

# **PAINLESS**<sup>®</sup>

## **PERFORMANCE PRODUCTS**

### **Phantom Key Push Button Ignition System Instruction Part #90577**

**For Installing:**

**Part #'s 55000, 55001, 55002,**

# **PHANTOM KEY**

**BY**  
**PAINLESS PERFORMANCE PRODUCTS**

## **PAINLESS**

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If you have any questions concerning the installation of this harness, feel free to call Painless Performance Products' Tech Line at 1-800-423-9696. The Tech Line can be reached from 8 A.M. to 5 P.M. central time, Monday through Thursday, and 8 A.M. to 4:30 P.M. on Fridays.

We have attempted to provide you with as accurate of instructions as possible and are always concerned about corrections or improvements that can be made. If you have found any issues or omissions, or simply have comments or suggestions concerning these instructions, please write us at the above address, send us a fax at (817) 244-4024, or email us at [painless@painlessperformance.com](mailto:painless@painlessperformance.com). We sincerely appreciate your business.

**Painless Performance Products, LLC** shall in no event be liable in contract or tort (including negligence) for special, indirect, incidental, or consequential damages, such as but not limited to, loss of property damage, or any other damages, costs or expenses which might be claimed as the result of the use or failure of the goods sold hereby, except only the cost of repair or replacement

- ❖ **Painless Performance Products recommends you, the installer, read this installation manual from front to back before installing this harness. Reading thoroughly before any installation takes place will give you insight on the proper installation of this harness.**
- ❖ **Please be aware that you are dealing with high amperage connections at the ignition switch, be certain the appropriate connections to the Phantom Key module are made. **There should be no guessing**, incorrect connections could lead to module and ignition system failure.**
- ❖ **Factory schematics of the starting system and ignition switch will be greatly useful in connection of this Painless product. They will make understanding each wire function easier and will save you a lot of time that would otherwise be used trying to identify wires at the ignition switch with a volt meter. These schematics can be located on the internet and in vehicle specific manuals sold in most auto parts stores.**

**If schematics cannot be located, a call to the Painless tech department could lead to you getting the information you need. While we have access to hundreds of different vehicle schematics, your particular vehicle may not be one in our library. Also, please take notice that the tech department can be very busy at times and to make it easier for you and the tech, know the color of the wires and the location of them on your ignition switch before calling. Contact one of the Painless techs at (800) 423-9696.**

- ❖ **The colors used on the Phantom Key are GM color-coded. Meaning if your vehicle is a GM product, if the chassis harness used in your vehicle is an aftermarket GM color-coded harness, or if you have an aftermarket GM style column with an ignition switch, the wires of the Phantom Key should match the colors of the wires you will be connecting to.**
- ❖ **A full color copy of these instructions can be found at <http://www.painlessperformance.com/InfoSearch/manuals.php>**

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# **INTRODUCTION**

The contents of this product include everything needed to replace the function of a keyed ignition switch with a simple push button. From entry-level vehicles to high-end exotics, this same push button feature can be found on many of today's newer cars. By carefully working your way through this instruction manual, you will be able to retro fit your classic or modern vehicle with some of today's new vehicle technology.

The Phantom Key module completely eliminates your vehicles ignition switch and allows the operator of the vehicle to operate the ON and START functions with the simple push of a button.

The key fob communicates with the Phantom Key module as you approach or walk away from the vehicle. RFID technology allows the push button ignition switch to operate only for the owner/user of the vehicle. Simply carry one of the key fob IDs with you, as you come into proximity of the vehicle with the Phantom Key installed, the module verifies your ID, and becomes active allowing the push button to work. This proximity is about 10 feet. In the same sense, when the key fob ID moves out of the proximity of the vehicle the module becomes inactive, and the push button does not operate. See the "**PROGRAMMABLE MODES**" portion of this manual for details on automatic and manual modes of identification from the key fob.

Each key fob ID is unique so a key fob from another Phantom key system will not work with the module found in your Phantom key kit unless it is programmed to your module. See the "**PROGRAMMABLE MODES**" portion on this manual for details. This assures you, the end user, that the security of your vehicle with the Phantom key system installed cannot be compromised. However, a single key fob can be programmed to multiple vehicles allowing someone to operate their car, truck, boat, RV, etc all with one key fob if each vehicle has a Phantom key module installed.

This install manual is broken down into sections:

- **Introduction** - provide simple clarification of the Phantom Key Product
- **Contents of the Painless Kit** – lists parts your Phantom Key Kit supplies
- **Tools Needed** - lists all things required to properly install the Phantom Key
- **Pre-Installation Guidelines** – contains precautions to take into account before installation beings and basic install information
- **Installation**- walks you through installing the complete system step by step
- **Key Fob Modes & Information**- outlines the 2 different ways the key fobs communicate and specifics of the key fobs
- **Testing**- details the proper test sequence of a new install
- **Programmable Modes** – walks you through the customizable features of the Phantom Key, programming new key fobs, and the Emergency function

To avoid possible mistakes and damage to the module, follows these instructions from one page to the next and **do not skip around**. There are some steps that must be completed before others.

# **CONTENTS OF THE PAINLESS KIT**

Refer to the **Contents Figure** (below) to take inventory. See that you have everything you are intended to have in this kit. If you find that anything is missing or damaged, please contact the dealer where you obtained the kit or Painless Performance at (800) 423-9696.

## **The Painless Wire Harness Kit should contain the following:**

- (1) PHANTOM KEY MODULE with HARNESS and RELAY BANKS
- (1) PUSH STAINLESS PUSH BUTTON with EXTENSION HARNESS
- (1) SMALL MOMENTARY BUTTON
- (1) PHANTOM KEY ID CARD
- (2) KEY FOBS
- (4) RELAYS
- (5) SELF TAPPING SCREWS
- (4) 4" STRIPS OF VELCRO
- (50) ZIP TIES
- (1) SMALL PARTS KIT- contains relays, splices, heat shrink, and terminals



**CONTENT FIGURE-** All of the parts in the Painless kit



## **SMALL PARTS**

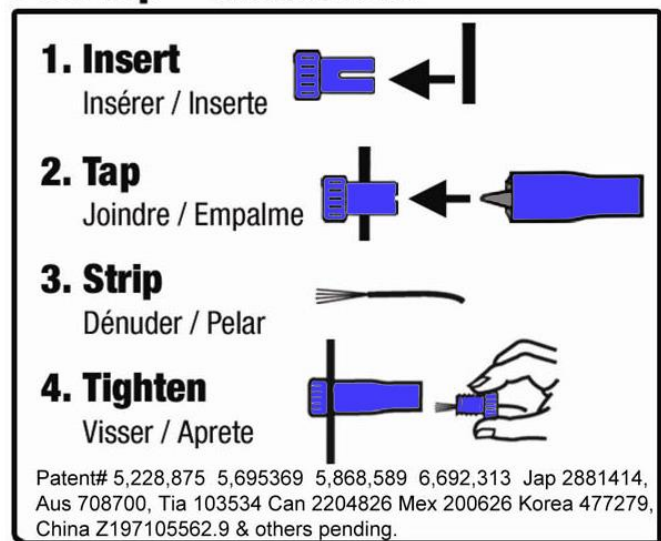
Included with the Painless harness is a parts kit containing insulated ring terminals. These terminals have a semi-transparent insulation that is heat shrinkable to provide a weatherproof connection.

The un-insulated splices are to be used in conjunction with the supplied heat shrink. These will be used when splicing into the power wires at the ignition switch

The blue Posi-Taps contained in the parts kit make connection quick and easy without any cutting involved to the wires of your existing harness. Unlike traditional “blade” style taps, which usually cut through the wire you are tapping onto, the Posi-Tap, simply pierces the insulation. Proper installation of the Posi-Tap can be accomplished in 4 easy steps:

1. Slide the slotted end over the wire/power source you are tapping onto. This will be a pre-existing wire, not a wire found in the Painless kit.
2. Thread the main body of the Posi-Tap onto the slotted end, ensuring the needle pierces the wire. Smaller gauge wires tend to move aside as the needle comes down, causing improper connections. Watch closely to ensure this does not happen.
3. Strip a ¼” of insulation away from the wire you are connecting. This will be a wire coming from the Phantom Key harness.
4. Insert the stripped wire into the small threaded end, and then thread it into the Posi-Tap main body.

