

Index

Step 1: Component Installation	2-3
Step 2: 10-Pin Main Harness Installation	3-4
Step 3: 5-Pin Power Harness Installation	4-5
Step 4: DIP Switch Programming	5 Step 5
Optional Accessory Connections	6-11 Step 6
Transmitter Programming	11-12 Step 7
Remote Feature Programming	13-14 Step 8
General Testing	15 Step 9
Speciality Feature and Optional Equipment Testing	15-18
Specifications	18
Wiring Diagrams	19

Warning! Do not plug the 10-pin or 5-pin wire harness into the alarm control module before you begin installing the alarm. The wire harnesses must be plugged into the alarm control module after all connections are made. Failure to follow this procedure could cause some confusion with transmitter operation and/or alarm function operation.

The PLUS-4500 security system are packaged 2 different ways for maximum flexibility. Even though the systems are packaged 2 different ways they all contain the same module and installation harnesses. The following is how each model number is packaged:

PLUS-4500: 4500 Alarm Module with no transmitters and no siren.

PLUS-4500C: 4500 Alarm Module with (2) 4-button code-hopping transmitters and a siren.

Step 1: Component Installation

Mounting the Control Module:

Find a suitable location to secure the alarm control module within the passengers compartment of the vehicle. Never mount the alarm control module in the engine compartment or in the trunk. In addition, never mount the alarm control module in the direct path of the heater. Secure the alarm control module by using wire ties or drill two 1/8" holes and secure the module to the frame of the vehicle with the screws provided.

Mounting the Siren:

Find a suitable location in the engine compartment to secure the siren. Select a location that provides a direct sound path to the ground for maximum siren output. Use the self tapping screws provided and secure the siren. Connect the black wire coming from the siren to the frame of the vehicle. In many cases, you can ground the black wire to one of the screws used to secure the siren. Run the remaining brown wire through the fire wall to the location of the alarm control module.

Installing Hood/Trunk Pin Switches:

Provided with the alarm kit is one pin switch and one mounting bracket. To install the switch either in the truck or under the hood, find a suitable location where the switch will make contact with the hood or trunk lid and will not get wet. Use the bracket provided or drill a 1/4" hole in the desired location.

Step 1: Component Installation (Continued)

Mounting the Override/Valet Switch:

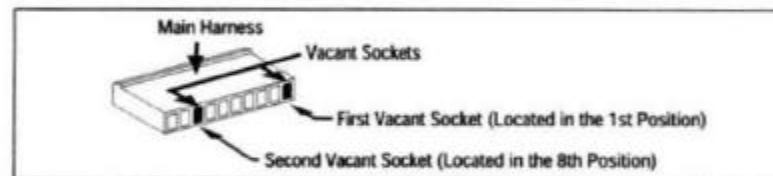
Mount this switch in a hidden but accessible location within reach of the driver of the vehicle. Drill a 1/4" hole and use the nuts and washers provided to secure the switch. Run the wires from the switch to the alarm control housing location.

Installing the Alarm Status LED:

The LED indicator provided utilizes a push in type mounting. Drill a 5/16" hole in the desired location, feed the wires through the hole and push the LED into place. Run the wires to the location of the alarm control module.

Step 2: 10-Pin Main Harness Installation

The main wire harness contains 8 wires which all have a specific purpose. Follow the wiring recommendations enclosed for each wire. Wires not used should be released from the harness connector or taped off to prevent accidental shorting. Included with the 10-pin wire harness are two loose wires, an orange wire and a white wire with black stripe. See main harness and power harness wiring instructions for these two loose wires. (Page 4)



First Vacant Socket: (For Use with ALA-RPT Relay Pack Only)

See Optional Accessory Connection for proper wiring. (Page 10)

Gray Wire: (No Connection)

Blue Wire with White Stripe: (No Connection)

Brown Wire: (Siren + Output)

Connect the brown wire to the positive wire from the siren. Ground the remaining wire from the siren for proper operation.

Blue Wire: (Optional Grounding Sensor Input)

The blue wire is an instant grounding trigger input for optional hood/trunk grounded pin switches or any electronic sensor.

