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# Pantera Electronics Air Conditioner Controller Installation Manual

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Rev.2

Note: From this point to the end of this document “ACC” will refer to the Air Conditioner Controller.

## Mechanical Installation Phase and additional things you will need:

Mounting of the ACC is at the discretion of the owner, there are (4), 1/8 holes in the corners of the ACC for #4 screws. In the example images, #4 stand-offs, screws and nuts are used to mount the ACC on the metal plate of a 1971 or 1972 Pantera or on the relay compartment door in the 1973 or 1974 Pantera. These locations were chosen to allow direct connection of the relay wires to the ACC.

## Electrical Installation Phase:

***Disconnect the Battery by removing the negative (-) or ground cable from the battery terminal.***

- 1) 1971 and 1972 Panteras the air conditioner relays are mounted on a plate with a metal cover box. There is a wing nut about center the retains the cover. Remove the wing nut and the box should drop down. [Image 20]
- 2) 1973 / 74 Panteras have the relays on the drivers side behind a small door near the kick panel. There are 3 screws that secure the relay panel to the wheel arch.
- 3) Then there are 2 wing nuts that retain the relay plate to the body on each end of the relay plate. Remove both wing nuts, the relay plate should drop down. There are 3 cables with connectors that now can be separated, pull each one apart. [Image 9]
- 4) You will need a 9mm socket to remove the nuts that retain the relays. The ACC does not require all of the wires that were used to operate the relays as in the factory configuration. The wires that are not used can be insulated by electrical tape.
- 5) Identify the wires to be moved and label or photograph the factory relay plate. Find the image for the year of your Pantera, Image 2, 8 or 11.
- 6) Remove the relays from the plate but not the wires from the relays. Use the ACC board as a template to mark the mounting holes on the relay plate. Drill holes at the marked locations and install #4 stand-offs and nuts.
- 7) Mount the ACC on stand-offs or spacers with #4-40 screws.

### **CAUTION**

Factory windshields are notorious for water leaks. The water collects in the gasket relief and slowly drips from the inside of the gasket area and falls vertically. If this water contacts the ACC it will cause failure of the electronics and may cause the ACC to operate in a erratic unpredictable manor. Seal all leaks and verify that water cannot contact the ACC in the selected mounting location.

### **VERY IMPORTANT**

The electrical quality of the ground connection (BLACK wire) to the ACC is very critical. If the integrity of the ground connection cannot be verified then add a BLACK wire from the ground terminal to the chassis locally.

***If the ACC is powered and the ground wire is insufficient then permanent damage to the ACC will result.***

### **INSTALLATION NOTE**

If mounting the ACC with screws through the 4 mounting holes, use 1/4" long spacers to raise the board from the mounting surface. Do not mount the ACC board tightly to the surface.

### **Wiring**

- 1) Remove one wire from a relay inserting on the tab matching the color and function on the ACC. Use [image 1] as a reference for the year Pantera you have. Then find image 2, 8 or 11 as a guide for moving the wires.
- 2) Continue removing and inserting the wires until all of the tabs are used on the ACC.
- 3) Any unused wires left on the relays can be labeled removed from the relays. The extra wires should then be insulated with electrical tape or shrink tube so that none of the wire terminals can contact anything.

#### ***Important Wiring Modifications:***

The tab labeled "FUSE #7 needs to be powered even if the ignition switch is "OFF". (Large wire for high current)

The tab labeled "FUSE #11 should only be powered when the ignition switch is in the "IGNITION" position. The GREEN "READY" indicator on the ACC should be "OFF" when the ignition switch is in the "ACC" or "OFF" position.

## **Wiring Continued**

In early 1971 and 1973 / 74 relay panels there isn't a relay wire for the ACC "FUSE 11" tab.

A wire must be added from the headlight relay or HMC (Pantera Electronics) RED/BLK to the ACC, "FUSE 11" tab. Use an 20 AWG wire and piggy-back quick disconnect to make the connection.

## **Notes Connection Tab: "CSC-WHT/BLK" "AUTO-SPD"**

1. This tab can be connected to the Pantera Electronics Console Switch Controller to automatically maintain the Fan on low speed for about a minute after the compressor has been turned off to stop water condensation from freezing on the evaporator.

2. When a front mounted A/C condenser is installed this tab can be connected to the Pantera Electronics Radiator Fan Controller to force the radiator fans on full speed when the A/C compressor is activated. This provides maximum air flow through the A/C condenser while the A/C is on.

## **Testing**

- 1) Turn on ignition switch to "ACC", wait 12 seconds then check the POWER READY indicator it should NOT be lit.
- 2) Turn on ignition switch to "IGNITION", wait 12 seconds then check the POWER READY indicator it should be lit.
- 3) Press the horn button, the ORANGE indicator should be lit and the horns activate. If the ORANGE indicator does not illuminate then the wiring to the horn switch or horn switch is not operating properly.
- 4) Activate the A/C thermostat by increase (turning clockwise) until the YELLOW indicator is lit. The condenser fan should ramp quickly to full speed. Also listen for the compressor clutch to engage with a loud click sound. This should happen immediately as the A/C thermostat reaches the set-point.
- 5) Decrease the A/C thermostat until the YELLOW indicator is not illuminated. The condenser fan should continue to operate for approximately 1 minute. After about 1 minute the condenser fan will shut off automatically. The compressor clutch should dis-engage immediately.

**Note: If you have the Pantera Electronics Engine Ignition System the A/C compressor clutch will not function during this test. The Engine Ignition System detects there is low or no vacuum and will not allow the clutch to engage.**

6) Turn the ignition switch to the "OFF" position., but leave the key in the ignition switch, all indicators should not be illuminated.

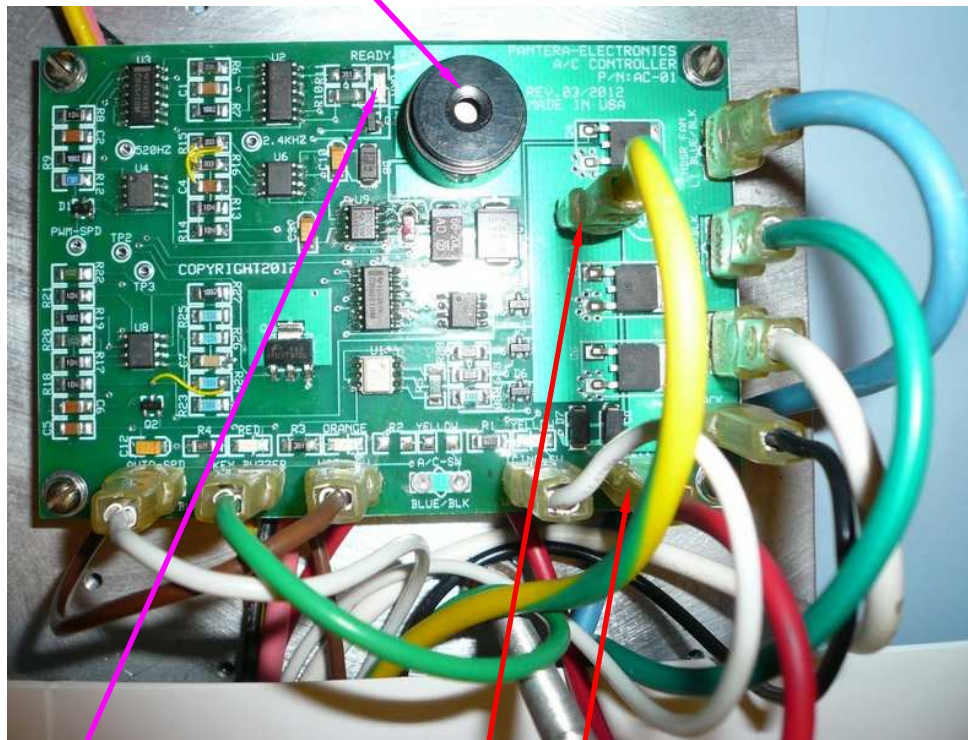
7) Open the drivers door, the RED indicator should be illuminated and the alarm should be active.

*If the RED indicator does not illuminate this is due to many years in a damp area this causes the door jam switch to corroded. Remove the retaining screw and remove the corrosion from the switch contacts.*

8) Close the drivers door and the RED indicator should be off and the alarm should stop.

If the sound level is too loud, place tape partially over the hole on the small speaker on the ACC.

Testing complete.

