

Standard Features of the Arrow II

- ✓ **Lifetime Warranty** — For as long as your customer owns the vehicle, Clifford Electronics will repair or replace the control unit and remote controls free of charge (see warranty card for full details).
- ✓ **FACT™—False Alarm Control and Test** — Absolutely, positively puts an end to recurring false alarms (user-selectable).
- ✓ **A Pair of 2-Button/3-Channel Remote Controls** — Fingertip command from a typical range of 100 feet.
- ✓ **Full-Time Remote Panic with Automatic Door Locking and Unlocking** — A continuous press on button I will sound the siren, flash the parking lights and unlock the doors of the owner's parked car for quick entry without fumbling with the keys. If the owner needs to panic the system while driving, the siren will sound, the lights will flash and the doors will lock to shield him or her from the assailant (some vehicles require optional relays).
- ✓ **AntiScan™** — Blocks code scanners still used by some thieves.
- ✓ **Anti-CodeGrabbing™ (ACG) Capability** — The Arrow II receiver has Anti-CodeGrabbing technology built in. Just use an optional 3-channel or 12-channel ACG remote control. Clifford ACG remote controls *never* transmit the same code twice.
- ✓ **Remote Controlled Chirp Muting** — Just press both buttons of the remote control to silently arm or disarm.
- ✓ **Remote Door Lock/Unlock Outputs** — The Arrow II directly interfaces with negative-switching power locks (other types require optional relays). If installing on an older Mercedes Benz or Audi vehicle, the Arrow II allows you to set the required 3-second pulse.
- ✓ **Built-In Parking Light Flasher with On-Board Relay** — No external relay to wire and mount.
- ✓ **Remote Controlled Courtesy Lighting Output** — Just add a relay and the system will automatically turn on the courtesy lights when remotely disarmed and keep them on for 30 seconds or until the ignition is turned on, whichever occurs first.
- ✓ **Patented AutoTesting™** — Automatically tests all triggers and sensors when remotely armed.
- ✓ **Patented Malfunction AutoBypass™** — Automatically bypasses any trigger or sensor malfunction.
- ✓ **Magnetic Resonance Sensor** — Vibration/impact sensor. Zero crimp connections, just mate the prewired connectors.
- ✓ **High-Output Siren** — Loud siren wail.
 - ✓ **Patented Automatic Noise Abatement** — Automatically limits alarm sounding to no more than 3 minutes.
- ✓ **User-Selectable AutoArming™** — Arms itself "passively" if the owner forgets to arm it with the remote.
 - ✓ **AutoArming Enable/Disable** — The owner may disable or re-enable the AutoArming features with just a few flicks of a switch.
 - ✓ **AutoArm & Lock™** — The owner may set the system to automatically lock the doors every time the system AutoArms.
 - ✓ **Visual Indication** — Two parking lights flashes signal that the 30-second countdown to AutoArming has started.
 - ✓ **Instant AutoArm Bypass** — Just two quick turns of the ignition switch bypasses AutoArming for one cycle — perfect when fueling the vehicle. AutoArming is automatically restored the next time the car is parked.
- ✓ **TotalRecall™** — The Arrow II's memory stores the identity of the last trigger or sensor activated. This provides an invaluable diagnostic means, since the system will visually identify the last activated trigger or sensor.
- ✓ **Patented Prior Intrusion Attempt Alert** — Alerts the owner from a distance if an intrusion attempt occurred while he or she was away.
- ✓ **Advanced CMOS Microcomputer** — Very large scale integration (VLSI) microprocessor commands all system functions more than 100,000 times per second, yet it draws less power than the vehicle's clock, so it won't deplete the car battery like other alarms.
- ✓ **Fault-Proof Starter Interrupt** — Arrow II will prevent cranking of the engine while the system is armed. Clifford's Fault-Proof circuitry ensures that the owner will be able to start the engine even in the unlikely event of a system malfunction.
- ✓ **Patented Remote Control Code Learning** — Just a few flicks of a switch lets you or the owner match to the system up to 3 different Clifford remote controls, including 3-channel and/or 12-channel Clifford ACG remote controls. Just as easily, a lost or stolen remote control can be deleted from the system memory.
- ✓ **Two-Car Control** — The vehicle owner can interface the 3-channel remote control with a Clifford system on his or her other vehicle. The optional 4-button/12-channel ACG remote can control many more and, of course, adds the unbreachable security of Anti-CodeGrabbing to the Arrow II system.
- ✓ **High-Luminescence LED Status Indicator** — Adds visual deterrence and identifies system status.
- ✓ **Installer-Selectable High/Low Circuitry** — If the vehicle has delayed courtesy lighting, you won't have to go through any special testing or connections. A few flicks of a switch sets Arrow II to adjust itself to read the door input when the interior light turns off.
- ✓ **Channel 2 Output** — For an optional accessory.

