



Installation Manual

This device complies with part 15 of the FCC rules.

Operation is subject to the following two conditions:

[1] This device may not cause harmful interference; and

[2] This device must accept any interference received,
including interference that may cause undesired operation.

Note: The manufacturer is not responsible for any radio or TV
interference caused by unauthorized modifications to this equipment.
Such modifications could void the user's authority to operate the equipment.

Model: M7

For Technical Assistance (800) 638-3600

**For Fax on Demand Technical Assistance (800) 994-9977
(Must be a Registered Dealer to Use Fax on Demand System)**

Installer Warnings!

This remote starter with alarm system is designed to be installed on fuel injected vehicles with an automatic transmission ONLY.

- Never install this remote starter on a manual transmission vehicle.
- This system must be installed and wired through a safety switch it will not start in any forward or reverse gear.
- Some automatic transmission vehicle (mainly older GM vehicles with a purple starter wire) have a mechanical-type park safety switch instead of electrical safety switch. The mechanical type does not interrupt the starter circuit when the transmission is any gear and does not offer the 100% level of safety required for remote starting purposes. Therefore, our system should never be installed on any vehicle that uses a mechanical type park safety switch.
- Once you install this system, you must verify that the vehicle will not start any forward or reverse gear. Regardless of the type of vehicle.
- Read operation manual for operating and programming routine.
- Do not install any component near the brake, gas pedal or steering linkage.
- Some vehicles have a factory installed transponder immobilizer system that can severely complicate the installation. There is possibility that this system can not be installed on some immobilizer equipped vehicles.
- Most vehicles have an SRS air bag system. Use extreme care and do not probe any wires of the SRS system.
- Disconnect the car battery before connecting work on the vehicle.
- Use conventional crimp lock, bullet on any wiring. Poor wiring, i.e. taped joints will possibly introduce unreliability into the alarm system and may result in false alarms or incorrect operation.
- Install wiring neatly under carpets or behind trim to prevent possible damage to wires.
- For the wires that operate at currents more than 10A, we suggest soldering all connection points. Do not use crimp lock type connectors or wire nuts.

Installation

Windshield Receiver/Antenna

- The combination windshield receiver/antenna mounts on the windshield. (Inside)
- We suggest you mount it on the lower left-hand side of the windshield.

Warning! Do not mount in such a manner that it obstructs the driver's view.

- The receiver/antenna whip can be vertical or horizontal.
- Remove the protective tape backing.
- Carefully align the receiver/antenna and apply to windshield.
- Route the black connecting cable behind the trim and connect to receiver/antenna.
- Connect the other end to the control module.

Dual Zone Shock Sensor

Select a mounting location within the passenger's compartment or trunk. Do not mount in the engine compartment or in any location where it will get wet, greasy or will be subject to heat, direct or indirect. To achieve the best overall level of protection, select a mounting location that is centrally located in the vehicle. It will be necessary for the shock sensor to be somewhat accessible to make the correct sensitivity adjustment. The mounting surface should be as flat as possible for best sensitivity. The sensor can be mounted in any position as long as it is solidly mounted.

Valet Switch

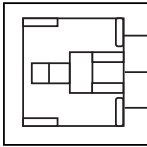
Select a mounting location for the switch that is easily accessible to the driver of the vehicle. The switch does not have to be concealed, however, concealing the switch is always recommended, as this provides an even high level of security to the vehicle. Mount the valet switch in a hidden but accessible location. Route the valet switch wires to the control module.

LED Status Indicator

The LED indicator status should be mounted in a highly visible area. Leave at least 6mm of space behind the mounting location for LED housing. Once a suitable location is chosen, drill a 1/4" hole. Run the LED wires through the hole then press the 2 pin LED housing into the place. route the LED wires to the control module.

Wiring

Harness 1: White 6-Pin Heavy Gauge Connector



The method that the remote starter uses to start the vehicle is a duplicate of the ignition switch function. Below, is an explanation of the 3 basic functions of the ignition switch. Since this installation will require analysis of the ignition switch functions, it is recommended making the three connections below at the ignition switch harness directly.

Violet Wire: (Starter Output)

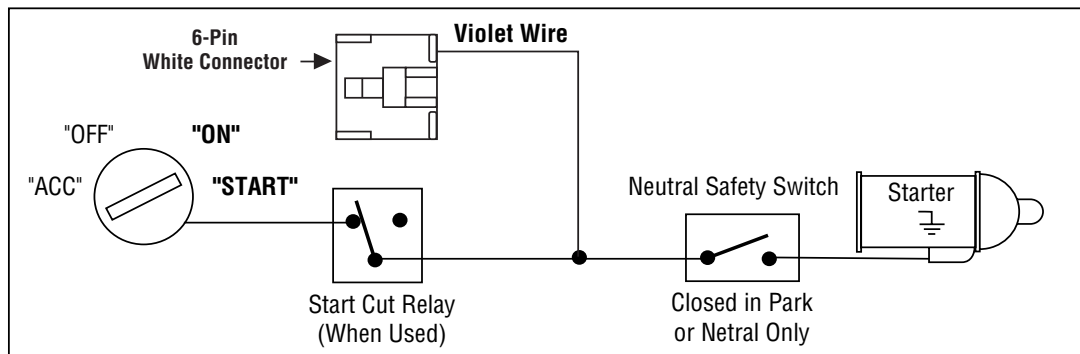
Careful consideration for the connection of this wire must be made to prevent the vehicle from starting while in gear. Understanding the difference between a mechanical and an electrical Neutral Start Switch will allow you to properly identify the circuit and select the correct installation method. In addition you will realize why the connection of the safety wire is required for all mechanical switch configurations.

Failure to make this connection properly can result in person injury and property damage.

In all installations it is the responsibility of the installing technician to test the remote start unit and assure that the vehicle can not start via RF control in any gear selection other than park or neutral.

In both mechanical and electrical neutral start switch configurations, the connection of the "Violet" wire will be made to the low current start solenoid wire of the ignition switch harness. This wire must have +12 volts when the ignition switch is turned to the "start" (crank) position only. This wire have 0 volts in all other ignition switch positions.

Note: If a starter disable relay is installed, the connection of the violet wire must be at the starter side of the relay, not the ignition switch side.



Failure to connect this wire to the ignition switch side of the neutral safety switch can result in personal injury and property damage. (See Neutral Start Safety test for further details)

Red Wires (2): (+12 V Power Input)

Remove the two 20A fuses prior to connecting these wires and do not replace them until the harness has been plugged into the control module. These wires are the source of current for all the circuits the relay harness will energize. They must be connected to a high current source. Since the factory supplies (+) 12V to the key switch that is used to operate the motor, it is recommended that these wires be connected there. Note: If the factory supplies two separate (+) 12V feeds to the ignition switch, connect on "Red" wire of the harness to each feed at the switch.

Yellow Wire: (Ignition 1 Output)

Connect the "Yellow" wire to the ignition 1 wire from the ignition switch. The ignition wire should receive +12 volts when the ignition key is in the "ON" or "RUN" and "START" or "CRANK" position. When the ignition is turned "off", the ignition wire should receive "0" voltage. **The yellow wire must be connected.**

Wiring

Harness 1: White 6-Pin Heavy Gauge Wiring Connector (continued)

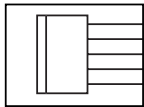
Pink Wire: (Ignition 2 Output)

Some vehicles have (2) ignition wires that must be powered. Connect the “Pink” wire to the ignition 2 wire from the ignition switch. The ignition wire should receive “+12 volts” when the ignition key is in the “ON” or “RUN” and “START” or “CRANK” position. When the ignition is turned “off”, the ignition wire should receive “0” voltage. If the “Pink” wire is not used, insulate the end of the wire.

Brown Wire: (Accessory Output, Heater/AC Output)

Connect the “Brown” wire to the accessory wire that powers the climate control system. An accessory wire will show +12 volts when the ignition switch is turned to the “ACCESSORY” or “ON” and “RUN” positions, it will show 0 Volts when the key is turned to the “OFF” and “START” or “CRANK” position. There will often be more than one accessory wire in the ignition harness. The correct accessory wire will power the vehicle’s climate control system. Some vehicles may have separate wires for the blower motor and the air conditioning compressor. In such cases, it will be necessary to add a relay to power the second accessory wire.

Harness 2: White 5-Pin Connector



Red Wire with White Stripe: (Parking Light Relay Input)

The “Red/White” wire has already been assembled to work with a +12 volt switched parking light system (most vehicles). For vehicles with ground switched parking light activation cut this wire and connect it to ground. (See wiring diagram page 28)

White Wire: (Parking Light Relay Output, +12 V 10A Output)

Connect the “White” wire to the parking light wire coming from the headlight switch. Do not connect the “White” wire to the dashboard lighting dimmer switch. (Damage to the dimmer will result). The limitation of the “White” wire is 10 Amp max. Do not exceed this limit or damage to the alarm and parking relay will result.

Black Wire: (System Ground)

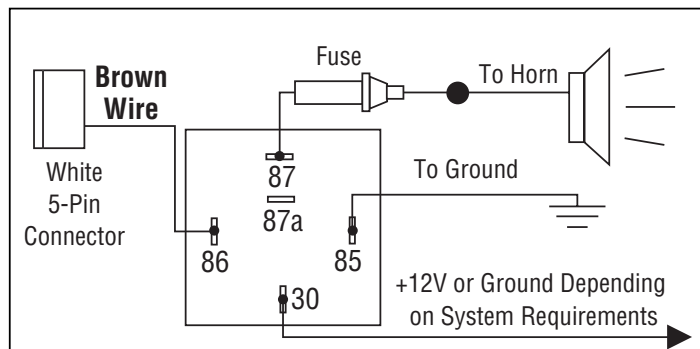
This is main ground connection of the alarm module. Make this connection to a solid section of the vehicle frame. Do not connect this wire to any existing ground wires supplied by the factory wire loom, make the connection to the vehicle’s frame directly.

