Model APS-520
Installation Manual

Two Way Remote Alarm System
With Start Inhibit and Dual Stage Shock Sensor

COMPONENTS:

1 Control Module
1 Four Button RF Transmitter
1 Four Button LCD Transmitter
2 Way Antenna/Receiver
1 1" X 1.75" Foam Pad
14 Pin Accessory Harness
1 Hood Pin Switch
1/4" Female Spade Connector
2 Pin Door Lock/Unlock Harness
Starter Inhibit Relay & Harness
2 Pin LED Assy
2 Pin Push-Button Valet/Program Switch
4 Pin Antenna Receivers Harness
Installation/Owners Guide
4 Phillips Head Black Drill Point Sheet Metal Screw #8 X 1/2"
2 Stage Shock Sensor w/Harness

FEATURES:

Four Channel Receiver (Capable Of Accepting Up To 4 Transmitters)
Code Hopping Technology
Selectable Manual Override Mode
Remote Panic in all modes
Protected Valet
User Programmable Manual Override Code
7 Function LED (Light Emitting Diode) - Arm / Disarm / Zone 1, 2, 3 / Valet / Arming Intrusion Alert with Memory
Audible Arm / Disarm / Defective Zone / Tamper Confirmation
Instant Siren Activation
Starter Disable
Additional Engine Immobilizer Output (optional relay required)
True Last Door Arming (hardwire only)
Defective Zone By-Pass
Active or Passive Arming Selectable
Programmable Auto Lock On / Off
Programmable Auto Unlock On / Off
Programmable Door Lock Pulse Duration
Programmable Active or Passive Door Locks
User Programmable Permanent Chirp Delete
On Command RF Chirp Delete from Transmitter
6 Tone Multi Tone Siren
RF Inhibit with ignition on
Parking Light Flasher
Plug In Dual Stage Shock Sensor
Illuminator Entry Output (optional relay required)

FCC NOTICE

This device complies with part 15 of the FCC rules. Operation of this device is subject to the following 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.

Caution: Changes or modifications not expressly approved by the party responsible for compliance voids the users authority to operate this device.

INSTALLATION OF THE MAJOR COMPONENTS:

CONTROL MODULE:
Select a mounting location inside the passenger compartment (up behind the dashboard). The mounting location selected must be within 24" of the ignition switch wiring harness to allow connection of the 6 pin main wiring harness.
Be certain that the chosen location will not interfere with proper operation of the vehicle. Avoid mounting the module to or routing the wiring around the steering shaft/column, as the module or wiring may wrap around or block the steering wheel preventing proper control of the vehicle. Secure the module in the chosen location using cable ties or screws as necessary.

Do Not Mount The Module In The Engine Compartment, as it is not waterproof.

DASH MOUNTED LED:
The small LED included in the kit will serve as a visual indicator of the alarm's status and provide a visual deterrent to a potential thief. The LED also provides important feed back information during the transmitter and feature program modes. The LED should be installed in the dash in an area highly visible so that it may be seen from the driver's seat as well as from outside the vehicle. Inspect behind the chosen location to insure that the drill will not penetrate any existing factory wiring or fluid lines. Carefully drill a 1/4" hole in the desired location and pass the connector end of the LED through the hole and toward the control module. Press the LED firmly into place until it is fully seated in the mounting hole.

THE RECEIVER/ANTENNA ASSEMBLY:
The Super-regenerative Receiver Antenna Assembly provided with this unit allows routing from below the dash board for maximum operating range. Choose a location above the belt line (dashboard) of the vehicle for best reception. Special considerations must be made for windshield glass as some newer vehicles utilize a metallic shielded window glass that will inhibit or restrict RF reception. In these vehicles, route the antenna toward a rear window location for best reception. Secure the antenna with double stick tape provided. After securing the antenna with tape, we advise also securing a section of the antenna cable to a fixed support. This will prevent the antenna from dropping down in case the double stick tape is exposed to extreme heat which may loosen it's gummed surface. Route the connector toward the control module using caution not to pinch the cable as this will cause poor or no RF reception to the control module.

