

Bullet 4

Mobile Security/Convenience System

CLIFFORD
The Science of Security™



Installation Manual

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Important Information

1. DO NOT disconnect the battery cables! Make battery connections by removing the lug nuts from the battery clamps without detaching the clamp itself.
2. Turn off the interior lights or remove the dome light fuse before starting the installation; otherwise, leaving the door(s) open during installation will drain the battery.
3. Use a voltmeter. DO NOT USE A TEST LIGHT! Test lights have a current drain that will damage the vehicle's onboard computer, and if you probe the wrong wire, could deploy the vehicle's air bag(s).
4. Make all connections with the supplied crimp connectors or solder and shrink tube. DO NOT use bite-type connectors.
5. Route the system's ground and power wires directly to the vehicle battery.
6. Keep extension as short as possible. Use same-gauge wire for short extensions, larger gauge for longer extensions. DO NOT USE SPEAKER WIRE!
7. Discuss placement of the LED, valet switch, window decals, etc. with the vehicle owner prior to installation.
8. DO NOT mount components nor route wires near hot or moving vehicle parts. Clifford components must not impede vehicle servicing or operation.
9. DO NOT mount any Clifford sensor in the engine compartment (with the exception of the OmniSensor sensing module).
10. Follow the system's Sequence of Installation to ensure proper installation and testing.
11. Place the owner's manual in the glove box.

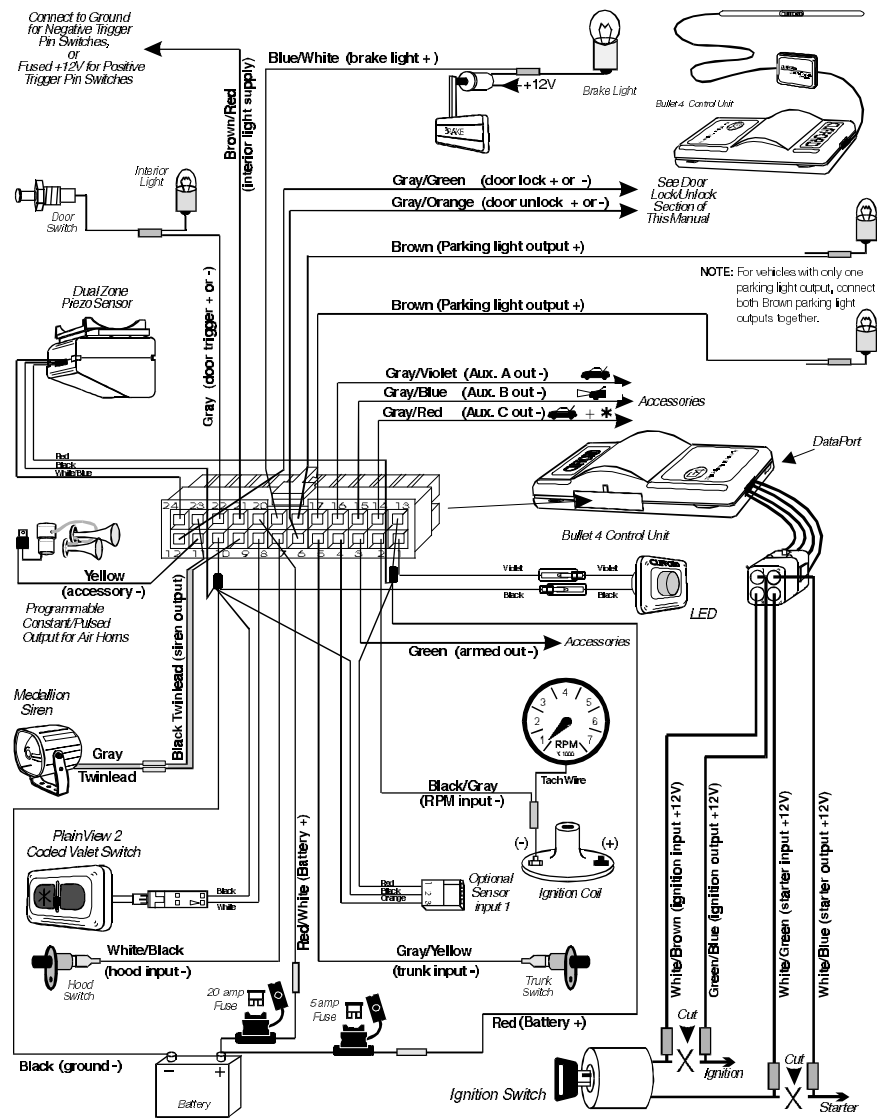
NOTE: Clifford Electronics' web site for Authorized Clifford Dealers has detailed descriptions of wire colors and locations for most foreign and domestic vehicles. Installation diagrams and programming procedures for older Clifford products are also available. See www.clifforddealers.com for assistance 24-hours per day.

Required Installation Tools

Voltmeter (set to "DC Volt")
Wire crimper
Wire stripper
Electric drill and bits
Phillips screwdriver
Crescent wrench
Vinyl tubing
Rubber grommet
Convolute tubing

Standard Features of the Bullet 4

- | | |
|---|--|
| <ul style="list-style-type: none"> ☑ Lifetime warranty (see terms & conditions) ☑ AntiTheft guarantee (see terms & conditions) ☑ One master remote control, one waterproof companion remote control <ul style="list-style-type: none"> ■ Extended range with external receiver ■ ACG 2™ anti-codegrabbing protection ■ Low remote control battery warning ☑ PlainView 2™ coded valet mode <ul style="list-style-type: none"> ■ End user may select his or her own secret code ☑ BlackJax real-world-proven anti-carjacking/self-recovery subsystem ☑ Remote controlled valet mode ☑ Built-in two-point AutoImmobilizer ☑ Remotely adjustable Dual-Zone Piezo Sensor detects impacts and tampering ☑ G4 CliffNet DataPort input <ul style="list-style-type: none"> ■ For complete diagnostics and feature customization via your Windows PC ■ For smart G4 CliffNet accessory interfacing ☑ FACT anti-false alarm circuitry ☑ Selectable headlights-left-on warning ☑ Passive AutoArming <ul style="list-style-type: none"> ■ Lock upon AutoArming self-locking ■ Visual AutoArming countdown confirmation ■ Instant AutoArm bypass ☑ High-Output Medallion Siren <ul style="list-style-type: none"> ■ Remote controlled chirp muting ■ Selectable Personalized Siren Sounds ■ Selectable QuietChirps/LoudChirps ■ Long-term selectable chirp muting ■ Remote siren silencing if falsely triggered ☑ Pos/neg/1x/2x power door lock/unlock pulsing (a few vehicles may require optional relays) ☑ Smart optional remote trunk release ☑ Ignition-switch controlled AutoLocking/AutoUnlocking | <ul style="list-style-type: none"> ☑ Remote panic feature <ul style="list-style-type: none"> ■ Smart panic locking/unlocking based on whether engine is on/off ☑ Built-in timer circuit for optional timed headlight activation or turbo timer ☑ Built-in parking light flasher with dual outputs for European vehicles ☑ Courtesy light(s) turn on when disarmed with the remote control ☑ Smart AutoTesting self-diagnostics <ul style="list-style-type: none"> ■ With specific trigger & sensor identification ☑ Malfunction AutoBypass <ul style="list-style-type: none"> ■ Automatic trigger remonitoring if trunk/hood was open when arming ☑ Smart Prior Intrusion Attempt Alert <ul style="list-style-type: none"> ■ With specific trigger & sensor identification ☑ TotalRecall 8-event trigger/sensor report <ul style="list-style-type: none"> ■ With specific trigger & sensor identification ☑ Remote control code learning ☑ Clear all remotes if ever lost or stolen ☑ LED status indicator <ul style="list-style-type: none"> ■ Flash indications reveal status ■ Automatic battery saving mode ☑ Multicar control from the same remote ☑ Multiple sensor/trigger inputs ☑ Preloomed harnesses ☑ Three accessory channels with selectable pulsed/timed/latching output types and AutoActivation for European vehicles with "all-close" windows/sunroof ☑ Prewired LED, sensor, Extended Range Receiver & PlainView 2 switch connectors ☑ User-programmable features <ul style="list-style-type: none"> ■ SecureAccess coded programming ■ Programmable even while driving |
|---|--|