Step 2: 10-Pin Main Harness Installation (Continued)

Green Wire: (Grounded Door Pin Switch Input)

The green wire connects to the common wire of the vehicle that switches on the dome light. Normally this wire is located at one of the door jamb switches. For some vehicles it may be necessary to connect the green wire directly to the switched turn on wire at the dome light. The green wire connects to negative switched circuits only.

Violet Wire: (Positive Door Pin Switch Input)

The violet wire connects to the common wire of the vehicle that switches on the dome light. Normally this wire is located at one of the door jamb switches. For some vehicles it may be necessary to connect the violet wire directly to the switched turn on wire at the dome light. The violet wire connects to positive switched circuits only.

Second Vacant Socket:

The second vacant wire socket provides a 1 second pulsed ground (300mA) output when channel #2 is activated. (See Optional Accessory Connections) (Page 10)

Red / White: (Pulsed Parking Light Relay Output)

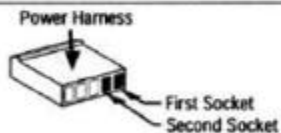
Connect the red/white wire to the parking light wire coming from the headlight switch. (Do not connect the red/white wire to the dashboard lighting dimmer switch. Damage to the dimmer will result) use a volt meter to test the connection point before connecting the red/white wire. While checking, rotate the dimmer switch to make sure you do not have the dimmer lead. The limitation of the red/white wire is 10 Amp max. Do not exceed this limit or damage to the alarm and parking light relay will result.

Pink: (Parking Light Relay Input)

The pink wire is the input to the flashing parking light relay. The connection of the pink wire will determine the output polarity of the flashing parking light relay. Connect the pink wire to (+) battery to have (+) output from the relay or connect the pink wire to frame ground to have ground output from the relay.

Step 3: 5-Pin Power Harness Installation

The power harness contains 3 wires and two vacant sockets. Follow the wiring recommendations enclosed for each wire.



First Vacant Socket:

The first vacant wire socket is a low current (300mA) grounded output wire that can be used to activate the vehicle's interior lighting system when the security system is disarmed. An additional relay is required for proper installation. See Optional Accessory Connection for proper wiring. (Page 10)

Second Vacant Socket: (For Use with ALA-RPT Relay Pack Only)

See Optional Accessory Connection for proper wiring. (Page 10)

Step 3: 5-Pin Power Harness Installation (Continued)

Red Wire: (Main Power Input)

Connect the red wire directly to the (+) battery post for best operation of the alarm system. For best current sensing capability from the alarm's current sensing circuit, connect the red wire to the constant power wire coming from the interior dome light.

Black Wire: (Main Ground Input)

Connect the black wire directly to the frame of the vehicle. Use a bolt and nut to secure the wire. Scrape away any grease or paint that might prevent a good connection.

Yellow Wire: (Switched +12 Volts From the Ignition Switch)

Connect the yellow wire to a +12 volt wire that is switched on and off by the ignition key. The correct wire will indicate +12 volts when the ignition key is in the on and start positions. Do not connect the yellow wire to the "acc" wire coming from the ignition switch.

Step 4: DIP Switch Programming

Switch #1: Power Door Lock Output Timing

Set switch #1 to the on position for a .8 second duration output (Common setting for all Japanese and American vehicles)

Set switch #1 to the off position for a 3.5 second duration output (European vacuum locking system only)

Switch #2: Passive Arm Locking Control

Set switch #2 to the on position to allow the door locks to lock when the alarm automatically arms.

Set switch #2 to the off position to prevent the door locks from locking when the alarm automatically arms.

Switch #3: Current Sensing ON/OFF

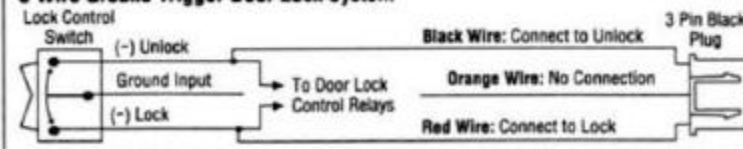
Set switch #3 to the on position to activate the current sensing trigger circuit.

Set switch #3 to the off position to eliminate the current sensing trigger circuit.