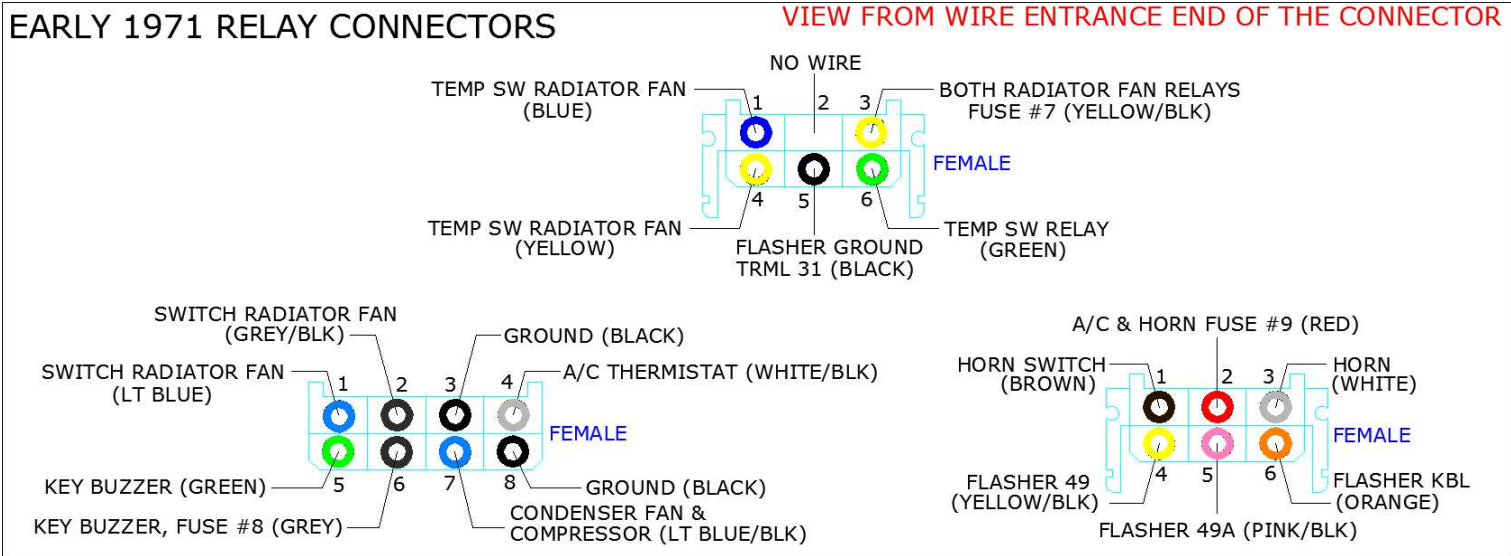


Power Ready Indicator (Green) **Important wiring modification from page 3.**

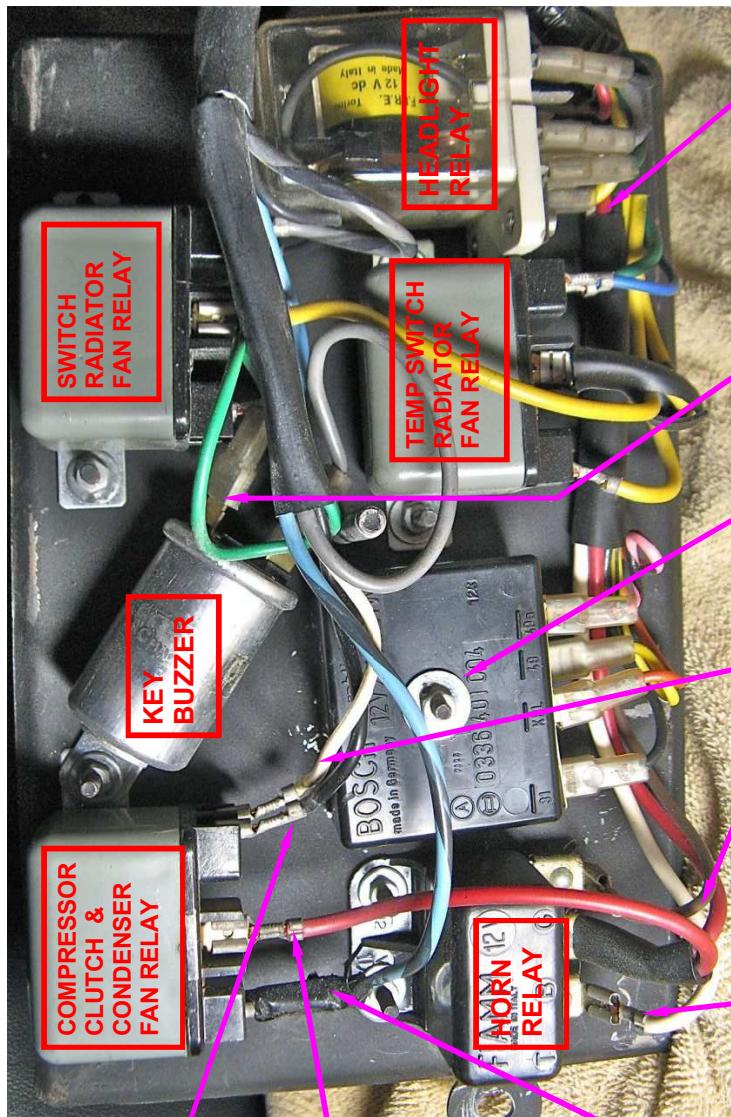
Relay connectors are different for 1971, 1972 and 1973 / 1974 [Image 1]

**Early 1971 Pantera condenser fan and compressor wiring.**

Additional wiring changes for proper performance of the condenser fan and compressor. See page 6 and 7 for details and images.



The 1971 relay plate is below with relays identified. [Image 2]



RED/BLK wire to ACC, "FUSE #11"  
Use a piggy-back quick disconnect to **add** a wire to the ACC.

GREEN wire to ACC, "KEY BUZZER" "GREEN"

4 Terminal turn signal flasher

WHITE/BLK wire to ACC, "A/C" "THRMST-SW"

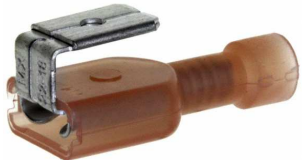
BROWN wire to ACC, "HORN-SW" "BROWN"

WHITE wire to ACC, "HORN" "WHITE"

BLACK wire to ACC, "GND" "BLACK"

RED wire to ACC, "FUSE #7"

BLUE/BLK wire to ACC, "CNSDR FAN" "LT BLUE/BLK"



Piggy-back quick disconnect.

### Early 1971 Pantera compressor and condenser wiring.

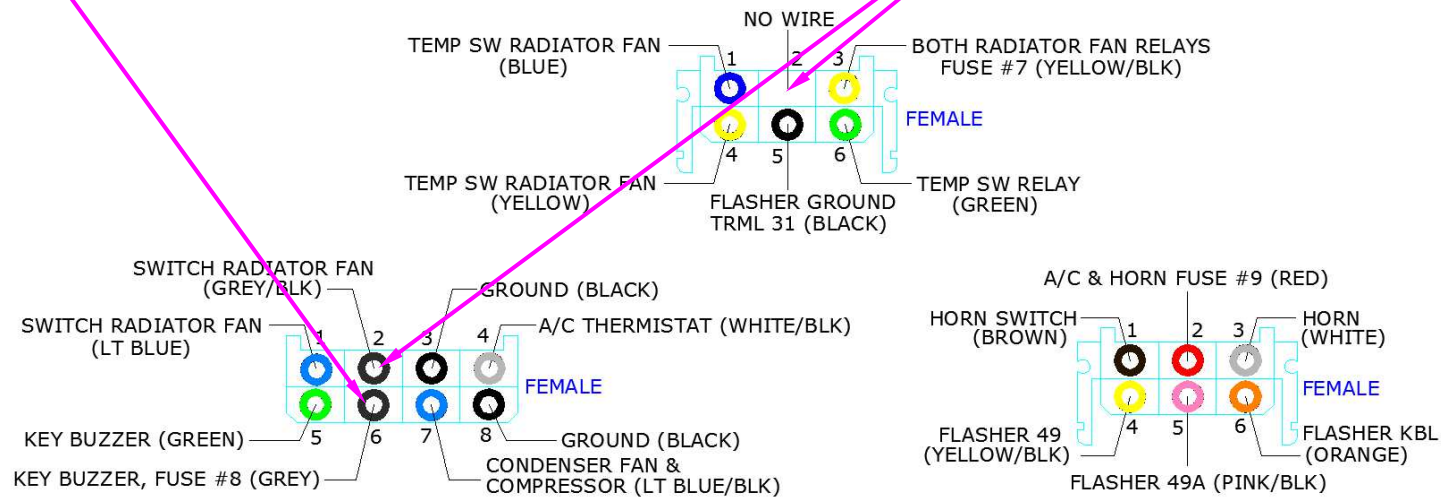
In order to separate the function of the compressor and condenser fan, trace the compressor/condenser wire back to the harness. Cut this wire flush with the main harness and tape the harness. Add a new green 14 AWG wire and connect to the ACC labeled "CMPRSR" "GREEN/BLK" and run this wire to the A/C compressor clutch and connect to the compressor clutch wire.