### **Posi-Tap™ Instructions**



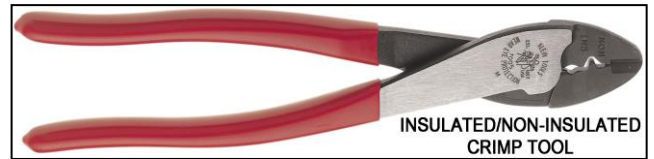
There are 2 different types of relays found in the parts kit, although they look identical except for the print on them. The difference and which relay bases require the correct relays is detailed on p.14 of this manual. **The lock and unlock relays will not function correctly unless the correct relays are installed.**

# **TOOLS NEEDED**

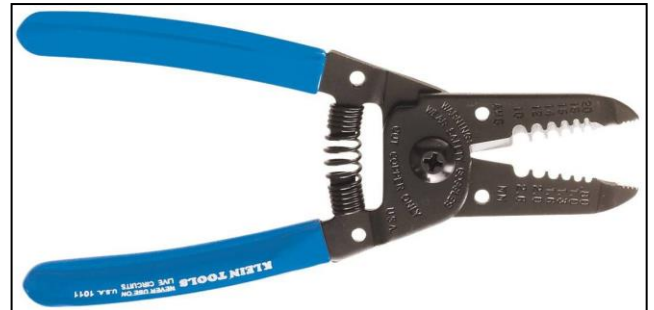
In addition to your regular hand tools, you will need, at least, the following tools:

## ● **Wire Crimping and Stripping Tools:**

This style of hand crimper can be purchased from just about any local auto parts store, home improvement store or can also be purchased online. You will need this style of crimper to crimp the heat shrinkable insulated ring terminals included in the small parts kit.



A good set of wire strippers are required. This style of wire stripper is ideal for this harness install because of its ability to properly strip wire gauges 10 to 20. These are available from just about any local auto part store, electrical supply shop, home improvement store or can be purchased online.



## ● **Volt/Ohm Meter:**

A Volt/Ohm meter is always a good tool to have on hand when installing any type of electrical components into any vehicle. Most basic units provide the two functions required to diagnose electrical issues seen during a harness install. These two functions are the ability to read DC Voltage and electrical continuity or Ohms. They can be purchased from any home improvement store, local hardware store, and electrical supply shop and online.



## ● **Electric Drill & Bits:**

A drill and bits are needed in order to use the screws provided with the kit to mount the module and relay.

## ● **Heat Gun:**

Very useful to shrink the heat-shrinkable terminals found in the parts kit as well as the heat shrink.



## ● **Factory Wire Schematic**

This isn't necessary; however, having one handy is good practice with any electrical job. Chilton's and Haynes manuals, which can be found at most auto parts stores and online, usually contain these schematics.

## ● **Soldering Iron**

This isn't necessary; however it will provide more positive connections to the large amperage wires of the ignition switch connections over the splices provided in the kit.



# **PRE-INSTALLATION GUIDELINES**

At this time identify the wires of the chassis harness you will be connecting to. A factory schematic and/or a voltmeter will help accomplish this. You may find that there are extra wires going to your ignition switch that the Phantom key does not support. In most cases these are ground wires to key buzzers and indicator lights in the dash.

At the ignition switch the Phantom Key module will need to connect to 3 or more sources:

- **Battery Power**- This will be the wire that feeds power from the battery to the switch
- **Switched Power**- This will be the wire(s) from the switch that provide power to the fuse block. There could be one or more of these wires depending if you have an "ACCESSORY" position as well as the "ON/RUN" position. Some ignition switches also provide power to the ignition system or coil.
- **Start**- This wire provides power out to the clutch safety/neutral safety/starter solenoid when the ignition switch is in the "START" position.

At the headlight switch or at an exterior parking light the Phantom Key will need to connect to one source:

- **Park Light Power**- This will be the wire that provides power from the headlight switch out to the Park/Tail lights.

At the brake switch, turn signal switch, or brake light the Phantom Key will need to connect to one source:

- **Brake Light Power**- This will be the wire supplies power to the brake lights when the brake pedal is pressed.

Depending on how your door locks are activated you will be making ground connections from the Phantom Key to your lock/unlock module or to the lock/unlock switches, or those that switch power will be connecting power to the lock/unlock switches or to the lock/unlock solenoids themselves. Determine how your lock switches function.

Before any installation of this product takes place a few things must be taken into consideration.

- ❖ **Is the column in your vehicle equipped with a wheel lock?** Meaning, after the key is removed and the wheel is turned, does it lock into place disallowing the wheel to move in any direction until the key is inserted into the ignition switch?

The way around a column lock is to ensure it will never lock or remove it. This is done by leaving a key in the ignition switch with the switch in the "ON/RUN" position. Removing the head of the key and inserting it into the ignition switch is the easiest way to achieve this. The lock may also be removed from the column; however this can be a pretty involved process.

- ❖ Does your ignition switch key have an identification chip? Some keys are equipped with a small chip in the shaft of the key, while others are on the head. These chips worked similar to the Phantom Key in that they communicated with factory installed modules to allow ignition functions. *The Phantom key will not replace these factory installed modules; they must be used in conjunction with this Painless product.*

If your ignition switch key has one of these ID chips it must remain in or close to the ignition for everything to work properly. For chips in the shaft of the key, removing the head of the key and inserting the headless key into the ignition switch and leaving the switch in the “ON/RUN” position, will still allow the vehicle to operate once the Phantom key is installed. For key with the chips in the head, you do the same procedure as described above, but the cut off head of the key will need to be taped or zip tied close to the ignition switch on the column.

Bypass modules for these security systems that required chipped keys, like GM’s “PASSLOCK” and Ford’s “PATS” systems can also be purchased. These modules can usually be found in catalogs/websites dealing with remote starting a vehicle.

- ❖ Leaving the key in the ignition, is that safe? With the installation of the Phantom Key the normal functions of your ignition switch to start the vehicle will be completely disabled. The ignition key can be turned to the “Start” position and nothing will happen, regardless if the key fob is in range or not. However, depending on the way you connect the module, the ignition switch may be still able to be turned to the “Off” position and disable the ignition system regardless if the key fob is in range or not, see p.14.

Also, leaving the key in the ignition will cut out on some of the connections needing to be made at the ignition switch, see “QUICK CONNECT” p.14

## **INSTALLATION**

The following instructions contain step by step procedures on mounting and connection of the switches, the Phantom Key module and the accompanying harness.

**These steps MUST be followed as they are printed. Do not move on to other parts of the installation out of sequence.**

**CAUTION: BEFORE THE INSTALLATION OF THIS PRODUCT, DISCONNECT THE POWER FROM YOUR VEHICLE BY REMOVING THE NEGATIVE OR POSITIVE BATTERY CABLE FROM THE BATTERY. THE BATTERY SHOULD NOT TO BE RECONNECTED UNTIL INSTRUCTED**

Before any installation takes place, decide on a good location for the module. **This mounting point must be inside the vehicle.** The Phantom Key module is not designed to hold up to the environment found inside an engine compartment or in any other place outside the vehicle.

All wires have been given ample length to allow mounting the module easier; however, the start button and programming button have shorter lengths. Consider these lengths when a mounting point for the module is decided. Both the stainless push button and the small programming button must be accessible from the driver set when connected to the module. An extension pigtail has been included for the stainless Start button; however it will be up to the installer to lengthen the small programming button if the module is mounted more than 2 feet away from some place accessible from the driver's seat.

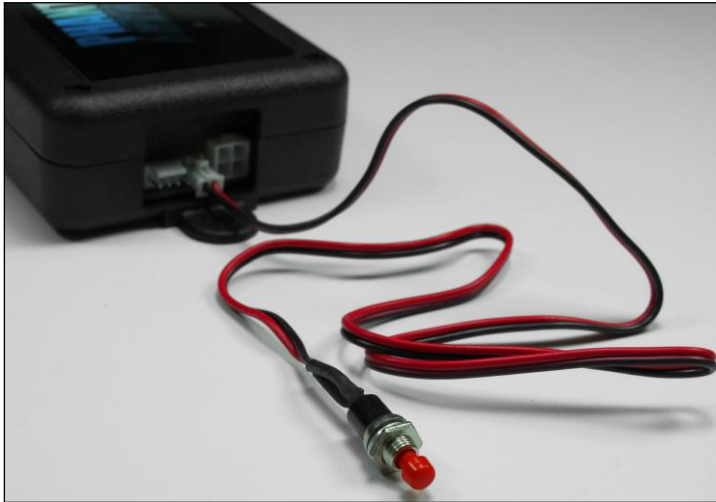
If your vehicle currently has a power lock module that requires ground signal for lock and unlock activation or ground activated lock relays, then the lock and unlock signal wires coming from the module to the relays, the 20 gauge green and blue wires, can be removed from the relay banks. They can then be connected to the ground activation sources you are currently using for lock and unlock control. This will avoid routing redundant higher amperage power and grounds that come from the relays to the lock solenoids.

