Installation Instructions for:

Painless RF Control Center

Manual # 90523

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P/N 90523 Painless Wiring Manual

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THE PAINLESS PERFORMANCE RF CONTROL CENTER OPERATION

The design of the RF Control Center is to allow the operation of any electrical circuit in a vehicle of which the owner designates. The system consists of a 6 channel programmable receiver and a four (4) button remote custom steering wheel center transmitter. The transmitter will operate the six (6) channels of the receiver by pressing any of the single buttons or any combination of two (2) buttons at the same time. This system allows for programming of several types of controlled **ON-OFF** functions and will allow the removal or non-installation of the in dash switches. For convenience, the system may be added to existing circuitry without removal of existing switches.

Programming control functions include:

A momentary circuit for possible use in the operation of a horn. This function will provide an output as long as the transmitter button is depressed.

An ignition latching circuit which could be used in the operation of an electric cooling fan. With the ignition ON, this function will provide a constant output once the channel is activated by depressing the transmitter button assigned to it. The channel will continuously power the accessory until the transmitter button is depressed again or the ignition is turned off.

A latching circuit which could be used for headlight operation. This function provides a constant output once the channel is activated by depressing the transmitter button assigned to it. The channel will continuously power the accessory until the transmitter button is depressed again. The ignition switch has no effect on the output of a channel with this function.

A timed circuit, which could be used for turn signal operation. This function can produce a timed output of 30, 60 or 90 seconds.

CAUTION

Due to stray frequencies beyond anyone's control, it is advised not to program any circuit that may be life threatening if the system should fail from signal invasion.

The transmitter is designed with rolling codes to automatically prevent another transmitter from operating any function you have programmed.

It is not uncommon for transmitter/receiver functions to have a one half to one-second delay from the time the transmitter button is depressed until the device relay is activated.

If you have a question, feel free to call 1-800-423-9696 to speak with one of our technicians.

Installation Instructions

Always Disconnect battery when servicing or modifying the electrical system

Tools needed
Standard hand tools
Digital voltmeter
Test light

PAINLESS RF TRANSMITTER

The Painless RF Transmitter is a replacement steering wheel center for your custom steering wheel.

O-ring style horn button:

If you have a Billet Specialties, LeCarra, Budnik, Grant or any other wheel that the original horn button is held in place with an o-ring or spring, simply remove the horn button and wiring and replace it with the Painless RF Transmitter.

Note: Due to different castings of wheels, the center diameter of your wheel may be slightly larger than the RF Transmitter. The diameter of the RF Transmitter is the average of several wheels tested.

5 bolt style horn button:

If you have a Grant or Momo style wheel, which has 5 bolts attaching the horn button to the wheel, remove the attaching bolts and horn wiring and install the Painless RF Transmitter using the bolts provided.

Transmitter battery replacement

Remove lock ring from back of transmitter, lift out plastic retaining cover and replace battery. Replace plastic cover and lock ring. Ensure the polarity when reinstalling the battery. The battery is a series 23, 12-volt unit available wherever camera batteries are sold. Battery life is dependant on usage but normally 2 years could be expected.

PAINLESS PROGRAMMABLE RECEIVER

The Painless Programmable Receiver is a 6-channel receiver that has user programmable outputs. An advanced function is used to store transmitter channels as well as to program the output types. The system will supply an output whenever the transmitter button controlling the channel is pressed. All of the outputs of the Painless Programmable Receiver are milliamp low current grounds. **They cannot be used to drive high current loads directly. Relays must be used to drive high current loads. The receiver provides a GROUND circuit for relay activation only.**

Note: Since the unit can generate latching outputs, take care to ensure that relays are not latched on when the vehicle is left unattended for periods of time. This will prevent battery drain.

Important: Damage to the output controllers will occur if they are connected to motors, solenoids or other high current loads.

Receiver mounting:

The receiver may be mounted anywhere under the dash. The wires should be able to reach the power supply connection points and the relays for each circuit to be used. Secure the receiver with screws or any other easy mounting method. Route the gray and black wires, with the small push button on one end, out to a convenient place where it can be easily accessed for programming later. Route and attach the main wires in the harness, with the white connector on one end, as instructed in the following wire connection guide.

Wire connection guide

YELLOW (+) ignition input: Connect to a fused switched ignition input. The test light may be used to locate this circuit.

BLACK (-) chassis ground input: Connect this wire to a paint-free surface on the vehicle chassis. Use a factory bolt if possible.

