

# ***Exhibit E ..... User's Manual***

## **Normal Operation**

### **Arming the Alarm System**

To manually arm the alarm system and set the immobiliser, turn off the ignition, exit the vehicle and ensure all doors (and boot/bonnet) are properly closed, then press button 1 on your transmitter. The siren will chirp and the hazards will flash once to confirm that the alarm has been armed and the LED will start to flash. If the alarm is connected to your central door locking the doors will be lock at this point.

If you would like the alarm to arm without chirping the siren, press buttons 1 and 2 together when arming the alarm. The alarm system will arm and the doors will lock with visual confirmation from the hazard lights only.

### **Disarming the Alarm System**

Pressing button 1 on the transmitter when the alarm system is armed will disarm the alarm and immobiliser. The indicators will flash and the siren will chirp twice. If the alarm is connected to the central locking system then the doors will unlock at this point. If you do not enter the vehicle for 30 seconds, the system will assume that you did not intend to disarm and will auto-rearm. The alarm system has the facility to also re-lock the doors when the alarm system re-arms. Talk to your dealer/installer to ensure that the switch is set in accordance with your requirements.

If you would like the system to disarm without chirping, then press buttons 1 and 2 together when disarming the alarm. The alarm system will disarm and the doors will unlock with visual indication only.

### **Disabling the Interior Sensors when Arming (PET MODE)**

This alarm system has motion sensors that detect the presence of an intruder or damage to the glass by using a shock sensor. If you wish to arm the system with the vehicle occupied, for example when leaving a pet in the car, you will need to disable the interior sensors. To do this, press button 1 twice in quick succession as you arm the system. Each press will be separately confirmed by a chirp and indicator flash. Silent arming can still be selected by pressing buttons 1 and 2 together twice in quick succession.

### **Two Stage Disarm**

If the alarm system has been triggered and the siren is sounding and the indicators are flashing, press either button on the transmitter to stop the alarming sequence. The alarm system will return to the armed mode and will remain in this mode until transmitter button 1 is pressed again to fully disarm the system.

## **Valet Mode**

This is recommended to allow your vehicle to be taken for service or repair, as the setting is remembered even when the battery is disconnected. Disarming the system, turning on the ignition and pressing and holding both buttons on the transmitter for two seconds enters valet mode. The LED will turn on after two seconds to indicate that the system is in valet mode. The system will remain in this mode until both transmitter button are pressed again for two seconds with the ignition switched on. The transmitter can still be used to lock and unlock the vehicle.

## **Additional Features**

### **Central Door Locking Features**

The LITE-ON VS560 alarm system has an interface to control the door locks. If you have central door locking on your vehicle and have selected this option, your doors will lock and unlock as and when you arm and disarm the system with the transmitter.

#### *Autolock with Ignition-on*

If you have selected this option, your vehicle will lock automatically 5 seconds after you switch the ignition on. This is a personal safety feature to help protect against road rage or hijack attacks. If you open a door with the ignition on and before the locking pulse is issued then the pulse will be cancelled to prevent you being locked outside the vehicle. Your installer can switch off this feature if you do not require the automatic lock with ignition on feature.

#### *In-car lock/unlock*

If you have central door locking control facility, you can also lock (or unlock) your doors from inside the vehicle by pressing button 1 and button 2 on your transmitter while the ignition is switched on. Press button 1 to lock the doors and button 2 to unlock the doors. The doors will unlock automatically when the ignition is turned off.

## **Panic Mode**

This system also includes a panic mode, which enables you to activate the alarm from the transmitter. This is an especially useful feature should you wish to ward off unwanted attention. The panic facility works regardless of whether the ignition is switched on or off.

If you want to trigger the alarm system, press and hold button 1 for 2 seconds. The panic facility will sound the siren and flash the indicators without immobilising the vehicle, enabling you to drive away. The panic mode can be reset by pressing button 1 on the transmitter.

## **Convenience Facilities**

The LITE-ON VS560 Alarm System has a number of additional convenience feature-:

### *Boot Release/Free Impulse/Latch Output*

The convenience output on the alarm system can be configured for Trunk Release, Free Impulse or Latched output depending upon your requirements.

#### *Boot Release*

If your vehicle has a boot release solenoid it can be activated from the transmitter by pressing button 2 for 2 seconds. If the alarm system is already armed when button 2 is pressed, the sensors and the boot switch sensing will be disabled to ensure that the alarm is not triggered. The sensors and the boot switch will remain inactive for 10 seconds after the boot has been closed, then re-enabled so that your vehicle is again fully protected.

To ensure your safety when driving, this feature cannot be activated with the ignition switched on.

#### *Free Impulse*

The free impulse output provides a 1 second earth pulse whenever button 2 on the transmitter is pressed for 2 seconds. The output is provided regardless of whether the ignition is switched on or off.

#### *Latch Output*

The latched output is turned on whenever button 2 on the transmitter is pressed for 2 seconds with the ignition switched off. The output will remain latched on until the ignition is switched on or the button 1 is used to arm or disarm the alarm system.

The Latched output can only be operated when the ignition is switched off.

Discuss this with your installer so that the system is configured to best suit your requirements.

#### *Car Finder*

To help locate your vehicle, the alarm system includes a car finder feature. This beeps the siren once and flashes the indicators six times in a quick sequence whenever button 2 is pressed. This feature is included to assist you in locating your vehicle in busy or full car parks.

### **Emergency Disarm**

This facility is provided to allow the system to be disarmed in an emergency if the transmitter batteries have failed or you have lost your transmitter. When the vehicle is entered using the key, the alarm will trigger and the immobiliser will remain armed. To disarm the alarm and immobiliser, turn on the ignition and press the override switch. The system will disarm and allow the vehicle to be driven away.

### **Passive Arming**

If selected, this option arms the alarm and set the immobiliser automatically after the ignition has been turned off and a door has been opened and closed. Note that locking will not be activated on passive arming, in order to ensure that the driver can not be locked out of the vehicle. As soon as the doors, boot and bonnet have been closed with the ignition off, the indicators will flash twice and the LED will fast flash to indicate that the arming sequence has begun. If all doors, boot and bonnet remain closed for 30 seconds, the alarm system will arm. To temporarily prevent the system passive arming open a door, boot or bonnet or use the valet mode.

