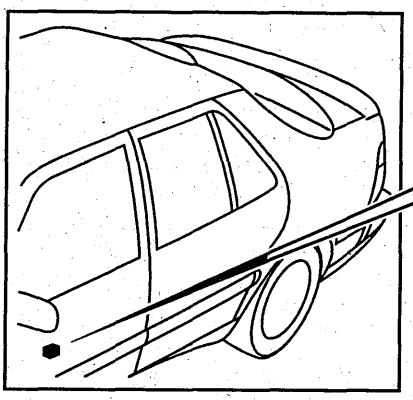


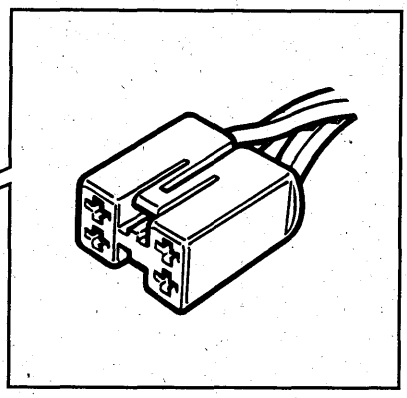


348 (H10-9)

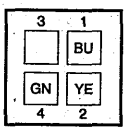
1	BU			WH 5
2	GY RD	9 RD	10 BK	6
3	YE WH			7
4	YE			YE 8

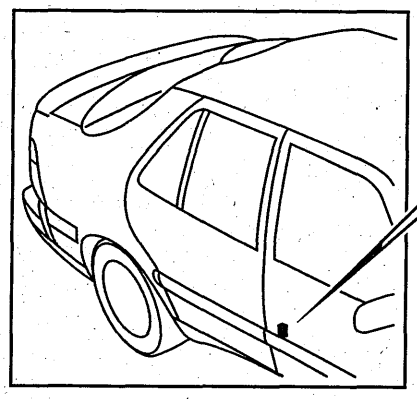
C383W-4890

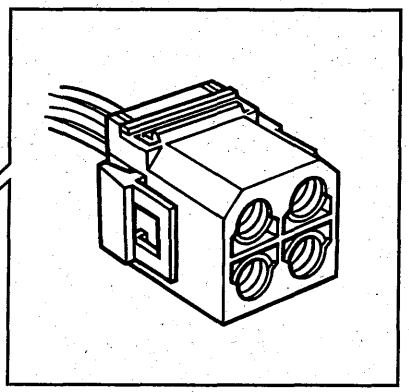




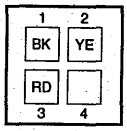
388

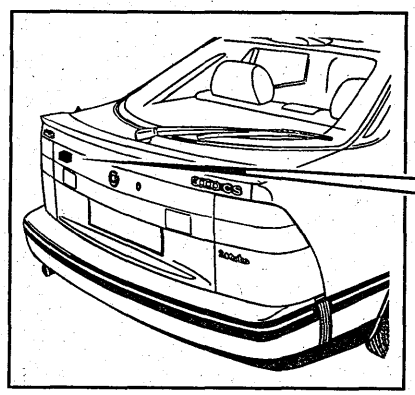


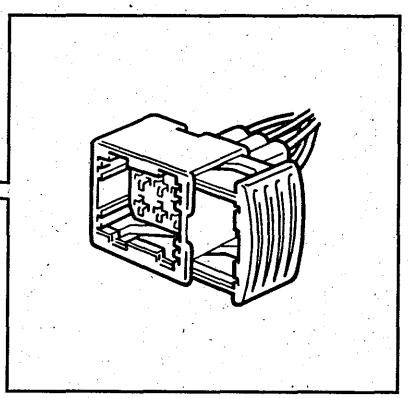




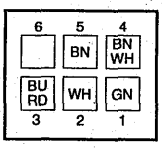
435 (H4-19)

