



Doorbell Transformer Lab

Program: Electrician Technician

Course: EL150

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

- Describe how a transformer works
- Wire a transformer for a doorbell system

Lab Equipment:

- Lab bay or a project board

Required Tools:

- 1 - Hammer
- 1 – Pair of Strippers
- 1 – Screwdriver flat head

Materials:

- 1 – Doorbell system (chime, transformer, and pushbutton)
- 15' – Bell wire 20/2
- 5 – Staples
- 1 – single gang plastic
- 1 – Two gang 4S box (project boards only)
- 1 – Single gang ring cover (project boards only)
- 1 – Power cord (project boards only)

Safety:

- Safety glasses
- Hard hat (bays)

Time Required: 240 minutes

Shop Maintenance:

- All work will cease 20 minutes prior to the end of class.
- All work areas must be cleaned.
- Tools and equipment must be cleaned and returned to the designated areas (cage, tool room, cabinets etc.)
- Any broken or missing tools must be reported immediately.
- Tools and equipment are student's responsibility



Procedure:

Working on project boards skip to step 5. Working in bays follow these instructions from the beginning

(Refer to figure 1)

1. Install one box at 72" to the top of the box on a stud. (For transformer)
2. Mark a line on the opposite wall at 80" from the floor, mount the chime back plate on the front of the stud.
3. Mark a line in the first open bay toward the front at 42"
4. Install an AWG 14/2 Romex wire from the panel to the box, do not make up in the panel till the end of the procedures.
5. Install a Power cord in the first box on the project board (Bays do not need this step)
6. Run the bell wire from the chime, (wrapped around staple), to the transformer, (wrap around staple), leaving about 12' on each end.
7. Run the bell wire from the transformer to the 3rd box, project board, or the mark at 42" (wrap around staple) and leave 12" on each end.
8. Connect the transformer and mount it to the box.
9. Wire the low voltage:
 - Chime – Terminate the red and white wires, any order, to the "front" and "trans" screws.
 - Transformer – Tie-off the red wires together. Terminate the white wires to the two screws on the transformer. Does not matter which screw goes to which wire.
 - Pushbutton – Terminate the red and white wire on the two screws on the pushbutton, and mount the push button on the stud
10. Connect the power and test the doorbell system.

It time permits:

- Have the students wire a 2 pushbutton (example - back door and front door) chime system. (Figure 2)
- Have the students wire a 2 chime (example: big house upstairs and downstairs) system. (Figure 3)

Figure 1

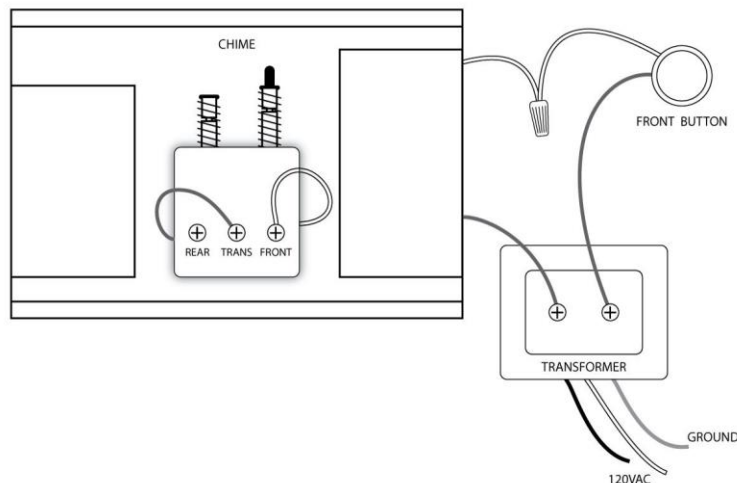




Figure 2

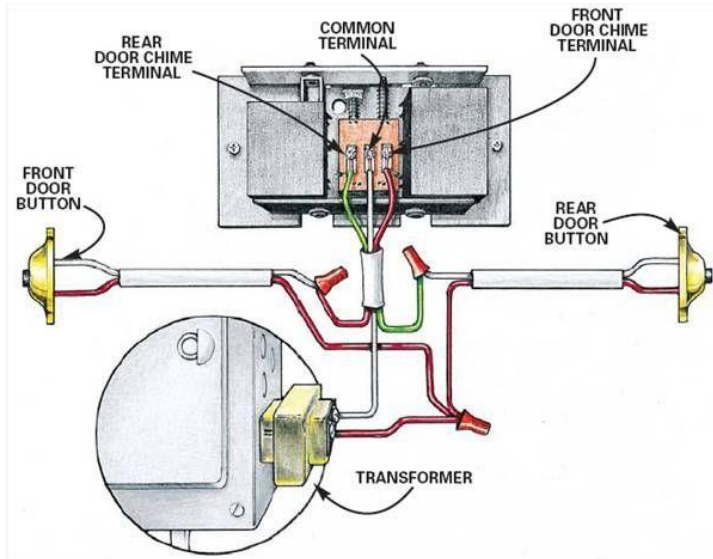


Figure 3