Brown Wire: (Programmable Siren Drive Output (Factory Default Setting)

This is the positive (+) output connection for the siren. Current capacity is 2 Amps. Make connection to the (+) red wire from the siren. Make the (-) black wire coming from the siren to a good chassis ground.

(+) Low Current Horn Output (Set Alarm Feature # - 1 to Horn Output)(Optional Setting)

This wire is provided to use the existing vehicle’s horn as the alarm system’s optional warning audible device. It’s a transistorized low current output, and should only be connected to the low current positive (+) output from the vehicle’s horn switch.

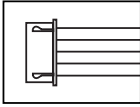


Red Wire: (System Power, +12V Constant)

The “Red” wire supplies power to the system. Connect this wire to a constant +12 volt source.

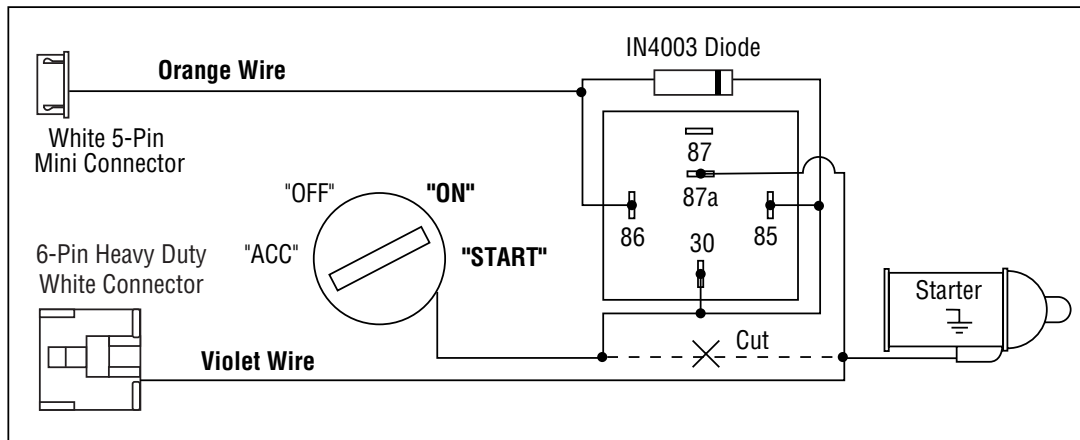
Wiring

Harness 3: White 5-Pin Mini Connector



Orange Wire : ((-) 200mA Grounded Output when Armed)

This wire will become grounded when the alarm is armed. The current capacity of this wire is 200mA. This output can control a starter disable relay, when the system is triggered. The vehicle is prevented from any unauthorized starting.

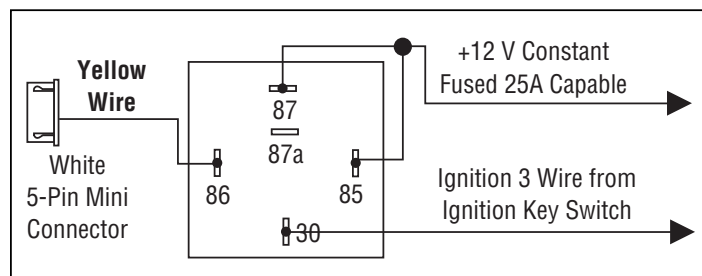


Yellow Wire : ((-) 200mA Ignition 3 Output)

this wire provides a 200mA (-) ground output that becomes active 4 seconds before the remote start unit initialize, and remains grounded while the engine is running.

Ignition 3 Output:

Some newer vehicles use a third ignition wire which is required to start and keep the vehicle's engine running. If this is the case, wire a relay (not supplied) as shown. Do not connect any vehicle circuits together, they are isolated for a reason.



Transponder Interfacing Using ALA984 Relay:

If the vehicle has transponder system installed, you will need to by-pass the system while the vehicle is operating under the control of the Remote Start Unit. To do this:

1. You will need a transponder key that's already programmed to the vehicle..
2. Remove the trim around the ignition switch.
3. Wrap a thin (30 awg) wire tightly around ignition switch 6 to 8 times and secure it.
4. About 6" down line make another loop of approximately 2" diameter.
5. Place the key inside this loop and secure it to the loop.
6. Connect on end of the 30 awg wire to pin (87) of the relay module.
7. Connect the other end of the loop wire to Pin (30) of relay module.
8. Connect (86) to ignition, connect (85) to the yellow wire of 5-pin mini white connector.

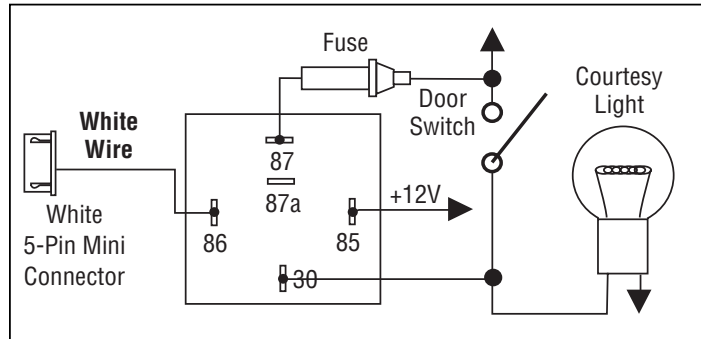
Wiring

Harness 3: White 5-Pin Mini Connector (continued)

White Wire: (-) 200mA Programmable Output

Dome Light Control Output (Factory Default Setting):

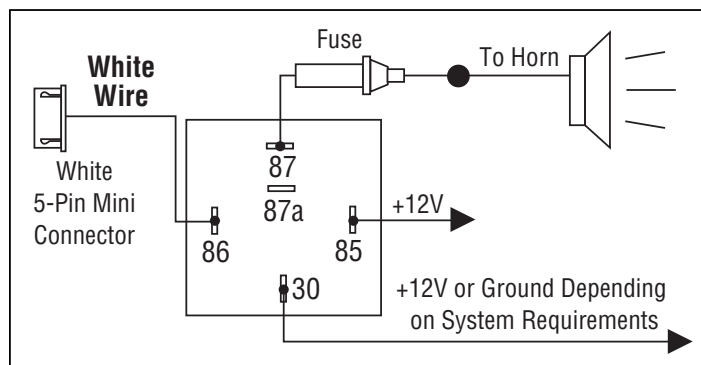
This wire becomes grounded when the dome light controls circuit of the alarm is active. The current capacity of this wire is 200mA. This wire can control the operation of the interior lights. An optional relay can be used as shown.



- a). Upon disarming, the interior lights will remain on for 30 seconds.
- b). If the vehicle is violated, the interior light will flash for the same duration as the siren.

Horn Output (See Alarm Feature 3-2 Programming):

This wire can be used to activate the existing vehicle's horn as the alarm system's optional warning audible device. It's a transistorized low current output, and should only be connected to the low current ground output from the vehicle's horn switch. When the system is triggered, the horn will sound. (Depending on the vehicle's requirement an additional relay may be required as shown)



Factory Security Rearm Signal Output (See Alarm Feature 3-2 Programming):

This wire can be used to rearm a factory installed security system. This wire will supply a pulse whenever the remote start times out or is shut down using the transmitter and remote door locking.

Pink Wire: (-) 200mA Programmable Output (See alarm Feature 3-3 Programming)

Unlock the Driver's Door First Output (Factory Default Setting)

The 2 step unlock feature will work for the most fully electronic door lock circuit. The vehicle must have an electronic door lock switch (not the lock knob or key switch), which locks and unlocks all of the vehicle's doors. When wired for this feature, pressing the disarm (or unlock) button one time will disarm the alarm and unlock the driver's door only. Press disarm (or unlock) button two times within 3 seconds, the alarm will disarm and all doors will unlock.

Factory Security Disarm Signal Output

This wire can be used to disarm a factory installed security system. This wire sends a negative (-) 1 second pulse upon a remote start or remote door unlocking signal. Some factory systems must be disarmed to allow remote starting. In most cases, this wire may be connected directly to the factory alarm disarm wire. The correct wire will show negative ground when the key is used to unlock the doors or trunk. This wire is

Wiring

usually found in the kick panel area in the wiring harness coming into the car body from the door.

Harness 3: White 5-Pin Mini Connector (continued)

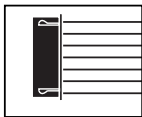
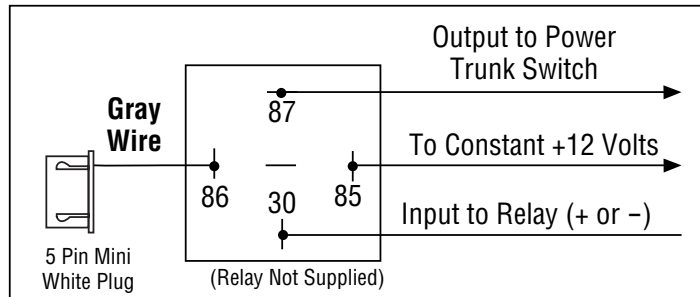
Pink Wire: (continued)

Start Status (Shock Sensor Bypass Control) Output: (See alarm Feature 3-3 Programming)

this wire is designed to by-pass shock sensor module. This wire will supply an output at all times the remote start is operating plus an additional 3 seconds after the remote start unit turn off.