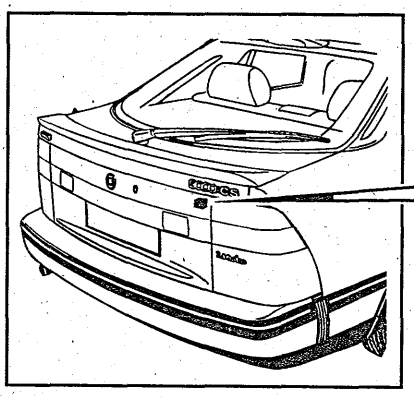


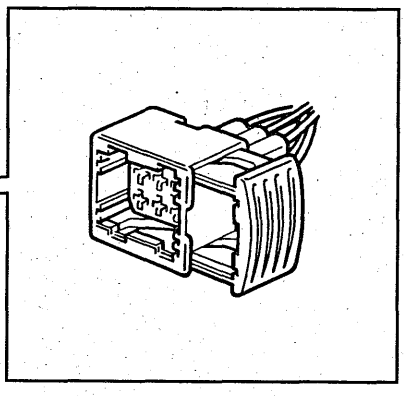




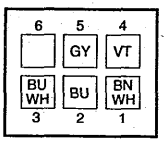
H6-4



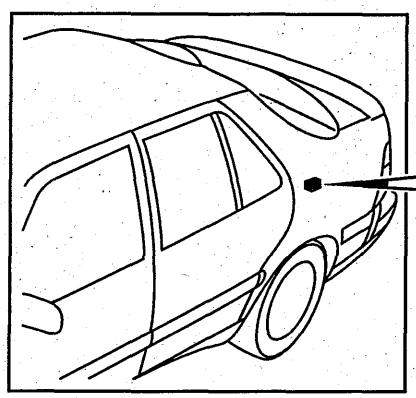


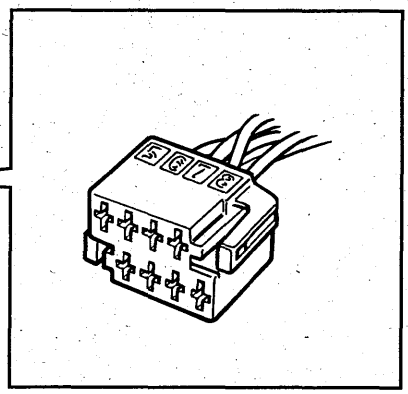


H6-6

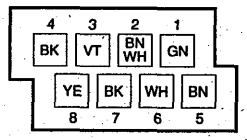


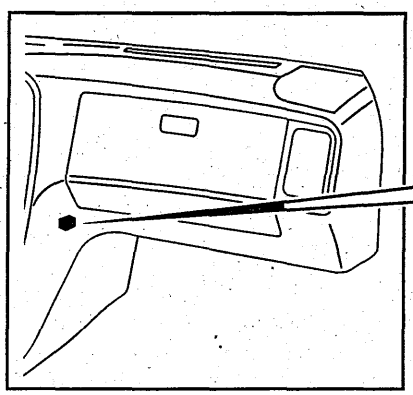
C383W-4891

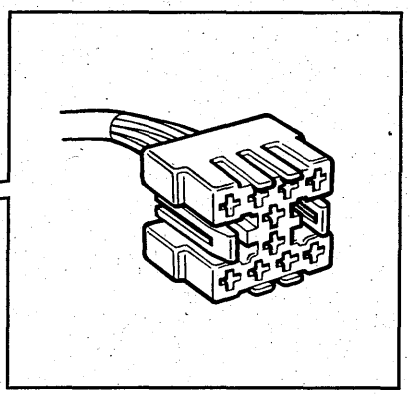




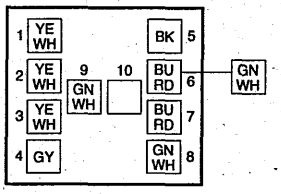
H8-4

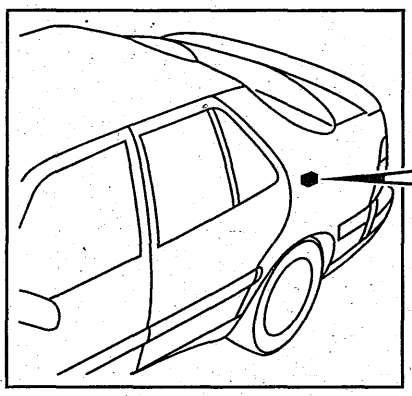


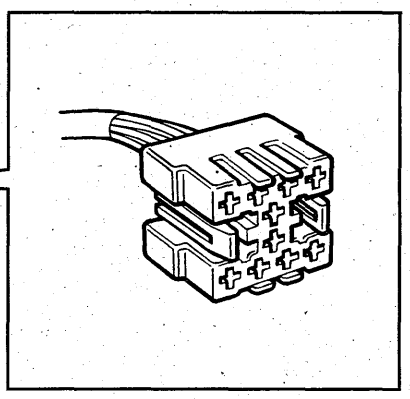




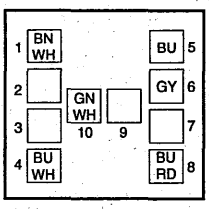
H10-1

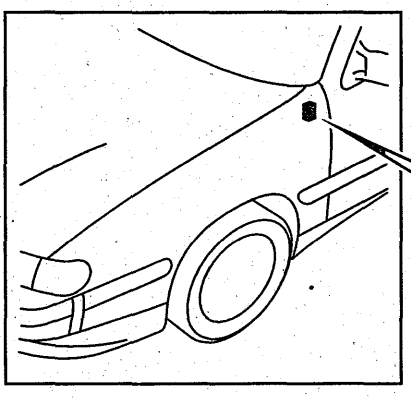