VALET/PROGRAM/MANUAL OVERRIDE SWITCH :
Select a mounting location that is easily accessible to the operator of the vehicle. It is not necessary to conceal the switch. However, concealment is recommended as it offers a higher level of security. The switch can be mounted to the lower dash panel in the driver's area. Inspect behind the chosen location to insure that adequate clearance is allowed for the body of the switch, and also that the drill will not penetrate any existing factory wiring or fluid lines. Drill a 9/32" hole in the desired location and mount the switch by passing it through the panel from the underside. Secure the switch using the nut, star washer. Route the switch's connector toward the control module.

NOTE: During the program sequence, there are times when this switch and the ignition switch will be used simultaneously. We recommend that the pushbutton switch be mounted on the left side of the ignition switch to facilitate this operation.

SIREN:
Select a location in the engine compartment that is not accessible from below the vehicle. The selected location must be clear of hot or moving parts within the engine compartment The siren must be pointed downward to prevent water retention and the flared end must be pointed away from and out of the engine compartment for maximum sound distribution. Before securing the siren, check behind your chosen location to assure that the mounting screws will not penetrate any factory wiring or fluid lines. Secure the siren mounting bracket using #8 self taping screws or by first using the mounting bracket as a template, scribe or mark the mounting holes. Drill the marked holes using a 1/8" drill bit, then mount the siren using #8 sheet metal screws.

HOOD PIN SWITCH:
The pin switch included in this package are intended for protecting the hood area of the vehicle. In all cases, the switch must be mounted to a grounded metal surface. When the pin switch is activated, (hood/trunk open), it will supply a ground to the input wire activating the alarm. In addition, the hood switch is required for the safety shut down of the remote start unit. If the vehicle is being worked on, this hood switch prevents the remote start activation even if the RF command to start is issued. **This switch must be installed in all applications. Failure to do so may result in personal injury or property damage.**
Mount the switch in the hood locations away from water drain paths. If necessary, the included bracket may be used to move the switch away from rain gutters or allow mounting to the firewall

behind the hood seal. In both cases the switch must be set up to allow the hood to depress the switch at least 1/4 inch when the hood is closed and fully extended when the hood is opened. For direct mounting, a 1/4 inch hole must be drilled. Carefully check behind the chosen location to insure the drill will not penetrate any existing factory wiring or fluid lines.

Drill a 1/4" hole in the desired location and thread the pin switch into it using a 7/16" nut driver or deep well socket. If using the mounting bracket, first secure the bracket to the desired location and secure the pin switch in the pre-threaded mounting bracket hole.

STARTER INHIBIT RELAY:

Select a mounting location within 6" of the ignition switch's low current start solenoid wire. Secure the relay to an existing harness in the chosen location using a cable tie around the relay's wiring harness.

CAUTION! Do not wire tie the metal bracket to an existing wiring harness as vibration may cause chaffing and shorting damaging the factory wiring. If an existing harness is not available then secure the relay's metal mounting tab to an under dash metal brace with a #8 self tapping sheet metal screw. Wire the relay as per the diagram found later in this manual.

SHOCK SENSOR:

Select a centrally located, solid mounting surface for the shock sensor that will allow consistent operation from all areas of the vehicle. The selected location must be within 24" of the control module to allow routing and connecting of the 4 pin harness. Secure the shock sensor to the chosen location using two #8 self tapping sheet metal screws. The sensor can also be secured to an existing dash brace using cable tie straps. Whichever mounting method is used be sure to allow access to the sensitivity adjustment potentiometer for use later in the installation.

14 Pin Main Harness

Red/White (5Amp) & Red Fused (15Amp) Wires : + 12 VDC CONSTANT BATTERY SOURCE

This wire controls the sensitivity of the voltage sensing circuit, which detects the turning on of an interior light when a door is opened. It will also detect the switching on of parking or headlamps, and in many cases will trigger the alarm when a thermostatically controlled electronic radiator cooling fan switches on.

When installing this system into vehicles with electronic " after fans ", it is recommended you disable the voltage sense circuit.