WHITE/BLUE No function in this application.

GRAY (-) program input: This wire is common with the GRAY wire of the pre-wired program button. It is not used in most cases. It can be used to program the system if the momentary button is not being used. By simply touching the wire to ground as you would when depressing the programming button.

BROWN (+) programming light output: Connect the BROWN wire to a programming light. This connection is necessary for using the programming function. The test light may be used for this function. Attach the clip end of the light to the brown wire and the pick end to a good ground.

RED (+) constant power input: Connect to a fused constant 12-volt source. The test light may be used to locate this circuit.

WIRES W/BLACK STRIPES

(-) 200mA channel outputs: These wires are the output channels of the system. Connect them to the relayed options you want to control. They are low current **grounds** for relays and cannot drive any current loads directly. Green- channel 1, Red – channel 2, Blue – channel 3, Purple – channel 4, Gray – channel 5, White – channel 6

RELAY INSTALLATION

Relays are required on each of the six (6) circuits of the receiver. The receiver creates a ground to activate the relay. The relay, once activated, will provide the high amount of current needed to operate the device selected. **Ensure that the relay used is rated at a high enough current capacity for the device that will be operated.** The following chart shows how wires are attached to mini (1"cube) and micro (1" by 1/2" by1/2") relays using the numbers on the relay. See illustration on page 9 when using a typical relay. See illustration on page 10 and the instructions that follow when using the Painless RF Relay Bank (Part #20320). Be sure to insert the receiver wires that match the relay wires. White to white, blue to blue etc.

Mini – 30 AMP OUTPUT	**Micro – 20 AMP OUTPUT**
87 – Battery Power Input	5 – Battery Power Input
30 – To Load (device being operated)	3 – To Load
85 – Coil Ground (attach receiver wire here)	2 – Coil Ground
86 – Coil Power (fused power source) *****	1 – Coil Power

***** This power source may be a constant hot for operation of the horn, lights or any device that requires power when the ignition is off or it may be an ignition on only source for operation of an electric fan, radio or any device that is to be turned off when the ignition is off.

TRANSMITTER/RECEIVER PROGRAMMING

The system uses the transmitter programming function to store transmitter channels to memory. The supplied plug-in momentary switch is used for programming. The GRAY wire in the main harness can also be used for programming. Use the GRAY wire, by touching it to ground, on the main harness if you need to program the transmitter in a remote location in the vehicle.

Entering the transmitter programming function:

Programming Channel 1

1. Turn ignition power OFF for five (5) seconds and then back ON.
2. Press and hold programming button one (1) time. Programming light will flash once to indicate that Channel 1 is selected. Press transmitter button wanted for operation of Channel 1. Programming light will flash once more to indicate that Channel 1 is learned. Release both buttons and proceed to Channel 2 programming.

Programming Channel 2

1. Turn ignition power OFF for five (5) seconds and then back ON.
2. Press programming button two (2) times making sure to hold it pressed on second push. Programming light will flash two (2) times to indicate that Channel 2 is selected. Press transmitter button wanted for operation of Channel 2. Programming light will flash once more to indicate that Channel 2 is learned. Release both buttons and proceed to Channel 3 programming.

Programming Channel 3

1. Turn ignition power OFF for five (5) seconds and then back ON.
2. Press programming button three (3) times making sure to hold it pressed on third push. Programming light will flash three (3) times to indicate that Channel 3 is selected. Press transmitter button wanted for operation of Channel 3. Programming light will flash once more to indicate that Channel 3 is learned. Release both buttons and proceed to Channel 4 programming.

Programming Channel 4

1. Turn ignition power OFF for five (5) seconds and then back ON.
2. Press programming button four (4) times making sure to hold it pressed on fourth push. Programming light will flash four (4) times to indicate that Channel 4 is selected. Press transmitter button wanted for operation of Channel 4. Programming light will flash once more to indicate that Channel 4 is learned. Release both buttons and proceed to Channel 5 programming.

Programming Channel 5

NOTE: CHANNEL 5 IS USUALLY PROGRAMMED TO BE CONTROLLED WITH ANY TWO (2) BUTTONS ON THE TRANSMITTER BEING PRESSED AT THE SAME TIME.

1. Turn ignition power OFF for five (5) seconds and then back ON.
2. Press programming button five (5) times making sure to hold it pressed on fifth push. Programming light will flash five (5) times to indicate that Channel 5 is selected. Press whichever two (2) buttons on the transmitter wanted for operation of Channel 5. Programming light will flash once more to indicate that Channel 5 is learned. Release all three (3) buttons and proceed to Channel 6 programming.

