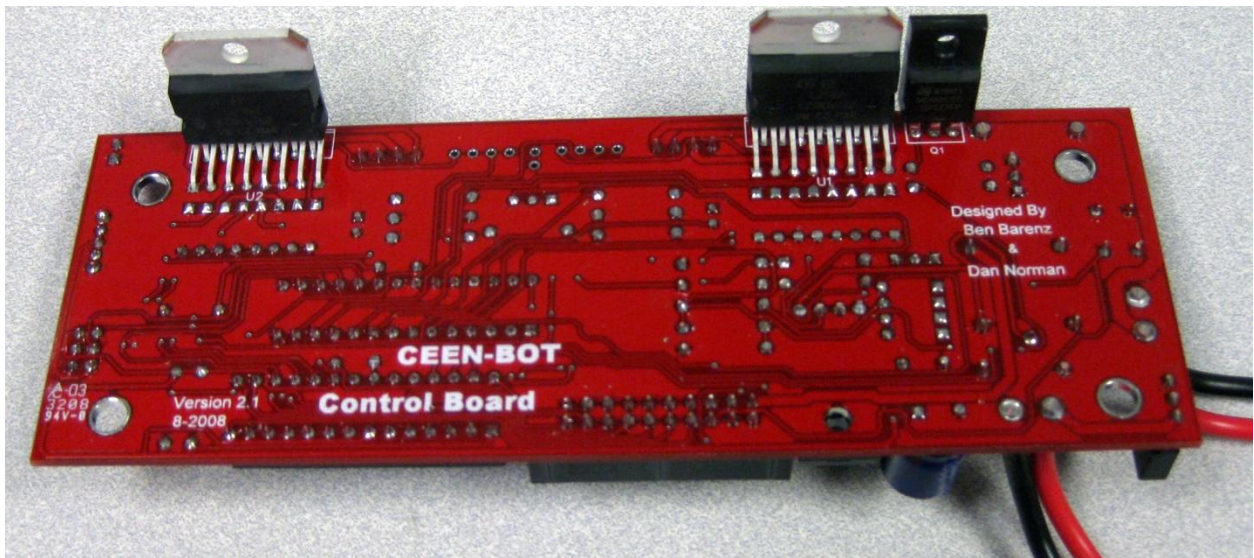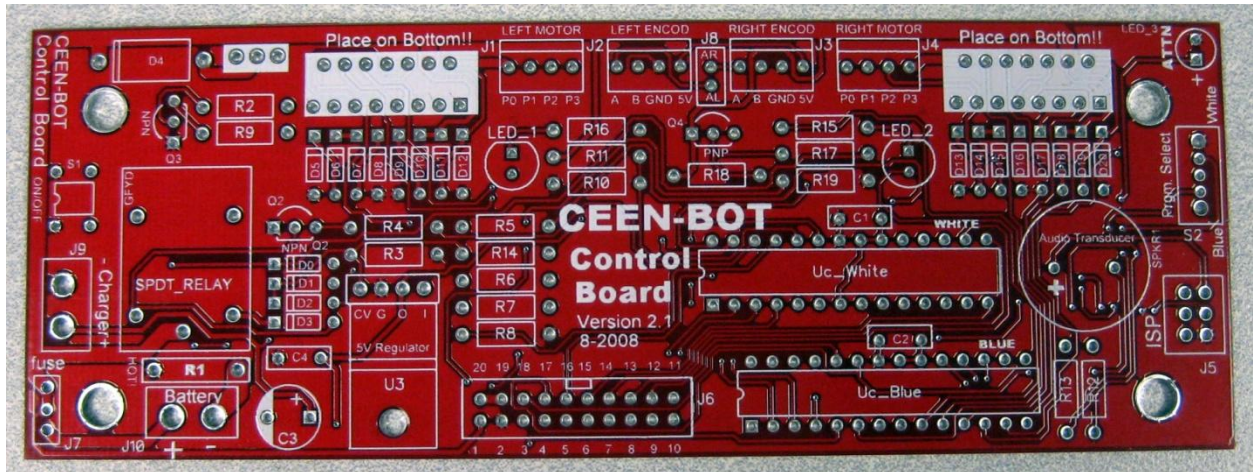