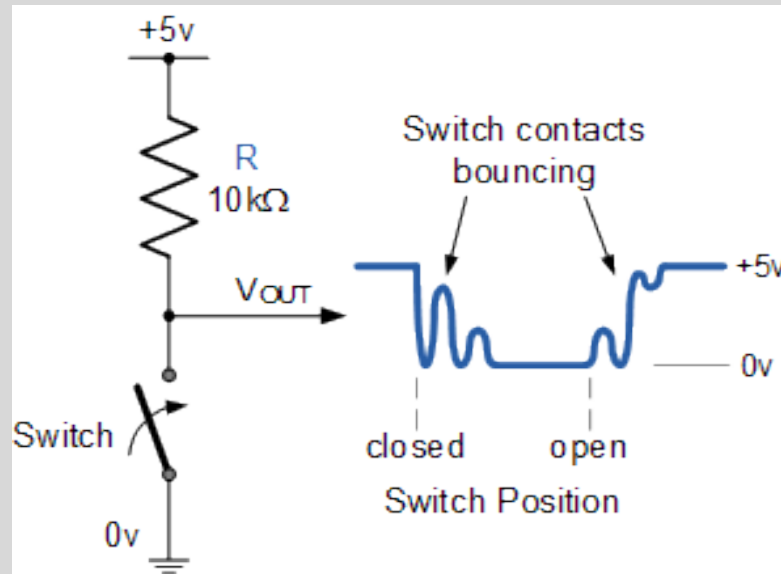# ELTN 117

Lecture 7.2 Switch Bounce and how to eliminate it
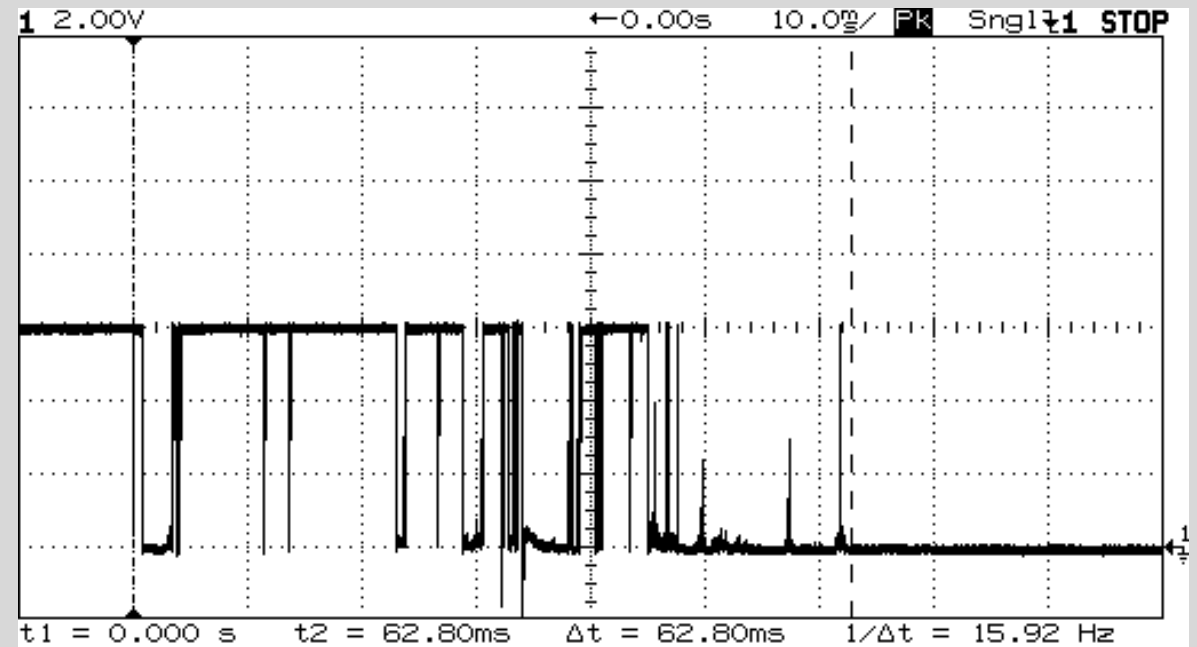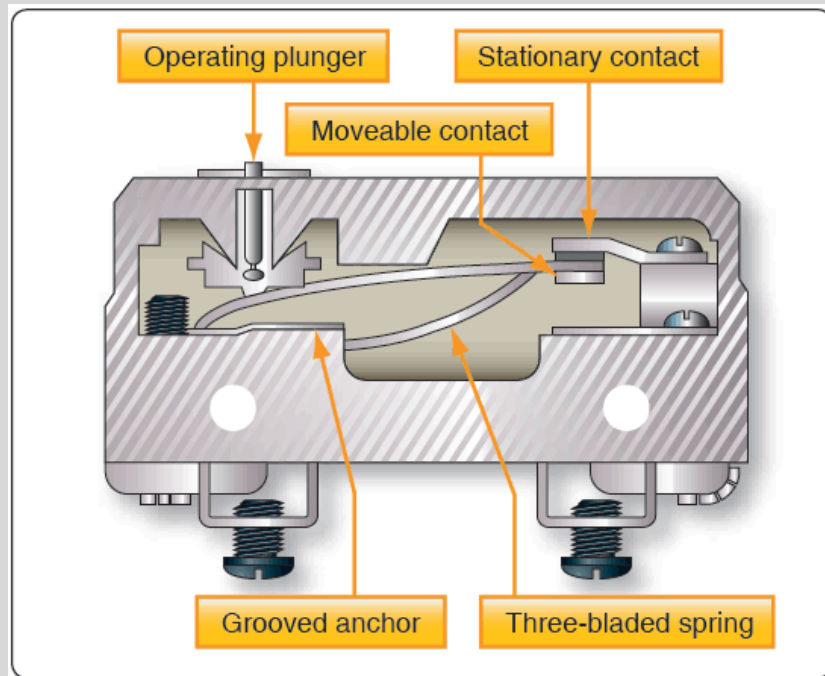
Switch Bounce

◦ Switch bounce occurs when the metal contacts on a switch "bounce" between a closed position and an open position very quickly.

◦ This causes what appears to be "multiple presses" in a short period of time

Switch Bounce

◦ Electrically what is happening is the contacts do not simple "close" or "open" instantly. The image on the right shows how many closings and openings occur within 50 milliseconds.

◦ Some switches have more "bounce" than others.

Switch Bounce - solution

◦ Switch bounce can be eliminated with a digital circuit – however that adds cost and complexity to the device we are designing

◦ Since code is "free" it is better to eliminate it through a small function

◦ In the example below, the program waits for the button to be pressed, adds a short delay and then waits for it to be released

◦ The downside is that if the switch is never pressed it hangs at that point in the program

◦ Later we will see how we can fix this issue by using interrupts

```
void Debounce()
{
    while (digitalRead(button1))        // Wait while switch is high (not pressed)
        delay(25);                      // Pause 25m.s. for switch bounce to clear
    while (!digitalRead(button1))       // Wait until switch is released
        delay(50);
}
```