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Standard Features of the Arrow II (cont.)

- ✓ **Prewired LED, Sensor and Valet Switch Connectors** — These prewired connectors eliminate more than half a dozen different crimp connections to make installation easier and faster.
- ✓ **Valet Mode with Remote Capability** — With the optional 4-button/12-channel ACG remote control, the owner can use channel 5 to remotely enter or exit valet mode. Parking light flashes confirm system status.
- ✓ **Patented SmartPowerUp™ II** — When power to the system is disconnected, the non-volatile memory always remembers the last state (armed, disarmed or valet mode) and returns to that state when power is restored. So if a thief disconnects the power and then restores it in an attempt to start the car, the system will re-arm and instantly sound the siren.

Wiring Description for the 18-Pin Connector

Pin	Color	Connects to	Page
1	Yellow	Siren black wire	5
2	Brown/White	Terminal 86 of the optional courtesy light relay	2
3	White	Valet switch white wire	5
4	Green	Prewired to the starter interrupt relay	2
5	Gray/Violet	Channel 2 accessory	5
6	Gray/Orange	Door unlock (-)	5
7	Gray/Green	Door lock (-)	5
8	Violet	Prewired to the LED connector	4
9	Gray/Yellow	Hood and trunk pin switches	5
10	White/Brown	Ignition	4
11	Gray	Door trigger (+ or -)	5
12	Orange	Prewired to the Magnetic Resonance Sensor connector	5
13	Red	Prewired to the Magnetic Resonance Sensor connector	5
14	Red	Battery positive (5-amp fuse)	6
15	Red/White	Battery positive (20-amp fuse)	6
16	Brown	Parking lights	5
17	Black	Prewired to the sensor, LED and valet switch connectors	2
18	Black	Battery negative	6

Sequence of Installation

1. Passenger Compartment

- a) Select a suitable location to mount the *control unit*.
- b) Wire the *ignition input* and *starter interrupt relay*.
- c) Mount and connect the **LED** status indicator.
- d) Wire the *door trigger* and *interior light supply* and optional *courtesy light relay*.
- e) Wire the *door locks*.
- f) Mount and connect the *valet switch*.
- g) Mount and wire the *Magnetic Resonance Sensor*.
- h) Wire the *channel 2 output*.
- i) Wire the *trunk trigger* and, if needed, mount a pin switch.
- j) Wire the *parking lights*.
- k) Mount and wire optional passenger compartment *accessories*.