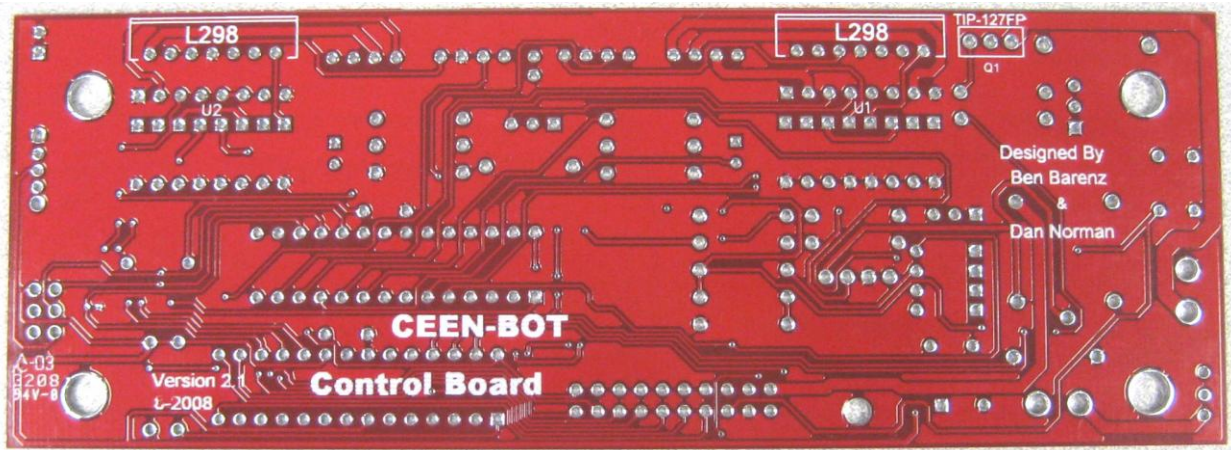# Control Board

