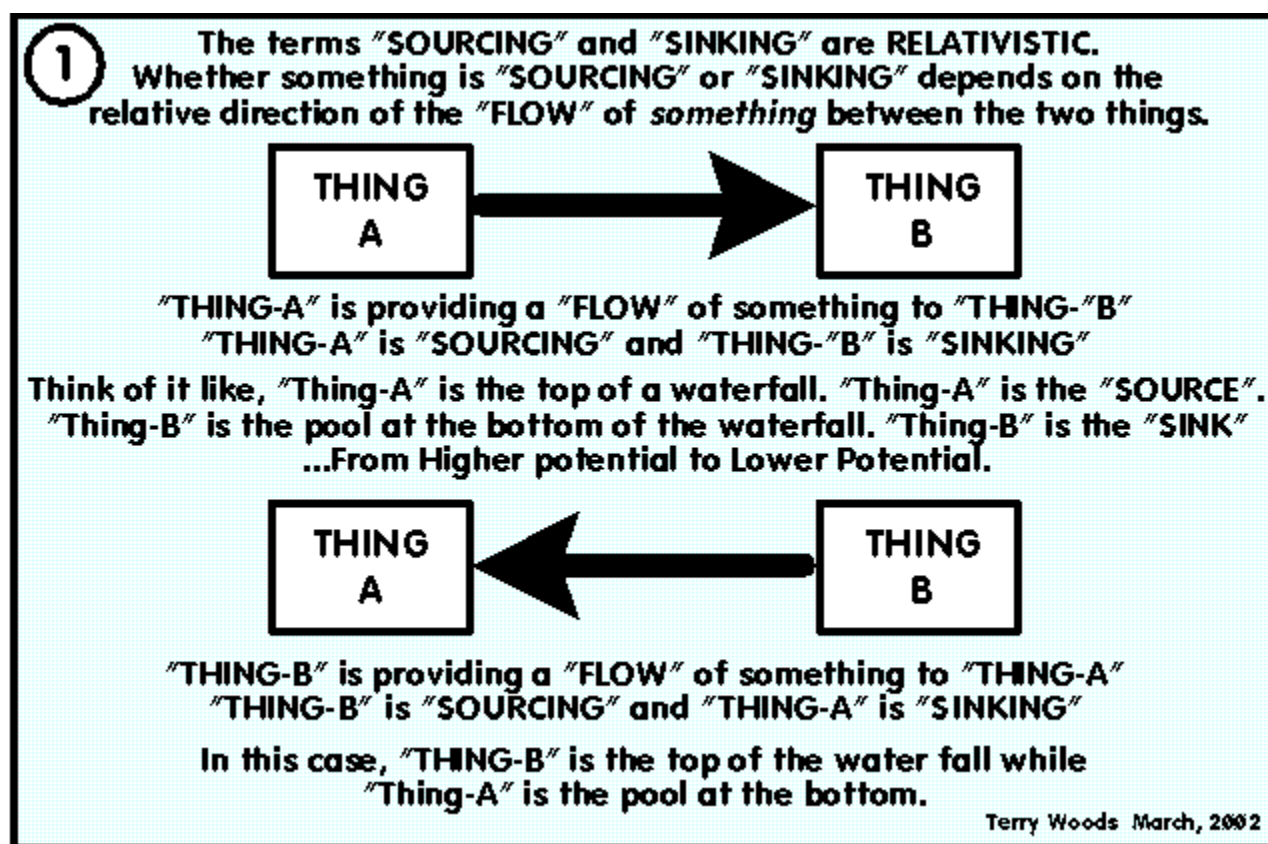


One of the things that people working with plc's get confused on is the use of NPN and PNP devices and connections. Thanks to Terry Woods, for providing a very graphical and detailed explanation of NPN/PNP.

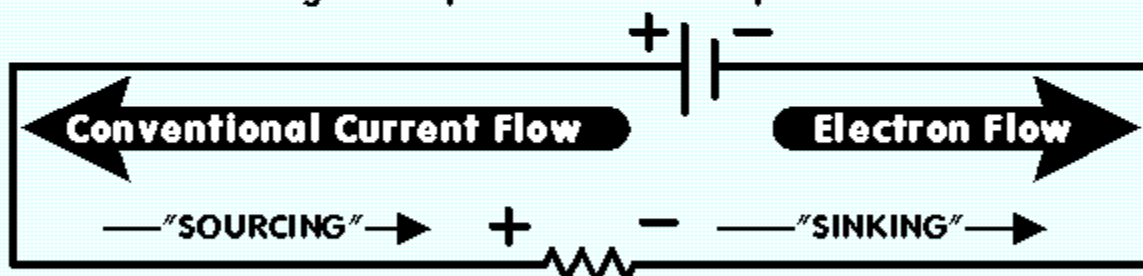


2

In this particular part of Electronics, we DO NOT speak in terms of "ELECTRON FLOW", where current (electrons) moves from Negative to Positive.

We speak in terms of what is called "CONVENTIONAL CURRENT FLOW" where the "FLOW" proceeds from Positive to Negative.

The Positive represents the higher potential while the Negative represents the lower potential.