### **STAINLESS PUSH BUTTON and PROGRAMMING BUTTON MOUNTING**

The stainless push button will be the first piece of hardware installed. This push button will need to be mounted in a place that will be accessible by the driver while depressing the brake switch. The 6' extension harness provided allows for more flexibility on mounting locations. The 4 pin connector found on the stainless push button, as well as the extension harness, plugs into the side of the module.



- Once an acceptable location for the push button has been decided, a 3/4" - 7/8" hole will need to be made for the stainless push button. This can be done by either using a drill bit, a small hole saw, or by removing the nut included on the push button and using the threaded center as a template. No cutting should take place until you have verified that there is a place to mount the module and relays within reach of the wires coming from the stainless push button, with or without the extension harness.
- The nut found on the stainless push button will need to be removed in order to install the push button. With the nut removed, install the push button through the hole and feed the harness through until the bezel of the push button is flat with the mounting surface. Once this is done, install the nut onto the back of the push button. Do not over tighten the nut. It should only be installed hand tight plus a 1/4 turn with a 1" wrench.



The programming switch, the small red momentary switch seen in the photo, does not have to be permanently mounted. However, if it is not permanently installed, the Module will need to be mounted in such a way you will be able to plug the small 2 pin connector into the module and still be able to route the button to the driver seat area. The programming button can simply be stored in the vehicle in case it is ever needed.

- If the programming button will be permanently installed, it will be installed now. It can be mounted in a discreet location as it will only have use during initial installation when you set the programmable parameters of the module to your liking or if your key fob is lost/stolen or no longer communicates with the module. Like the stainless button, the programming button will need to be accessible by the driver while also depressing the brake.

The programming button will be installed in the same manner as the Stainless push button; however it will require a 1/4" – 5/16" hole.

- Route the wires coming from the stainless button and the programming button towards the Module mounting location that you have pre-determined. Loosely install zip ties, included with the kit, along the routing path towards the module to secure the wires. These zip ties will be fully secured at a later point of the install. If they are kept loose it will still allow maneuverability of the wires coming from the button(s) and also allow routing other wires from the module along the same path.

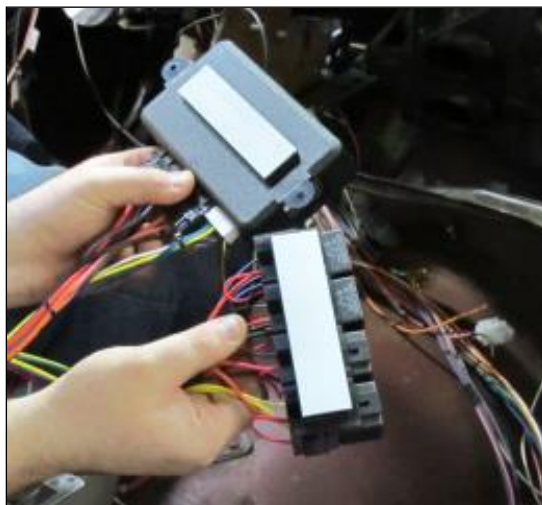
## MODULE & RELAY MOUNTING

- Once a mounting location for the module has been located and lengths of the start button and programming button have been verified, mount the Phantom key module. This can be done in three different ways:
  - 1) Using the self tapping screws provided with the kit going through the two mounting tabs on the module.
  - 2) Using 2 pieces of the supplied velco, as seen in the photo on the next page. This is an industrial strength fastener and is more than capable of securing the weight of the Phantom key module. This method of mounting is good for mounting the module to plastic panels, A/C duct work, and other places screws would not be acceptable.
  - 3) Using zip ties provided with the kit through the two mounting tabs found on the module. This would be a good way to secure the module to under dash bracing, an existing wire harness running through the dash, etc.

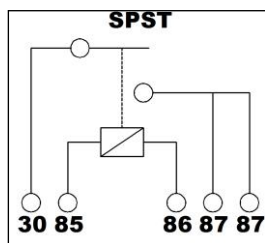
- With the module mounted you can now connect the 2 push buttons. They will connect into the left side of the module; see the photos on p. 11 & 12. The third connection point on the module you see is not used by the end user, it is for programming the module before sale.
- It is now time to mount the relay bases. The relay bases can be mounted in the same 3 ways as the module. Each relay base has a mounting hole.

The easiest way is to simply use the velcro to fasten the relay bases to a surface next to the module.

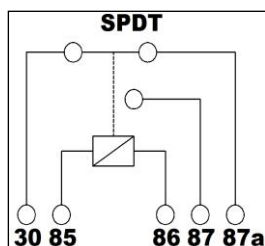
If you are mounting the relays using the velcro or zip ties, installing the supplied relays into the relay bases may be easier before the bases are mounted. See the next step for proper relay use.



- Now that the relay bases are mounted, the relays supplied with the kit can now be installed. Take notice that there are 2 different relays used: SPST and SPDT



SPST stands for single pole single throw. These relays do not have a functional 87a pin, although some do have two 87 pins. The relays provided in the kit that are printed with the "PAINLESS" logo are SPST relays. The Accessory and the Park Light relays use this type of relay. These will be the 2 relays with the **YELLOW** wires and the **BROWN** wires. Refer to the picture at the bottom of p.22. Using a SPDT relay in these bases will have no ill effects.



SPDT stands for single pole double throw. These relays, without the "PAINLESS" logo, are normally closed to the 87a position. Meaning that when the relay is not activated pins 30 and 87a are connected. When the relay activates, pin 30 is then connected to pin 87, not 87a. The Lock and Un-Lock bases require this type of relay. These will be the 2 relays with the **BLUE** wires and the **GREEN** wires. Refer to the picture at the bottom of p. 22. The lock and un lock functions will not work properly if a SPST relay is installed because of the way these bases are wired.

## HARNES CONNECTIONS

Now that the hardware of the Phantom Key kit is connected, wire routing and connection will take place. Read all the way through these connections before any

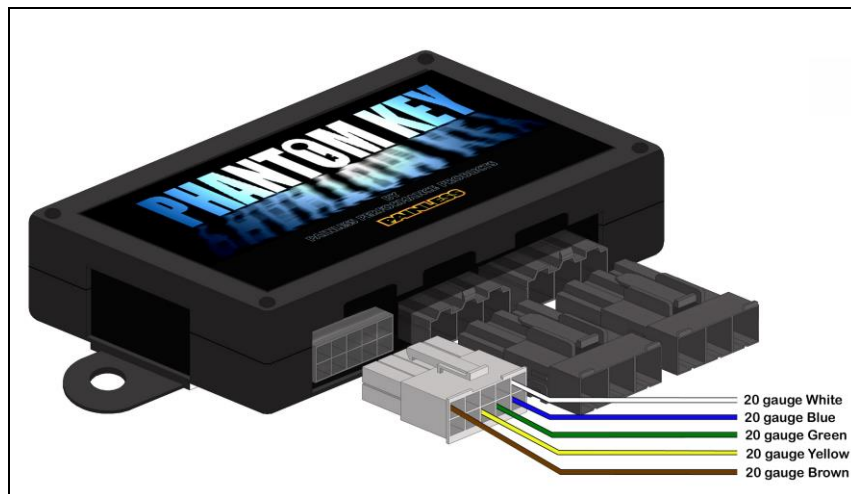
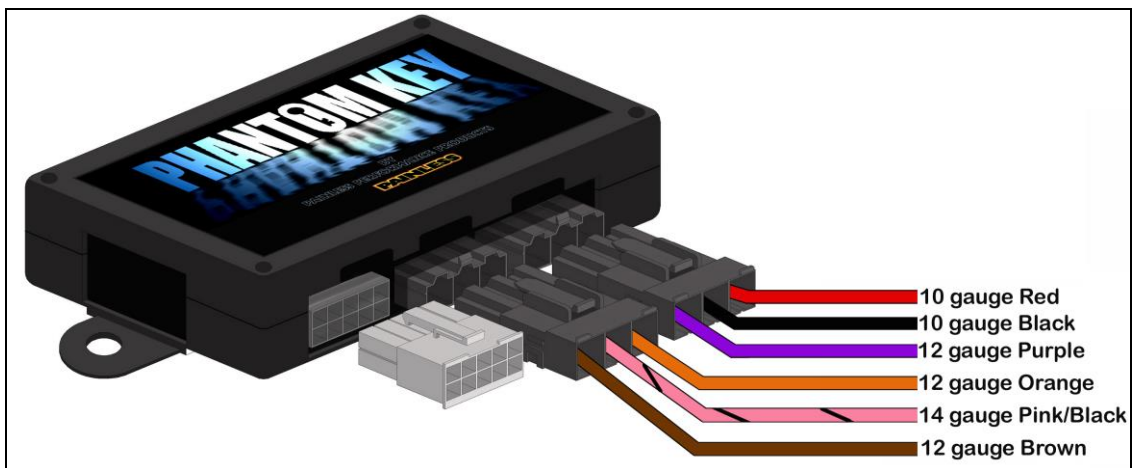


routing takes place, that way you can group wires together instead of routing each wire individually.