In voltage sensing applications, the closer to the battery that the red wire is connected, the less sensitive the voltage sense circuitry will be. Moving this connection point to the fuse panel will increase the sensitivity, and connecting to the courtesy lamp fuse in the vehicle will provide maximum sensitivity of the voltage sense circuit. Be certain to set selectable feature # 7 to 1 chirp, Voltage Sense On.

When hardwiring the control module to pin switches at all entry points, the voltage sense circuit must be disabled.

NOTE: If the vehicle's parking lights are ground switched, connect this wire to chassis ground.

Yellow Wire: + 12 VDC IGNITION SOURCE

Connect this wire to a source that is live when the key is in the on and crank positions. Be sure that this source is off when the key is in the off position.

White Wire: Positive Parking Light Flasher Output

This wire is the normally open contact of the on board parking light flasher relay. Connect this wire to the vehicle parking light + 12 Volt feed wire.

Orange: Ground While Armed Output

This wire provides a 300 mA ground output when the alarm circuit is armed to control the starter inhibit relay. Connect the Orange wire to terminal #86 (orange wire) of the relay provided. Connect terminal #85 (red wire) of the relay to an ignition wire in the vehicle that is +12 volts when the ignition switch is turned to the on and start positions and off when the key is off. Locate and cut the low current start solenoid wire found at the vehicles ignition switch harness. This wire will have + 12 volts when the ignition key is moved to the start (crank) position and will have 0 volts in all other key positions. Connect one side of the cut wire to terminal #87a (Black wire) of the relay. Connect the other side of the cut wire to terminal #30 (White/Black wire) of the relay.

White w/ Black Trace Wire: (+) Siren Output

This is the positive siren feed wire. Route this wire through a grommet in the firewall to the siren location. Connect the White w/ Black Trace wire to the Red wire of the Siren. Secure the Black wire of the Siren to a known chassis ground or solid clean metal surface.

Brown Wire: Negative Door Trigger

If the vehicle's door courtesy light switches ground when the door is opened, (Most GMs and Imports), you must connect this wire to the negative output from one of the vehicle's door pin

switches. In most cases the Brown wire will need to be connected to only one door switch no matter how many doors the vehicle has as most door lighting circuits are wired in parallel. This wire will be shunted when remote starting the vehicle and will remain shunted, if active, while running under command of the remote start. If this wire is active when the system is armed, the siren will emit three chirps. When the zone clears, the siren will emit 1 chirp to confirm full arming.

NOTE: For vehicles with interior delay lighting see programming under title "Completing The Installation".

Purple Wire: (+) Door Trigger Input

If the vehicle's door courtesy light switches + 12 volts when the door is opened, (Some Fords and some Imports), you must connect this wire to the positive output from one of the vehicle's door pin switches. In most cases, the Purple wire will need to be connected to only one door switch no matter how many doors the vehicle has as most door lighting circuits are wired in parallel. This wire will be shunted when remote starting the vehicle and will remain shunted, if active, while running under command of the remote start. If this wire is active when the system is armed, the siren will emit three chirps. When the zone clears, the siren will emit 1 chirp to confirm full arming. See below for wiring details.

Note for vehicles with interior delay lighting see programming under title "Completing The Installation".

Dark Green Wire: (-) Instant Trigger Input

This is the instant on ground trigger input wire. This wire must be connected to the hood and trunk pin switches previously installed.

NOTE: This wire will be shunted when remote control channel 3 is accessed, (trunk release). This wire will remain shunted all the while there is ground present and for 5 seconds after the ground is removed. This allows the operator to open the trunk via the remote transmitter without having to first disarm the alarm system.

Black Wire: Chassis Ground Source

Connect the Black wire to a known vehicle ground source or to a solid clean metal part of the chassis. Be certain to remove any paint or grease and secure this wire with a self tapping screw and ring terminal.