Use either of these connector positions for the added compressor wire (GREEN) from the ACC

Move this wire **at the fuse panel** from Fuse #8 to fuse #10 or fuse #11.

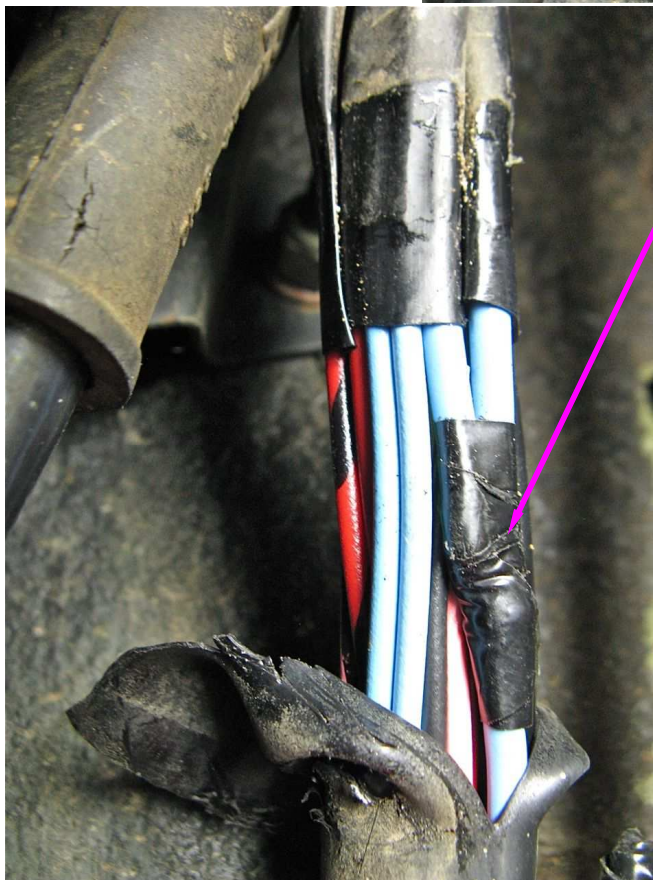
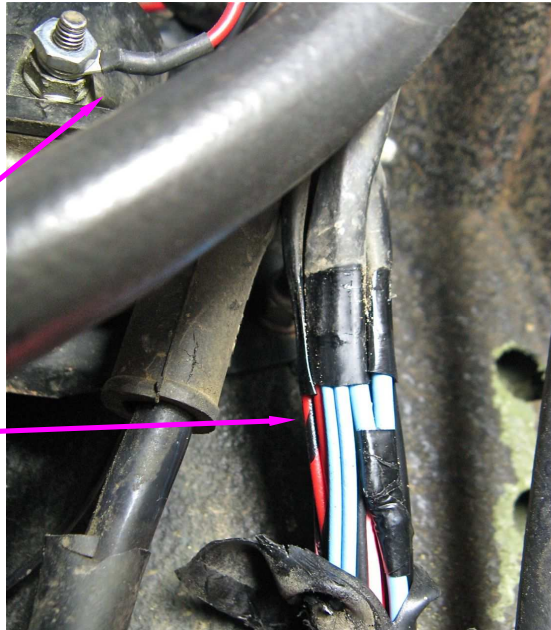
### EARLY 1971 RELAY CONNECTORS

### VIEW FROM WIRE ENTRANCE END OF THE CONNECTOR



**Early 1971 Pantera condenser and compressor wiring.**

This is the starter solenoid mounted on the bracket that has the electrical components for the engine. The wire harness that has the condenser and compressor wires in it is the harness next to the starter solenoid. Remove the tape and sleeve as in the image to expose the wires. [Image 3]



This is the wire junction combining the condenser and compressor wires.

Remove the tape and separate the wires.

Find the wire that is connected to the compressor by using a meter or continuity light.

Cut the compressor wire and add a 14AWG wire to the compressor wire and feed it to the ACC board. Add a terminal to the wire and connect to the ACC terminal "CMPSR". "GREEN/BLK"

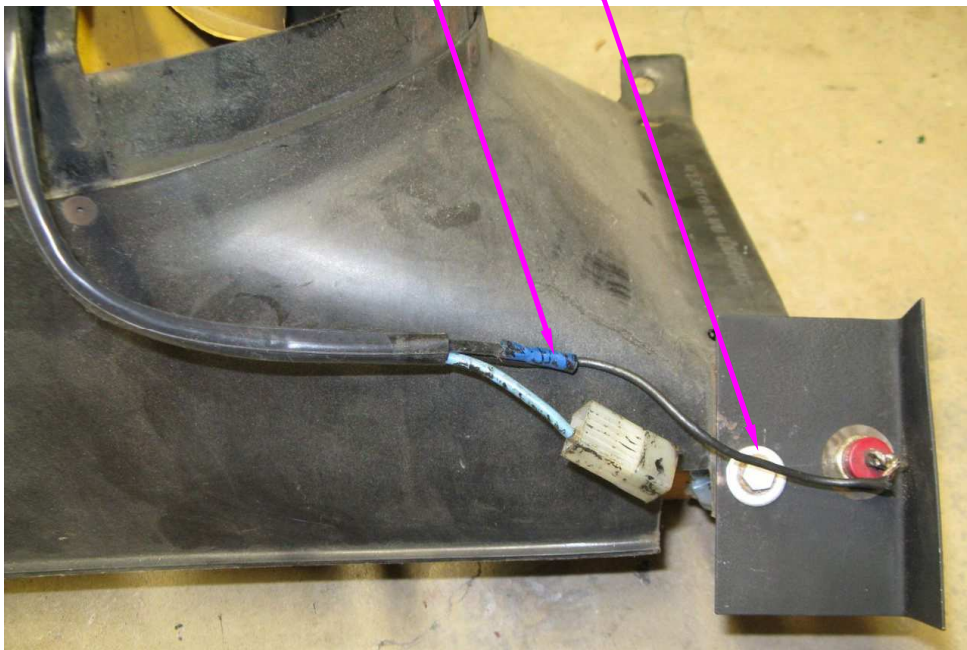
Tape the condenser and compressor wires and the entire wire harness.

[Image 4]