At this time you will also need to determine how you are going to make connections at the ignition switch. You can completely remove the ignition switch (if you do not need to bypass any kind of column lock or factory installed security) or you can use either variation of the “Quick Connect Method” outlined on page 19 if a key in the ignition is still required.

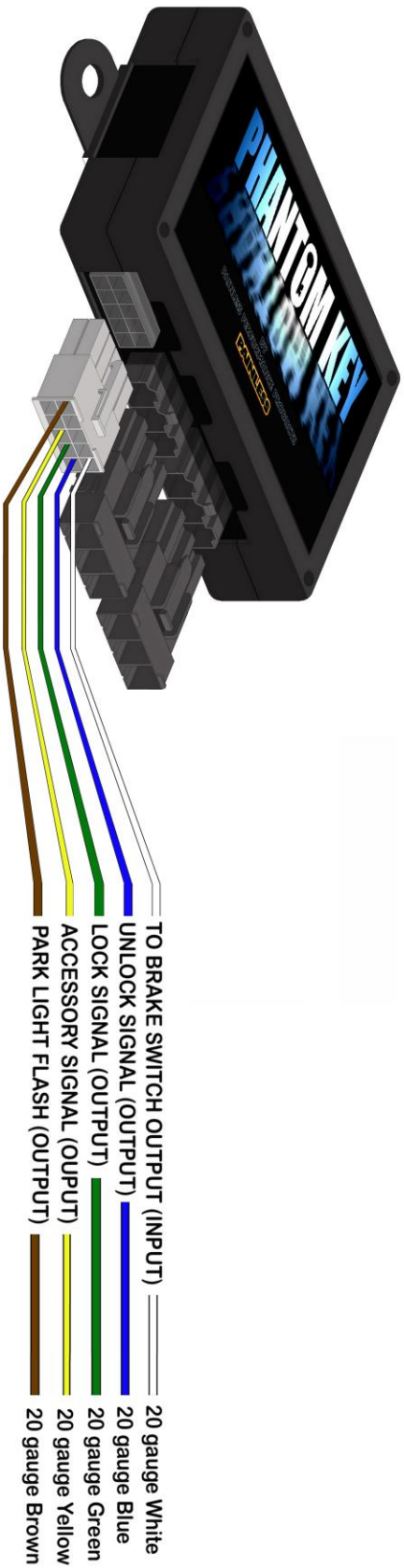
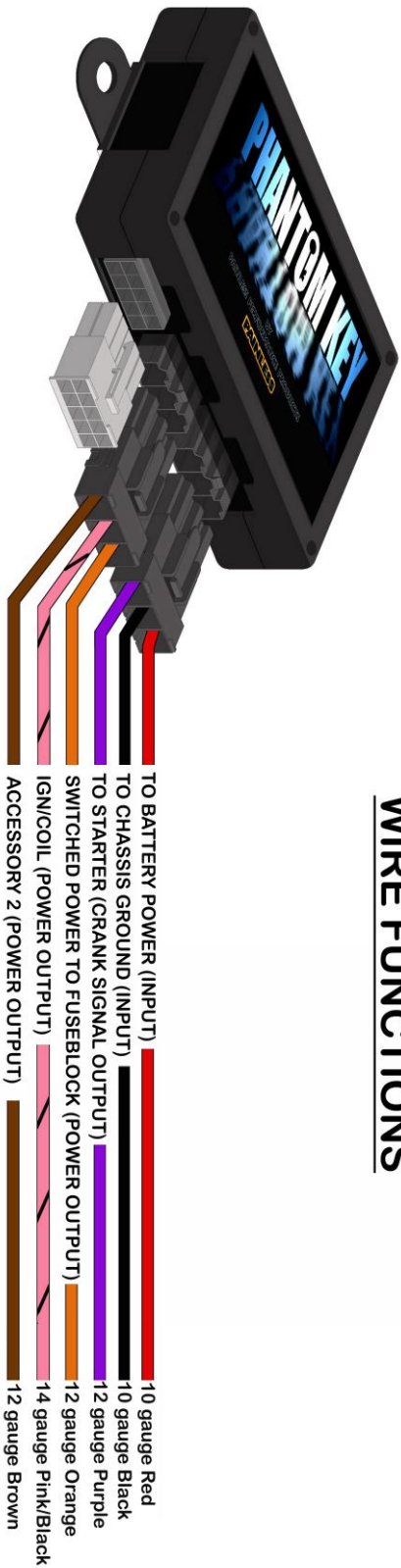
Take notice that the 2 black connectors can be plugged in the wrong way. See the drawing and instructions below for proper placement of these connectors.

- Plug the 2 black connectors and the white connector found on the Phantom Key harness into the Phantom Key module. The black connector with the Brown, Orange, and Pink/black wires will plug into the module on the position closest to the white connector.





## WIRE FUNCTIONS



The wires found pinned into the 2 Black connectors of the Phantom key are:

**Red-** This wire is an input wire to the module. This wire will provide battery power into the Phantom Key Module. It comes from a splice that also provides power to the relays which is all fed by the 10 gauge red wire found on the harness. This open ended 10 gauge red wire is printed "TO BATTERY SOURCE" and will splice onto the wire that originally fed battery power to the ignition switch.

- Route this 10 gauge red wire to the ignition switch.
- Ensure your routing is correct and cut the 10 gauge red wire coming from the Phantom key to length and strip ¼" of insulation from the wire.
- Using one of the large un-insulated butt splices and large piece of heat shrink supplied with the kit, splice the 10 gauge red wire from the Phantom Key to the battery power wire. If you are doing this install on a vehicle equipped with a Painless chassis harness this battery power wire may be printed with circuit number #934.

**Black-** This wire is an input to the module. This wire provides a ground source to the Phantom Key Module. It comes from a splice that also provides ground to the relays which is all fed by the 10 gauge black wire found on the harness. This open ended 10 gauge black wire is printed "TO GROUND" and will connect to a good clean ground source.

- Route this 10 gauge Black wire to a clean ground source.
- Ensure your routing is correct and cut the 10 gauge black wire coming from the Phantom key to length and strip ¼" of insulation from the wire.
- Make your connection to ground using one of the ring terminals provided in the kit. Your mounting bolt, or the large ¼" self tapping screw provided in the kit, will determine which ring terminal you use. After the terminal has been crimped, apply heat to shrink it over the wire insulation to complete the terminal installation.

**Purple-** this wire is an output wire from the module. This wire provides a power source to the starter solenoid. This open ended 12 gauge purple wire is printed "START SIGNAL OUTPUT" and will splice onto the wire that originally sent power from the ignition switch to the neutral safety switch/clutch switch and then out to the starter solenoid.

- Route this 12 gauge purple wire to the ignition switch or to the input side of the neutral safety switch/clutch switch. If you do not have a neutral safety switch or clutch switch Painless highly recommends using one and offers [part # 80175](#) for those with a GM 350, 400, or 700r4 transmission.
- Ensure your routing is correct and cut the 12 gauge purple wire coming from the Phantom key to length and strip ¼" of insulation from the wire.

- Using one of the large un-insulated butt splices and large piece of heat shrink supplied with the kit, splice the 12 gauge Purple wire from the Phantom Key to the Start Signal wire. If you are doing this install on a vehicle equipped with a Painless chassis harness this wire going to the neutral safety/clutch switch may be printed with circuit number #919.

**Orange-** This wire is an output from the module. This wire provides a switched power source to the fuse block/chassis harness. This wire is intended to provide power to the circuits that would have normally had power when the ignition switch was in the “ON/RUN” position. These circuits include the turn signals, gauges, wipers, electric fuel pump, and fuel injection computer if equipped. Connection of this wire depends on the connection method you are using, as in removing the Ignition switch completely or using one of the “QUICK CONNECT” methods on p. 15.

