



Standard Build Procedure

Document number	SBP2020-003 BVA-02
Document title	BCA Assembly Procedure
Version	1
Date	15 September 2020
Author	Eric O'Neill eric.oneill@libertine.co.uk

Libertine Linear Power Systems, Libertine FPE and Libertine are trading names for Libertine FPE Limited, a company registered in the UK. Company number 7022645

CONTENTS

1.	BCA HOUSING MECHANICAL BUILD.....	3
1.1.	INSERT THREADED BRASS INSERTS INTO BCA HOUSING.....	3
1.2.	ATTACH ROCKER SWITCH AND POWER SOCKET.....	4
1.3.	ASSEMBLE POTENTIOMETERS AND POT SPACERS.....	4
1.4.	ATTACH THE POTS & SPACERS TO BCA HOUSING	5
1.5.	ATTACH BCA CONTROL KNOBS	5
1.6.	ATTACH LCD SCREEN AND ARDUINO BOARD	6
1.7.	ATTACH LEDs.....	6
1.8.	ATTACH SWITCHES.....	7
2.	BCA ELECTRICAL CONNECTIONS	8
2.1.	POWER CONNECTIONS	8
2.2.	SIGNAL CONNECTIONS	9
2.3.	LCD SCREEN & ARDUINO CONNECTIONS.....	10
3.	COVER, LABELS, & AMBU BAG SUPPORTS	13
3.1.	ATTACH COVER.....	13
3.2.	APPLY LABELS	13
3.3.	ATTACH AMBU BAG SUPPORTS	14

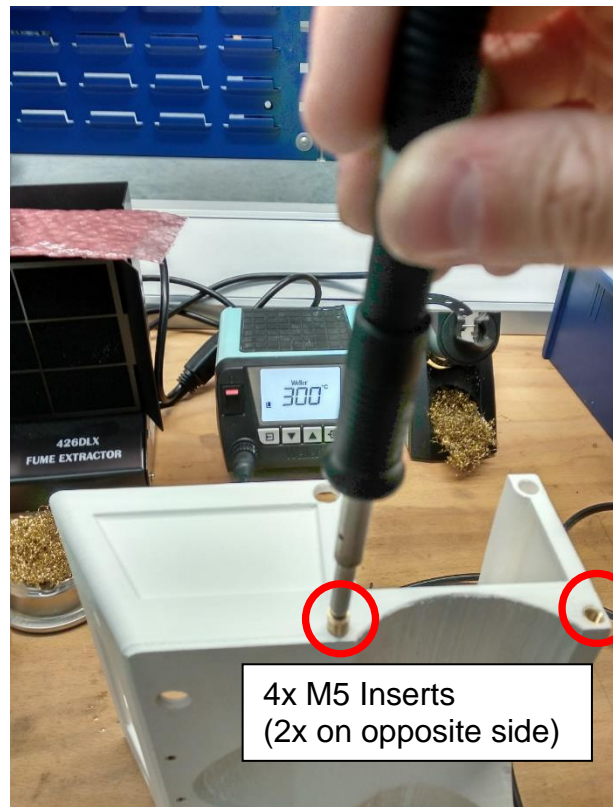
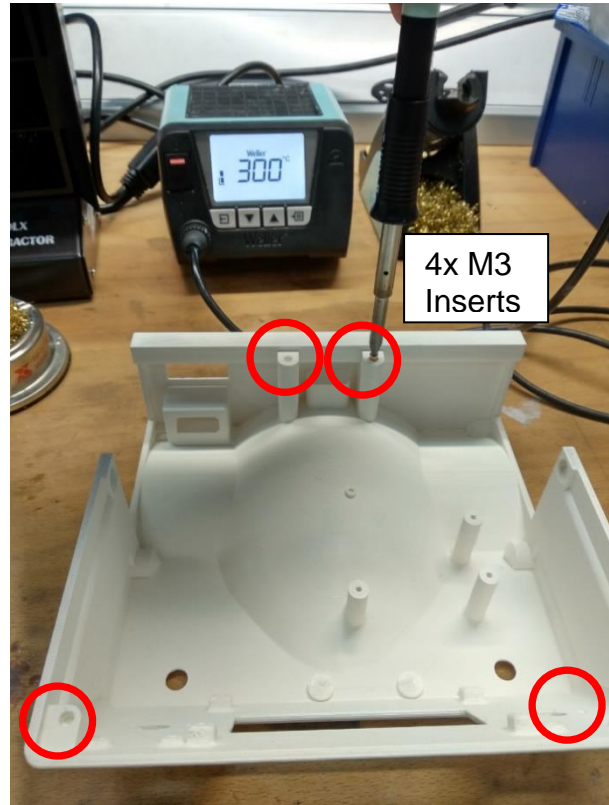
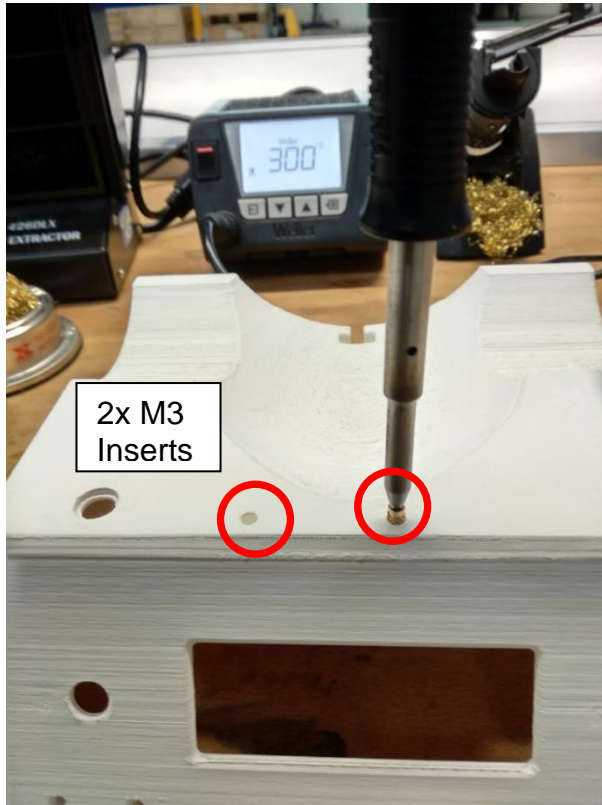
Version history