Programming Channel 6

NOTE: CHANNEL 6 IS USUALLY PROGRAMMED TO BE CONTROLLED WITH ANY TWO BUTTONS ON THE TRANSMITTER BEING PRESSED AT THE SAME TIME. MAKE SURE CHANNEL SIX IS NOT PROGRAMMED WITH THE EXACT TWO (2) BUTTONS USED FOR CHANNEL 5 OPERATION.

1. Turn ignition power OFF for five (5) seconds and then back ON.
2. Press programming button six (6) times making sure to hold it pressed on sixth push. Programming light will flash six (6) times to indicate that Channel 6 is selected. Press whichever two (2) buttons wanted for operation of Channel 6. Programming light will flash once more to indicate that Channel 6 is learned. Release all three (3) buttons.

Programming function will be exited if:

1. Ignition is turned off.
2. Program button is pressed too many times.
3. More than 15 seconds elapses between steps.

LOST OR STOLEN TRANSMITTERS

It is possible to remove lost or stolen RF Center transmitter from the system's memory.

To remove all transmitters from memory:

Read entirely before proceeding

1. Turn the ignition ON to the run position.
2. Press the program button seven (7) times and hold it down on the seventh (7^{th}) press.
3. While holding the program button on the seventh (7^{th}) press, proceed to push any of the buttons on the transmitter that has been previously programmed. ***CAUTION: THIS DELETES ANY AND ALL PROGRAMMED CHANNELS FROM THE RECEIVER.*** The light will flash once indicating that all channels have been successfully deleted from memory.
4. Release both buttons.

After deleting the lost or stolen transmitter use the transmitter/receiver programming to teach the system the new transmitter.

OUTPUT PROGRAMMING FUNCTION

The system outputs, momentary, ignition latching, latching and timed are programmed using a computer based programming function. Once they are configured, the settings are stored to memory and will be retained even if power is disconnected from the unit. The supplied plug-in momentary switch is used for programming. The GRAY wire in the main harness can also be used for programming.

PROGRAMMING THE OUTPUT FUNCTIONS FOR EACH CHANNEL

1. Turn the ignition ON then back OFF.
2. Press the programming button the number of times equal to the channel number you want to be programmed, making sure to hold it pressed on the last push. (i.e.: to program Channel 2, press the programming button once and then let off, push the button again and hold it pressed. The programming light will flash twice indicating that Channel 2 is selected.) **Immediately** after the light blinks twice it will begin cycling through the different output functions for this channel. Simply release the programming button immediately after the programming light flashes the number of times corresponding to the desired output function of this channel.

NOTE: THE RECEIVER WILL CYCLE THROUGH THE SIX DIFFERENT OUTPUTS AND THEN TURN THE CHANNEL OFF. THE END OF THIS CYCLE IS INDICATED BY THE PROGRAMMING LIGHT STAYING ON FOR ONE (1) SECOND THEN OFF FOR ONE (1) SECOND AND THEN BACK ON FOR ONE (1) SECOND. AT THIS POINT THE CHANNEL IS OFF. TO CYCLE BACK THROUGH THE DIFFERENT OUTPUTS FOR THIS CHANNEL SIMPLY FOLLOW THE STEPS ABOVE.

As you hold the button, the system will begin to cycle through the types of outputs available, as shown in the chart below.

Flashes	**OUTPUT TYPE**
One	Momentary
Two	Latch Reset w/Ignition
Three	Standard Latch
One	30 Seconds Timed
Two	60 Seconds Timed
Three	90 Seconds Timed

