



Lab no 02: Logic Gates & Logic Gate Training Board

The purpose of this Lab is to: review the basic logic gates and test them on the logic gates training board (Green Board).

Below, we review the basic logic operation (NOT, OR, AND) and the corresponding truth table.

NOT operation: This has the opposite result of the input, if the logical variable is 1, the result is 0 and if the logical variable is 0 the result is 1.

NOT Truth Table

A	B
0	1
1	0

OR operation: This adds 2 or more logical variables logically, which is defined to be “if any of the logical variables is 1, the result is 1.”

OR Truth Table

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

AND operation: This multiplies two or more logical variables logically, which is defined to be “if two logical variables are all 1, the result is 1, otherwise the result is 0”.

AND Truth Table

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1



a) **NOT Gate**

1. Connect the switch (S1) to the input port of NOT gate (G15) using wires as shown in Figure 1.
2. Connect the output port of NOT gate (G15) to LP4 as shown in Figure 1.
3. Verify the NOT operation by changing the switch (S1) state between ON and OFF.

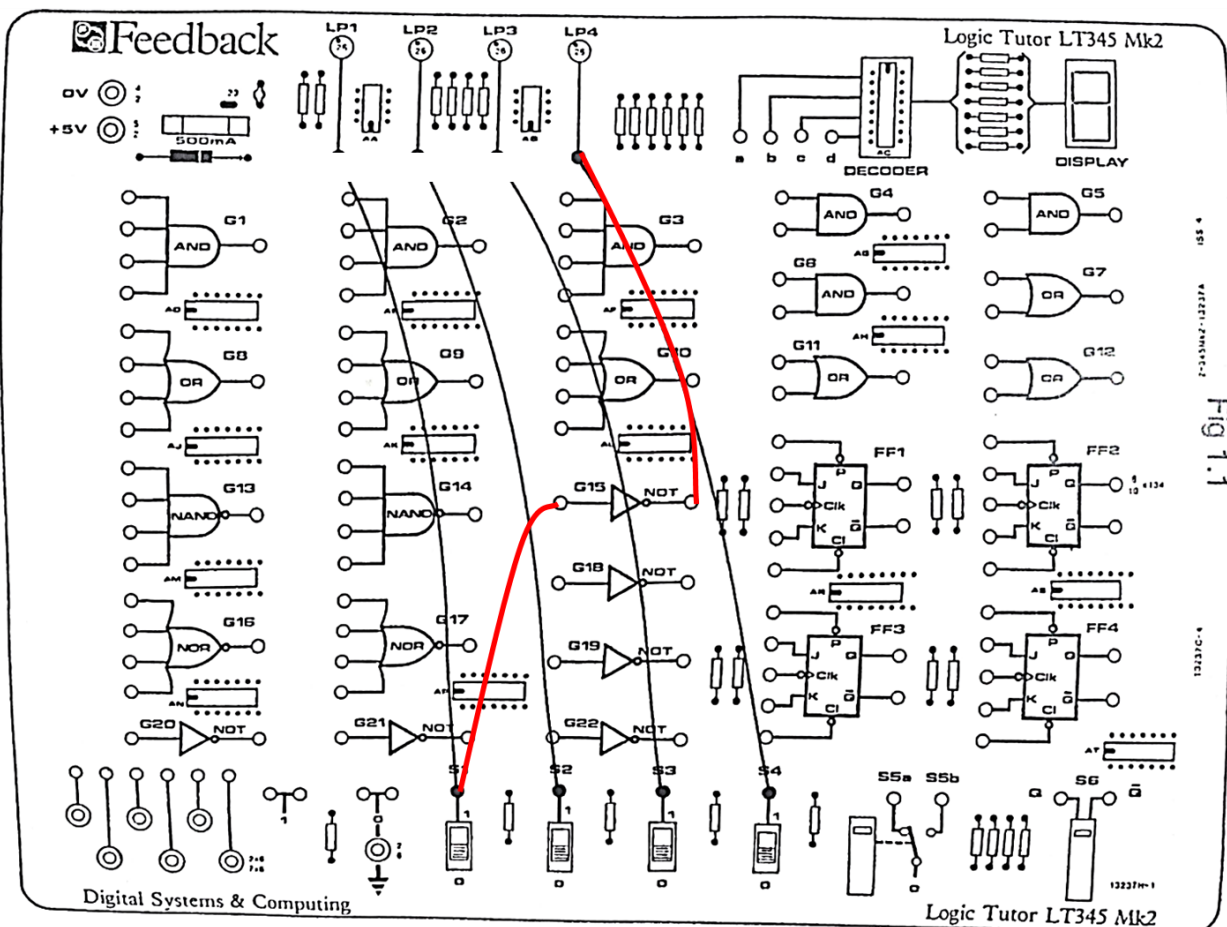


Figure.1 Connect NOT Gate on Green Board



b) AND Gate

1. Connect the switches (S1, S2) to the input ports of AND gate (G8) using wires as shown in Figure 2.
2. Connect the output port of AND gate (G8) to LP4 as shown in Figure 2.
3. Verify the AND operation by changing the switches (S1, S2) states between ON and OFF.