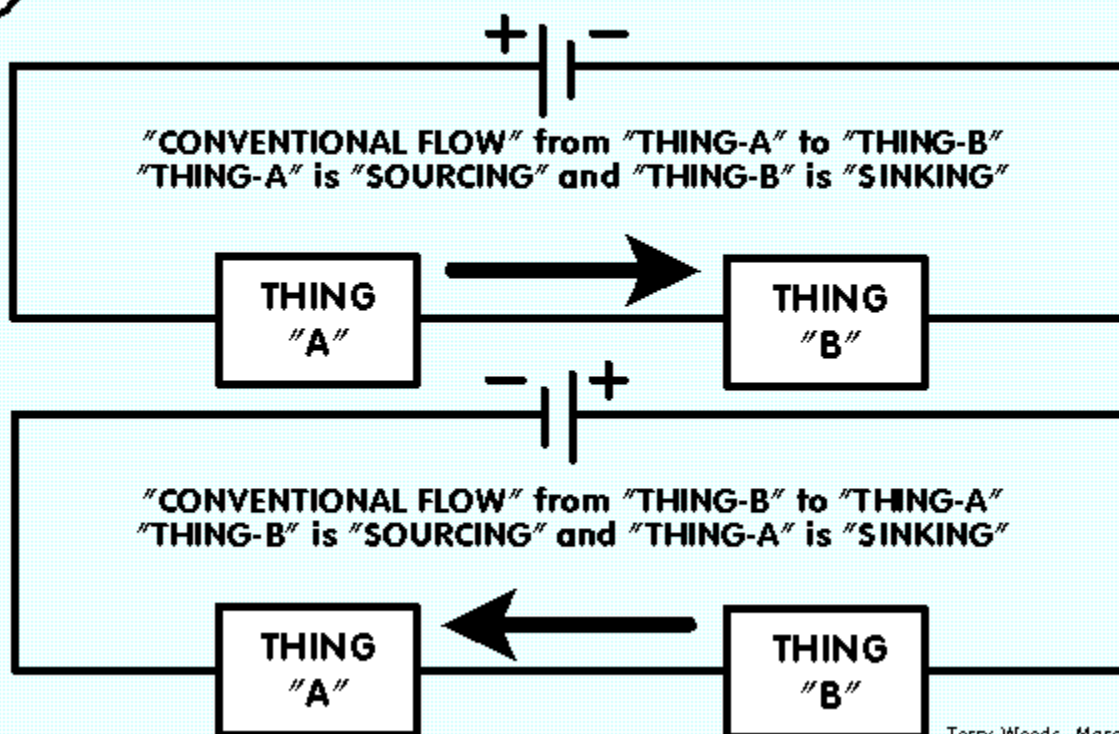


In this context, "SOURCING" means "From the Positive" while "SINKING" means "To the Negative"

