# Wire Harness Installation Instructions

## For Installing:

## Part #20120
## 14 Circuit Ford Mustang (1965- 1966)

## Manual #90526


**Perfect Performance Products, LLC**
**Painless Performance Products Division**
**2501 Ludelle Street**
**Fort Worth, TX 76105-1036**
**800-423-9696 phone – 817-244-4024 fax**
**Web Site: www.painlessperformance.com**
**E-Mail: painless@painlessperformance.com**

If you have any questions concerning the installation of this harness or having trouble in general, feel free to call Painless Performance Products' tech line at 1-800-423-9696. Calls are answered from 8am to 5pm central time, Monday thru Friday, except holidays.

We have attempted to provide you with as accurate instructions as possible, and are always concerned about corrections or improvements that can be made. If you have found any errors or omissions, or if you simply have comments or suggestions concerning these instructions, please write us at the address on the cover and let us know about them. Or, better yet, send us a fax at (817) 244-4024 or e-mail us at painless@painlessperformance.com. We sincerely appreciate your business.



P/N 90526 Painless Wiring Manual

June 2009

***CAUTION:*** ***BEFORE THE REMOVAL OF YOUR ORIGINAL HARNESS AND/OR THE INSTALL OF YOUR NEW PAINLESS HARNESS, DISCONNECT THE POWER FROM YOUR VEHICLE BY REMOVING THE NEGATIVE OR POSITIVE BATTERY CABLE FROM THE BATTERY. UNDER NO CIRCUSTANCES SHOULD THE BATTERY BE CONNECTED UNTILL THE PAINLESS HARNESS HAS BEEN INSTALLED AND TESTED.*** ***See "TESTING THE SYSTEM"***

- **A full color copy of these instructions can be found at http://www.painlessperformance.com/InfoSearch/manuals.php**
- **If your vehicle has an existing harness, you will want to retain it for the possible re-use of various pigtails & connector housings particular to your application. During the removal process, avoid making any unnecessary cuts and label all connectors as they are disconnected. Included in this kit as a sheet of pre-printed labels, to assist in identifying connections as they are removed from the vehicle. It's a good idea to document how the original harness is routed as this Painless harness follows most of the same routing.**
- **Retain Convertible Power Top, Rally Pack, and Console wiring. Provisions for these options are not included in this kit.**
- **If you do not have an existing harness, the package of terminals included with the harness will enable you to make most of the connections needed.**
- **Painless Performance Products recommends you, the installer, read this installation manual from front to back before installing this harness. Due to the variables in modifications that can be done to Mustangs, reading this manual will give you considerable insight on the proper installation of this harness.**
- **Only printed wires will have a 900-series number. These 900-series numbers are used to identify various wires and circuits in the wiring diagrams that are a part of these instructions. The majority of those without a number are pre terminated with a connector installed.**
- **In the event that there are unused or unconnected wires, the ends of all wires labeled in this instruction manual as "POWER" or wires printed with "B+" in the description, will need to have the ends terminated with an insulated terminal or taped. Doing so will prevent the wires shorting and causing harness failure or fire.**

## TABLE OF CONTENTS


| Page # | | |
|---|---|---|
| 5 | INTRODUCTION | |
| 5 | CONENTS OF THE PAINLESS KIT | |
| 6 | TOOLS NEEDED | |
| 6 | PRE-INSTALLATION & ROUTING | |
| 7 | GENERAL INSTALLATION | |
| 9 | HARNESS ATTACHMENT | |
| 10 | GROUNDING | |
| 10 | TERMINAL INSTALLATION & MAKING CONNECTIONS | |
| 11 | RE-USING-FACTORY CONNECTORS | |
| 12 | SPECIFIC CIRCUIT CONNECTIONS | |
| 12 | HEADLIGHT SECTION B | |
| | ENGINE SECTION | |
| 16 | MAXI FUSE | |
| 16 | IGNITION, START/RUN SYSTEM | |
| 19 | BLOWER MOTOR | |
| 19 | NEUTAL SAFETY/REVERSE SWITCH | |
| | INTERIOR | |
| 19 | TURN SIGNAL SWITCH | |
| 20 | IGNITION SWITCH | |
| 20 | INTERIOR LIGHTING | |
| 22 | BRAKE SWITCH | |
| 22 | INSTRUMENT PANEL | |
| 24 | WIPER SWITCH | |
| 26 | HAZARD SWITCH | |
| 26 | HEATER, A/C WIRING | |
| 28 | COOLING FAN SWITCH | |
| 30 | HEADLIGHT SWITCH | |
| 30 | DIMMER SWITCH | |
| 30 | ACCESSORY RELAY | |
| 32 | TAIL SECTION | |
| 33 | TESTING THE SYSTEM | |
| 34 | FUSE REQUIREMENTS & WIRE INDEX | |
| 40 | OTHER PAINLESS PARTS | |


## LIST OF FIGURES


| | | |
|---|---|---|
| 6 | FIGURE 1 | Contents of the Painless Kit |
| 8 | FIGURE 2 | Fuse Block Base Mounting |
| 8 | FIGURE 3 | Fuse Block Positioning |
| 9 | FIGURE 4 | Pass Through Plates |
| 11 | FIGURE 5 | Terminal Locking Tang |
| 11 | FIGURE 6 | Removing Factory Connector |
| 12 | FIGURE 7 | Jaw Style Crimpers |
| 13 | FIGURE 8 | Headlight Section B |
| 14 | FIGURE 9 | Factory Alternator |
| 16 | FIGURE 10 | Maxi Fuse Components |
| 16 | FIGURE 11 | Ballast Resistor |
| 17 | FIGURE 12 | Starting System |
| 17 | FIGURE 13 | Factory Ignition |
| 18 | FIGURE 14 | Internally Resisted Coil |
| 18 | FIGURE 15 | MSD Connections |
| 20 | FIGURE 16 | GM Column Connector |
| 20 | FIGURE 17 | Ignition Switch Pin Out |
| 21 | FIGURE 18 | Interior Lighting Schematic |
| 23 | FIGURE 19 | 1965 Cluster |
| 23 | FIGURE 20 | 1966 Cluster |
| 24 | FIGURE 21 | 2 Speed Wiper |
| 25 | FIGURE 22 | Single Speed Wiper |
| 26 | FIGURE 23 | Hazard Switch |

27 FIGURE 24 2 Speed Blower
28 FIGURE 25 3 Speed Blower
29 FIGURE 26 Typical Fan Relay Activation
29 FIGURE 27 Thermostatic Switch Activation
30 FIGURE 28 Headlight Switch Pin Out
31 FIGURE 29 12V Relay Activation
31 FIGURE 30 Ground Relay Activation
33 FIGURE 31 Tail Section
33 FIGURE 32 Testing the System
34 FIGURE 33 Fuse Requirements

# INTRODUCTION

You have purchased what we at Painless Performance Products believe to be the most up-to-date and easiest-to-install automotive wire harness on the market. It is designed for easy installation, even if you have little electrical experience.

The proper fuses have been pre-installed in the fuse block. In addition, all wires are color-coded. This will help you identify the different circuits during installation and later on if additions to the overall system are necessary. For fuse specifications and wire color designations, see the **Wire Index**.

The Painless wire harness is designed to be used in 1965 & 1966 Ford Mustangs. All wire is 600 volt, 125°c, TXL. Standard automotive wire is GPT, 300 volt, 80°c, with PVC insulation.

This complete automobile wiring system has been designed with four major groups incorporated into it:

**ENGINE:** Starter solenoid and battery feed, generator and alternator wire, water temperature, oil pressure, coil, electronic ignition, heater blower motor, choke, idle solenoid, and air conditioning.

**HEADLIGHT GROUP:** Includes high beam, low beam, park, right turn, left turn, electric fan, horns, and windshield washer motor.

**DASH GROUP:** Includes wires to connect gauges, indicator lights, windshield wiper motor and switches to their proper sources.

**REAR LIGHT GROUP:** Includes tail lights, rear courtesy lights, left and right turn signals, brake lights, reverse lights, and fuel sender.

Installation requires four (4) basic steps:
1. Mount the fuse block
2. Route the wires
3. Cut off the excess wire
4. Terminate the wires

# CONTENTS OF THE PAINLESS WIRE HARNESS KIT

Refer to the photo below to take inventory. See that you have everything you're supposed to have in this kit. If anything is missing contact the dealer where you obtained the kit, or Painless Performance at (800) 423-9696. The Painless Wire Harness Kit should contain the following items:

- The Main Wire Harness, with the Fuse Block wired in and fuses installed, Headlight Harness
- Pig Tails: Windshield Wiper, 2 Instrument Panel sub harnesses, Heater Switch,

- Bag Kit containing 3 types of Nylon Tie Wraps, 10 Instrument Panel Light Bulbs, Maxi Fuse, Grommets, 2 Fire Wall Pass-through Plates, and a Fuse Identification Label.
- Parts Box containing Terminals, Splices, Spare Fuses etc.


**Figure 1** The Painless Wire Harness Kit

## TOOLS NEEDED

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

Crimping Tool *Note: Use a quality tool to avoid over-crimping.*
Wire Stripper
Test Light or Volt Meter
Electric Drill
1-1/4" Hole Saw or grinding/ cutoff tool
Small (10 amp or less) Battery Charger

## PRE-INSTALLATION AND GENERAL HARNESS ROUTING GUIDELINES

The installation of your wire harness mainly consists in two parts:

- The physical routing and securing of the wire harness, wires, and groups.
- The proper connection of the individual circuits.

These two major tasks are not separate steps, but are integrated together. That is, you will route some wires and make some connections, route more wire and make more connections. We cannot tell you how to physically route the harness in your vehicle, although much of this harness follows the factory routing. We do offer some general guidelines and routing practices starting. To help you begin thinking through the installation of your wire harness, familiarize

yourself with the harness by locating each of the harness sections in the following list. Whenever a particular harness section is referred to in these instructions it is shown "all caps": ENGINE SECTION.

| | |
|---|---|
| A/C-ELECTRIC FAN SWITCH SECTION | HAZARD SWITCH SECTION |
| ACCESSORY SECTION | IGNITION SWITCH SECTION |
| ENGINE SECTION | INSTRUMENT PANEL SECTION A |
| TURN SWITCH SECTION | INSTRUMENT PANEL SECTION B |
| HEADLIGHT SECTION A | RADIO/TACHOMETER SECTION |
| HEADLIGHT SECTION B | TAIL SECTION |
| HEADLIGHT/WIPER SWITCH SECTION | |

*Note: For complete information concerning the individual circuits and wires that make up the harness SECTIONS, see the* ***Wire Index***

The Painless Wire Harness is designed for the fuse block to be mounted near the factory fuse block location.

A good exercise is to lay out the wire harness on the floor beside your Mustang and identify all the SECTIONS. You will want to route the harness through and around open areas. Inside edges provide protection from hazards and also provide places for tie wraps, clips and other support.

- Route the harness away from sharp edges, exhaust pipes, hood, trunk and door hinges.
- Plan where harness supports will be located. Allow enough slack at places where movement could occur (body to frame, frame to engine, etc.). Use a support every 12 inches unless the harness routes under the floor carpet.
- At wire ends don't depend on the terminals to support the harness. The weight of the harness could cause terminals to disconnect or copper wire strands to break.
- The wires should be bundled into groups. Use nylon ties, poly split loom, or tape.

## HARNESS GENERAL INSTALLATION INSTRUCTIONS

## Rough Installation

*CAUTION: DISCONNECT THE POWER FROM YOUR VEHICLE BY REMOVING THE NEGATIVE (BLACK) BATTERY CABLE FROM THE BATTERY. Make no wire connections or permanent mounting of any kind at this time!*

- Mount the fuse block base with the self tapping screws provided. The screws simply need to be drilled through the bottom of the fuse block base and into the sheet metal **See Figure 2**
- Position the fuse block in its mounting area with the wires exiting from the top of the fuse block, and push to snap it into place. **See Figure 3**
- Enlarge the existing firewall opening at the driver's fender to 1- 1/4". Then route the 2 White HEADLIGHT SECTION B harness connectors through the 1-3/4" X 3 1/2" supplied pass through plate and grommet. Follow the same procedure for the ENGINE SECTION using the 3-1/2" X 3-1/2" supplied pass through plate and grommet. **See Figure 4**

**Figure 2** Fuse Block Base Mounting

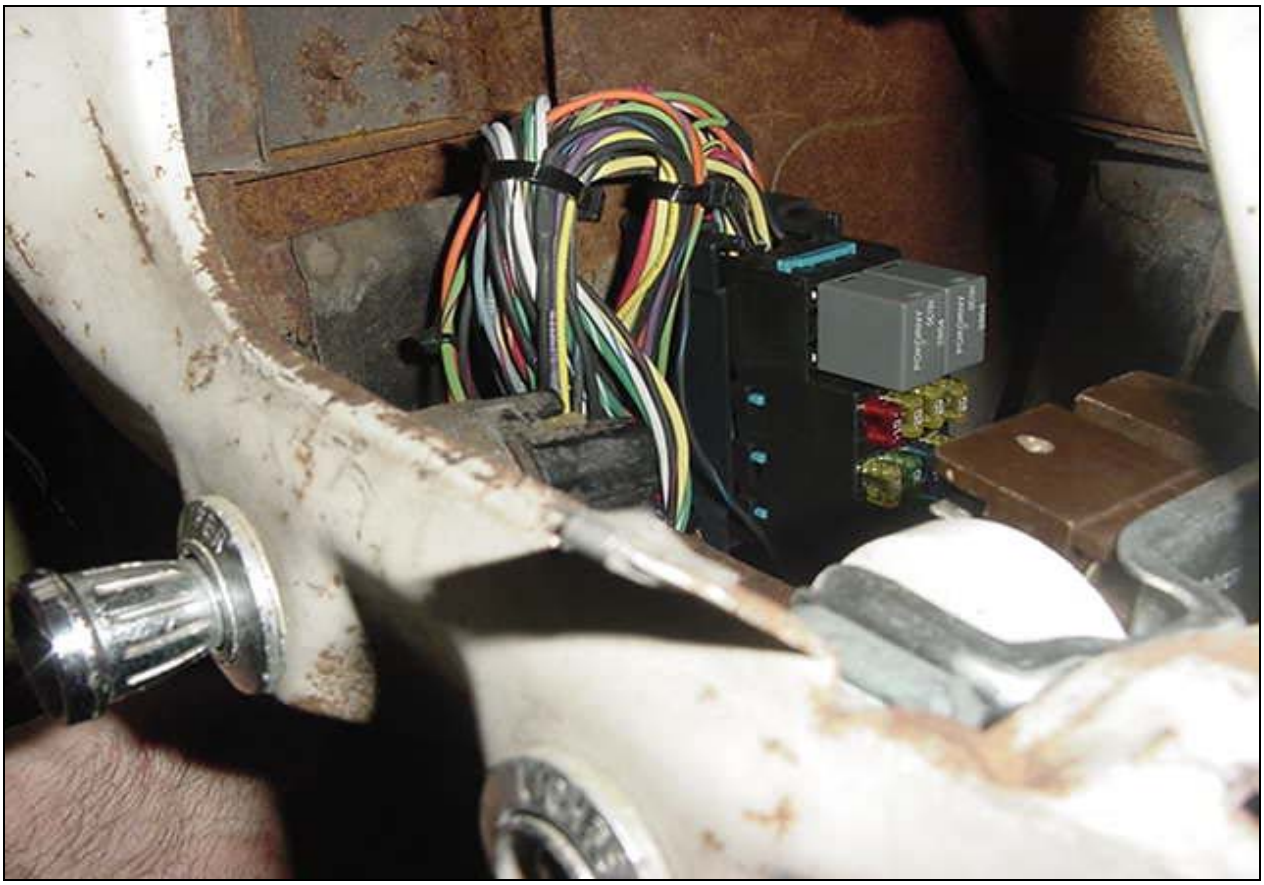


**Figure 3** Fuse Block Position

**Figure 4** Pass Through Plates and Grommets

- Route HEADLIGHT SECTION B wires through the opening and position the harness groups in the area near the left kick panel.
- Route dash group (TURN SWITCH SECTION, HEADLIGHT/WIPER SWITCH SECTION, INSTRUMENT PANEL SECTION A, RADIO/TACHOMETER SECTION, HAZARD SWITCH SECTION, IGNITION SWITCH SECTION, A/C- ELECTRIC FAN SWITCH SECTION, and ENGINE SECTION) upward to rear of dash and temporarily tie in place.
- Route the TAIL SECTION, through the kick panel, into the door sill channel on the driver's side of the car.

## Harness Attachment

*Note: Harness routing and shaping is and should be a time-consuming task. Taking your time will enhance the beauty of your installation. Please be patient and TAKE YOUR TIME!*

- Mold harness groups to the contour of floor pan, firewall, fender panels, and any other area where wires or harness groups are routed. Remember to route the harness away from sharp edges, exhaust pipes, hood, trunk and door hinges.
- Attach harness groups to your automobile with clips or ties starting at the fuse block and working toward the rubber grommet for the front groups and along the floor pan for the rear group. The dash wires should be routed out of the way of any under-dash obstacles, such as cowl vent, air conditioning, radio, etc.

*Note: Do not tighten tie wraps and mounting devices at this time. Make all harness attachments LOOSELY.*

- When used every 1-1/2" or so on the visible areas of the harness, the plastic wire ties make a very attractive assembly. Painless PowerBraid is ideal for wires running in visible areas. A tie installed in other areas every 6" or so will hold the wires in place nicely. Remember to take your time!