- Route this 12 gauge orange wire printed “IGN POWER OUTPUT” to the appropriate connection point according to the connection method you choose. This will either be to the wire that provided power out of the ignition switch to the fuse block, wire #933 on Painless chassis harnesses, or to the battery input side of the ignition switch. Refer to the “Quick Connect” diagrams to clarify, p15.
- Ensure your routing is correct and cut the 12 gauge purple wire coming from the Phantom key to length and strip ¼” of insulation from the wire.
- Using one of the large un-insulated butt splices and large piece of heat shrink supplied with the kit, splice the 12 gauge orange wire from the Phantom Key to the appropriate wire of the Ignition switch according to the connection type you are doing.

**Pink/Black-** This wire is an output wire from the module. This wire provides a switched power source to the ignition coil or ignition system. If you are using the “QUICK CONNECT method, or if your ignition switch does not provide a coil/ignition system wire, this wire will not be needed. It will need to have the open end taped up to avoid it sorting to ground.

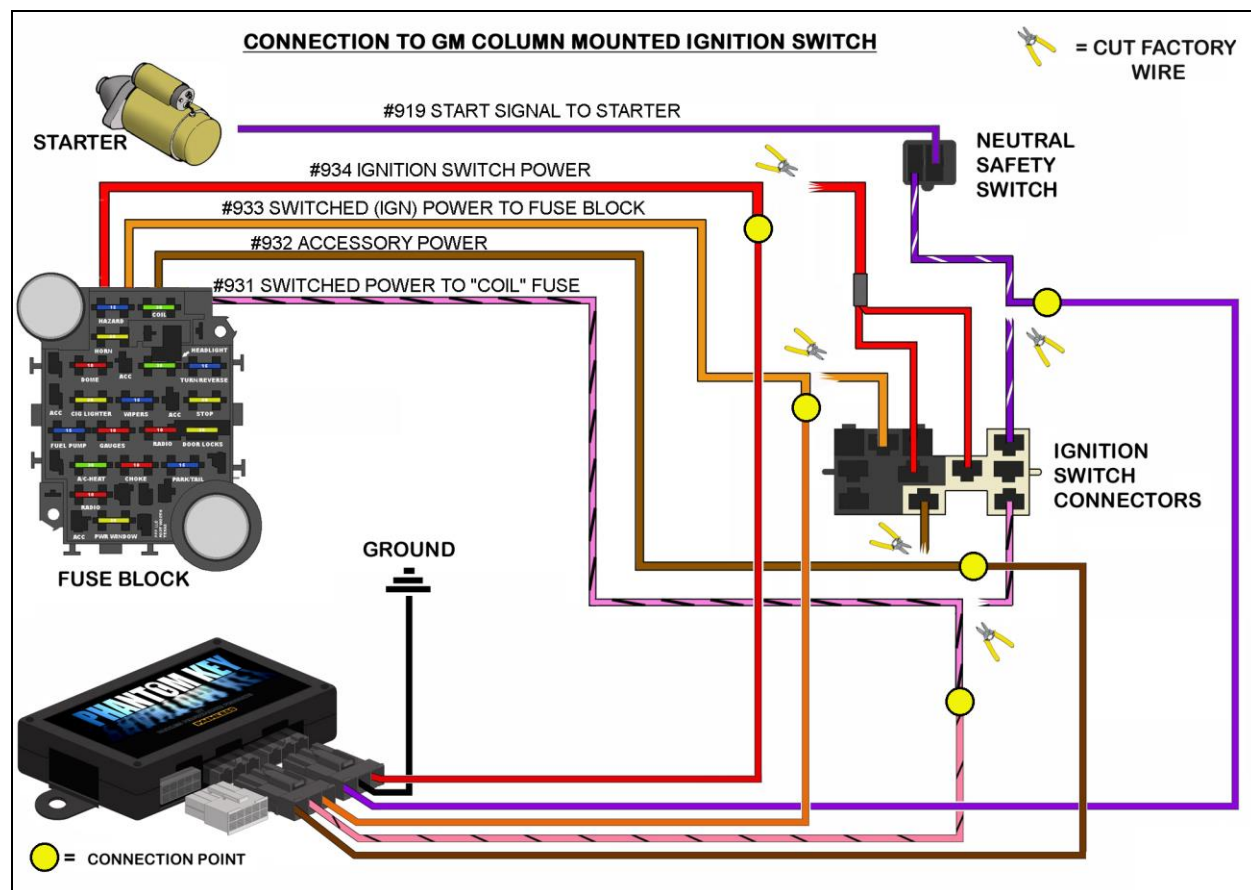
- Route this 14 gauge pink/black wire printed “IGN/COIL POWER” towards the ignition switch.
- Ensure your routing is correct and cut the 14 gauge pink/black wire coming from the Phantom key to length and strip ¼” of insulation from the wire.
- Using one of the large un-insulated butt splices and large piece of heat shrink supplied with the kit, splice the 14 gauge pink/black wire from the Phantom Key to the Coil power or ignition system power wire. This may be a large tan or pink resistance wire which will look different from all the other factory wires going to the ignition switch. If you are doing this install on a vehicle equipped with a Painless chassis harness this wire going to the “Coil” fuse on the fuse block will be printed with circuit number #931.

**Brown-** This wire is an output wire from the module. Do not get this wire confused with the brown wire from the Park Flash Relay. This wire provides a switched power source to the fuse block/chassis harness. This wire is intended to provide power to the circuits that would have normally had power when the ignition switch was in the “ACCESSORY” position. These circuits include the heating & A/C and the radio. If you are using the “Quick Connect Method Version 1” or your ignition switch does not have an ACCESSORY position, this wire will not be needed. It will need to have the open end taped up to avoid it shorting to ground.

- Route this 12 gauge brown wire printed “ACCESSORY POWER OUTPUT” towards the ignition switch.
- Ensure your routing is correct and cut the 12 gauge brown wire coming from the Phantom key to length and strip ¼” of insulation from the wire.
- Using one of the large un-insulated butt splices and large piece of heat shrink supplied with the kit, splice the 12 gauge brown wire from the Phantom Key to the accessory power wire. If you are doing this install on a vehicle equipped with a Painless chassis harness this wire going to the accessory circuits of fuse block will be printed with circuit number #932.

### GM Column Mounted Ignition Switch

Below you will see the connections needing to be made to a GM column mounted ignition switch, as outlined in the instructions leading to this point. It was used by GM throughout the 70’s, 80’s and into the 90’s. It is mentioned because the same type of switch is used on most aftermarket steering columns.



