

Understanding Relays

Basically stated, a relay is a heavy-duty remote control switch. It allows you to power up high-amperage devices using low-amperage switches, keeping your dash area looking the way you want it to. Also, by mounting relays close to devices (like your headlights) you supply a higher amount of voltage than what would be delivered over longer distances ... headlights are brighter, fans run more efficiently, etc., etc. A relay only uses 0.08 amps (less than one tenth of an amp) while delivering up to 20 amps of current. So the switch you employ to turn on the relay handles a very light load while the relay does all the work.

I've added relays to my headlight circuits, electric fan, heater/AC unit ... and I've employed a relay to send positive power to my dome light, using a negative/ground feed from my door switches. After all that, you would think I'd have a good understanding of relays and how they work ... but when I decided to put a relay on a switch for my backup lights, with an in-dash warning light, I seemed to have forgotten everything I thought I once knew!

So, I got my **MadElectrical** relays booklet out and decided to make a usable reference to keep here on my site for future use ... and, of course, to share with you. It's as simple as pie really ... I was quickly enlightened once I realized that **all the contacts always go to the same places.**

SPST | The Single Pole Single Throw Relay has four contacts:

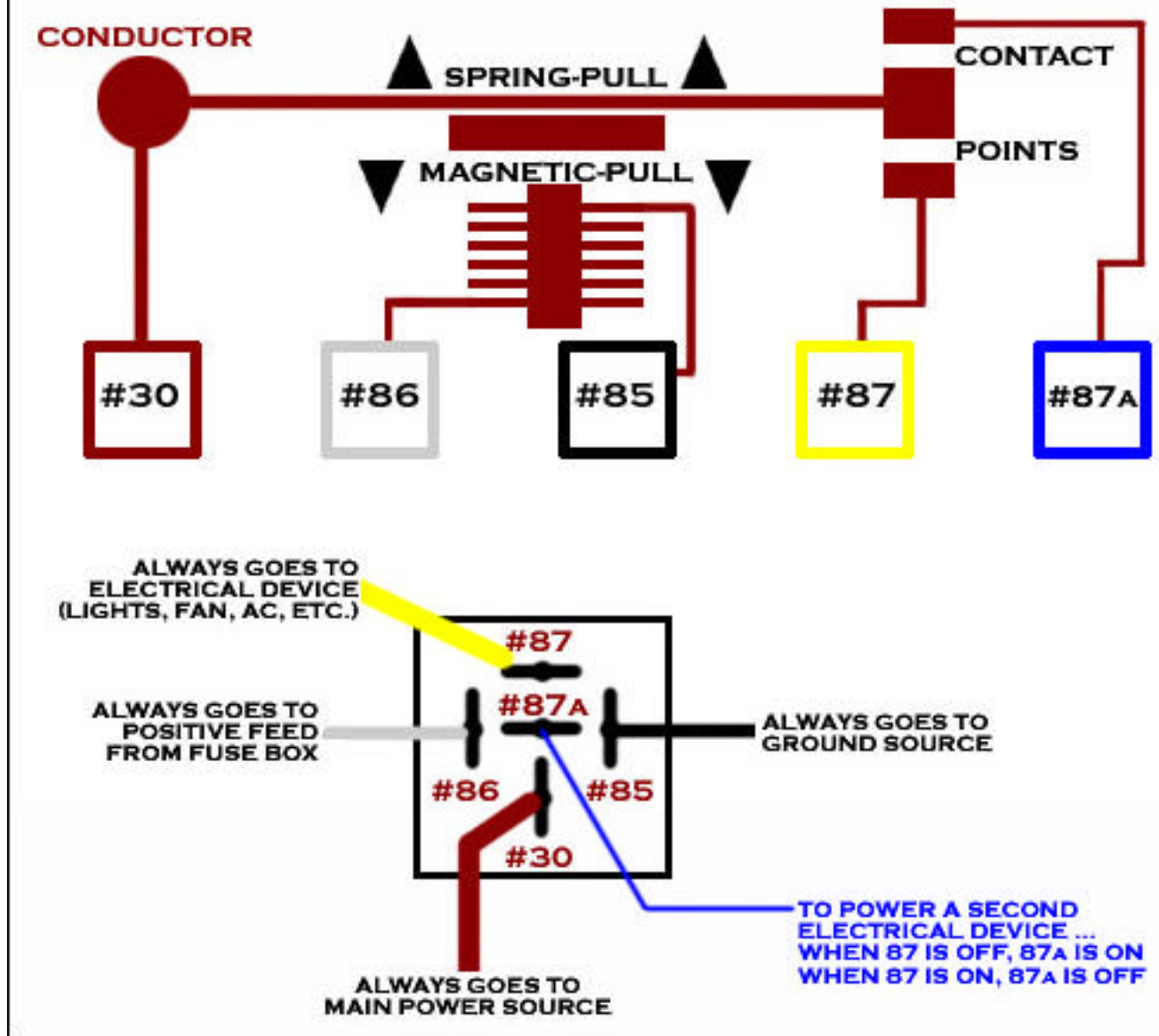
1. **#30 -- Always** goes to the **Main Power Feed** ... usually to a fusible link and then to the **positive** battery power source.
2. **#85 -- Always** goes to a **Ground** source.
3. **#86 -- Always** goes to a **Positive Feed from the Fuse Box.**
4. **#87 -- Always** goes to the **Electrical Device** you are powering ... lights, fan, AC/heater, etc.