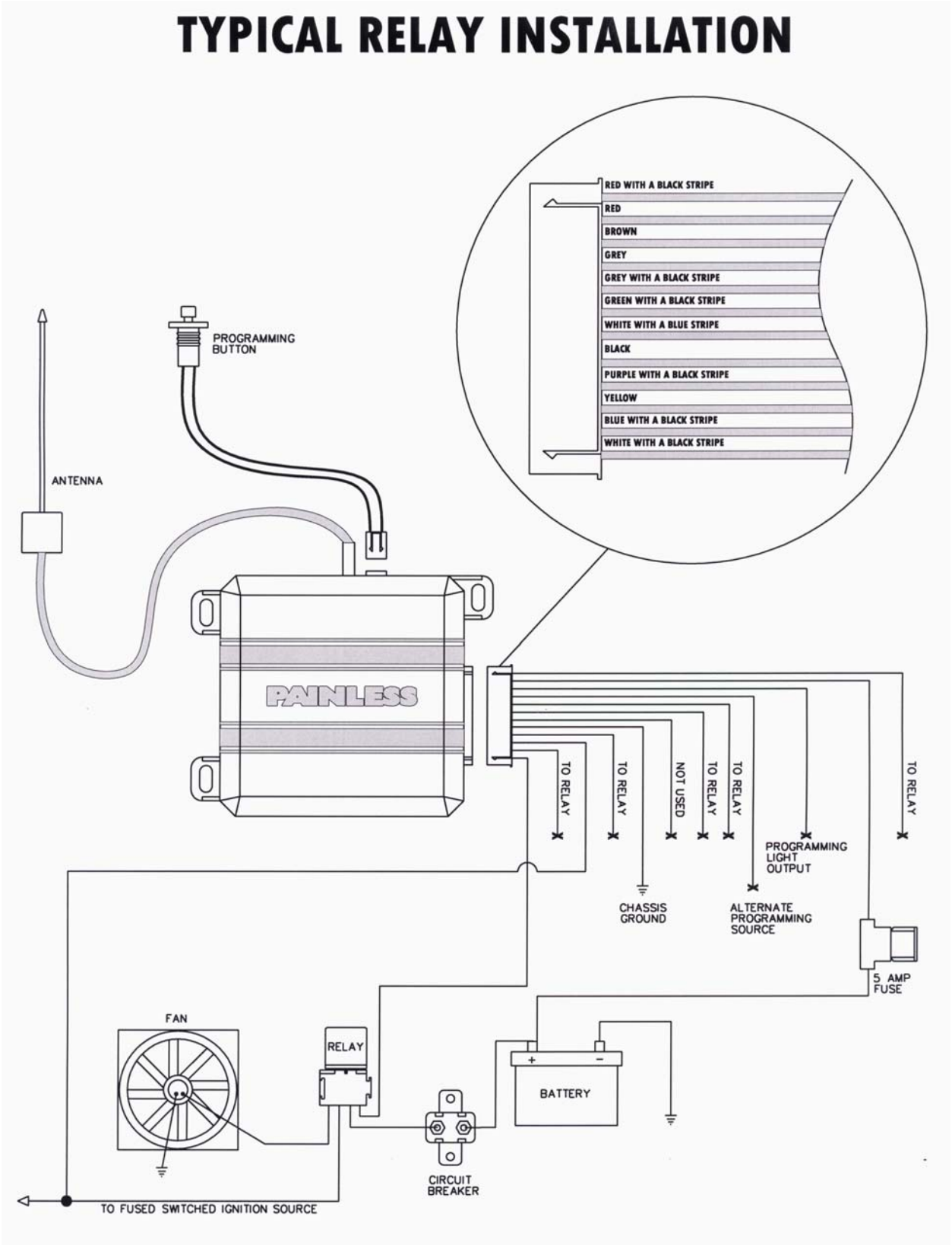
Programming function will be exited if:

1. The ignition is turned on.
2. More than 15 seconds elapses between steps.
3. The program button is pressed too many times.