Gray Wire: Channel 2 (Trunk Release) Output

This will become a 1 second pulse ground by activating channel 2 on transmitter for two seconds, the current capacity of this wire is 200mA. This feature allows you to remote control trunk release or other electric device.



Harness 4: 7-Pin Mini Black Connector

Blue Wire: (-) Ground Instant Trigger Input

This wire is the ground trigger input wire for hood/trunk pin switches.

Green Wire: (-) Negative Door Switch Sensing Input

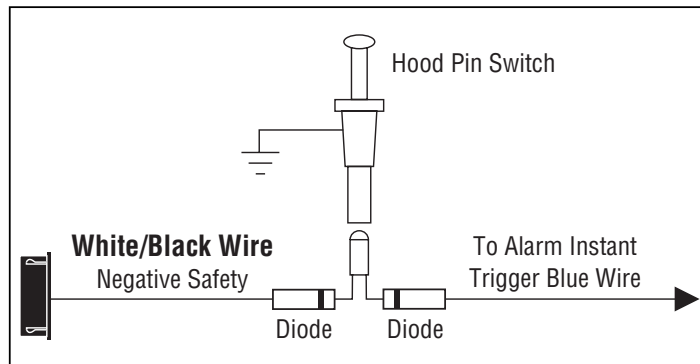
This wire is the ground trigger input wire for negative door pin switch. This wire is connection for “grounding type” factory door pins locate the “common wire” that connects the door pin switches. Make the connection of the Green Wire here.

Violet Wire: Positive Door Switch Sensing Input

This wire is the positive trigger input wire for positive door pin switch. This wire is connection for “positive” type factory door pins (typical to Ford Motor Co.). Locate the “common wire” for all door pins and make the connection of the Violet Wire here.

White/Black Wire: Negative Safety Shut Down Input.

The White/Black wire provides an instant shutdown for the remote start, whenever it is grounded. Connect the wire to the hood pin switch previously installed. this wire must be routed through a grommet in the firewall and connected to the hood pin switch. If the pin switch is to be used with an alarm system, connect this wire with diode. Diodes

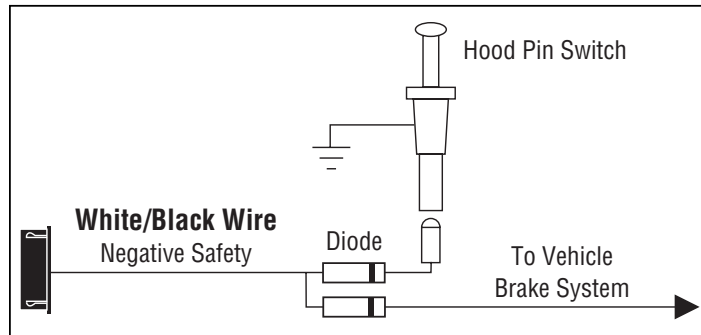


Wiring

are required when the hood pin is used as a triggering device. Wire as shown.

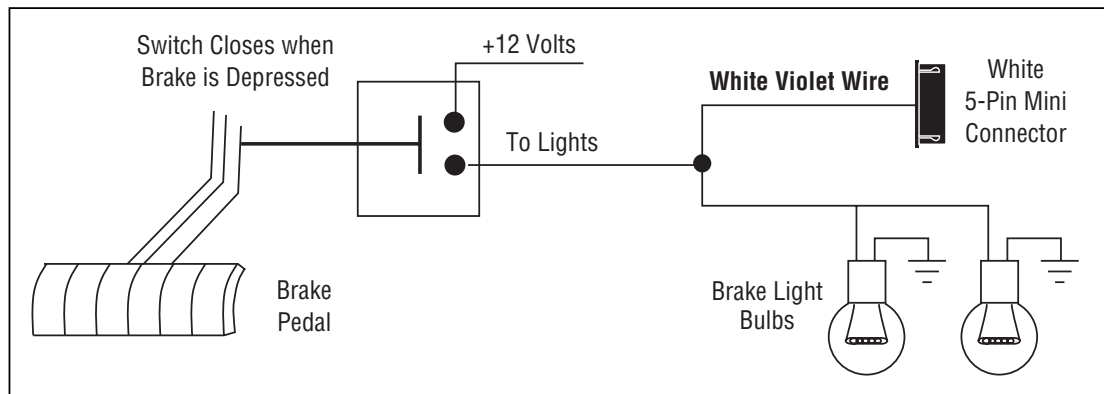
Harness 4: 7-Pin Mini Black Connector (continued)

Important! This connection is a safety wire and must be connected as shown and tested as specified. Failure to do so may result in personal injury or property damage. See detail or wiring in the following diagram. This wire may also be used if the vehicle brake light circuit switches ground to the brake lights. An isolation diode must be used for ground switched brake light circuits and must be connected to the output of the brake switch.



White/Violet Wire: Positive Safety Shut Down Input

This wire provides an instant shutdown for the remote start, whenever it receives +12 volts. If the brake lights switch in the vehicle switches +12 volts to the brake light circuit, connect this wire to the output side of the brake switch. This will allow the remote start to shut down if an attempt is made to operate the vehicle without the key while running under the control of the remote start. In most vehicles, in order to shift gear, the brake pedal must be depressed. The brake input will in turn cause the remote start unit to shut off. A relay may be required if the



brake light switch is (-) type.

Black/White Wire: (-) Remote Start Enable Toggle Switch Input, (-) Neutral Safety Switch Input

When the Black/white wire is grounded, the remote start unit is operable. When this wire is open from ground, the remote start is disabled.

1. An optional "remote start toggle switch" can be added on to temporarily disable the Remote Start Device, it can prevent the vehicle from being remote started accidentally. This feature is useful if the vehicle is being serviced or stored in an enclosed area. To disable the remote start, move the optional remote start enable toggle switch to the OFF position. To enable the remote start, move the optional remote start enable toggle switch to the ON position.
2. If needed, this wire can connect to the Park/Neutral switch in the vehicle. (See testing in your installation guide)

Important Note: Directly connect the Black/White wire to the "Ground" when this wire

Wiring

is not used for its intended safety purpose.

Harness 4: 7-Pin Mini Black Connector (continued)

White/Red Wire: (-) Tachometer Signal Connection

This input provides the remote start system with information about the engine's revolutions per minute (RPM). It can be connected to the negative side of the coil in vehicle with conventional coils. In multi-coil and high energy ignition system locating a proper signal may be more difficult. Once connected, you must program the Start Feature 2-2 to "Tachometer checking type and teach the system the RPM signal. (See Start Feature 2-3/4 programming).

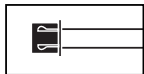
To test for a tachometer wire, a multi-meter capable of test AC voltage must be used. The tachometer wire will show between 1V and 6V AC at idle, and will increase as engine RPM increases. In multi-coil ignition system, the system can have individual coil wires. Individual coil wires in a multi-coil ignition system will register lower amounts of AC voltage. Common locations for a tachometer wire are the ignition coil itself, the back of the gauges, engine computers, and automatic transmission computers.

Important! Do not test tachometer wires with a test light or logic probe. Electronic components of the ignition system will be damaged.

How to find a tachometer wire with your multi-meter:

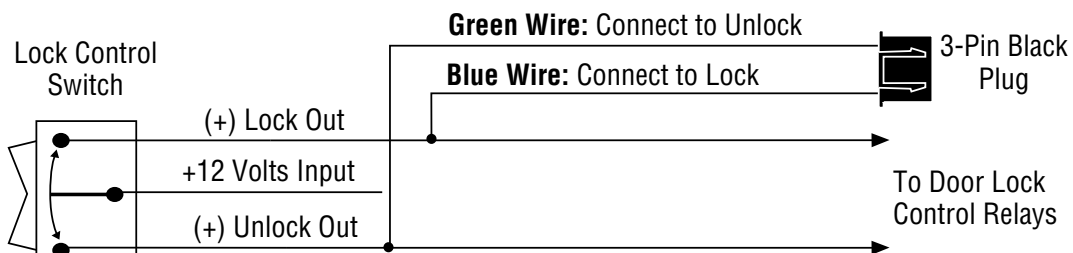
1. Set the ACV or AC voltage * (12 or 20V is fine).
2. Attach the (-) probe of the meter to chassis ground.
3. Start and run the vehicle.
4. Probe the wire you suspect of being the tachometer wire with the red probe of the meter.
5. If this is the correct wire the meter will read between 1V and 6V.

Note: No connection of this wire is required, if you use the voltage or timer checking type mode.