## Grounding the Automobile

A perfectly and beautifully wired automobile will nevertheless have bugs and problems if everything is not properly grounded. Do not go to the careful effort of installing a quality wire harness only to neglect proper grounding.

*Note: The Painless Wire Harness Kit includes no ground wire except the black wire from the two headlamp connectors, a instrument panel ground, and a ground wire for the accessory relay. You must supply ground wire (14-16 gauge) for all other circuits.*

- Connect a Ground Strap or Cable (even a 10-gauge wire is too small) from the Negative Battery terminal to the automobile chassis (frame).
- Connect a Ground Strap from the Engine to the chassis**. DO NOT RELY UPON THE MOTOR MOUNTS TO MAKE THIS CONNECTION**.
- Connect a Ground Strap from the Engine to the Body.

## Terminal Installation and Making Connections

*Note: In the following steps you will be making the circuit connections. Before you start, you should carefully read **Sections 7.0** , as appropriate, and continually refer to **Section 8.0**, DOUBLE-CHECKING your routing and length calculations before cutting any wires and making connections. Give special attention to Turn Signal and Ignition Switch connections. These can be somewhat confusing.*

- Have all needed tools and connectors handy.
- Select the correct size terminal for the wire and stud application.
- Determine the correct wire length and cut the wire. Remember to allow enough slack in the harness and wires at places where movement could possibly occur, such as automobile body to frame, frame to engine, etc. **Double-check your calculations.**
- Strip insulation away from wire. Strip only enough necessary for the type of terminal lug you are using.

*Note: In the following step, make sure that the terminal is crimped with the proper die in the crimping tool. An improper crimp will NOT make a good connection.*

- Crimp the terminal onto the wire.

*CAUTION: DO NOT OVER-CRIMP!*

- Connecting the harness throughout the groups is a redundant process. Make sure that each wire is FIRST properly routed and THEN attach. **DO NOT** ATTACH FIRST THEN ROUTE AFTERWARD.
- When all wires are attached, tighten the mounts and ties to secure harness permanently.

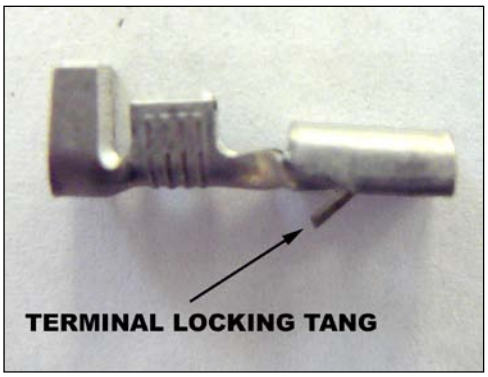
# Re-using Factory Connectors

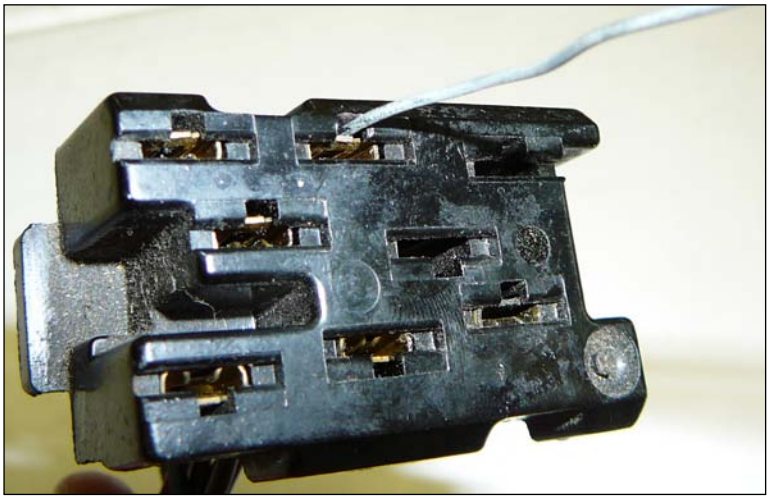
Where ever possible, connectors have been pre-installed on the Painless harness. However, some connectors used on the early Mustangs are no longer produced. Connectors are not available in the aftermarket for the following components: Wiper Switch, Ignition Switch, and Headlight Switch.

Insulated terminals have been provided pre-installed on the Painless harness for all of the dash mounted switches. These terminals will allow connections to be made to these switches without the use of a connector. Some installers may prefer to re-use the factory connector, instead of using these push on style terminals. Factory style terminals have been supplied to replace the insulated terminals pre-installed on the Painless harness. It is up to the installer to remove the pre-installed insulated terminal, and reinstall the correct terminal in order to re-pin the factory connect onto the Painless Harness if they desire.

### Removal of the Connectors from the Factory Harness

The factory terminals in the connectors have a locking tang that keeps them from being pulled out from the connector. This tang can be seen in the photo to the right. In order to remove the terminal from the connector, the tang must be flattened down and the terminal pulled from the connector. It is a good idea to write down the wire color going to each location before any wire is removed from the connector. Pin outs are available in this manual, however your own notes may prove to be more valuable to you.



- Looking at the switch side of the connector you will notice little openings above or below the terminals. This little opening gives you access to the locking tang on the terminal.
- Insert a small pick, a paper clip, or a thin piece of stiff wire into this opening. Apply a slight amount of pressure to make sure you are as far into the connector as you can go.
- As the wire or pick is being pushed into the opening, pull the wire from the opposite side of the connector to remove the wire from its location.
- This procedure can be applied to the removal of the factory connectors for the Wiper Switch, Ignition switch, and Headlight Switch.

Installation of these terminals requires the use of a jaw type crimper. Painless Performance Products recommends part number ***990170*** from Del City for crimping non insulated “factory” style terminals. These crimpers can be found on the internet at www.delcity.net.


# SPECIFIC CIRCUIT CONNECTIONS

## Headlight Section B Wiring

- Connect the wires in HEADLIGHT SECTION B according to **Figure 8.** All Headlight wires, Turn signal/park lamp connections, and both Horn wires are terminated and have the correct connectors already installed, locate the left and right side of both and make the connections. Ground the (blk) wires from the headlight connector to the chassis.
- Connect wire #968 (blk/wht) from the Wiper Switch to the Windshield Washer Pump. This wire will provide power from the wiper switch to the washer motor.
- If using an externally regulated alternator, the same style charging system used from the factory, connect the pre-installed regulator connector onto the regulator found on the driver side core support.
- Connect the 14-gauge wire #981 (blk/red) with the pre-installed ring terminal to a mounting bolt of the regulator. This will provide a clean ground to the alternator.
- Connect wire #901 (gry/wht) to the Electric Cooling Fan Relay (**Painless Performance Part #30101, Fan-Thom Electric Fan Relay Kit)** *This wire is an activation wire for the relay, **NOT A POWER FEED TO THE FAN MOTOR**.* Refer to **Figures 26** & **27**. If a mechanical fan is being used, this wire will not be needed.

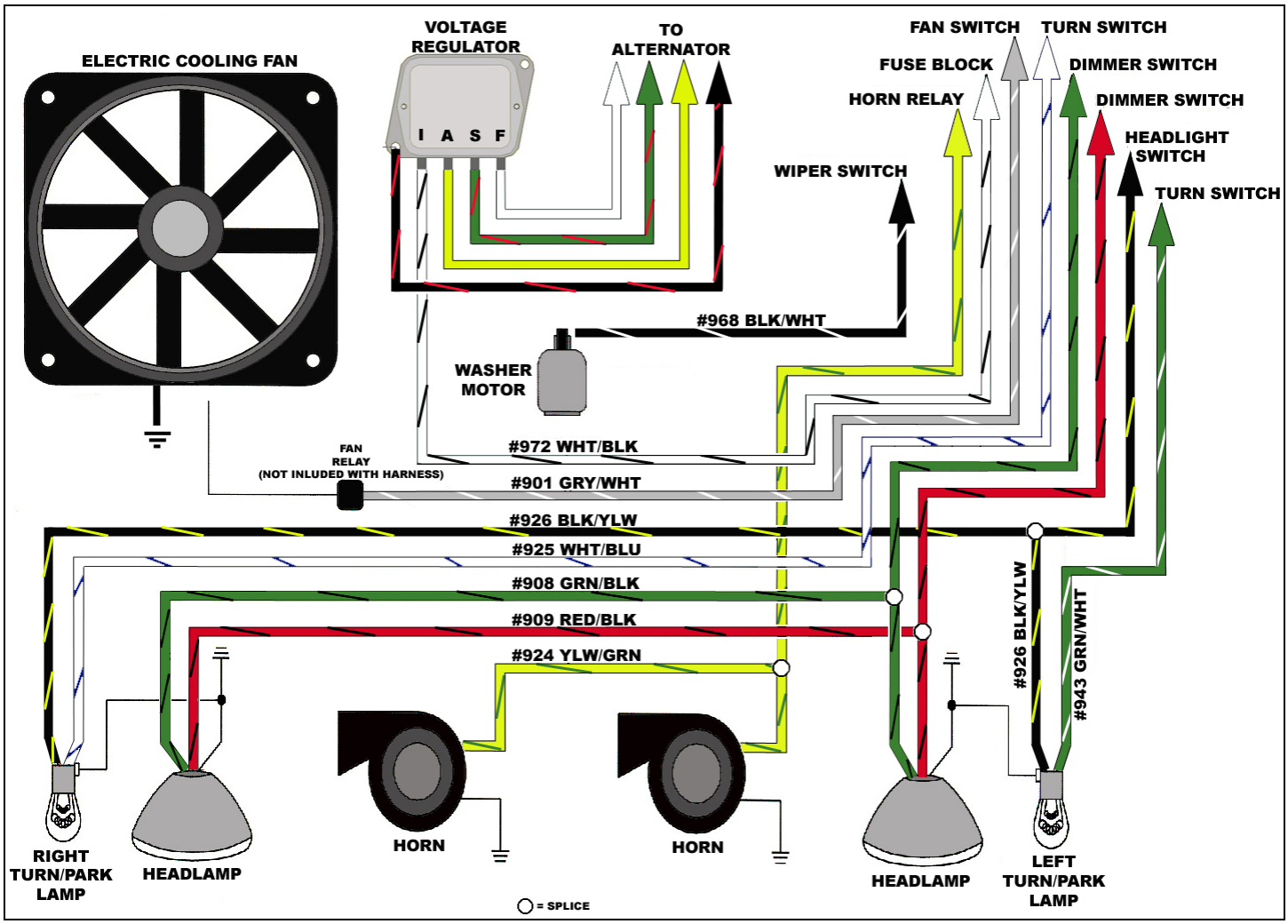



**Figure 8** Headlight Section B Wiring

With the alternator wires of Headlight Section B routed over to the Alternator, connect them as described below and as shown in **Figure 9**.

- Connect the 14-gauge wire #915 (grn/red) from the Voltage Regulator “S” terminal to the Alternator Stator “S” terminal.
- Connect a 14-gauge wire #970 (wht) from the Voltage Regulator “F” terminal to the Alternator Field “F” terminal.
- Connect the 14-gauge wire #981 (blk/red) to the Alternator Ground lug.
- Connect ENGINE SECTION wire #971(blk/ylw) from the fuse block to the Alternator Output lug “Bat”. The 14-gauge wire #913 (ylw) from the Voltage Regulator “A” terminal will also connect to the output lug.

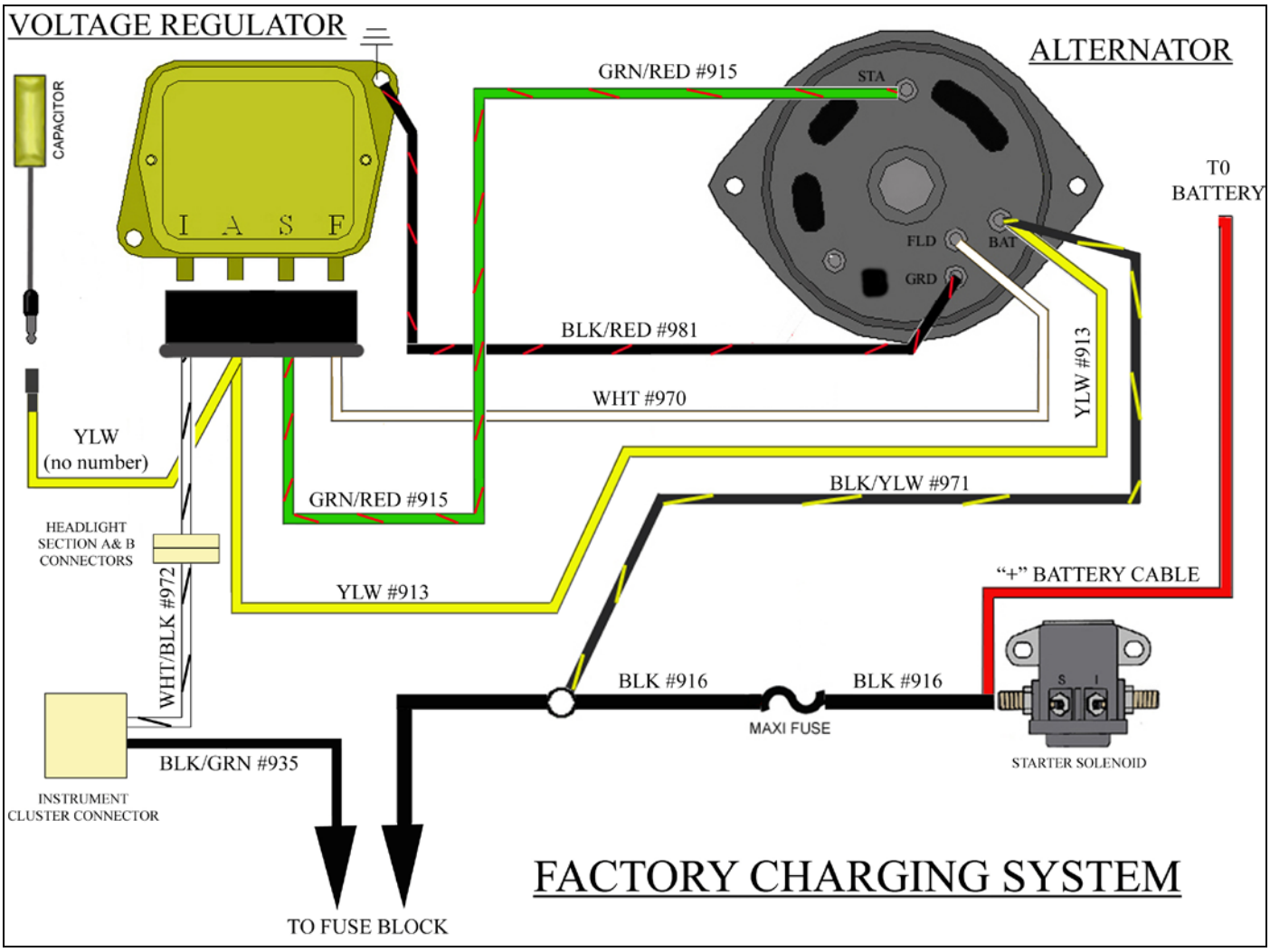



**Figure 9** Ford Alternator

*<u>Note:</u> Your Alternator may not appear exactly as represented in **Figure 9**. The circuits are wired the same way, though.*

*<u>Note:</u> If you experience engine run on after turning off the ignition switch, a diode (Radio Shack Part #276-1661) must be installed to the Voltage Regulator "exciter" wire. Splice the diode into wire #972 (wht/blk) near the voltage regulator, **the stripe on the diode should face towards the regulator.** A faulty voltage regulator can also cause this problem.*