## Control Summary

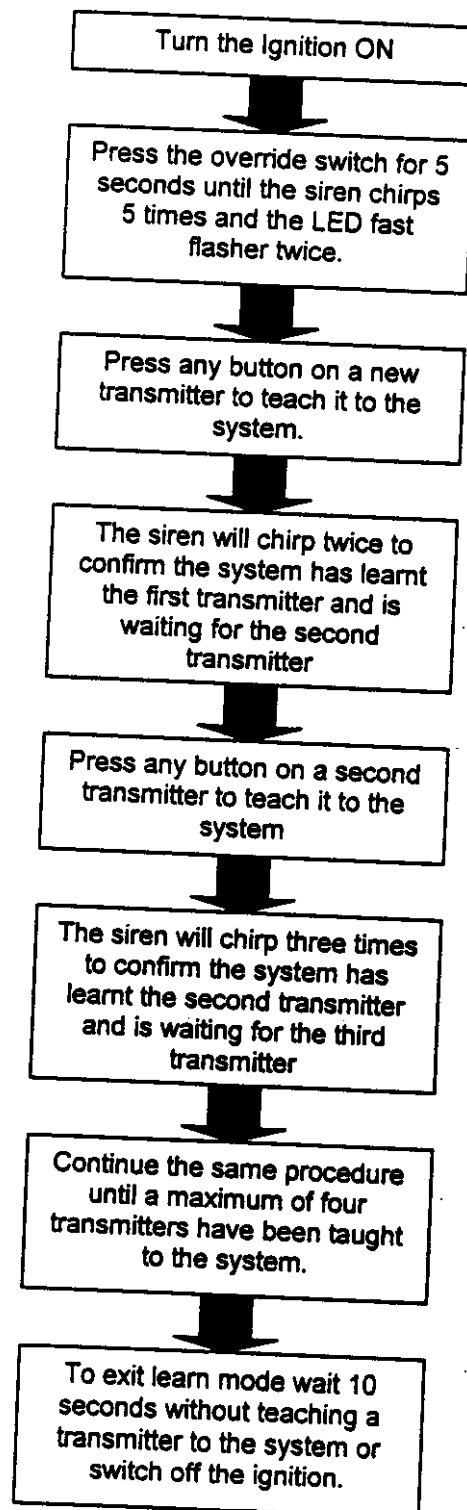
FUNCTION	Button 1	Button 2	Conditions
Arm (Lock)	•		Ign OFF
Arm (Lock) Without Sensors	••		Ign OFF
Lock	•		Ign ON
Silent Arm	•	•	Ign OFF
Silent Arm Without Sensors	••	••	Ign OFF
Disarm (Unlock)	•		Ign OFF
Unlock		•	Ign ON
Silent Disarm	•	•	Ign OFF
Panic Mode	• 2s		Ign OFF
Car Finder		•	Ign OFF
Auxiliary Output		• 2s	Ign OFF
Valet Mode	• 2s	• 2s	Ign ON

### KEY

- Press button
- Press twice in quick succession (less than 3 seconds)
- 2s Press and hold button for 2 seconds

## Introducing and Removing Transmitters

The LITE-ON VS560 can accommodate up to four transmitters. Each time you perform the learn mode, the old codes will be deleted therefore, you must teach all transmitters to the system again to ensure that the system continues to respond to all transmitters. To teach transmitters to the system, proceed as follows :-

