EL140 Switched Receptacle Lab

Switched Receptacle Lab

Program: Electrician Technician

Course: EL140

Objective: Under the supervision of your instructor, you should be able to do the following:

- Completely wire a switched receptacle, (1/2 hot), with a 3-wire switch leg
- Completely wire a switched receptacle, (1/2 hot), with a 2-wire switch leg (Cold switched)

Lab Equipment:

- Residential Bays or project board

Required Tools:

- 1 – Hammer
- 1 – Flat head Screwdriver
- 1 – Pair of Strippers
- 1 – Set of diagonal cutters
- 1 – Utility knife

Materials:

- 1 – Cord (project board)
- 2 – 4S metal boxes (project board)
- 1 – Sub panel (bay)
- 2 – Single gang plastic side nail boxes (Bay)
- 10’ – 14/2 Romex
- 5’ – 14/3 Romex
- 5 – Staples
- 6 – Red wire nuts
- 1 – Switch
- 1 – Duplex receptacle

Safety:

- 1 – Pair of safety glasses

Time Required: 180 minutes

EL140 Switched Receptacle Lab

Procedure for 3 wire Switched Receptacle:

- Run 14/2 Romex or cord to switch box
- Run 14/3 Romex from switch box to receptacle box
- Staple wires per code
- Make up the switch:
    - Pigtail the ground wires
    - Tie off the neutral wires
    - Pigtail the two black wires
- Make up the ½ hot:
    - Pigtail the ground wires
    - Pigtail the black wires
- Install the devices:
    - Switch:
        - Terminate the ground to the green screw
        - Terminate the two black wires to the bronze screws
        - Fold wires into the box and secure
    - ½ Hot
        - Terminate the ground wire to the green screw
        - Terminate the two white wires to the silver screws
        - Cut the tab between the two bronze screws
        - Terminate the black on the top bronze screw
        - Terminate the red on the bottom bronze screw.
        - Secure the device
- Power up the wires and test for accuracy. The bottom half should only work when the switch is on, and the top half will work all the time.

Procedure for 2 wire Switched Receptacle *(Cold switch)*

- Run 14/2 Romex or cord to receptacle box
- Run 14/2 Romex from receptacle box to switch box
- Staple wires per code
- Make up the switch:
    - Put black electrical tape around the white wire
- Make up the ½ hot:
    - Pigtail the ground wires
    - Put black electrical tape around the white wire
    - Pigtail the black wire from the power with the taped white wire from the switch. Pig tai a black wire

EL140 Switched Receptacle Lab

- Install the devices
  - Switch:
    - Terminate the ground to the green screw
    - Terminate the black wire and the taped wire to the bronze screws
    - Fold wires into the box and secure the device to the box
  - ½ Hot
    - Terminate the ground wire to the green screw
    - Terminate the white wire to either of the silver screws
    - Cut the tab between the two bronze screws
    - Terminate the black on the top bronze screw
    - Terminate the taped wire on the bottom bronze screw.
    - Secure the device to the box
- Power up the wires and test for accuracy. The bottom half should only work when the switch is on and the top half will work all the time.
- *The reason this is called a cold switch, or sometimes even a California switch, is because the switch cannot be tapped into for power as there is no neutral wire.*