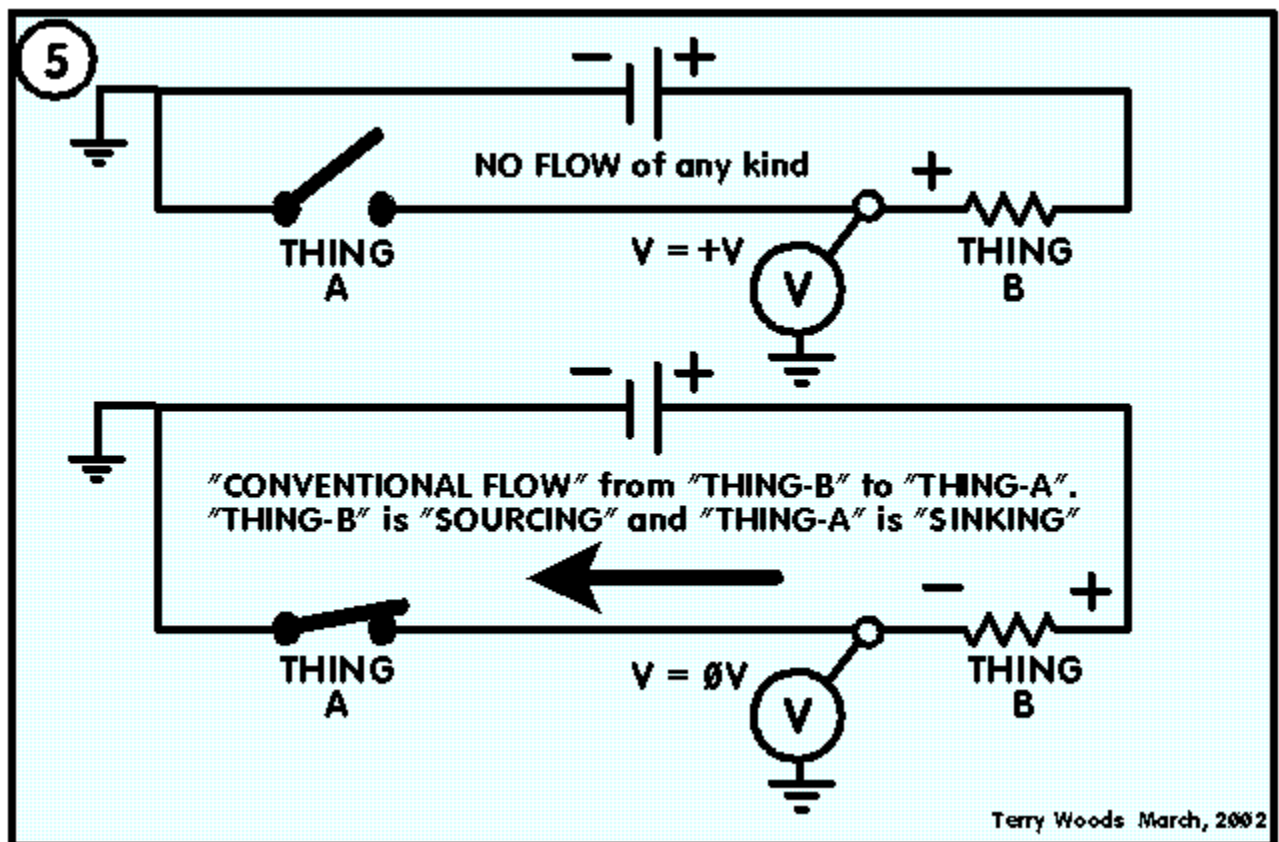
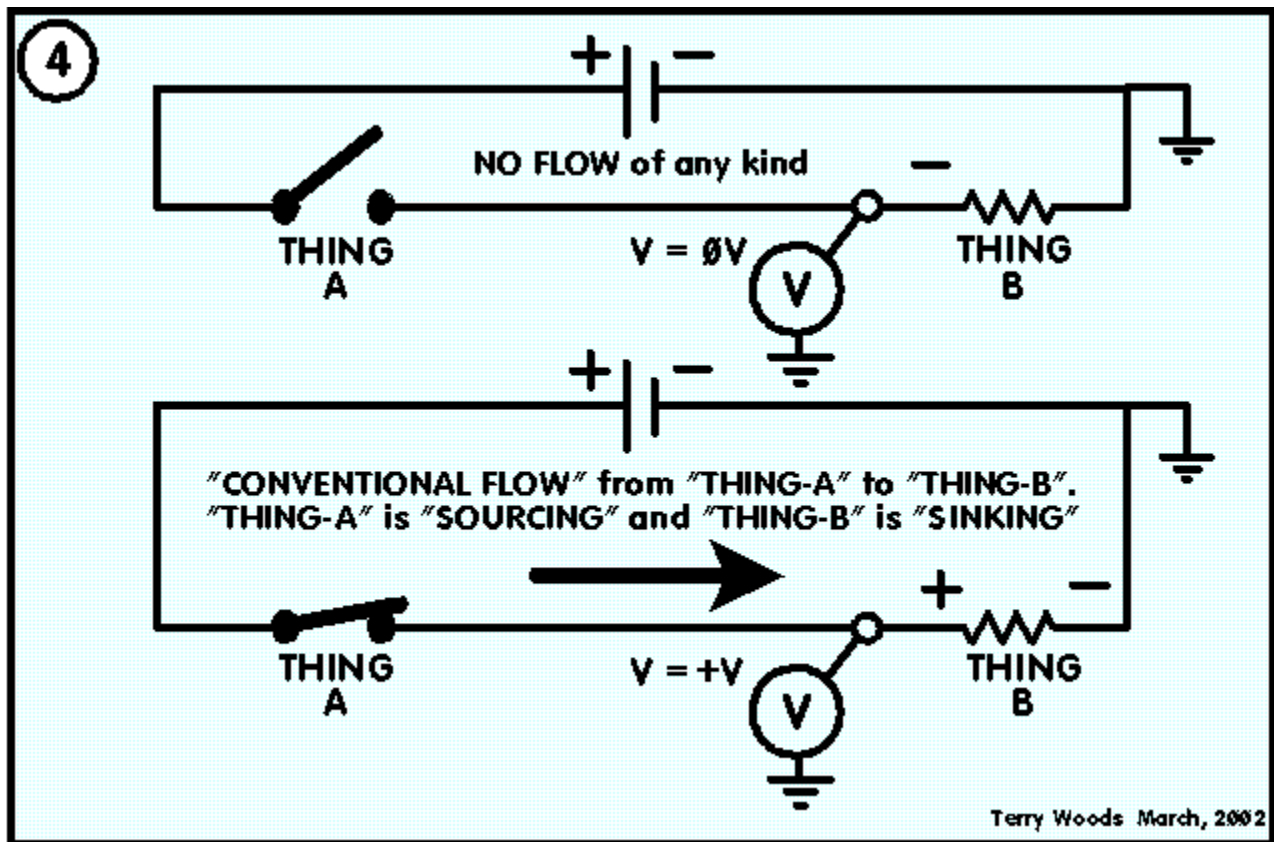
Terry Woods March, 2002