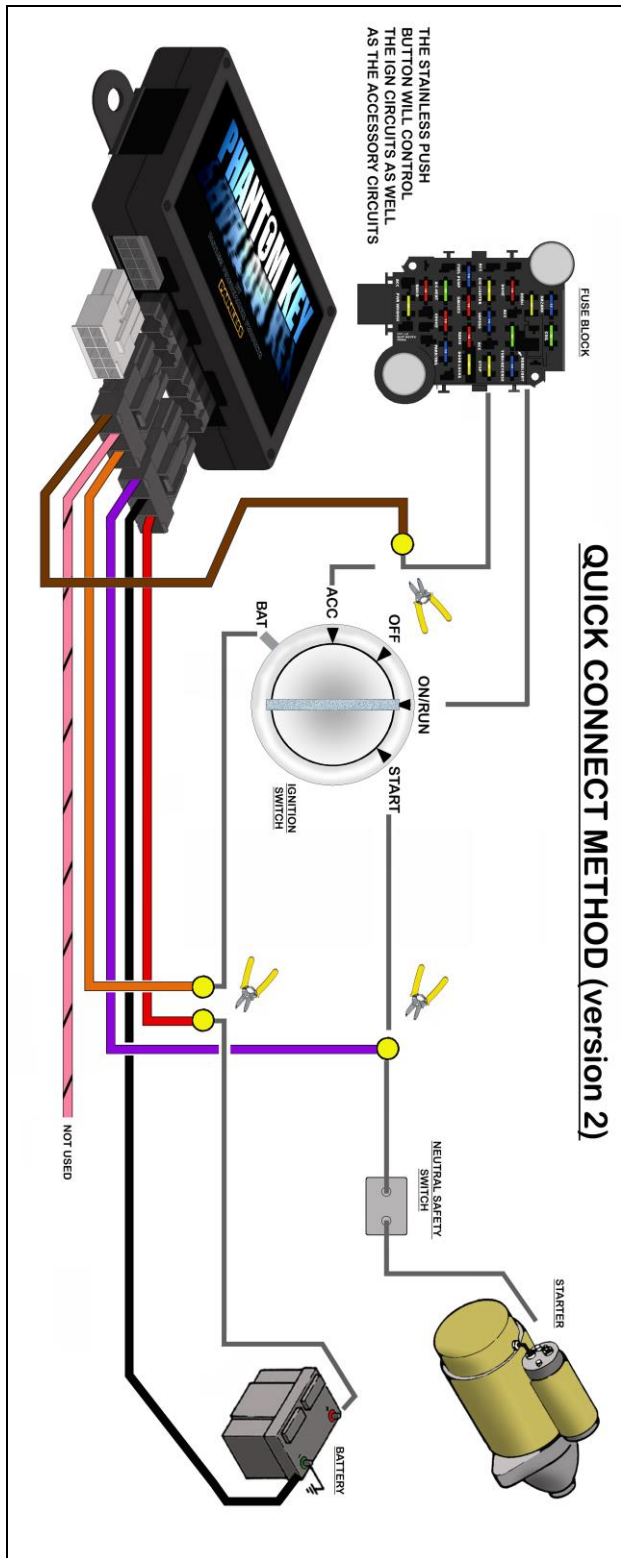
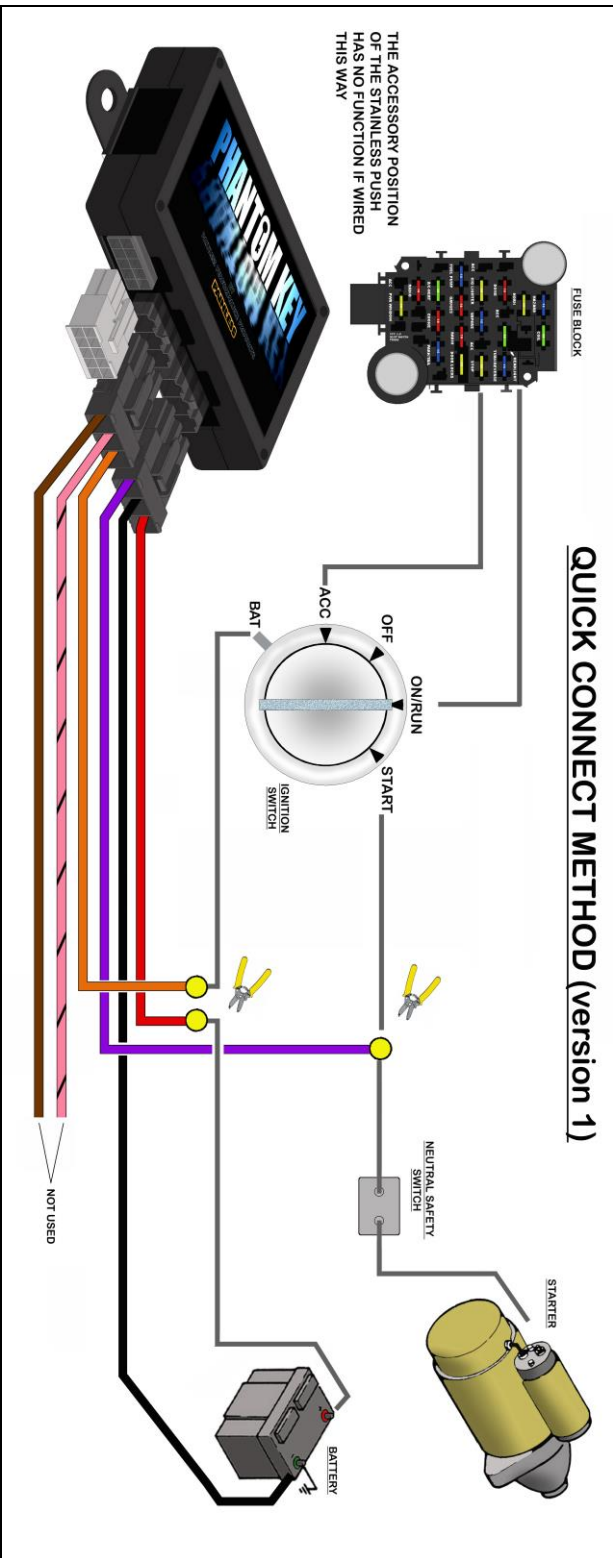
## **Quick Connect Method**

The “Quick Connect Method” can be used in connecting the wires of the Phantom Key to the wires of the ignition switch ONLY IF a key is being used in the ignition

The “Quick Connect Method” of connecting the Phantom Key requires less wire routing and less cutting of your existing chassis harness. One variation of connecting the “Quick Connect” way, you will not be connecting the pink/black and brown wires of the Phantom key and you will only be cutting 3 wires at the ignition switch instead of all of them. This is because with the “Quick Connect Method” the wires from the ignition switch providing power to the switched ignition and accessory circuits will not be touched. You will be using the ignition switch and the factory wires as they were from the factory.

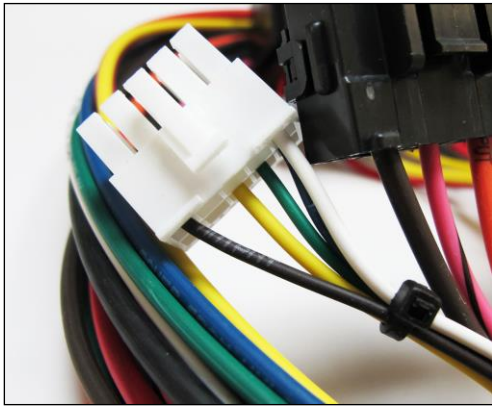
Be advised that the accessory position of the stainless push button will have no function if VERSION 1 of the quick connect method is used. VERSION 1 does not require the brown wire of the Phantom Key harness to not be connected to the ignition switch wiring, see the diagram on p.15. If the factory accessory wire is not touched, the accessory position of the ignition switch will still function as it always has. The stainless push button will need to be in the Ignition position and the factory ignition switch will need to be in the “ACCESSORY” position for these functions to work. The Ignition switch will need to be put back to the “ON/RUN” position in order for the vehicle’s ignition system to have power for vehicle start up.

Another variation is connecting the brown wire from the Phantom Key harness to the Accessory wire of the ignition switch, VERSION 2. This will allow the Stainless push button to have full control and have every function your factory ignition switch had. See the diagram below.





The wires found pinned into the white connector of the Phantom key are:



**White**- This wire is an input wire to the module. The White wire will need to be attached to the brake switch output. This wire will provide power to the module when the brake is depressed. This will serve 2 functions:

- 1) This power will allow the stainless push button to activate the starter signal and turn the car off.
- 2) This power from the brake switch will allow the programming button to be used in the event you have a broken/unresponsive/ lost key fob.

- Route this 20 gauge white wire, printed “TO BRAKE SWITCH OUTPUT”, to the brake switch, turn signal switch (if you have integrated brake/turn lights), or towards a brake light. If you are installing this into a vehicle equipped with a Painless chassis harness the brake switch output may have circuit #918 printed on it.
- Ensure your routing is correct and cut the 20 gauge white wire coming from the Phantom key to length and strip ¼” of insulation from the wire.
- Using a blue Posi-Tap from the parts kit, and the procedure for installing the Posi-tap on p. 7, connect the white wire of the Phantom Key module to the Brake light power source.

**Blue**- This wire is an output wire from the module. This wire will provide a ground source to the Unlock relay whenever the unlock button on the key fob is pressed. The opposite end of this wire has been terminated and installed in the Unlock relay base. If you have electric door locks on your vehicle, and your door lock switch switches ground to a control module, then this blue wire can be cut from the relay and then be tied into the Unlock side of the switch. Length will have to be added to this wire in order to make this connection.

**Green**- This wire is an output wire from the module. This wire will provide a ground source to the Lock relay whenever the lock button on the key fob is pressed. The opposite end of this wire has been terminated and installed in the Lock relay base. If you have electric door locks on your vehicle, and your door lock switch switches ground to a control module, then this green wire can be cut from the relay and then be tied into the Lock side of the switch. Length will have to be added to this wire in order to make this connection.

