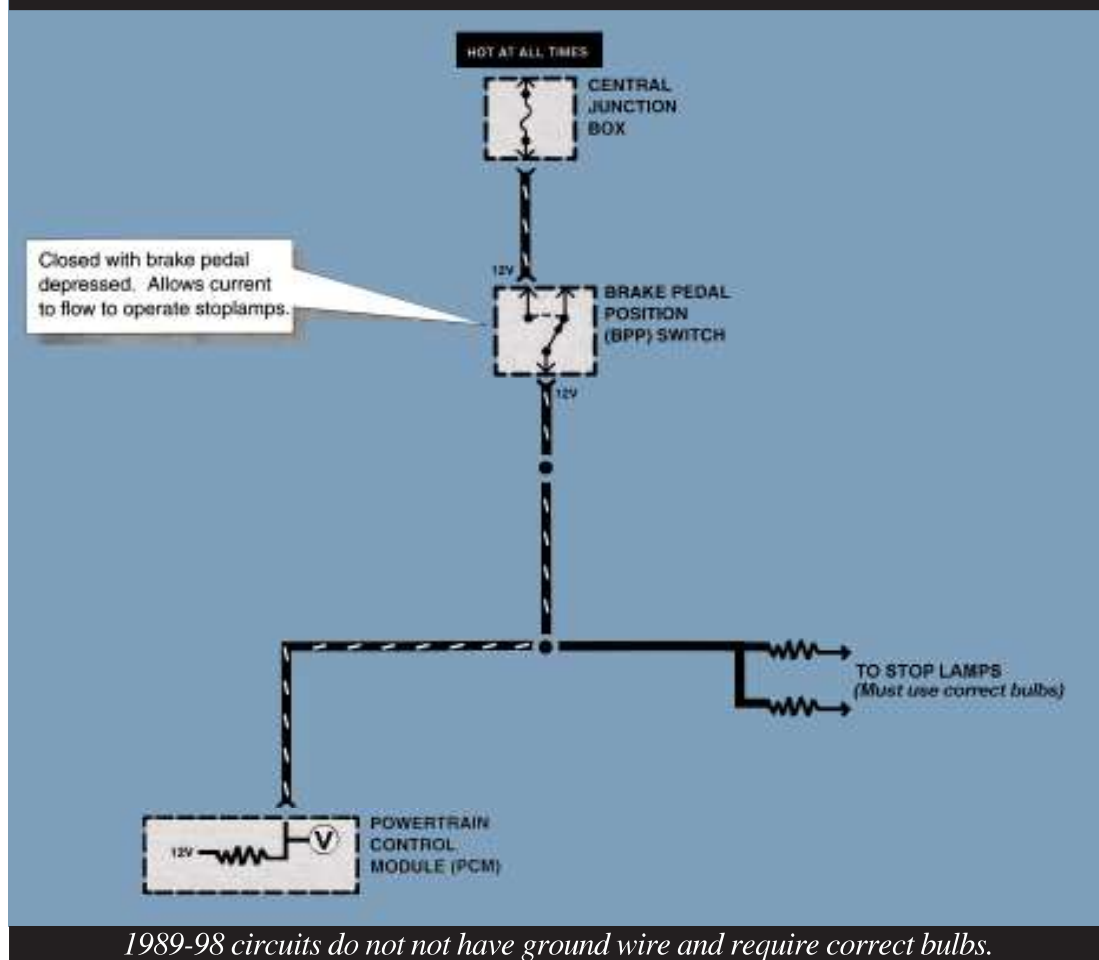


## Erratic or No TCC Operation and/or Brake ON/OFF Switch Codes

Research by Joe Cangelosi, International Technical Consultant

### 1989-98 Ford Brake Switch Circuit



The Ford brake switch input to the PCM is an interesting circuit. The PCM sends voltage to the brake lights at all times, but due to bulb resistance or a stop lamp switch ground, the voltage is pulled down to a negligible amount. Therefore, the PCM sees no voltage on the sense line in the computer.