Step 5: Optional Accessory Connections

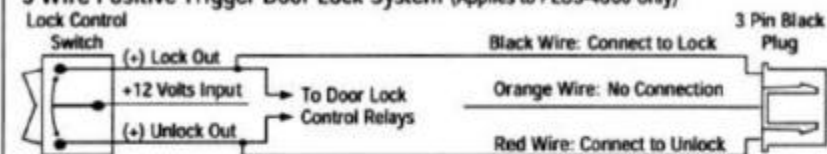
Power Door Lock/Unlock Activation

3 Wire Ground Trigger Door Lock System

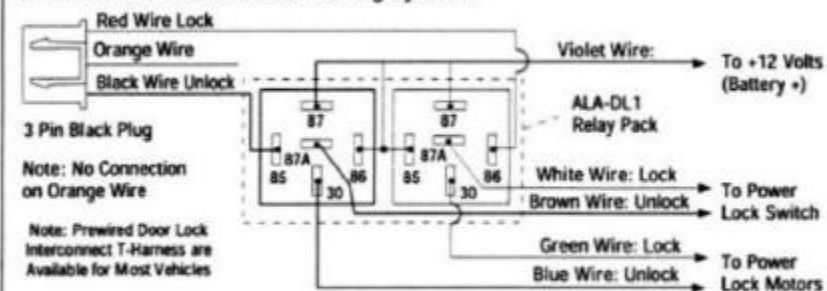


Step 5: Optional Accessory Connections

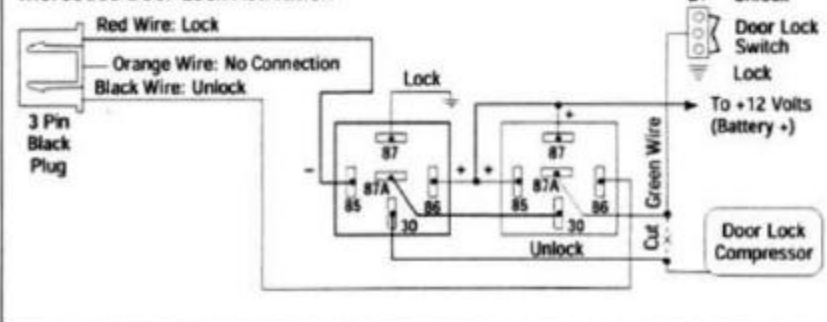
3 Wire Positive Trigger Door Lock System (Applies to PLUS-4000 Only)



5 Wire Ground at Rest Door Locking Systems

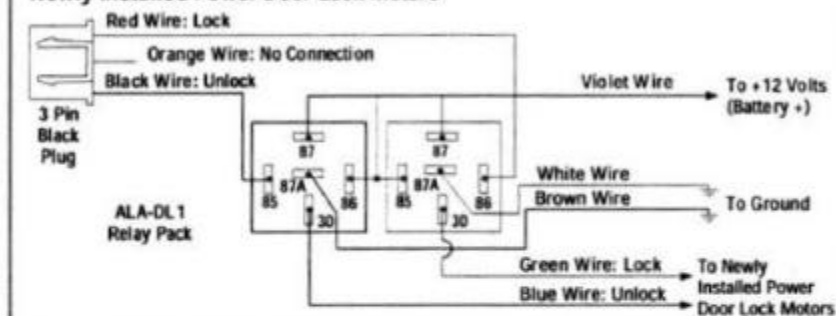


Mercedes Door Lock Activation



Step 5: Optional Accessory Connections (Continued)

Newly Installed Power Door Lock Motors

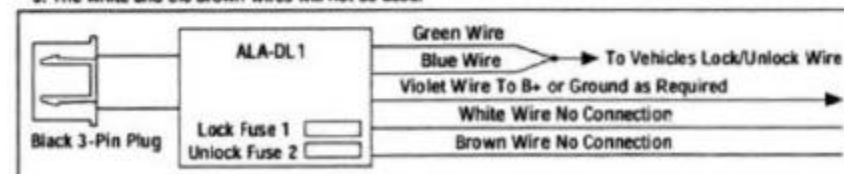


One Wire Multiplexing Door Locking Systems

Some vehicle's (Chrysler, Mazda and Ford Probe and others) use one wire to lock and unlock the doors. Example: When the door lock controller sees a signal thru a resistor it will unlock. If a signal is received without a resistor the doors will lock. Some use 2 resistors. One for lock and one for unlock. We have developed patented plug-in fuse resistors for this application. Simply remove the fuse from our door lock module and replace with correct resistor value fuses that matches the vehicles door lock switch.