2. Engine Compartment

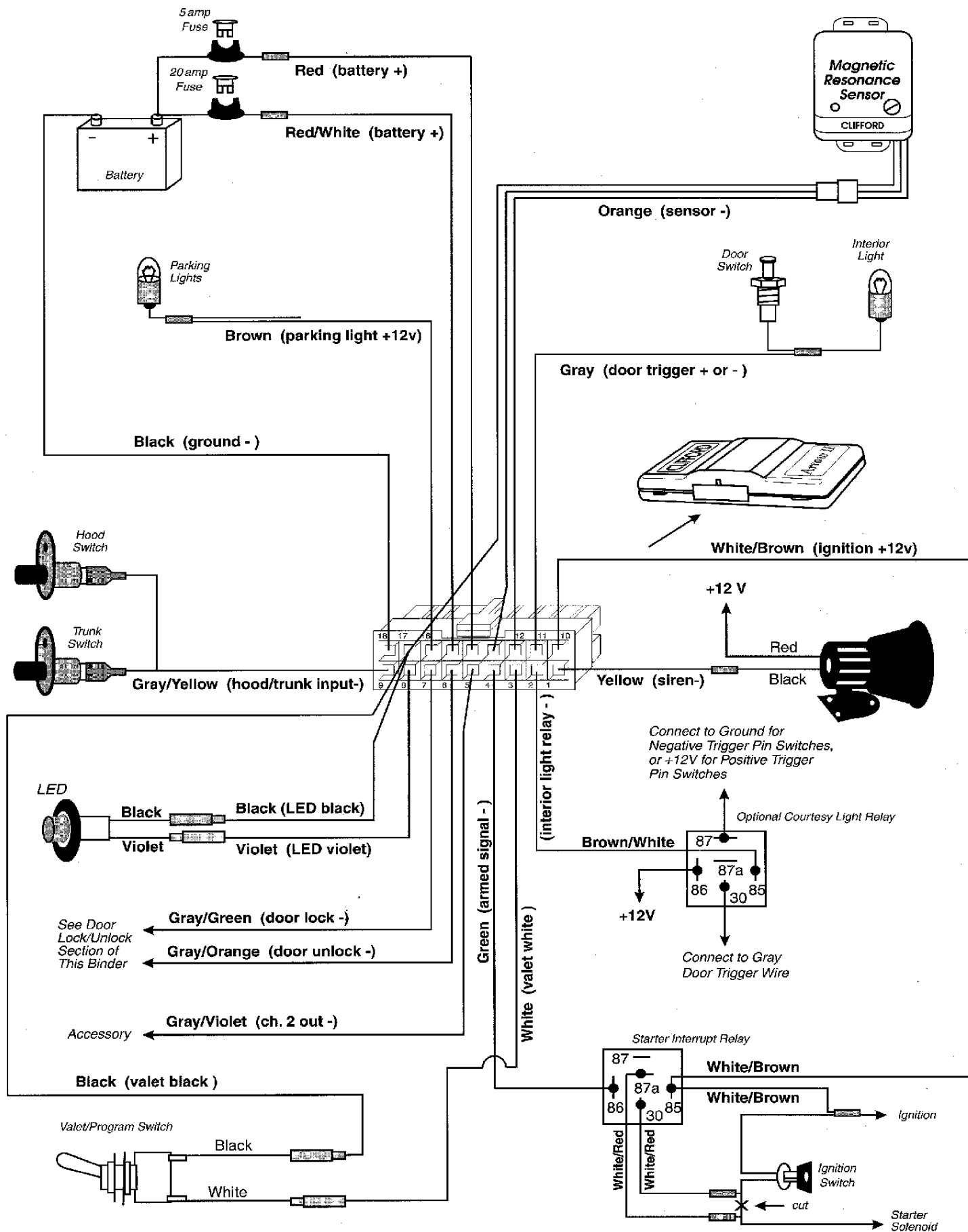
- a) Mount and connect the *siren* and, if needed, *hood pin switch*.

3. Make final wiring connections at the battery, then **plug in** the control unit connector.

4. Set sensitivity of the Magnetic Resonance Sensor and, if needed, set the **door lock pulse** and **high/low** courtesy lighting feature.

5. Test the system, then power and test accessories.

6. Secure the control unit, accessory modules and wiring.



Passenger Compartment Components

Control Unit

1. Install the control unit in the passenger compartment, **not** in the engine compartment.
2. Identify where the control unit will be installed. Route wires from this point, leaving slack in the wiring for ease of service. **Do not** plug the connector into the control unit all wiring is complete.

Antenna

The short gray wire is the antenna. Its position and location will effect remote control range:

1. Do not shorten or lengthen the antenna wire.
2. Point the antenna wire away from the control unit.
3. Avoid positioning the antenna wire parallel to any wiring harness.
4. Keep the antenna and control unit as far as possible from metal.
5. The antenna is best positioned perpendicular to the largest metallic surface near the control unit.