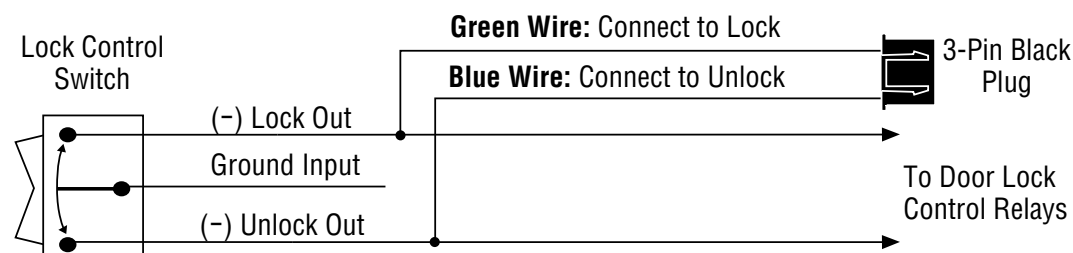


Harness 5: 3-Pin Mini Black Connector

3 Wire Positive Trigger Door Lock System

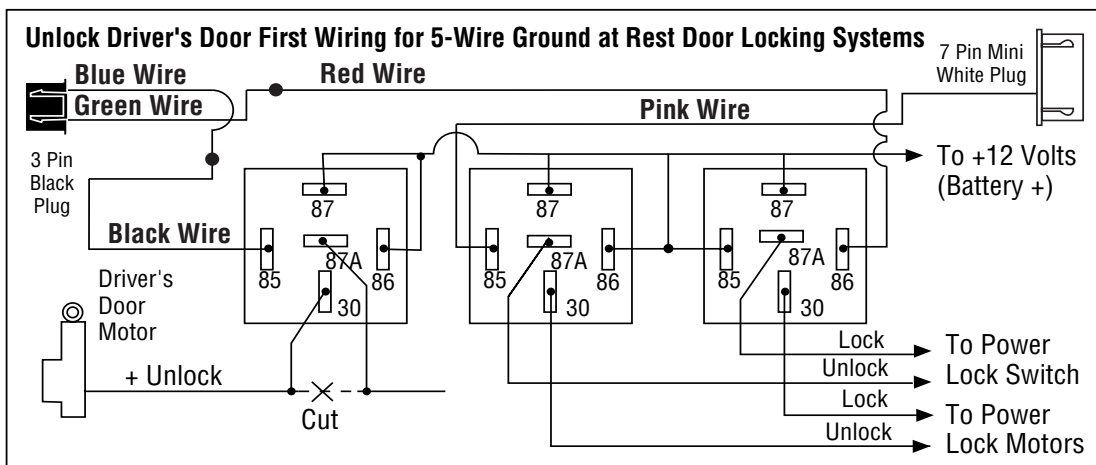
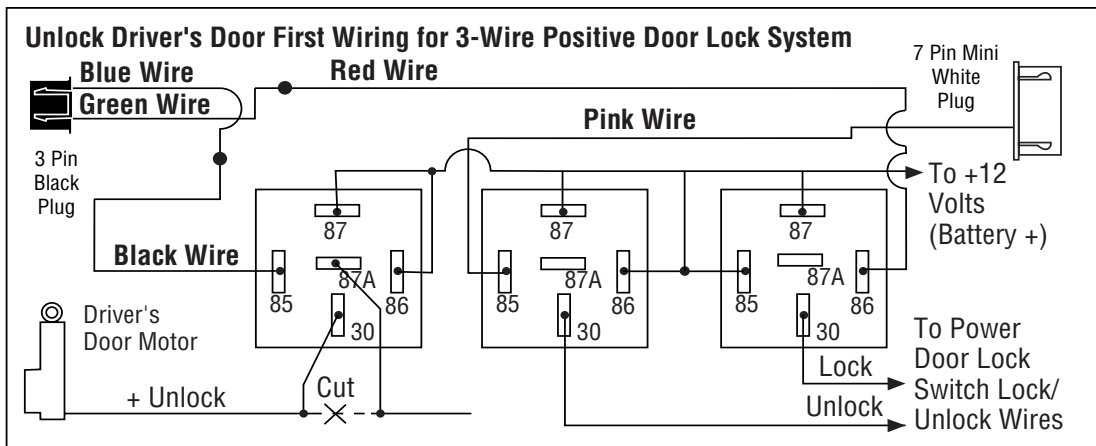
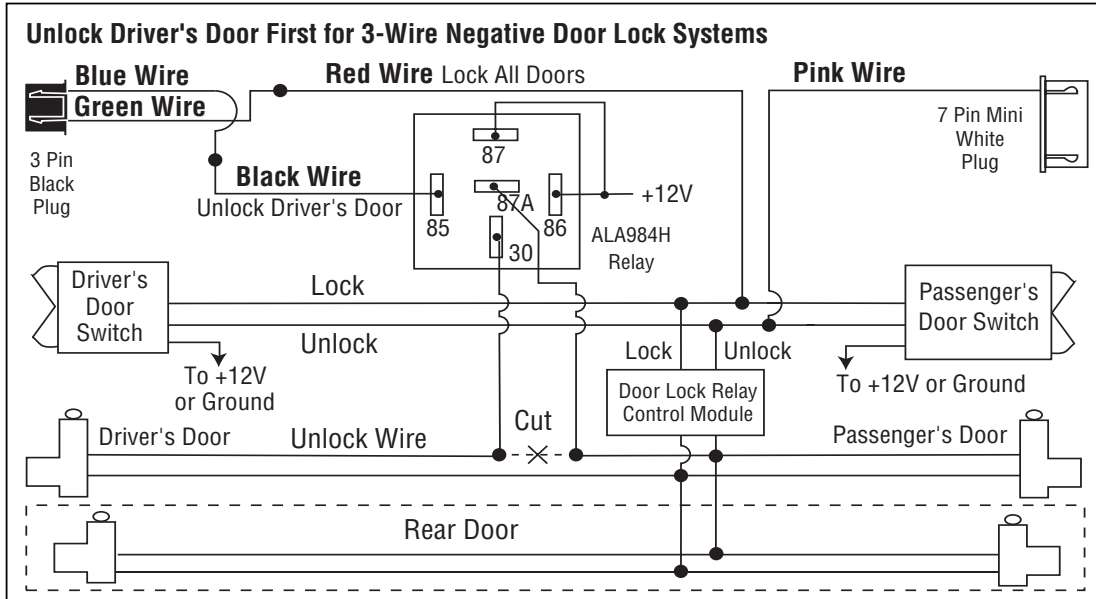


3 Wire Negative Trigger Door Lock System



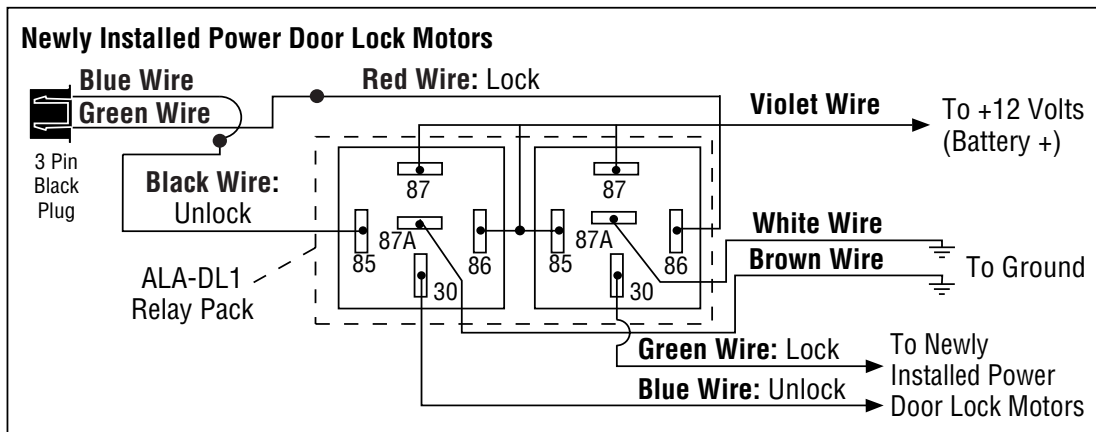
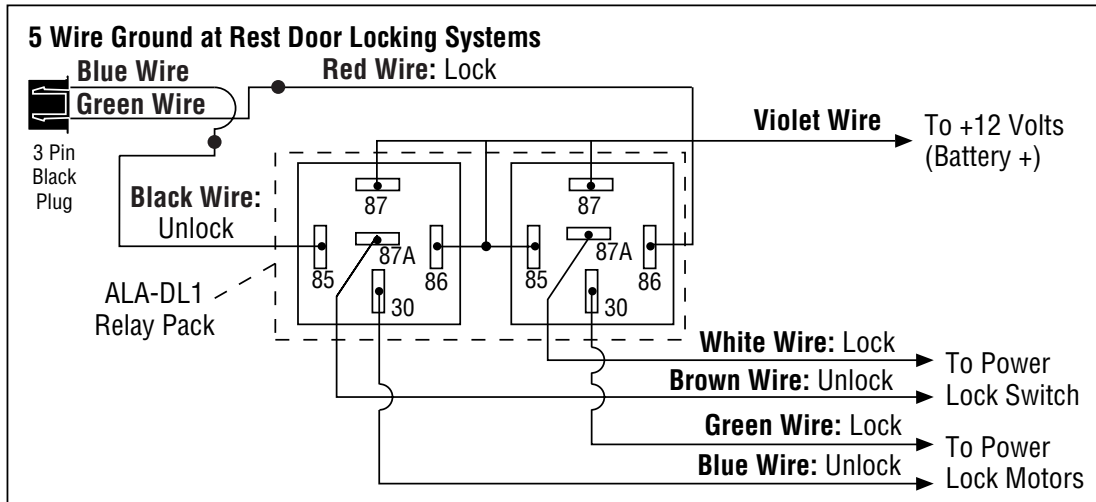
Wiring

Harness 5: 3-Pin Mini Black Connector (continued)



Wiring

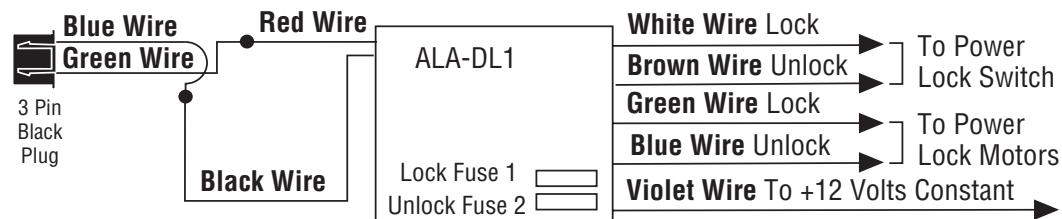
Harness 5: 3-Pin Mini Black Connector (continued)



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. 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.