Wiring Description for the 4-Pin Connector

Pin	Wire Color	Connects to
1	Green/Blue	Ignition Output (+ 12V)
2	White/Blue	Starter Output (+ 12V)
3	White/Brown	Ignition Input (+ 12V)
4	White/Green	Starter Input (+12V)

Wiring Description for the 24-Pin Connector

Pin	Color	Connects to
1	Violet	LED output (+)
2	Black/Gray	Ignition coil or tach input
3	Green	Armed output (for accessories) (-)
4	Orange	Optional sensor input trigger zone (-)
5	Gray/Yellow	Trunk trigger switch input (-)
6	Gray/Orange	Door unlock output (+ or -)
7	White/Black	Hood trigger switch input (-)
8	White	PlainView 2 valet switch input (-)
9	Black twinlead	Medallion Siren output
10	Black	Ground for Dual-Zone Piezo Sensor and optional sensor
11	Yellow	Optional airhorns or siren
12	Gray/Green	Door lock output (+ or -)
13	Red	Power for Dual-Zone Piezo Sensor and optional sensor
14	Gray/Red	Auxiliary C output (-)
15	Gray/Blue	Auxiliary B output (-)
16	Gray/Violet	Auxiliary A output (-)
17	Brown	Parking light output (+)
18	Brown	Parking light output (+)
19	Blue/White	Brake light (+)
20	Red/White	Battery (+) with 20-amp fuse
21	Brown/Red	Interior light supply
22	Gray	Door trigger (+ or -)
23	Black twinlead	Medallion Siren output
24	White/Blue	Dual-Zone Piezo Sensor input

System Components

One Prewired 24-pin Connector Harness	One Ext. Range Receiver
One Prewired 4-pin Connector Harness	One LED Status Indicator
One Bullet 4 Control Unit	One Owner's Manual
One Remotely Adjustable Dual-Zone Piezo Sensor	One Hardware Kit
One Medallion Siren	Two Window Decals
One PlainView 2 Coded Valet Switch	Two Remote Transmitters

Passenger Compartment Connections

Control Unit and Extended Range Receiver

The Bullet 4 control unit must be installed inside the vehicle. Under no circumstances should the unit be installed under the hood or other similarly hostile environment.

1. Select an area behind the dash to mount the control unit using wire ties, but do not permanently affix it until all wiring and testing is complete.
2. Plug the extended range receiver in to the control unit. Mount the extended range receiver away from the control unit. The position and location of the receiver will effect remote control range. Run the antenna rod up the window pillar and affix it horizontally to the windshield an inch below the roofline. If range isn't critical, you may tiwrap it under the dash, away from metal. Do not fold the excess cable or antenna wire. Do not make hard, sharp bends.

Starter and Ignition Immobilization Circuits

1. Locate the ignition switch wireloom under the dash and use a voltmeter to locate the one wire that carries +12V throughout **BOTH the cranking AND engine running cycles**, and 0 volts when the ignition is off.
2. Start the engine, then cut the ignition wire. The engine should stop running.
3. As shown on page 4, connect the WHITE/BROWN wire to the **key side** of the cut ignition line.
4. Connect the GREEN/BLUE wire to the **engine side** of the cut ignition line.
5. Use a voltmeter to locate the **one** wire that carries +12V during the **cranking cycle ONLY**. Cut this wire, then try to start the engine. It should not crank.
6. Connect the WHITE/GREEN wire to the **key side** of the cut starter line.
7. Connect the WHITE/BLUE wire to the **engine side** of the cut starter line.

NOTE: The starter circuit may carry a very high current. Be certain that the starter wire connections are solid.

LED Status Indicator

Select a prominent location on the dash or console visible through all windows. Discuss placement with the owner.

1. Verify there is adequate space to accommodate the LED, then drill a 5/16" (8mm) hole and route the wires through it.
2. Mate the LED connectors to the VIOLET and BLACK wire connectors as shown in the diagram on page 4.
3. Press the LED into place.

PlainView 2 Coded Valet/Programming Switch

1. Discuss placement of the switch with the vehicle owner and avoid placing the switch where it can be pressed accidentally.
2. Verify there is adequate space behind the selected location to accommodate the switch.
3. Drill a 5/16" (8mm) mounting hole, then insert the wires through the hole.
4. Mate the switch's locking connectors to the WHITE and BLACK locking connector.
5. Remove the adhesive backing and press the switch into place.

Door Trigger/Interior Light Supply

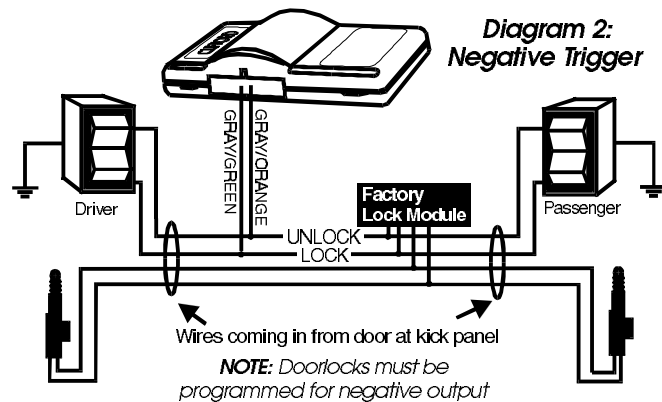
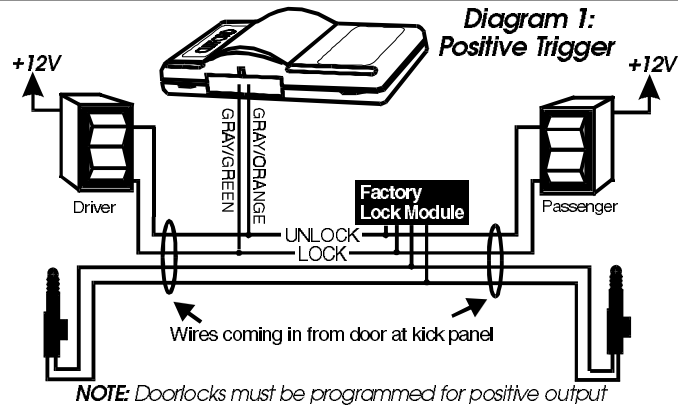
The Bullet 4 has self-programming door trigger polarity. Door triggers on most autos are negative (except most Rolls-Royce and Ford autos). To determine door trigger polarity, use the following procedure:

1. Find the wire coming off the rear of the vehicle door switch.
2. Connect the negative voltmeter lead to ground.
3. Find the one wire that shows +12 volts when the switch is pressed in and 0 volts when released. This is a negative trigger door wire.
4. If you don't get the indications noted in step 3, find the one wire that shows 0 volts when the switch is pressed in and +12 volts when released. This is a positive trigger door wire.
5. Connect the system's thin GRAY wire to the door wire.
6. If the trigger wire is negative, connect the system's BROWN/RED interior light supply wire to chassis ground. If the trigger wire is positive, connect the system's BROWN/RED interior light supply wire to the RED/WHITE wire.

NOTE: Clifford Electronics' web site for Authorized Clifford Dealers has detailed descriptions of wire colors and locations for most foreign and domestic vehicles. Installation diagrams and programming procedures for older Clifford products are also available. See www.clifforddealers.com for assistance 24-hours per day.

Door Locks

WARNING: If the power door locks do not operate properly when the system is armed and disarmed, **DO NOT USE THE VEHICLE'S DOOR LOCK SWITCH!** If the control unit's door lock wires are miswired, permanent damage to the control unit or to the car's electrical system and door lock servos will result. If you require assistance, call the Clifford Technical Support Helpline **PRIOR** to wiring the door locks.



**Diagram 3: One-Wire Type
(Some Nissan, Mitsubishi cars)**

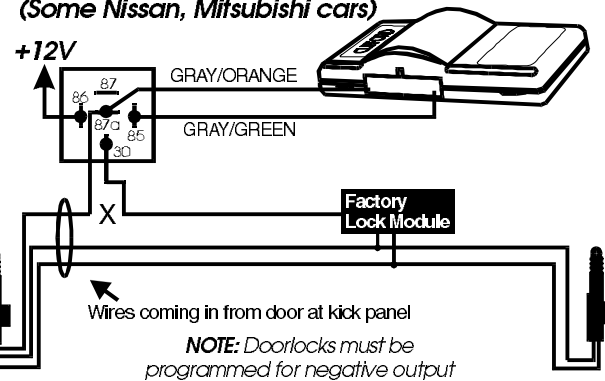
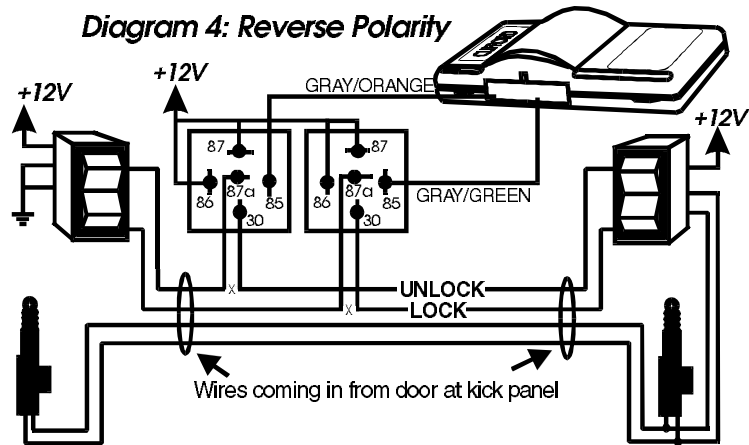
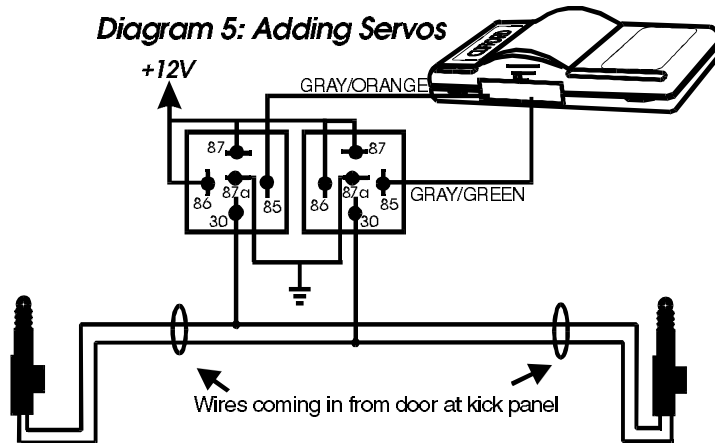


Diagram 4: Reverse Polarity



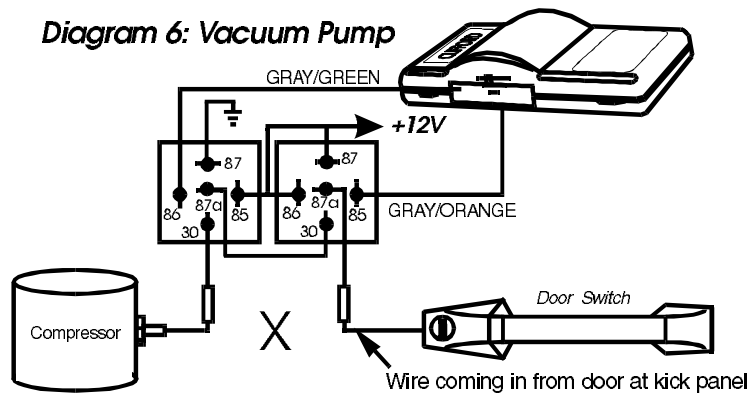
NOTE: Doorlocks must be programmed for negative outputs

Diagram 5: Adding Servos



NOTE: Doorlocks must be programmed for negative output

Diagram 6: Vacuum Pump



NOTE: Doorlocks must be programmed for negative output and may need to be programmed for 3-second pulsing.

Door Locks (continued)

Bullet 4 systems provide power door lock interface capabilities and are able to interface with any power door lock configuration including some Mercedes Benz and Audi vehicles that require a 3-second lock pulse (pulse duration is installer-programmable) and with any car ('Ws and Nissans, for example) that require double unlock pulse. If the vehicle is not equipped with power door locks, you may optionally add up to four #60-516 DoorLock Servos.