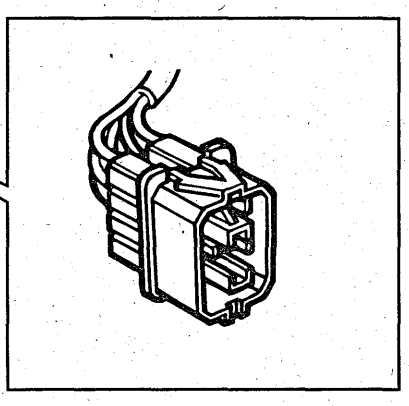




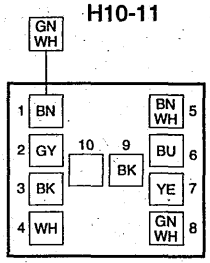
H10-6



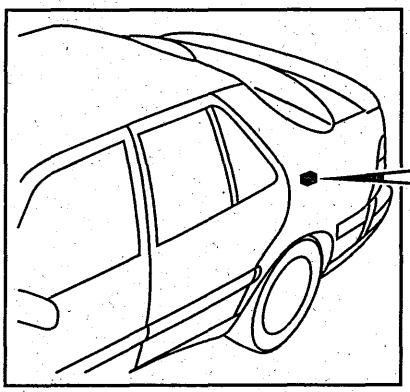


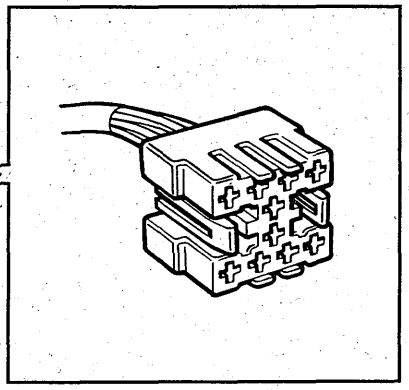


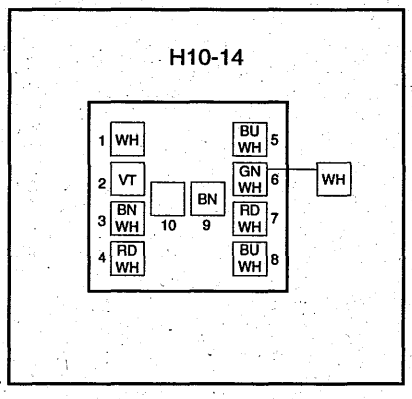
H10-11

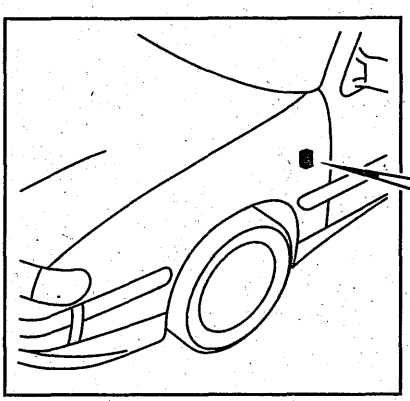


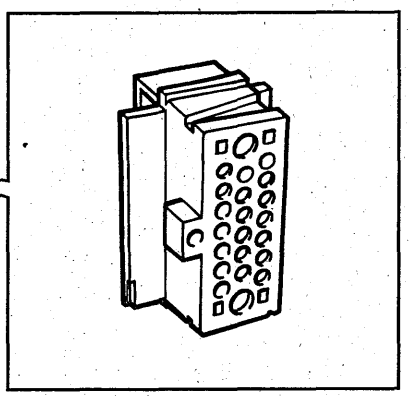
C383W-4892

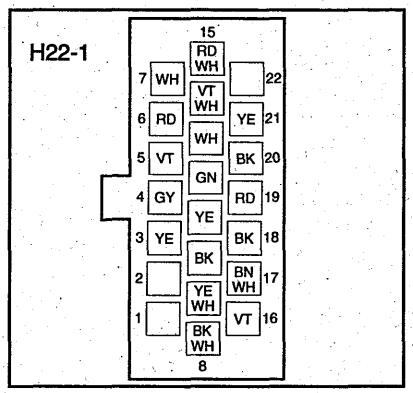


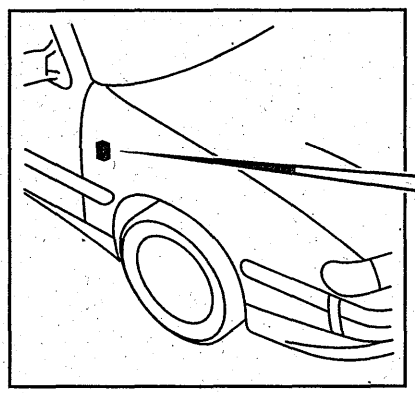


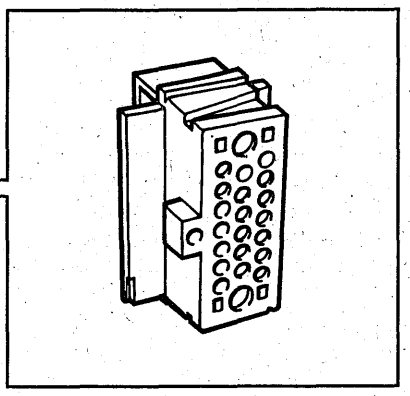

H10-14
1 WH
2 VT
3 BN WH
4 RD WH
BN
10
9
BU WH 5
GN WH 6
RD WH 7
BU WH 8
WH

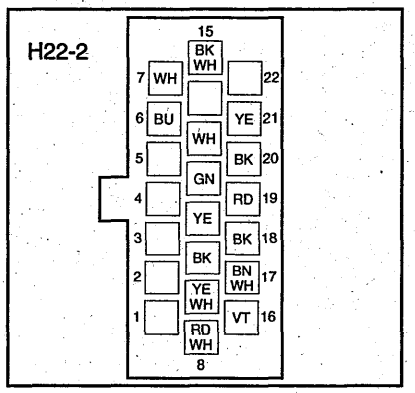