Dark Blue Wire: Delayed 250 mA Pulsed Channel 3 Output

The Dark Blue wire supplies a 250 mA ground pulsed output whenever channel three of the receiver is accessed. Pressing the pre-programmed transmitter button for three seconds will access channel two. This is a low current output and must be connected to a relay to supply power to the trunk release or the circuit you wish to control. Connect the Dark Blue wire to terminal # 86 of a VF45F11 P&B relay or equivalent. Connect terminal # 85 of the relay to a fused + 12 volt source. Connect the common, normally open, and normally closed contacts of the relay to perform the selected function of channel 3. See below for relay wiring detail.

Green w/ Black Trace Wire: 250 mA Latched Channel 4 Output

The Green w/ Black Trace wire supplies a 300 mA switched output whenever channel four of the receiver is accessed. Pressing the pre-programmed transmitter button(s) will access channel four and will remain active, for up to 20 seconds, as long as the transmitter button(s) is held. This is a low current output and must be connected to a relay to supply power to the device you intend to control. Connect Green w/ Black Trace wire to terminal #86 of a VF45F11 P&B relay or equivalent. Connect terminal #85 of the relay to a fused + 12 volt source. Connect the common, normally open, and normally closed contacts of the relay to perform the selected function of the channel 4 output.

Black w/ White Trace Wire : 250 mA Horn Output

The black w/ white trace wire is provided to beep the vehicle’s horn. This is a transistorized low current output, and should only be connected to the low current ground output from the vehicle’s horn switch. If the vehicle uses a + 12 VDC horn switch, then connect the black w/ white trace wire to terminal 86 of the AS 9256 relay (or an equivalent 30 Amp automotive relay),and connect relay terminal 85 to a fused + 12 VDC battery source. Connect relay terminal 87 to the vehicle’s horn switch output, and connect relay terminal 30 to a fused + 12 VDC battery source.

Green w/ White trace Wire: Entry Illumination Ground Output

This wire provides a 30 second ground output (250 mA Max.) whenever the remote is used to disarm the alarm or to unlock the doors and provides a continuous pulsed output whenever the alarm is triggered. This wire should be connected to an external relay and wired to the vehicles interior entry lighting whenever the optional Interior Illumination circuit is desired.

4 Pin Shock Sensor Connector

Red, Black Green & Blue wires of the shock sensor harness provide +12 Volts, Ground, Full Trigger, and Pre-Detect inputs to and from the sensor. Route these wires from the previously installed sensor and connect to the mating connector on the control module.

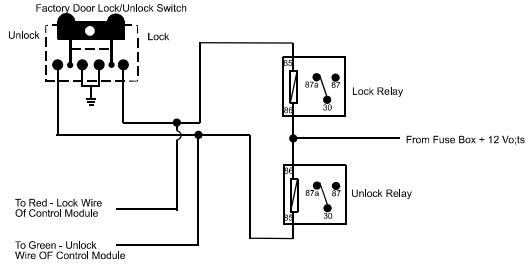
2 Pin LED Harness, Connector
Route the twin lead Red and Blue wires from the LED to the remote start control unit and plug the two pin connector into the mating white mini connector on the control module. These wires control the anode and cathode of the dash mounted LED.

4 Pin Antenna/Transceiver, Connector
Route the 4 pin connector from the previously installed antenna receiver assemble to the mating connector on the control module. This connector supplies 5 volts, ground and RF data from the antenna receiver to the remote start module. Be certain this connector is firmly seated making good contact to the control unit.

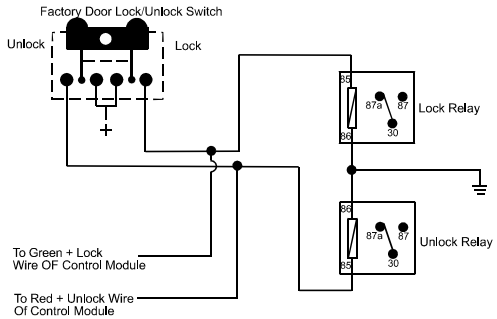
2 Pin Valet/Program/Override Pushbutton Switch, Connector
The Black & Black/Gray twin lead wires loaded in the two pin blue connector are the ground supply and program/valet/override input of the Remote Start unit. Route the two wires from the previously installed Push-Button switch to the mating connector on the control module.