Top View

Bottom View

Silk Screen Top

Silk Screen Bottom

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.

3: R5, R16, R15
330 Ω Resistor
Orange-Orange-Brown

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

4: R3, R7, R11, R17
100k Ohm Resistor
Brown-Black-Yellow

3. Resistors R18. 220KΩ. Red_Red_Yellow.

1: R18
220K Ohm Resistor
Red-Red-Yellow

4. Resistors R2, R14, R19. 1KΩ. Brown_Black_Red.

3: R2, R14, R19
1k Ohm Resistor
Brown-Black-Red

5. R8. 51KΩ. Green_Brown_Orange

1: R8
51k Ohm Resistor
Green-Brown-Orange

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

5: R4, R6, R9, R12, R13,
10k Ohm Resistor
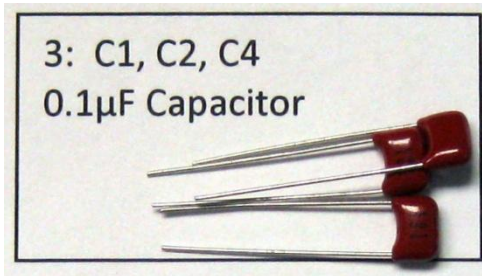Brown-Black-Orange

7. R10. 33KΩ. Orange_Orange_Orange.

1: R10
33k Ohm Resistor
Orange-Orange-Orange

8. Diodes D0-D3, D5-D20. Align the black stripe on the diode with the white stripe on the circuit board.

20: D0-D3, D5-D20
1N4148 Diode
Match diode stripe with
stripe on board

9. C1, C2, C4. 0.1 µF Capacitors. Orientation not important.

3: C1, C2, C4
0.1µF Capacitor

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

1: D4
1N5402 Diode
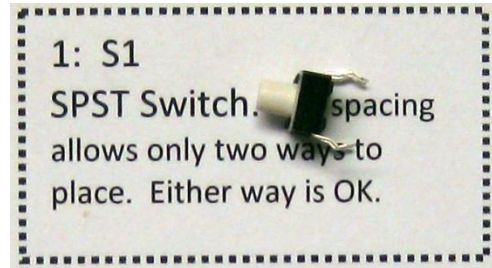*Match diode stripe with stripe on board*
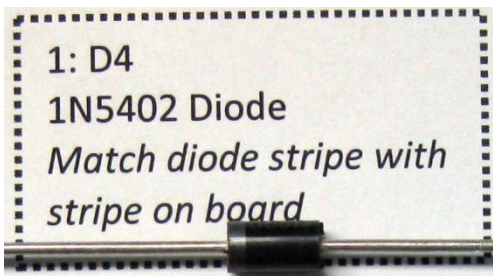
11. U3. 5 Volt Regulator. Flat side against circuit board.

1: U3. 5V Regulator
Flat side against boa

12. J7. 3-Pin Female Fuse socket.

1: J7. 3-Pin Female Fuse Socket
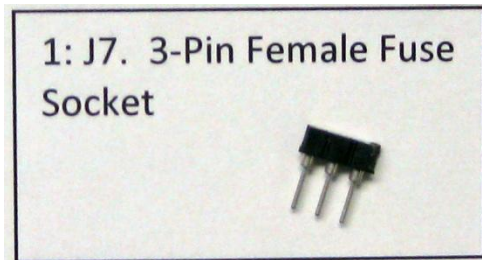
13. S1. SPST Switch. Pin spacing allows only two ways to place. Either way is OK.

1: S1
SPST Switch. 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".

Q2, Q3: C5019
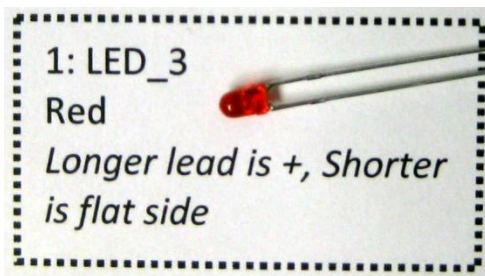Match shape with silkscreen
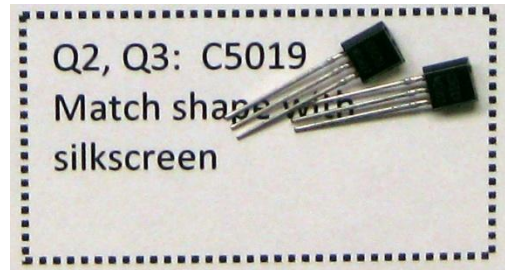
15. Q4. MPSA65. Match shape with silk screen. This looks just like Q2 and Q3. Read the numbers printed on them to make sure you have the correct devices.

Q4: MPSA65
Match shape with silkscreen
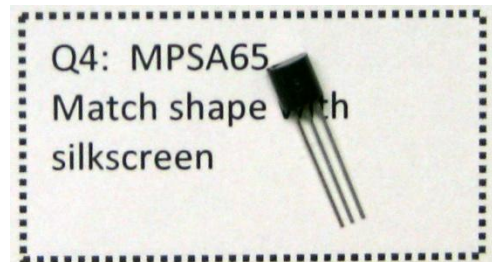
16. Uc_White and Uc_Blue Sockets. Align u shaped notch on end of sockets. **This is not the integrated circuit!**