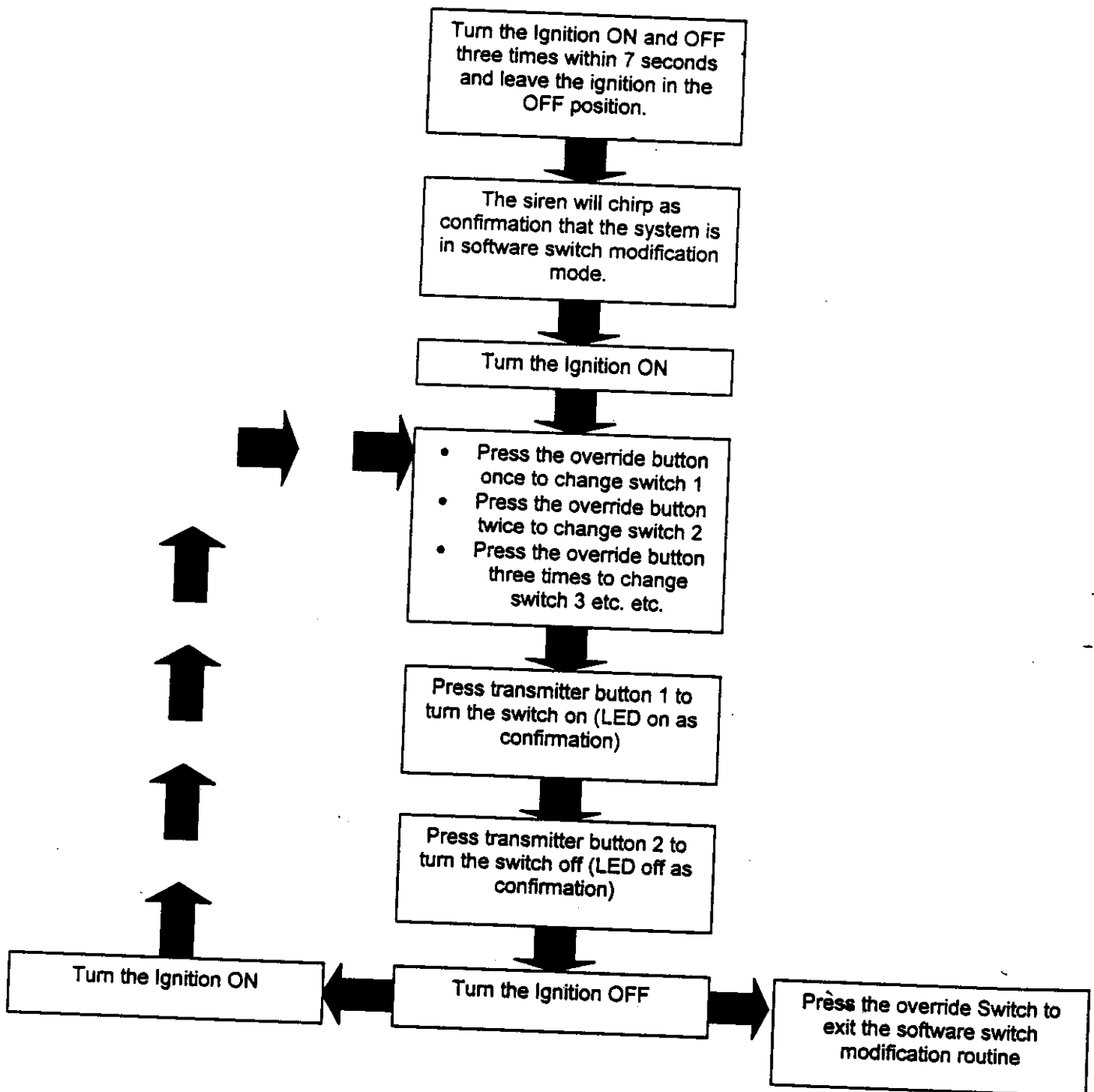


## Software Switches

The LITE-ON VS560 has a number of software selectable features. These can be changed using the procedure list below. Some of these features are to enable the alarm system to be configured to the vehicle you are installing the system in. Other switch settings will be determined by customer preference and should be discussed with the customer before the installation is completed.

Software Switch	Software Switch Function	Default	ON Press Button 1 LED ON	OFF Press Button 2 LED OFF
1	Passive ARM/DISARM Mode	OFF	ON	OFF
2	Ign ON Door Lock	ON	ON	OFF
3	Pager/Horn	Pager	Horn	Pager
4	Motor/Vacuum Locking	0.5S	0.5S	4S
5	Trunk Open/Free Impulse	Trunk	Trunk	Free
6	Latch	OFF	Latch	OFF
7	Auto Rearm with or without lock	Lock	Lock	Without Lock

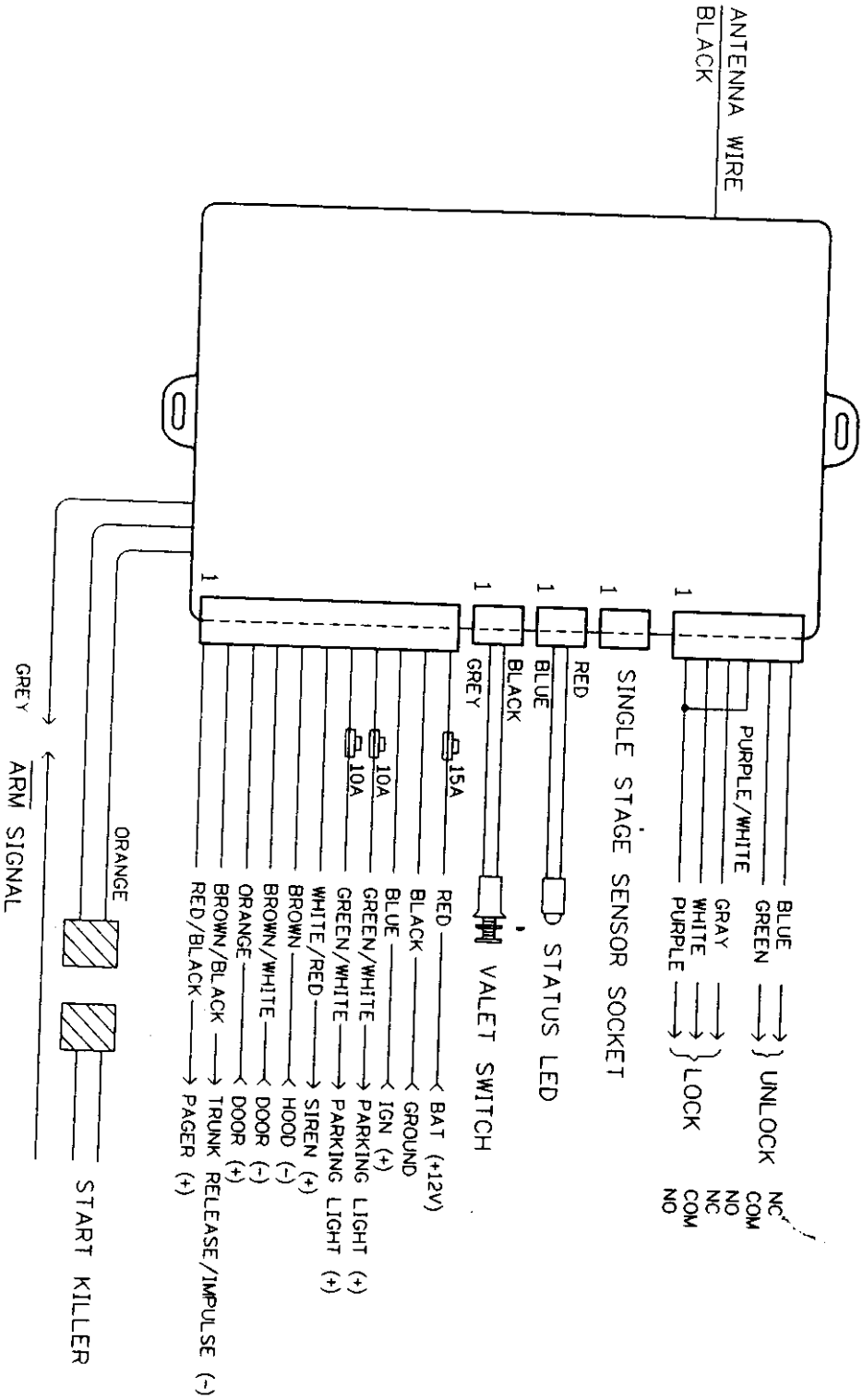




VS560

# ALARM SYSTEM WIRING DIAGRAM

FEB/23/1998  
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# LITE-ON VS560 Alarm System