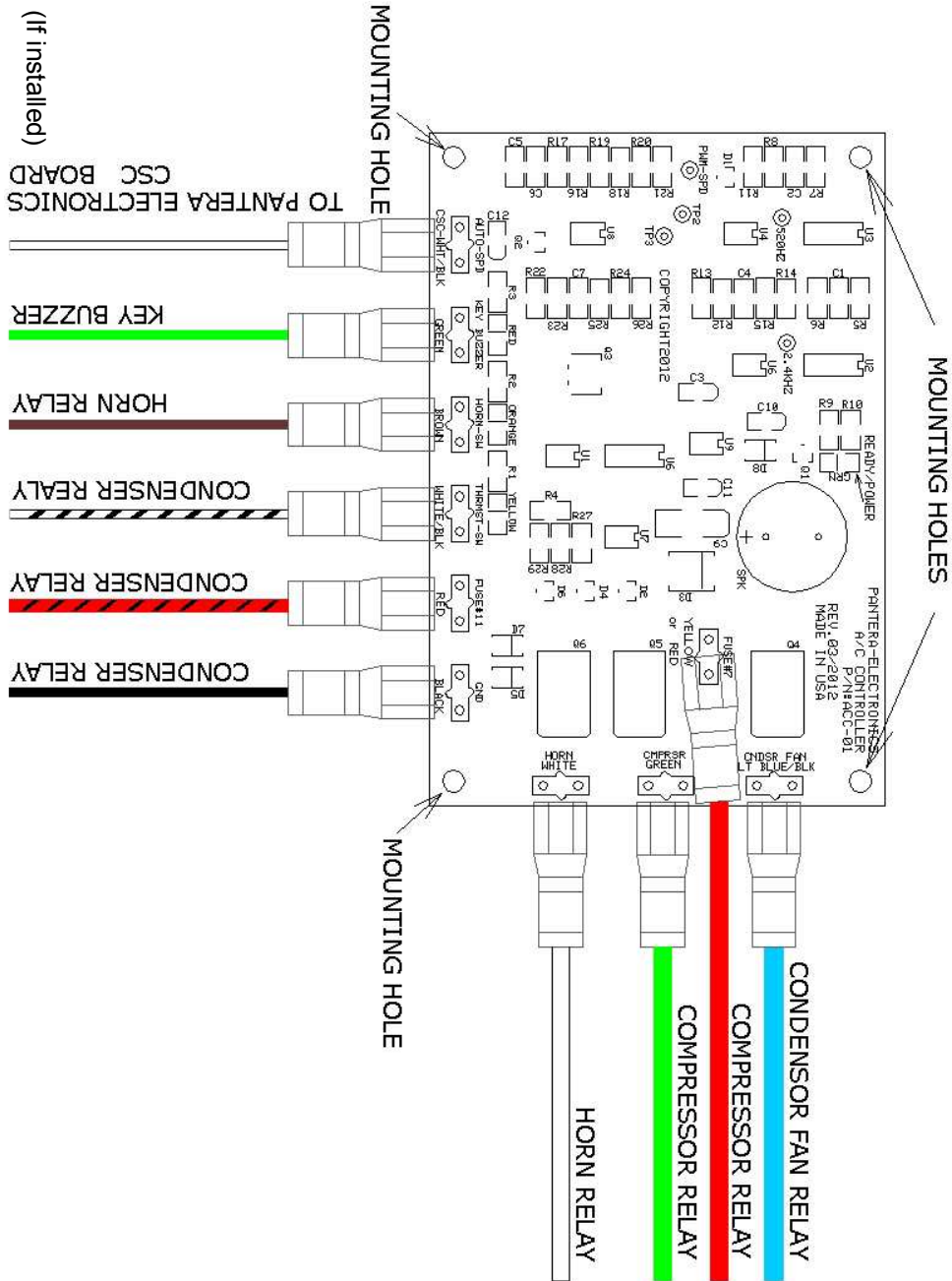


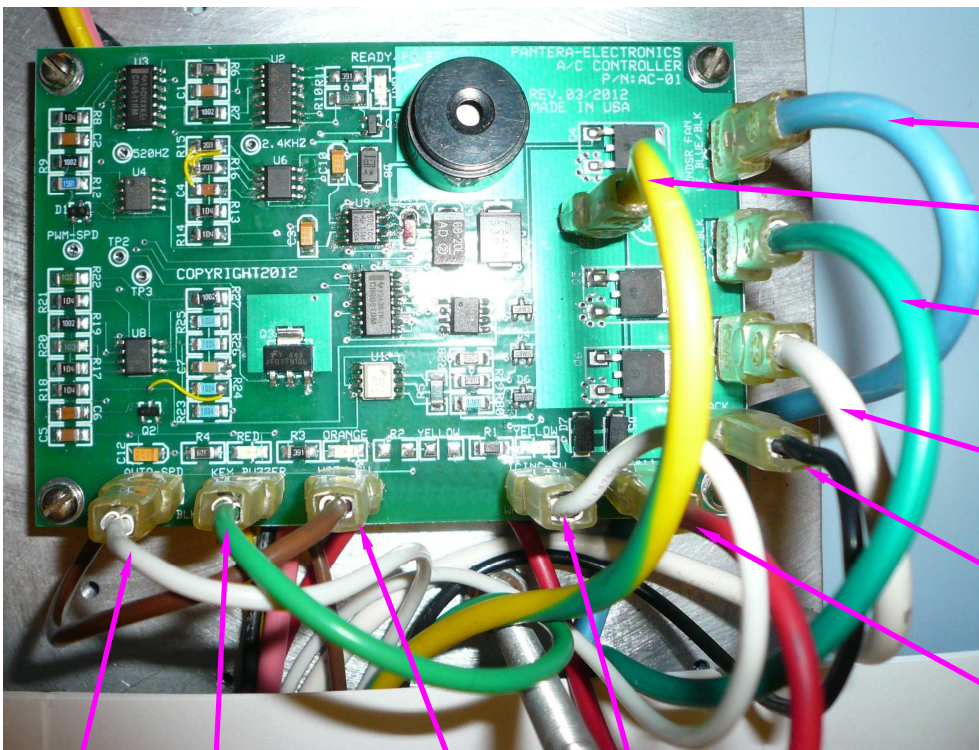
**Early 1971 Pantera condenser and compressor wiring.**

This diode, (an electronic device) and the black wire of the condenser fan wiring is not used and should be removed.  
Cut the black wire at the diode and unbolt the diode mounting plate. [Image 5]



ACC connections to the Pantera wire harness. [Image 6]





From condenser relay

From compressor relay

From compressor relay (must be added in early 1971 Panteras)

From horn relay

From condenser relay

From condenser relay

From key buzzer

From horn relay

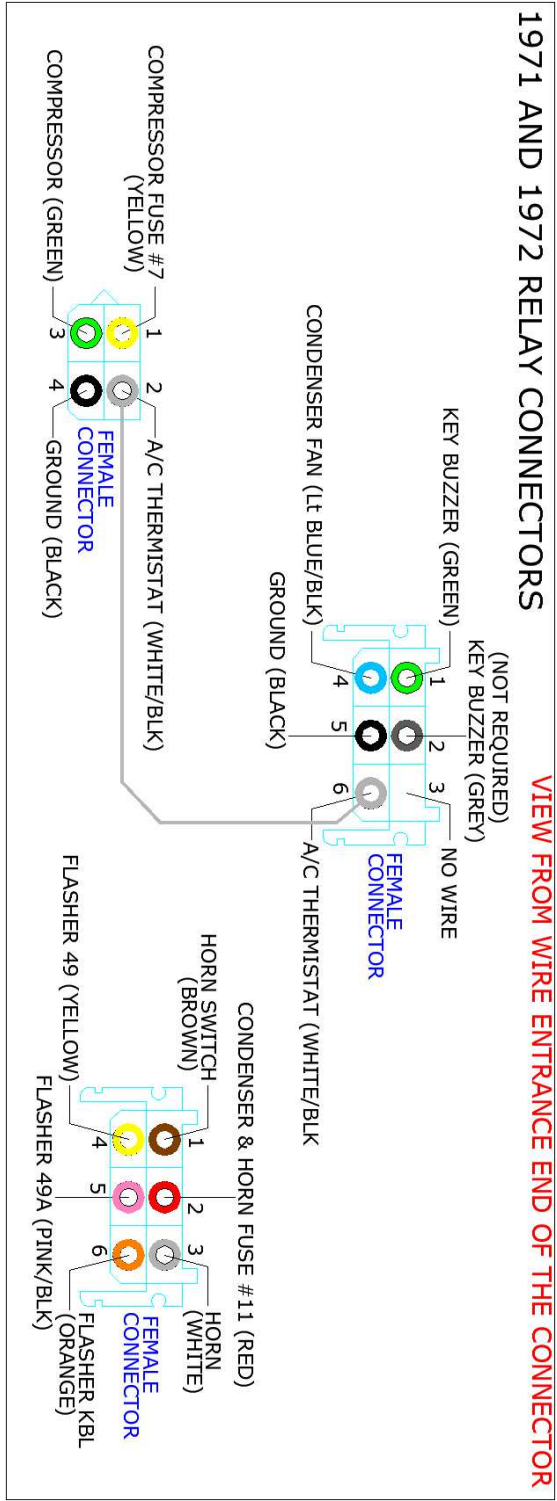
From compressor relay

If the Console Switch Controller is installed connect to tab: "CSC-WHT/BLK" "AUTO-SPD"