Version	Issue date	Notes & changes
1	28-09-20	Initial Release

1. BCA HOUSING MECHANICAL BUILD

1.1. INSERT THREADED BRASS INSERTS INTO BCA HOUSING

Insert 6x M3 and 4x M5 Brass Threaded Inserts into the holes shown below in the BCA Housing. Use the soldering iron with the temperature set to 300°C to sink each insert flush with the housing.



1.2. ATTACH ROCKER SWITCH AND POWER SOCKET

Attach SPST Rocker Switch Panel Mount (RS 741-0902) and Power Connector Socket (RS180-5378) into the apertures on the back of the BCA Housing as shown below.



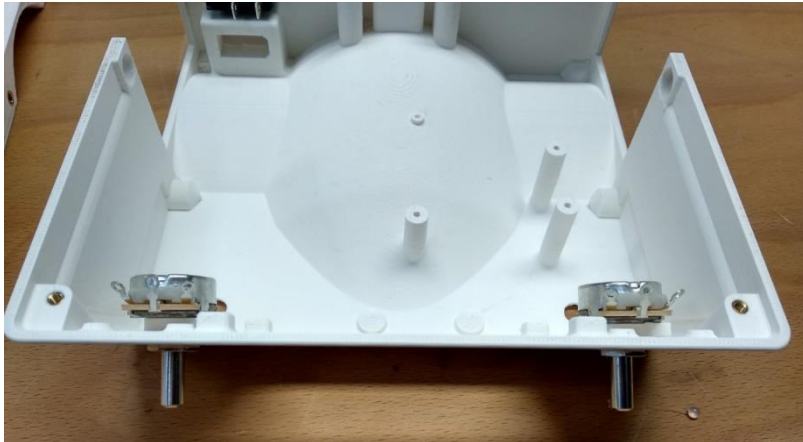
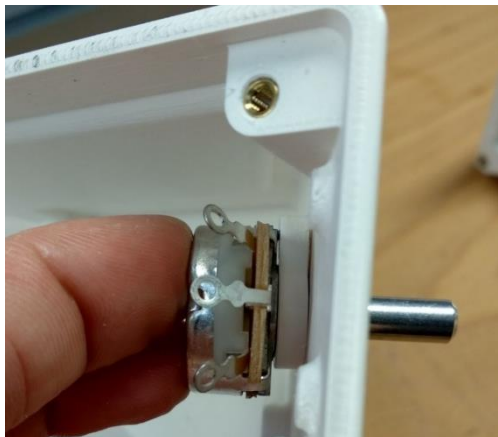
1.3. ASSEMBLE POTENTIOMETERS AND POT SPACERS

Assemble the 2x Potentiometers (026TB32R102B1A1) with the 2x Pot Spacers as shown below.



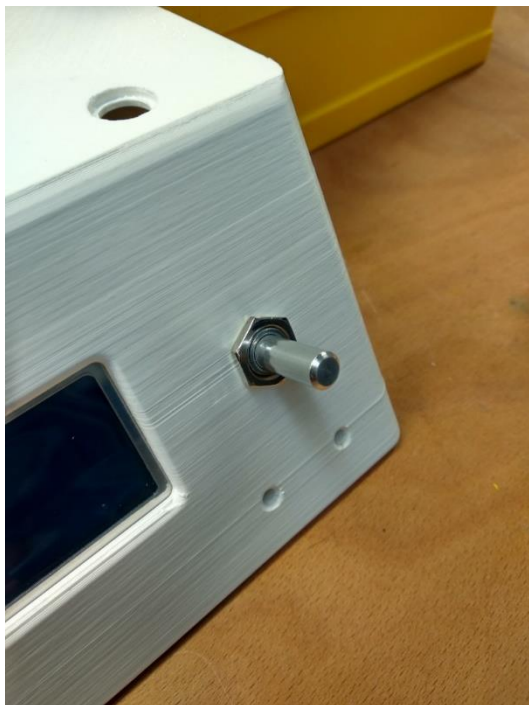
1.4. ATTACH THE POTS & SPACERS TO BCA HOUSING

Attach the Potentiometers, along with the Pot Spacers to the front panel of the BCA Housing. There is a boss on the Pot Spacer which fits into a recess on the inside of the front panel of the BCA Housing. This constrains the orientation of the Pots. Use the Plain Nuts which come with the Pots to tighten the pots onto the front panel.