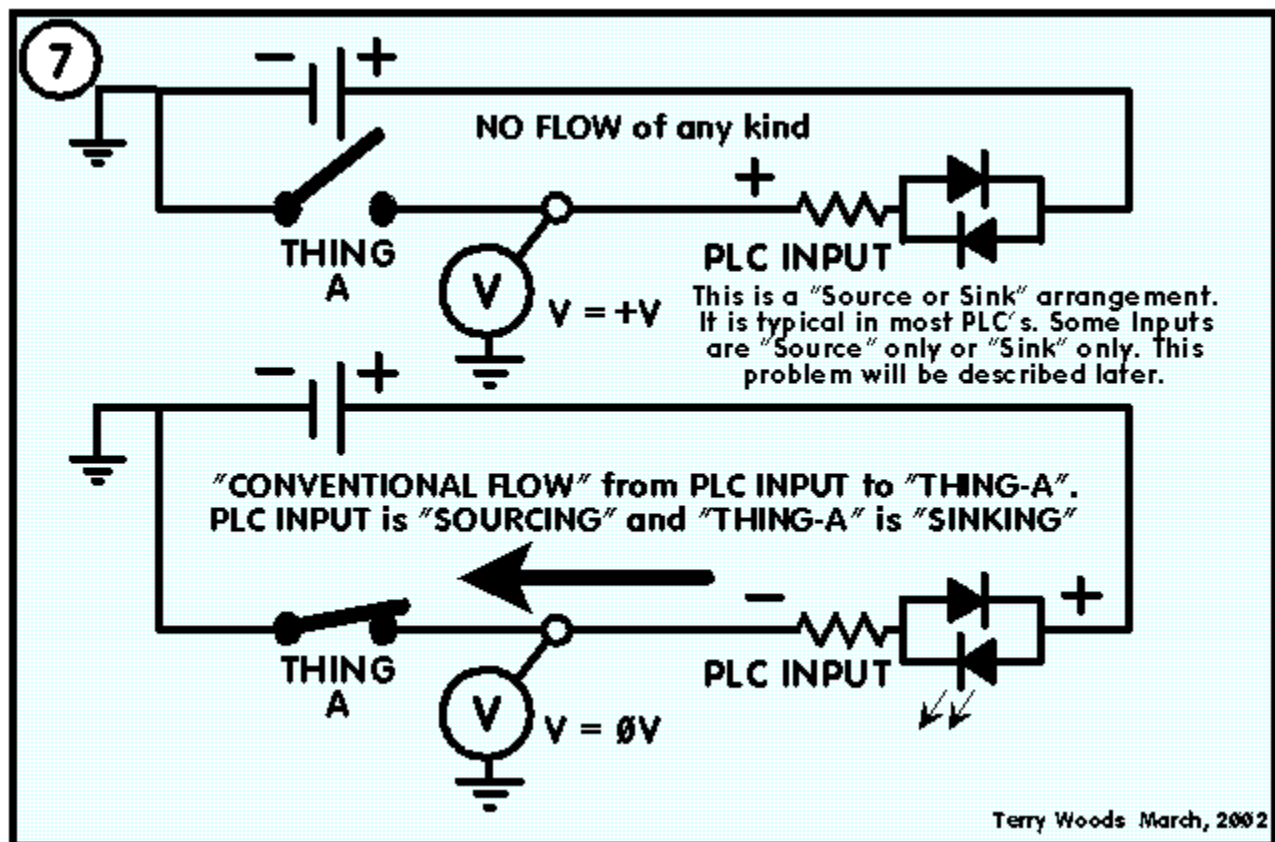
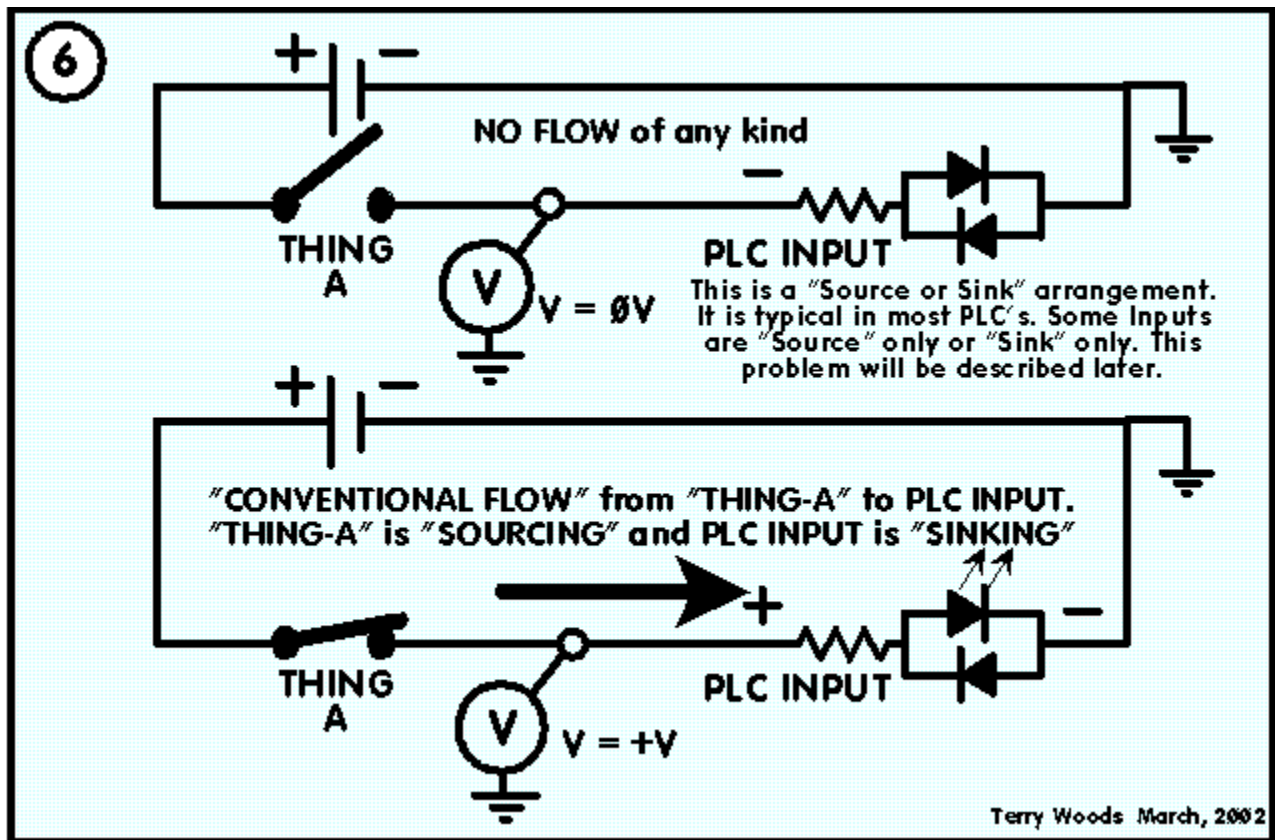
3