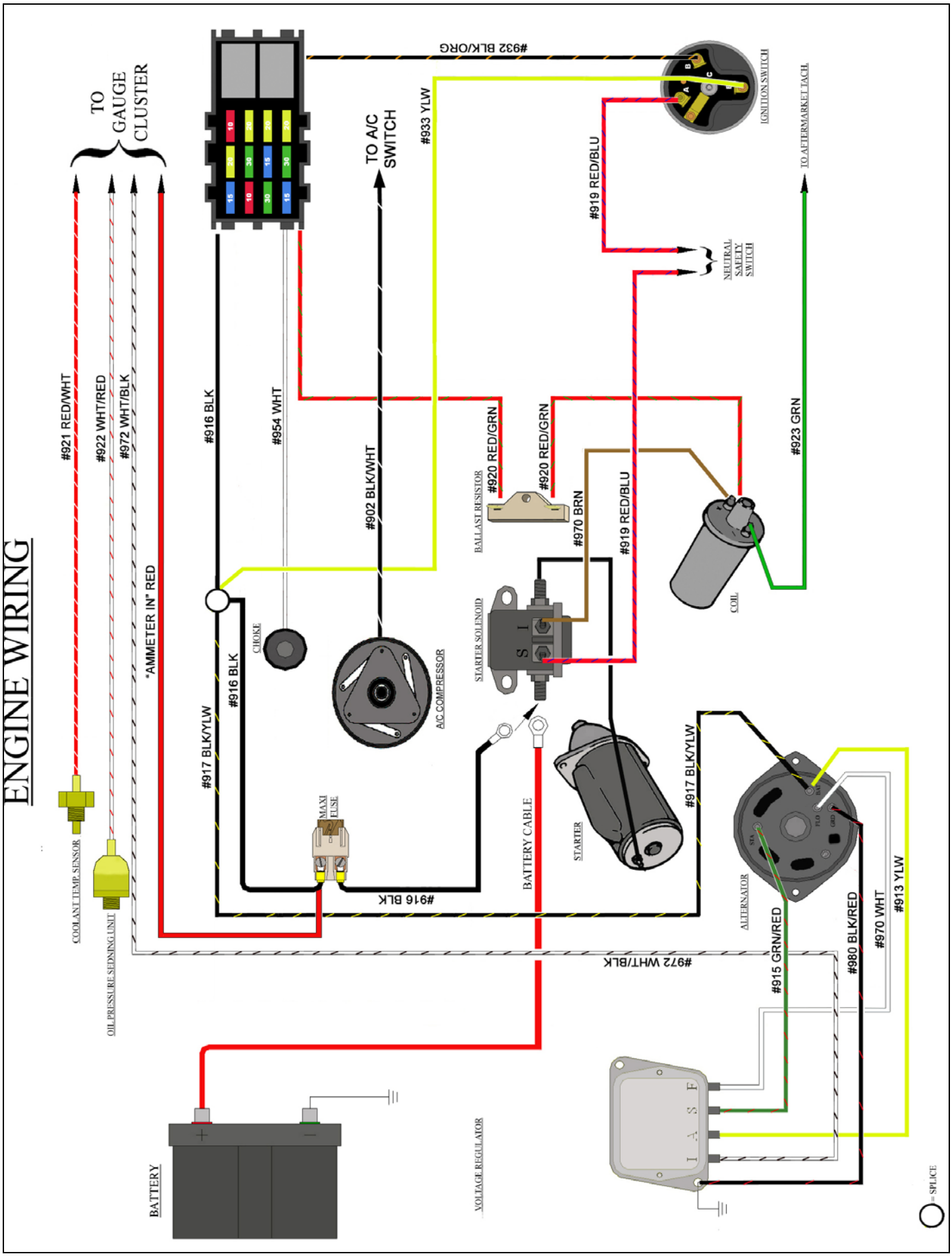



**Figure 10** Engine Wiring

# Engine Section


## Maxi Fuse

This large fuse isolates the battery from the Alternator and the harness. This serves as a fuse to protect the entire harness. **DO NOT OMIT IT.**

This fuse, and everything required for installation, can be found in the parts kit (seen in the photo to the left). These parts are:

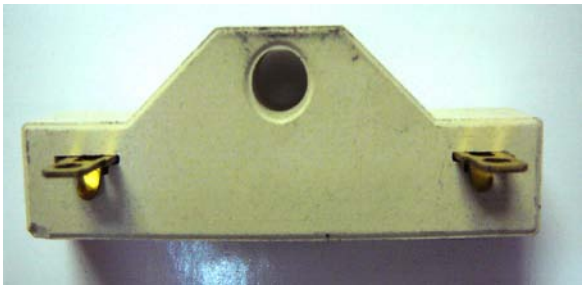
- A MAXI FUSE Base & Cover
- a self-tapping mounting screw
- 70 AMP MAXI FUSE

To install:

- Find a suitable location for the Maxi Fuse base. It can be mounted anywhere in the engine compartment, preferably near the battery. Make sure you allow enough room to get the cover off and on, avoid mounting it near excessive heat. Also take into consideration the length of wires you need for #916, see below.
- Using the mounting screw and the hole found on the top of the base, install the MAXI FUSE Base
- Install the 70 amp Maxi fuse and cover at this time.
- In the ENGINE SECTION, locate the 3 wires labeled **MAXI FUSE**. Using a supplied ring terminal, connect #916 "From the Starter Solenoid…" wire to one side of the Maxi Fuse.
- Connect the other #916 "…to the Fuse Block" wire to the other side of the Maxi Fuse. The red wire will only be used by those using an Ammeter. It will double with the #916 Fuse block wire, see **Figure 9**.

## Ford Ignition & Start/Run System

- Connect wire #916 (blk)– with Maxi Fuse installed – to the Starter Solenoid Battery terminal. This is the same lug that the large cable from the battery "+" will be connected. This is the main power feed for the harness.
- Connect ENGINE SECTION wire #919 (red/blu) to the Starter Solenoid Start "S" terminal.



A ballast resistor, supplied with the harness and seen in the photo to the left, will be needed if you do not have a newer internally resisted coil. Neglecting to use the supplied ceramic ballast resistor on a coil that requires a resisted 12v supply, will cause the coil to quickly overheat leading to complete coil failure.

- If you are using the Ballast Resistor, mount it away from other wiring or hoses. The Ballast Resistor gets very hot during operation. Connect ENGINE SECTION wire #920 (red/grn) to one end of the Ballast Resistor. Connect the other end of the Ballast Resistor to the Ignition Coil B+ terminal with 16-gauge wire (you will have enough wire left over to accomplish this).

- Connect a 16-gauge #970 (brn) wire from the Starter Solenoid Ignition “I” terminal to the coil side of the Ballast Resistor or directly to the coil + post. This wire serves as a ballast resistor BYPASS during engine starting. If you are not using a ballast resistor, this wire will not need to be connected to coil or starter solenoid and may be removed from the harness.
- Connect ENGINE SECTION wire #923 (grn) to the Ignition Coil NEGATIVE (-) terminal. This is the tachometer source. If you are not using an aftermarket tachometer, insulate and stow wire #923 (grn).

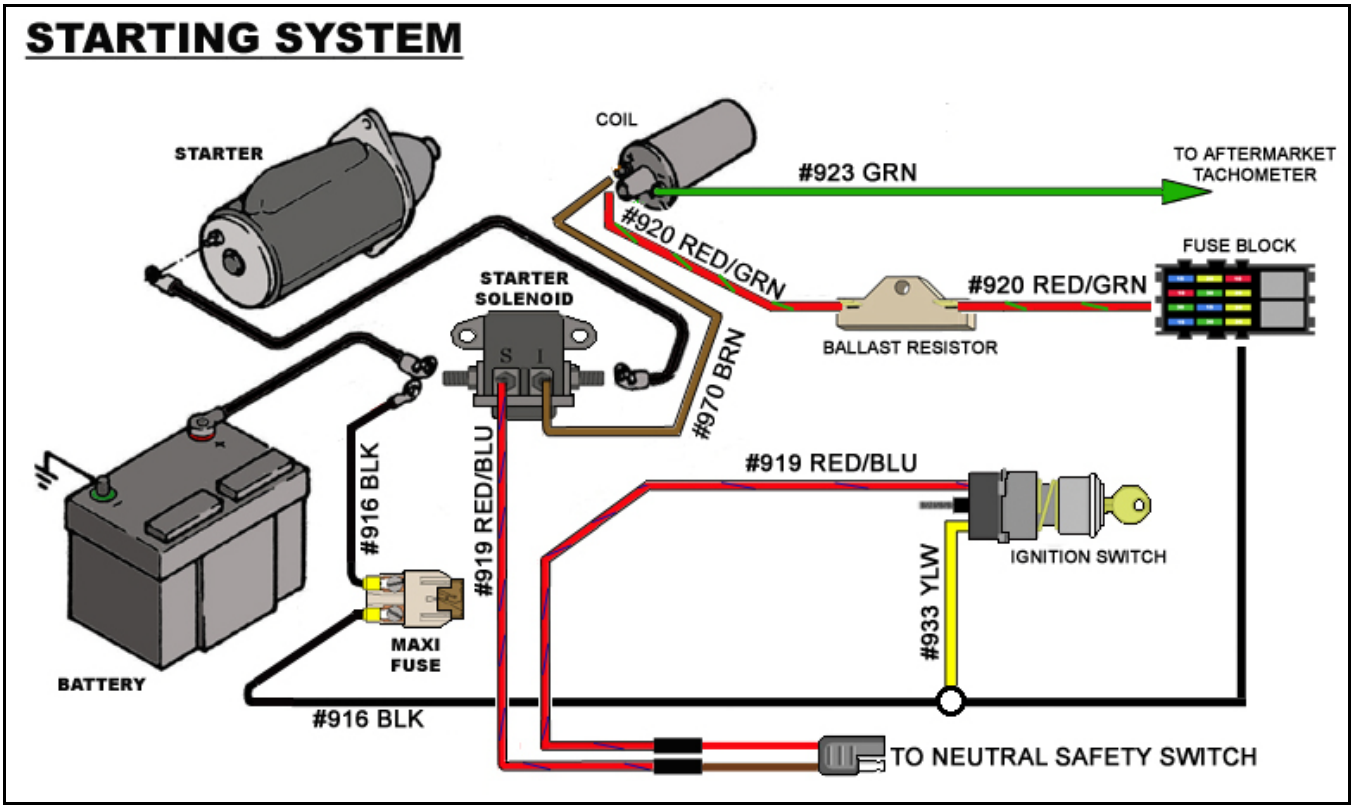



**Figure 12** Ford Start/Run System

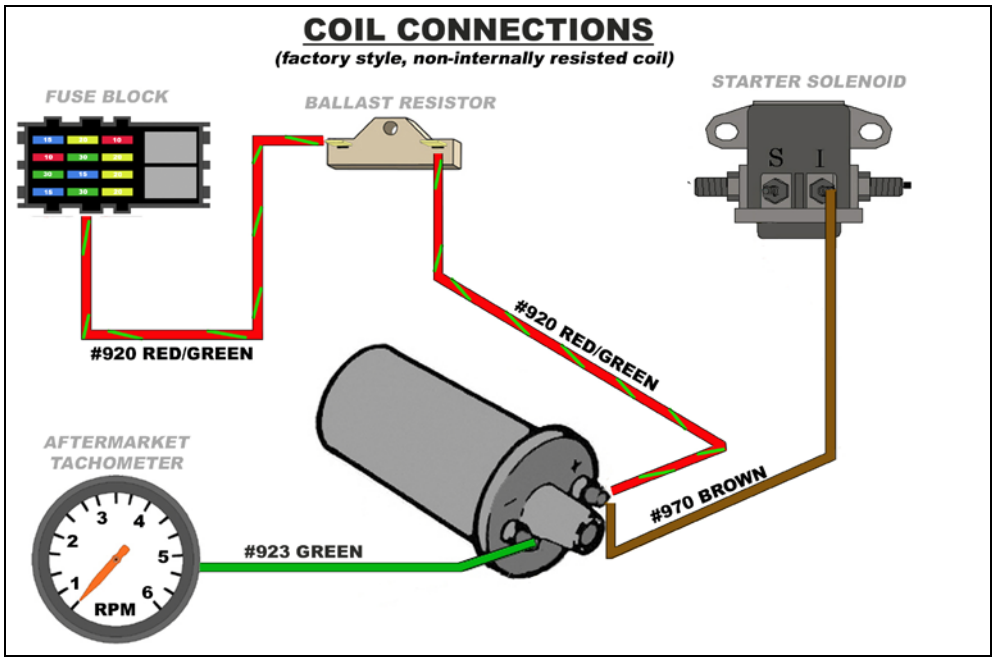



**Figure 13** Factory Ignition System

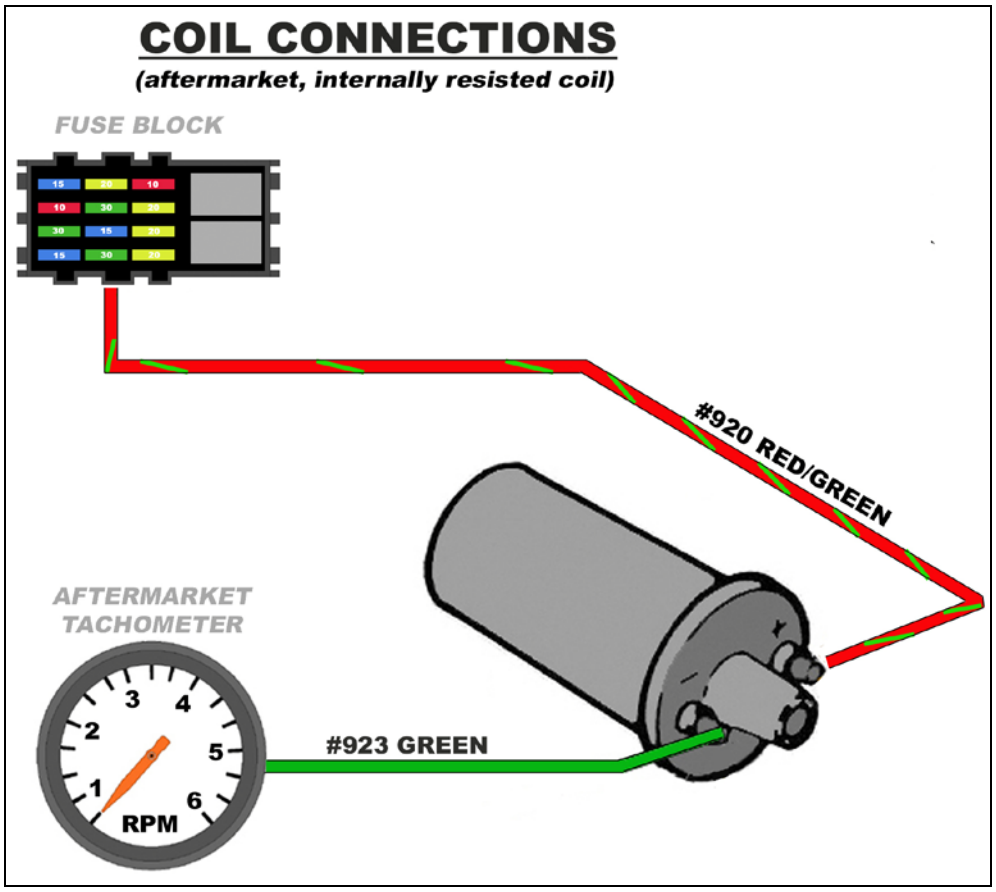



**Figure 14** Internally Resisted Coil Connections

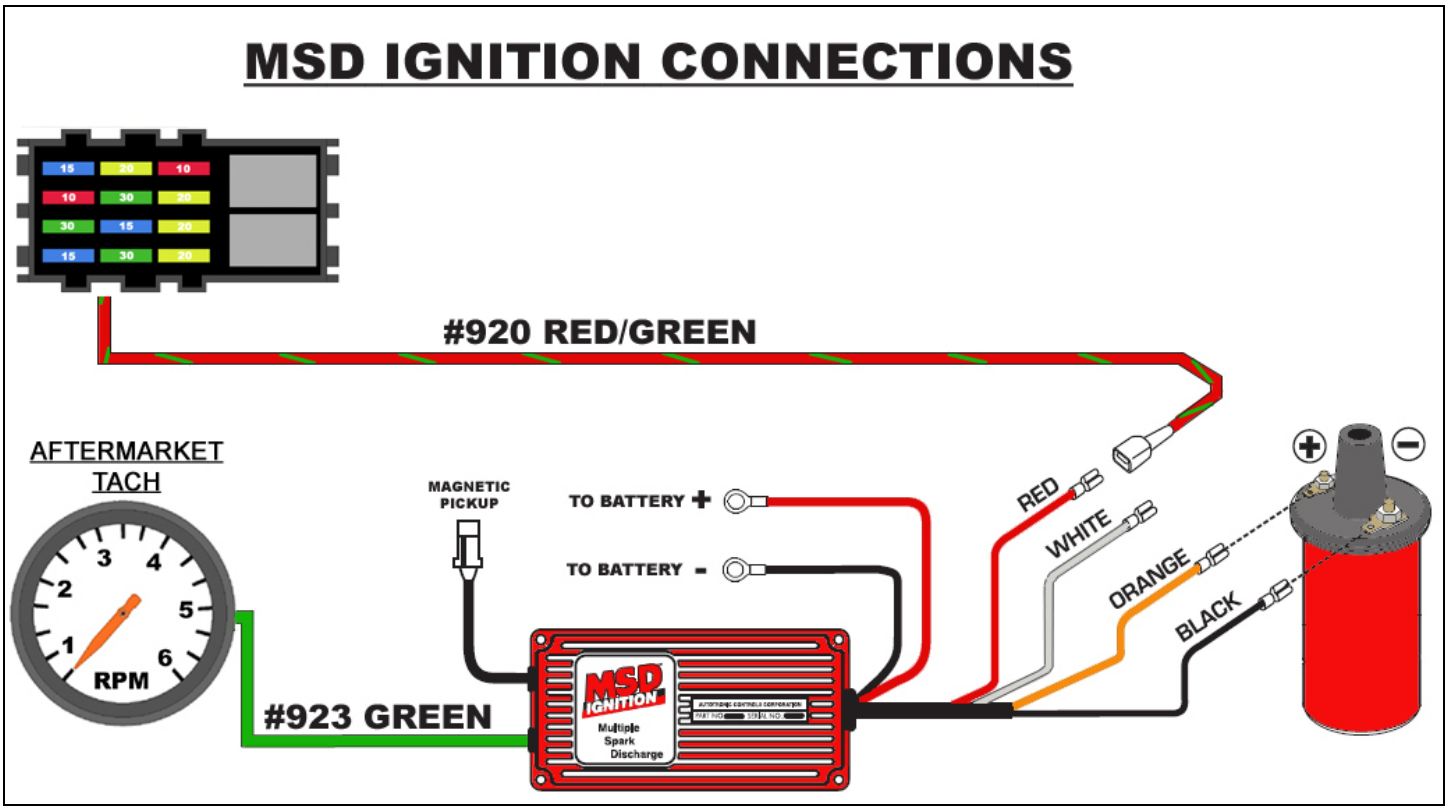



**Figure 15** MSD Connections

## Blower Motor Wiring

- Connect wire #904 (brn) in the ENGINE SECTION to the Brown (Black/Yellow on some models) wire on the Heater Blower Motor.
- Connect wire #903 (ylw) in the ENGINE SECTION to the Yellow (Red on some models) wire on the Heater Blower Motor.