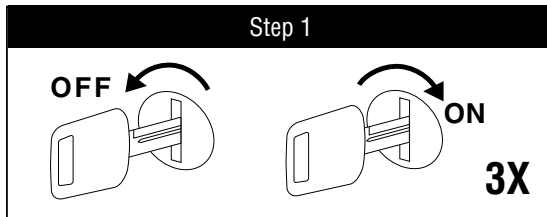


Connect to 3-pin plug on control module for ignition locking.

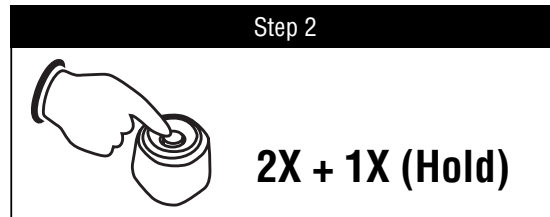
Programming the Transmitter

- A. The transmitter included with this system have been pre-programmed and should not need re-programming.
- B. This system will accept codes from four (4) transmitters. If more than four (4) transmitters are programmed, the system will only operate from the most recent 4 transmitters.
- C. Use the enclosed information to program additional transmitters

Enter the Programming Mode



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the ON position the third time.



Before 15 seconds has passed, push and release the valet switch two (2) times then push the valet switch a third time and hold it in on until a long chirp or beep is heard then release it. You are now in transmitter programming mode.

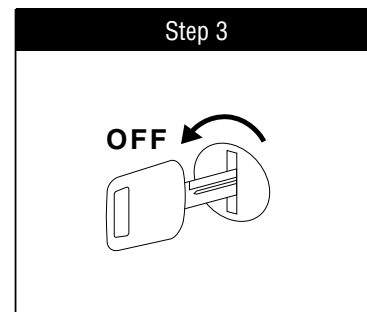
Programming the Transmitter



Press the "Lock" button on the first transmitter until you hear a confirmation chirp/beep. The transmitter is now coded into the system.



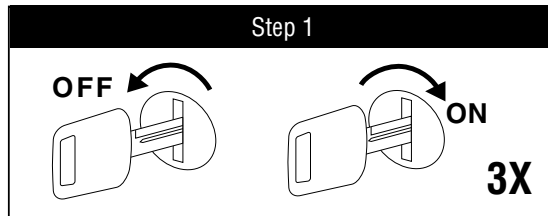
Repeat Step 1 for each additional transmitter



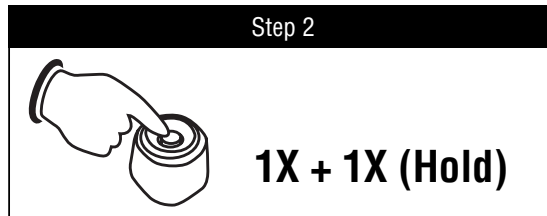
When finished, either turn off the ignition key or wait for 15 seconds to get out of transmitter programming mode. You will hear three (3) long chirp/beeps to indicate you are out of the transmitter programming mode.

Alarm Feature Programming (Part 1)

Examine the 3 different feature charts enclosed and decide which feature will get changed. Circling the feature to be changed will make the programming process much easier to perform.



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the OFF position the third time.



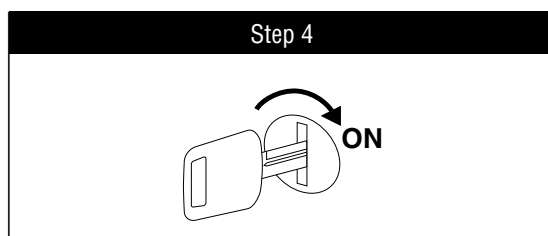
Before 15 seconds has passed, push and release the valet switch one (1) time then push the valet switch a second time and hold it in on until 1 short and 1 long chirp or beep is heard then release it. You are now in transmitter part 1 programming mode.

Step 3

Remote Feature Programming

Use the transmitter buttons as illustrated to adjust the features required. Keep re-pressing the transmitter button that relates to the feature you want to adjust until the correct amount of chirp/beeps is heard. Move on to the next feature.

Button	One Chirp LED One Pulse (Factory Default Setting)	Two Chirps LED Two Pulse	Three Chirps LED Three Pulse	Four Chirps LED Four Pulse
	All Chirps	Siren Chirp On Only	Horn Chirp On Only	All Chirps Off
	Active Arming	Passive Arming without Passive Door Locking	Passive Arming Passive Door Locking	
	Automatic Rearm On	Automatic Rearm Off		
	With Door Ajar Error Chirp	Bypass Door Ajar Error Chirp		



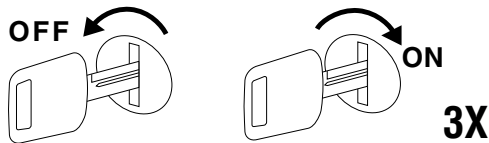
Turn On the Ignition

3 long chirps & 3 flashes of the parking lights will confirm exit of the programming mode.

Note: Waiting 15 seconds after the last command will also cause the system to automatically exit the programming mode.

Alarm Feature Programming (Part 2)

Step 1



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the OFF position the third time.

Step 2



Before 15 seconds has passed, push and release the valet switch three (3) times then push the valet switch a fourth time and hold it down until two (2) short chirps/beeps + one (1) long chirp beep is heard then release it. You are now in part 2 programming mode.

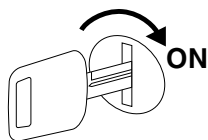
Step 3

Remote Feature Programming

Use the transmitter buttons as illustrated to adjust the features required. Keep re-pressing the transmitter button that relates to the feature you want to adjust until the correct amount of chirp/beeps is heard. Move on to the next feature.

Button	One Chirp LED One Pulse (Factory Default Setting)	Two Chirps LED Two Pulse	Three Chirps LED Three Pulse	Four Chirps LED Four Pulse
	0.8 Seconds Door Lock Pulse	3.5 Second Door Lock Pulse	Double Pulse Lock	
	Ignition Controlled Door Locks and Unlocks	Ignition Controlled Door Locks Only	Ignition Controlled Door Unlocks Only	Without Ignition Controlled Door Unlocks Only
	Door Locks Before Start	Without this Feature		
	Pathway Illumination Feature "Off"	Parking Light "On" for 30 Seconds Upon an Unlock Signal	Parking Light "On" for 30 Seconds Upon and Unlock Signal and 10 Second Upon a Lock Signal	

Step 4



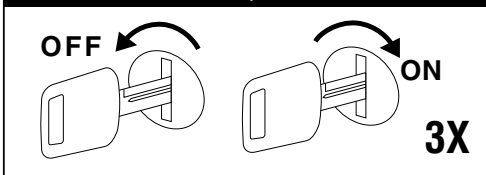
Turn On the Ignition

3 long chirps & 3 flashes of the parking lights will confirm exit of the programming mode.

Note: Waiting 15 seconds after the last command will also cause the system to automatically exit the programming mode.

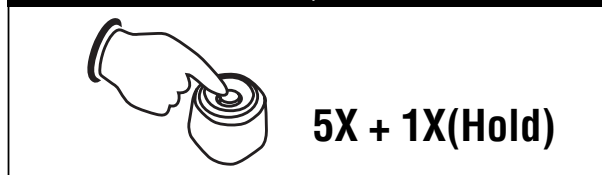
Alarm Feature Programming (Part 3)

Step 1



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the OFF position the third time.

Step 2



Before 15 seconds has passed, push and release the valet switch five (5) times then push the valet switch a sixth time and hold it down until three (3) short chirp/beeps + one (1) long chirp/beep is heard then release it. You are now in part 3 programming mode.

Step 3

Remote Feature Programming

Use the transmitter buttons as illustrated to adjust the features required. Keep re-pressing the transmitter button that relates to the feature you want to adjust until the correct amount of chirp/beeps is heard. Move on to the next feature.

Button	One Chirp LED One Pulse (Factory Default Setting)	Two Chirps LED Two Pulse	Three Chirps LED Three Pulse
	Harness 2: Brown Wire Siren Output	Harness 2: Brown Wire Horn Output	
	Harness 3: White Wire Dome Light Output	Harness 3: White Wire Horn Output	Harness 3: White Wire Factory Security Re-Arm Signal Output
	Harness 3: Pink Wire 2-Step Door Unlock Output	Harness 3: Pink Wire Factory Security Disarm Signal Output	Harness 3: Pink Wire Start Status (Shock Sensor By Pass Control) Output
	Without Shock Sensor Test Mode off	With Shock Sensor Test Mode On	

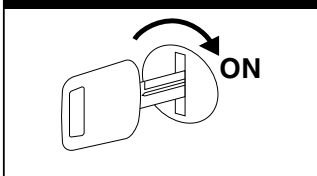
Follow Steps 1&2 above to get into remote feature programming. Press the ★ button to get 2 Chirps/Beep confirmation. Adjust the sensor with a small flat blade screwdriver to gently turn the sensitivity screw in the “+” or “-” direction to achieve the desired sensitivity of both zones.