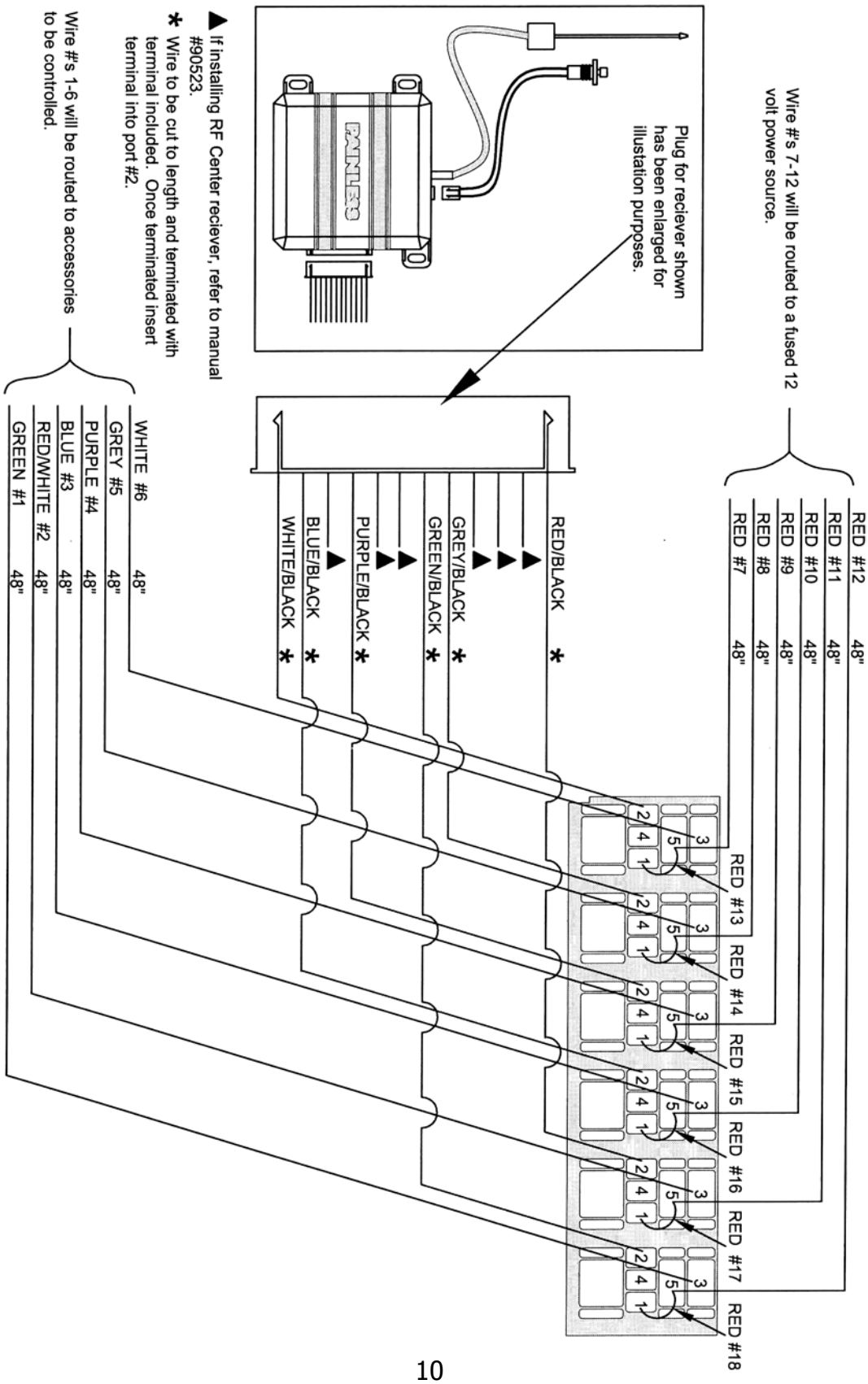
This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.

TYPICAL RELAY INSTALLATION



RF CONTROL CENTER 6 RELAY BANK INSTALLATION SHEET FOR PART #20320



RF CONTROL CENTER 6 RELAY BANK INSTALLATION SHEET FOR PART #20320
(Included in certain RF Center Kits)

The 20320, 6 relay kit, is designed to operate up to 6 accessories programmed through the RF Center receiver. The RF Center only has a negative (-) output in each of it's circuits of which can only operate a device of 200 milliamps, the equivalent of a small dash lamp, so relays must be used. Each relay, in the 20320, has a maximum output of 20 amps continuous and will handle 25 amps momentary such as 1 or 2 seconds. Certain devices such as an electric fan, of 14 inches in diameter or larger, will require a larger relay, 30 amps, of which a 20321 relay kit may be used.

Important: Please read all steps before starting installation.

Step 1
Mount the relay bases in a location close enough to the receiver so the receiver wires will reach the relay bases. 2 screws have been provided for mounting and installing the screws in each end relay base will provide for a sturdy installation.

Step 2
Once the relay bases are mounted, route the 6 wires, with stripes, from the receiver to the relay bases and cut to length if necessary. Strip 3/16" of the insulation from each wire and install the terminals provided on each wire.

Step 3
Insert the terminals into the relay base into port # 2 (see illustration) matching the wire color you are inserting with the one in port #3, green to green, white to white and so on. Once all wires are installed into the relay bases then install the relays.

Step 4
Route the 6 large red wires to a fused power source and attach. This power source may be constant hot or ignition hot or a combination of both depending on the accessories be operated.

Step 5
Route the relay output wires to the accessories to be operated and terminate. These wires may be lengthened if necessary.

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.