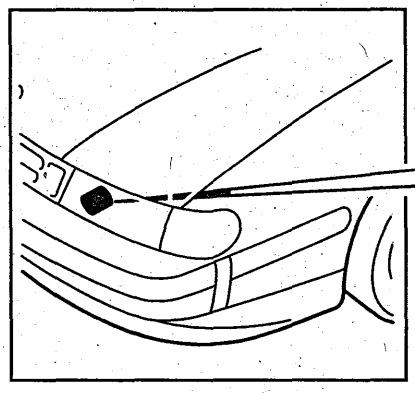


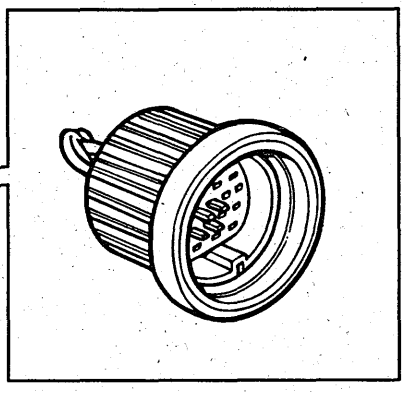

H22-1
15 RD WH
7 WH
VT WH
6 RD
WH
5 VT
GN
4 GY
YE
3 YE
BK
2
YE WH
1
BK WH
8
22
YE 21
BK 20
RD 19
BK 18
BN WH 17
VT 16

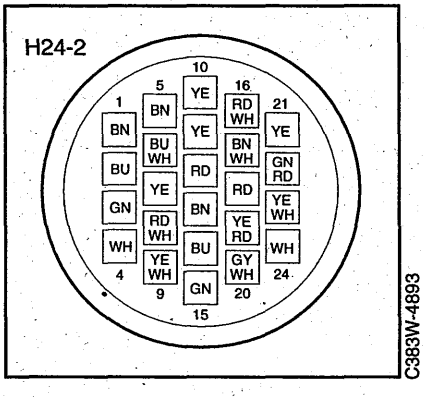




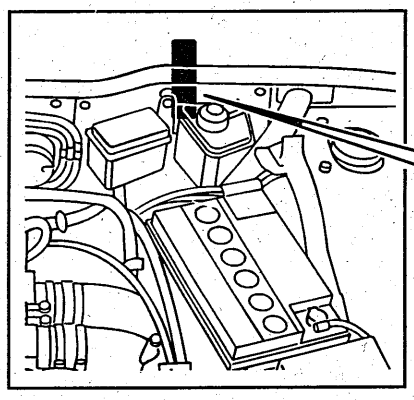

H22-2
15 BK WH
7 WH
6 BU
WH
5
GN
4
YE
3
BK
2
YE WH
1
RD WH
8
22
YE 21
BK 20
RD 19
BK 18
BN WH 17
VT 16

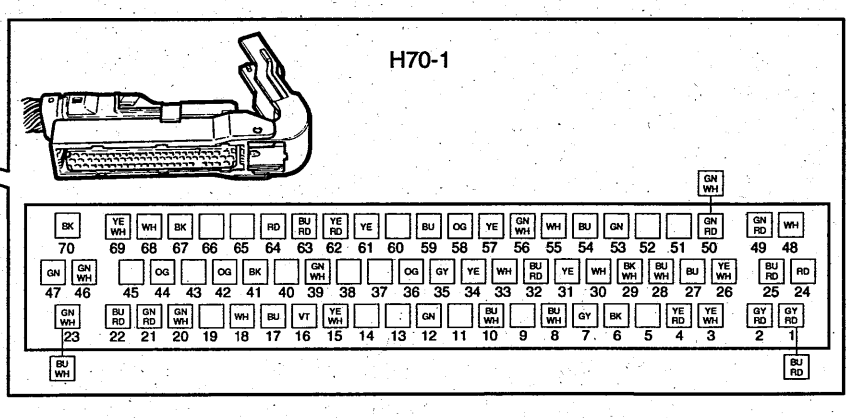





H24-2
10
5 BN
1 BN
BU
GN
WH
4
BU WH
YE
RD WH
YE WH
9
YE
RD
BN
BU
GN
15
16 RD WH
BN WH
RD
YE RD
GY WH
20
21 YE
GN RD
YE WH
WH
24