Both wires can be seen in **Figures 24** & **25**.

## Neutral Safety/Reverse Switch

Extra length has been given to these wires to accommodate those using aftermarket floor shifters that have Neutral Safety/ Reverse switches attached to their bases. Molded connectors are provided in the parts kit to allow connection to the factory Neutral Safety/Reverse Switch.

- Connect the two #919 (reb/blu) wires to the Neutral Safety Switch. These wires can connect to either side of the switch. The colors of the Painless harness should match your factory colors.
- Connect the #953 (blk/red) and #991 (blk/red) wires to the Reverse Switch. These wires can connect to either side of the switch. The colors of the Painless harness should match your factory colors.

# Interior Wiring

## Steering Column Wiring-Turn Signal Connections

- Connect the 6-way and the 2-way connectors labeled TURN SWITCH SECTION to the factory steering column harness. These connectors will plug directly to the existing connectors and will take care of all the Turn Switch connections.

For those using an aftermarket steering column that uses GM connectors, use the following set of directions and diagram to correctly pin out your column connector (not supplied with this kit)

- Cut the pre-installed 6 pin and 2 pin connectors from the Painless harness.
- Using a splice found in the parts kit, connect the yellow wire and blk/red wire together. This will supply the Horn relay found on the fuse block with a constant switched 12v power source. Ford Columns passed power through the horn button, while Gm columns pass chassis ground through the horn button.
- Locate the #969 blk/wht wire near the Instrument Panel section with the pre-installed red ring terminal. This blk/wht wire will need to have the ring terminal removed then routed and connected to pin G of the GM column connector. This wire provides a ground source to the relay. Instead of applying a constant ground, like done with a Ford Column, it will now carry the switched ground source from the horn button to the horn relay.
- Use **Figure 16** for the connection of the remaining wires from the Painless harness.

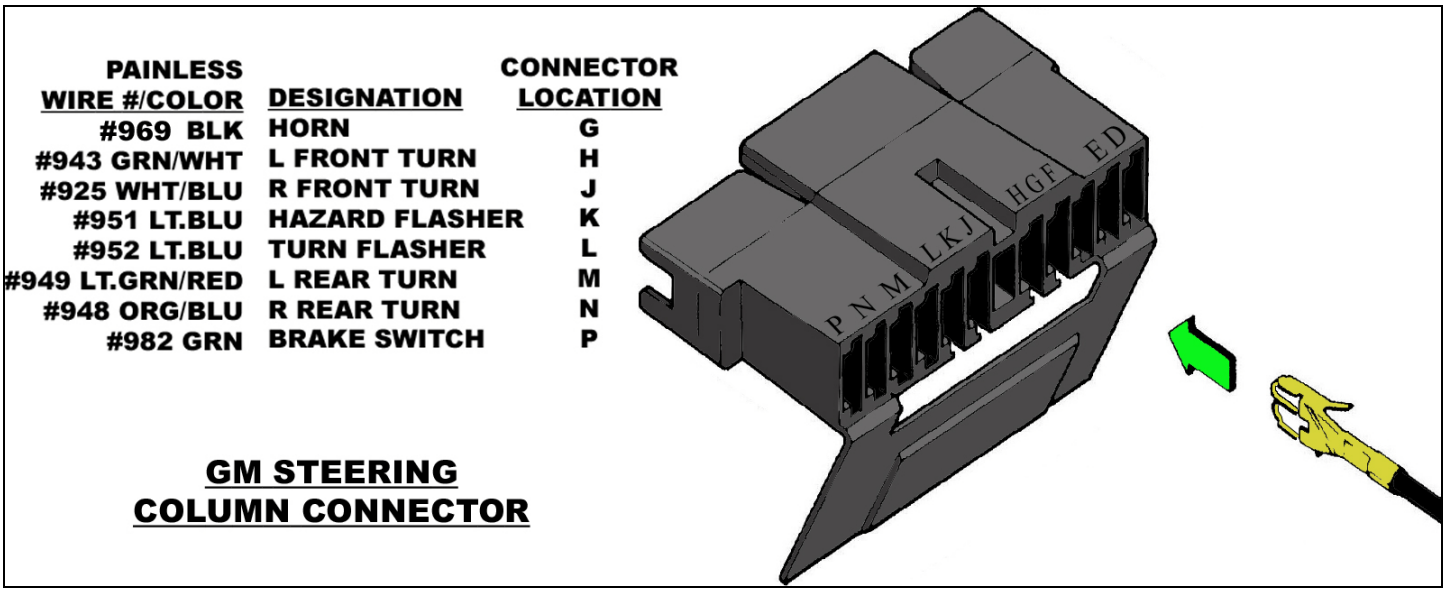
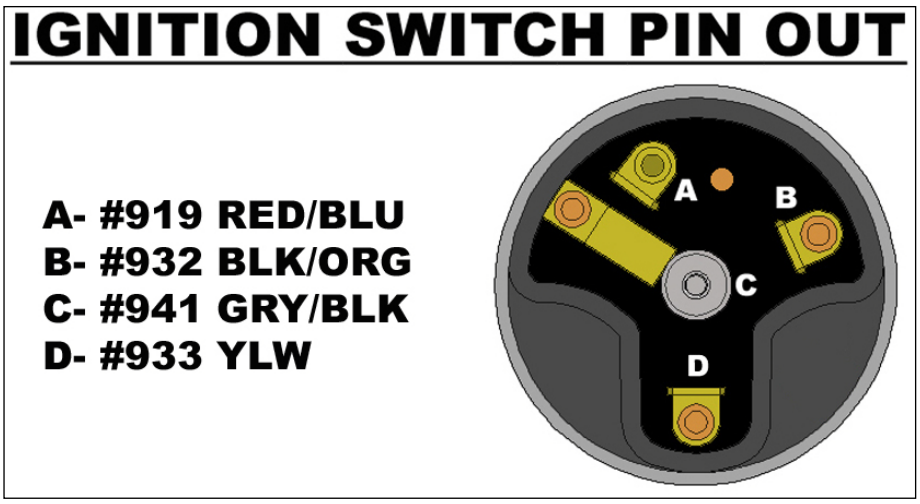



**Figure 16 GM Steering Column Connector**

## Ignition Switch Connections




- Connect the wires of the IGNITION SWITCH SECTION according to **Figure 17**.
- Wire #919 (red/blu) is the Start signal
- Wire #932 (blk/org) is the output wire that provides the fuseblock with a switched 12v power source.
- Wire #941 (gry/blk)is a 12v accessory hot wire.
- Wire #933 is the power input to the Ignition Switch from the battery.

**Figure 17** Ignition Switch Connections

## Interior Lighting

Interior Lights are switched through the door switches and the dash-mounted headlight switch, which is usually rotated counter-clockwise to turn on; these switches apply12v to the Interior Lighting circuit.

The Glove Box and Courtesy Light bulbs are grounded through their housings and mounting points so make sure that they are clean and tight.

The specific courtesy lamp locations will have a label indicating its proper connection. These wires are blk/blu and will have a male terminal pre-installed and can be used for powering the courtesy and door lights.

Due to the different types of Interior Lighting options, you may not have all of the necessary wiring to accommodate your specific interior lighting package. Rear quarter panel light

wiring for both left and right sides as well as wiring for the Glove Box light is provided along with connection points for Center Console, and Door lights. If possible leave your existing interior light wiring intact. It will be necessary to reuse some of the original wiring or add new wiring were applicable. The Painless harness supplies the 12V feed (B+) to the circuit via wire #918 (lt.grn/ylw) and wire #945 (blk/blu).

This following set of directions will allow the Interior Lights to be turned on when either of the doors are opened.

- Connect wire #918 (lt.grn/ylw) and wire #945 (blk/blu) to the left door jamb switch
- The right door jamb switch is also connected using a separate pair of wires also printed #918 (lt.grn/ylw) and wire #945 (blk/blu).

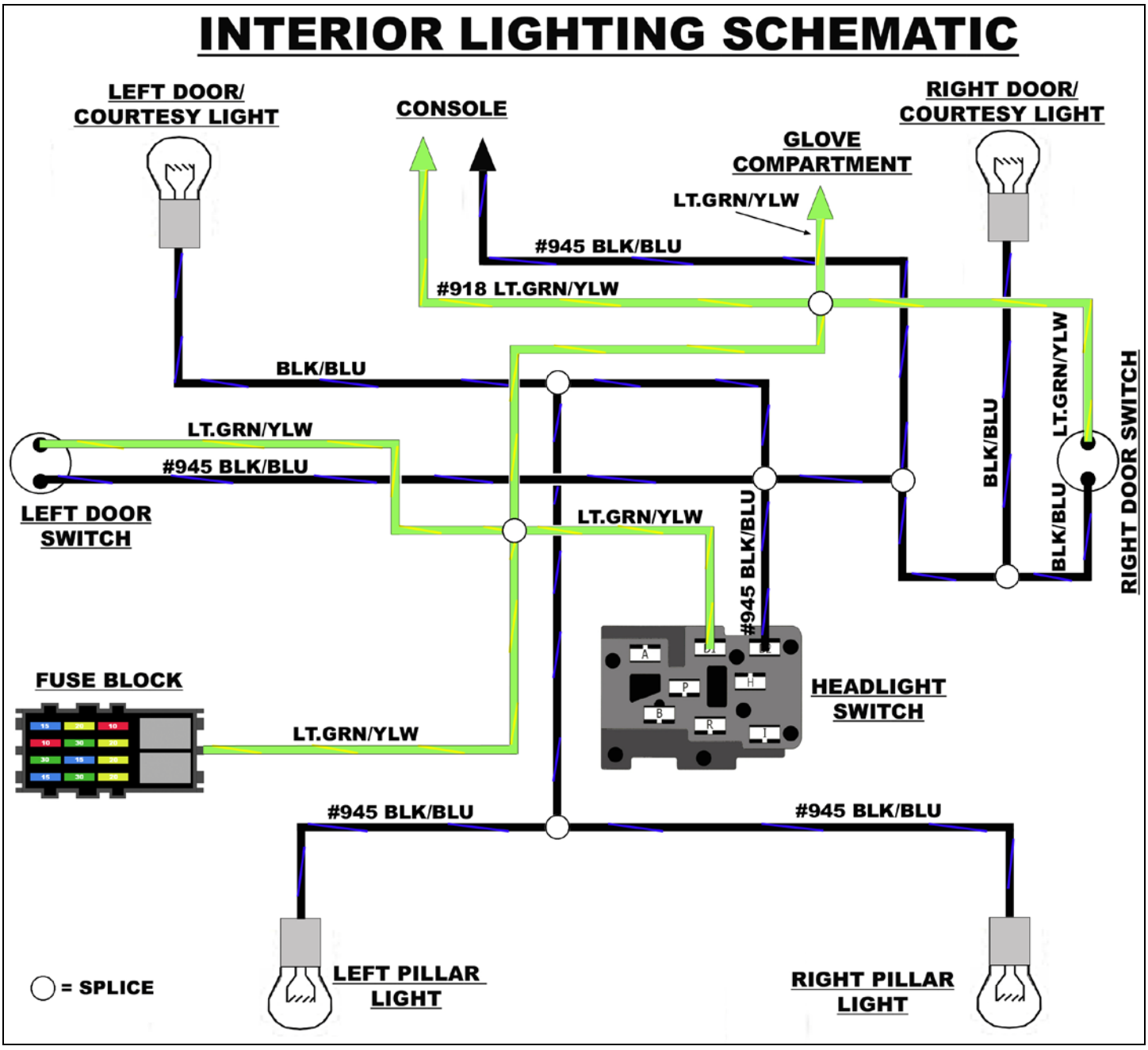



**Figure 18** Interior Lighting Schematic

## Brake Light Switch

- Route the brake switch wires #917 (lt.grn/red) and #982 (grn) in HEADLIGHT SECTION A, from the driver side kick panel, over the steering column, and behind the instrument panel opening to the brake switch located on the brake pedal.
- Install the brake switch wires, wires #917 (lt.grn/red) and #982 (grn), onto the brake switch. These two wires are interchangeable and can be installed on either side of the connector. These wires are terminated with push on terminals and install directly to the tabs on the Brake Switch.

## Instrument Panel Wiring

The Painless harness kit contains 2 pigtail assemblies, “1965 Cluster” and “1966 Cluster”. Each pigtail assembly will connect to the instrument panel connector found on the Painless harness and provide all of the proper connections pre-terminated according to which year cluster you are using.

- Connect the appropriate pigtail according to what year cluster your particular install is using. This pigtail will plug into the 10 pin “Instrument Panel” connector found on the Painless harness. If you are unsure of which gauge cluster your car currently has, photos of the clusters can be found on the next page.
- Connect dash power wire labeled CONSTANT VOLTAGE REGULATOR (lt.grn/red) with female terminal to the Constant Voltage Regulator on the “In” terminal. Connect the wire labeled CONSTANT VOLTAGE REGULATOR (blk/grn) wire with male terminal to the Constant Voltage Regulator on the “Out” terminal. Connect the remainder of the blk/grn wires to the “I” post on the Oil, Temperature and Fuel Gauges.
- Connect wire #922 (wht/red) to the “S” post of the Oil Pressure Gauge (1966 gauge only)
- Connect wire #921 (red/wht) to the “S” post of the Temperature Gauge
- Connect wire #939 (ylw) to the “S” post of the Fuel Gauge.
- 1966 Clusters have an Ammeter, locate the un-numbered red and yellow wires labeled “Ammeter”. Connect the un-numbered red wire to the “IN” post and yellow wire to the “OUT” post as shown in **Figure 20**.
- After installing the bulbs (supplied) into the black lamp sockets, snap the lamp sockets into their correct locations.
- Wire #923 (grn) supplies the tachometer signal from the ignition coil; follow the instructions with your tachometer for proper installation. Power is provided by wire #934 (red/lt.grn). A ground can be taken from the (blk) wire labeled GROUND in INSTRUMENT PANEL SECTION B.