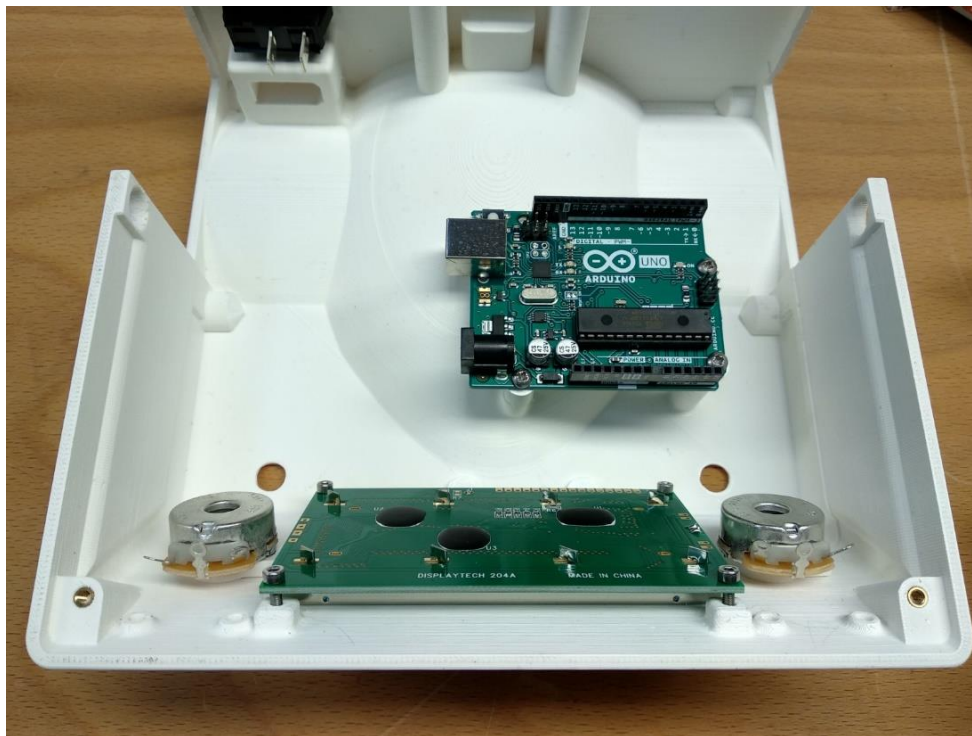
1.5. ATTACH BCA CONTROL KNOBS

Attach 2x BCA Control knobs to the exposed shaft of the Potentiometers by pushing them onto the shaft until they bottom out.



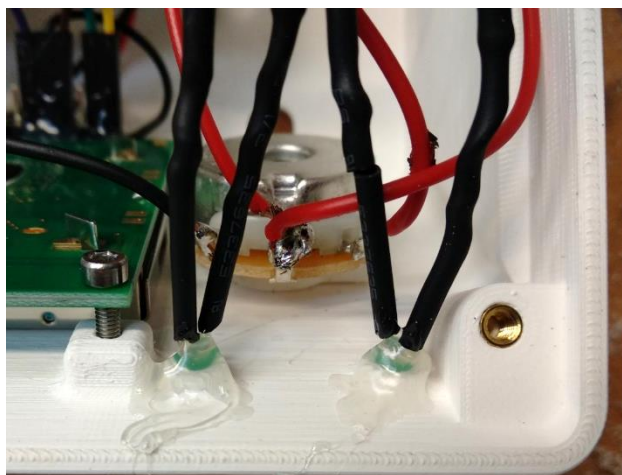
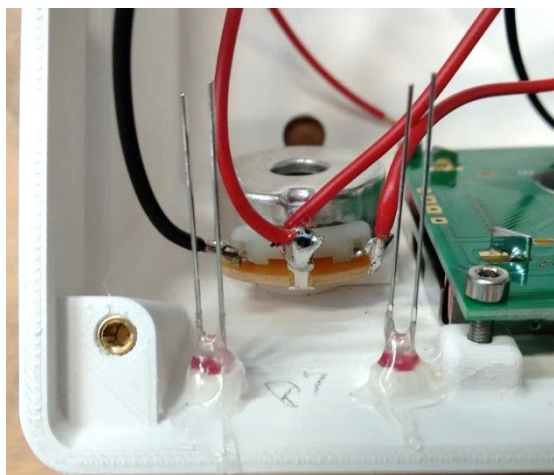
1.6. ATTACH LCD SCREEN AND ARDUINO BOARD

Attach the LCD Screen to the inside of the front panel on the BCA Housing using 4x M2.5x8 SHCS. Also attach the Arduino Uno Board to the Pillars provided on the inside of the BCA Housing using 4x No.2x3/16 Pozi Self Tapping Screws.