C383W-4893




H70-1
GN WH
BK 70
YE WH 69
WH 68
BK 67
66
65
RD 64
BU RD 63
YE RD 62
YE 61
60
BU 59
OG 58
YE 57
GN WH 56
WH 55
BU 54
GN 53
52
51
GN RD 50
GN RD 49
WH 48
GN 47
GN WH 46
45
OG 44
43
OG 42
BK 41
40
GN WH 39
38
37
OG 36
GY 35
YE 34
WH 33
BU RD 32
YE 31
WH 30
BK WH 29
BU WH 28
BU 27
YE WH 26
BU RD 25
RD 24
GN WH 23
BU RD 22
GN RD 21
GN WH 20
19
WH 18
BU 17
VT 16
YE WH 15
14
13
GN 12
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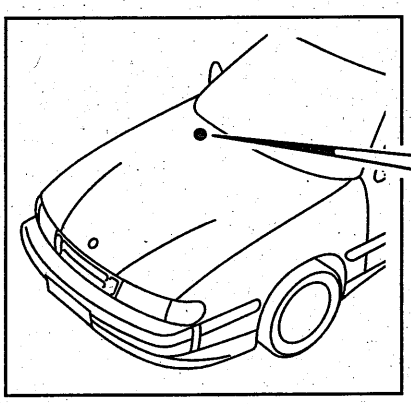
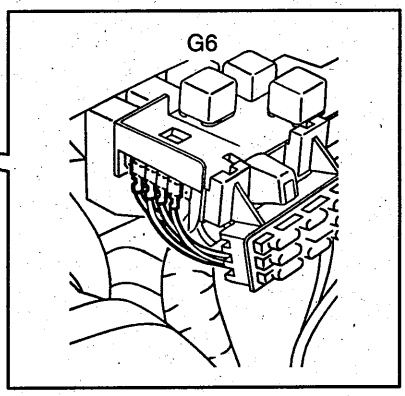
GY 7
BK 6
5
YE RD 4
YE WH 3
GY RD 2
GY RD 1
BU WH
BU RD

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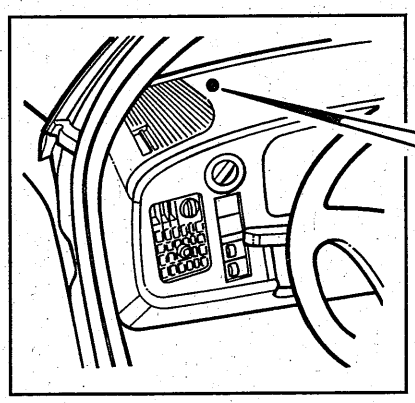

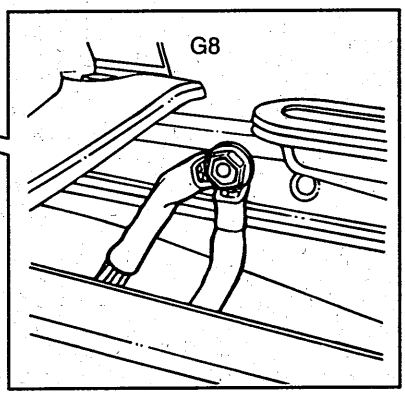
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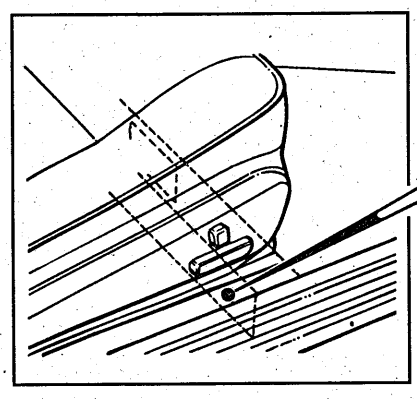

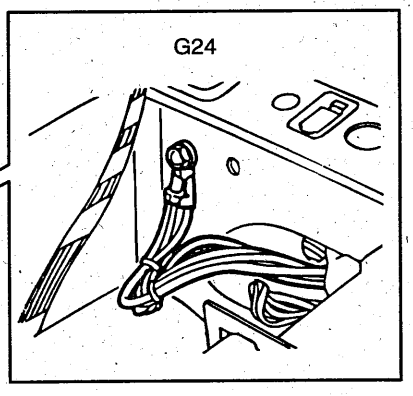
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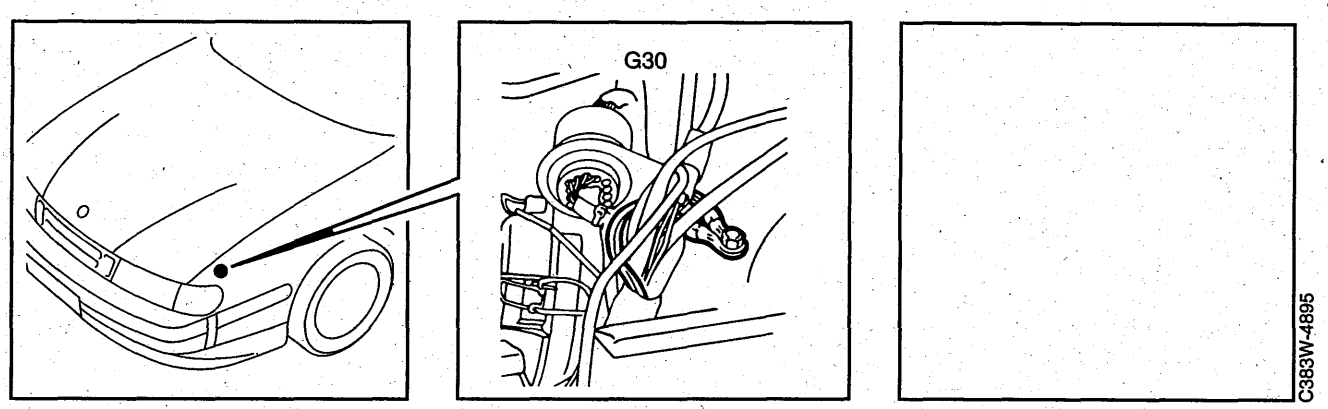
G30
C383W-4895

