

MSD[®] IGNITION INSTALLATION INSTRUCTIONS

MSD RELAYS

PN 8961, Single-Pole, Double-Throw, 30 Amp/12 VDC
PN 8960, Double-Pole, Double-Throw, 30 Amp/12 VDC

MSD Relays will allow you to activate a variety of accessories that require high current. These are ideal to tie in with an rpm activated switch to control a nitrous or air shifter solenoid.

The benefit of a relay is that it can be energized using a small amount of power (12V/1 Amp). This moves the relay's armature so it can transfer a large amount of power (12V/30 Amp) to activate a high current device.

- The PN 8960 will handle a 30 Amp load, on each side, with an input voltage of 12 volts.
- The PN 8961 Relay will handle a 30 Amp load and is ideal for multiple accessories.

Following is a short description of the operation of a relay. A variety of wiring schematics are also included to help with your installation.

Relays are very simple devices and consist of four basic parts:

- A small coil (sometimes referred to as a bobbin or electromagnet)
- An armature
- A spring
- A set of electrical contacts

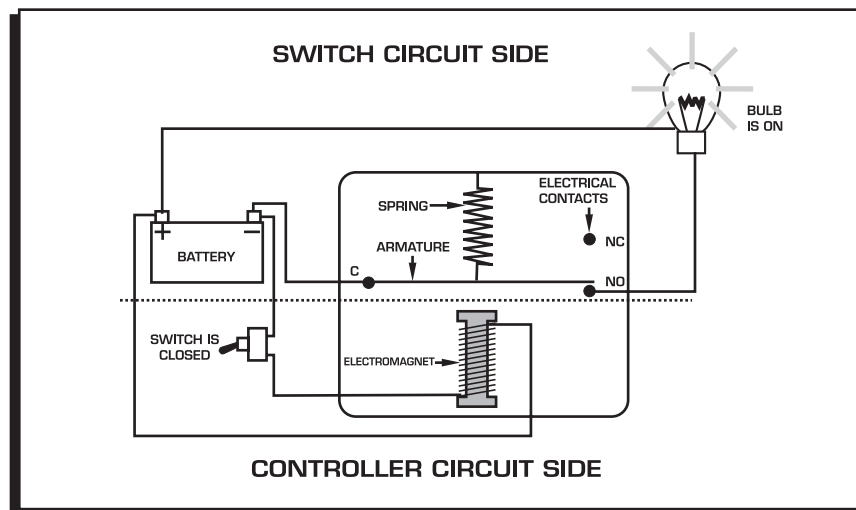


Figure 1 General Relay.

Relays consist of two separate and completely independent circuits; the Controller circuit and Switch circuit. In Figure 1 the Controller circuit is on the bottom and it controls the power to the electromagnet. When 12 volts are supplied through the switch, the coil is energized. When energized, it attracts the armature of the Switch circuit.

The Switch circuit consists of an armature, spring and contacts for the high current side. The armature is a switch and will complete or open the high current circuit. When the coil of the relay is energized, it attracts the armature from one electrical contact to another to complete the circuit. When the coil is not energized the spring pulls (or pushes) the armature back and the high current circuit is opened.

Relays have a variety of specifications. A few things to consider include:

- Make sure the Relay can accept and handle the voltage and current required to activate the desired circuit.
- The number of bobbins to use with different circuits (generally 1-2).
- The number of electrical contacts for the armature (generally 1-2).
- If the Relay is Normally Open (NO) or Normally Closed (NC).

RELAY APPLICATIONS

Here are some examples of how a Relay can be used in typical automotive applications.