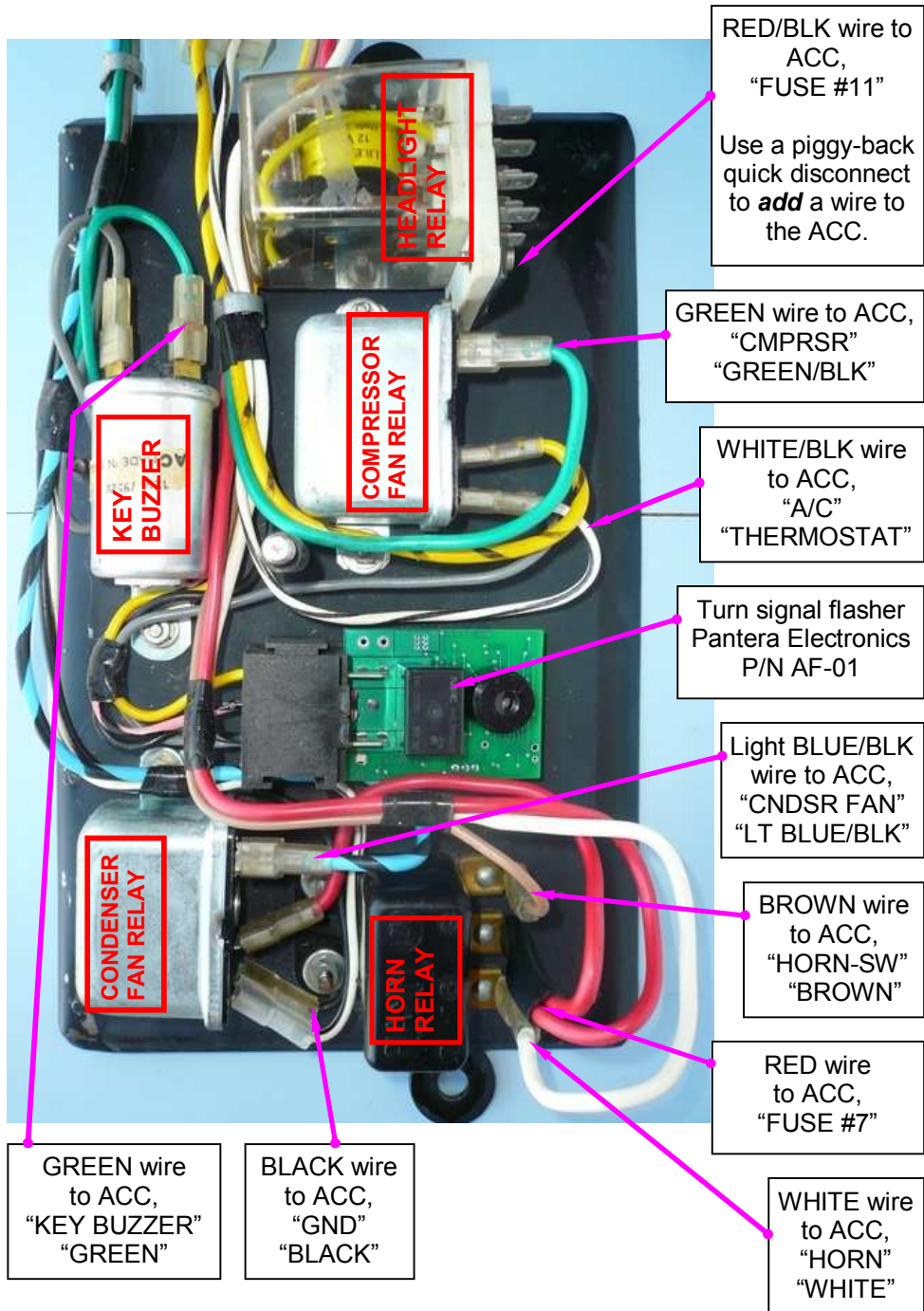
Here the wires transferred from the relays to the ACC board. [Image 7]

# 1971 AND 1972 RELAY CONNECTORS

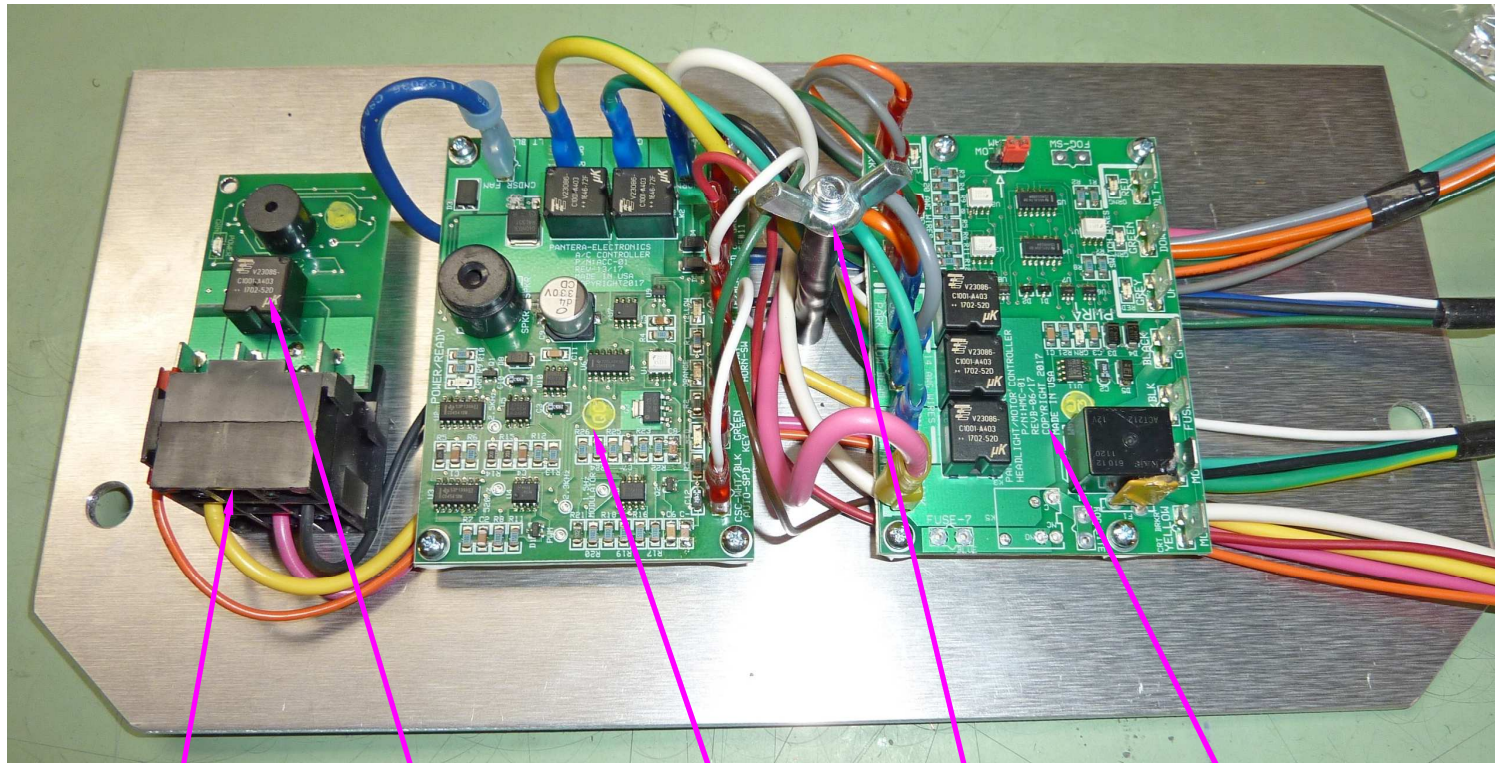
VIEW FROM WIRE ENTRANCE END OF THE CONNECTOR



The 1972 relay plate is below with relays identified. [Image 8]



1971 / 1972 Optional Pantera Electronics Electronic Relay Plate fabricated for ACC, HMC and Signal Flasher [Image 9]



Factory flasher socket

Pantera Electronics  
turn signal flasher

Air Conditioner Controller

Cover Screw

Headlight / Motor Controller



Drawing for fabricating relay plate for the ACC, HMC and Flasher in passenger side foot well for 1971/ 72 Pantera. [Image 8]

HMC mounting holes.

Transfer the hole position from the ACC and HMC with a center punch.

The 0.236 hole is for the screw that retains the cover box. The factory used a 6mm x 70mm long screw inserted from the backside. Use a hex nut and lock washer top side to lock the stud.

If a 1/4-20 x 2.75" long screw is preferred it will also fit.

ACC mounting holes.

Flasher socket mounting hole.

Use .093 to .125" thick aluminum sheet metal.

**1971 / 1972 Pantera Electronics Electronic Relay Plate for the A/C Controller and Headlight / Motor Controller, mounted in the passengers foot well and connected with factory type connectors. The factory connectors are available from Pantera Electronics, see website. [Image 10]**