Note 1: Light impacts to the vehicle will activate the “warn-away” stage of the shock sensor. Each time the warn-away stage is activated, you will hear a short chirp/beep.

Note 2: A more forceful impact will activate the “alarm trigger” stage of the shock sensor. Each time the alarm trigger stage is activated, you will hear a long chirp/beep.

Note 3: The shock sensor can be adjusted at any time by entering “Alarm Feature Programming” Part 3 and following the above directions.

Step 4



Turn On the Ignition

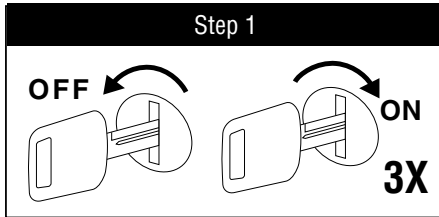
3 long chirps & 3 flashes of the parking lights will confirm exit of the programming mode.

Note: Waiting 15 seconds after the last command will also cause the system to automatically exit the programming mode.

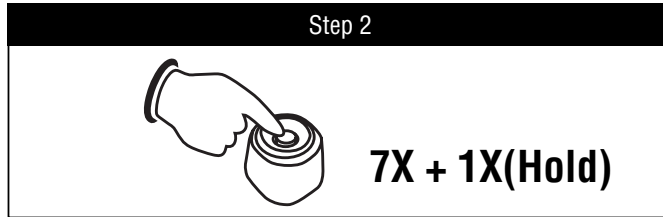
Remote Start Operation and Feature Programming

Examine the two (2) feature charts enclosed and decide which features will get changed. Circling the feature to be changed will make the programming process much easier to perform .

Stage 1: Remote Start Feature Programming



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the Off position the third time.



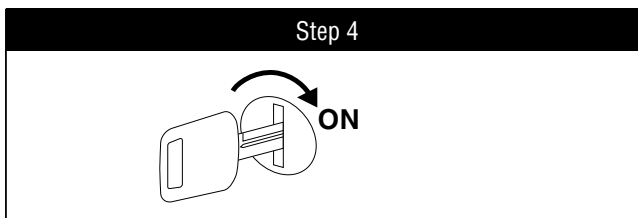
Before 15 seconds has passed, push and release the valet switch seven (7) times then push the valet switch a eighth time and hold it down until four (4) short chirps/beeps + one (1) long chirp beep is heard then release it. You are now in stage 1 remote start feature programming mode.

Step 3

Remote Start Feature Programming

Use the transmitter buttons as illustrated to adjust the features required. Keep re-pressing the transmitter button that relates to the feature you want to adjust until the correct amount of chirp/beeps is heard. Move on to the next feature.

Button	One Chirp LED One Pulse (Factory Default Setting)	Two Chirps LED Two Pulse	Three Chirps LED Three Pulse	Four Chirps LED Four Pulse
	Gasoline Engine	Diesel Engine and 10 Second Warm Up	Diesel Engine and 15 Second Warm Up	Diesel Engine and 20 Second Warm Up
	10 Minute Run Time	20 Minute Run Time	30 Minute Run Time	5 Minute Run Time
	Factory Alarm Disarm with Channel 2 "On"	Without this Feature		
	Constant Parking Light Output	Flashing Parking Light Output		



Turn On the Ignition

3 long chirps & 3 flashes of the parking lights will confirm exit of the programming mode.

Note: Waiting 15 seconds after the last command will also cause the system to automatically exit the programming mode.

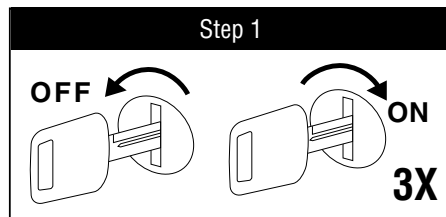
Remote Start Operation and Feature Programming

Stage 2: Remote Start Operation Programming

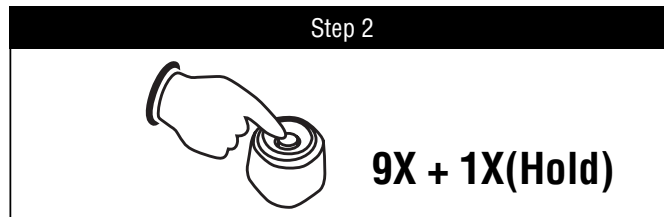
In this mode you will program the type of engine starting detection you want to use in your installation. There are 3 types available:

- 1. Tachometer (RPM) Detection:** (Most reliable and recommended) This type of detection requires a hard wire connection to the vehicles ignition coil.
- 2. Voltage Detection:** This method detects the drop and rise in the battery voltage when the vehicle is started by remote. This type of detection requires a solid main power input connection but it does not require any additional hard wire connections.
- 3. Elapsed Timer:** This method is the easiest for installation but is not always the best method for year round usage (Summer and winter). To operate this method, you will program a specific time window for the remote start unit to crank the engine. Battery strength, environment and the aging process of the vehicle may require the timer to re-set from time to time or season to season.

Entering Stage 2 Remote start Operation Programming



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the OFF position the third time.



Before 15 seconds has passed, push and release the valet switch nine (9) times then push the valet switch a tenth time and hold it down until five (5) short chirps/beeps + one (1) long chirp beep is heard then release it. You are now in stage 2 remote start feature programming mode.

Step 3

Remote Start Feature Programming

Use the transmitter buttons as illustrated to adjust the features required. Keep re-pressing the transmitter button that relates to the feature you want to adjust until the correct amount of chirp/beeps is heard. Move on to the next feature.

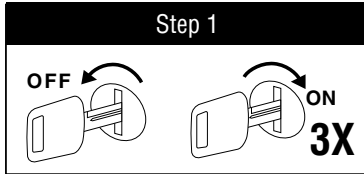
Button	One Chirp LED One Pulse (Factory Default Setting)	Two Chirps LED Two Pulse	Three Chirps LED Three Pulse	Four Chirps LED Four Pulse
	Exit the programming mode. (3 long chirps and 3 parking light flashes to confirm this exit.			
+	Tachometer Checking Type	Voltage Checking Type	Timer Checking Type	
	RPM Learning Start Timer: 0.6 second (1 chirp)	0.8 second (2 chirps) 1.0 second (3 chirps) 1.2 second (4 chirps)	1.4 second (5 chirps) 1.6 second (6 chirps) 1.8 second (7 chirps)	2.0 second (8 chirps) 3.0 second (9 chirps) 4.0 second (10 chirps)
	Hi Check Level	Low Check Level		
	Start/Stop the System for testing and Adjustment			

Remote Start Operation and Feature Programming

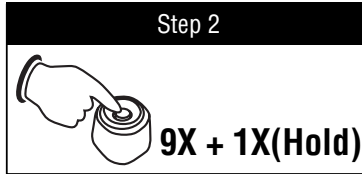
Tachometer Detection Programming

If you have selected tachometer detection, you are required to program 2 additional features as enclosed.

RPM Learning and Crank Detection Level Programming:



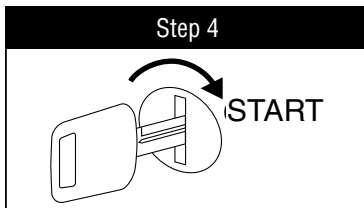
Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the Off position the third time.



Before 15 seconds has passed, push and release the valet switch nine (9) times then push the valet switch a tenth time and hold it down until five (5) short chirps/beeps + one (1) long chirp beep is heard then release it.



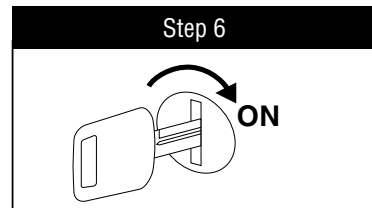
Press and release the (unlock) button once. The LED will flash once and you will hear 1 chirp/beep to indicate that you are in RPM learning mode.



Start the vehicle's engine with the ignition key (while the engine is running the parking lights and the LED should be flashing. If they are not you need to re-check your tachometer wire connection).



Press and hold the valet switch. When the RPM level is learned, you will hear a long chirp/beep and the LED will be on steady for 2 seconds.



Turn off the ignition to stop the engine. Remember, you are still in programming mode.



Press the (*) button on the transmitter to start the vehicle. If everything is correct, the engine will crank and fire without over-running or under-running the starter. If all things seem correct, press the (*) button to stop the engine running. If a cranking problem is noticed, move to step 9 to adjust the crank detection feature otherwise follow step 8 and get out of the programming mode.



Press the (Lock) button on the transmitter to get out of the programming mode. You will hear three (3) long chirps and get 3 parking light flashes for confirmation.

Remote Start Operation and Feature Programming

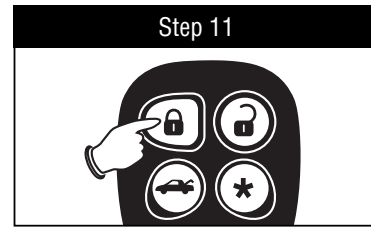
Tachometer Detection Programming (continued)



If the engine cranks too long you may need to adjust the crank detection level. Press the (car) button on the transmitter to change the crank detection level from hi to low. You will hear 2 chirp/beeps to indicate the feature has been changed to the low selection.