## Installation Instructions

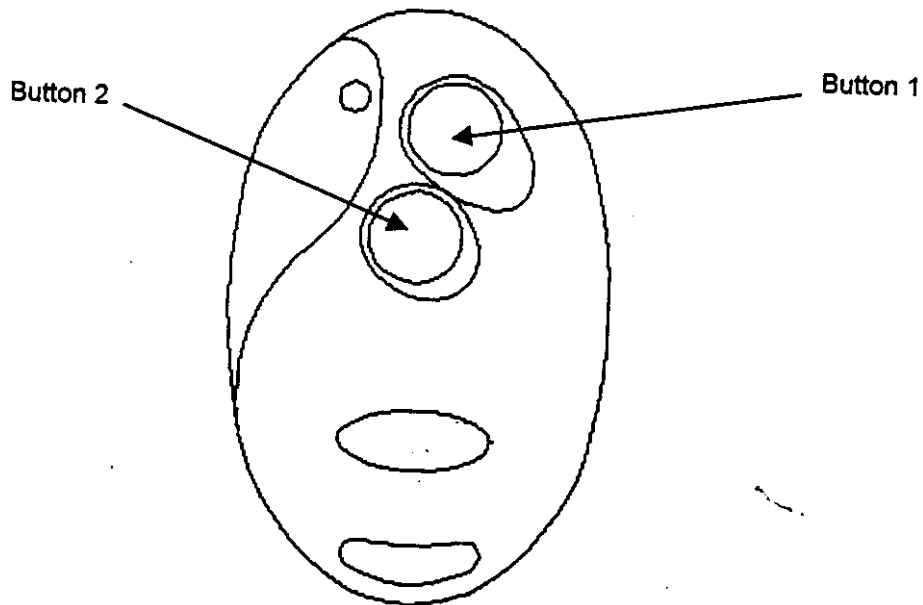
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### Introduction

The LITE-ON VS560 alarm is a microprocessor controlled alarm system designed to help protect a vehicle and its contents from being stolen. When armed, the alarm system will trigger if it senses vehicle entry via doors, boot or bonnet or detects movement via an optional shock or movement sensor. The system provides many advanced convenience features and functions to make the system easy to both install and use.

### Transmitter

A two button remote control transmitter is used to control the alarm's various features and functions. LITE-ON VS560 system is supplied with two transmitters. The function of each button is as illustrated below :-



In case you lose or damage the transmitter (or batteries are exhausted), there is also a hidden override switch which will allow the alarm system to be disarmed. There is also a facility to teach new transmitters to the system and change the software switches using this override switch.

## **Parts List**

- LITE-ON VS560 Electronics Module
- Main Wiring Harness
- 2 x 12 Volt transmitters
- CDL Locking Wiring Harness
- Immobiliser Wiring Harness
- Arm Wire
- LED with wiring harness
- Access Switch with wiring harness
- Single Stage Shock Sensor (Optional)
- Part Bag including cable ties, pin switch, screws and bullet connector

## **Mounting Locations**

Position the electronics module inside the passenger compartment, away from any potential sources of damp or excessive heat. The electronic module should be mounted in a location which requires the removal, using tools, of at least one piece of trim panel. Attach the electronic module to the chosen location using the screws provided in the kit.

## **Access Switch**

The access switch should be mounted in a secret location out of sight from the driver's position or the exterior of the vehicle. The switch will not be required during normal operation and it is recommended that the switch is mounted on the underside of the dashboard where the driver getting into or out of the vehicle can't knock it. Drill a 7mm clearance hole and mount the switch using the locking nut provided. Route the wiring to the electronic module and connect it to the larger two pin connector in the centre of the electronics module.

## **LED**

Drill an 8mm hole in the dashboard for the LED and securely fit the LED in the hole. Route the wiring to the electronic module and connect it to the smaller two pin connector on the electronic module.

## **Electrical Connections**

Before making any connections, locate the following signals within the vehicle:-

- Permanent feed (+30)
- Ignition Switch feed (+15)
- Indicator connections
- Door wire (and identify if it is positive or negative)
- Boot Wire (and identify if it is positive or negative)

- Bonnet Switch (Install if necessary)
- Good vehicle earth bolt
- One immobiliser circuit either :-
  - ❖ Starter Motor (preferably the starter motor relay if available)
  - ❖ Fuel Pump Feed
  - ❖ Ignition Coil (if available)
  - ❖ Diesel Shut of valve

**Note : We advise that ECU immobilisation is not attempted**

### **Main Connections**

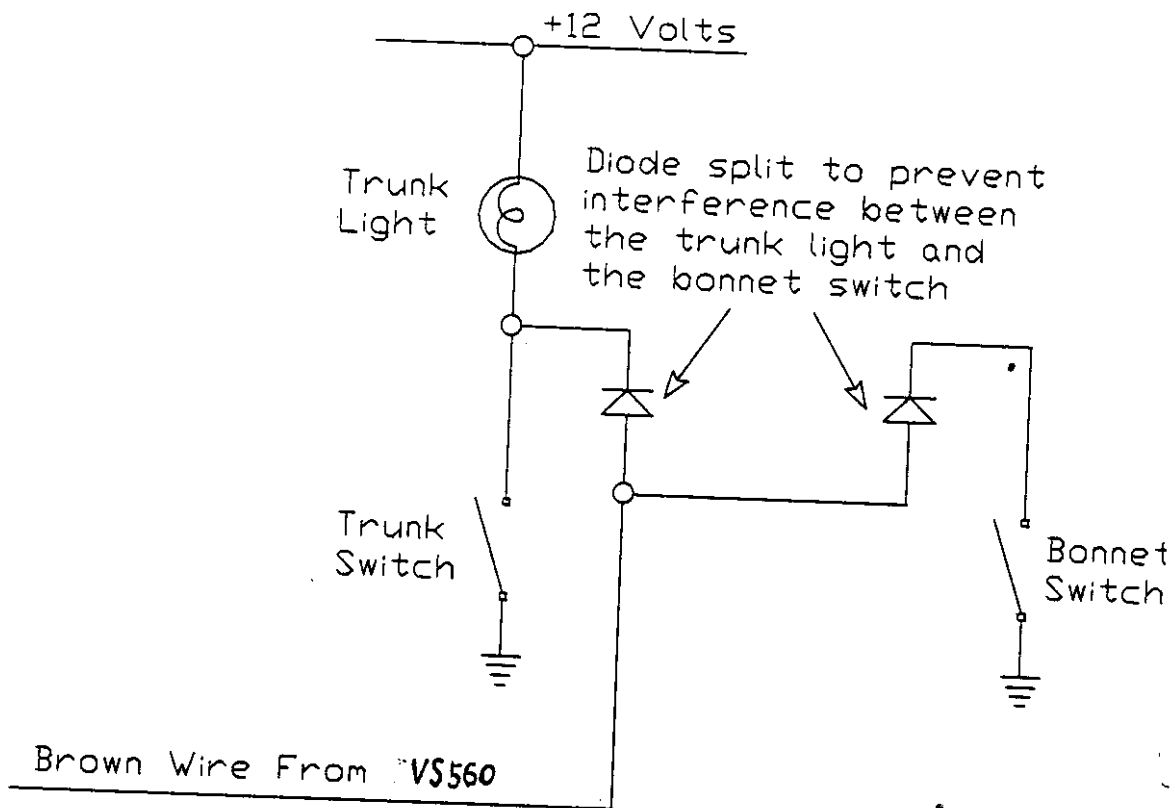
- |                         |   |
|-------------------------|---|
| <b>RED</b>              | Connect the cable to a permanent 12 volt battery feed (+30)   |
| <b>BLACK</b>            | Connect to a good vehicle earth bolt (-31)  |
| <b>BLUE</b>             | Connect to an ignition switched supply. Note you must connect this wire to a ignition switch feed which does not drop out when cranking i.e hot in accessory, ignition on and start (+15)   |
| <b>GREEN/WHITE (x2)</b> | Connect one wire to each indicator circuit. The connections need to be made to a positive indicator feed.   |
| <b>WHITE/RED</b>        | Route the wire through the bulkhead grommet into the engine bay. Connect this wire to the positive side of the siren and the negative side of the siren to earth.   |
| <b>BROWN</b>            | Route the wire through the bulkhead grommet to the bonnet pin switch. Connect to a wire that gives an earth signal when the bonnet is open. Install a separate Bonnet pin switch if no such wire exists on the vehicle.   |
| <b>BROWN/WHITE</b>      | If the vehicle has a negative polarity door circuit, connect this wire between the interior light and the door switches. Negative door polarity door circuits have switches that provide an earth signal on the door wire when the door is opened. Ensure that the wire you connect to senses all the doors on the vehicle. |
| <b>ORANGE</b>           | If the vehicle has positive polarity door circuit, connect this wire between the interior light and the door switches. Positive polarity door circuits have switches that supply battery voltage to the door wire when the door is opened.  |