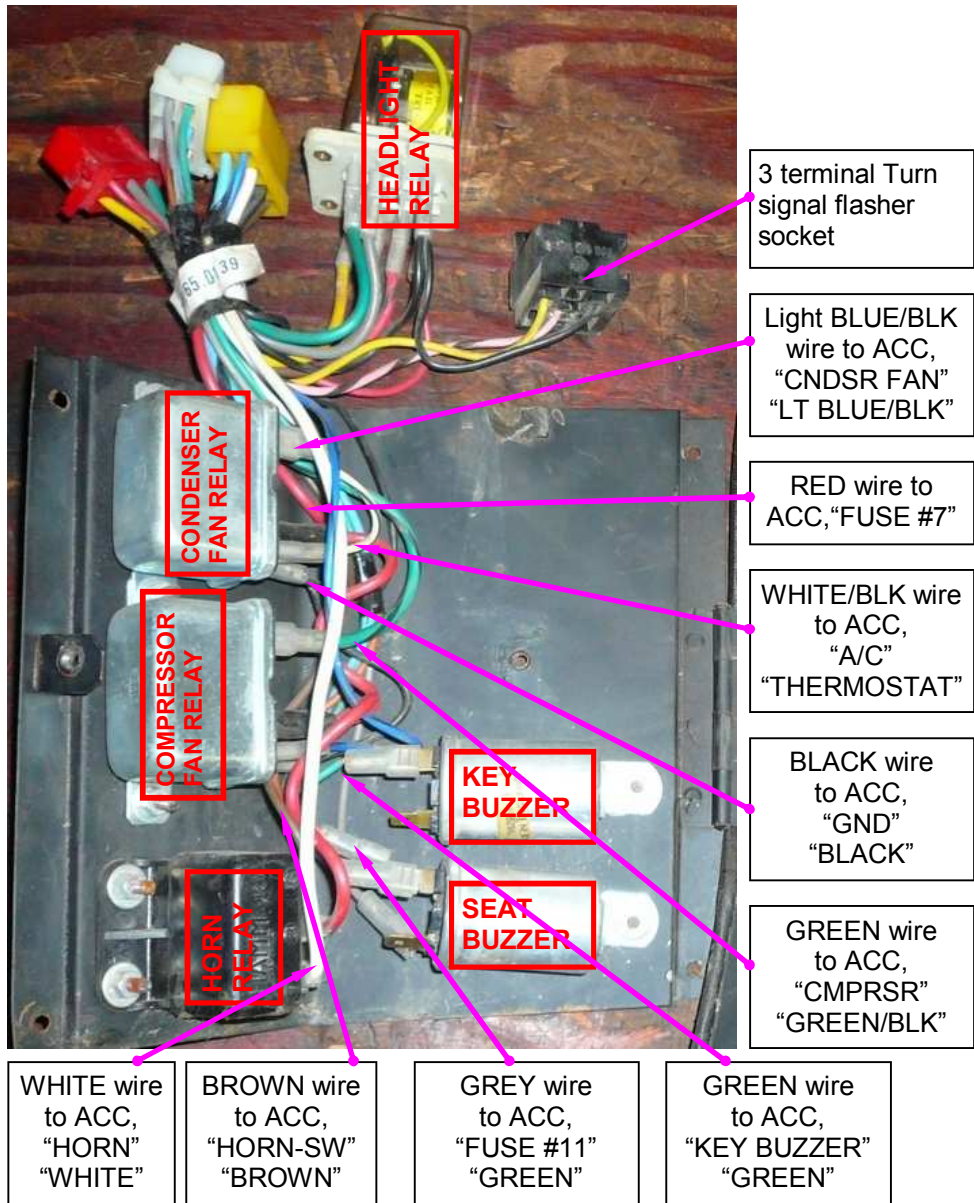
**1971 and 1972  
Relay Plate  
with cover  
installed.  
[Image 19]**





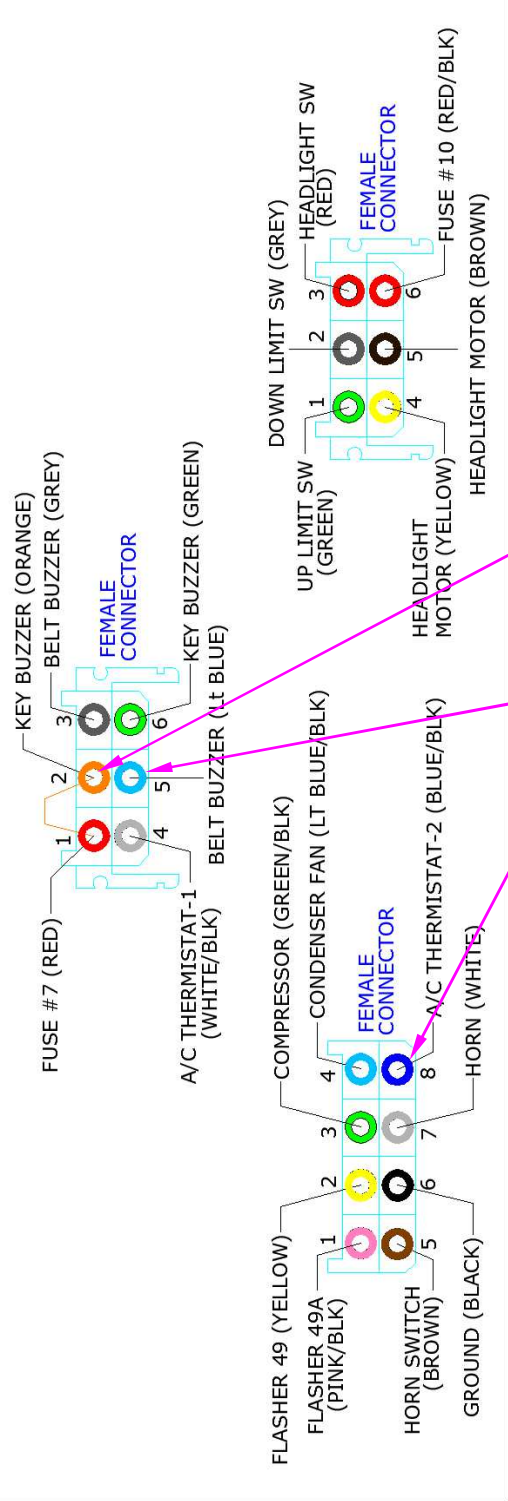
The 1973 / 74 factory relay plate is below with relays identified.

Wire removal and connects to ACC pictured on page 10.  
 [Image 11]

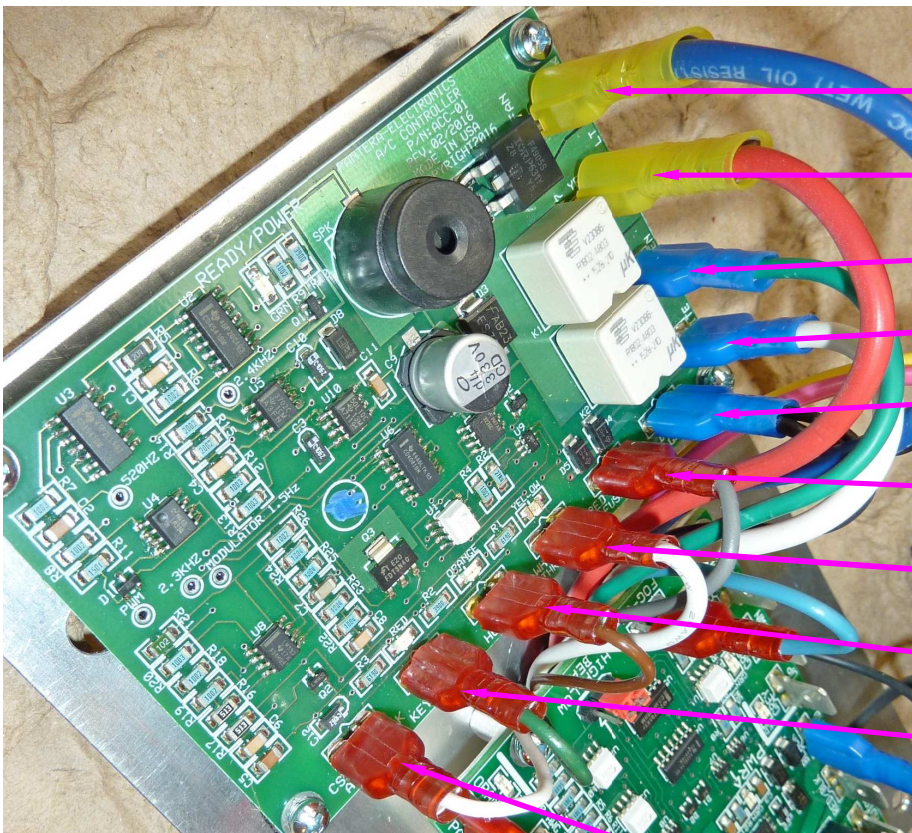


VIEW FROM WIRE ENTRANCE END OF THE CONNECTOR

1973 AND 1974 RELAY CONNECTORS



Note:  
 Key Buzzer, (Orange) wire, connector position 2 is not connected ACC.  
 Belt Buzzer, (Lt Blue) wire, connector position 5 is not connected ACC.  
 A/C Thermistat-2, (Blue/Blk) wire, connector position 8, is not connected ACC.