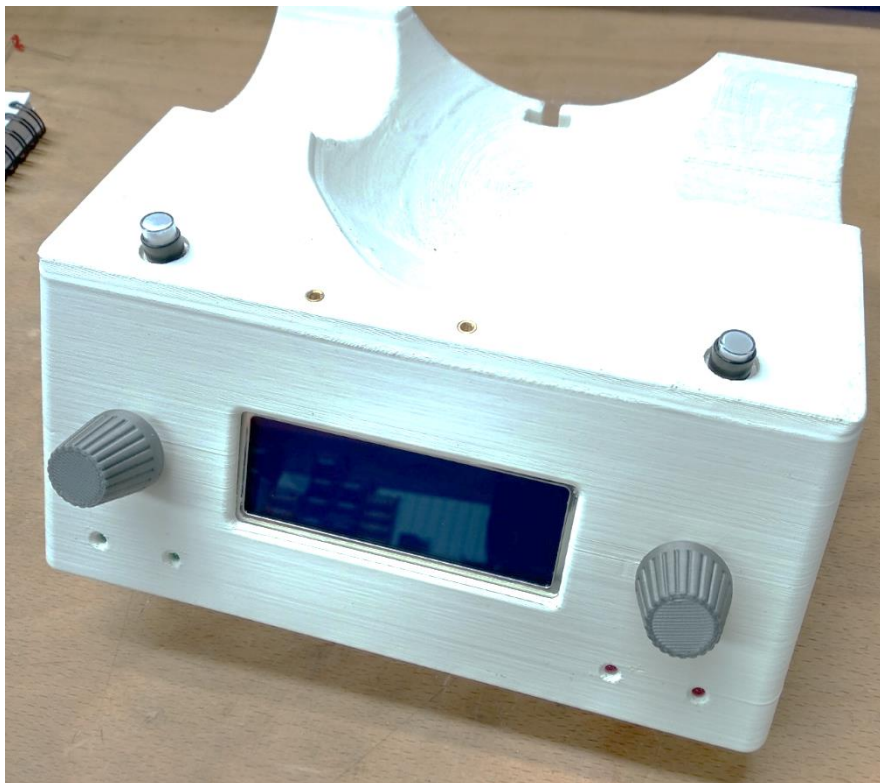
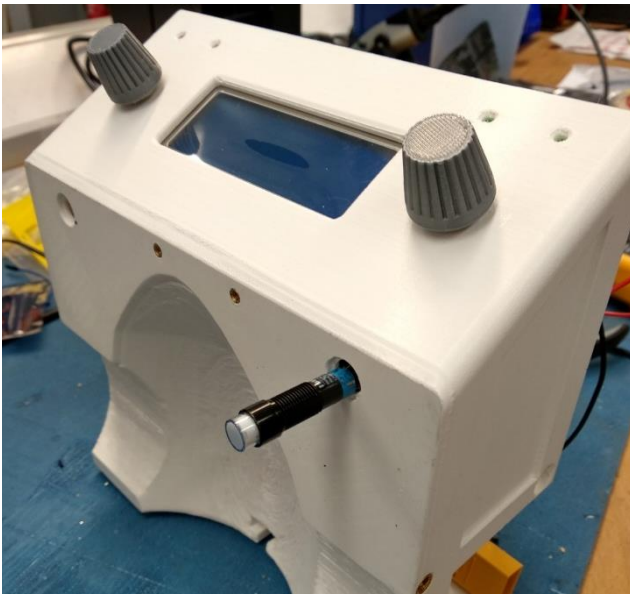
1.7. ATTACH LEDs

Attach 2x Red LEDs (RS 228-5916) and 2x Green LEDs (RS 228-5944) as shown below. Use hot-melt to secure in place.



1.8. ATTACH SWITCHES

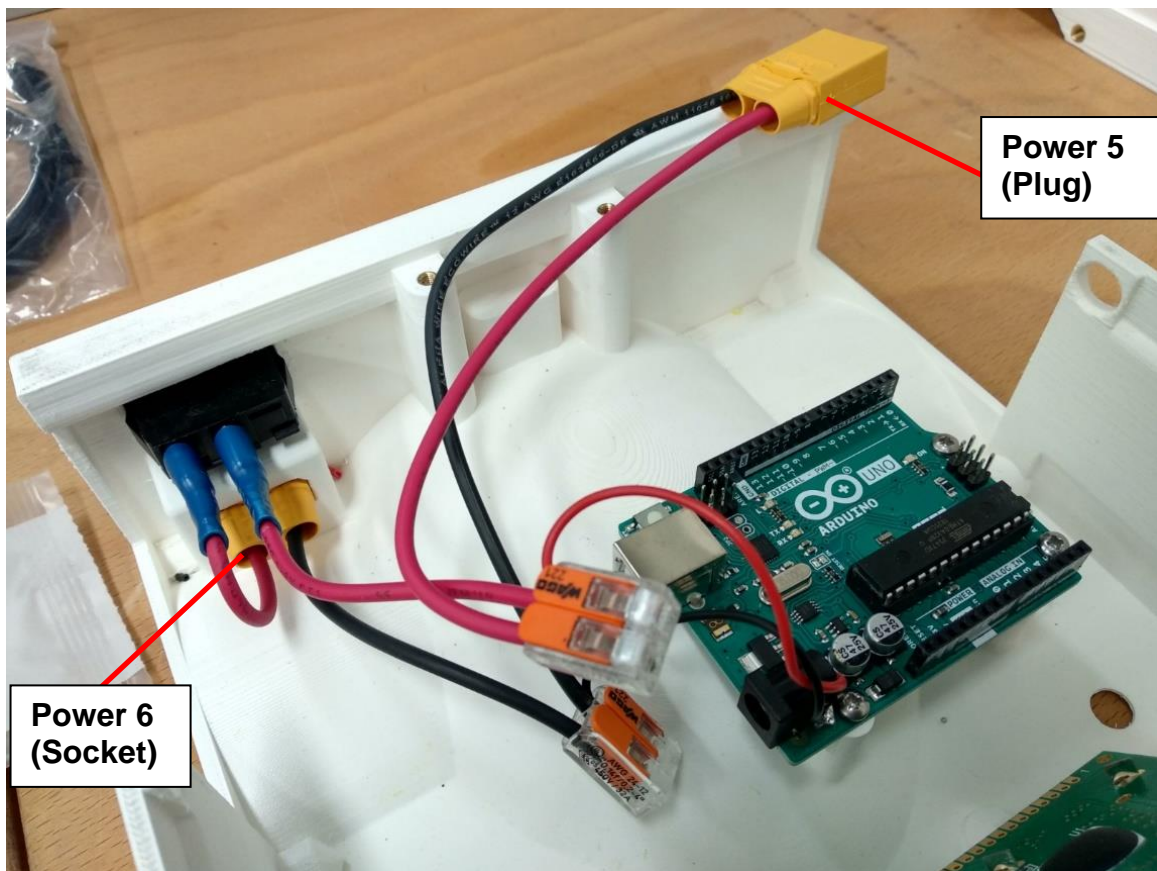
Attach 2x SPDT Latching Mini Push Button Switches (RS 664-783), along with 2x White Round Push Buttons (RS 664-890) as shown below.