2: Uc_White, _Blue
28-Pin Dip Soc
ATMEGA_48
Not the IC
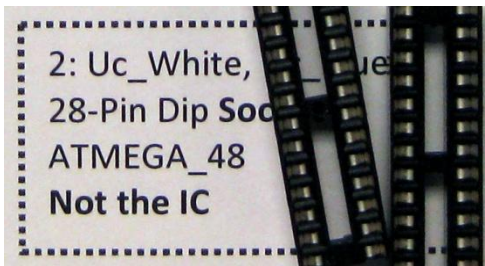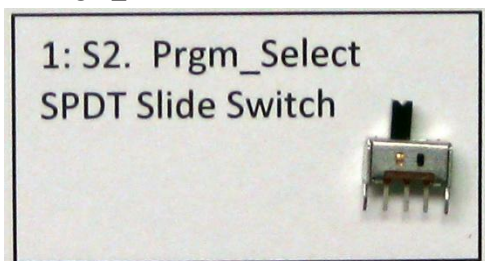
17. Red LED_3. Longer lead is +, shorter lead is negative.

1: LED_3
Red
Longer lead is +, Shorter is flat side

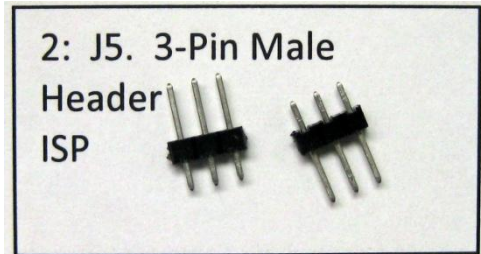18. LED_1, LED_2. Bi-Color LED. Longer lead is +, shorter lead is negative and is placed by the flat side of the silk screen symbol.

2: LED_1, LED_2
Bi-Color
Longer lead is +, Shorter is flat side

19. S2. Prgm_Select. SPDT Slide Switch
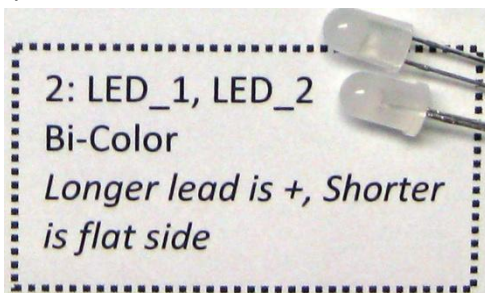
1: S2. Prgm_Select
SPDT Slide Switch

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

2: J5. 3-Pin Male
Header
ISP

21. J1, J4. 4-pin male connector. Left Motor, Right Motor. *Plastic lip matches with stripe on board.*

2: J1, J4. 4-pin male connector
Left Motor, Righ
Plastic lip matches with stripe on board

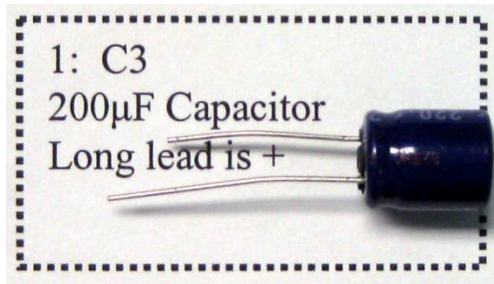22. J6. 20-Pin Male Ribbon Cable Connector. *Single slot to center of board.*

1: J6. 20-Pin Male Ribbon Cable Connector
*Single
board*

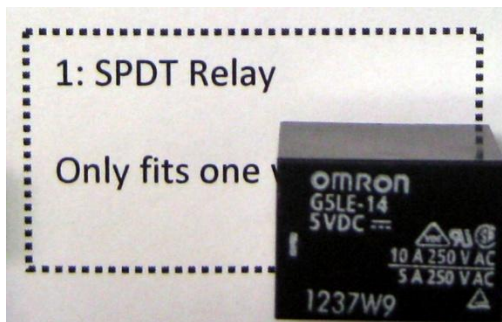23. R1. 1 Ω Resistor. "U" shaped wire. Does not look like a resistor.
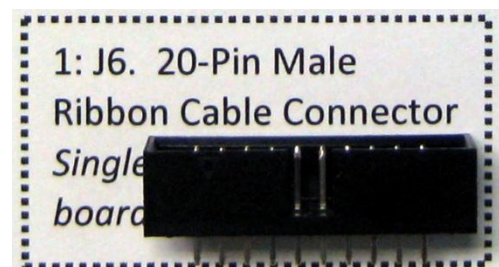
1: R1
1 Ω Resistor
"U" shaped wire. Does not look like a resistor