Determining the Door Lock System Type

1. Remove the door lock switch on the driver's side of the vehicle to reveal the switch wires.
 - a. If there are four or more wires, make the connections in Diagram 4 for reverse polarity.
 - b. If there are three wires, proceed to step 2.
 - c. If working on a Nissan without a door lock switch, find the single wire in the driver's kick panel that shows ground when unlocked and "open" when locked. Cut this wire and make the connections shown in Door Lock/Unlock Diagram 3.
2. Connect the negative voltmeter lead to ground and probe each wire while locking and unlocking. If the voltmeter shows +12v while activating the switch, make the connections shown in Door Lock/Unlock Diagram 1 for positive trigger. Otherwise, go to step 3.
3. Repeat step 2 with the negative voltmeter lead connected to +12v. If the voltmeter shows +12v while activating the switch, make the connections shown in Door Lock/Unlock Diagram 2 for negative trigger.
4. Locks controlled from the driver's door key require installation of just one #60-516 servo in the driver's door. Vehicles without factory power locks require a servo in each door. Mount the servo(s) and make the connections shown in Door Lock/Unlock Diagram 5 for adding servos.
5. On a vacuum-pump-type Mercedes Benz or Audi, make the connections shown in Door Lock/Unlock Diagram 6, then, if needed, program the system for a 3-second lock pulse.
6. Bullet 4 can provide two pulses (+ or -) for lock and/or two pulses (+ or -) for unlock as required by some vehicles (such as some Nissans, VWs, and Audis). Wire the door locks following the steps above and select the 2x lock or unlock feature in installer-programming.

Remotely Adjustable Dual-Zone Piezo Sensor

Mount the sensor in the passenger compartment, not in the engine compartment.

1. Firmly mount the sensor near the base of the steering column (if the steering column has a rotating sleeve, firmly screw the sensor to the interior firewall, kick panel or trunk wall).
2. Mate the sensor to the connector with the BLACK, RED, and WHITE/BLUE wires.
3. Adjust the sensor following the instructions provided on page 14.

Trunk Trigger

Vehicles with a ground-switching trunk light will interface directly with the Bullet 4 (on positive switching Rolls-Royce vehicles, use a relay to invert polarity). The switch may be located in or near the trunk latch or at the trunk light. If a switch cannot be located, you must add a pin switch in a location away from water channels.

NOTE: If the vehicle has a dashboard trunk ajar indicator, install a 1-amp diode between the light and switch with the diode band toward the switch.

1. Connect the GRAY/YELLOW wire to the trunk switch (between the diode and switch).

Brake Switch

The brake switch connection is needed for operation of the anti-carjacking electronics.

1. Turn on the ignition and verify that the brake lights are operational.
2. Find the one wire that carries +12V when the brake pedal is pressed, then connect the BLUE/WHITE wire to this wire.

Parking Lights

The Bullet 4 has built-in parking light relays and dual leads for the dual-circuits found on European vehicles (so there's no wire splitting and diode addition hassles). To determine whether the vehicle has single or dual parking light circuit(s), you must access the fuse panel. A single circuit has one fuse; a dual circuit has two.

Single Parking Light Circuit (Most Japanese and American Vehicles)

Most Japanese and American vehicles have a single parking light circuit:

1. Turn on the parking lights and access their wiring in one of the following locations:
 - Near the headlight switch
 - In the door sill harness going to the rear lights
 - At any of the four parking light bulbs
2. If working underdash, be sure to turn the dashlight dimmer to its lowest setting.
3. Connect a voltmeter lead to **ground** and find the one wire that shows + 12 volts when the parking lights are on, and 0 volt when off.
4. Connect BOTH BROWN wires to the parking light wire.

Dual Parking Light Circuit (Most European Vehicles)

Mercedes Benz, BMW, Porsche, Audi and other European vehicles have dual circuits.

1. Turn on the parking lights and access the parking light harness as noted above. Be sure to turn down the dashlight dimmer.
2. Connect a voltmeter to ground and find the two wires that show + 12 volts when the parking lights are on, and 0 volt when off.
3. Connect one BROWN wire to the left-side parking light circuit, and connect the other BROWN wire to the right-side circuit.

Auxiliary A with Selectable Output Type

The auxiliary A output (GRAY/VIOLET wire) can be programmed as either pulsed, latched or timed. It can further be programmed to operate only when the system is disarmed (e.g., for use as a remote trunk release). The Auxiliary A output is activated by pressing the  button on the companion remote or button 2 on the master remote. Factory setting is pulsed (1 second ground). The latched output stays at ground until the  button or button 2 is pressed again. The timed output stays at ground for any programmed duration between one second and four minutes. Current is limited to 0.15 amp. See *Installer-Programmable Features* on page 17 for output programming information.

Auxiliary B with Selectable Output Type

The auxiliary B output (GRAY/BLUE wire) can also be programmed as pulsed, latched, timed and interlocked as noted above. It is activated by pressing the  button on the companion remote or transmitting channel 5 (LevelShift once, then button 1) on the master remote. See *Installer-Programmable Features* on page 17 for output programming information.

Auxiliary C with Selectable Output Type and AutoActivation

The auxiliary C output (GRAY/RED wire) can also be programmed as pulsed, latched, timed and interlocked as noted above. The output is activated by pressing the  and ★ buttons on the companion remote or channel 7 (LevelShift once, then button 3) on the master remote. In addition, can also be programmed to automatically activate every time the system is armed with the remote control. AutoActivation is perfect when used with a timed setting to close the power windows and sunroof on European vehicles that have an all-close feature (holding the key in the driver's door closes the windows and sunroof). See *Installer-Programmable Features* on page 17 for output programming information and/or enabling the AutoActivation feature.

Engine Bay Connections

Medallion Siren

Mount the siren in the engine compartment away from hot or moving parts and where it cannot be reached from under the vehicle, preferable opposite the exhaust system. Point the siren down to avoid water collection (see the illustration).

1. You must firmly secure the siren to the engine bay firewall or a fender well using all three sheet metal screws supplied.
2. Using the supplied connector, fasten the GRAY twinlead wire coming from the siren to the BLACK twinlead from the 24-pin connector on the control unit.

RPM Monitoring

This is required for both RPM-activated automatic door locking and for BlackJax anti-carjacking features. Some newer vehicles do not have a conventional coil marked (+) and (-). In these instances, you will need to locate the tach wire:

1. Try to locate the distributor cap which all spark plug wires run in to. There should be the same number of plug wires as the number of cylinders. If there is an extra plug wire, the vehicle has a separate coil.
2. Follow the extra plug wire to the coil module, which will have two or more wires.
 - a. If there are only two wires: one is the ignition, the **other** wire is the negative coil wire.
 - b. If there are more than two wires, only an oscilloscope will be 100% accurate in locating the tach wire, but a digital voltmeter will often suffice. Set the meter to read AC voltage, connect the negative lead of the meter to ground and probe the wire with the positive lead. The wire that has the highest AC voltage while the engine is running is usually the tach wire.
3. If the vehicle does not have a separate coil, look for the tach wire in a plug coming out of the distributor. If no distributor can be found, there may be multiple coils. Each coil usually has an ignition and a negative coil wire. The system will learn a single or multiple coil system.
4. If no coil or distributor can be found or reached, use the #60-226 RPM Alternator Sensor.
5. You can often connect to the negative side of any fuel injector. Most injectors are screwed directly into the engine and have two wires. One is ignition and usually has a color common to all, the other is the negative side and can be tested as described in step 2b above.