2. BCA ELECTRICAL CONNECTIONS

2.1. POWER CONNECTIONS

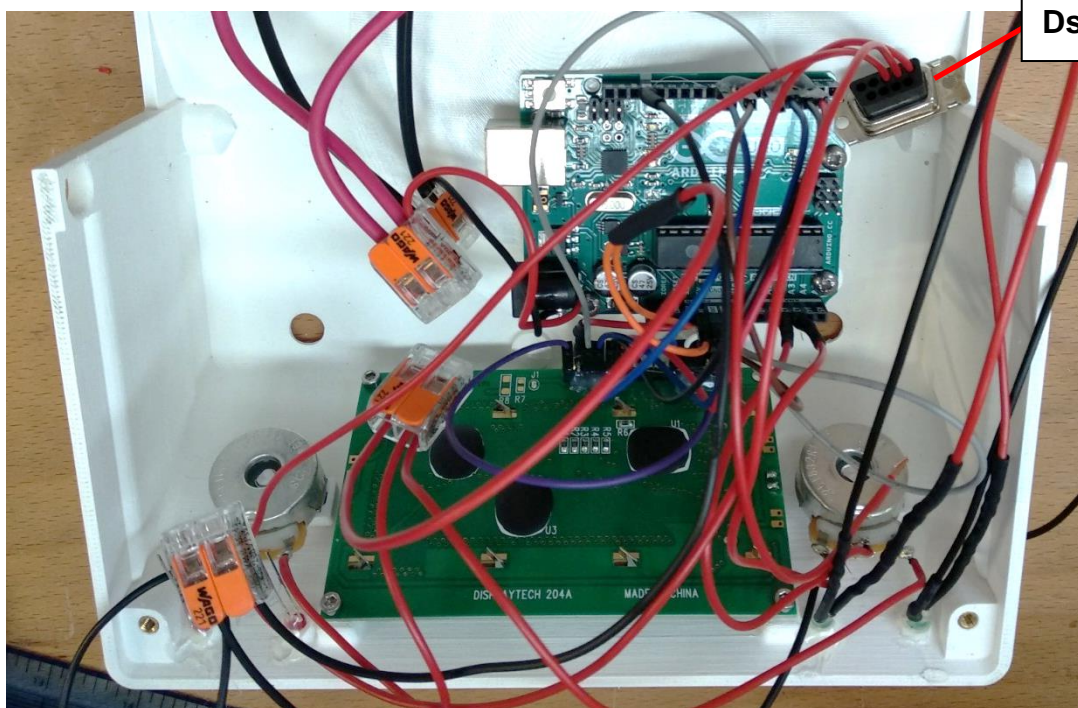
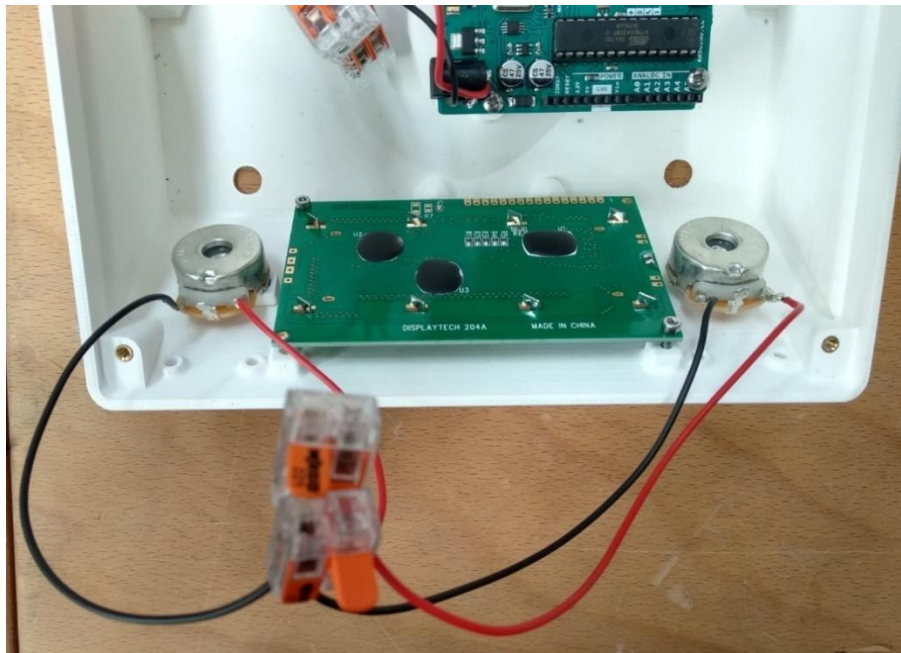
ID	Part #	Direction	Pins	Signal Name	Interface With	Signal Name
Power5	Power Plug 180-5382	Output	1	12V	BVA1 Power4 180-5378	12V
			2	GND		GND
Power6	Power Socket 180-5378	Input	1	12V	Power Plug 180-5382 from Battery/PSU	12V
			2	GND		GND



2.2. SIGNAL CONNECTIONS

Note: 3x 2-Way WAGO connectors are needed here.