24. C3. 200µF capacitor. Long lead is +.
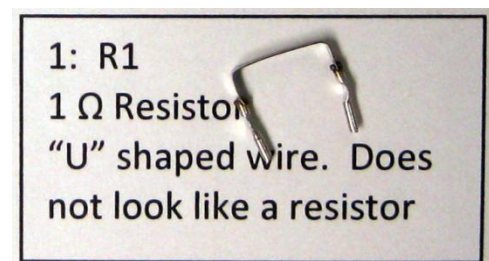
1: C3
200µF Capacitor
Long lead is +

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

1: Audio Transducer

+ on case matches board

REMOVE SEAL AFTER WASHING

DIGISOUND F/HCWO6LF 07.1

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

1: SPDT Relay

Only fits one w...

OMRON
G5LE-14
5VDC
10 A 250 V AC
5 A 250 V AC
1237W9

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.

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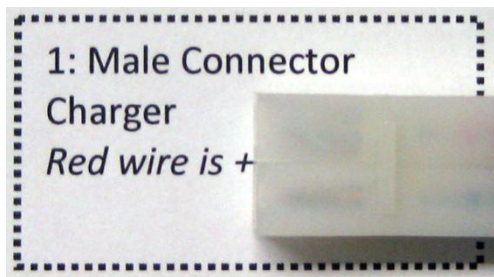
28. Female Connector. Battery. *Red wire is +.* Shorten wires to about 2". Strip about 1/8" of insulation off wires. The female connector has two sockets inside the plastic case.

1: Female Connector
Battery
Red wire is +
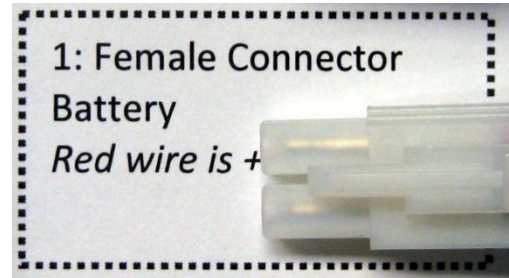
Warning! The Next Components are Mounted on the Bottom Side of the Circuit Board. Look at the Photo.

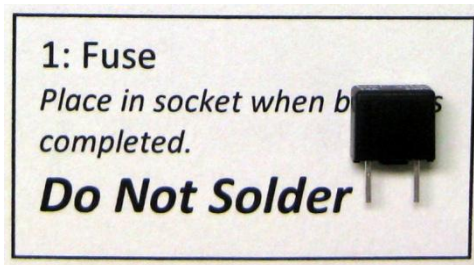29. U1, U2. H Bridge. L298. *Warning! Mount on Back Side of Board*

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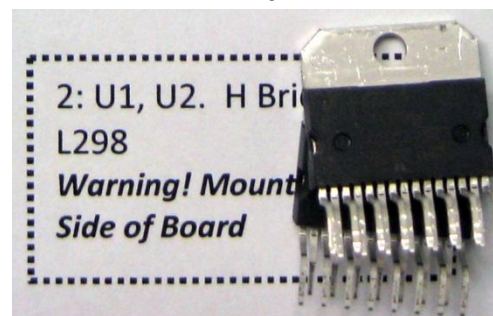
30. Q1. TIP-127FP. Place flat side to outside of board. ***Warning! Mount on Back Side of Board.***

1: Q1. TIP-127FP
Place flat side to outs... board. ***Warning! M...*** on Back Side of Boa...

Warning! Do Not Solder the Rest of the Components

31. Fuse

1: Fuse
Place in socket when b... completed.
Do Not Solder

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**.

2: µC_
ATME...
when ...
Do Not Solder