Wiring The 2 Pin Door Lock/Unlock Harness Connector
The Red & Green Door Lock/Unlock output wires provide a pulsed ground output to control the vehicle door lock / unlock circuits. The output of these wires has a maximum switching capability of 250 mA. Many vehicles today have factory door lock relays which can be connected directly to these outputs, however always confirm that the factory relays in your particular vehicle do not exceed the rated 250 mA output of the units door lock/unlock circuit. Plug the 2 pin connector of the door lock/unlock harness into the mating connector shell of the control module. Determine the door lock circuit of the vehicle you are working on and wire according to the diagrams shown.

3 Wire Ground Switched Door Lock Circuits:
In this application, the Red wire of the 2 pin harness provides a ground pulse during the arming sequence, or pulsed ground lock output. Connect the Red wire to the low current ground signal wire from the factory door lock switch to the factory door lock relay.
The Green wire of the 2 pin harness provides a ground pulse during the disarming sequence, or pulsed ground unlock output. Connect the Green wire to the low current ground signal wire from the factory door unlock switch to the factory door unlock relay.

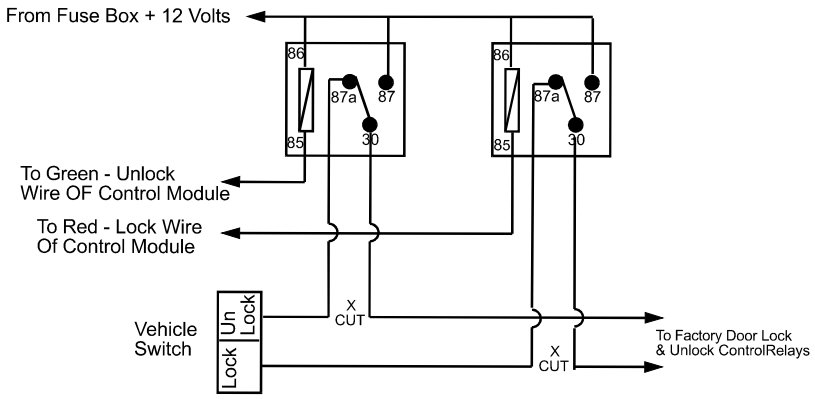


3 Wire Positive Switched Door Locks:
In this application, the Red wire of the door lock harness provides a + 12 volt pulse during the disarming sequence, or pulsed 12 volt unlock output. Connect the Red wire to the low current 12 volt signal wire from the factory door unlock switch to the factory door unlock relay.
The Green wire of the door lock harness provides a + 12 volt pulse during the arming sequence, or pulsed 12 volt lock output. Connect the Green wire to the low current 12 volt signal wire from the factory door lock switch to the factory door lock relay. See Below For Wiring Detail.

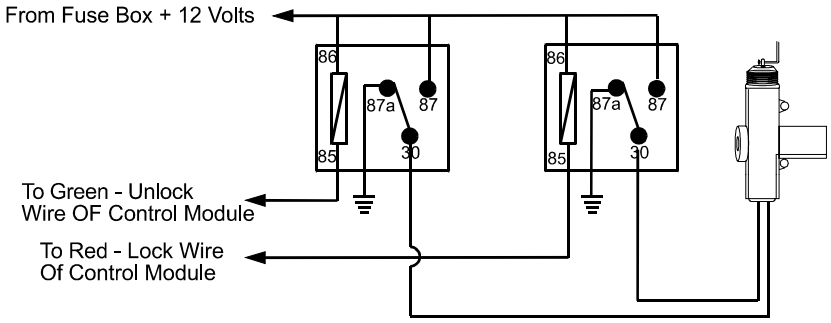


OTHER DOOR LOCKING CIRCUITS ARE SHOWN IN THE FOLLOWING DIAGRAMS:

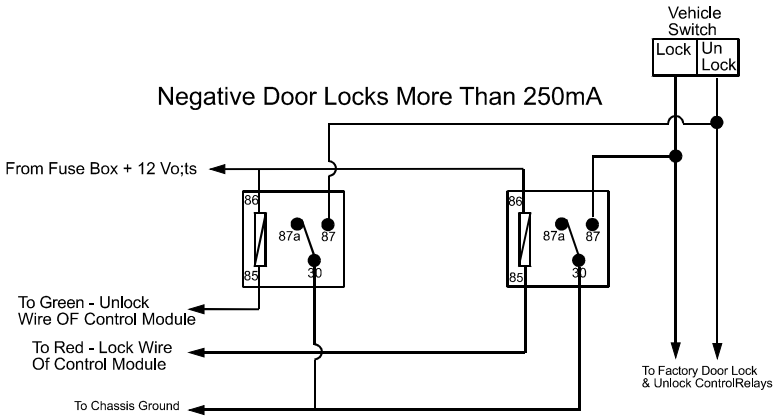
5 Wire Polarity Reversal Door Locks



Adding A Door Lock Actuator



Negative Door Locks More Than 250mA



Setting Up The System Programming Features:
Bank 1 Transmitter Channels:

1. Start with the system disarmed; turn the ignition switch to the on position; then press and release the pushbutton valet/program switch 3 times.

Siren Chirps once and or Lights flash one time indicating the transmitter program mode successfully entered. (See Owners Manual for transmitter programming.)

2. Turn the ignition switch off then on to access Bank 2 Keyless/Alarm feature selections. 1 short/1 long chirp when the key transitions off, followed by 1 short/1 long chirp when the key is turned on indicates that you are in feature selection of bank 2.
3. Press the pushbutton switch 1 time to access the first selection as shown below. Use the lock button of the transmitter to change the feature selection or press the push-button to advance to the next selectable feature.

Bank 2

Feature	1 Chirp/Flash	2 Chirp/Flash	3 Chirp/Flash	4 Chirp/Flash	5 Chirp/Flash	6 Chirps/Flash	Default
1st Door L/UL	**1 Sec.**	3.5 Sec.	1 S.L, Dbl.U/L	Dbl L, 1 S. UL	Dbl L, Dbl UL	1S L/350ms UL	**1 Sec.**
2nd Accy Lock	On	**Off**					**Off**
3rd Accy Unlock	All Doors	**Off**					**Off**
4th Passive Locks	Passive	**Active**					**Active**
5th Passive/Active Arm	Passive	**Active**					**Active**
6th Siren/Horn	**Both**	Siren	Horn				**Both**
7th Horn Chirp	10ms	**16ms**	30ms	40ms	50ms		**16ms**
8th Override Method	Custom Code	**Valet**					**Valet**
9th Chp Del From TX	On	**Off**					**Off**

COMPLETING THE INSTALLATION:

NOTE: This unit has the ability to learn the dome light delay time, up to 60 seconds. If the vehicle has delay interior lights, and you wish to avoid three chirp, defect zone, indication normally associated with this type of interior light, we suggest you learn the interior light delay.

To learn the light delay, start with all doors closed:

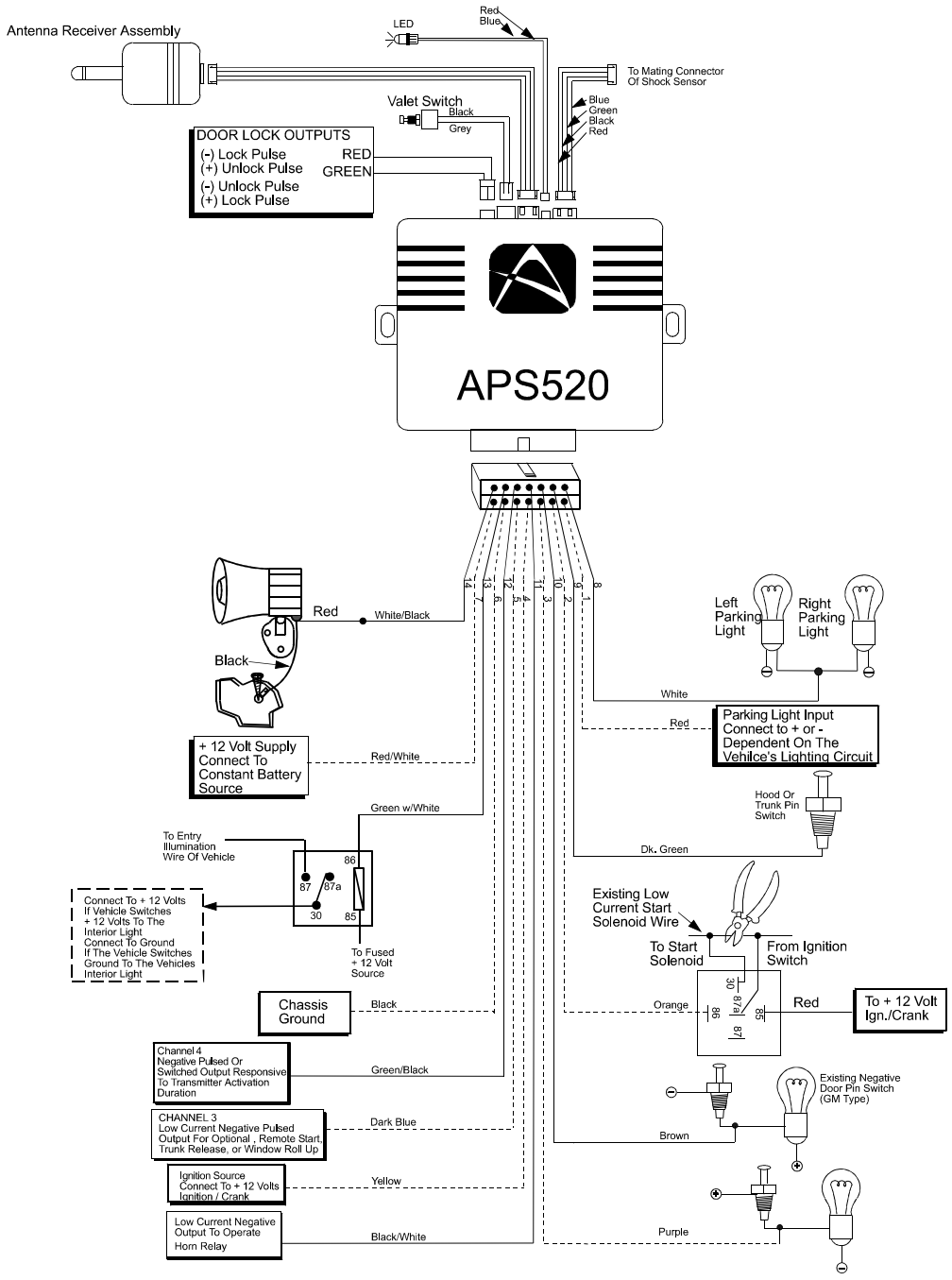
1) Use the transmitter to Lock / Unlock / Lock / Unlock / Lock / Unlock / Lock, the system. The LED turns on solid to confirm the system entered the learn mode.
2) Immediately open and close the door of the vehicle to initiate the dome delay. The unit will monitor the door trigger input Positive, (Purple), and Negative, (Brown) when active. When the dome light turns off, the unit will add 2 seconds then exit the learn mode.
3) The LED will begin flashing the Armed indication indicating the unit has exited the learn mode and is armed.

After you have confirmed the operation of the system and tested all of the features:

a. Mount the control module up and behind the dash securing it in place with cable ties or screws. Be certain that the chosen mounting location will not inhibit any of the controls of the vehicle.
b. Securely harness and tie all wiring up and away from all hot and moving parts that they may come in contact with under the dash board or in the engine compartment areas.

CAUTION: Particularly avoid the area around the steering shaft and column, as wires can wrap around these mechanisms and impair the safe operation of the vehicle.

c. Check the vehicle's wipers, lights, horn, etc.... to insure proper operation.
d. Replace all panels that were removed during installation, and retest the system.
e. Explain all activated features associated with the system installed to the customer.



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