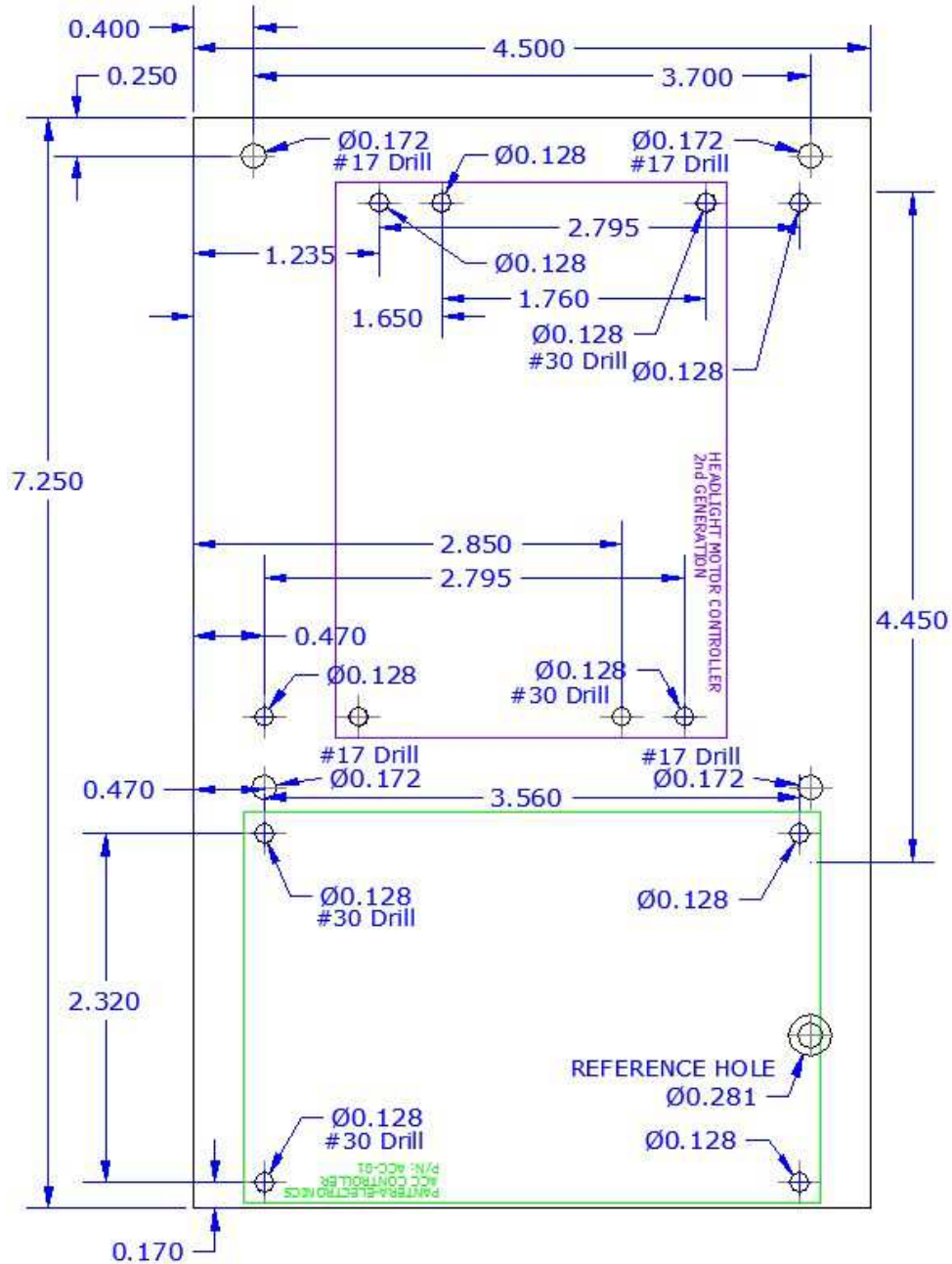


- From condenser fan relay, Con # 4
- From A/C compressor relay, Con # 1
- From A/C compressor relay, Con # 3
- From horn relay, Con # 7
- From condenser relay, Con # 6
- From Belt Buzzer relay, Con # 3
- From compressor relay, Con # 4
- From horn relay, Con # 5
- From key buzzer, Con # 6

Wires transferred from the relays to the ACC board. [Image 7]

If the Console Switch Controller is installed connect to tab: "CSC-WHT/BLK" "AUTO-SPD"

Drawing for fabricating sub-mounting plate for the ACC and HMC in passenger side foot well for 1973 / 1974 Pantera. Use .093 to .125" thick aluminum sheet metal. [Image 12]



1973 / 1974 Mounting the Pantera Electronics Relay Plate, note the hardware stack-up.

This stud is the 5mm factory stud.

Use the hardware that was used to mount the factory relays.

5mm nut

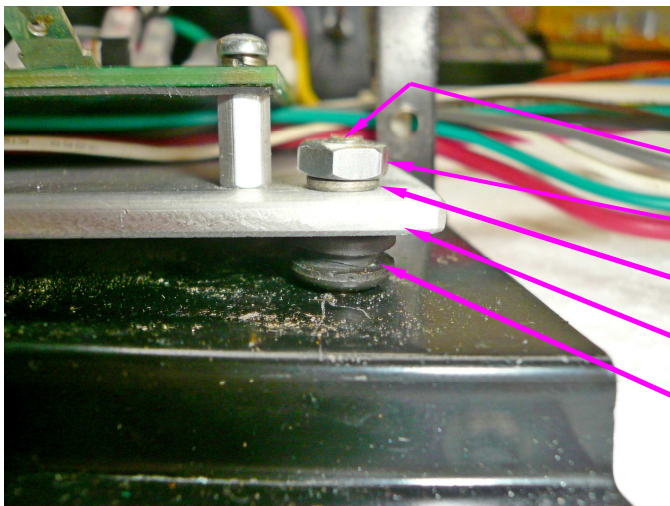
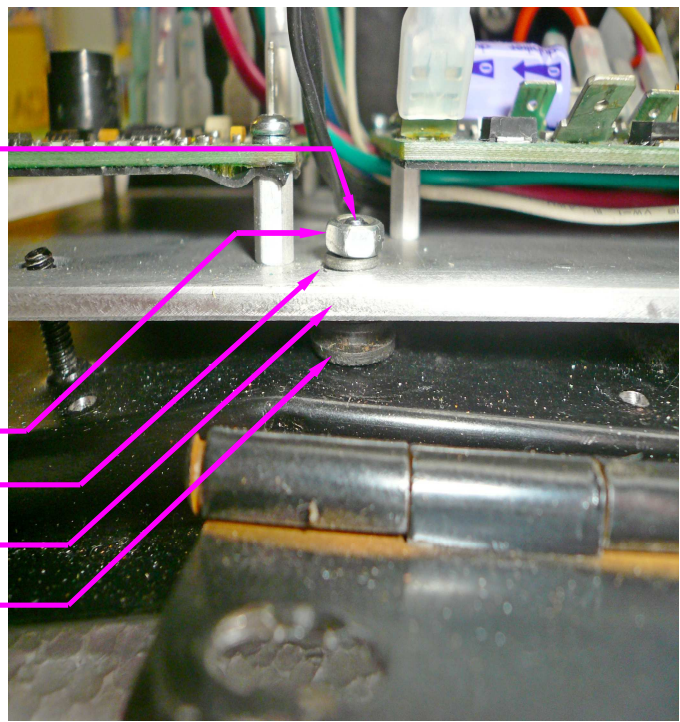
5mm lock washer

Relay plate

Rubber grommet

Tighten the nut.

[Image 13]



1973 / 1974 Mounting the Pantera Electronics Relay Plate, note the hardware stack-up.

8-32 x 1/2" Screw

8-32 Nut

8-32 Lock Washer

Relay plate

Rubber grommet

Tighten the nut.

[Image 14]

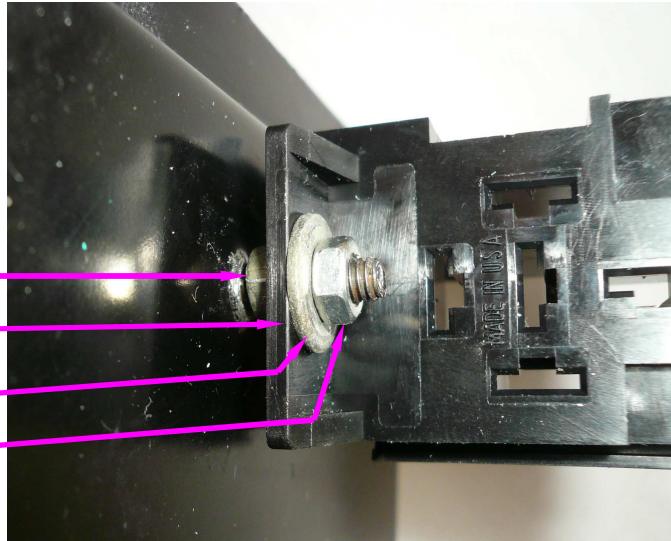
- Hardware List:
- (3) 8-32 x 1/2" Screws
  - (3) 8-32 Nuts
  - (3) 8-32 Lock Washers
  - (4) Rubber grommets

1973 / 1974 Mounting  
signal flasher relay,  
note the hardware  
stack-up.  
Use the hardware that  
was used to mount the  
factory relays.

1. Install 5mm nut
2. Relay socket
3. 5mm flat washer
4. 5mm nut.

Tighten the nut.