Wireloom

All Clifford systems are designed to be wired **FROM** the control unit **TO** each component. Route power and ground connections directly to the vehicle battery. Power and test the control unit before any optional accessories. **DO NOT** yet plug in the control unit connectors. Using the supplied tie wraps, separate the wires into the following groups:

1. For engine compartment connections: RED, RED/WHITE, BLACK, GRAY/YELLOW and YELLOW. Sleeve these wires in vinyl tubing and pass them through an existing grommet into the engine compartment. If a new opening must be drilled, add a rubber grommet to prevent shorts and fire hazards.
2. For the door locks: GRAY/GREEN and GRAY/ORANGE.
3. For the Magnetic Resonance Sensor: the ORANGE, RED and BLACK wires that terminate in a 3-pin connector.
4. For the LED: the BLACK and VIOLET wires that each terminate in a 1-pin connector.
5. For the valet switch: the BLACK and WHITE wires that each terminate in a 1-pin connector.

Ignition Input

1. Locate the ignition switch wireloom under the dash and use a voltmeter to locate the one wire that carries +12V throughout **BOTH the cranks AND engine running cycles**, and 0 volt when the ignition is off.
2. Start the engine, then cut the ignition line. The engine should die.
3. Connect the WHITE/BROWN wire to the ignition line as shown on page 3.

Starter Interrupt Relay

The starter interrupt relay is wired in-line with the vehicle's starter circuit. When a theft attempt occurs, the relay opens the starter circuit and prevents the vehicle from starting.

NOTE: The starter circuit may have very high current. Be certain that both WHITE/RED wires are solidly connected. For maximum dependability, solder and shrink tube the relay's WHITE/RED connections.

1. Locate the ignition switch wireloom under the dash.
2. Use a voltmeter to locate the **one** wire that carries +12V during the **cranking cycle ONLY**. This is the starter wire.
3. Cut the starter wire, then try to start the engine. If the starter does not crank, you have found the correct wire.
4. Make the connections shown on page 3.

LED Status Indicator

Select a prominent location on the dash or console visible from both the passenger and driver windows. Discuss placement with the owner. The LED is off when the system is disarmed, flashes while armed, and glows in valet mode.

1. Verify there is adequate space to accommodate the LED, then drill a 5/16" hole and route the wires through it.
2. Mate the LED connectors to the same wire color connectors on the wireloom, then press the LED into place.

Optional Courtesy Light Relay

If installing an optional courtesy light relay, connect the BROWN/WHITE wire to terminal 85 and make the other connections shown on page 3. This will provide dome light surveillance for 30 seconds after disarming, providing that the ignition is off for that period. If you will not be installing the optional courtesy light relay, insulate (tape) the BROWN/WHITE wire.

Door Trigger

Please refer to the **Door Trigger** section in this binder for information on polarity testing and connections.

Door Locking/Unlocking

Please refer to the **Door Lock** section in this binder for information on the various circuit types and connections.

Valet Switch

Mount the switch in a concealed but accessible location. Discuss placement of the switch with the vehicle owner. Avoid placing the switch where it may be accidentally toggled.

1. Verify there is adequate space to accommodate the switch, then drill a 1/4" mounting hole.
2. Insert the wires through the hole and mount the switch.
3. Mate the switch's connectors to the same wire color connectors on the wireloom.

Magnetic Resonance Sensor™

Mount the Magnetic Resonance Sensor in the passenger compartment, not the engine compartment.

1. Firmly tie-wrap the sensor to the steering column (if the steering column does not have a non-rotating sleeve, firmly screw the sensor to the interior firewall, kick panel or trunk wall). Make sure the adjustment screw is accessible.
2. Mate the sensor's connector to the system's sensor connector (with BLACK, RED and ORANGE wires).

Channel 2 Pulsed Output

The GRAY/VIOLET channel 2 output goes to ground for 0.5 seconds when button 2 is pressed (or for as long as button 2 is held). Current is limited to 0.15 amps.

Parking Lights

Please refer to the **Parking Light** section in this binder for information on polarity testing and connections.

Trunk Trigger

Vehicles with a ground-switching trunk light will interface directly with the Arrow II (on positive switching Rolls-Royce and Ford vehicles, use a relay to invert polarity). The switch may be located in or near the trunk latch or at the trunk light.

NOTE: If the vehicle has a dashboard trunk ajar indicator, install one of the supplied diodes between the light and switch with the diode band pointing toward the switch.

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

Engine Compartment Components

Siren

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

1. Mount the siren using all three sheet metal screws supplied.
2. Connect the siren's BLACK wire to the wireloom's YELLOW wire.
3. Connect the siren's RED wire to +12V.