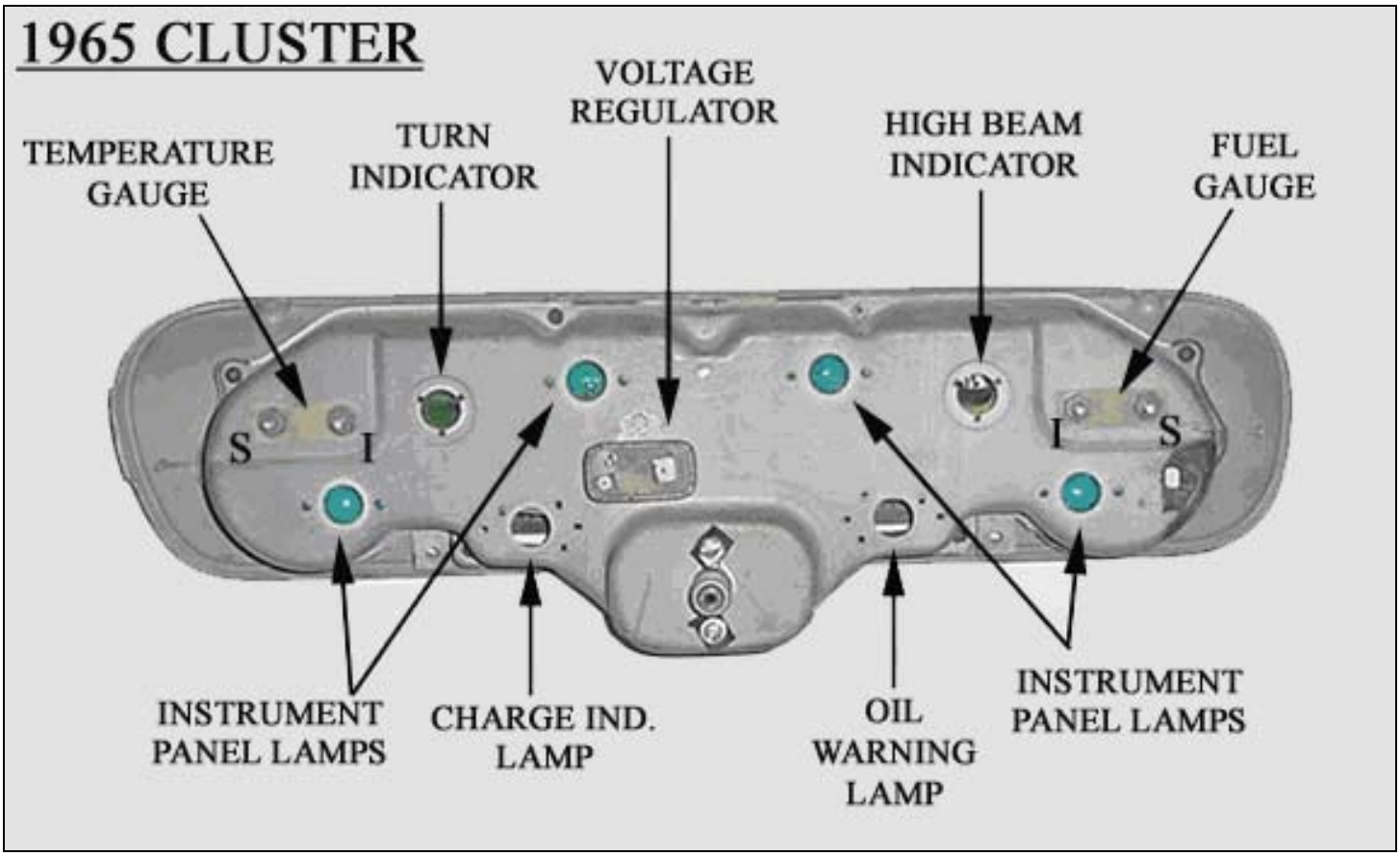



**Figure 19** 1965 Instrument Panel

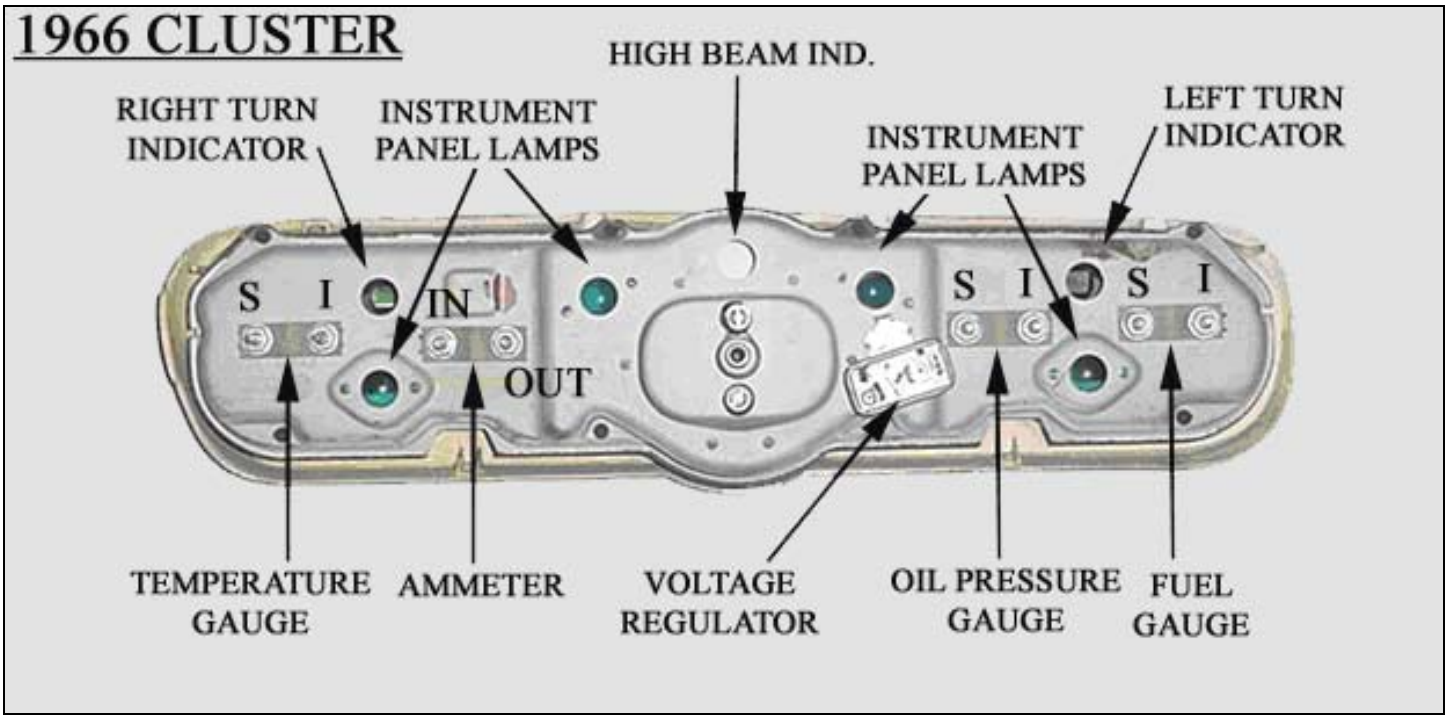



**Figure 20** 1966 instrument Panel

# Wiper Switch Wiring (Single Speed and Two Speed)

## Two Speed

- For Two Speed Wiper Systems, connect the wires of the Wiper switch as indicated in **Figure 21**. These connection will be made using the 2 wires, #905 (org/wht) & #968 (blk/wht), found on the main harness and the Wiper system sub harness included with the kit.
- The opposite ends of Wire numbers, #966 (wht), #993 (lt.blu), #967 (ylw) and #930 (lt.grn) have molded connectors pre-installed and will connect to the factory four way connector found on the Wiper Motor. These wires are color coded to match the original harness but due to inconsistent wire coloring check these circuits to be sure.
- Connect the two wires, #930 (lt.grn), with the female spade terminals to the two male power terminals on the side of the Wiper Motor. It does not matter which wire is connected to each tab.
- Connect the remaining blk wire with the ring terminal to a clean chassis ground. The opposite end of this wire will connect to the black ground wire found on the Wiper Motor.

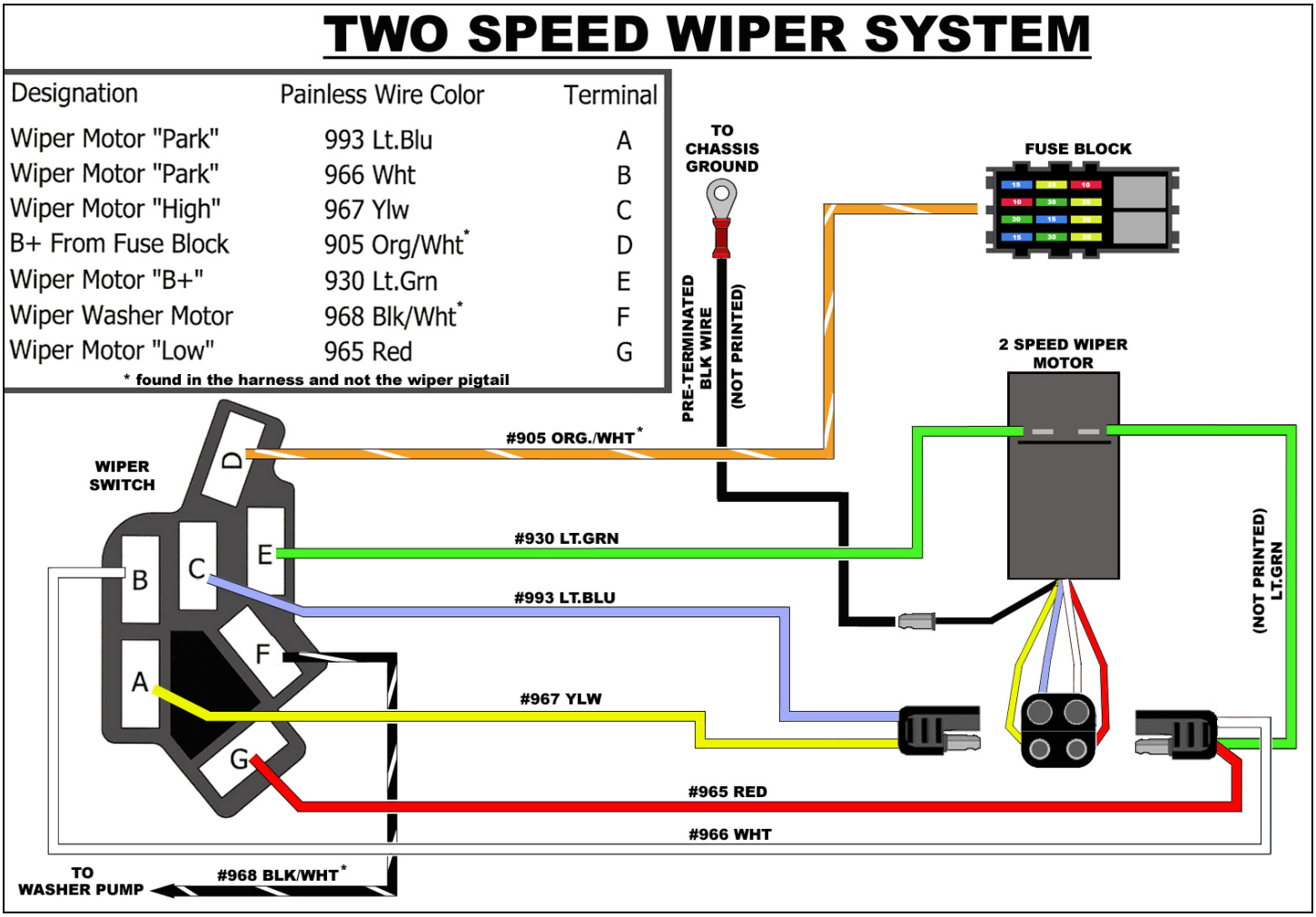



**Figure 21** Two Speed Wiper Switch Connections (Wire Side View)

**Single Speed**

- Begin by cutting the pre-installed molded connectors from the Wiper System sub harness. These were pre-installed for those running a Two Speed Wiper system.
- Discard the #965 (red) and the un-printed Lt.grn wire that doubled with it. These wires are not needed. Wire #968 (blk/wht), found on the harness, will also not be used.
- Connect the wires of the WIPER SWITCH as indicated in **Figure 22**.
- Connect wire #966 (wht) from the Wiper Switch to the Wiper Motor "park" circuit.
- Connect wire #967 (ylw) from the Wiper Switch to the Wiper Motor "On" circuit.
- Connect wire #993 (lt.Blu) from the Wiper Switch to the Wiper Motor “Constant B+” Circuit.
- Connect the ring terminal with the black wire to a clean chassis ground.
- Double #930 (lt.grn) with the opposite end of the Black wire and connect them to the Ground wire coming from the Wiper Motor as shown in **Figure 22.**

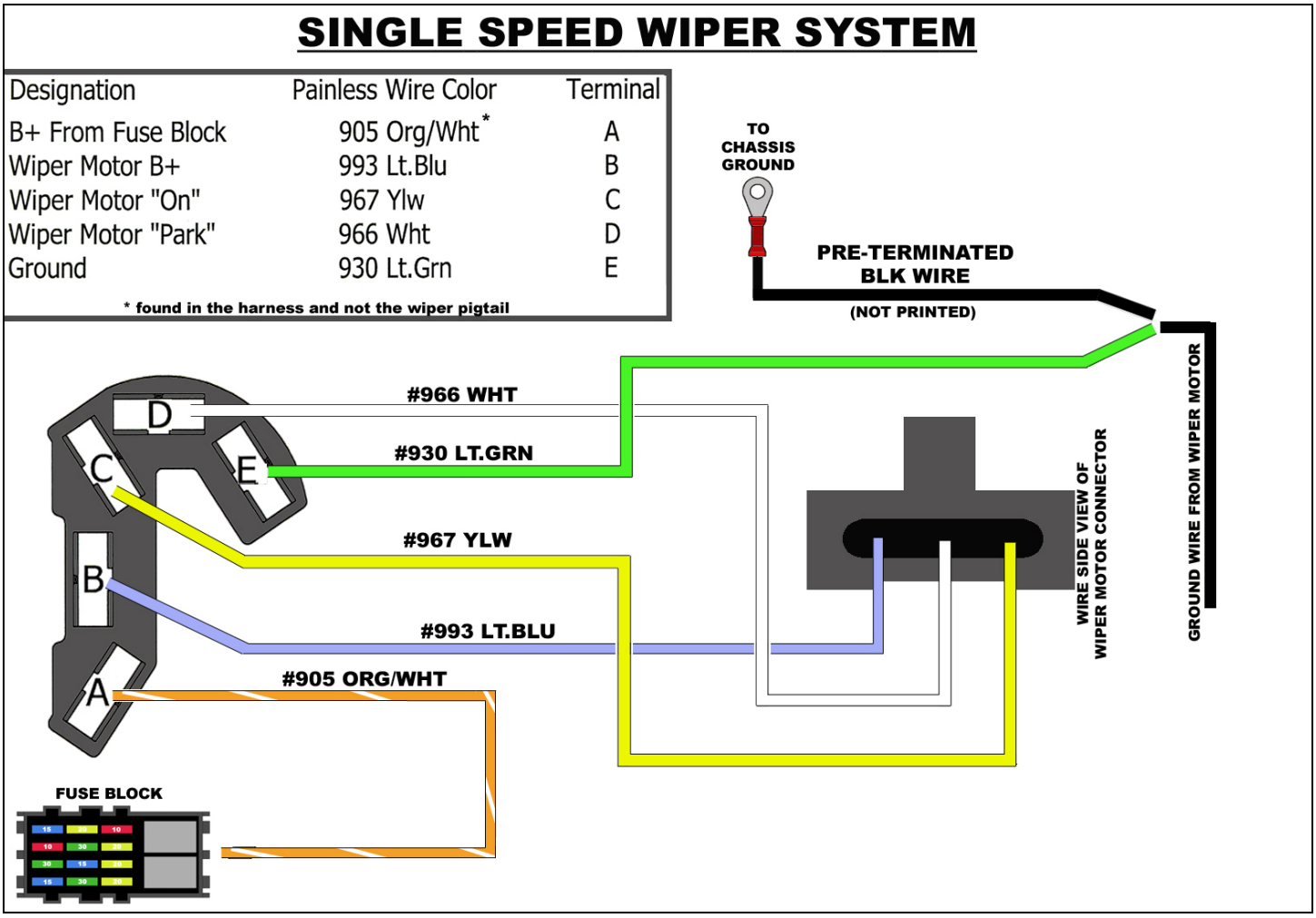



**Figure 22** Single Speed Wiper Switch Connections (Wire Side View)

## Hazard Switch Wiring

- Connect the wires of the HAZARD SWITCH SECTION as indicated in **Figure 23.** The terminals on the Hazard Switch are made to the switch, it may be necessary to splice into the original Hazard Switch Harness. The original wires can be removed using a soldering iron, making it possible to solder the new Painless Wires to the original terminals.

| Designation | Painless Wire Color | Terminal |
|---|---|---|
| Right Front Turn Lamp | 925 Wht/Blu | A |
| Brake Switch | 982 Grn | B |
| Left Front Turn Lamp | 943 Grn/Wht | C |
| Hazard Flasher | 951 Lt.Blu | D |

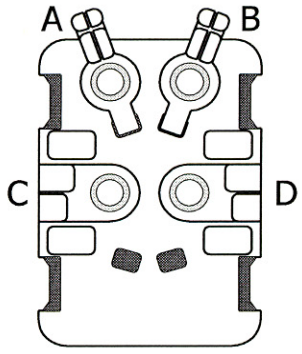



**Figure 23** Hazard Switch Wiring

## Heater-A/C Switch Wiring

*Note: 1965 & 1966 Mustangs had two types of Blower Motor Switches, a two speed switch and a three speed switch. Decide which type of switch you have and connect the switch according to the one of the following two procedures.*

**2 Speed**

- Locate the 2 #904 (brn) wires and the #900 and un-printed blk/wht wires with the push in terminals. These 2 wires can be found near the "Ignition Switch" and the "A/C, Electric Fan Switch" breakouts.
- For 2 speed switches, connect #904 (brn) to #904 (brn). The 2 blk/wht wires will also connect to each other. This will now send power from the fuse block through the blk/wht wire, to #900 (blk/wht), to the heater switch.
- Connect wire #903 (ylw) to the blower motor switch. There are 3 positions on the 2 speed blower switch. If looking at the wire side of the switch, the #903 (ylw) will connect to the left side.
- Connect wire #900 (blk/wht) to the center position of the switch.
- Connect #904 (brn) to the right side of the switch.