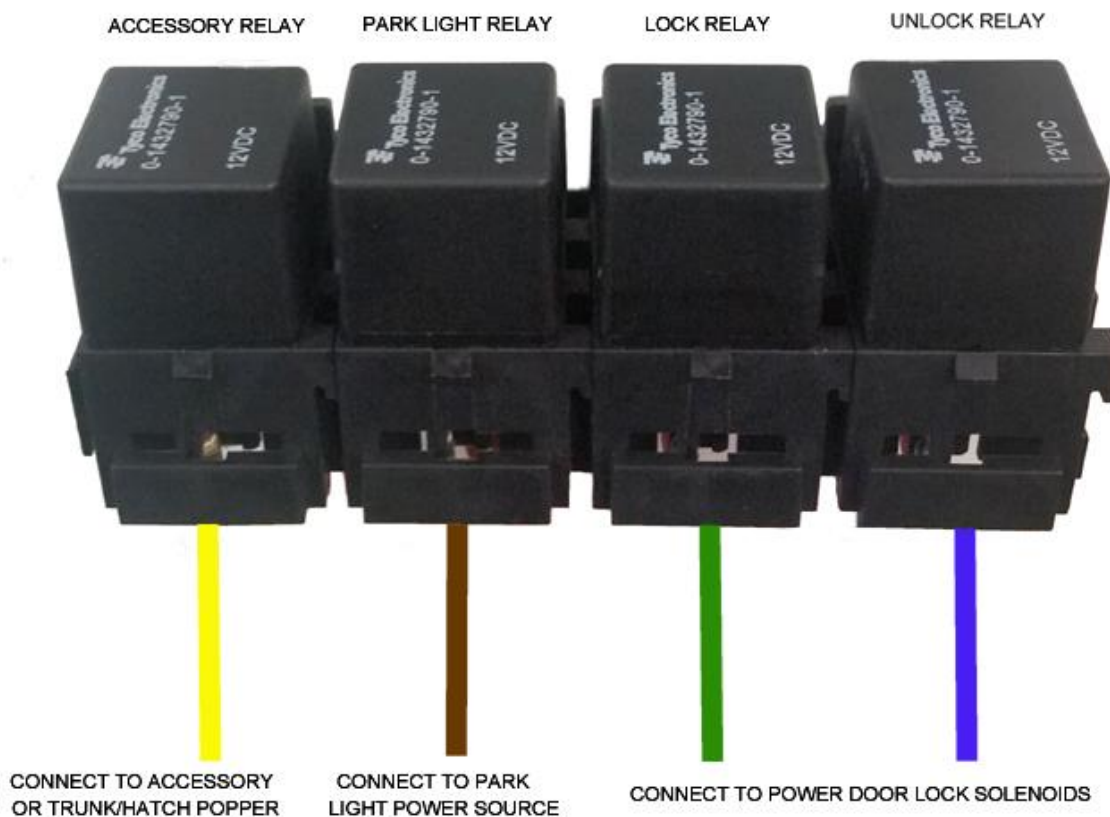
**Yellow**- This wire is an output wire from the module. This wire will provide a ground source to the accessory relay whenever the unlock button on the key fob is pressed and held down. The opposite end of this wire has been terminated and installed in the Accessory relay base.

**Brown**- this wire is an output wire from the module. This wire will provide a ground source to the Park Light Flash relay whenever the Phantom Key is armed and disarmed. The opposite end of this wire has been terminated and installed in the Accessory relay base.

### Connection of Relay Wires

At this point there are 4 remaining wires to connect to the vehicle in order to complete the Phantom Key install. All 4 wires are power output wires from the relays and are activated by the key fob.

Your particular install may only need one, two, three or all four wires depending on your vehicle having power door locks, and/or if you have a component needing to be power activated from the key fob, more details on that under the Yellow wire connection instructions on the next page.



**Brown**- This wire will provide power to the park lights whenever the Phantom Key module arms and disarms, giving you a visual confirmation the system is operating. This Brown wire of the Phantom key harness will tap into a wire that has power when the headlight switch is in the Park and in the headlight ON position.

- Route this 16 gauge Brown wire, printed "From Park Flash Relay" towards the headlight switch or to a park/marker light on the vehicle. If you are installing this into a vehicle equipped with a Painless chassis harness the wire of the park light circuit may have #927 printed on it. Do not get this Brown wire confused with the Brown wire intended for the Ignition switch.

- Ensure your routing is correct and cut the 16 gauge brown wire coming from the Park Light relay to length and strip ¼” of insulation from the wire.
- Using a blue Posi-Tap from the parts kit, and the procedure for installing the Posi-tap on p. 7, connect the Brown wire to the park light power source.

**Blue and Green Wires-** These wires provide power and ground to the lock solenoids or door poppers. Both wires are normally closed to ground but switch power based on the key fob activating the lock or unlock relay. When the lock or unlock button is pressed, the module will send a ground signal out to the corresponding relay and momentarily engage the relay. This will then send power out that relay to the lock solenoid.

If you removed the activation wires from the relay bases as explained on p.21, you will not be connecting these wires.

- Route these 14 gauge wires, Green wire printed “From Lock Relay” and Blue wire printed “From Unlock Relay”, towards the output side of the master Lock/Unlock switch or to the lock solenoid. If the lock and unlock feature previously installed in your vehicle is not tied together to all door locks, it will be up to you the installer to either only connect these wires to the driver side door, or splice all doors together.
- Ensure your routing is correct and cut the 14 gauge Green and Blue wires coming from the Lock and Unlock Relays to length and strip ¼” of insulation from the wire.
- Using a blue Posi-Tap from the parts kit, and the procedure for installing the Posi-tap on p. 7, connect the wires to the lock and unlock sides of the solenoid or switch.

**Yellow-** This wire will provide power to an Accessory when the Unlock button on the key fob is pressed and held. This is ideal for those with an electric trunk latch or for SUV vehicles, an electric gate or hatch popper.

The signal that comes from the Phantom Key module that activates this relay can be programmed as a momentary power, like what is need for power latches on a trunk or cargo hatch, or can also be programmed at a latched output which will continuously send power to a component. See p. 26 for programming information.

- Route this 14 gauge Yellow wire, printed “Power From Accessory Relay” towards the component you plan to power.
- Ensure your routing is correct and cut the 16 gauge brown wire coming from the Park Light relay to length and strip ¼” of insulation from the wire.
- Use a blue Posi-Tap from the parts kit, and the procedure for installing the Posi-tap on p. 7, or a splice and heat shrink to connect the Yellow wire.

**CAUTION: AT THIS TIME THE BATTERY MAY BE RECONNECTED. THE BATTERY SHOULD NOT TO BE RECONNECTED UNTIL ALL CONNECTIONS HAVE BEEN DOUBLE CHECKED AND ANY UNUSED WIRES OF THE IGNITION SWITCH AND PHANTOM KEY MODULE HAVE THE ENDS TAPED TO AVOID SHORTING TO GROUND.**

## **KEY FOB MODES, INFORMATION, & OPERATION**



The Key fob has 2 button that can control 3 different things: Lock, Unlock, and Trunk/Hatch release (activation of the accessory relay)

There are 2 different ways the key fob identification can work with the module, MANUAL and AUTOMATIC.

In MANUAL mode, a key fob button must be pressed in order for the module to identify the ID of the key fob and disarm the system. This mode would be useful if you are in close proximity to the vehicle but do not want the system to be functional. Examples of such situations would be at a car show, a restaurant/building in which you may be seated close to the vehicle parked outside, or for your own peace of mind knowing you have full control of the system.

In AUTOMATIC mode the module detects the key fob ID signal on its own as soon as the key fob is within range. In AUTOMATIC mode you simply approach the vehicle and the system disarms causing the stainless button to become active.

To check the mode your key fob is currently in:

- Push and hold both buttons on the key fob simultaneously until the LED goes out, about 6 seconds, then release
- Upon release of the buttons the LED will flash to indicate which mode you are in.

3 flashes=AUTOMATIC 5 flashes = MANUAL

To change the mode your key fob is currently in:

- After following the mode check procedure and after the LED has flashed indicating which mode you are in, press both buttons simultaneously. This should cause the LED to pulse really fast for a couple seconds; this will let you know the mode has been changed.
- If you are unsure if you successfully completed a mode change, simply do a mode check.

Any spare key fobs should be kept in AUTOMATIC mode to preserve battery life. The battery that powers the key fob is a CR2030 that typically carry a 1 year+ life expectancy. Painless does not stock replacement batteries, however, most drug stores and large retailers carry them.

## **TESTING THE INSTALLATION**

Once power has been restored to the vehicle, the following steps will walk you through initial testing. Before testing begins the key fob ID will need to be in MANUAL mode, see p. 24 for Key Fob Mode information.

- Ensure the LED on the stainless push button is off. This will indicate that the system is armed and will not allow the stainless push button to function.
- Press the Loc and Unlock buttons of the key fob one at a time. This will disarm the system, causing the LED to turn on, and also will verify the lock and unlock function are working.

If you find that during your testing of the system your key fob buttons are backwards, meaning your lock button unlocks the doors, simply swap the position of the blue and green wires on the lock solenoid or the blue and green wires you connected at your lock module.

- Sit in the driver seat with Key fob on your person.
- Press the stainless push button one time to activate the accessory feature of the Phantom Key module, **keep your foot off the brake at this time.**

This should power up everything that had power when your factory ignition was turned to the accessory position. If your ignition key did not have an accessory position, pushing the stainless one time will have no effect on anything in the vehicle.