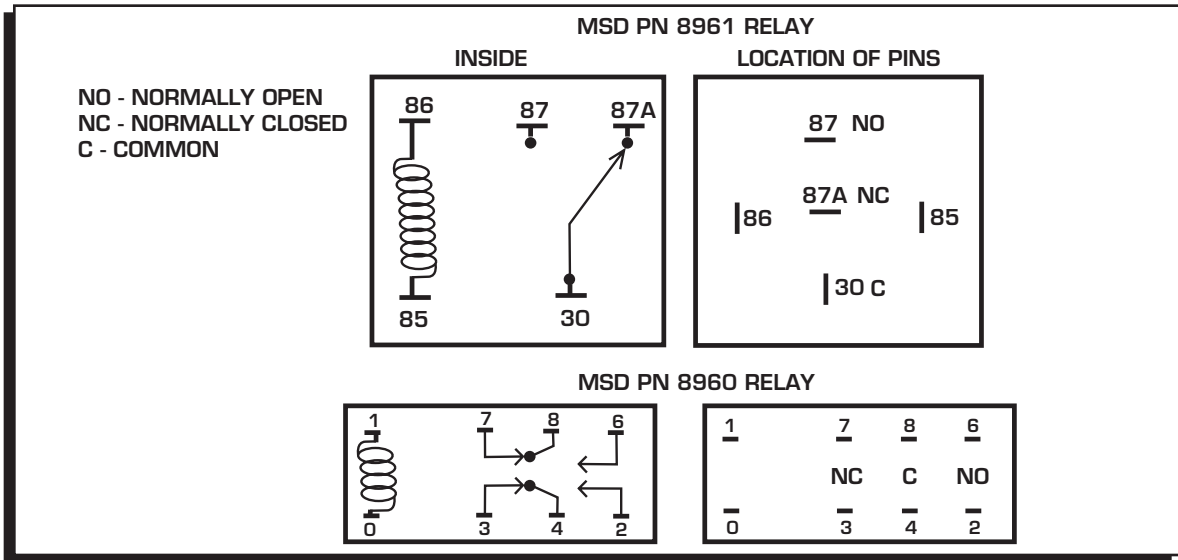


Figure 2 Inside the MSD Relays.

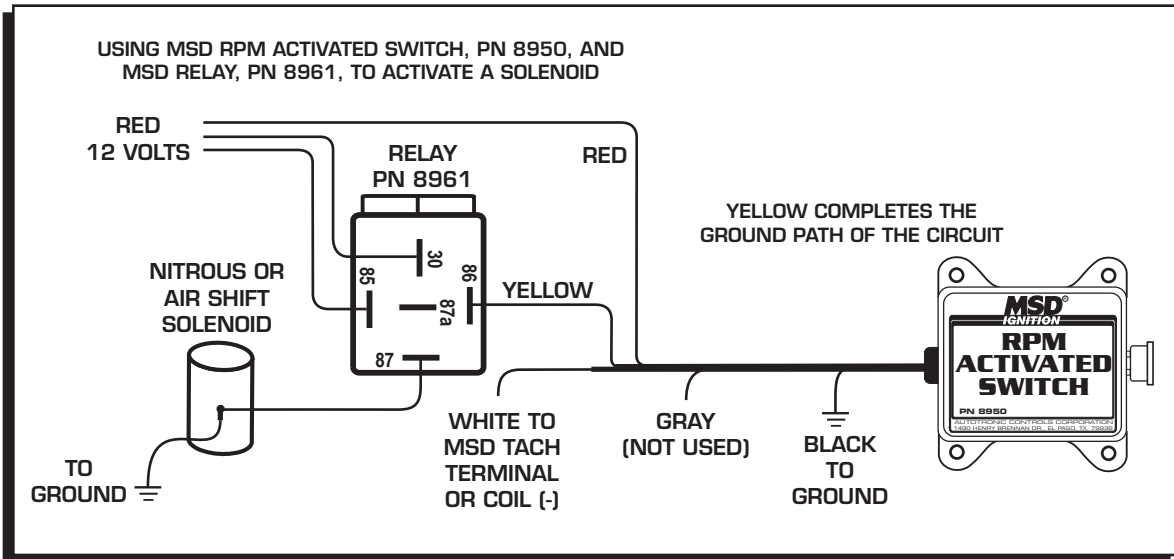


Figure 3 Connecting a Transmission Solenoid with an MSD RPM Activated Switch and PN 8961 Relay.