ALA-DL1 Wiring:

1. Connect both the green (lock) and the blue (unlock) wires to the vehicles one wire lock/unlock wire.
2. Connect our violet polarity input wire to +12v or to ground. To match vehicles door lock polarity
3. The white and the brown wires will not be used.



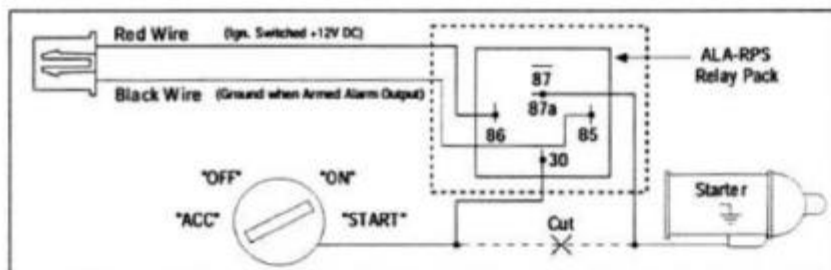
Step 5: Optional Accessory Connections (Continued)

Starter Disable Wiring Using Optional ALA-RPS Relay Pack

Using the wiring information and diagram below, connect the optional starter disable relay as follows:

- Locate the "Start Only Wire" coming from the ignition key switch and cut it.
- Connect the ends of the cut start wire the black wires coming from the ALA-RPS relay pack.
- Plug in the orange 2-pin plug into the orange socket located at the rear of alarm module.

To test the starter disable system refer to the starter disable testing procedures located in the testing section of this manual. (Page 16)

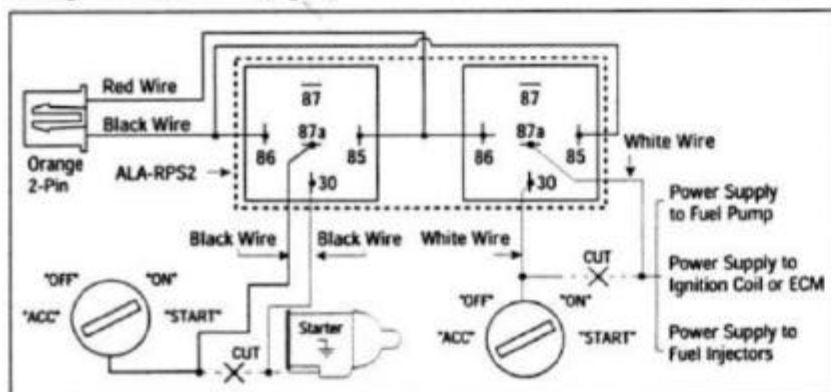


Starter Disable and Engine Disable Using Optional ALA-RPS2 Relay Pack

Using the wiring information and diagram below, connect the optional starter disable relay as follows:

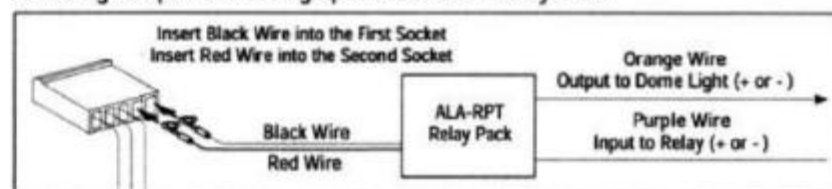
- Locate the "Start Only" wire coming from the ignition key switch and cut it.
- Connect the ends of the cut start wire the black wires coming from the ALA-RPS2 relay pack.
- Locate the power supply wire to any of the fuel management circuits listed below and cut it.
- Connect the ends of the cut wire the white wires coming from the ALA-RPS2 relay pack.
- Plug in the orange 2-pin plug into the orange socket located at the rear of alarm module.