Ensure that the wire you connect to senses all the doors on the vehicle.

**Notes :**

i) The alarm system has the facility to sense signals on door -, door + and Bonnet wires. Therefore the connection points listed above are the recommended configuration but these three wires can be connected in any configuration to make the system as easy to install as possible.

ii) If you choose to use the Brown wire to sense both the bonnet and the trunk, two diodes should be used to prevent interference between the bonnet switch and the trunk light.



**Brown/Black**

This is the auxiliary (-) Output for Trunk Open, Free Impulse or Latched Impulse. The auxiliary output (2<sup>nd</sup> Channel) supplies an earth signal (300mA current sink) output for 1s to the trunk open (ignition off), a 1 second Free Impulse output or a Latched output. This feature is programmed by the setting of two software switches. See the table below for details of how to configure this output.

**RED/BLACK**

The pager output provides a positive signal when the alarm system is triggered and can be connected to a pager system or a horn relay to drive the original vehicle horn. A software switch is provided to configure this output and details on how to configure this output can be found below.

**ORANGE (x2)**

The two orange wires, which exit the electronic module on the left side (via the two pin connector), come directly from the internal immobiliser relay. Locate the feed wires for the circuit you wish to immobilise, cut the wire and test that the engine does not either start or run. Take care with vehicles with catalytic converters to ensure that unburned fuel can't damage the converter. Connect one wire to each end of the wire you have cut and test the functionality of the immobiliser.

**GREY**

This is the alarm system armed output and provides an earth signal when the alarm system is armed. This wire can be used as an armed signal input for other vehicle security/tracking systems or to control an extra external immobiliser relay.

**Central Door Locking Connections**

The LITE-ON VS560 alarm system has universal central door locking connections built into the alarm system to operate both original and after market central door locking systems. The wiring colours are as follows: -

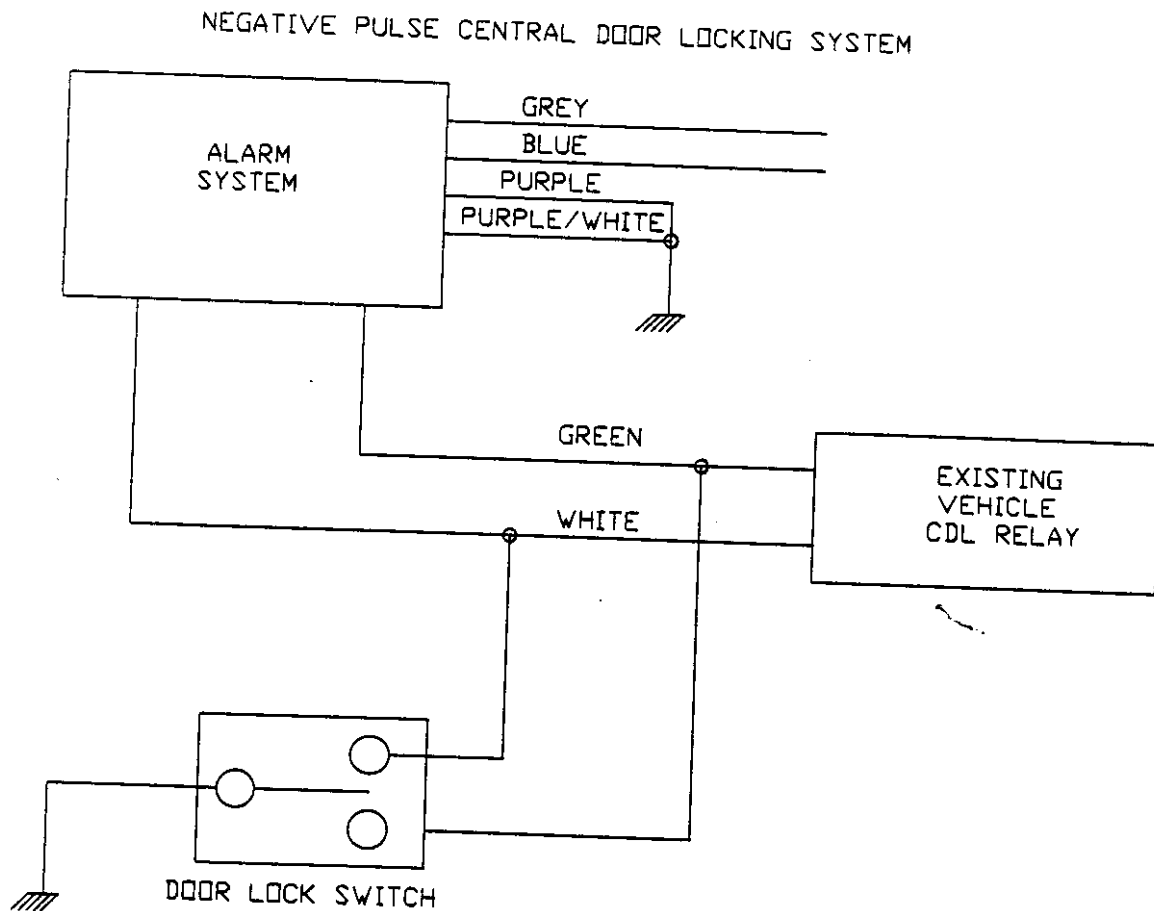
<b>BLUE</b>	Unlock Normally Closed
<b>GREEN</b>	Unlock Common
<b>PURPLE/WHITE</b>	Unlock Normally Open
<b>GREY</b>	Lock Normally Closed
<b>WHITE</b>	Lock Common
<b>PURPLE</b>	Lock Normally Open