"CONVENTIONAL CURRENT FLOW" is from Positive to Negative!



Terry Woods March, 2002





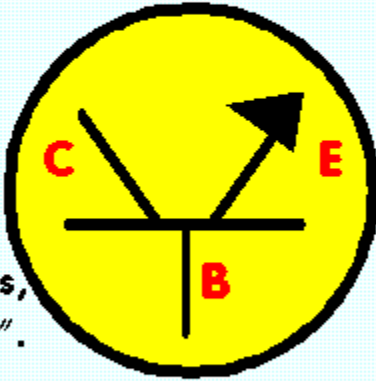
8

N P N

Not Pointing iN

Conventional Current Flow follows the Arrows

C = COLLECTOR
B = BASE
E = EMITTER



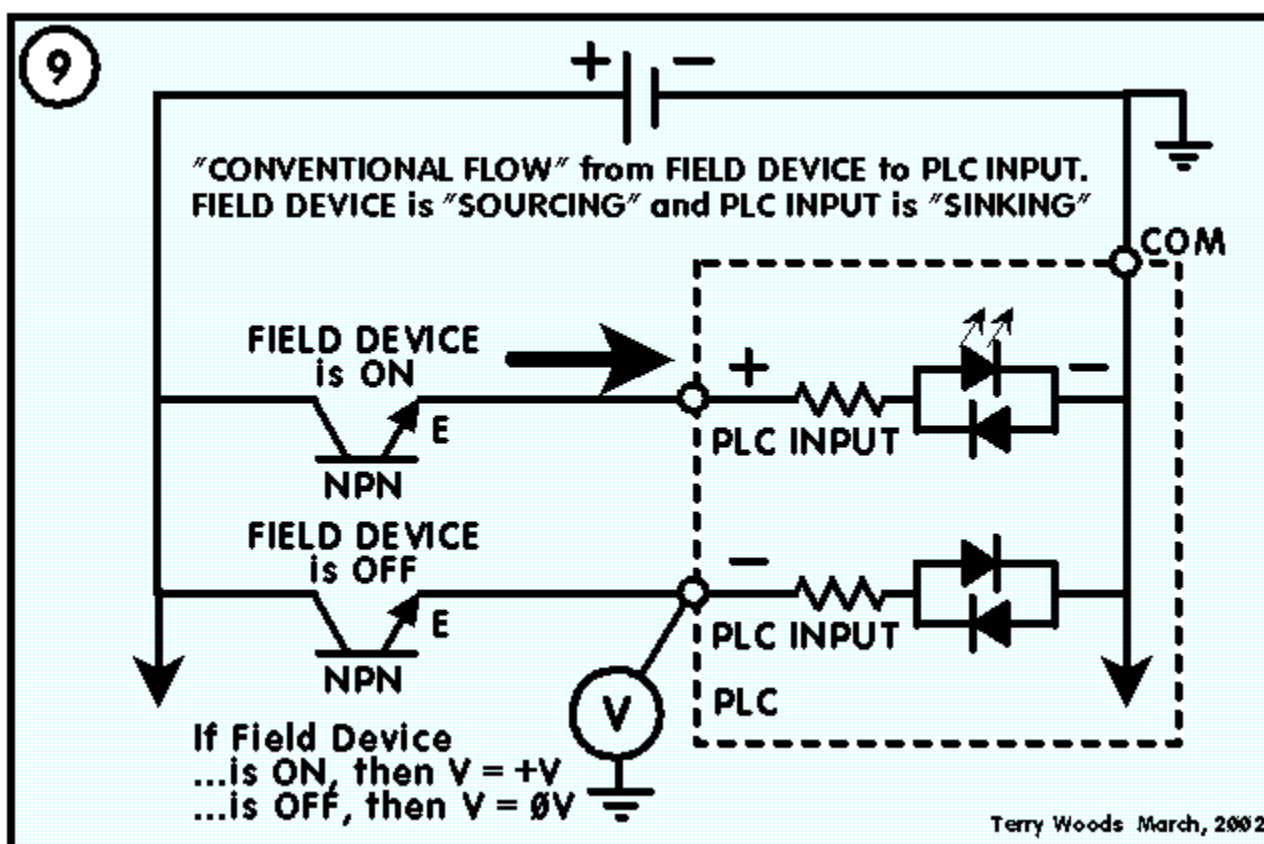
A yellow circle containing an NPN transistor symbol. The symbol has a horizontal line for the base (labeled 'B' in red), a diagonal line for the collector (labeled 'C' in red), and a diagonal line for the emitter (labeled 'E' in red) with an arrow pointing outwards.