SPDT | The Single Pole Double Throw Relay has a fifth contact:

5. **#87a -- Always** goes to a **Secondary Electrical Device** ... usually **not** employed unless you have a second device that you want turned on whenever the first device (#87) is turned off.

Here's an illustration of the inner-workings of a relay:

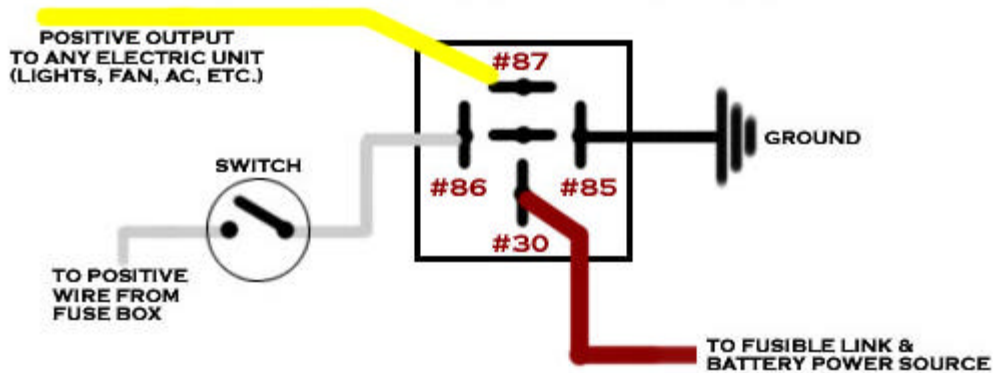
UNDERSTANDING RELAYS



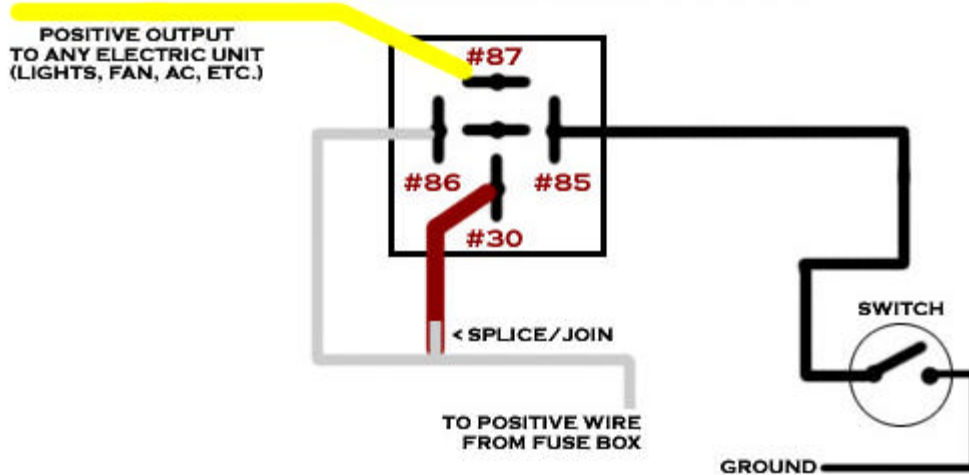
When you turn your dash switch on, the **magnetic-pull** is engaged and sends power to **#87**. When you turn your dash switch off, the **spring-pull** is engaged and removes power from **#87** ... sending power to **#87a** if it's employed.

Next, you have two choices: You can turn a relay on using a positive feed ... or you can turn it on using a negative/ground feed -- the only difference is which circuit you apply to your **switch**:

TURNING A RELAY ON & SENDING POSITIVE POWER ... USING A POSITIVE FEED



TURNING A RELAY ON & SENDING POSITIVE POWER ... USING A GROUND FEED



Buffalo 'the Herd of One!'