Control Board

Top View

Bottom View
Open the bag of parts for the Control board and sort them onto the Parts Map. Do this before you solder any components to minimize the chance of misreading a component’s id and soldering it into the wrong location. Solder the components in the order shown on the parts map. The order is basically that the lowest profile items are soldered first. The dashed outlines on the parts map indicate components that must be oriented a specific way. **Do not solder the integrated circuits on the board. They are placed into sockets.**

The techniques for soldering many of these components are the same as was done for the Interface board. Refer to video clips in that tutorial if you wish to review the procedure.
1. The first items to be soldered are resistors R5, R15, and R16. 330Ω. Orange-Orange_Brown. Orientation does not matter for resistors.

2. Next are resistors R3, R7, R11 and R17. 100K Ω. Brown-Black-Yellow


5. R8. 51KΩ. Green_Brown_Orange

6. R4, R6, R9, R12, R13. 10KΩ. Brown_Black_Orange

7. R10. 33KΩ. Orange_Orange_Orange.

8. Diodes D0-D3, D5-D20. Align the black stripe on the diode with the white stripe on the circuit board.
9. C1, C2, C4. 0.1 μF Capacitors. Orientation not important.

10. D1 1N5402 Diode. Align the black stripe on the diode with the white stripe on the circuit board.

11. U3. 5 Volt Regulator. Flat side against circuit board.

12. J7. 3-Pin Female Fuse socket.

13. S1. SPST Switch. Pin spacing allows only two ways to place. Either way is OK.

14. Q2, Q3: C5019. Match shape with silkscreen. These look just like Q4. Read the numbers printed on them to make sure you have the correct devices. The plastic does not set on the circuit board—they stand off about 1/8” to ¼”.

15. Q4. MPSA65. Match shape with silkscreen. This looks just like Q2 and Q3. Read the numbers printed on them to make sure you have the correct devices.
16. Uc_White and Uc_Blue Sockets. Align u shaped notch on end of sockets. **This is not the integrated circuit!**

17. Red LED_3. Longer lead is +, shorter lead is negative.

18. LED_1, LED_2. Bi-Color LED. Longer lead is +, shorter lead is negative and is placed by the flat side of the silk screen symbol.

19. S2. Prgm_Select. SPDT Slide Switch

20. J5. Solder the two 3-pin male headers


25. Audio Transducer. + on case matches + on board.

26. SPDT Relay. Pins will allow it to fit only one way.

27. Male Connector. Charger. Red wire is +. Shorten wires to about 2”. Strip about 1/8” of insulation off wires. The male connector has two prongs inside the plastic case.

28. Female Connector. Battery. Red wire is +. Shorten wires to about 2”. Strip about 1/8” of insulation off wires. The female connector has two sockets inside the plastic case.

Warning! The Next Components are Mounted on the Bottom Side of the Circuit Board. Look at the Photo.

29. U1, U2. H Bridge. L298. Warning! Mount on Back Side of Board
30. **Q1. TIP-127FP.** Place flat side to outside of board. *Warning! Mount on Back Side of Board.*

31. **Fuse**

32. **Uc_white, Uc_blue.** Identify by the white or blue dot painted on the IC. : ATMEGA 48 *Place in socket when board is completed. Do Not Solder.*