- Press the stainless push button one more time to activate the Ignition feature of the Phantom Key module, **keep your foot off the brake at this time.**

This should power up everything that had power when your factory ignition switch was turned to the on/run position. Things such as your radio, wipers, turn signals, blower motor, etc. should all work at this point.

- Ensure the vehicle is in park or neutral, apply the brake, and push and hold the stainless push button, this should engage the starter solenoid and crank for as long as the button is held.

If your engine fails to start during the first crank, you will need to press the button twice and re-try. The stainless push button will flash when the brake is applied letting you know the vehicle is ready to start, and will illuminate when the vehicle is running.

After testing is over and during the day to day use of your vehicle, you can enter the vehicle, press the brake, push and hold stainless button to start without toggling through the accessory and ignition positions.

- Apply the brake, and push and hold the stainless push button for 2 seconds, this should kill the engine and turn everything off.
- Exit the vehicle and wait 60 seconds, the park lights should flash to indicate the system is once again armed.
- With the system armed, try to start the vehicle. Again, this is done by applying the brake and pressing and holding the stainless push button. Nothing should happen when this is attempted with the system armed.
- Test the second key fob included with your kit, starting at the first step on the previous page.
- Once the second key fob is tested, and the system is armed. Walk out of range of the vehicle, 20 feet or so, if possible do this with the vehicle still in sight with the park lights still visible
- Once out of range of the Phantom Key module, program the key fob to AUTOMATIC mode, as described on p.24.
- With the key fob now in AUTOMATIC mode, approach the vehicle. Avoid pressing any buttons. As you get into range, the park lights should flash verifying the Phantom Key indented the key fob and disarmed.
- Get in the vehicle and attempt to start it, it should crank over.
- Kill the engine, exit the vehicle, walk out of range of the vehicle, and 20 seconds after the key fob is out of range the park lights should flash, indicating the module had been armed.

## **PROGRAMMABLE MODES**

The Module has 4 programmable features. These features can be changed utilizing the small momentary push button. These features include:



**STARTER DELAY**- This is the amount of time between when the module activates the Ignition circuit before it will engage the starter solenoid. You have the option of selecting 0, 3, or 7 seconds. This is useful for vehicles that need to prime the fuel system and build fuel pressure before startup or even for diesel applications that need glow plugs heated before start up. Starter Delay is Feature #1 the default setting is 0 seconds.

**DOOR LOCK OUTPUT**- This feature will allow you to make to outputs for the door locks single or double pulse. Some newer vehicles require double pulses to unlock all doors or require a double pulse in order to activate the body control module before the door will unlock. Programming the module for double pulse even though your vehicle does not require it will have no ill effects on your components, it will simply activate the relay twice. Door Lock Output is feature #2, the default setting is single pulse.

**TRUNK/HATCH RELEASE**- This feature will allow you to choose between a momentary or latched activation of the accessory relay. A momentary activation will simply close the relay to apply power for a very short amount of time, about 1 second. This would be used to activate simple locking solenoids that simply need to be released. A latched activation will keep power coming out of the relay until the system is either deactivated or until the stainless button is pushed. Trunk/Hatch release is feature #3, the default is momentary.

**START BUTTON LED**- This feature will allow you to change the way the stainless push button appears when the module is armed. You can change between OFF and FLASHING. Flashing will cause the LED to flash, or blink, when the system is armed. This flashing will be a visual sign that the module has not recognized your key fob, therefore, will not allow vehicle startup. This also mimics the blinking lights found on many anti-theft/alarm systems, a visual sign to a would be thief that your vehicle is protected. This Start Button LED flash is feature #4, the default setting is OFF.

| FEATURE                | POSITION 1        | POSITION 2             | POSITION 3    |
|------------------------|-------------------|------------------------|---------------|
| #1 STARTER DELAY       | 0 SECONDS         | 3 SECONDS              | 7 SECONDS     |
| #2 DOOR LOCK OUTPUTS   | SINGLE PULSE      | DOUBLE PULSE           | not available |
| #3 TRUNK/HATCH RELEASE | MOMENTARY         | LATCHED                | not available |
| #4 START BUTTON LED    | OFF WHEN INACTIVE | FLASHING WHEN INACTIVE | not available |

### **Changing modes**

Read these steps from start to finish before attempting to change any settings in the module. To enter into the Programmable Feature Mode of the module follow these simple steps:

- Put the system in Accessory mode. This is done by pressing the stainless push button one time without applying the brake.

- Press the Programming button 5 times. After the fifth press of the button the LED on the stainless button will flash fast and then turn solid.
- When the LED is solid, press the programming button the number of times that corresponds to the feature number you want to change. Use the chart above to quickly find the features and feature numbers. As an example, pushing the button 2 times will let the module know you want to change the Door Lock Output feature.
- When a feature number has been entered, the LED will flash back a confirmation of what you entered. After that it will flash what mode it is in, this will be 1, 2, or 3 flashes. Again, see the chart above for what each mode represents. All defaults are set position one. In the case of our example, after you entered 2 pushes of the programming button, the LED would then flash 2 times to confirm you entered feature #2 and would then flash one time. This will indicate that feature #2, the Door Lock outputs, are set to single pulse.
- To change the mode you simply press and hold the programming button for 1 second to advance to the next mode position. The LED will then flash the number of times corresponding to the mode position that feature is in. In our example, after pushing and holding the programming button, the mode of the Door Lock Output would advance from position 1 to position 2; this would be indicated by 2 flashes of the LED.
- When the LED indicates the correct position you want the selected feature in, press and release the brake. This will cause the LED to begin flashing fast, letting you know that mode has been set. Once set the LED will turn solid again, waiting for you to select another feature.
- When all features have been set to their desired positions, press and hold the brake until the LED starts a long fast flashing sequence. This will happen about 5 seconds after the brake is applied and held. This flashing will indicate the module has exited the programming mode.
- Push the stainless button 2 times to exit out of accessory mode.

## **Key Fob Learning**

The Phantom Key module is capable of learning up to 5 different key fobs. Use the following steps to add additional key fobs from other Phantom key systems or addition key fobs purchased separately, [part #PP-495](#). (this part is sold by Painless direct and not through our dealers, contact Painless to order) The 2 key fobs provided with the Phantom Key have already been programmed to your module.

- Put the system in Accessory mode. This is done by pressing the stainless push button one time without applying the brake.
- Depress the brake pedal and hold it.
- Press the programming button 10 times. The LED will begin flashing fast and then turn solid.

- Within 5 seconds of the LED turning solid, push and hold down the Lock button of the key fob you wish to program to the module. The LED will flash 3 times indicating the new key fob has been learned.
- After the third flash you can add any additional key fobs or you can simply wait and the system will automatic exit the fey fob learning mode. The LED will start a long fast flashing sequence. This flashing will indicate the module has exited the programming mode.
- Push the stainless button 2 times to exit out of accessory mode.

### **Emergency Bypass Mode**

Provided with the Phantom Key system is a card with a personal identification number (PIN). This number can be used to activate the Phantom key if your key fob is ever lost, stolen, or is unresponsive due to damage or dead battery. Keep this card with on your person or write the number down in a discrete place on paper work kept with the vehicle. The following set of instructions are also on the card.

- With the system armed, Depress the brake pedal and hold it.
- Press the programming button 10 times. The LED ring on the stainless steel switch will begin flashing fast.
- Enter the first number of the PIN issued with your Phantom Key. This is done by pressing the programming button the equal numbers of times as the first number of the PIN. As an example, if your pin is 8-3-5-1, you will press the programming button 8 times then stop. The LED ring on the stainless steel switch will then turn off for 1 second confirming it has accepted the first number and then begin flashing again
- Enter the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> numbers. After the 4<sup>th</sup> number, if the PIN has been entered correctly, the LED ring on the stainless steel switch will be solid. The solid LED will indicate the system has been bypassed.
- Remove your foot from the brake. You can now reapply the brake and start the vehicle.

## **Painless Performance Products, LLC**

### **Limited Warranty and Return Policy**

Chassis harnesses, fuel injection harnesses, and Trail Rocker units are covered under a lifetime warranty.

All other products manufactured and/or sold by Painless Performance are warranted to the original purchaser to be free from defects in material and workmanship under normal use. Painless Performance will repair or replace defective products without charge during the first 12 months from the purchase date. No products will be considered for warranty without a copy of the purchase receipt showing the sellers name, address, and date of purchase. You must return the product to the dealer you purchased it from to initiate warranty procedures.