Press the (*) button on the transmitter to start the engine by remote. Setting the crank detection to low should have solved the over-cranking problem.



Press the (Lock) button on the transmitter to get out of the programming mode. You will hear three (3) long chirps and get 3 parking light flashes for confirmation.

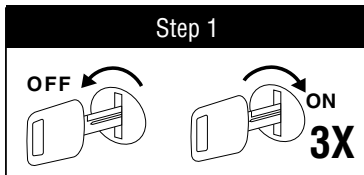
Note: If the crank detection level is set to hi and the engine still will not start consistently due to a short crank time, it is suggested that you re-program the unit to use another type of detection (either voltage or timer) to get the engine to start consistently.

Remote Start Operation and Feature Programming

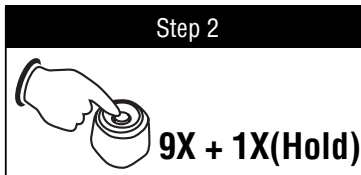
Voltage Detection Additional Programming

If you have selected Voltage Detection, you may be required to program 1 additional feature as enclosed.

Crank Detection Level Programming:



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the Off position the third time.



Before 15 seconds has passed, push and release the valet switch nine (9) times then push the valet switch a tenth time and hold it down until five (5) short chirps/beeps + one (1) long chirp beep is heard then release it.



Press the (*) button on the transmitter to start the vehicle. If everything is correct, the engine will crank and fire without over-running or under-running the starter.

Note: Let engine run for 10 seconds or more to ensure proper operation.



If all things seem correct, press the (*) button to stop the engine running. If a cranking problem is noticed, move to step 6 to adjust the crank detection feature otherwise follow step 5 and get out of the programming mode.



Press the (Lock) button on the transmitter to get out of the programming mode. You will hear three (3) long chirps and get 3 parking light flashes for confirmation.



If the engine shuts down after 10 seconds you may need to adjust the crank detection level. Press the (car) button on the transmitter to change the crank detection level from hi to low. You will hear 2 chirp/beeps to indicate the feature has been changed to the low selection.



Press the (*) button on the transmitter to start the engine by remote. Setting the crank detection to low should have solved the over-cranking problem.

Note: Let engine run for 10 seconds or more to ensure proper operation.



If the engine still cranks too long or not long enough, you may need to adjust the start timer. Press the (unlock) button on the transmitter to change the start timer length as shown in the chart (page 18). Follow the chart and listen for the different chirp count to select the time you want to use.

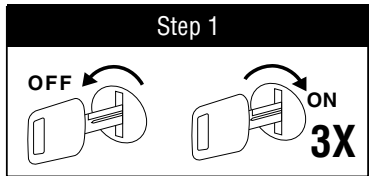


Press the (Lock) button on the transmitter to get out of the programming mode. You will hear three (3) long chirps and get 3 parking light flashes for confirmation.

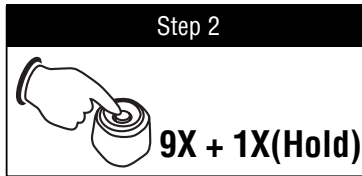
Remote Start Operation and Feature Programming

Elapsed Timer Additional Programming

If you have selected Elapsed Timer, you may be required to program 1 additional feature as enclosed.



Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the Off position the third time.



Before 15 seconds has passed, push and release the valet switch nine (9) times then push the valet switch a tenth time and hold it down until five (5) short chirps/beeps + one (1) long chirp beep is heard then release it.



Press the (*) button on the transmitter to start the vehicle. If everything is correct, the engine will crank and fire without over-running or under-running the starter.

Note: Let engine run for 10 seconds or more to ensure proper operation.



If all things seem correct, press the (*) button to stop the engine running. If a cranking problem is noticed, move to step 6 to adjust the start timer feature otherwise follow step 5 and get out of the programming mode.



Press the (Lock) button on the transmitter to get out of the programming mode. You will hear three (3) long chirps and get 3 parking light flashes for confirmation.



If the engine cranks too long or not long enough, you may need to adjust the start timer. Press the (unlock) button on the transmitter to change the start timer length as shown in the chart (page 18). Follow the chart and listen for the different chirp count to select the time you want to use.

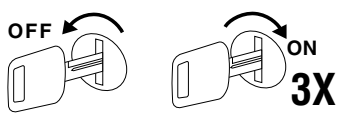
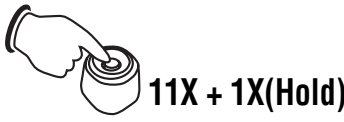

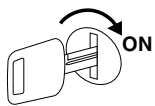


After adjusting the stat timer press the (*) button on the transmitter to start the engine by remote. Listen for an over-run or under-run indication. Re-adjust as needed.



Press the (Lock) button on the transmitter to get out of the programming mode. You will hear three (3) long chirps and get 3 parking light flashes for confirmation.

Returning to Factory Default Settings

Step 1	Step 2	Step 3
 <p>Turn the ignition switch from the OFF position to the ON position 3 times leaving it in the Off position the third time.</p>	 <p>Before 15 seconds has passed, push and release the valet switch eleven (11) times then push the valet switch a twelfth time and hold it down until six (6) short chirps/beeps then release it. You are now in the "Return to Factory Default Setting" programming mode.</p>	 <p>Press the (Lock) and (Car) button on the transmitter together for 6 seconds, there will be a confirmation six chirp with 3 long chirp and 3 parking light flashes to confirm the system "Alarm Features 1,2 and 3 Programming" all returns to factory default setting.</p>
<h3>Step 4</h3> <div style="display: flex; align-items: center;">  <div> <p>Turn On the Ignition</p> <p>3 long chirps & 3 flashes of the parking lights will confirm exit of the programming mode.</p> <p>Note: Waiting 15 seconds after the last command will also cause the system to automatically exit the programming mode.</p> </div> </div>		

Shutdown Diagnostics

The unit has the ability to report the cause of the last shutdown of the remote start system.

Enter:

1. Turn the Ignition switch to "On" position.
2. Press the (Car) button on the transmitter
3. The LED will now report the last system shutdown by flashing for 3 cycles in the following grouped patterns:

LED Flashes	Shutdown Mode	
1	(-) Safety Shutdown Input (Hood) (+) Safety Shutdown Input (Brake) or Neutral Safety Switch Input Fail	1. Close the Hood 2. Check White/Black Wire Connection. (7-Pin Mini Black) 3. Check White/Violet Wire Connection. (7-Pin Mini Black) 4. Move the Enable Toggle Switch to "On" position. (If Installed) 5. Move the gear selector to "Park"/"Neutral" Position. 6. Check Black/White Wire Connection (7-Pin Mini Black)
3	No RPM or Low Voltage Check White/Red wire Connection	Tachometer Checking Type: Voltage Checking Type: Program the "Check Level" from "Hi Check Level" to "Low Check Level"
5	Over-rev	
6	System Timed Out	
7	Transmitter	

Testing Your Installation

Caution!! The follow procedure must be performed after the installation of the Remote Start Device. It is the responsibility of the installing technician to complete these tests. Failure to test the unit in the following manner may result in personal injury, property damage, or both.

1. Test the “Brake” shutdown circuit: With the vehicle in park (P), start the vehicle using the remote transmitter. Once the engine is running, press the brake pedal. The vehicle should shut down immediately. If the vehicle continues to run, check the brake circuit “White/Violet” wire.
2. Test the “Hood Pin” shutdown circuit: Start the vehicle using the remote transmitter. Once the engine is running, pull the hood release and raise the hood. The vehicle should shut down immediately. If the vehicle continues to run, check the hood pin “White/Black” wire connection.
3. Neutral Start Safety Test:
 - A. Set the vehicle parking brake.
 - B. Block the drive wheels to prevent vehicle movement.
 - C. Sitting in the vehicle, turn the ignition switch “On” or “Run” position. But do not start the engine.
 - D. Step on the brake pedal and shift the gear selector into “Drive” (D).
 - E. Put your foot over the brake pedal but do not press down on it. Be ready to step on the brake to shut down the Remote Start Device.
 - F. Start the vehicle using remote transmitter.
 - a. If the starter does not engage, the test is complete.
 - b. If the starter engages, immediately step on the brake pedal to shut down the system, recheck your “Violet” wire (6-Pin White, Starter Output) connection. The heavy gauge “Violet” wire must be connected to the ignition switch side of the Neutral Start Switch. If the vehicle you are working on does not have an Electrical Neutral Safety Switch, it will be necessary to reconfigure the Remote Starts Wiring to accommodate this vehicle. The information concerning the Mechanical Neutral Safety Switch provided below will help you to determine if the vehicle you are working on has this type of safety switch and will provide alternate wiring methods to accommodate this situation.