To test the dual circuit disable system, refer to the starter disable testing procedures located in the testing section of this manual. (Page 16)

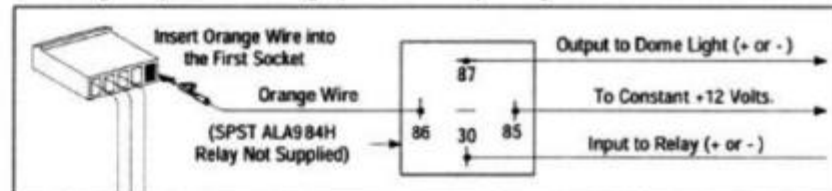


Step 5: Optional Accessory Connections (Continued)

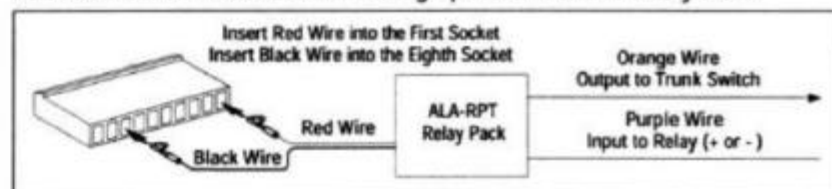
Dome Light Supervision Using Optional ALA-RPT Relay Pack:



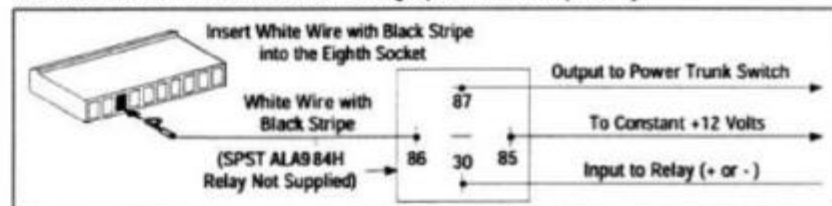
Dome Light Supervision Using Optional 30 Amp Relay:



#2 Button Power Trunk Activation Using Optional ALA-RPT Relay Pack



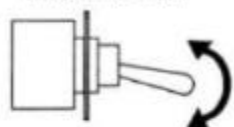
#2 Button Power Trunk Activation Using Optional 30 Amp Relay



Step 6: Transmitter Programming

Step 1

Valet/Override Switch

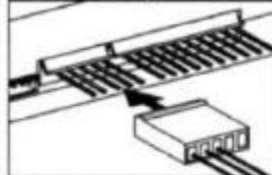


Switch in "Off" Position

Switch in "On" Position

Make Sure the Valet/Override Switch is in the "Off" Position

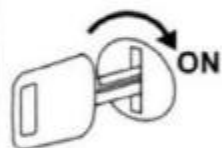
Step 2



Plug In the Power Harness

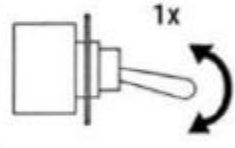
The siren will start sounding, the parking lights will flash and the LED will begin flashing

Step 3



Turn On Ignition

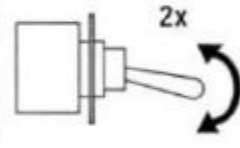
Step 4



Switch the Valet Switch On then Off 1 Time

The siren will stop sounding, the parking lights will stop flashing

Step 5

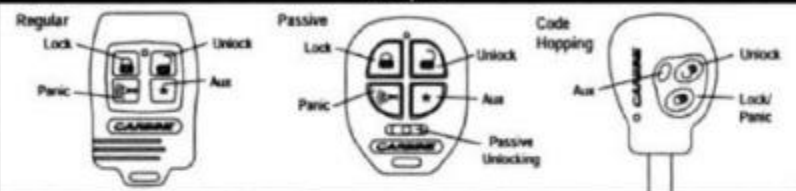


Switch the Valet Switch On then Off 2 Times

The siren will chirp 1 time. You are now in the transmitter code programming mode. The LED will be a solid RED

Step 6: Transmitter Programming (Continued)

Step 6

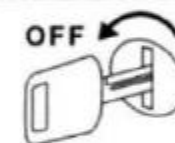


Push Lock Button

The LED will begin flashing slowly and the horn/siren will emit 1 short chirp. The code has now been learned.

The transmitters supplied are pre-programmed to the receiver module. You should use the following instructions when adding a new or replacement transmitter.

Step 7



Turn Off the Ignition

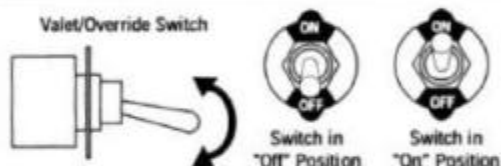
The horn/siren will emit 1 short chirp and 1 long chirp. You are now out of the consumer transmitter code learning mode. The LED is off.