[Image 15]



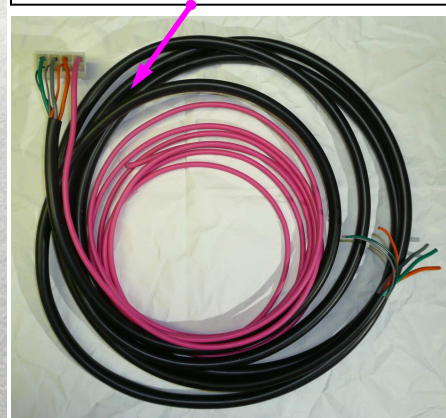
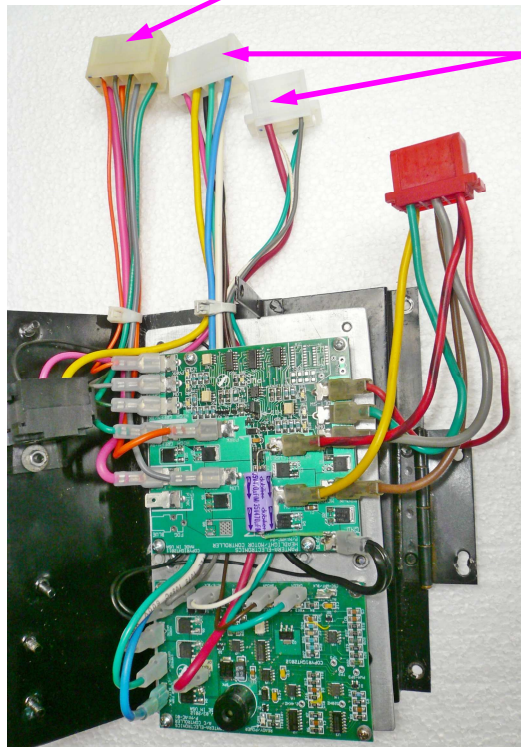
Use the Pantera Electronics  
harness to connect from the HMC  
to the fuse panel.

See the HMC installation manual  
for connections.

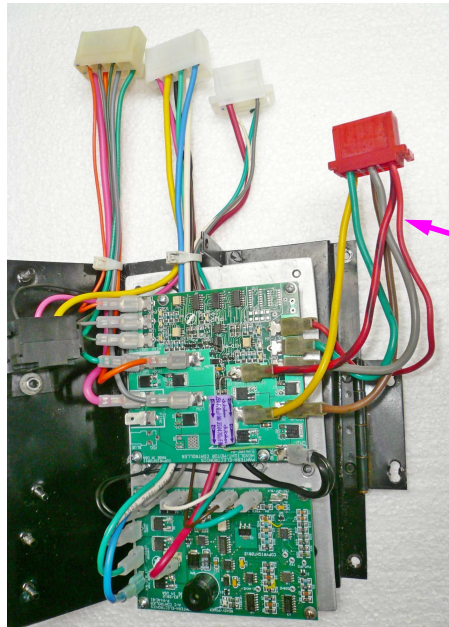
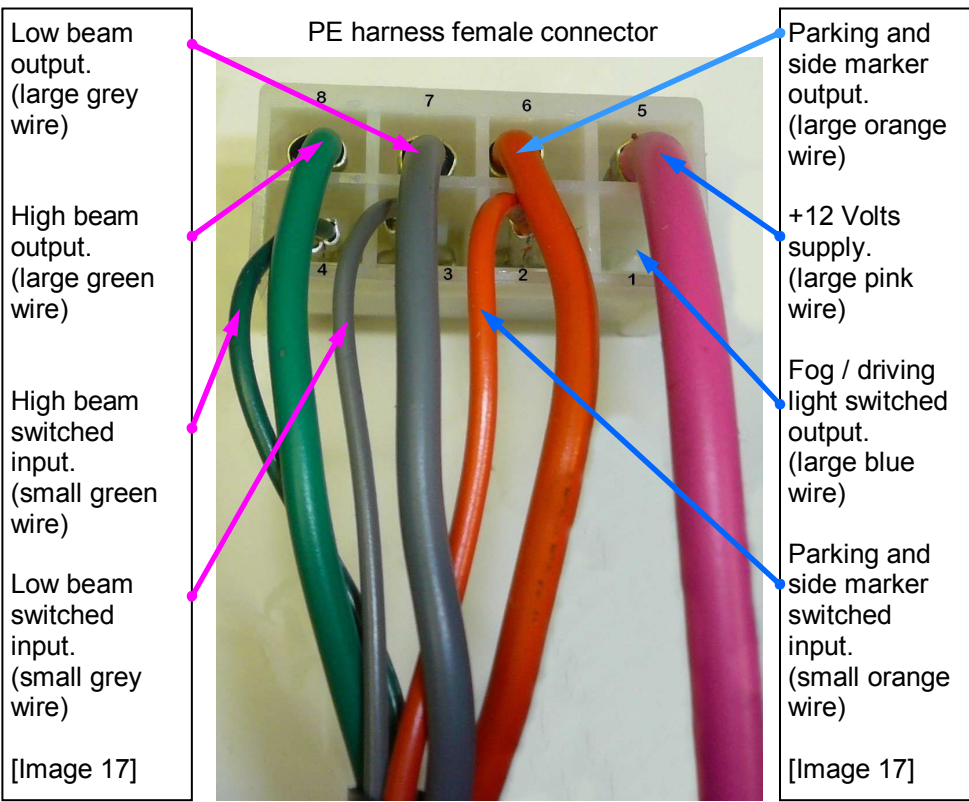
These connectors plug into the  
existing factory Pantera harness  
and match wire colors.

This 7 feet harness with connector  
is included the wired version of the  
1973-74 Electronic Relay Plate  
product.

[Image 16]

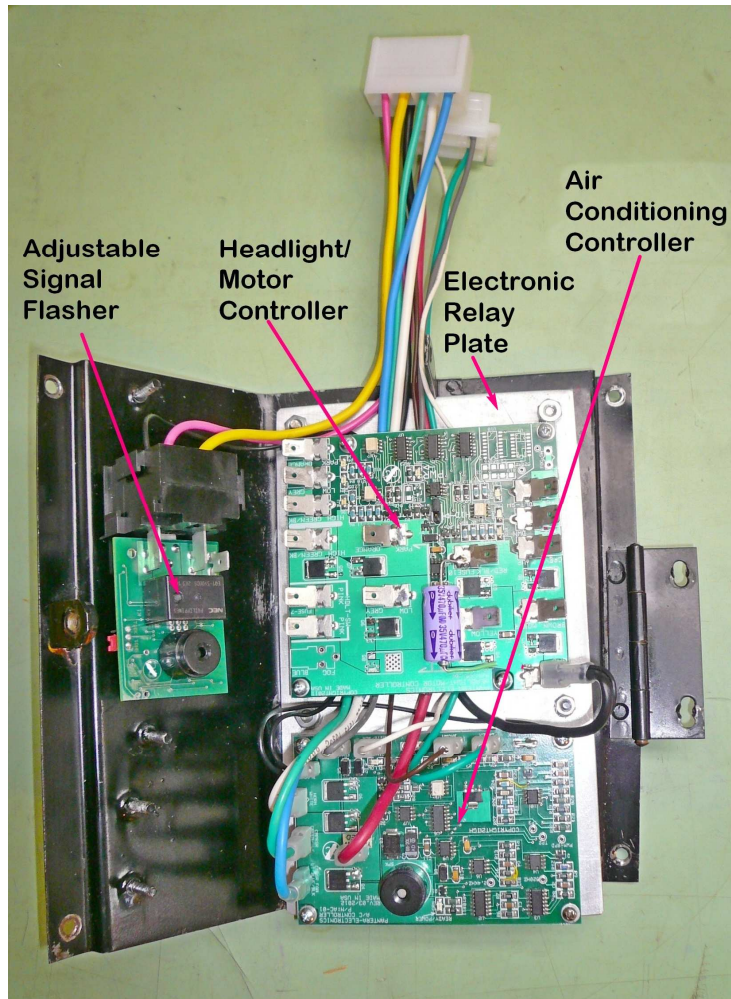


Pantera Electronics extension harness from the HMC to the fuse panel.



1973-74 Pantera Electronics Relay Plate is mounted on the factory bracket. The small wire harness from the factory headlight motor relay is transferred to the HMC board and plugs into the main wire harness. [Image 18]

1973 / 1974 Optional Electronic Relay Plate with ACC, HMC and the Adjustable signal flasher socket.  
[Image 20]



**NOTE:** It's important to keep this installation manual for future reference since revisions to the product change the contents of the installation manual.

Disclaimer

The products from Pantera Electronics have been design and manufactured with the best quality components known to the engineer. The installation instructions have been written to assist the owner in the proper use and installation of the products. Pantera Electronics can not be held responsible or held liable for the interpretation or incorrect implementation of the products.