Wiring diagram, theft alarm 9000

List of components

4	Starter motor, on the rear of the engine.
20	Ignition switch, on the right-hand side of the steering column
22A	Fuse board, behind the cover in the glove compartment
23	Flasher relay
25	Switch, hazard flashers
27	Direction indicators, on the left-hand side
28	Direction indicators, on the right-hand side
47	Combined instrument
54	Door switches, cabin illumination
56	Luggage compartment illumination switch
82	Relay, seat-belt/ignition key warning, US, CA, ME, FE (LHD)
89	Side direction indicator, left-hand
90	Side direction indicator, right-hand
102	Fuel pump relay
151	Time-delay relay, interior lighting with time delay
159	Distribution terminal +15, in the electrical distribution box behind the glove compartment
175	Control module, central locking system
188	Motor, central locking system, tailgate
208	Door indication
230	Distribution terminal +30, in the electrical distribution box behind the glove compartment
239	Transmission range switch, automatic transmission
258	Connector, trailer lighting
274	Microswitch in driver door, beside the lock cylinder in the driver door
275	Theft alarm horn, in the left-hand wheel housing behind the wing liner
289	Theft alarm control module, behind the glove compartment
305	Theft alarm LED, in the speaker grille on the driver side
348	Scan tool diagnostics data link connector, EDU, ACC
388	Switch, tailgate opening
430	Control module, Saab TRIONIC engine control system
435	Microswitch, passenger door
451	Glass breakage sensor, in the interior lighting panel
452	Relay, starter motor
456	Antenna, remote transmitter, in the rear-view mirror
510	Motronic 2.8.1 control module
	Grounding points
G6	Distribution terminal, negative
G8	Facia grounding point, by the left-hand front speaker socket
G24	Grounding point, front right-hand seat member
G30	Grounding point, left-hand structural member, behind the left-hand headlamp
	2-pin connectors
H2-5	In the front left-hand corner of the engine compartment under electrical distribution box 342
H2-15	In the right-hand A pillar
H2-16	Beside the locking mechanism inside the front right-hand door
H2-22	By the left-hand side direction indicators, (green connector)
H2-23	Beside the right-hand side direction indicators, (green connector)
H2-32	Connected to the LED beside the left-hand loudspeaker grille
H2-34	Beside the locking mechanism inside the front left-hand door
H2-87	Under the roof console by the rear-view mirror.
	4-pin connectors
H4-13	In the left-hand front door below the door mirror
H4-19	Beside the locking mechanism in the passenger door
H4-21	Beside the generator on V6.
	6-pin connectors
H6-4	In the luggage compartment on the left-hand side beside the rear window
H6-6	To the right of the rear window wiper motor
H6-8	In the tailgate beside motor 188 (4D, CS)
	8-pin connectors
H8-4	By the rear left-hand wheel housing
H8-5	By the rear left-hand wheel housing
	10 pin connectors
H10-1	Under the facia to the left of the heater housing
H10-6	By the rear left-hand wheel housing
H10-9	Scan tool diagnostics data link connector, vehicle electronics under the right-hand seat (green)
H10-11	On the far left under the facia (behind the knee shield) beside cruise control memory 131
H10-14	In the luggage compartment on the left-hand side beside the filament monitor
	22 pin connectors
H22-1	Behind the cable entry in the left-hand A pillar
H22-2	Behind the cable entry in the right-hand A pillar
	24 pin connectors
H24-2	Behind the front left headlamp
	70 pin connectors
H70-1	In the engine compartment behind the bulk-head partition.