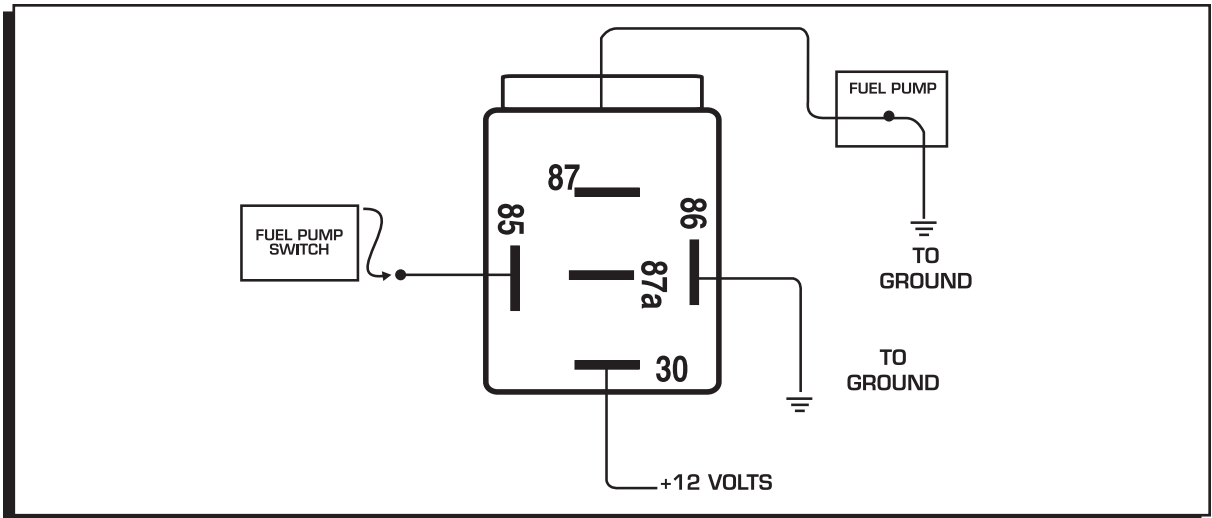


Figure 4 Connecting an Electric Fuel Pump.

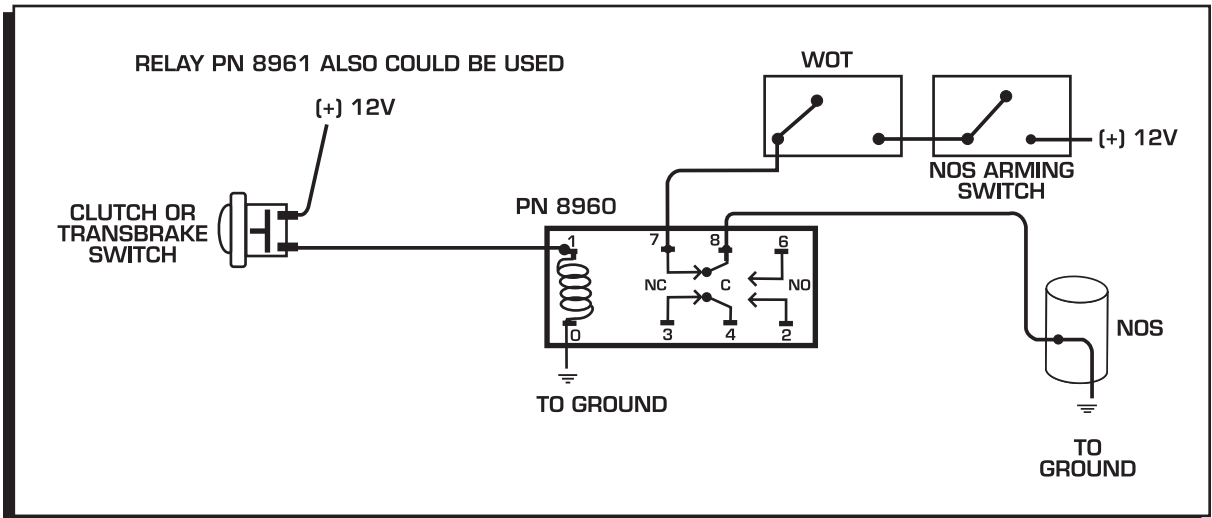


Figure 5 Connecting a Nitrous Solenoid at the Launch.