Installation Options

1. Installation Option 1 — Negative Coil

Connect the BLACK/GRAY wire to the negative terminal of the ignition coil, normally marked (-).

2. Installation Option 2 — Fuel Injector Wire

- a. On many engines with electronic fuel injection, there are two wires going to each injector: a fuel-injector wire and a common ignition wire. The common ignition wire is usually the same color at each injector (and may also be the same color as the ignition line in the steering column). The injector wire is the **other** wire.
- b. Connect the BLACK/GRAY wire to one of the injector wires.

3. Installation Option 3 — Tachometer Terminal (Not all cars have a tachometer terminal — mostly older GM models have a tachometer terminal)

- a. Locate the tachometer terminal on the distributor cap (this may be marked "tach").
- b. Connect the BLACK/GRAY wire to the tachometer terminal.

4. Installation Option 4 — Optional Alternator Sensor (#60-226)

Follow the instructions provided in the Alternator Sensor kit.

5. Installation Option 5 — Optional RPM Monitoring Module (#60-521)

- a. Locate the coil wire that connects to the distributor.
- b. Attach the RPM Monitoring Module to the coil wire.
- c. Connect the RED, BLACK and WHITE wires on the RPM Monitoring Module to the RED, BLACK and BLACK/GRAY wires of the system.

Hood Trigger

Vehicles with a ground-switching hood pin switch interface directly with Bullet 4 (on positive switching Rolls-Royce vehicles, use a relay to invert polarity). If a switch cannot be located, you must add a pin switch in a location away from water channels.

1. Connect the WHITE/BLACK wire to the hood pin wire.

Final Wiring Connections

1. Connect the RED wire to the 5-amp fuseholder as shown on page 4.
2. Connect the RED/WHITE wire to the 20-amp fuseholder as shown on page 4.
3. Attach the two fuseholders to the battery positive cable clamp.
4. Attach the BLACK wire to the battery negative cable clamp.

NOTE: Power and test accessories after the basic system has been tested. Individually fuse all accessory power connections. Individually fuse all +12V fuse panel connections.

SmartPowerUp™ 2

SmartPowerUp 2 ensures that the system powers up in the same state (disarmed, armed or valet mode) it was in when power was removed. When you first power up the Bullet 4, it will silently enter the disarmed state.

Delayed Courtesy Lights

Some vehicles have a courtesy light delay or dimming circuit, which interferes with an alarm being able to detect the door trigger upon remote arming. If the delay or dimming lasts more than 5 seconds, no special connections or testing are needed, simply turn on the *Delayed Courtesy Lights* feature as noted in the *Installer-Programmable Features* section on page 17. Please note that since this feature sets the system to arm the instant the courtesy lights turn off, the Door Ajar Warning feature will not be available.

FACT—False Alarm Control and Test

The system microprocessor automatically checks for another activated sensor or trigger before sounding the siren a second time, thus preventing any further false alarms. If you wish to test FACT, simply:

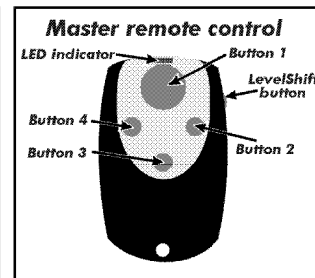
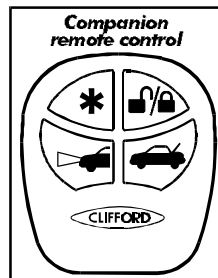
1. Arm the Bullet 4 with the remote control.
2. Wait 10 seconds after the interior light turns off, then trigger the Piezo Sensor to activate the siren.
3. Do not disarm the system, let the siren complete its cycle.
4. Attempt to trigger the sensor again. The alarm should be silent.
5. Unlock and open a door. The alarm should sound immediately. You may now disarm.

Remote Control Operation

The Bullet 4 comes with two ergonomically designed remote controls. Up to two more ACG 2 remote controls can be added to the Bullet 4 system. Due to the ACG 2 feature on this system, older Clifford ACG and non-ACG remotes are not compatible with the Bullet 4.

The following chart details remote control functions. To access the higher functions on the master remote, just press the LevelShift button shown in the illustration, then the indicated button. One the second level, the remote control LED will flash twice while transmitting to confirm level 2. It will flash 3 or 4 times when transmitting on level 3 or 4.

QUICK REFERENCE: REMOTE CONTROL FUNCTIONS			
Function	Companion Remote Button(s)	Master Remote	
		LevelShift?	Button
Arm or disarm and lock or unlock the doors		no	1
Auxiliary A output (usually remote trunk release)		no	2
Silently arm or disarm and lock or unlock the doors	+	no	3
Unassigned or IntelliStart 4 remote engine starting		no	4
Auxiliary B output (such as timed headlight activation)		1 time	1
Unassigned or SmartWindows 4 full open or vent	+	1 time	2
Auxiliary C output (IntelliVoice 4 or window all-close)	+	1 time	3
Unassigned	+	1 time	4
Remote valet mode entry/exit	+	2 times	1
Remote override of optional Dual-Zone Proximity Sensor 4	+	2 times	2
Unassigned or IntelliStart 4 LowTemp/Battery AutoStart or manual SafeStart		2 times	3
Unassigned		2 times	4
Unassigned		3 times	1
Unassigned		3 times	2
Remotely adjust sensitivity of the Piezo Sensor		3 times	3
Unassigned		3 times	4



Sensor Adjustment

1. **Disarm** the system with the remote control.
2. Transmit channel **15** on the master remote (LevelShift three times, then button 3). You will hear one chirp and the LED will turn on.
3. Test the Piezo Sensor's **primary** zone by thumping the window pillar firmly. You will hear a siren chirp when the primary zone is triggered.
 To change the sensitivity of the primary zone, press and release **button 2 to increase** sensitivity or **button 4 to decrease** sensitivity. To rapidly increase or decrease several steps, press and hold the button. For each sensitivity increase, you will hear a higher and higher pitched confirmation chirp. For each sensitivity decrease, you will hear a lower and lower pitched confirmation chirp. Two LoudChirps indicate minimum and maximum settings of the 32-step range of settings. You may now press **button 3** to adjust the warning zone, or press **button 1** to fully exit the Piezo Sensor adjustment mode (you will hear 3 chirps).
 To change the sensitivity of the **warning** zone, press **button 3** (you'll hear 1 chirp). Then use the same procedure as above, but this time, thump the window pillar very softly. When done, press **button 1** to reselect the primary zone (you will hear 2 chirps), then button 1 again to fully exit Piezo Sensor adjustment mode (you will hear 3 chirps).
4. Repeat the preceding steps as required. An improperly adjusted sensor will cause the Bullet 4 to false alarm or not respond properly to a genuine threat.

