| | | | | |
|---|---|---|---|---|
| C1-C5 .002 (222) | C6-C8 0.1 (104) | C9 10uf | C10 0.1 (104) | C11 10uf |
| C12-C15 .002 | D1 1N4149 | D2 1N4733 | D3 1N4001 | D4 1N4749 |
| D5 1N4001 | D6, D7 1N4749 | Q2 2N3904 | Q3, Q4 2N4403 | U1-U7 4N29 |
| U8 74HC139 | U9 74HC154 | U10, U11 ULN2803 | U12 78L05 | U13-U15 74HC04 |
| R1 5.6K | R2 10K | R3 3.3M | R4 5.6K | R5 3.3M |
| R6-R11 2.2K | R12 3.3M | R13 10K | R14 5.6K | R15 3.3M |
| R16 10K | R17 5.6K | R18 3.3M | R19 10K | R20 5.6K |
| R21 3.3M | R22 10K | R23 5.6K | R24 3.3M | R25 10K |
| R26 5.6K | R27-R42 10K | R43 20 | R44 3.0K | R45 10K |
| R46 680 | R47 3.0K | R48 680 | R49 3.0K | R50 2.2K |
| DS1-DS23 led | K1-K17 relay | | | |

Installation / Assembly order:

1. Capacitors (save the electrolytics, C9 & C11, for later)
2. Diodes
3. Transistors (there is no Q1) and regulator U12
4. Integrated Circuits
5. Resistors
6. Electrolytics
7. LED's
8. Connectors
9. Relays

An additional ground is needed. Add a jumper from pin 1 to pin 8 of U8, the 74HC139. It is grounding pin 1, and pin 8 is the closest ground. You can however, take pin 1 to any ground point.

I prefer to install components in order of size. Begin by installing the capacitors, exclude the larger electrolytics at this time. Then all of the diodes, paying attention to the width of the lead bend needed and polarity.
Install the transistors noting that there is no Q1, don't ask.
The integrated circuits can be installed at this time. Resistors are next followed by the two electrolytic capacitors.
Now all 23 LED's can be installed paying attention to polarity, the flat side of the LED is noted on the screen printing on the PCB.
It is desirable to install the connectors before the relays. Use cutters to break away the six pins needed for each relay connector, including the input for PTT.
Included