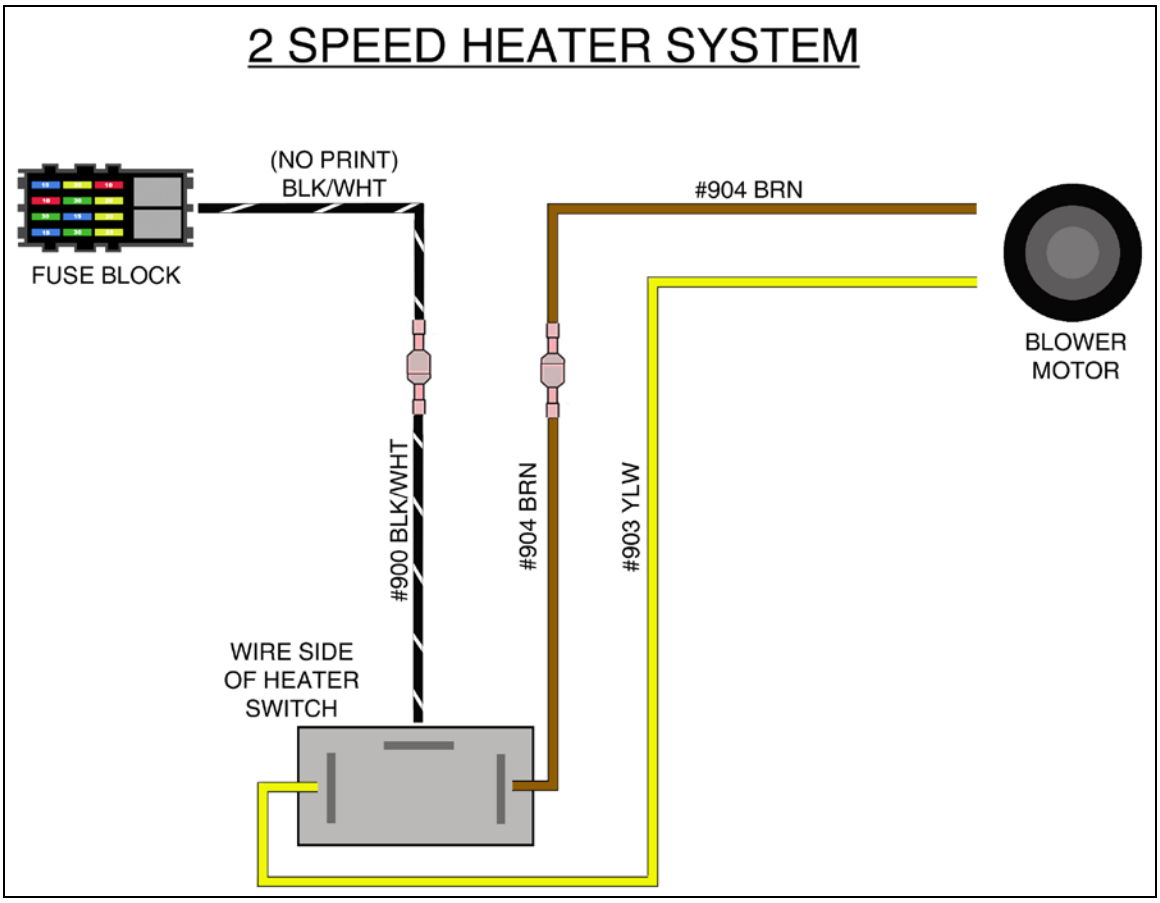



**Figure 24** 2 Speed blower Schematic

### 3 Speed

- Locate the #904 (brn) wire and the un-printed blk/wht wire with the push in terminals. These 2 wires can be found near the "Ignition Switch" and the "A/C, Electric Fan Switch" breakouts.
- For 3 speed switches, connect #904 (brn) to the un-printed blk/wht wire. This will now send power from the Fuse block through the blk/white wire, to the #904 (brn) wire, out to the blower motor.
- For three speed switches wire #903 (ylw) is connected to the single tab on the Heater Blower Motor Resistor.
- Plug the three way connector on the HEATER SWITCH PIG TAIL on to the Blower Motor Resistor and route the other end of the pig tail to the Heater Switch. The wires at the Blower Motor Switch are soldered onto the terminals, it may be necessary to splice onto these wires. These wires can be removed with a soldering iron allowing the new Painless wires to be soldered directly to the Heater Switch terminals. The wire colors at the Blower Motor Switch may vary so reference the factory wiring from the switch to the resistor, if possible, to identify the correct wire locations.
- Connect wire #992 (blk/grn) to the Blower Motor Switch "LOW" wire or terminal.
- Connect wire #994 (lt.blu) to the Blower Motor Switch "MED" wire or terminal.
- Connect wire #910 (wht/blk) to the Blower Motor Switch "HIGH" wire or terminal.
- Wire #900 (blk/wht) and #904 (brn) that are grouped with #903 (ylw) will not be used with the 3 speed

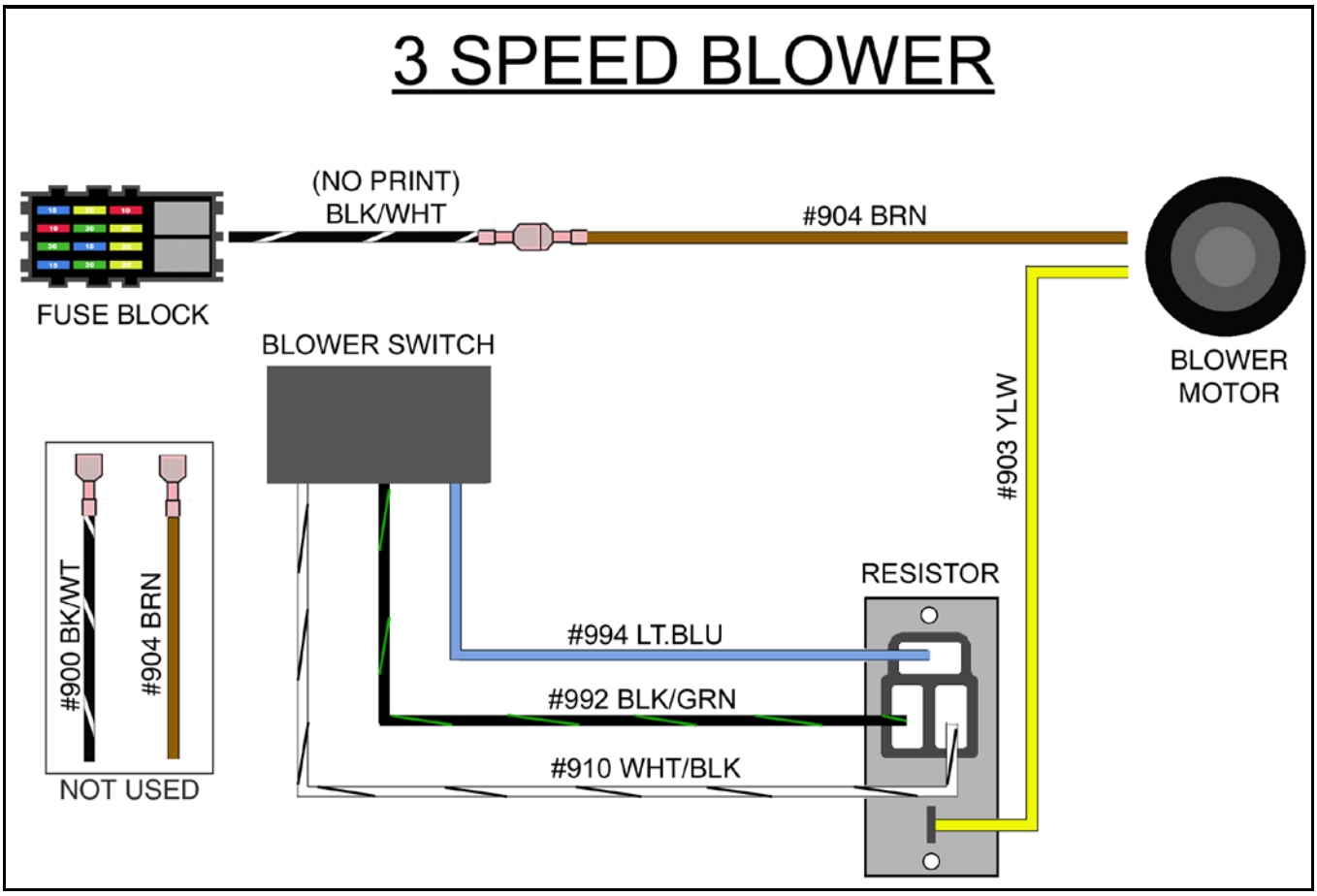



**Figure 25** 3 Speed blower Schematic

Provisions have been included in this harness for Mustangs with Air Conditioning. Locate the two blk/wht wires and the two gry/wht wires labeled together as A/C-ELECTRIC FAN.

### A/C Switch

- Connect the blk/wht wire that is NOT printed to the B+ side of the A/C Switch.
- Connect wire #902 (blk/wht) to the remaining A/C Switch wire, this wire goes out to A/C Compressor.

## Cooling Fan Switch

The two gry/wht wires found in the group of wires labeled "A/C, Electric Fan Switch" are for an electric cooling fan switch. If using an electric cooling fan, locate a suitable mounting point for the switch. *Enough wire is provided for mounting the cooling fan switch in several locations around the instrument panel.* If an Electric Cooling Fan is not being used, insulate the end of the unused #906 wire to prevent it from shorting to ground. This wire is a switched 12volt wire.

- Connect wire #906 (gry/wht) from the fuse block to one side of the Electric Cooling Fan Switch, this wire supplies power to the switch.
- Connect wire #901 (gry/wht) to the other side of the Electric Cooling Fan Switch.

The Cooling Fan Switch wires can also be spliced together to provide a cooling fan relay with a uninterrupted switched 12v source. This method of connection will be used when you are controlling the cooling fan with a thermostatic switch which switches ground to the relay to turn the fans off and on.

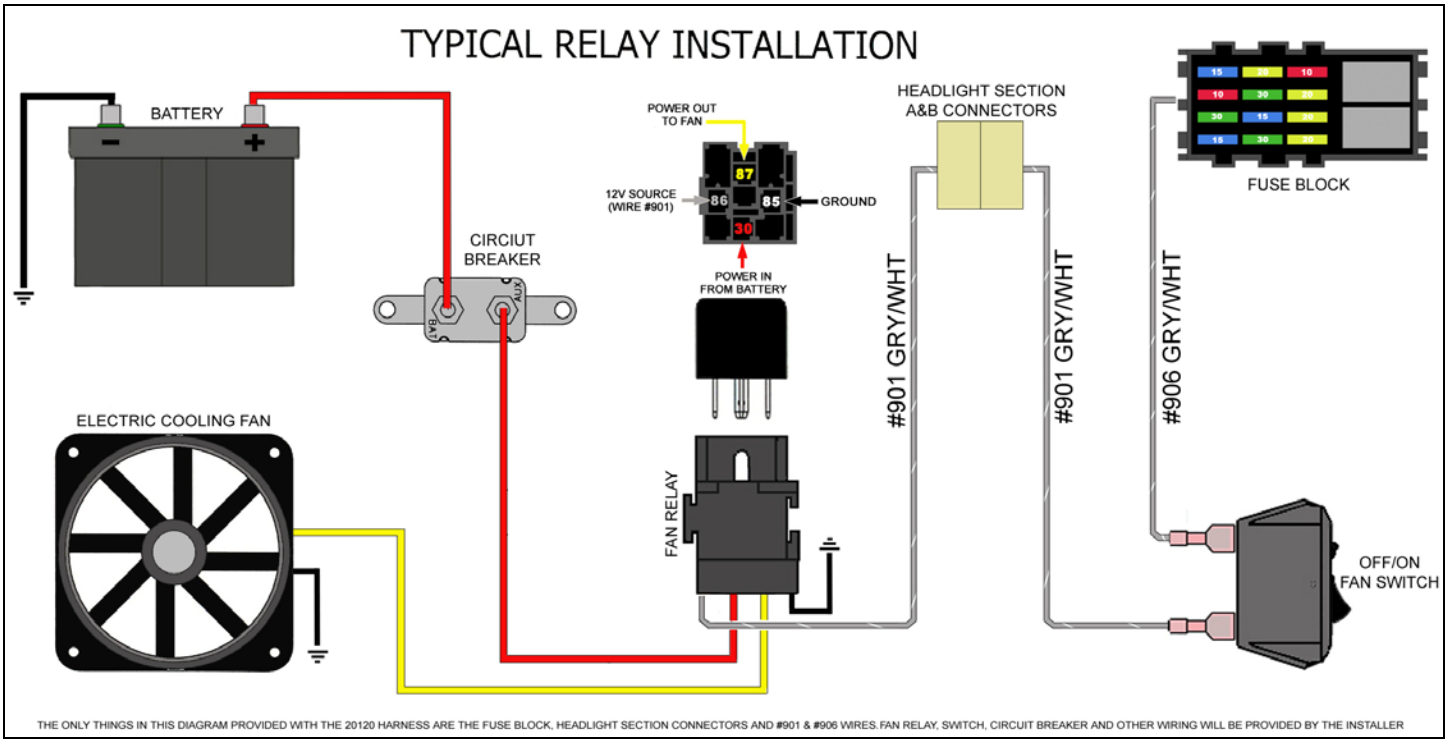



**Figure 26** Typical Fan Relay Installation

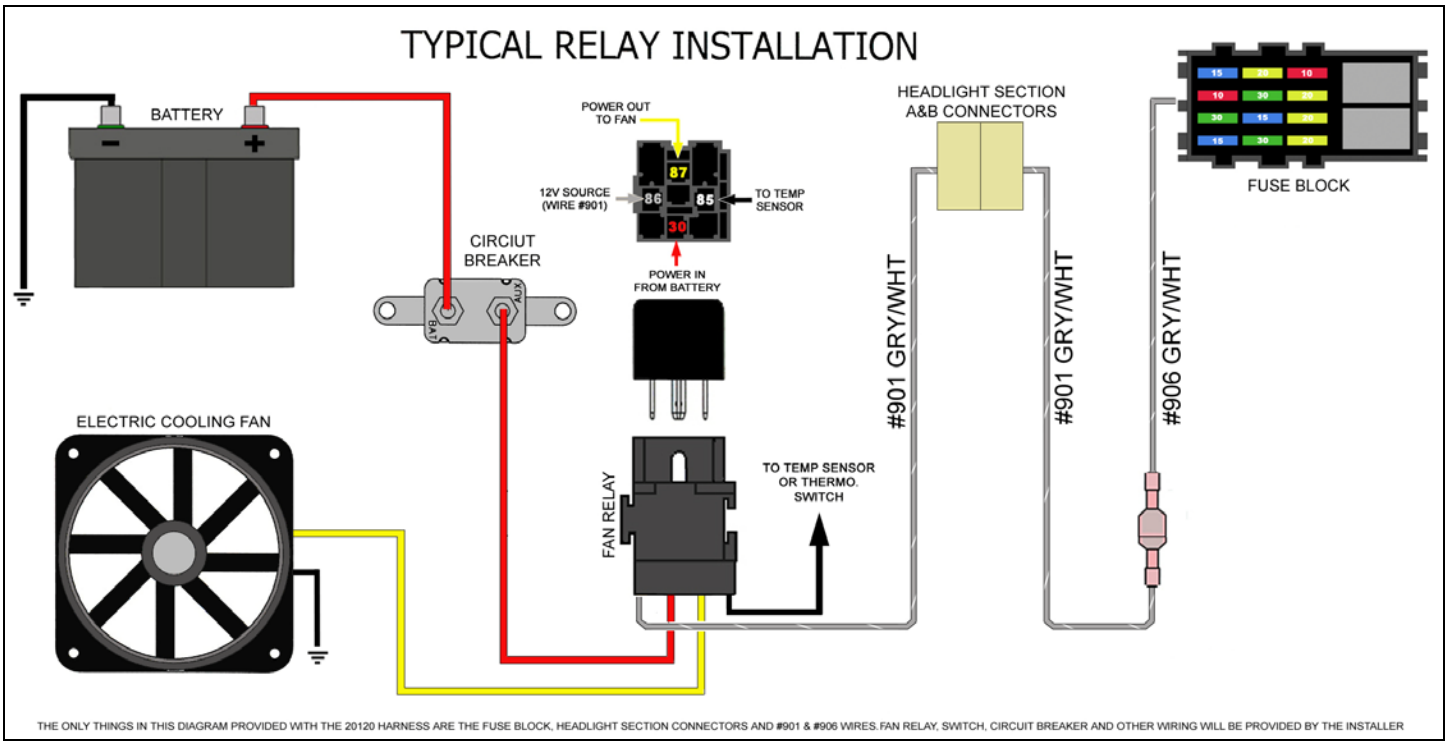



**Figure 27** Fan relay installation using thermostatic switch (ground activation)

## Headlight Switch

- Connect these wires of the Headlight Switch according to **Figure 28.** All Headlight Switch wires are terminated with the correct terminals to fit the original Headlight Switch connector housing. Repeat the procedure for terminal removal and installation discussed in **Section 7.9.1**.

*Note: Terminal positions A, D1, D2, and H are turned 180° from positions B, I, R and P.*

| Designation | Painless Wire Color | Terminal |
|---|---|---|
| Fuse Block | 928 Blk/Org | B |
| Interior Lights | 918 Lt.Grn/Ylw | D1 |
| Courtesy Lights | 945 Blk/Blu | D2 |
| Dimmer Switch | 907 Red/Ylw | H |
| Gauge Lights | 931 Lt.Blu/Red | I |
| Front Park Lights | 926 Blk/Ylw | P |
| Tail Lights | 929 Blk | R |

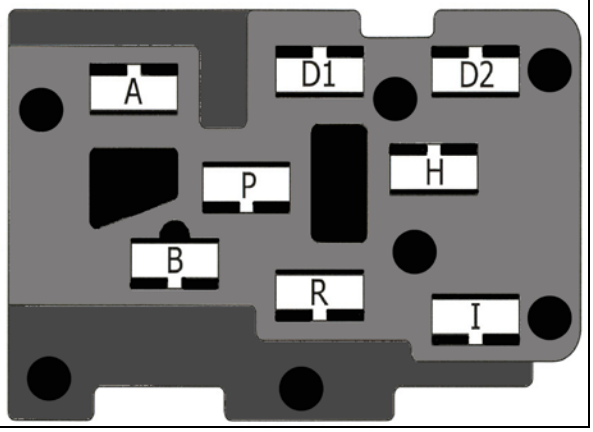



**Figure 28** Headlight Switch Connector Housing Wiring (Wire Side View)

## Dimmer Switch

Dimmer switch wiring comes pre-terminated with a connector installed. This connector and attached wiring will need to run under the carpet and connected to the Dimmer Switch.

## Accessory Relay

A 20amp Accessory Relay is provided at the Fuse block; it is not fused and uses 14 gauge input/output wires and 18 gauge activation/ground wires. It can be used as a GROUND or POWER activation Relay. The component being powered using this relay must not exceed a constant amperage of 20 amps.

### 12V Activation

A 12 volt activated relay is constantly grounded and will send power out of the output side of the relay to the component being powered when 12 volts is applied to the relay, as the name implies. The 12 volt source can be wired directly to the relay or interrupted by a switch, as shown by wire #997 (ylw/blk) in **Figure 29**.