Please see the wiring diagrams that follow for the most common central door locking systems.

## 1. Door Locking Systems Using CDL Module (Negative Pulse)

This central door locking system is common on European and Japanese vehicles and many after market central door locking systems which include both motors and a central door locking relay.

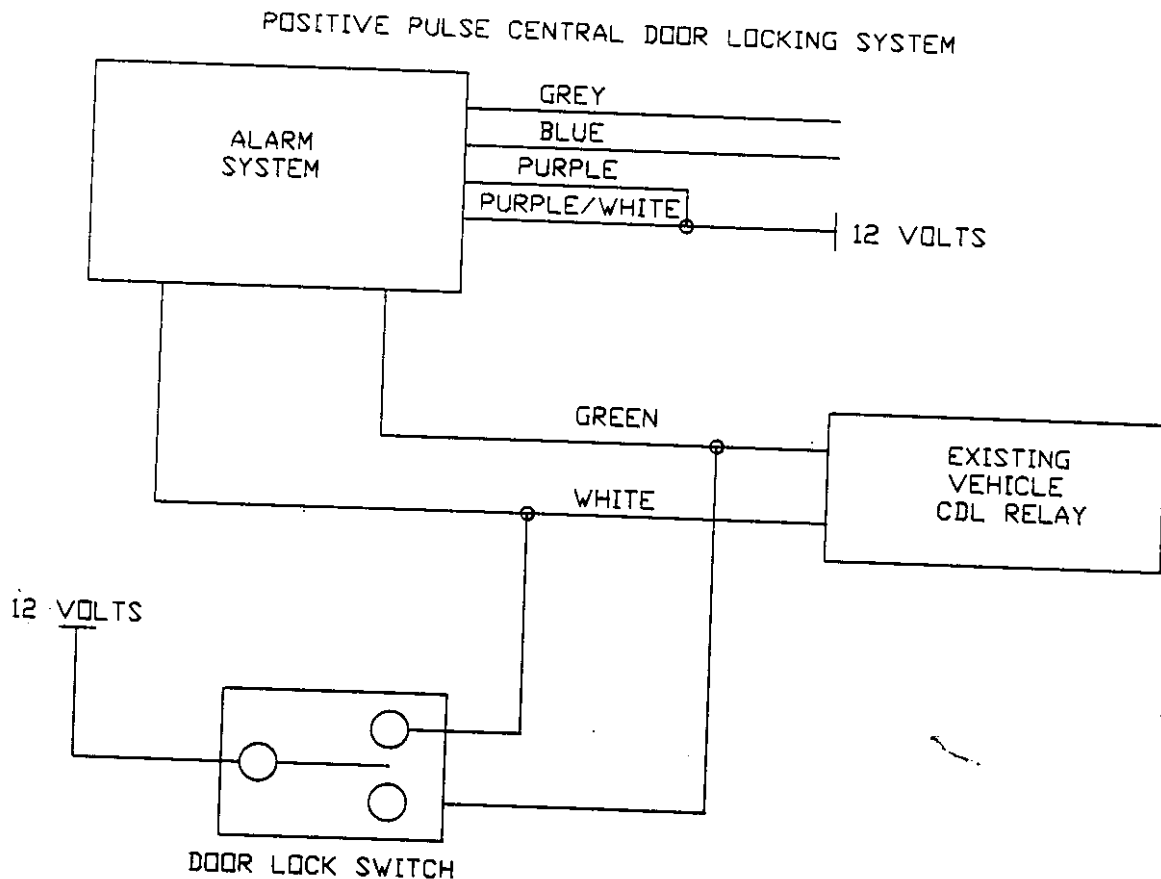
- Locate the CDL module which controls the door lock motors or solenoids or the wiring as it exist the drivers or passengers door into the kick panel.
- Locate the vehicle lock wire and connect the WHITE wire from the alarm system.
- Locate the vehicle unlock wire and connect the GREEN wire from the alarm system.
- Connect the PURPLE wire (which is already linked to the PURPLE/WHITE) to a good vehicle earth point.
- Cut the BLUE wire and the GREY wire as these are not required for this installation.