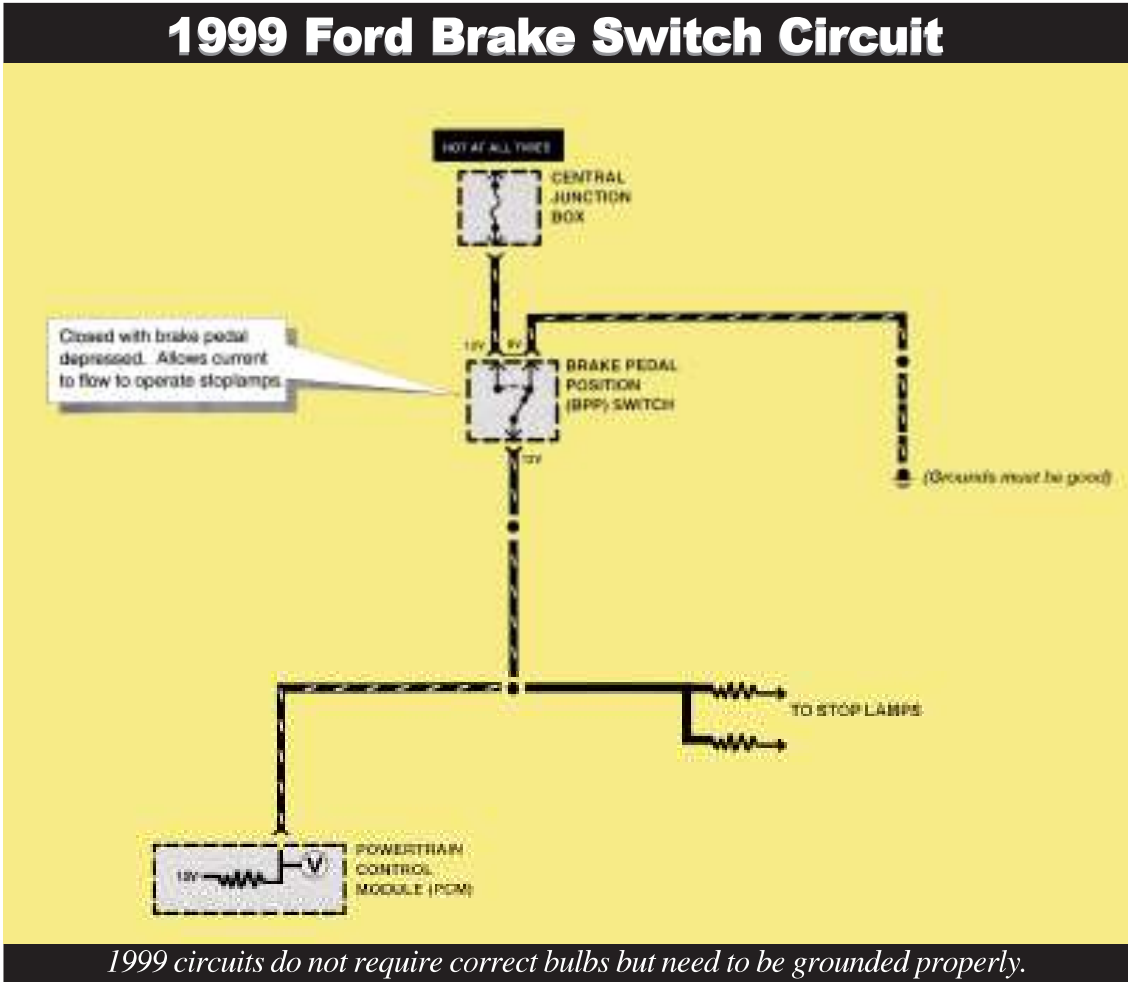
When the brakes are applied, 12 volts come from the brake lamp circuit and the computer reads 12 volts on the sense line. Bad bulbs, grounds or using the wrong type of bulbs will upset the resistance in this circuit resulting in additional problems.

# Tech Call Of The Week



**Ford RWD  
E40D/4R100  
No TCC Operation and/or  
Brake ON/OFF Switch Codes**

**Erratic or No TCC Operation, continued...**



We are seeing more of the light-emitting diode type bulbs used in stop/tail light applications lately. These types of lamps *can not* be used in the 1989-98 Ford stop/tail lamp circuit as they upset the circuit resistance and cause the computer to see voltage on the sense line even though the stoplights are not on. Beginning in 1999, the type of bulb does not matter, however, if the stop lamp switch ground is bad you can have a similar problem.