Wiring directly to the relay would be used in the case of wiring an electric fuel pump or any other high amperage component you would want to run continuously while the key is in the on position. In these cases, make certain the 12 volt wire you are using is a Switched 12 volt wire and not a battery constant.

The 12 volt activation wire can also be wired to a switch to offer the user OFF/ON capabilities. These are the situations a battery constant power source would be used. This would allow a component to be turned OFF or ON with out the key in the ON position. However, unless a lighted switch is being used, a ground activated relay may work better to avoid running power through the switch.

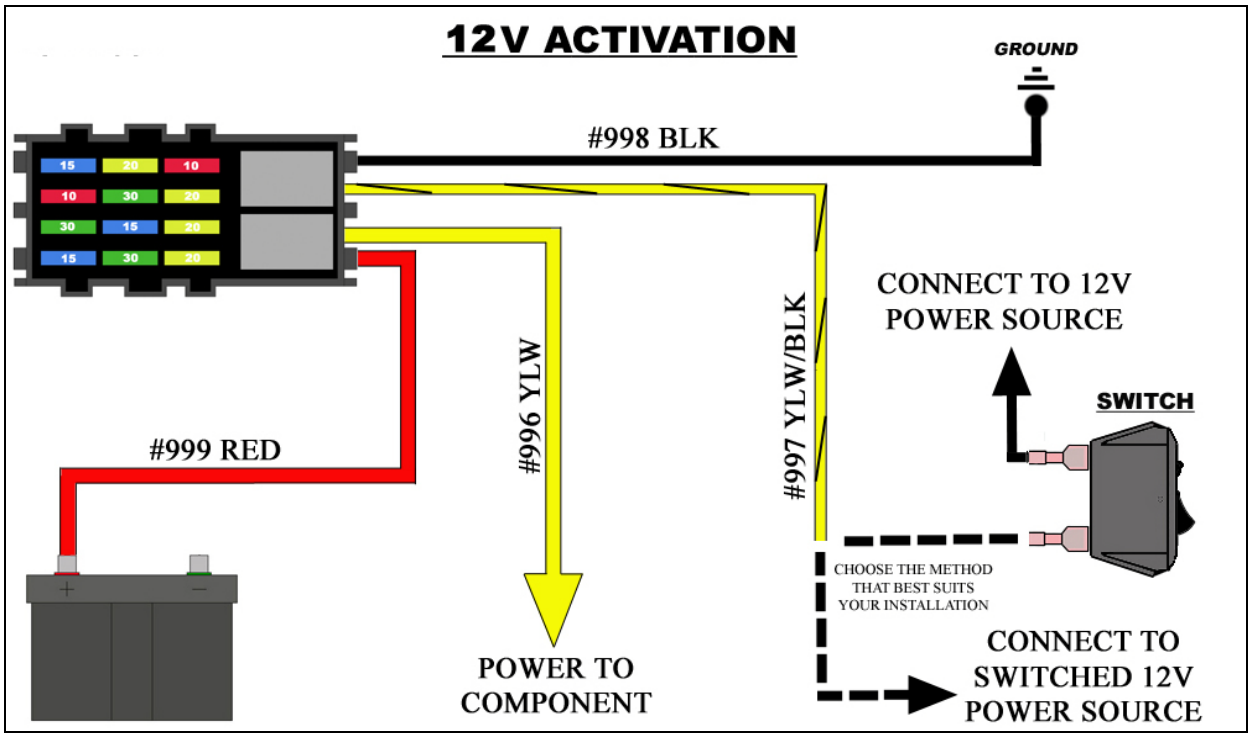



**Figure 29** 12V Relay Activation

**Ground Activation**

A ground activated relay is just the opposite of the 12 volt activated relay, 12 volts (battery constant or switched) is supplied uninterrupted and the ground wire is switched. One example of this method is a thermostat operated fan relay. In this case however, a thermostatic switch would replace the switch in the drawing below. Like mentioned before, ground activation method is best used when a component is operated by an unlit switch from the interior of the vehicle.

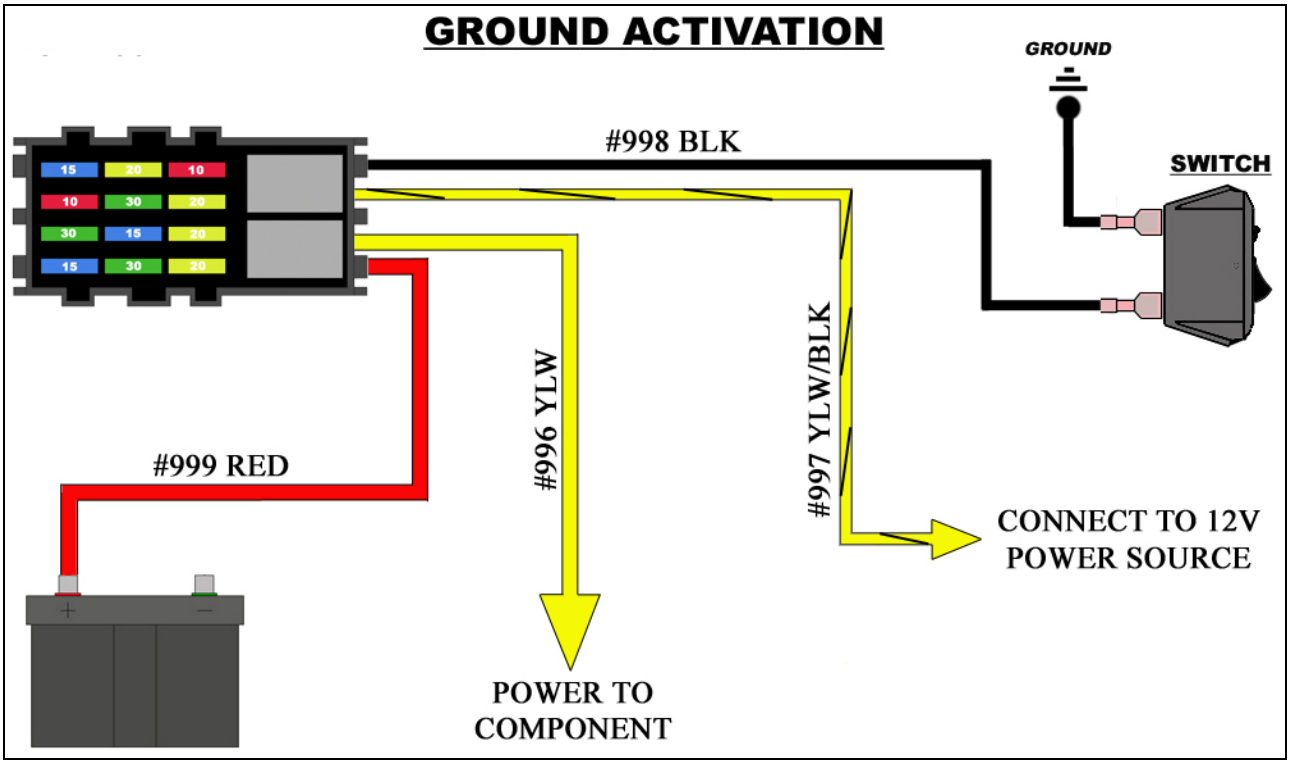



**Figure 30** Ground Relay Activation

- Connect wire #996 (ylw) from the relay to the component that you will be powering.
- Connect wire #997 (ylw/blk) from the relay to the switch/button or 12 volt source.
- Connect wire #998 (blk) from the relay to the switch/button or to a grounding point.
- Connect wire #999 (red) from the relay to a Battery power source.

## Tail Section Wiring

- Connect the wires in the TAIL SECTION according to **Figure 31.**
- Connect wire #945 (blk/blu) to the left and right rear Courtesy Lamps if applicable, insulate the end and stow the wires out of the way if you do not have rear courtesy lamps.
- Connect wire #939 (ylw) to the Fuel Tank Sending Unit, this wire controls the Fuel Gauge.
- Connect wire #948 (org/blu) to the right rear Turn Lamp, this is the "brighter" element on dual element bulbs. Connect wire #949 (lt.grn/red) to the left rear Turn Lamp, this is the "brighter" element on dual element bulbs. Connect wire #929 (blk) to both Tail Lamps, this is the "dimmer" element on dual element bulbs and to the License Plate Lamp.
- Connect wire # 991 (pur) to both of the Reverse Lamps, this wire supplies power from the Back up Switch. Connect wire #980 (red/blk) to the ground side of the Reverse Lamps and to a chassis ground near the trunk latch.
- When you have Integrated Brake Lights on your vehicle the Turn Signal switch acts as a brain to control when the Lights in the rear are on constantly (braking) or flashing (turning) or a combination of both. **The Turn Signal switch you use must be built to do this! If you are using a steering column out of a salvage yard that was originally in a vehicle that had <u>separate</u> Brake Lights then the switch will not work for <u>Integrated</u> Brake Lights.**
- Almost all light bulbs get the ground they need through the socket housing. If you mount your socket housing into anything other than a grounded metal part then you will need to provide a separate ground wire.

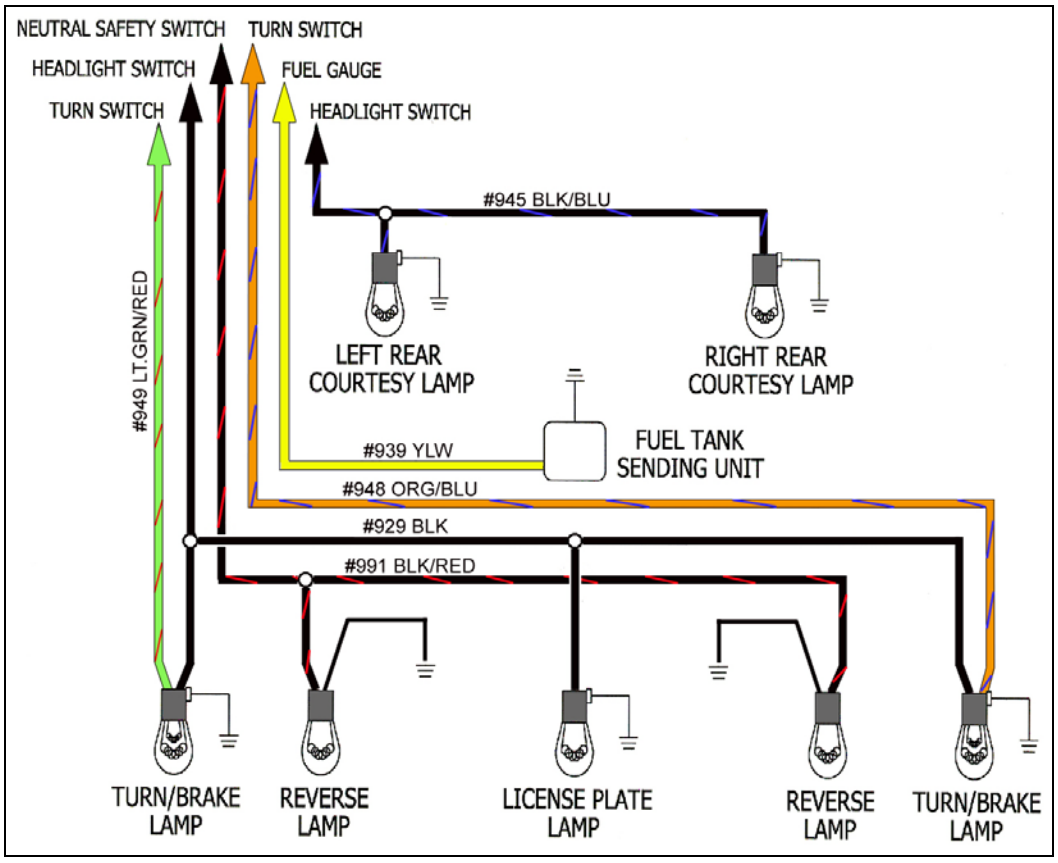
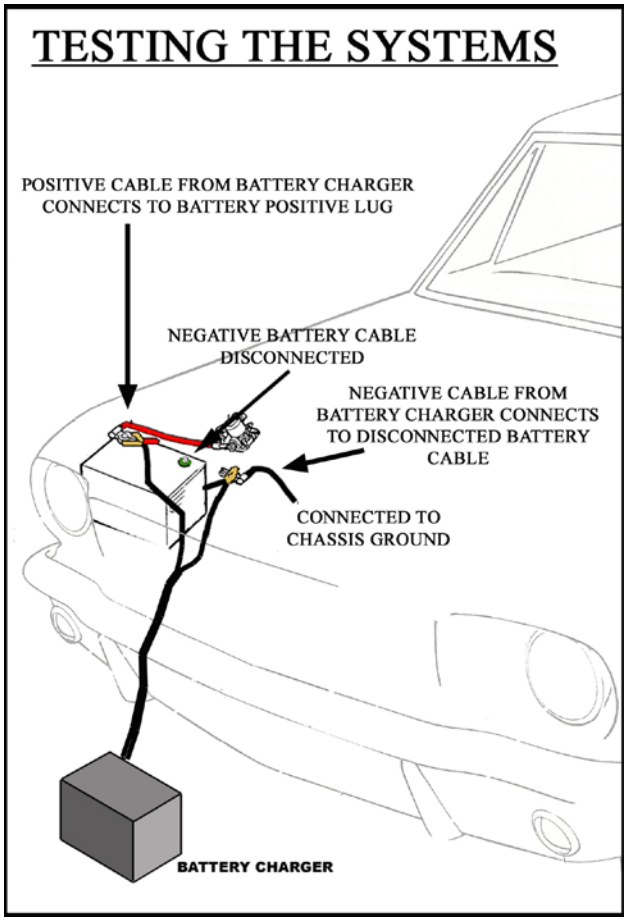



**Figure 31** Tail Section Wiring

## Testing The Systems




- Use a small (10 amp or less) battery charger to power up the vehicle for circuit testing. If there is a problem anywhere, the battery charger's low amperage and internal circuit breaker will provide circuit protection.
- Connect the battery charger's NEGATIVE output to the automobile chassis or engine block and its POSITIVE output to the automobile's positive battery terminal.
- INDIVIDUALLY turn on each light, ignition, wiper circuit, etc. and check for proper operation.

*Note: The turn signals will not flash properly if you do not have both the front and rear bulbs installed and connected.*

- When all circuits check out THEN attach the battery cable to the battery for vehicle operation.

# FUSE REQUIREMENTS AND WIRE CONNECTION INDEX

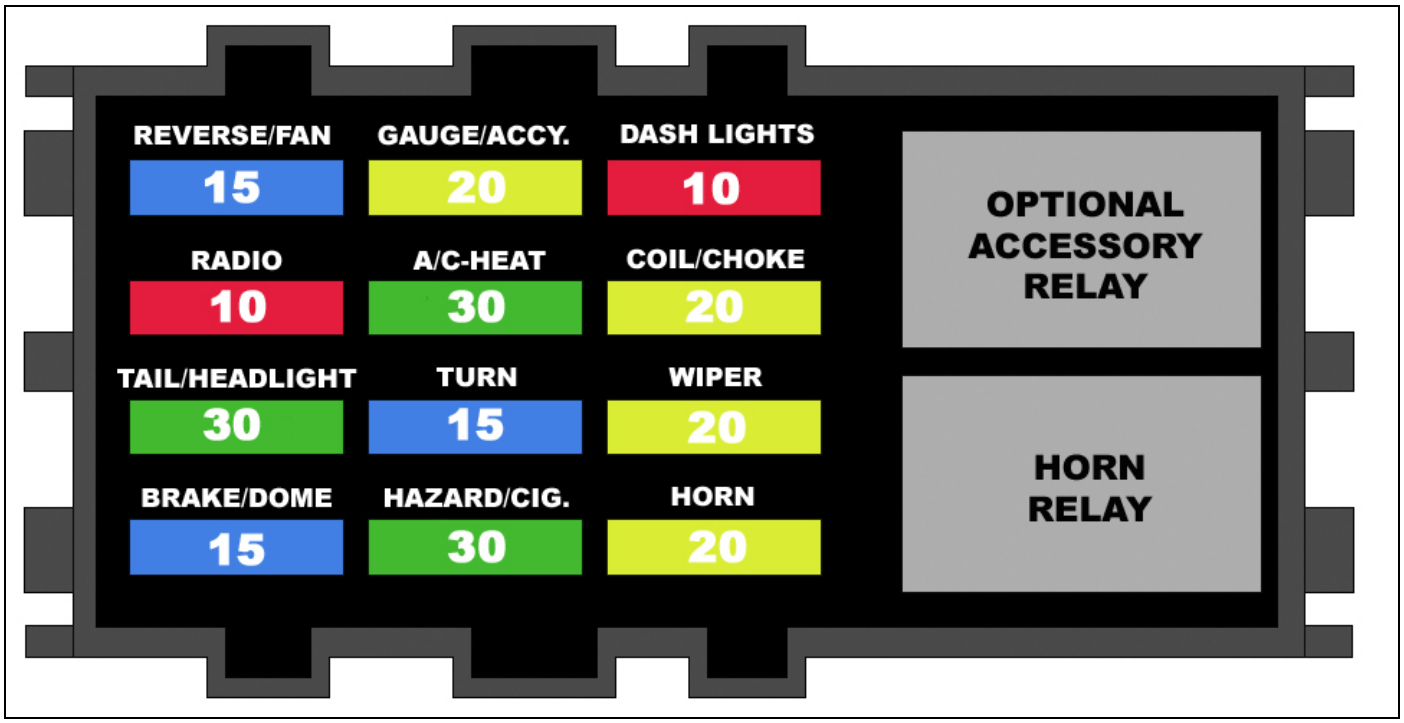



**Figure 33** Fuse Requirements

## Wire Connection Index

The **Wire Index** is listed in the same order components were listed in this manual. The index is divided vertically into 6 columns. COLOR, GAUGE, CIRCUIT #, FUNCTION, ORIGIN (where the wire comes from), and TERMINAL (lists if the wire comes pre-terminated)

The column labeled CIRCUIT #. contains a 900-series number that is used to identify various wires in the wiring diagrams that are a part of these instructions. Only printed wires will have a 900-series number. The majority of those without a number are pre-terminated and have a connector installed.