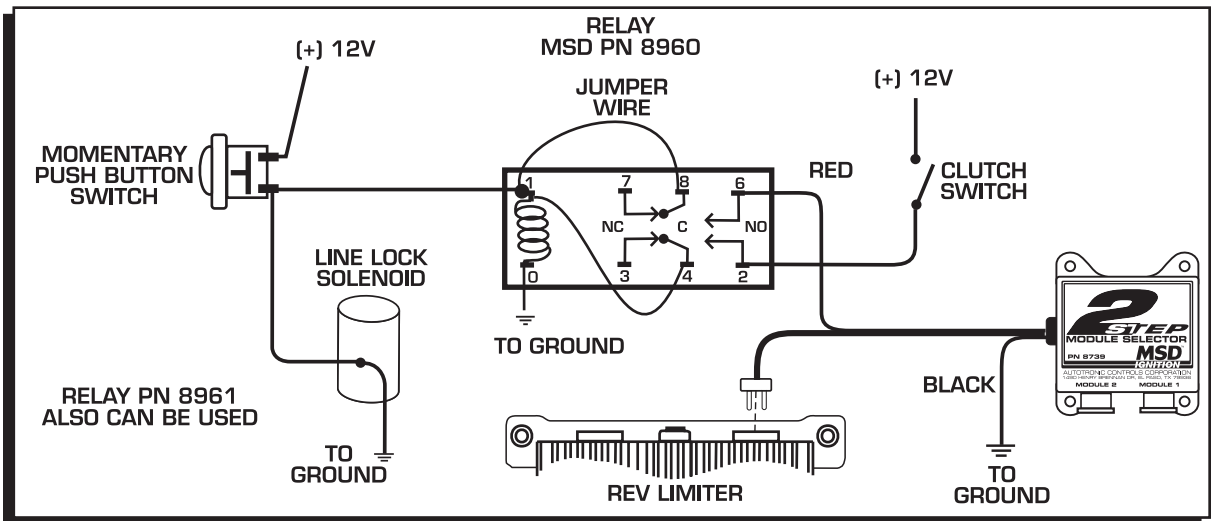


Figure 6 Connecting a Two Step from a Clutch Switch with the PN 8960 Relay (manual Trans).

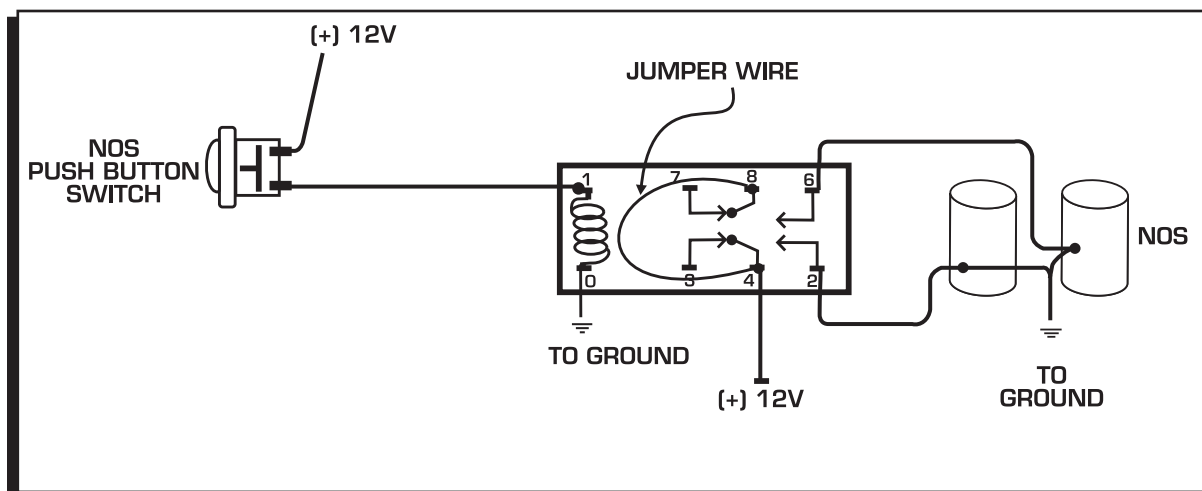


Figure 7 Connecting Multiple Nitrous Solenoids with PN 8960.

Service

In case of malfunction, this MSD component will be repaired free of charge according to the terms of the warranty. When returning MSD components for warranty service, **Proof of Purchase** must be supplied for verification. After the warranty period has expired, repair service is based on a minimum and maximum fee.

All returns must have a Return Material Authorization (RMA) number issued to them before being returned. To obtain an RMA number please contact MSD Customer Service at 1 (888) MSD-7859 or visit our website at www.msdisignition.com/rma to automatically obtain a number and shipping information.

When returning the unit for repair, leave all wires at the length in which you have them installed. Be sure to include a detailed account of any problems experienced, and what components and accessories are installed on the vehicle. The repaired unit will be returned as soon as possible using Ground shipping methods (ground shipping is covered by warranty). For more information, call MSD Ignition at (915) 855-7123. MSD technicians are available from 7:00 a.m. to 6:00 p.m. Monday - Friday (mountain time).

Limited Warranty

MSD IGNITION warrants this product to be free from defects in material and workmanship under its intended normal use*, when properly installed and purchased from an authorized MSD dealer, for a period of one year from the date of the original purchase. This warranty is void for any products purchased through auction websites. If found to be defective as mentioned above, it will be repaired or replaced at the option of MSD Ignition. Any item that is covered under this warranty will be returned free of charge using Ground shipping methods.

This shall constitute the sole remedy of the purchaser and the sole liability of MSD Ignition. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representation whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall MSD Ignition or its suppliers be liable for special or consequential damages.

*Intended normal use means that this item is being used as was originally intended and for the original application as sold by MSD Ignition. Any modifications to this item or if it is used on an application other than what MSD Ignition markets the product, the warranty will be void. It is the sole responsibility of the customer to determine that this item will work for the application they are intending. MSD Ignition will accept no liability for custom applications.