Step 7: Remote Feature Programming

When the Carbine security system control module learns the transmitter operating code, a specific group of operating features are automatically programmed to a default setting. These default settings can be changed by following the enclosed procedure and using the consumer transmitter for programming.

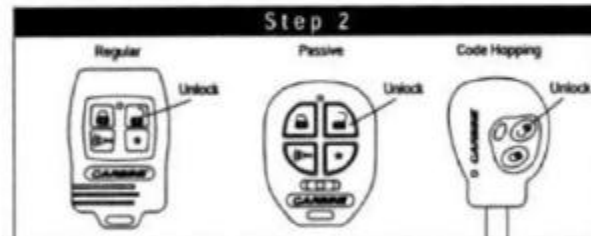
#	Programmable Alarm Feature	Default Setting
1	Chirp Status Indicator	Chirps "ON" with Single Unlock Pulse
2	Last Door Closed Automatic Arming	Automatic Arming of Alarm "Off"
3	Ignition Key Controlled Door Lock/ Unlock	Off

Step 1



Make Sure the Valet/Override Switch is in the "Off" Position

Step 2

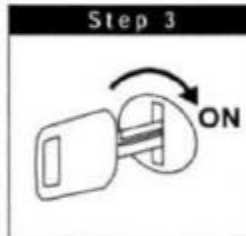


Press the Unlock Button to Disarm the Security System

The LED will be off and the horn/siren will emit 2 chirps

Note: When using the "Passive Transmitter" the on/off switch must be in the "OFF" position.

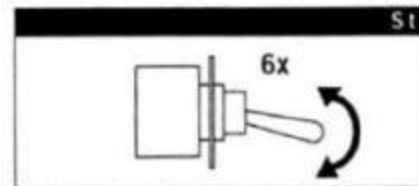
Step 3



Turn On the Ignition

The LED will remain off.

Step 4

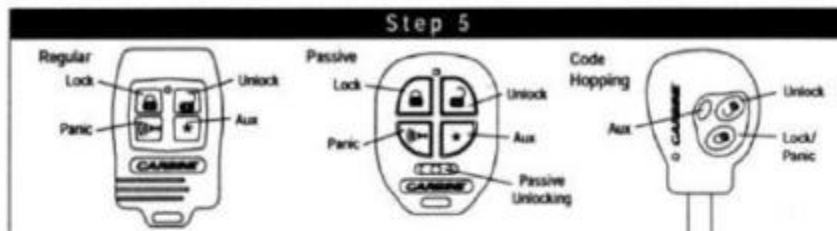


Switch the Valet Switch On then Off 6 Times

The LED will be on solid and the horn/siren will emit 1 long then 1 short chirp. You are now in the "Remote Feature Programming" mode.

Step 7: Remote Feature Programming (Continued)

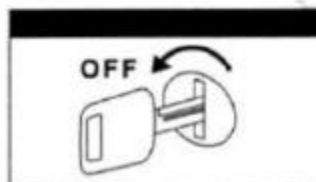
Step 5



#	Transmitter Button	Function	Confirmation = Change Function
1	LOCK	Chirp Status Indication	1 Beep = Chirp Status Indication "On" * 2 Beeps = Chirp Status Indication "Off" 3 Beep = Chirps "ON" with Dual Unlock Pulses On 4 Beep = Chirps "OFF" with Dual Unlock Pulses On
2	UNLOCK	Last Door Closed Automatic Arming	1 Beep = Automatic Arming "On", Alarm will arm 10 seconds after door is closed and rearm 10 seconds after remote disarm. 2 Beeps = Automatic Arming "On", Alarm will arm 20 seconds after door is closed and rearm 20 seconds after remote disarm. 3 Beeps = Automatic Arming "On", Alarm will arm 30 seconds after door is closed and rearm 30 seconds after remote disarm. 4 Beeps = Automatic Arming "Off" *
3	LOCK + UNLOCK	Ignition Key Controlled Door Locks	1 Beep = Door will Lock 3 seconds after Ignition is Turned "On". Door will not Unlock when Ignition is Turned "Off". 2 Beeps = Door will Lock 3 seconds after Ignition is Turned "On". Door will Unlock when Ignition is Turned "Off". 3 Beeps = Door will not Lock 3 seconds after Ignition is Turned "On". Door will not Unlock when Ignition is Turned "Off" *

* Indicates Default Settings

Step 6



Turn Off the Ignition

The horn/siren will emit 1 short chirp and 1 long chirp. You are now out of the "Remote Feature Programming" mode. The LED is off.