Hood Trigger

Vehicles with a ground-switching hood pin switch will interface directly with Arrow II.

If the hood light does not operate unless the parking lights are on, install one of the supplied diodes between the light and switch with the diode band pointing toward the switch.

1. Connect the GRAY/YELLOW wire to the hood pin wire (between the diode and switch if you added a diode).

Final Wiring Connections

1. **Do not** plug in the control unit connector until step 6 below.
2. Connect the 5-amp fuse and fuseholder to the RED wire.
3. Connect the 20-amp fuse and fuseholder to the RED/WHITE wire.
4. Use ring connectors to attach the two fuseholders to the +12V battery lug without removing the terminal from its post.
5. Use a ring connector to attach the BLACK wireloom wire to the negative battery lug without removing the terminal.
6. Plug in the control unit connector. The system will power-up silently into its disarmed state.

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

SmartPowerUp™ II

SmartPowerUp II ensures that the system powers up in the same state (disarmed, armed or valet) it was last in. When you first power up the system, it will silently enter its disarmed state (note that if all trigger points are closed, the system will AutoArm). Unlike previous versions, you don't need to turn on the ignition switch in order to power-up silently.

Sensor Adjustment

1. Arm the system with the remote control. Wait at least 10 seconds.
2. A light thump with your fist should not trip the system, a firm thump should.
3. Rocking the vehicle should not trip the sensor.
4. To decrease sensitivity, turn its adjustment screw counterclockwise. Turn clockwise to increase sensitivity. Retest.

High/Low Feature for Factory-Delayed Courtesy Lights

Some vehicles have a courtesy light delay or dimming circuit, which interferes with the security system being able to detect the door trigger upon remote arming. Clifford's High/Low feature solves that problem. If you are working on a vehicle with delayed courtesy lights, turn on the High/Low feature (22 flicks) as noted on page 7.

System Check

1. Close all doors and **arm** with button I of the remote control. You'll hear **two chirps**, the parking lights will **flash twice**, the doors will **lock** and the LED will begin to **blink**.
 - a. If you hear 4 chirps instead of two, the hood/trunk trigger line is open.
 - b. If you hear 2 chirps and then 4 chirps, either the door trigger* is open or the sensor is active.
2. **Disarm** with the remote. You will hear one chirp, the parking lights will **flash once**, the doors will **unlock** and, if you installed the optional courtesy light relay, the courtesy light(s) will **turn on**.
3. **Re-arm** the system. *If the system has been set for delayed courtesy lighting (the high/low feature), be sure to wait until the interior lights have turned off before you perform step 4.*
4. Unlock and **open a door**. The siren will sound immediately and the parking lights will flash continuously. **Disarm** with the remote control. Close the door, **re-arm** and test each remaining door.
5. **Arm** the system and test the **hood** and **trunk** triggers.
6. Secure the control unit and position the antenna as noted on page 4.

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 system, then thump the vehicle with your fist to activate the siren. Do not disarm the system, let the siren complete its cycle.
2. Hit the vehicle again. The alarm should be silent.
3. Unlock and open a door. The alarm should sound immediately. You may now disarm.

* The high/low feature (see above) must be off in order for the system to read the door trigger upon remote arming.

The system's non-volatile memory records the identity of the last activated or malfunctioning trigger or sensor, which allows you to instantly track down the source of a customer complaint about falsing. To identify the trigger or sensor stored in the system's non-volatile memory, do the following:

1. With the **ignition off**, flick the valet switch to one side.
2. Press remote control button I to arm and then again to disarm.
3. The **LED will blink 1–3 times**, pause, then repeat. Refer to the **chart**:
4. Return the valet switch to its normal position.
5. If a sensor is indicated, adjust the sensitivity. If a trigger was activated, check the pin switch operation and check the wire for possible shorting.