Eight-Event TotalRecall

The system's nonvolatile memory records the identity of the last eight activated or malfunctioning triggers and sensors:

NOTE: The CliffNet Wizard displays the Eight-Event TotalRecall data in a graphical table format.

1. With the ignition OFF, press and hold the blank side of the PlainView 2 Switch.
2. Use the remote control arm, and then again to disarm, and then release the button.
3. The LED will flash 1–10 times, pause, then flash 1–10 times, etc. Write down the number of flashes in each cycle.
4. Refer to the following chart. The first number you wrote down was the most recently activated trigger or sensor. The next number is the second most recent, and so on up to as many as the last eight activations.

LED flashes	Trigger/sensor indication
2 flashes	Dual-Zone Piezo Sensor
3 flashes	Optional Sensor
4 flashes	Door Trigger
5 flashes	Trunk Trigger
6 flashes	Hood Trigger
7 flashes	An attempt was made to turn on the ignition or start the engine while the system was armed
9 flashes	BlackJax
10 flashes	System power interruption

5. If a sensor is often activated, decrease that sensor's sensitivity (or reposition the sensor, if necessary). If a certain trigger is often activated, check pin switch operation, verify that the pin switch is not exposed to moisture and check the trigger wire for possible shorting.

Programmable Features

Bullet 4 comes from the factory with its features preprogrammed as noted in **bold** text in the tables on pages 15 and 17. Some features can be programmed by the installer or the user, others can only be programmed only by the installer.

Using the CliffNet Wizard Pro

The CliffNet Wizard Pro provides an intuitive access to all installer and user-programmable features through a user-friendly, graphical user interface. Because CliffNet Wizard PRO is Windows™-compatible, most operations can be accomplished by simply pointing and clicking a mouse. CliffNet Wizard Pro totally eliminates complicated programming charts and lengthy button pressing sequences. You may download the latest revision at www.clifforddealer.com.

Programming the User-Selectable Features

1. Write down the column (across) number and row (down) number of the feature(s) you wish to program.
2. Turn the ignition to the "ON" position or start the engine.
3. Enter the factory preset valet/programming code of "2" by pressing the PlainView 2 Switch's ★ button two times, then press the blank button.
4. After entering the code, press and hold the ★ for about 3 seconds until you hear one siren chirp and the LED turns on to acknowledge program mode entry. The Bullet 4 is now in the "Feature Select" position for User-Programmable Features.
5. Select the feature column: Press the blank button the same number of times as the column number. Pause. You will then hear the same number of chirps as the column number you have selected, audibly confirming your selection.
6. Within five seconds, select the feature row: Press the ★ button the same number of times as the feature's row number. You'll hear a chirp each time you press the blank side to help you count.
7. If there is a NOTE for the selected feature, perform the actions noted.
8. Pause. You will hear either one or two chirps: two chirps = ON, one chirp = OFF.
9. You can select another feature, or you can exit program mode:
 - a. To select another feature in that same column, repeat step 6 within the next five seconds (after five seconds, three chirps indicate that the Bullet 4 is now back in the "Feature Select" position).
 - b. To select a different feature column, repeat step 5.
 - c. To exit program mode, turn the ignition off (you'll hear three chirps and the LED will turn off to indicate exit of program mode), or wait 60 seconds and the Bullet 4 will automatically exit program mode.

Table of User-Programmable Features (1 chirp = OFF, 2 chirps = ON)

Feature Select	Blank 1	Blank 2	Blank 3	Blank 4
★ 1	AutoProgram New Master Remote NOTE 1	Chirps (Off/Loud/ Quiet) (1/2/3 chirps)	AutoArming (Off/On)	Arm/Disarm with other remote NOTE 5
★ 2	Personalized Siren Sounds NOTE 2	Headlight Reminder (Off/On)	AutoArm & Lock (Off/On)	Auxiliary A accessory with other remote NOTE 6
★ 3	Play Siren Sounds (on trigger/ always)	Remote valet feature (Off/ On)	NOT USED	Silent arm/disarm with other remote NOTE 6
★ 4	Siren duration (30/60/90 sec)	AutoStart* (neither /battery /temp/both (1/2/3/4 chirps)	FACT (Off/On)	NOT USED
★ 5	AutoLock (off/instant/ RPM-dependent) (1/2/3 chirps)	BlackJax anti-carjack (Off/On)	NOT USED	Remote starting* with other remote NOTE 6
★ 6	AutoUnlock (Off/On)	Clear all remotes NOTE 4	NOT USED	SmartWindows 4 rolldown/venting with other remote NOTE 6
★ 7	Reset to defaults (except remotes and valet code) NOTE 3	Valet Code SHOULD ONLY BE PROGRAMMED BY VEHICLE OWNER	NOT USED	Remote valet mode with other remote NOTE 6

*Requires optional IntelliStart 4

- **NOTE 1:** Press button 1 on the 16-channel master remote, you will hear one chirp. Press button 1 *again*, you will hear two chirps.
- **NOTE 2:** When this feature is selected, siren sound 1 will play for five seconds. Press ★ to turn the siren sound off, press the blank button to activate the sound. Next, siren sound 2 will play for five seconds. Press ★ to turn the siren sound off, press the blank button to activate it. The system will cycle through all six siren sounds.
- **NOTE 3:** You will hear two chirps when all features are reset.
- **NOTE 4:** When you hear two chirps, all remote controls will have been erased from the system memory. You must now add the new and/or existing remote controls to the system.
- **NOTE 5:** Programs a 4-button companion or any other remote control from another ACG 2 system to arm or disarm the vehicle. For instance, to set button 13 of the other car's master remote control to arm/disarm the system, select column 4, row 1, then transmit channel 13 from the remote you are programming. The system will respond with one chirp. Immediately transmit channel 13 again. The system will respond with two chirps. Channel 13 of the other vehicle's remote will now arm/disarm the system.
- **NOTE 6:** This feature can be programmed onto the remote control of another ACG 2 system, after that remote has been programmed to arm/disarm this system. Select the row and column number, then transmit the unused button or channel on the other remote that you want to use to perform that function. The system will respond with the same number of chirps as the row number. Please note that you must first set a button on the remote that will arm/disarm the system (column 4, row 1) before these others will be accepted.

Installer-Programmable Features

To access the installer grid, use the procedure defined in the User-Programmable section, but in step 4, **continue to hold** the ★ side of the PlainView 2 Switch for 15 seconds until you hear 3 confirmation chirps indicating that the system is in installer-program mode.