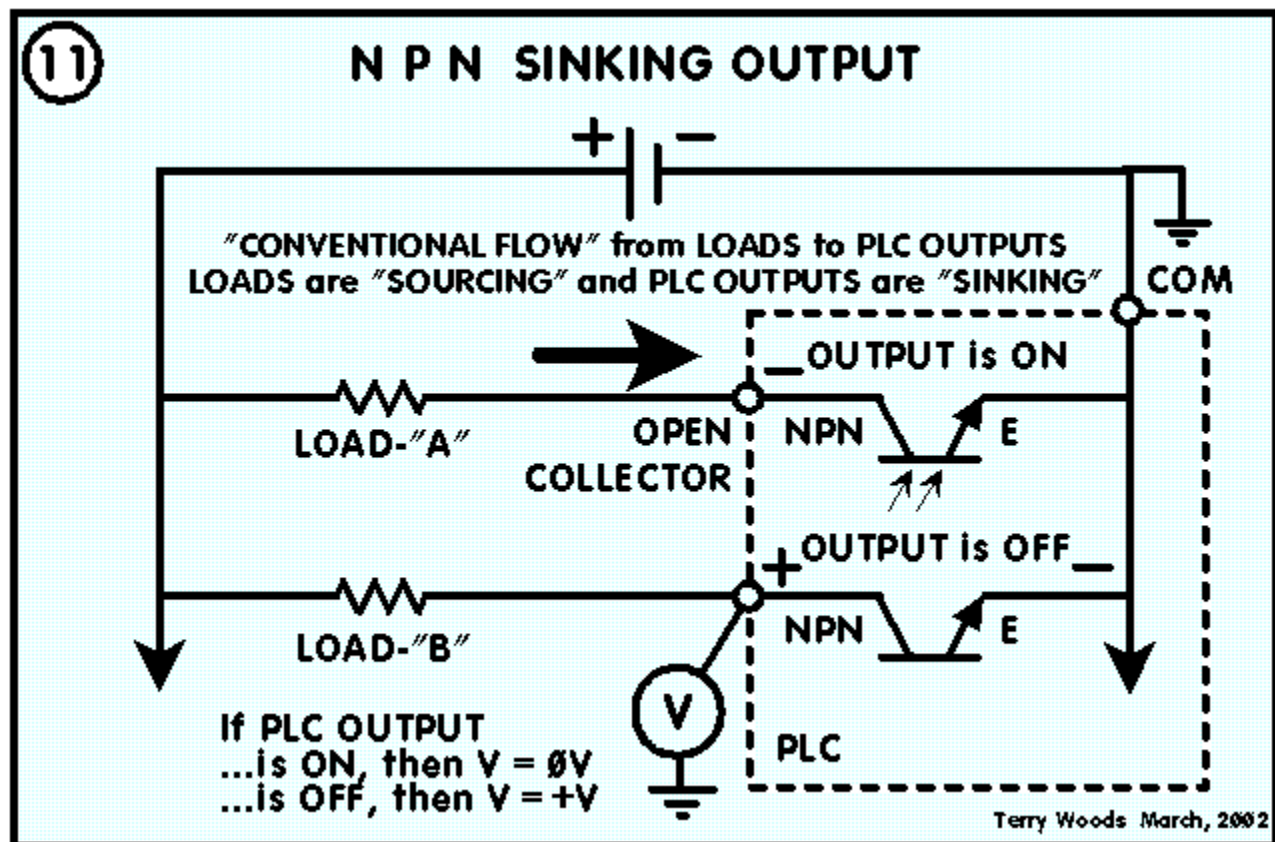
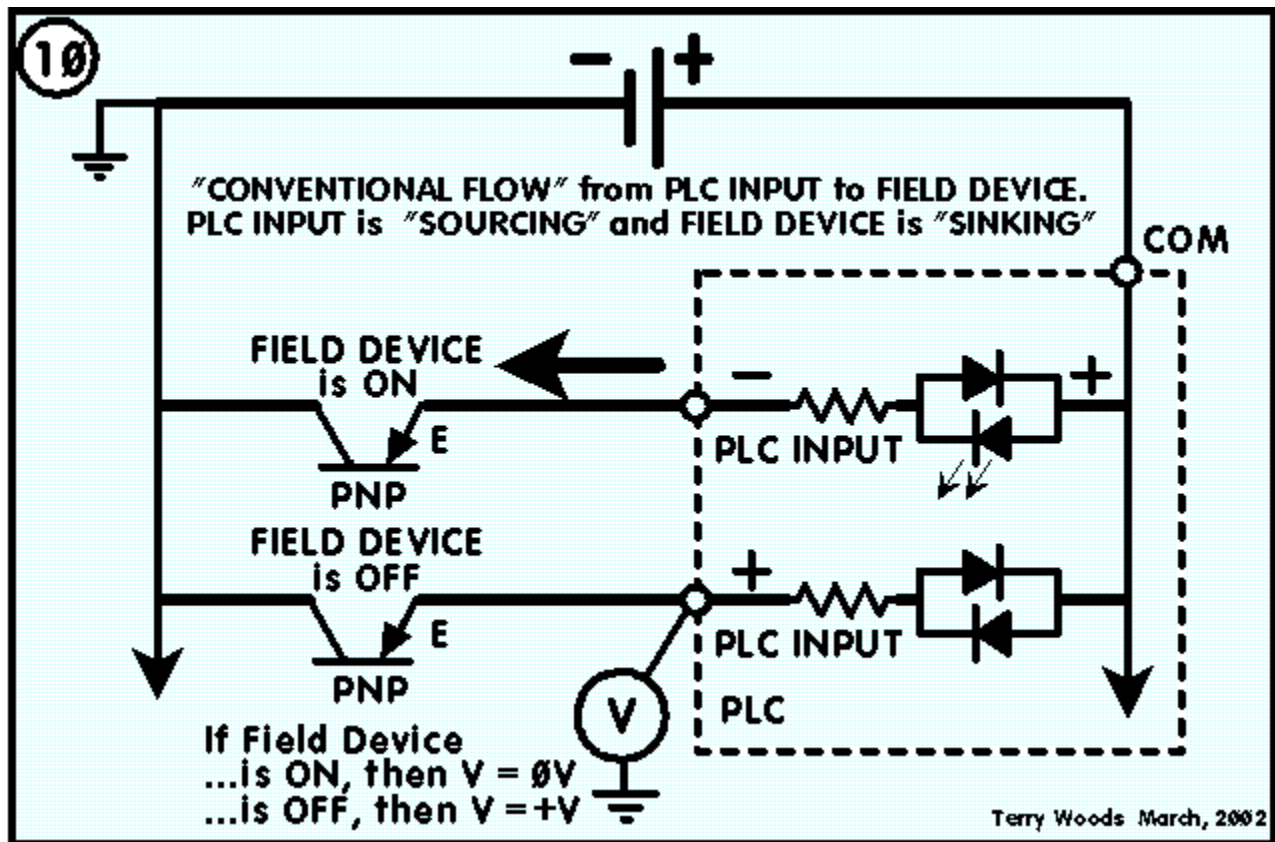
PNP is the other guy, where the arrow IS Pointing IN. The Arrow is always on the Emitter.