Number of blinks	Trigger/Sensor Identification
1 blink	Piezo Sensor
2 blinks*	Door trigger*
3 blinks	Trunk or hood trigger

User-selectable features

Arrow II comes from the factory with all of its features pre-programmed as noted in the table below. To change any of the settings, use the procedure noted. To restore the feature to its factory setting, just repeat the procedure:

1. **Select** the feature you wish to program from the table below. Note the number of flicks.
2. Turn the **ignition on**, then immediately **flip the valet switch back and forth** the number of times noted for the feature you wish to program (to help you count, you will hear a single chirp confirmation each time you flick).
 - a. If noted, perform the **"Secondary action."**
3. **Wait** for the **"Program completion confirmation."**
4. Turn the **ignition off**. Repeat steps 1-4 for any other feature you wish to program.

Feature	Factory setting	# of flicks	Secondary action	Program completion confirmation	Result
AutoArming	ON	4	—	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
AutoArm & Lock	OFF	5	—	1 chirp = OFF 2 chirps = ON	Change state from OFF to ON or vice-versa
Long-Term Chirp Silencing	OFF	6	—	1 chirp = ON 2 chirps = OFF	Change state from OFF to ON or vice-versa
False Alarm Control and Test	ON	12	—	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
Add a new remote to channel 1 (arm/disarm)	—	13	Press remote control button I	1 chirps	Button I/channel 1 code of the new remote control has been memorized
Add a new remote to channel 2 (optional accessory)	—	14	Press remote control button II	2 chirps	Button II/channel 2 code of the new remote control has been memorized
Add a new remote to channel 3 (silent arm/disarm)	—	15	Press both remote control buttons I+II	3 chirps	Buttons I+II/channel 3 code of the new remote control has been memorized
Add a new remote to channel 5 (remote valet mode)	—	17	On the optional 4-button/12-channel remote, press LevelShift once, then press button 1 (channel 5)	5 chirps	Channel 5 code of the new remote control has been memorized
Erase all channels	—	19	—	2 chirps	All channels have been erased, program new remote control(s) into the system
Lock pulse duration (1sec/3sec)	1sec.	20	—	1 chirp = 3sec 2 chirps = 1sec	Change state from 1sec to 3sec (for old Audis and MBZs) or vice-versa
High/low setting for vehicles with delayed courtesy lights	OFF	22	—	1 chirp = OFF 2 chirps = ON	Change state from ON to OFF or vice-versa
Door Trigger Polarity	NEG.	23	—	1 chirp = POS 2 chirps = NEG	Change state from NEG to POS or vice-versa

EXAMPLE: Turn off AutoArming

1. Turn the ignition on, then immediately flick the valet switch back and forth 4 times (you'll hear a chirp each time to help you count), then wait for the one chirp to confirm that AutoArming is now off.
2. Turn off the ignition. Repeat to turn AutoArming back on.

* The high/low feature (see above) must be off in order for the system to read the door trigger upon remote arming.

What is a Code Grabber?

Unlike scanners, which are made useless by remote controls with many millions of possible codes (since it would take years for a scanner to transmit each possibility one after another), a code grabber can simply “grab” off the air from, hundreds of feet away, the digital code transmitted by a car alarm remote control. When the vehicle owner leaves, the thief simply plays back the code to disarm the alarm and unlock the car doors. A code-grabber will duplicate any remote control code, even if the remote control has billions or trillions of code possibilities. ***Every other brand of car alarm can be deactivated that easily.*** But not Clifford systems with Anti-CodeGrabbing. Clifford’s proprietary ACG technology uses complex digital signal processing and unbreachable encryption to randomly change the digital code each and every time the remote control is used. The same code will ***never*** be retransmitted and the control unit will ***never*** accept the same code. Thus the code played back by the thief’s code grabber will never deactivate a Clifford ACG system. The Arrow II has Clifford’s Anti-CodeGrabbing technology built into its receiver. The vehicle owner simply needs an optional 3-channel or 12-channel Clifford ACG remote control.

User-Programmable Remote Controls

The Arrow II can respond to as many as 3 Clifford 3-channel (with or without ACG) and/or 12-channel ACG remote controls with a few flicks of the valet switch. Just as easily, the code of a lost or stolen remote control can be deleted. Refer to page 7 for instructions on how to add a new remote control to the system. The codes of a lost or stolen remote control can be erased simply by using the *Erase all channels* feature noted in the Programmable Features section (19 flicks) and reprogramming the remaining remote control(s) into the system.