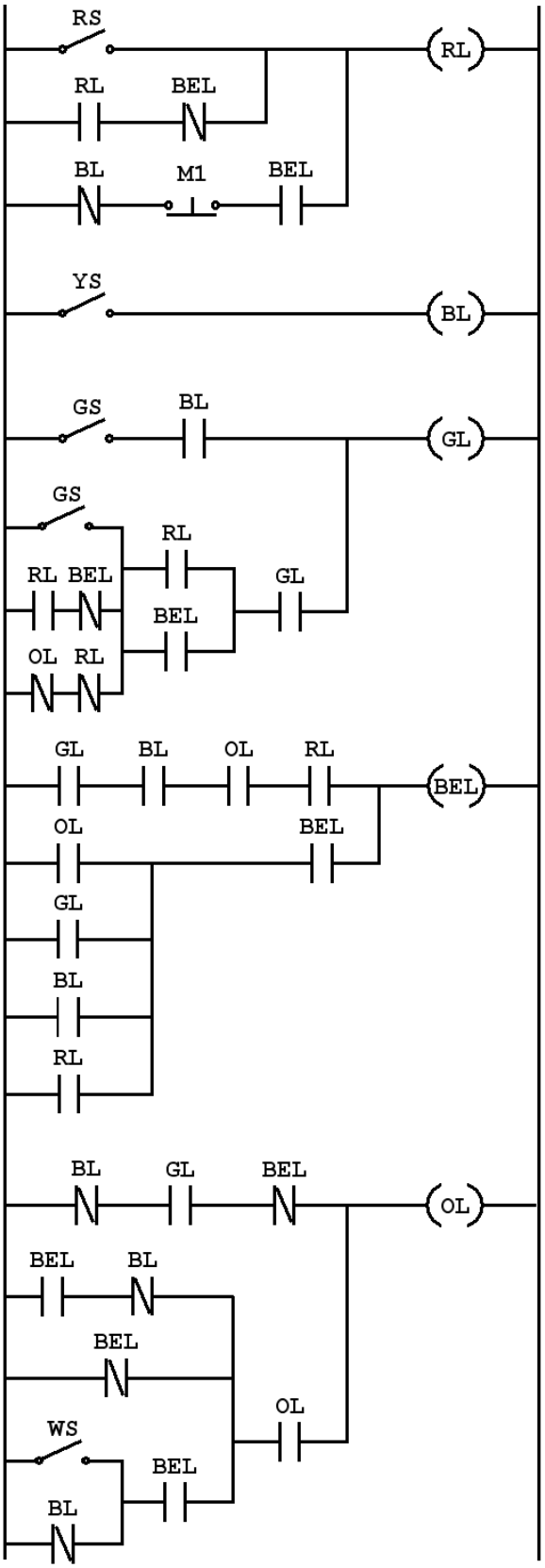

Warning: Do not cut power while indicators are active!

Solution:

The circuit diagram which Natasha Fatale gives the S.P.I.E.S. recruits is a type of circuit schematic known as a ladder diagram. On the left, the vertical line is powered, and the symbols correspond to toggle switches, momentary switches, and relay contacts (both normally open and normally closed) which selectively provide power to a set of relay coils connected to the signal ground on the right. Clever observers will notice that this reduces to a logic problem*:

RL_{K+1} = RS_K or (RL_K and (not BEL_K)) or ((not BL_K) and (not $M1_K$) and BEL_K)

BL_{K+1} = YS_K

... and so on.

When the intrepid S.P.I.E.S. recruits encounter a bomb on runaround, they quickly discover (if they hadn't already guessed) that RS, GS, WS, and YS refer to a set of colored switches, and RL, BL, GL, and OL refer to a set of indicator lights. M1 is a normally closed momentary pushbutton switch. BEL is the only surprise – not only does this relay enable a beeping sound from within the bomb, it causes the countdown timer on the bomb to move at quadruple speed! (Sorry guys, we couldn't resist, and the looks on your faces were priceless). If the S.P.I.E.S. recruits have done their homework, they've worked the logic out, and know how to bring the bomb to a state with no active indicators.

Recruits encounter the bomb with only the red light on and the red and white switches closed. One sequence of switching to defuse the bomb is as follows:

1. Switch YS on, turning BL on.
2. Switch GS on, turning GL on.
3. Switch YS off, turning OL on.
4. Switch YS on, turning BL on and turning BEL on.
5. Switch WS off, turning OL off.
6. Switch GS off, turning GL off.
7. Switch RS off, turning RL off.
8. Press and hold the momentary switch M1, while switching YS off, thereby turning BL off without turning RL back on. This was the tricky step, as failing here would reset the bomb to its initial condition.

When defused, the bomb, like an unconfigured VCR, sits harmlessly, blinking 12:00.

* One of the most important ideas in Elecrical Engineering history came from Claude Elwood Shannon (M.S. '37 Ph.D. '40). In his Master's thesis, *A Symbolic Analysis of Relay and Switching Circuits*, he outlined a method of generating an algebraic logical expression for every ladder diagram, and more importantly, a ladder diagram for every algebraic logical expression. His work has served as a basis for modern digital circuit synthesis, as well as providing inspiration for this puzzle. The authors highly recommend reading it.