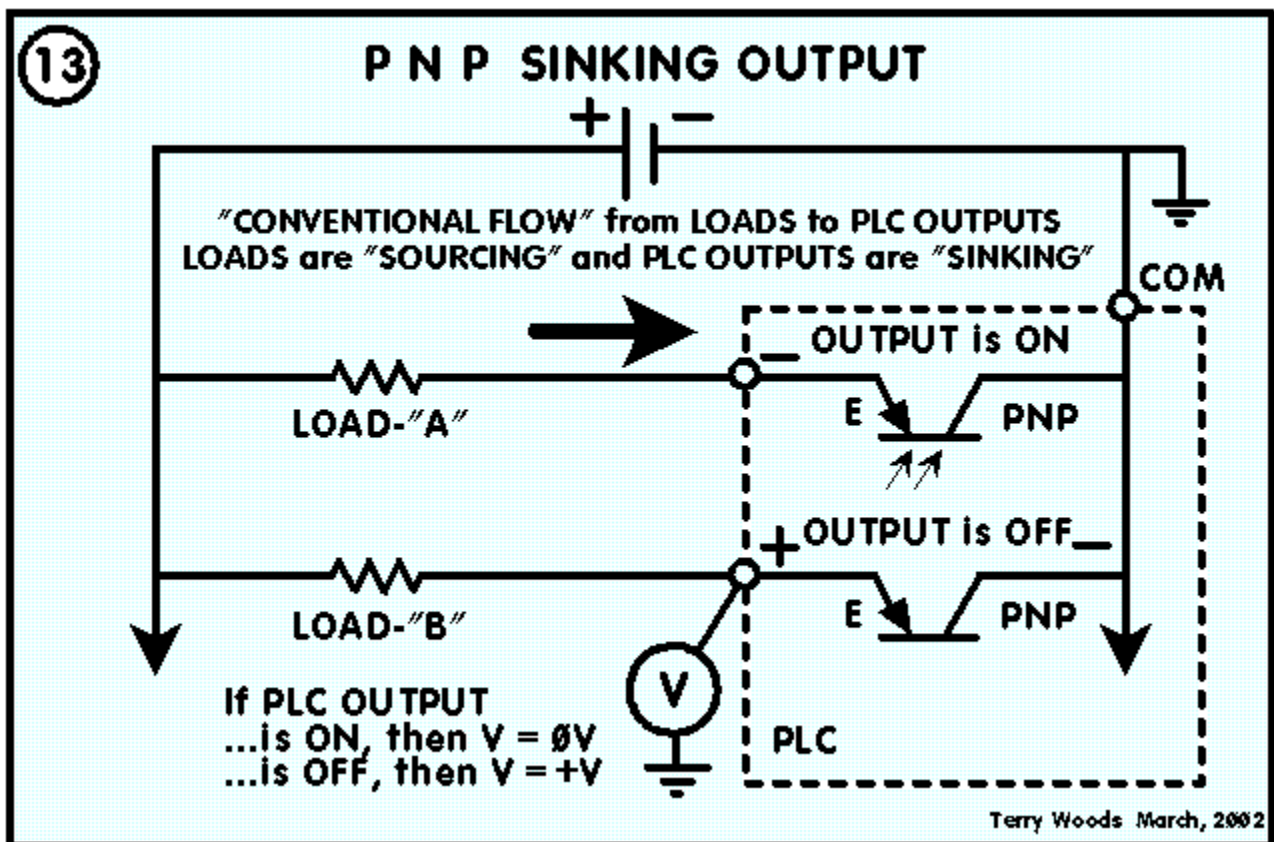
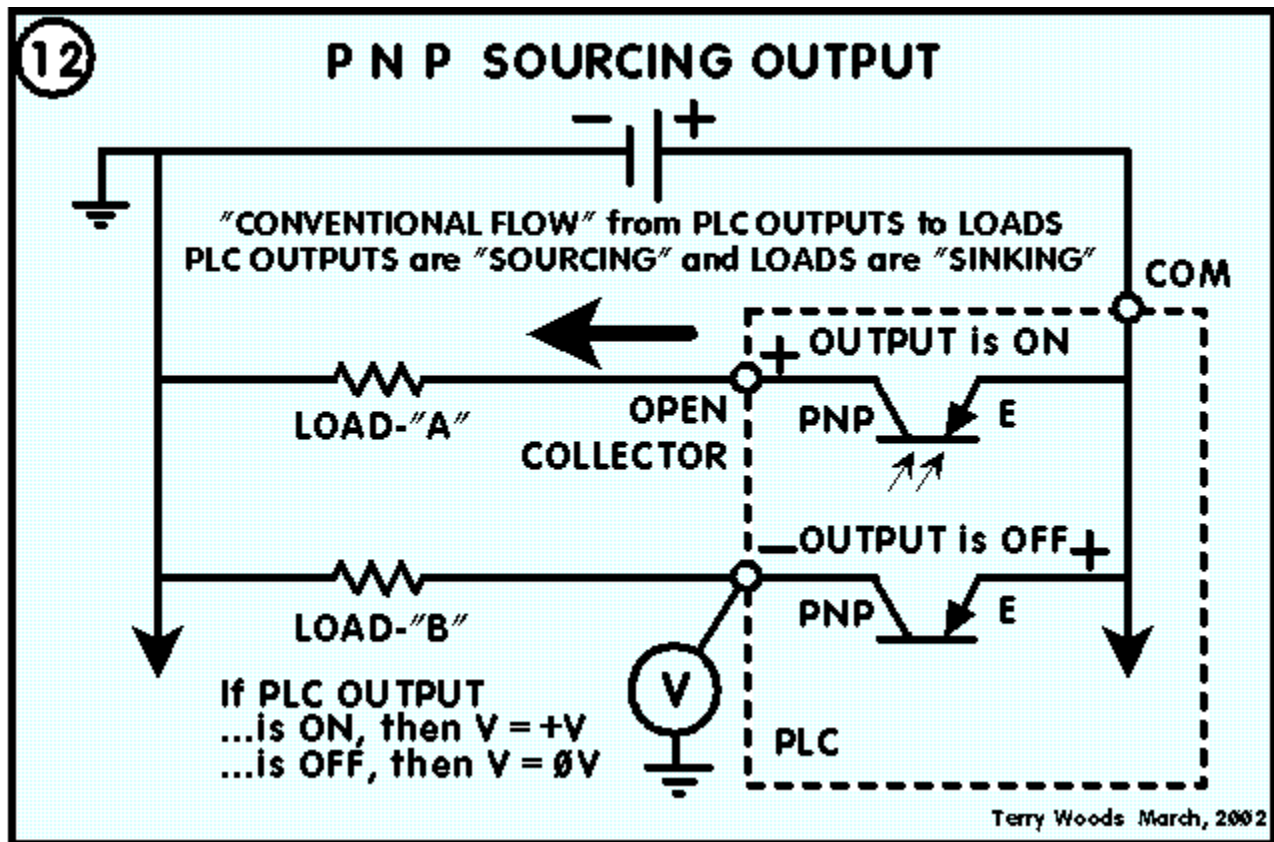
In the following Figures, the BASE is "ASSUMED".