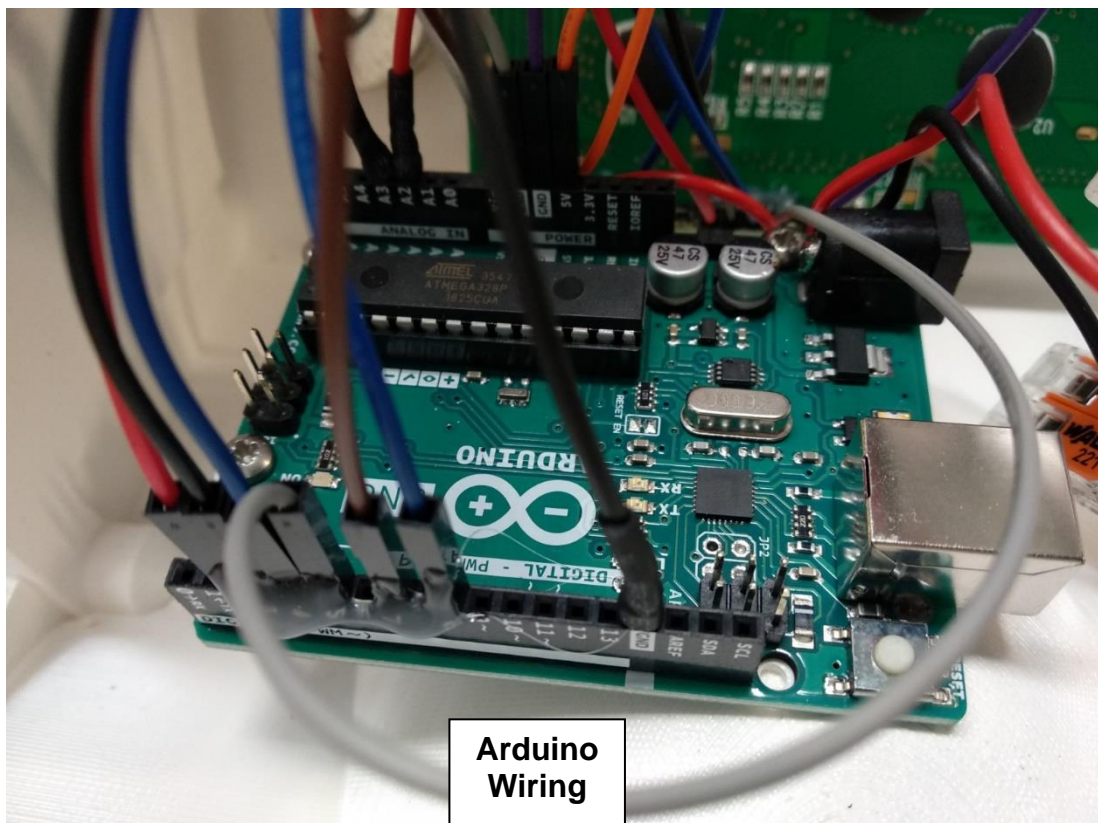
ID	Part #	Direction	Pins	Signal Name	Interface With	Signal Name
D-Sub5	BCA 446-692	Input	1	Enable/Disable	PCU D-Sub4 446-737	Enable/Disable
		Output	2	POT1		POT1
		Output	3	POT2		POT2