Step 8: General Testing

To test the basic functions of the alarm system (all models) repeat the following procedures:

1. Turn off the ignition key and exit the vehicle closing all protected entrances.
2. Press the lock button on the transmitter. You will hear a siren chirp, the parking lights will flash one time and the LED status indicator will flash at normal speed.
3. Wait 5 seconds, then open a protected entrance. The siren will begin to sound. Press the unlock button once again and the siren will stop sounding. (No Disarm Chirp Indicator)

Note: If you press the unlock button when the siren is sounding, there are no disarming chirps. When you press the unlock button when the siren is off, there will be disarming chirps.

4. Follow procedures 2 and 3 for all other protected entrances.

Step 9: Speciality Feature and Optional Equipment Testing

Each speciality feature listed operates in the same manner regardless of the alarm model. Test each feature by following the procedures enclosed to insure proper operation.

Remote Panic:

1. Press and hold the lock or panic button down for approximately 3 seconds.
2. The alarm will begin to sound and the parking lights will begin to flash.
3. Press the unlock or panic button once again and the siren will stop sounding and the lights will stop flashing.

Note: The remote panic feature has an automatic shut off circuit. When the siren has sounded for 60 seconds, the panic circuit will turn itself off automatically.

Last Door Automatic Arming: (If Programmed On)

Note: The automatic arming feature will not operate unless the alarm input triggers have been connected directly to the existing or newly installed door jamb pins. Current sensing alone will not activate the automatic arming circuit.

1. Press the unlock button to disarm the alarm.
2. Set the ignition key to the on position, then turn it off.
3. Exit the vehicle. The siren will chirp 1 time when the door is closed.
4. The LED will begin to flash fast.
5. After 10, 20 or 30 seconds have passed (depending on remote feature programming), you will hear a single chirp. The alarm is now armed.
6. The LED will flash at a regular rate indicating an armed condition.

Note: When the automatic arming feature is activated, so is the RF tamper re-arm circuit. Every time the alarm is disarmed by remote, the RF tamper re-arm circuit will count for sixty seconds (LED will be flashing fast) and the alarm will re-arm itself if no one has entered the vehicle.

Step 9: Speciality Feature and Optional Equipment Testing

Override Operation: (Security System is Armed)

1. Enter the vehicle and the security systems will begin sounding at this point. Make sure that the valet/override switch is in the "off" position.
2. Place the ignition key into the ignition switch and turn the ignition switch to the "on" position.
3. Within 5 seconds of turning the ignition key "on", place the valet switch to the "on" position.
4. The horn/siren will stop sounding.
5. The LED indicator will be solid red.

The security system is overridden and is now in the valet mode!

Note 1: If the valet switch is already in the "on" position when you turn "on" the ignition key, the override function will be bypassed. Turn "off" the ignition key, place the valet switch in the "off" position and try again.

Note 2: If you fail to place the valet switch to the "on" position within 5 seconds of turning "on" the ignition key, the override function will be locked out. Place the valet switch in the "off" position, turn "off" the ignition key and try again.

Valet Operation: (The security system is already disarmed)

1. Make sure that the valet switch is in the "off" position.
2. Turn the ignition key to the "on" position.
3. Within 5 seconds of turning the ignition key, place the valet switch to the "on" position.
4. The LED will be on solid indicating that the security system is in the valet mode.

Note: If the unit is in valet mode the LED will be on solid when the ignition key is on only. When the ignition key is off the LED will flash once every 5 seconds.

How to Get Back to Security System Activation Mode:

1. Place the ignition key switch to the "on" position.
2. Place the valet switch to the "off" position.
3. Place the ignition key switch back to the "off" position. You will notice that the LED indicator will be off. This indicates that you have exited the valet mode and your security system will operate normally.

Starter Disable: (If Installed) (Also Applies to Fuel Management Disable if Installed)

1. Enter the vehicle and close all the entrances.
2. Press the lock button on the transmitter.
3. Turn the ignition key to the start position. The engine will not crank over.
4. Turn the ignition key to the off position and press the unlock button on the transmitter.
5. Turn the ignition key back to the start position and the engine will crank over and start.