Workshop Information

User feedback

To

Saab Automobile AB
Workshop Information, MLVI
S-461 80 TROLLHÄTTAN
SWEDEN

Telefax phone no.: +46 520 84370

From

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Comments/suggestions

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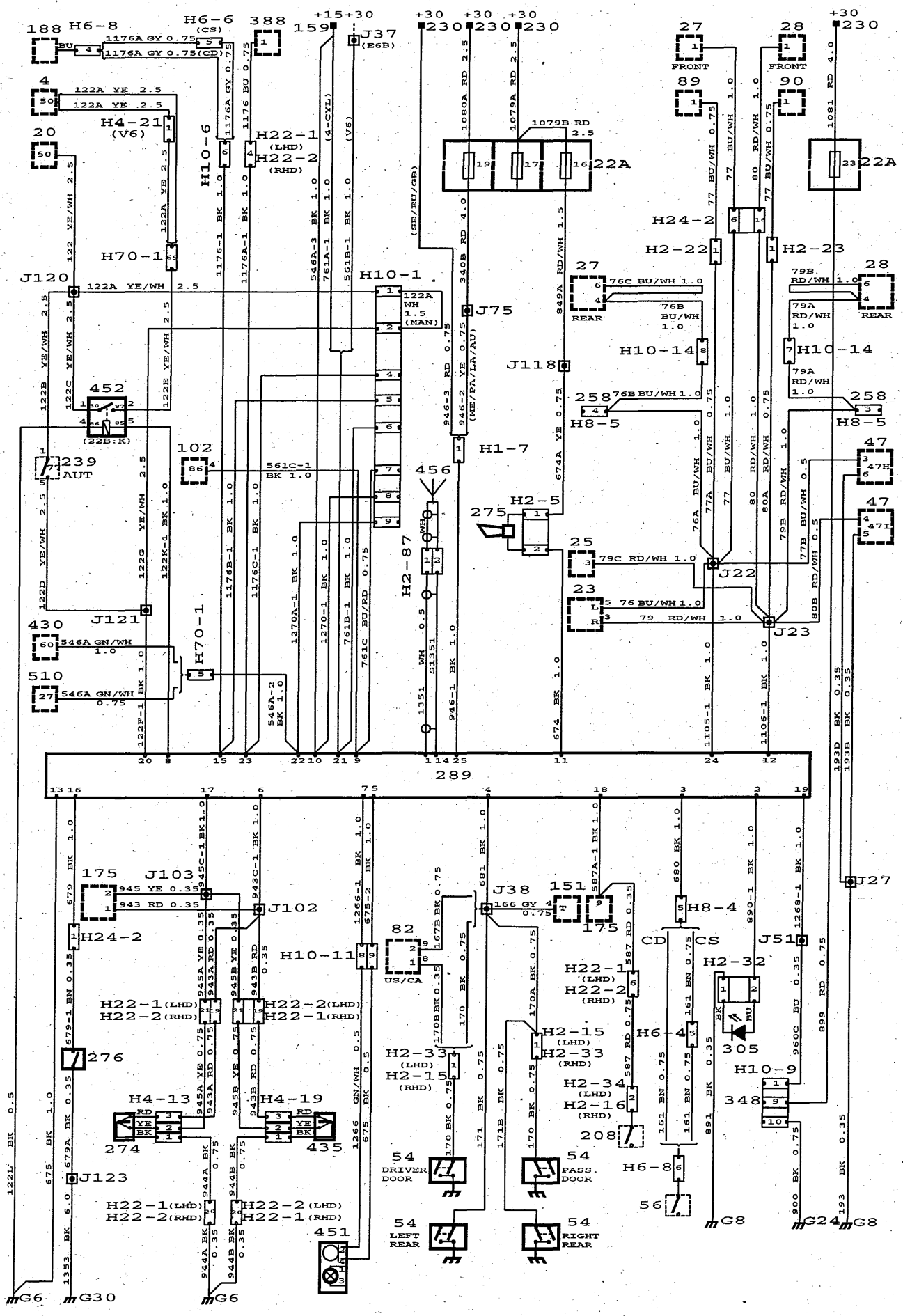
Manual concerned: .....

It is important that Saab technicians in the field regard the Workshop Service Manual as their bible, and we therefore strive to make the manual easy to use and to provide accurate information.