Table of Installer-Programmable Features (1 chirp = OFF, 2 chirps = ON)

Feature Select	Blank 1	Unmarked 2	Blank 3
★ 1	Single/double lock pulse (1 chirp/2 chirps)	Accessory output timer duration (10 seconds) NOTE 2	Door ajar warning /delayed courtesy lights (1 chirp/2 chirps)
★ 2	Single/double unlock pulse (1 chirp/2 chirps)	Auxiliary A type (pulsed/timed/latched) (1 chirp/2 chirps/3 chirps)	Auxiliary A (trunk release) interlock (On/Off)
★ 3	Lock/unlock pulse 3 second/ 1 second (1 chirp/2 chirps)	Auxiliary B type (pulsed/timed/latched) (1 chirp/2 chirps/3 chirps)	Auxiliary B interlock (On/Off)
★ 4	Program door lock polarity (positive/negative) (1 chirp/2 chirps)	Auxiliary C type (pulsed/timed/latched) (1 chirp/2 chirps/3 chirps)	Auxiliary C interlock (On/Off)
★ 5	Program RPM NOTE 1	Diesel engine/gas engine (1 chirp/2 chirps) (for IntelliStart 4 only)	AutoActivate auxiliary C upon remote arming (On/Off)
★ 6	Auxiliary siren output (constant/pulsed) (1 chirp/2 chirps)	NOT USED	Program optional SmartWindows 4

- **NOTE 1:** The engine must be warmed up and running when you select this feature. If so, you'll hear a 2-chirp RPM confirmation (if you hear one chirp, check connection of the BLACK/GRAY wire).
- **NOTE 2:** A chirp will indicate the timer has started. When the desired duration has been reached (1-255 seconds), press the blank side of the PlainView 2 switch. The system responds with two chirps to confirm the new system timer duration.

System Checklist & Troubleshooting

The following checklist and troubleshooting tips will assure that you have installed the Bullet 4 correctly. If the system does not react as noted, follow the troubleshooting tip(s) denoted with a black box below that item, then repeat the step. Each successive step requires that the previous step has been completed as indicated.

The CliffNet Wizard simplifies the troubleshooting process by providing system diagnostic information in a graphical format. All system settings are provided at-a-glance, and adjustments to the system settings can be made with a click of a mouse. This reduces the amount of time required for performing the following tests.

Step 1.

Re-enable the courtesy lights.

In step 1 of the **Important Information** section on page 2, the interior courtesy lights were disabled. You must now re-enable the courtesy lights by replacing the fuse you removed or reset the courtesy light switch back to its normal "DOOR" position before proceeding.

Step 2.

Test the Immobilization circuits.

Arm the Bullet 4 (either from inside or outside the vehicle) and wait 10 seconds. Turn the ignition to the "ON" position.

- **Engine does not respond.** This is the correct response, proceed to the immobilization test.
- **Engine starts or cranks.** The starter/ignition/fuel pump or immobilization circuits have been miswired. Carefully retest the vehicle wires as noted in the *Starter and Ignition Immobilization Circuits* section on page 6. Be sure the ignition input/output is correct!
 - Engine still starts or cranks after retesting all the wiring as noted on page 6, check the power and ground connections. Then make sure the fuses are in the fuseholders, verify the control unit connectors are securely fastened, verify the ignition input and output wires are connected to the true ignition line instead of a 12V or accessory line, and verify that the transmitters are programmed correctly.

Step 3.

Test the chirps.

Close all doors and arm the Bullet 4 by pressing button 1 on the remote control.

- **2 Chirps:** This is the correct response. Proceed to step 4.
- **4 Chirps:** If you hear 4 chirps either immediately or 5-10 seconds after the initial two chirps, a trigger or sensor is open or active, or the vehicle has delayed courtesy lights and the Delayed Courtesy Lights feature has not been programmed on. Disarm with the remote control, enter the vehicle and turn on the ignition. The LED will flash 1-10 times, pause, then repeat the same number of flashes (the flash cycle repeats five times for your convenience). Refer to the following chart.

LED flashes	Trigger/sensor indication
2 flashes	Dual-Zone Piezo Sensor
3 flashes	Optional Sensor
4 flashes*	Door Trigger*
5 flashes	Trunk Trigger
6 flashes	Hood Trigger
7 flashes	An attempt was made to turn the ignition "ON" or start the engine while the system was armed
9 flashes	BlackJax
10 flashes	Power Interruption

* If the delayed courtesy lights feature is activated, this trigger/sensor indication will not be provided.

- If the door trigger is indicated, activate the delayed courtesy lights feature.
- **No chirps.** If there are no chirps, verify that the Chirps feature (column 2, row 1) is on and check the wiring connections as noted in the *Medallion Siren* section on page 11.

NOTE: If none of the troubleshooting techniques described in steps 3 - 7 corrects the problem, perform the following diagnostics:

- Make sure the fuses are in the fuseholders.
- Check the power and ground connections.
- Verify that the control unit connectors are properly inserted into the control unit.
- Verify that the ignition input and output wires are connected to the true ignition line instead of a 12V line. Find the true ignition line by following steps 1-4 of the *Starter and Ignition Immobilization Circuits* section on page 6.
- Verify that the transmitters are programmed correctly.

NOTE: If the 20-amp fuse blows upon arming:

- Disconnect the Bullet 4's two parking light wires, replace the 20-amp fuse and rearm. If the fuse does not blow, one (or both) of the vehicle's parking light wires is shorting. Find and correct the short(s), reconnect the parking light wires, then rearm.

- If the fuse blows while the parking light wires are disconnected, the door locks are not wired correctly. Reconnect the vehicle's power locking system to its original condition, then retest the voltages as indicated in the *Door Locks* section and wire the locks as indicated, then replace the 20-amp fuse.

Step 4.

Test the parking lights.

Arm the system by pressing button 1 on the remote control.

- **Two flashes.** This is the correct response, proceed to step 5.
- **One flash.** If the parking lights flash only once, the Bullet 4 had previously AutoArmed itself passively and by pressing button 1 the system disarmed (remote disarming is acknowledged with one parking light flash). Repeat step 1.
- **No flashes.** If no flashes, verify the parking light bulbs are operational. If not, they must be replaced. If so, repeat steps 1-5 of the *Parking Lights* section.
- **Only one side flashes.** If only the right or the left side parking lights flash, see the *Parking Lights* section.

Step 5.

Test the door locks.

Arm the system by pressing button 1 on the remote control.

- **Doors lock.** This is the correct response, proceed to step 6.
- **Doors do not lock.** You either selected the wrong door lock diagram, programmed the wrong door lock polarity or connected the wires incorrectly. Reconnect the vehicle's power locking system to its original condition, then retest the voltages as indicated in the *Door Locks* section and wire the locks as indicated.

WARNING: If the doors do not lock, DO NOT activate the vehicle's lock switches. If the locks have been miswired, doing so may damage the Bullet 4 control unit, the vehicle's electrical system and/or the power lock servo motors.

- **Doors unlock.** You either selected the wrong door lock diagram or connected the wires incorrectly. Reconnect the vehicle's power locking system to its original condition, then retest the voltages as indicated in the *Door Locks* section and wire the locks as indicated.
- **Only one door locks.** You either selected the wrong door lock diagram or connected the wires incorrectly. Reconnect the vehicle's power locking system to its original condition, then retest the voltages as indicated in the *Door Locks* section and wire the locks as indicated.

Step 6.

Test the LED.