Step 9: Speciality Feature and Optional Equipment Testing

LED Status Indicator Operation:

LED is off = Alarm is disarmed.

LED is flashing = Alarm is armed.

LED is flashing in a 2 flash hold sequence = Tamper warning, alarm was triggered by the hood/trunk or electronic sensor.

LED flashing in a 3 flash hold sequence = Tamper warning, alarm was triggered by an open door.

LED is on steady = Alarm is in the valet mode. (Ignition key is "on")

LED flashes once every 5 seconds = Alarm is in the valet mode. (Ignition key is "off")

LED is flashing fast = Automatic arming timer is counting down or RF tamper rearming timer is counting down.

Parking Light Flash Alarm Status Indication:

One light flash = Alarm is armed.

Two light flash = Alarm is disarmed.

Three light flash = Tamper warning + alarm is disarmed.

Siren Chirp Alarm Status Indication:

Note: This feature can be programmed off, see "Remote Feature Programming" for details.

One chirp = Alarm is armed and all input trigger wires are clear.

Two chirps = Alarm is disarmed and has not been tampered with.

Chirps once, pauses then chirps again = Alarm is armed but sensor is by-passed.

Four chirps = Tamper indicator, alarm is disarmed.

Power Door Lock/Unlock: (If Installed)

1. Press the lock button on the transmitter, the locks will become locked.

2. Press the unlock button on the transmitter, the locks will become unlocked.

RF Tamper Re-Arm:

Note: This feature is activated automatically when the alarm is programmed for automatic arming. See "Remote Feature Programming" for details.

1. Alarm must be programmed for automatic arming.

2. Close all protected entrances and press the lock button on the remote transmitter. The LED will be flashing at a normal rate.

3. Wait 5 seconds and press the unlock button on the remote transmitter. The LED will begin to flash fast. (Automatic arming indicator)

4. Wait 60 seconds and the alarm will become rearmed.

5. Repeat steps 1 through 4. When the LED starts flashing fast, open one of the protected entrances (door) the LED will be off and remain off.

60 Second Re-Arm Timer and Re-Lock Function:

Once the alarm is triggered, the siren will sound for 60 seconds and then stop. The alarm will remain in an armed condition. If the door locks have been installed into the system, they will re-lock when the alarm resets after 60 seconds.

Step 9: Speciality Feature and Optional Equipment Testing

Ignition Controlled Door Locking: (Door lock activation must be installed)

When programmed on in "Remote Feature Programming", ignition controlled locking is active 3 seconds after the ignition key is set the on position, the door locks will automatically become locked. When the ignition key is turned to the off position, the door locks will unlock.

Note: If a protected entrance (Door) is open when the ignition key is set to the on position, the door locks will not lock. This is a non-deletable protective measure.

Channel #2 Output: (If Installed)

Press and hold the aux (+) button for 3 seconds. The designated channel 2 output wire from the alarm will become grounded for as long as aux (+) is pressed.

Dual Zone Sensor Pre-Warning Indicator: (If Installed)

1. Close all protected entrances and place the alarm in an armed condition.

2. Rap the vehicles body panels to activate the pre-warning zone of any dual zone type sensor.

3. When the pre-warning indicator is triggered, the horn/siren will beep 1 time.

Specifications

Power Requirements	12.5 Volts Negative Ground
Trigger Inputs	Grounded Pin Switch, Positive Pin Switch, Electronic Sensor Ground, 0.6 Volt Current Drop
Current Requirements	Less Than 15mA Armed or Disarmed
Timers	Programmable Automatic Arming Timer Programmable Re-Arming Timer 60 Second RF Tamper Re-Arming Timer 5 Second Zone By-Pass Re-Activation Timer
Grounded Output Wire Capacity (White Wire) ..	500mA
Siren Output Wire Capacity	2 amps
Channel 2 Pulsed Output	300mA
By-Pass Zones	2 Zones
Transmitter Frequency	434MHz
Digital Code Combinations	68,000,000,000
Code Method	Digital Code Hopping
Transmitter Buttons	No More Than 4
Receiver Channels	No More Than 3

Wiring Diagram PLUS-4500