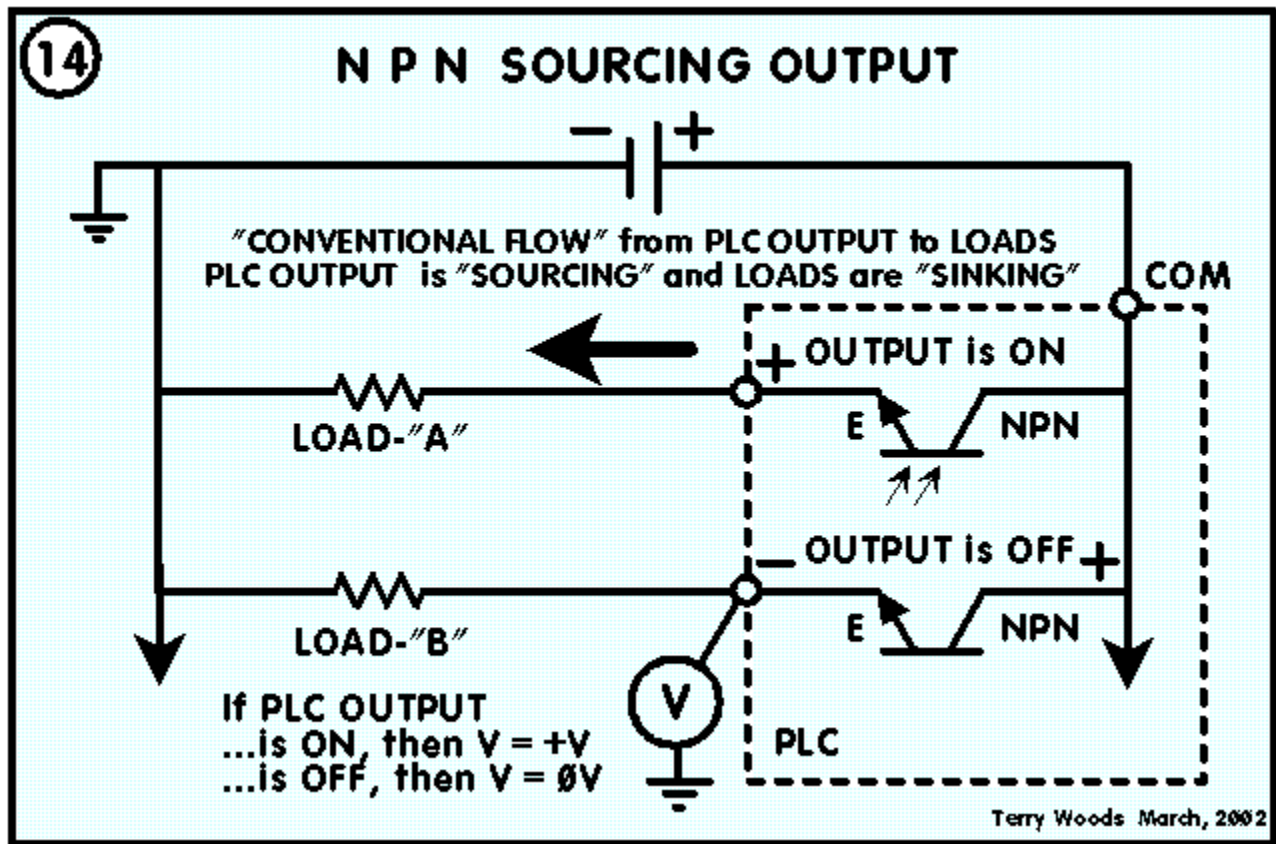
In "SWITCHING" applications, such as with a PLC Input or Output, when the transistor turns ON, the connection between the Collector and Emitter is essentially a short!

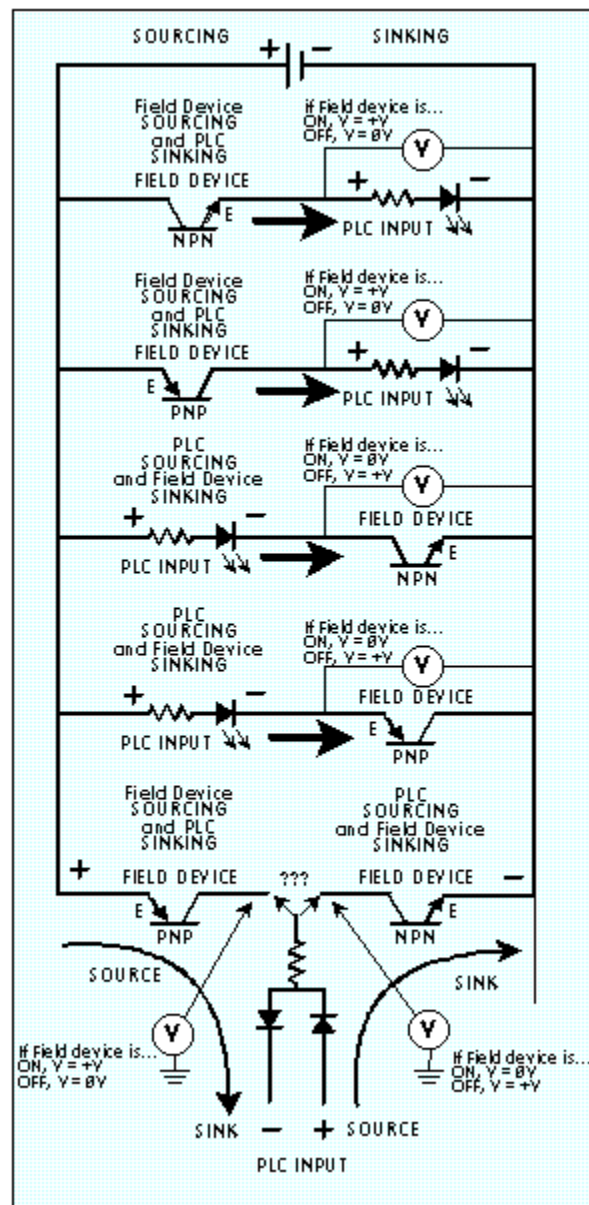
Terry Woods March, 2002











Eventually I hope to make this into a video or animation, that will be later though. Hope this helps someone.