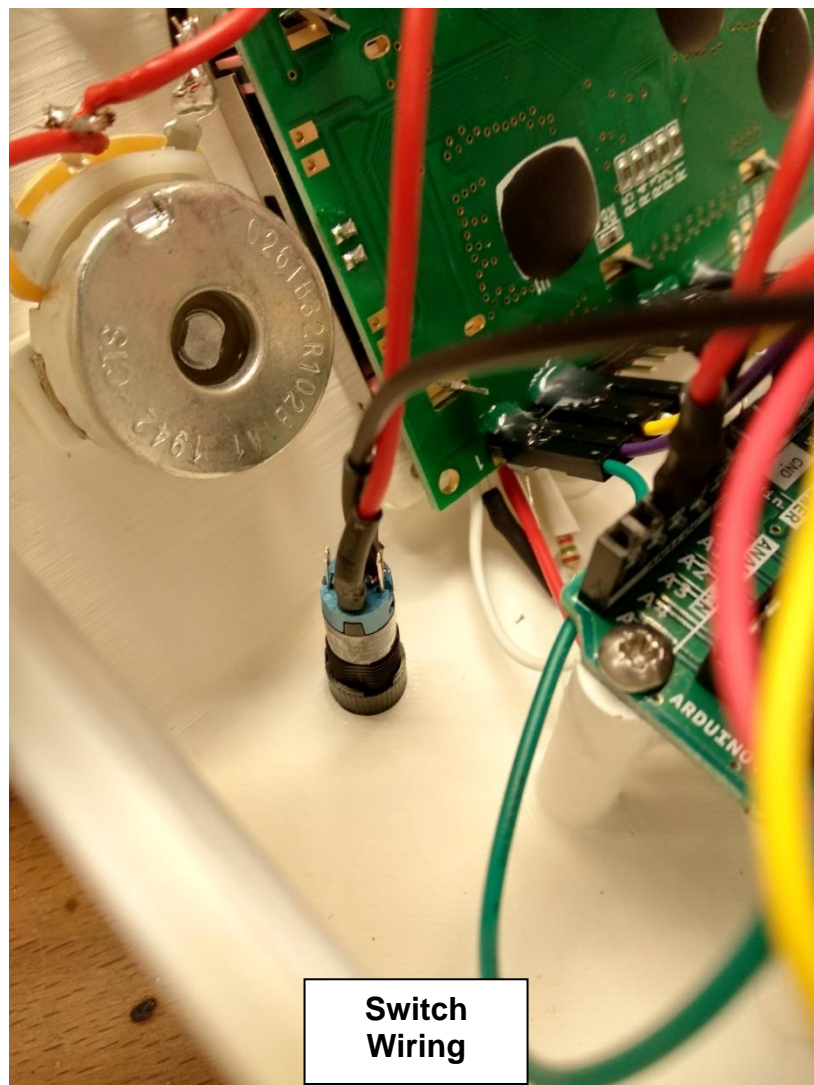
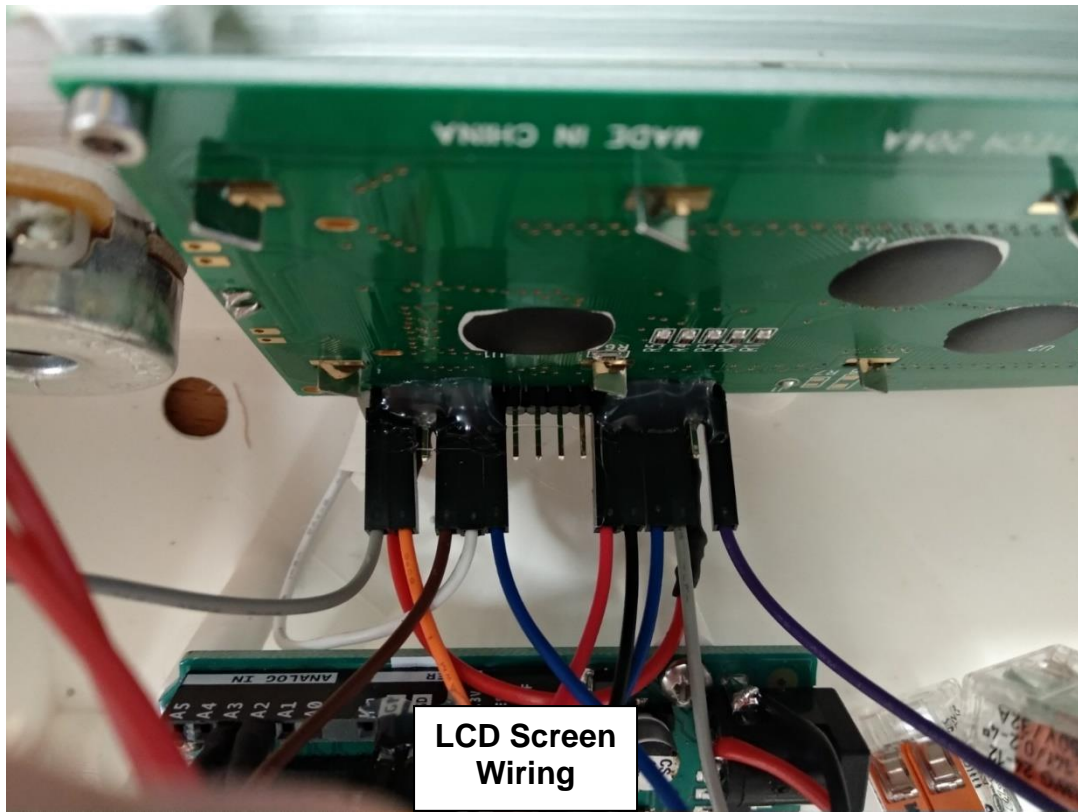