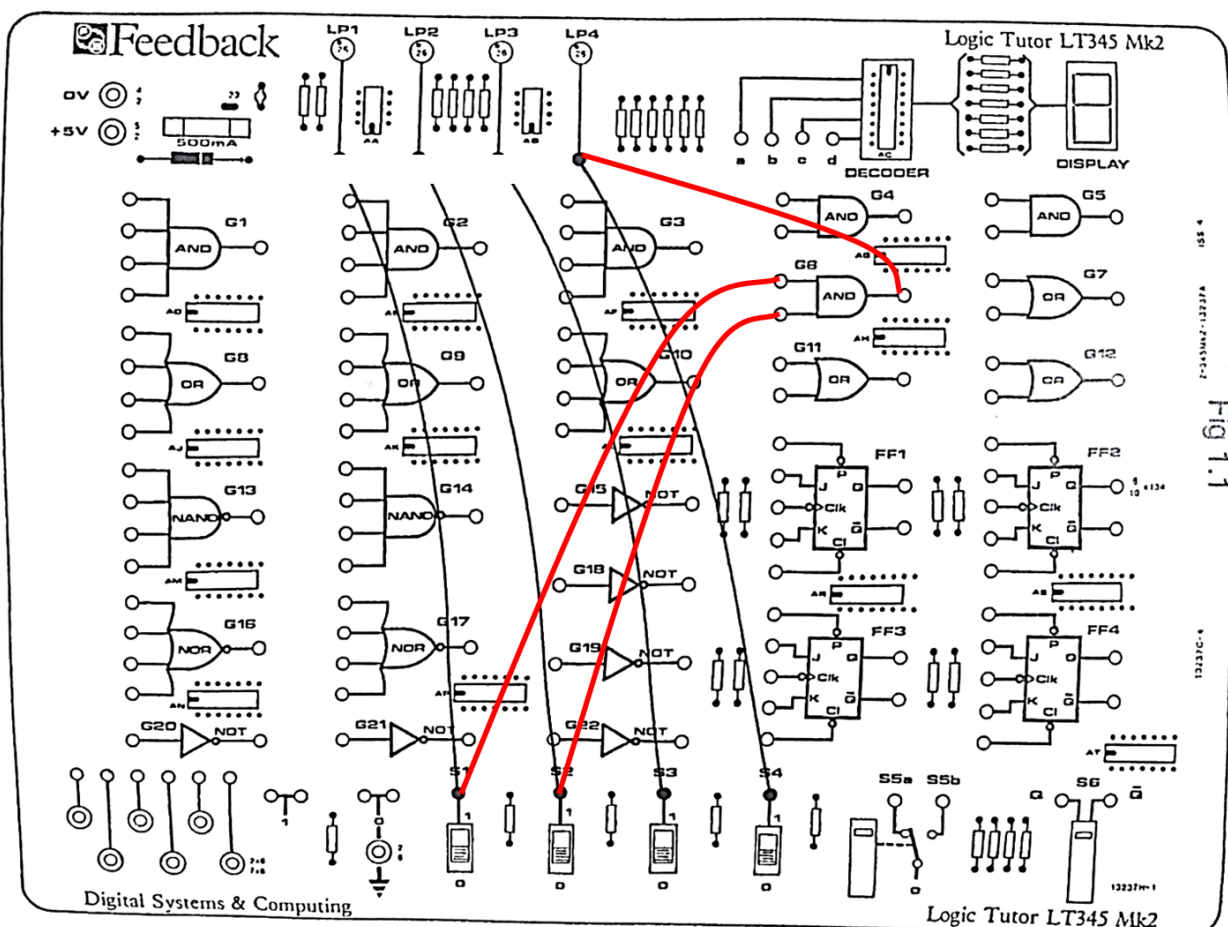


Figure.2 Connect AND Gate on Green Board

c) OR Gate

Verify the OR operation by repeating the steps above but for OR gate (G11).

Exercise: Implement NAND and NOR gate on the Green board.