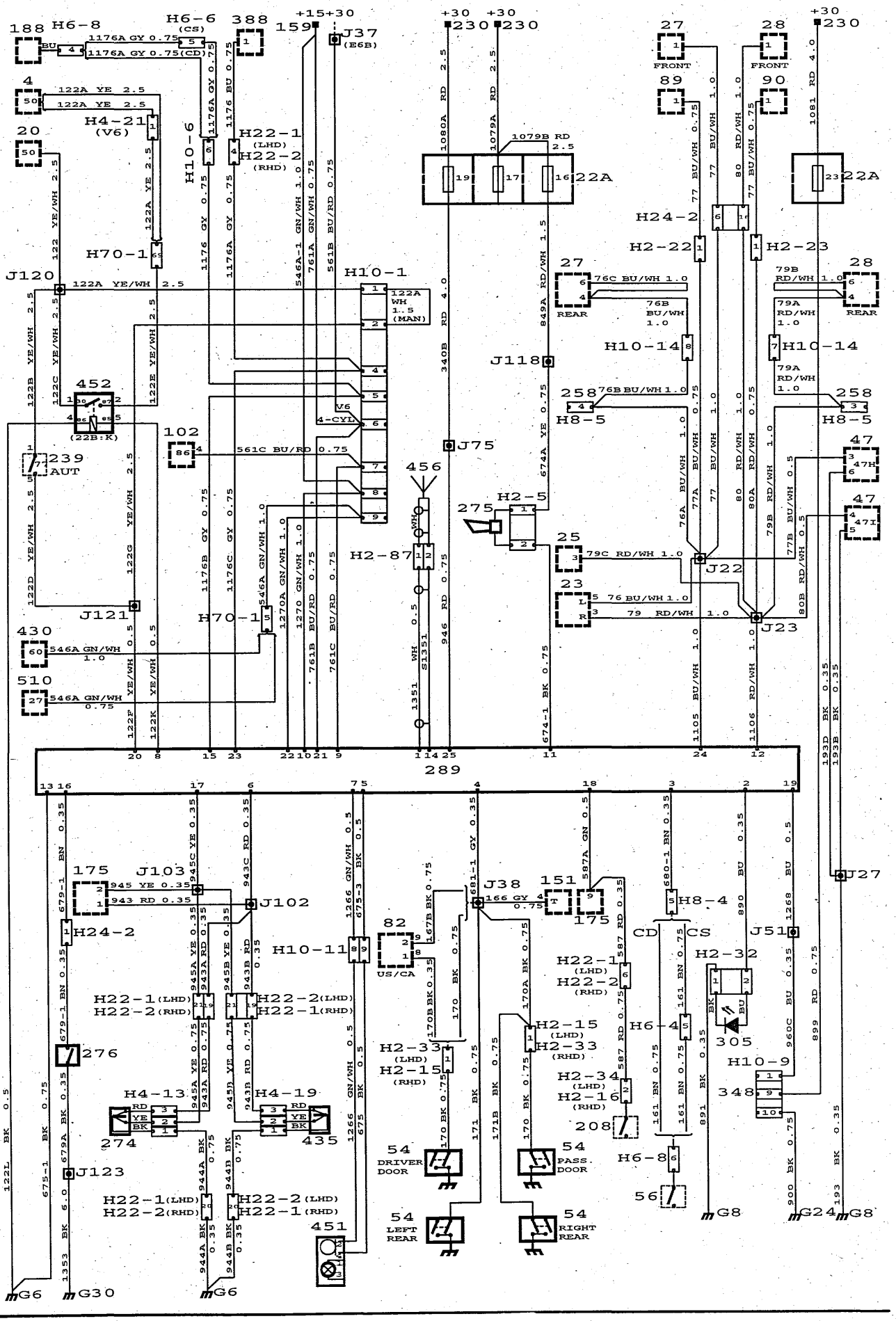
By letting us have your views on this manual you will be helping us to maintain a high standard in our literature.

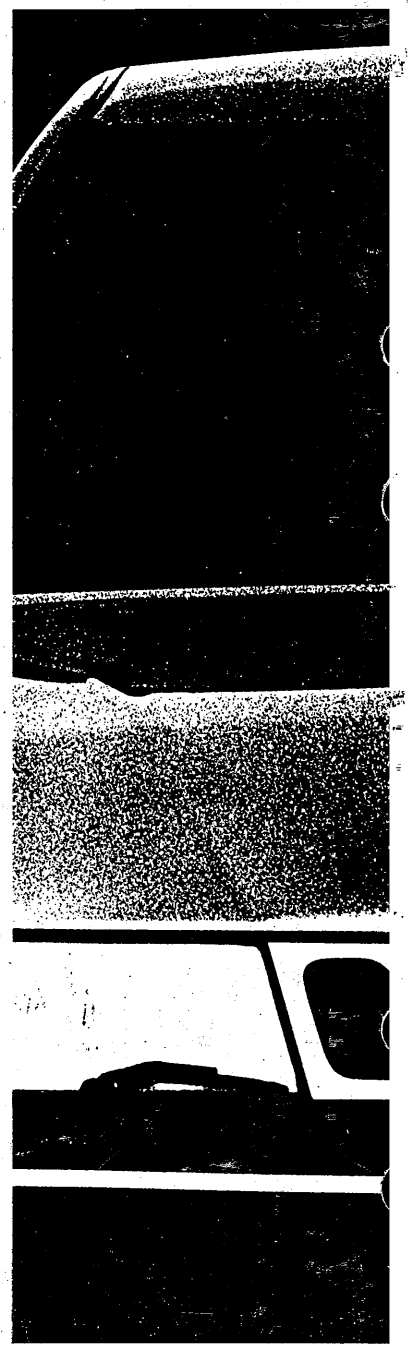
Note down any comments or suggestions you may have on a sheet of paper or take a copy of this page and send us your views at the above address. For greater convenience, you are also welcome to send your comments by fax, using the telephone number shown.

Wiring diagram M95



Wiring diagram M95, US/CA





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