Arm the system by pressing button 1 on the remote control.

- **Flashes repeatedly.** This is the correct response, proceed to step 7.
- **No flashes.** If the LED does not flash, verify that the LED's VIOLET and BLACK wires are solidly connected to the same color wires on the Bullet 4's wireloom. **Warning:** This is a 2-volt LED, testing with 12 volts will destroy the LED.

Step 7.

Test the PlainView 2 Switch.

Use the instructions provided on page 15 to enter programming mode. If the system enters programming mode, the switch and valet code are in operating order. If not, perform the following tests:

- Test the WHITE/BROWN wire, ignition input and verify it has +12V when the ignition is turned ON and +0V when the ignition is OFF. If not refer to *Starter and Ignition Immobilization Circuits* on page 6.
- Test the WHITE wire at the control unit connector. It should read 5 volts. When pressing the marked side, it should read 3 volts and when pressing the blank side it should read 0 volts. If any reading is incorrect, move the voltmeter to the BLACK wire at the valet switch. It should read 0 volts at rest, 0 volts when the marked side is pressed, and 0 volts when the blank side is pressed. If the BLACK wire tests correctly and the WHITE wire does not, replace the switch. If the BLACK wire tests incorrectly, repair the ground circuit. If both wires test correctly, then the valet code has been changed. Use the CliffNet Wizard to reset the valet code.

Step 8.
Test the Dual-Zone Piezo Sensor.

Arm the system and tap the car softly with your fist. The following should occur:

- **Warning buzzer sounds.** Proceed to the next test.

Hit the car firmly with your fist. The following should occur:

- **Alarm triggers.** Proceed to step 10.

If either of these test fail, adjust the sensor using the remote control.

Step 9.
Test the disarm function.

Disarm by pressing remote control button 1. The following should occur:

- **Siren chirps once.** If the siren does not chirp once, refer to step 3.
- **Parking lights flash once.** If the parking lights do not flash once, refer to step 4.
- **LED stops flashing.** If not refer to step 6.
- **Doors unlock.** If not refer to step 5.
- **Immobilizer circuits immediately disengage** (test this by turning the key in the ignition switch; the engine should crank, start and idle normally). If the Immobilizer circuits do not disengage, refer to step 2.
- **Interior courtesy light(s) turn on** and stay on for 30 seconds or until the ignition is turned on, whichever occurs first.
 - If the interior light(s) do not turn on, verify that you replaced the interior light fuse you removed or have turned the lights back on as noted in step 1 of this section.
 - Check the Bullet 4's 10-amp fuse. If the fuse blew when you disarmed, the vehicle uses a positive door trigger and you connected the interior light supply wire to ground instead of +12 volts. Replace the 10-amp fuse and retest.
 - Check the door trigger circuit: see step 8.

Step 10.
Test the door trigger circuit.

Rearm the system. Wait at least 10 seconds (be sure to wait until the interior lights have turned off). Use the key to unlock and open the driver's door.

- **Siren sounds, parking lights flash repeatedly.** This is the correct response, proceed to step 11. (You can silence the siren by pressing the button on the remote control once or disarm by pressing the button twice.)
- **Siren does not sound immediately.** If the alarm does not sound immediately when one of the doors is opened, make sure that that door's pin switch is working properly and, when open, is consistently showing less than 1.5 volts if the vehicle has negative-switching door triggers or more than +11 volts if the vehicle has positive-switching door triggers, also make sure the pin switch is connected to the correct wire. If not, then the door pin switch (or pin switches) is either defective or in need of cleaning.

Step 11.

Test the trunk trigger circuit.

Arm the system, then use the key to unlock the trunk.

- **Siren sounds immediately, parking lights flash repeatedly.** This is the correct response, proceed to step 12. (You can silence the siren by pressing button 1 on the remote control or disarm by pressing button 1 two times.)
- **Alarm does not sound immediately.** If the alarm does not sound immediately, make sure that the trunk pin switch is working properly and, when open, is consistently showing less than 1.5 volts. Also make sure the trunk pin switch is connected to the correct wire. If not, the trunk pin switch must be thoroughly cleaned or replaced.

Step 12.

Test the hood trigger circuit.

Arm the system, then open the hood. The following should occur:

- **Siren sounds immediately, parking lights flash repeatedly.** This is the correct response, proceed to step 13. (You can silence the siren by pressing button 1 on the remote control or disarm by pressing button 1 two times.)
- **Alarm does not sound immediately.** If the alarm does not sound immediately, make sure that the hood pin switch is working properly and, when open, is consistently showing less than 1.5 volts. If not, the hood pin switch must be thoroughly cleaned or replaced.

Step 13.

Test the AutoArming feature.

Turn the ignition "ON," start the vehicle, and let the car idle for 10 seconds. Turn the ignition "OFF," then open and close the door. Wait five seconds.

- **Parking lights flash twice.** 25 seconds later, the vehicle is passively armed **indicated by a rapidly flashing LED.** This is the correct response, proceed to step 14.
- **System does not passively arm.**
 - Make sure that Instant AutoArming has been programmed on using the instructions on page 15-16.
 - Verify the door trigger connection (see step 9).

Step 14.

Test the Instant AutoArming Bypass.

Disarm the system. Roll the windows down and turn the ignition to the "ON" position, then turn the ignition "OFF."

- **One Chirp.** This is the correct response, open and close the door then wait 30 seconds to insure the system does not passively arm.

Step 15.

Test remote control range.

Stand 100-300 feet from the vehicle and use the remote control to arm and disarm. Bullet 4 will respond with the previously noted indications for arming and disarming. If not:

- Reposition the external receiver as high as possible high up under the dash, or as high as possible along side the windshield pillar and as far as possible from heavy wirelooms and metal. Rotate the external receiver 90 degrees and retest.
- Make sure that the remote control battery measures at least 11 volts *while* transmitting.
- Make sure that the voltage at the control unit between the 5-amp fused power line and each of the two ground lines measures at least 12.0 volts when triggered (if less, make sure the chassis ground is solid; if the ground is solid, the vehicle battery may need charging, servicing or replacement).
- Make sure that no accessories are tapped in to the RED or BLACK power wires.

Step 16.

Complete and provide all necessary paperwork including:

- User's Manual must be given to the customer.
- Adhere the Clifford window decals to the vehicle's windows.

Step 17.

Demonstrate Basic System Operation

- Remote Operations:
 - Arming/disarming and locking/unlocking
 - Panic feature
 - Remote valet mode activation
 - Remote sensor adjustment
 - Optional proximity sensor override
 - Accessory operation
- AutoArming and AutoArming bypass
- Immobilization
- Valet code entry
- User-programming mode

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Clifford systems are covered by one or more of these
Clifford Electronics USA patents: 4,158,874; 4,233,642;
4,327,444; 4,383,242; 4,430,685; 4,845,464; 4,887,064;
4,890,108; 4,922,224; 4,997,053; 5,081,667; 5,146,215;
5,157,375; 5,467,070; 5,650,744 and other patents pending

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