### HEADLIGHT SECTION B

**WASHER PUMP**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/WHT | 16 | 968 | WASHER B+ | WIPER SWITCH | NO |

**VOLTAGE REGULATOR**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| WHT/BLK | 14 | 972 | IGN VOLTAGE | GAUGE CLUSTER | YES |
| WHT | 14 | 970 | ALTERNATOR FIELD | ALTERNATOR | YES |
| YLW | 14 | 913 | ALTERNATOR OUTPUT | ALTERNATOR | YES |
| GRN/RED | 14 | 915 | ALTERNATOR STATOR | ALTERNATOR | YES |
| BLK/RED | 14 | 981 | ALTERNATOR GROUND | ALTERNATOR | YES |

**COOLING FAN RELAY**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRY/WHT | 18 | 901 | 12 VOLT SOURCE/ACTIVATION | COOLING FAN SWITCH | NO |

**LEFT TURN / PARK**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRN/WHT | 16 | 943 | TURN SIGNAL B+ | TURN SWITCH | YES |
| BLK/YLW | 18 | 926 | PARK LIGHT B+ | HEADLIGHT SWITCH | YES |
| BLK | 16 | - | GROUND | DRIVER SIDE GROUND | NO |

**LEFT HEADLIGHT**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRN/BLK | 14 | 908 | HIGH BEAM B+ | DIMMER SWITCH | YES |
| RED/BLK | 14 | - | LOW BEAM B+ | DIMMER SWITCH | YES |
| BLK | 14 | - | GROUND | DRIVER SIDE GROUND | YES |

**DRIVER SIDE GROUND**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 12 | - | GROUND | LEFT HEADLIGHT / TURN | YES |

**HORNS**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| YLW/GRN | 16 | - | LEFT HORN B+ | HORN RELAY | YES |
| YLW/GRN | 16 | 924 | RIGHT HORN B+ | HORN RELAY | YES |

**RIGHT HEADLIGHT**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRN/BLK | 14 | 908 | HIGH BEAM B+ | DIMMER SWITCH | YES |
| RED/BLK | 14 | 909 | LOW BEAM B+ | DIMMER SWITCH | YES |
| BLK | 14 | - | GROUND | PASS. SIDE GROUND | YES |

**RIGHT TURN / PARK**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| WHT/BLU | 16 | 925 | TURN SIGNAL B+ | TURN SWITCH | YES |
| BLK/YLW | 18 | 926 | PARK LIGHT B+ | HEADLIGHT SWITCH | YES |
| BLK | 16 | - | GROUND | PASS. SIDE GROUND | NO |

**PASSENGER SIDE GROUND**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 12 | - | GROUND | RIGHT HEADLIGHT / TURN | YES |

**ALTERNATOR**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| WHT | 14 | 970 | ALTERNATOR FIELD | VOLTAGE REGULATOR | NO |
| YLW | 14 | 913 | ALTERNATOR OUTPUT | BATTERY | NO |
| GRN/RED | 14 | 915 | ALTERNATOR STATOR | VOLTAGE REGULATOR | NO |
| BLK/RED | 14 | 981 | ALTERNATOR GROUND | VOLTAGE REGULATOR | NO |

# ENGINE SECTION

### MAXI FUSE

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 10 | 916 | B+ INTO MAXI FUSE | STARTER SOLENOID | NO |
| BLK | 10 | 916 | B+ OUT TO FUSE BLOCK | FUSE BLOCK | NO |
| RED | 16 | - | AMMETER | AMMETER | NO |

### STARTER SOLENOID

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 10 | 916 | B+ TO MAXI FUSE | MAXI FUSE | NO |
| RED/BLU | 16 | 919 | START SIGNAL | NEUTRAL SAFETY SWITCH | NO |
| BRN | 16 | 970 | IGNITION BYPASS | COIL | NO |

### COIL

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| RED/GRN | 16 | 920 | COIL B+ | FUSE BLOCK | NO |
| GRN | 18 | 923 | AFTERMARKET TACH. SIGNAL | RADIO / TACH SECTION | NO |
| BRN | 16 | 970 | IGNITION BYPASS | STARTER SOLENOID | NO |

### BLOWER MOTOR

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BRN | 14 | 904 | DEPENDS ON SYSTEM USED (REFER TO FIGURES 23 & 24) | | NO |
| YLW | 16 | 903 | | | NO |

### NEUTRAL SAFETY / REVERSE

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| RED/BLU | 16 | 919 | START SIGNAL TO SOLENOID | STARTER SOLENOID | NO |
| RED/BLU | 16 | 919 | START SIGNAL FROM IGN. SWITCH | IGNITION SWITCH | NO |
| BLK/RED | 16 | 953 | B+ FROM FUSE BLOCK | FUSE BLOCK | NO |
| BLK/RED | 16 | 991 | B+ OUT TO REVERSE LIGHTS | REVERSE LIGHTS | NO |

### GAUGE SENDING UNITS

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| RED/WHT | 18 | 921 | COOLANT TEMP | GAUGE CLUSTER | NO |
| WHT/RED | 18 | 922 | OIL PRESSURE | GAUGE CLUSTER | NO |

### ACCESSORIES

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/WHT | 16 | 902 | A/C COMPRESSOR AVTIVATION | A/C SWITCH | NO |
| WHT | 16 | 954 | ELECTRIC CHOKE B+ | FUSE BLOCK | NO |
| BLU/YLW | 16 | 986 | IDLE SOLENOID B+ | FUSE BLOCK | NO |

# INTERIOR SECTION

### STEERING COLUMN

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| ORG/BLU | 16 | 948 | RIGHT REAR TURN/BRAKE B+ | RIGHT TURN / BRAKE | YES |
| GRN/ORG | 16 | 949 | LEFT REAR TURN/BRAKE B+ | LEFT TURN / BRAKE | YES |
| WHT/BLU | 16 | - | RIGHT FRONT TURN B+ | RIGHT TURN / PARK | YES |
| BLK/RED | 8 | - | HORN RELAY ACTIVATION | HORN RELAY | YES |
| GRN/WHT | 16 | - | LEFT FRONT TURN B+ | LEFT TURN / PARK | YES |
| GRN | 16 | 982 | HAZARD SWITCH INPUT (BRAKE) | HAZARD SWITCH | YES |
| GRN | 16 | 982 | BRAKE SWITCH INPUT | BRAKE SWITCH | YES |
| YLW | 14 | - | B+ TO HORN BUTTON | FUSE BLOCK | YES |
| LT.BLU | 16 | 952 | TURN FLASHER INPUT | TURN FLASHER | YES |

### IGNITION SWITCH

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| RED/BLU | 16 | 919 | START SIGNAL | NEUTRAL SAFETY SWITCH | YES |
| YLW | 10 | 933 | B+ INPUT | BATTERY | YES |
| BLK/ORG | 10 | 932 | B+ OUTPUT | FUSE BLOCK | YES |
| GRY/BLK | 16 | - | ACCESSORY OUTPUT | FUSE BLOCK | YES |

### LEFT DOOR JAMB SWITCH

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| LT.GRN/YLW | 18 | - | B+ INPUT | FUSE BLOCK | YES |
| BLK/BLU | 18 | 945 | B+ OUTPUT | INTERIOR LIGHTS | YES |

### LEFT DOOR / COURTESY LIGHT

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/BLU | 16 | - | B+ | HEADLIGHT SWITCH | YES |

### CONSOLE LEADS

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| LT.GRN/YLW | 18 | 918 | CONSOLE COMPARTMENT LIGHT B+ | HEADLIGHT SWITCH | YES |
| BLK/BLU | 18 | 945 | CONSOLE COURTESY LIGHT B+ | HEADLIGHT SWITCH | YES |

### GLOVE BOX LAMP

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| LT.GRN/YLW | 18 | - | B+ | HEADLIGHT SWITCH | YES |

### RIGHT DOOR / COURTESY LIGHT

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/BLU | 16 | - | B+ | HEADLIGHT SWITCH | YES |

### RIGHT DOOR JAMB SWITCH

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| LT.GRN/YLW | 18 | - | B+ INPUT | FUSE BLOCK | YES |
| BLK/BLU | 18 | 945 | B+ OUTPUT | INTERIOR LIGHTS | YES |

**BRAKE SWITCH**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| LT.GRN/RED | 16 | 917 | B+ INPUT | FUSE BLOCK | NO |
| GRN | 16 | 982 | B+ OUTPUT | TURN SIGNAL SWITCH | NO |

**INSTRUMENT PANEL**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/GRN | 14 | 935 | CHARGE IND. INPUT | FUSE BLOCK | YES |
| WHT/BLK | 14 | - | CHARGE IND. OUTPUT | ALTERNATOR | YES |
| RED/WHT | 18 | 921 | COOLANT TEMP SIGNAL | COOL. TEMP SENDING UNIT | YES |
| WHT/BLU | 18 | - | RIGHT TURN INDICATOR | TURN SWITCH | YES |
| BLK | 16 | - | GROUND | GROUND | YES |
| GRN/WHT | 18 | - | LEFT TURN INDICATOR | TURN SWITCH | YES |
| LT.BLU/RED | 18 | - | BACK LIGHTING | HEADLIGHT SWITCH | YES |
| GRN/BLK | 18 | 908 | HIGH BEAM INDICATOR | DIMMER SWITCH | YES |
| LT.GRN/RED | 18 | - | GAUGE B+ | FUSE BLOCK | YES |
| YLW | 18 | 939 | FUEL GAUGE SIGNAL | FUEL SENDING UNIT | YES |
| WHT/RED | 18 | 922 | OIL PRESSURE SIGNAL | OIL PRESS. SENDING UNIT | YES |
| YLW | 16 | - | AMMETER IN | BATTERY | NO |
| RED | 16 | - | AMMETER OUT | FUSE BLOCK | NO |

**WIPER SWITCH**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| ORG/WHT | 16 | 905 | B+ | FUSE BLOCK | YES |
| BLK/WHT | 16 | 908 | B+ OUT TO WASHER PUMP | WASHER PUMP | YES |

**HAZARD SWITCH**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| LT.BLU | | | B+ FROM HAZARD FLASHER | HAZARD FLASHER | NO |
| GRN/WHT | | | LEFT TURN | TURN SWITCH | NO |
| GRN | | | BRAKE SWITCH INPUT | TURN SWITCH | NO |
| WHT/BLU | | | RIGHT TURN | TuRN SWITCH | NO |

**HEATER - A/C SWITCH**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| YLW | 16 | 903 | DEPENDS ON SYSTEM (REFER TO FIGURES 23 &24) | | NO |
| BRN | 14 | 904 | | | NO |
| BLK/WKT | 14 | 900 | | | NO |
| BLK/WHT | 16 | - | A/C SWITCH B+ | FUSE BLOCK | NO |
| BLK/WHT | 16 | 902 | A/C COMPRESSOR ACTIVATION | A/C COMPRESSOR | NO |

**COOLING FAN SWITCH**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRY/WHT | 18 | 901 | B+ OUT TO FAN RELAY | COOLING FAN RELAY | NO |
| GRY/WHT | 18 | 906 | B+ FROM FUSE BLOCK | FUSE BLOCK | NO |

### HEADLIGHT SWITCH

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/ORG | 12 | 928 | B+ INPUT | FUSE BLOCK | YES |
| LT.GRN/YLW | 18 | - | COURTESY LIGHT B+ INPUT | FUSE BLOCK | YES |
| BLK/BLU | 14 | 945 | B+ OUTPUT TO COURTESY LIGHTS | COURTESY LIGHTS | YES |
| RED/YLW | 14 | 904 | B+ OUTPUT TO DIMMER SWITCH | DIMMER SWITCH | YES |
| LT.BLU/RED | 18 | 931 | B+ OUTPUT TO GAUGE LIGHTING | GAUGE CLUSTER | YES |
| BLK/YLW | 16 | 926 | B+ OUTPUT TO PARK LIGHTS | FRONT PARK LIGHTS | YES |
| BLK | 16 | 929 | B+ OUTPUT TO TAIL LIGHTS | TAIL LIGHTS | YES |

### DIMMER SWITCH

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRN/BLK | 14 | 908 | HIGH BEAM OUTPUT | HEADLIGHTS | YES |
| GRN/BLK | 18 | 908 | HIGH BEAM INDICATOR | GAUGE CLUSTER | YES |
| RED/BLK | 14 | 909 | LOW BEAM OUTPUT | HEADLIGHTS | YES |
| RED/YLW | 14 | 907 | B+ INPUT | HEADLIGHT SWITCH | YES |

### ACCESSORY RELAY

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| YLW/BLK | 18 | 997 | ACTIVATION | FUSE BLOCK | NO |
| BLK | 18 | 998 | GROUND | FUSE BLOCK | NO |
| YLW/BLK | 14 | 996 | OUTPUT | FUSE BLOCK | NO |
| RED | 14 | 999 | INPUT | FUSE BLOCK | NO |

### CIG. LIGHTER / POWER PORT

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| YLW | 14 | 995 | B+ | FUSE BLOCK | NO |

### RADIO

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| GRY/BLK | 16 | 941 | IGN B+ | FUSE BLOCK | NO |
| RED | 18 | 940 | BATTERY B+ | FUSE BLOCK | NO |

## TAIL SECTION

### PILLAR LIGHTS

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/BLU | 18 | 945 | B+ | HEADLIGHT SWITCH | NO |
| BLK/BLU | 18 | - | B+ | HEADLIGHT SWITCH | NO |

### FUEL SENDING UNIT

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| YLW | 18 | 939 | FUEL GAUGE SIGNAL | GAUGE CLUSTER | NO |

### LEFT REVERSE LAMP

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/RED | 16 | - | REVERSE LIGHT B+ | REVERSE SWITCH | NO |

**LEFT TAIL LAMP**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 16 | - | TAIL LIGHT B+ | HEADLIGHT SWITCH | YES |
| GRN/ORG | 18 | 949 | LEFT TURN / BRAKE B+ | TURN SIGNAL SWITCH | YES |

**LICENSE PLATE LAMP**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 16 | - | B+ | HEADLIGHT SWITCH | NO |

**RIGHT REVERSE LAMP**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK/RED | 16 | 991 | REVERSE LIGHT B+ | REVERSE SWITCH | NO |

**RIGHT TAIL LAMP**

| COLOR | GAUGE | Circuit # | FUNCTION | ORIGIN | TERMINATED |
|---|---|---|---|---|---|
| BLK | 16 | 929 | TAIL LIGHT B+ | HEADLIGHT SWITCH | YES |
| ORG/BLU | 18 | 948 | RIGHT TURN / BRAKE B+ | TURN SIGNAL SWITCH | YES |

If you have any questions concerning the installation of this harness or having trouble in general, feel free to call Painless Performance Products' tech line at 1-800-423-9696. Calls are answered from 8am to 5pm central time, Monday thru Friday, except holidays.

We have attempted to provide you with as accurate instructions as possible, and are always concerned about corrections or improvements that can be made. If you have found any errors or omissions, or if you simply have comments or suggestions concerning these instructions, please write us at the address on the cover and let us know about them. Or, better yet, send us a fax at (817) 244-4024 or e-mail us at painless@painlessperformance.com. We sincerely appreciate your business.

# OTHER PAINLESS PARTS

The following list contains other Painless part numbers that could be applied to your Mustang install.

| PAINLESS PART # | PART DESCRIPTION |
|---|---|
| **70920** | **Chassis Harness Power Braid Kit** |
| **Replacement Harnesses** | |
| **30812** | **Duraspark II Harness** |
| **60510** | **Ford 5.0L Fuel Injection Harness** |
| **60511** | **Extra Length Fuel Injection Harness** |
| **65250** | **1985-1993 Ford 5.0L Engine Management System** |
| **65251** | **1994-1995 Ford 5.0L Engine Management System** |
| **Accessories** | |
| **30100** | **70 Amp Relay** |
| **30104** | **Adjustable Electric Fan Thermostat Kit** |
| **30107** | **3-Pack Relay Bank** |
| **30108** | **6-Pack relay Bank** |
| **30130** | **Weatherproof Electric Fan Relay** |
| **30131** | **Weatherproof Fuel Pump Relay** |
| **30803** | **Auxiliary Light Relay Kit** |
| **30815** | **Halogen Headlight Harness** |
| **80102** | **Replacement Maxi Fuse** |

**Painless also offers a full lineup of Toggle & Rocker Switches, Switch Panels, Weatherproof Connectors, Battery Cables, Bulk wire and Terminals. Check out our full catalog on the web at www.painlessperformance.com for more products and full product descriptions of the parts listed above.**

# NOTES

## Painless Performance Limited Warranty and Return Policy

Chassis harnesses and fuel injection harnesses 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.