## 2. Door Locking System Using CDL Module (Positive Switching)

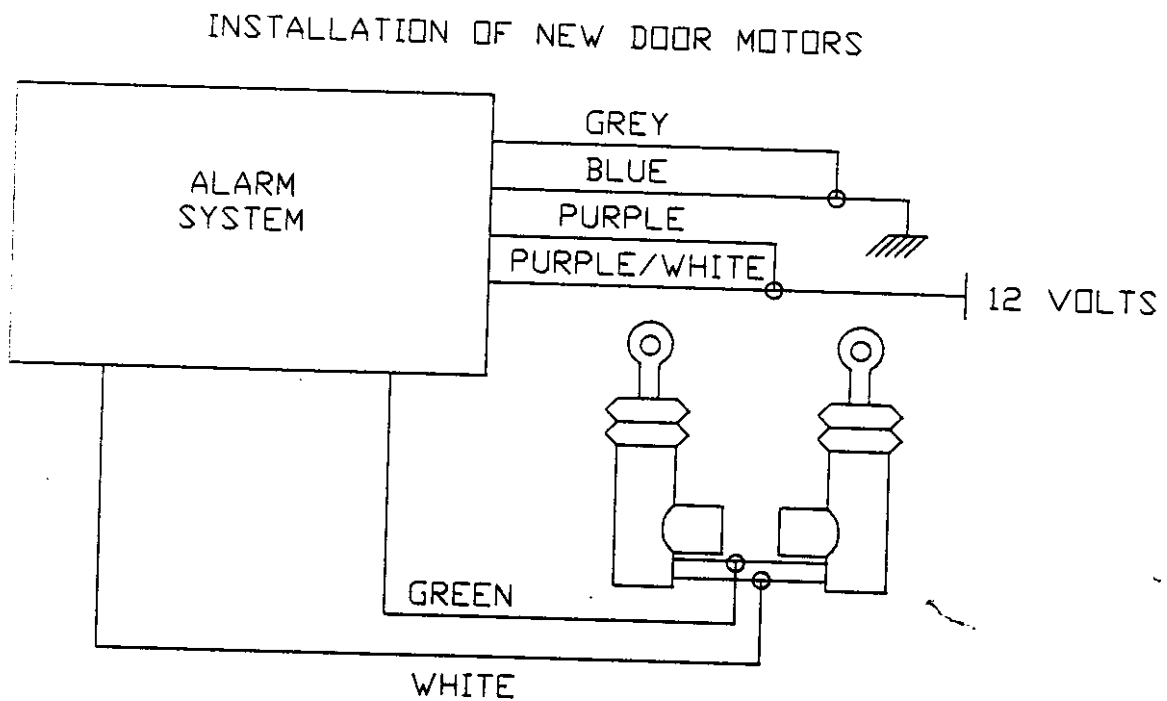
- Locate the CDL module which controls the door solenoids or the central door locking wiring as it comes out of the driver's or passenger door into the kick panel.
- Locate the lock wire and connect the WHITE wire from the alarm system.
- Locate the unlock wire and connect the GREEN wire from the alarm system.
- Connect the PURPLE wire (which is already linked to the PURPLE/WHITE) to a permanent feed.
- Cut the BLUE wire and the GREY wire as these are not required for this installation.



### 3. Installation of new Motors or Solenoids

This type of locking can be achieved by adding an after market central door locking solenoids in each door. The central door locking in this situation can only be operated by the alarm remote control and not by the ignition key in the door lock cylinders. If an after market central door locking relay is included then follow the instructions for negative pulse locking.

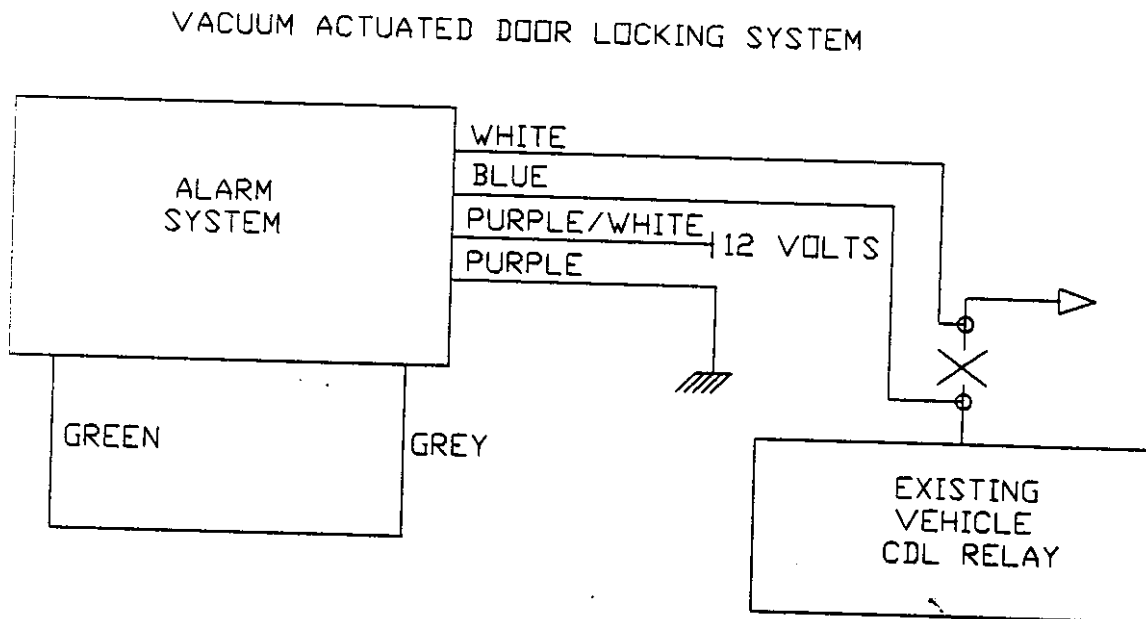
- Connect the PURPLE (which is already linked to the PURPLE/WHITE) to a permanent 12 volt source.
- Join the GREY wire to the BLUE wire and connect them to a good earth point.
- Connect the WHITE wire to the locking motor wire which locks the doors when 12 volts is applied to it.
- Connect the GREEN wire to the locking motor wire which unlocks the doors when 12 volts is applied to it.



#### 4. Vacuum Door Locking System

This type of locking system is common on German vehicles such as Mercedes, VW and Audi.

- a) Locate the door lock trigger wire that runs from either door to the central door locking control system. This will change from 12 volts to earth when the doors are locked and unlocked.
- b) Cut this wire and connect the BLUE from the alarm system to the cut end that changes voltage when the door locks are activated.
- c) Connect the WHITE from the alarm system to the other cut end.
- d) Join the GREEN and the GREY together.
- e) Cut the PURPLE/WHITE wire so it is no longer connected to the PURPLE wire.
- f) Connect the PURPLE/WHITE wire to a permanent 12 volt feed.
- g) Connect the PURPLE wire to a good earth point.



