554 sets

Figure 1 - 554 Wall Set

I'm assuming that you are using traditional 554 wall sets for the phones. You probably grew up with one of these on the wall in your kitchen (Industrial Design by Henry Dreyfus of NYC J3A Hudson fame.)

Buzzers and lamps and latches can be added.

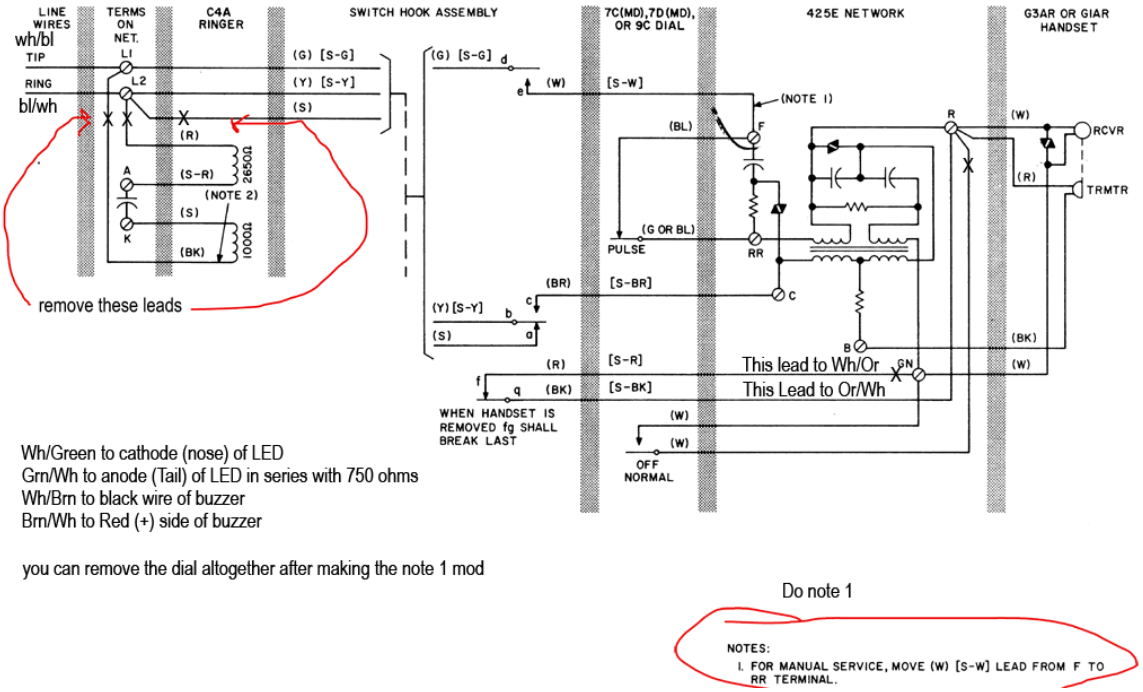

Figure 2 - 554 Set Schematic

Let's assume you are going to use a 554 wall set (see figure 1) and you've run a CAT 5 to it. Do the following

1. Remove any ringer leads from the terminals labeled L1, L2 and G. Tape and store them.
2. Most likely you will want to mount the phone behind the fascia with the hook sticking through a slot so you will want to remove the dial and dial brackets. The dial has 4 wires, (usually Grn, Blue and two whites). Remove the whites, they just short out the receiver when dialing so you don't hear pops in your ear. The green and blue are connected to RR and F respectively. Remove them and do note 1 moving the hookswitch lead that's on F to RR. Do note 1 even if you surface mount the phone and leave the dial in place (if someone plays with dial while off hook it makes really annoying pops on the line).

Figure 3 - 554 set installed through fascia on Dave Adams' D&RGW Durlin Branch

3. Connect the Wh/Bl (Tip) wire of the Cat 5 to L1

4. Connect the Bl/Wh (Ring) wire of the Cat 5 to L2

5. Disconnect the hookswitch leads (listed on the schematic as red and black) that are connected to R and GN. These are normally closed (shorted) when the phone is on hook, they can be used in the release circuit if you want to latch the LED. If you are using them for latch release, connect one to the Or/Wh wire from the Cat 5 and the other to Or/Wh.

6. You will be out of tie points on the network so you'll need a 6 position terminal strip. Doublestick the terminal block somewhere under where the dial was.

7. Connect the Lamp (LED) pair (Wh/Grn, Grn/Wh) to the next two terminals of the terminal strip. You'll connect the LED leads here if you want it on the phone, alternately you can run it up to a structure of some sort on the layout, but this is still a good tie point. Be sure to select an appropriate ballast resistor for the LED. I suggest around 1,000 ohms for 12 VDC (12-1.5 = 10.5V/1000 ohms = 10.5mA). This is a safe value as most LEDs will give about the same brightness from 10 – 30 mA and not burn up. Obviously if you're using a special LED, check the data sheet.

Supply Voltage	**Red/Green/Yellow**	**White**
5	350 ohms	2,000 ohms
12	1,000 ohms	1,000 ohms
24	2,200 ohms	22,000 ohms

Table 1- Suggested LED Limiting Resistor Values

8. Connect the Buzzer pair (Wh/Brn/ Brn/Wh) to the third pair on the terminal strip. Wh/Brn to the black lead and Brn/White to the (+) Red Side.