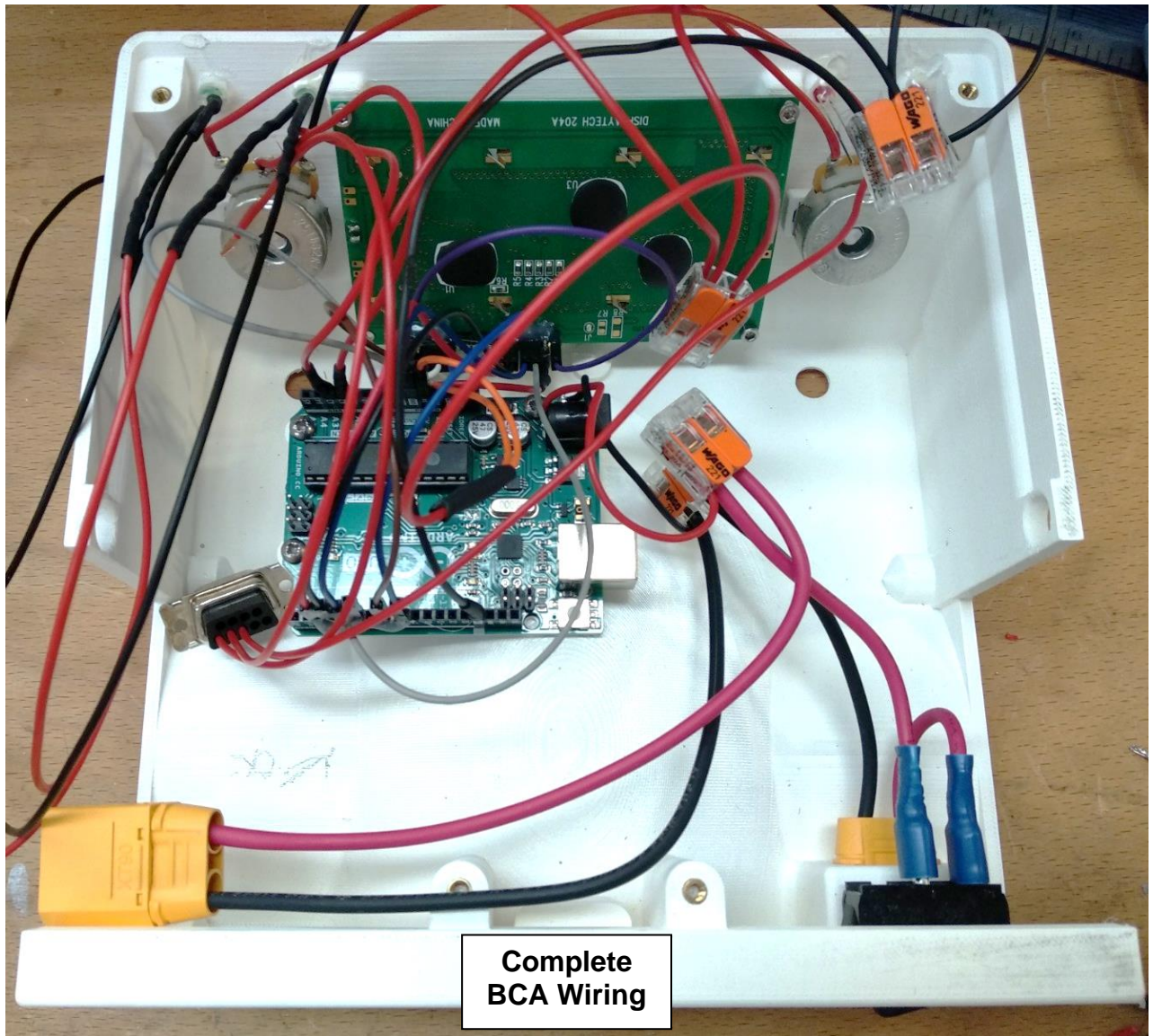
Dsub 5

2.3. LCD SCREEN & ARDUINO CONNECTIONS

System	Display screen	Arduino
	GND (1)	GND (7)
5V	5V (2)	5V (5)
POT3	Contrast (3)	
	RS (4)	D7 (22)
	RW (5)	GND (7)
	Enable (6)	D8 (23)
R5600 to 5V	Backlight (15)	
	Data (11)	D2 (17)
	Data (12)	D3 (18)
	Data (13)	D4 (19)
	Data (14)	D5 (20)
POT1		A2 (11)
POT2		A3 (12)
Enable SW		D13 (28)







3. COVER, LABELS, & AMBU BAG SUPPORTS

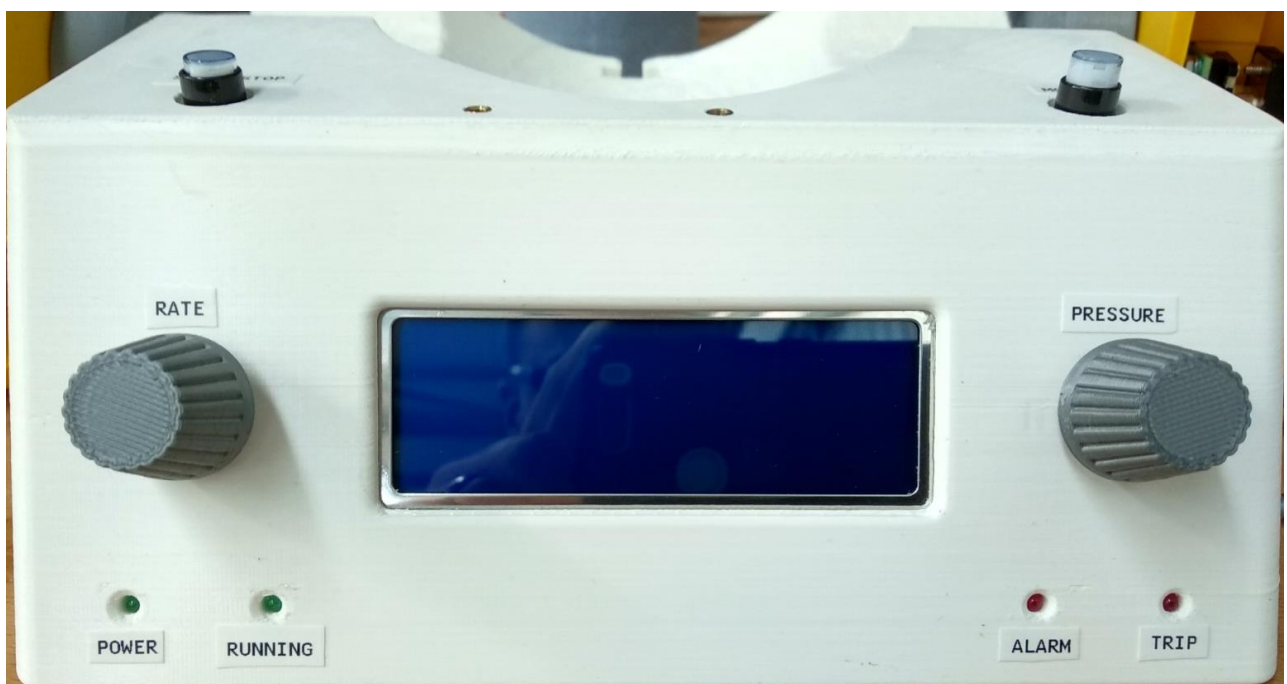
3.1. ATTACH COVER

Attach the bottom cover using 4x M3x6 Countersunk Screws.



3.2. APPLY LABELS

Apply labels to the Front Panel as shown below.





3.3. ATTACH AMBU BAG SUPPORTS

Attach Front Ambu Bag Support Bracket using 2x M3x8 SHCS. Thread cable tie through the slot in the bracket.



Attach Rear Ambu Bag Support Bracket by slotting it into the back of the BCA Housing as shown.