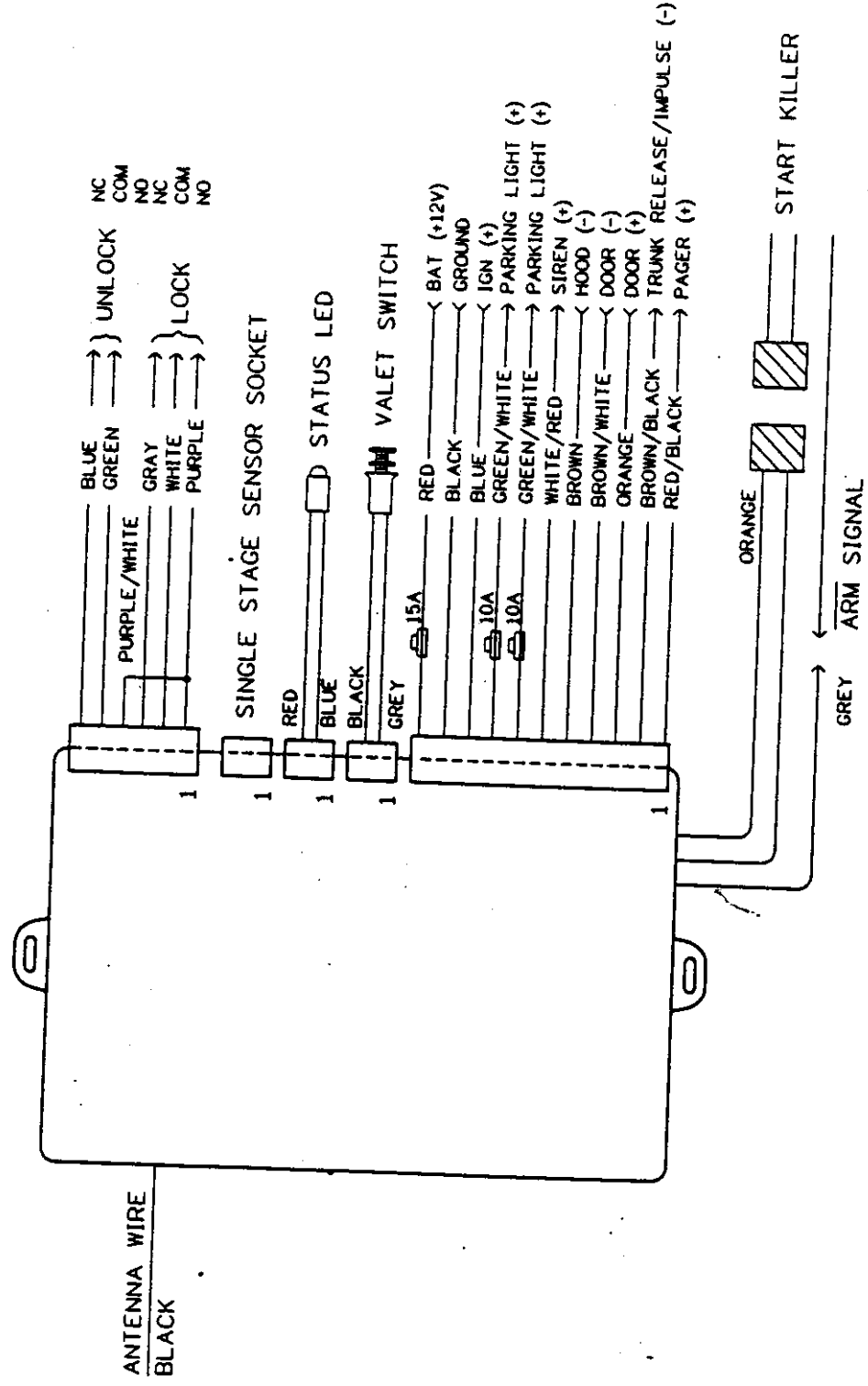
The short BLACK wire that comes out of the back of the electronics module is an antenna for the RF receiver. This cable has been cut to the correct length. No improvement in performance will be achieved by either shortening or lengthening this cable. For best performance, ensure that the cable is positioned away from any other cables or potential sources of electrical interference and do not place it behind any metal panels.

Further information on electrical connections please refer to the enclosed Alarm System Wiring Diagram.

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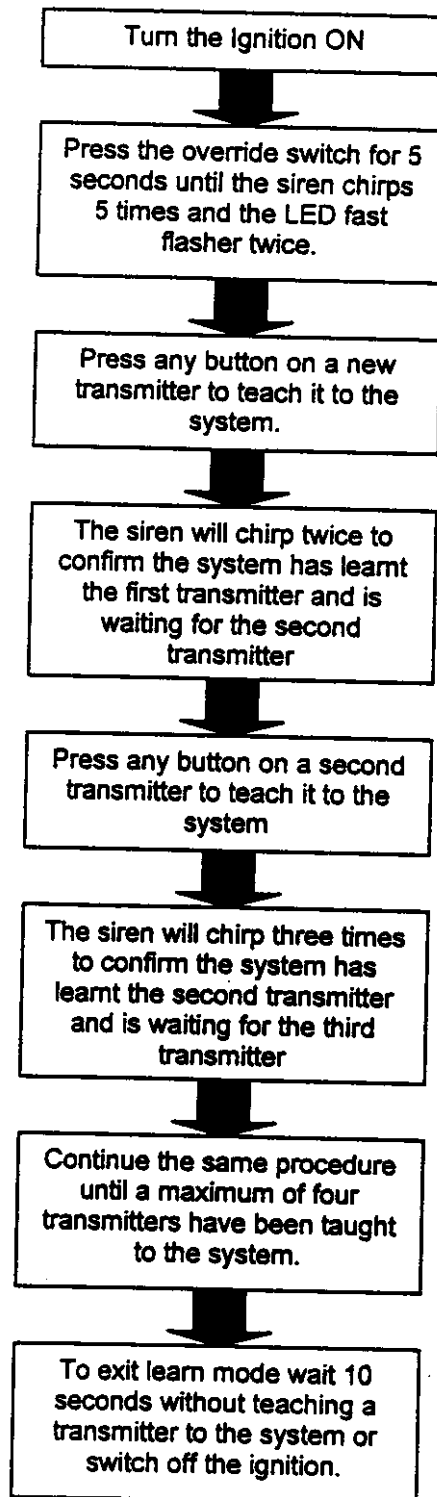
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5	Trunk Open/Free Impulse	Trunk	Trunk	Free
6	Latch	OFF	Latch	OFF
7	Auto Rearm with or without lock	Lock	Lock	Without Lock