Mechanical Neutral Safety Switch Considerations:

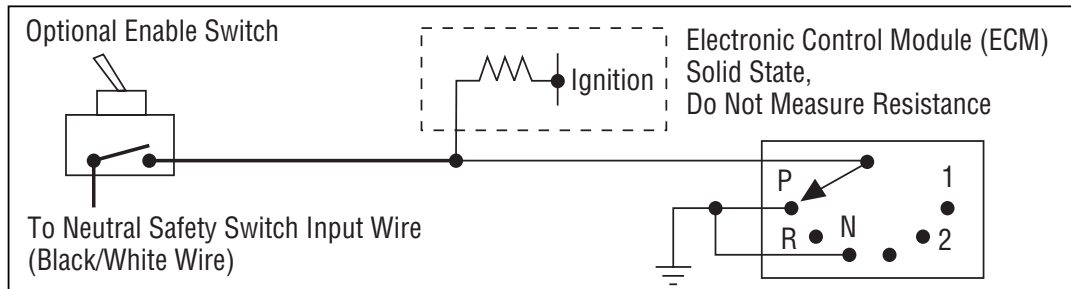
Mechanical neutral safety switch configurations differ slightly in that they do not offer the same level of safety when installing a remote start device. Often when the ignition switch is turned off while the gear selector is in any position other than park or neutral, the mechanical function will not allow the key to be turned to the start position or be removed from the ignition cylinder. This configuration prevents mechanical operation while the vehicle is in gear but offers no consideration for electrical operation. Because of this potential problem, this installation requires the additional connection of a safety wire from the remote start device to the vehicle “Park/Neutral ECM” input or the vehicle key in sensor. This connection will prevent remote start operation if the key is left in the ignition switch regardless of the gear selector position.

Park Neutral ECM Input:

The Park/Neutral ECM input is the preferred method of installation. This not only maintains the integrity of the factory circuit, it is also the easiest to install, providing the vehicle you are working on has this ECM input. The installation required for this application (shown), indicates in the slight reconfiguration of the control switch wiring. Shown is a typical GM Park/Neutral ECM input circuit. To connect the Remote Start unit to the GM Park/Neutral ECM input:

1. Locate the Orange/Black reference wire in the “C2” connector found at the ECM on GM B Body vehicles or, locate the equivalent reference wire in the vehicle you are installing the Remote Start Unit in.
 2. Connect the Black/White Neutral Safety Switch Wire from the black 7-pin mini connector to this reference wire.
- Note: If the optional remote starts enable toggle switch is installed, connect the one side of the enable switch to this reference wire and connect the other side of the enable switch to the “Black/White” Neutral Safety Switch wire of the Remote Start unit. The reference diagram below shows a typical GM B Body ECM reference wire and how it is to be connected to the Remote Start Unit.

Testing Your Installation



Key in Sensor Circuits:

If the vehicle you are working on does not have or you cannot locate the ECM reference wire, there are two alternatives available. Although not preferred, the vehicle key in Sensor may be reconfigured to allow a margin of safety and will prevent the vehicle with a Mechanical Neutral Start Switch from starting in gear. We advise that you maintain the factory circuit whenever possible. The following two circuits may be used only if the above circuit is not available.

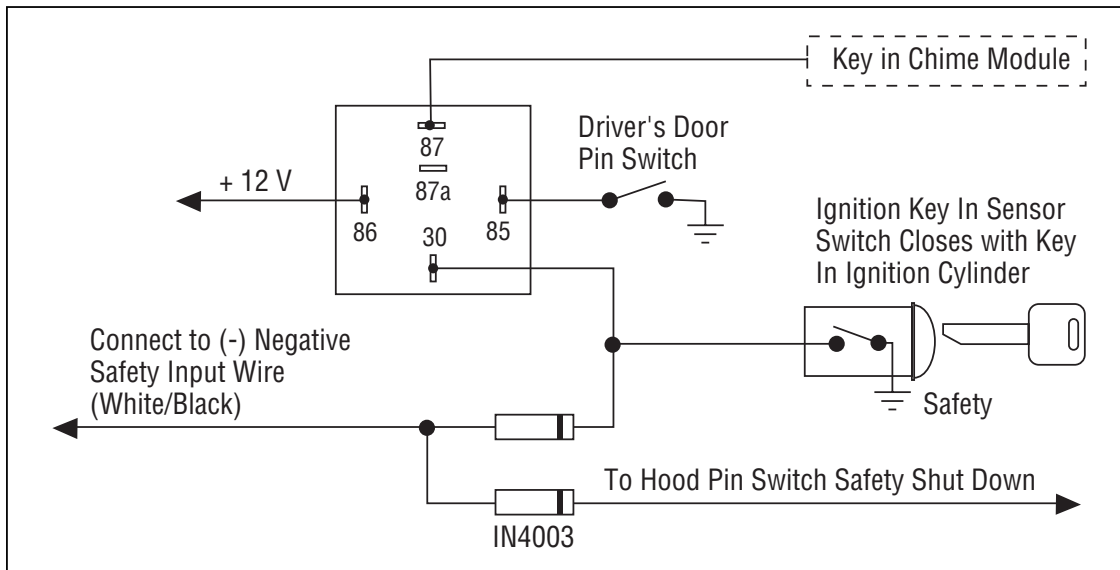
Note: When completing an installation using either of the following key in sensor circuits, if the operator inserts the ignition key while the vehicle is running under the control of the Remote Start, the vehicle will shut down. This must be explained to the operator as it is in contrast to the normal operation of the vehicle utilizing an electrical neutral start switch and is inconsistent with the operator's manual.

Method 1: Will allow the safety required for the remote start unit and prevent the vehicle from starting while in any gear other than Park or Neutral while the key is in the ignition cylinder however If the key is left in the Ignition switch and the door is left opened, the added relay will be energized causing a 150mA drain on the battery.

Method 2: Will allow the safety required for the remote start unit and prevent the vehicles from starting while in any gear other than Park or Neutral while the key is in the ignition cylinder however, the original factory key in effect other warning tones such as the light on reminder. These situations should be carefully considered before altering the vehicle's wiring and must be fully explained to the consumer.

Testing Your Installation

Method 1



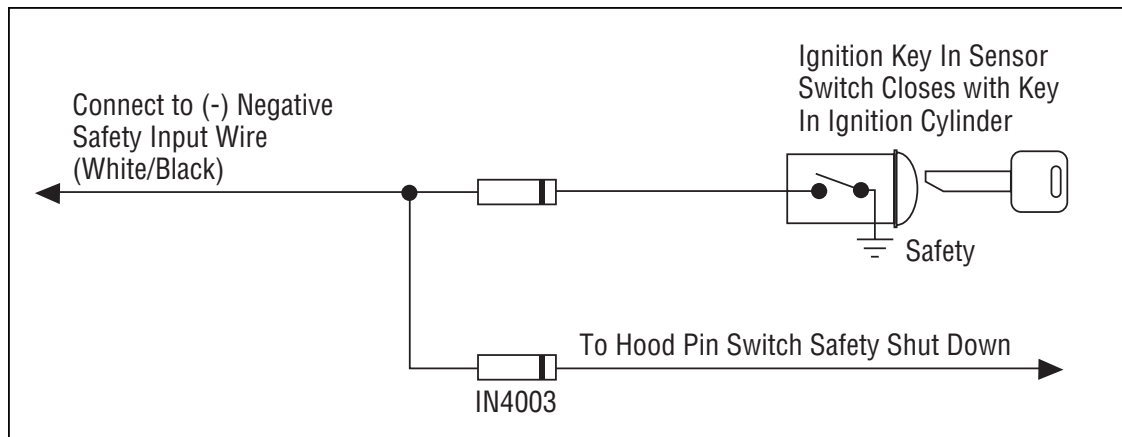
To connect to the key in sensor as shown in method 1:

- Locate the control wire that connects the drivers door pin switch to the key in sensor switch.
- Cut this wire and connect the ignition cylinder side to chassis ground.
- Locate the key in sensor switch wire that connects the chime module to the ignition cylinder.
- Cut this wire and connect the ignition cylinder side to terminal 30 of P&B VF45F11 or equivalent relay.
- Connect the cathode (striped) side of a 4003 series diode to this same wire, and connect the (non striped) side to the negative safety input wire (White/Black) of the Remote Start Unit.
- Connect terminal 86 of the relay to a fused +12 volt constant battery source.
- connect terminal 87 of the relay to the Chime Module side of the previously cut wire in step D.
- Connect terminal 85 of the relay to the Driver's Door side of the pin switch wire previously cut in step B.

Note: A second 4003 series diode may be required to maintain the integrity of the hood open, shut down circuit. If this is the case, it must be installed as shown in the diagram above. The anode (Non Stripped) side must be connect to the WHITE/BLACK wire of the Remote Start Unit. The cathode (Striped) side must be connected to the hood pin switch.

Testing Your Installation

Method 2



To connect to the key in sensor circuit as shown for method 2:

- Locate the control wire that connects the driver's door pin switch to the key in sensor switch.
- Cut this wire and connect the ignition cylinder side to chassis ground.
- Locate the key in sensor switch wire that connects the chime module to the ignition cylinder.
- Cut this wire and connect the ignition cylinder side to the Remote Start Negative Safety Shut down wire WHITE/BLACK, using a 4003 series diode as shown above.

Note: A second 4003 series diode may be required to maintain the integrity of the hood open, shut down circuit. If this is the case, it must be installed as shown in the diagram above. The anode (Non Stripped) side must be connect to the WHITE/BLACK wire of the Remote Start Unit. The cathode (Striped) side must be connected to the hood pin switch.

AFTER THE CONNECTION OF THE NEUTRAL START SAFETY WIRE AS INDICATED IN ANY OF THE PREVIOUS ALTERNATE CONFIGURATIONS, THIS CIRCUIT MUST BE TESTED FOR OPERATION. Retest by following the steps outlined in NEUTRAL START SAFETY TEST shown in this manual.

Wiring Diagram

