MORSEDUINO 2.3 – Parts List in Order of Assembly

	Qnty	Item	Board Label	Notes
☐☐	1	Morseduino 2 PCB	Note: Clean both sides with alcohol before soldering components	
☐☐	1	1 K Ω Resistor	R1	blue
☐☐	2	470 Ω Resistors	R2, R3	tiny body (yellow violet,brown)
☐☐	3	150 Ω Resistors	R4, R5, R6	3 resistors on tabs
☐☐	1	1N5817 Schottky Diode	D1	Reverse Polarity Protection make sure end with gray band goes in hole on square pad!
☐☐	1	3mm Red LED	LED1 (right most LED)	Put long leads in square pads.
☐☐	1	3mm Blue LED	LED2 (left most LED)	Bend so LEDs extend from edge of board
☐☐	1	16 MHz Crystal	XTAL	
☐☐	2	0.01 µF Capacitors	C4, C10 near ATMega	mustard yellow (joined on paper tab)
☐☐	1	2.2 µF Capacitor	C1	blue with white dot
☐☐	3	0.22 µF Capacitors	C2, C3, C5	blue
☐☐	2	22 pF Capacitors	C6, C7	small with 22J on side
☐☐	3	Push buttons	RESET, SW1, SW2	
☐☐	1	28 Pin IC Socket	ATMega 328	Notch is up.
☐☐	2	8 Pin IC Sockets	41010, 567	Notches go up
☐☐	2	Headphone Jacks	Headphone, Audio In	See note at bottom of next page
☐☐	1	red&black leads plug&jack	Vin	Red lead at '+'
☐☐	1	10 K Ω potentiometer	R7	LCD Contrast
☐	1	40 Pin Male Header	Break out and install the following headers:	
☐	2	2 Pin Male Headers	AUX, AUX	alternate audio in/out
☐	3	3 Pin Male Headers	J2, 5V, GND	
☐	2	4 Pin Male Headers	D5-D8, KEY-SPK	
☐	1	5 Pin Male Header	D13-D9	
☐	1	6 Pin Male Header	RESET-D4	
☐	1	8 Pin Male Header	RSET-5V	
☐☐	1	header shunt/jumper	Goes on J2	left dim back light/right bright
☐☐	2	22 µF Electrolytic Caps	C8, C9 located just above 7805	long leads square pads
☐☐	1	5V Voltage Regulator	7805	Heat Sink Tab next to R1

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Before installing ICs:

☐		Make sure there is no continuity between +5V and GND	
☐		Apply input voltage 7 – 12 Volts	
☐	4	Spare jumpers (ribbon cable)	
☐		Place a jumper between D8 and one of the GND pins	red LED lights up
☐		Place a jumper between D5 and one of the GND pins	blue LED lights up
☐		Remove input voltage	
☐		Remove jumpers	

Mount LCD Panel:

☐		Remove the rosin from your solder connections on the PCB with alcohol and a brush	
☐☐	1	20x4 LCD Panel	Clean solder pads with alcohol
☐☐	4	Nylon Screws	Attach standoffs to back of LCD with screws.
☐☐	4	10mm White Standoffs	Do this at all four corners.
☐☐	4	Nylon Washers	Place on threaded end of standoffs
☐☐	1	16 Pin Female Header	(Male pins on LCD) – Sandwich together
☐☐	1	16 Pin Male Header or 2 - 8 Pin Male Headers	Connect headers and insert between PCB and LCD Male on LCD – Note Female Header goes on back of PCB

☐☐	2	Black nuts	Attach to top two PCB corners
☐☐	2	10mm White Standoffs	Attach to bottom two PCB corners
☐		Solder all header pins	
☐		Remove bottom two screws	
☐☐	2	10mm White Standoffs	Install where screws were removed
☐☐	2	Ring Connectors.	Bend slightly and attach as legs in front with 2 screws

Install ICs:

☐☐	1	Microcontroller	ATMega 328	All notches go up
☐☐	1	10 K Ω digital pot	MCP41010 (white dot)	
☐☐	1	LM567NC tone decoder chip	LM567	

☐		Apply input voltage	blue LED lights up for one second
☐		To view text on LCD you will need to adjust R7: contrast	
☐		Briefly short pins GND and KEY with a screwdriver	both LEDs light up – letter T appears

Notes on Audio Plugs:

Your kit is using 3.5 mm stereo jacks which accept a common three terminal plug with a tip, ring and sleeve. The tip and ring connections are connected on the PCB so that you will hear sound in both headphones. If you are using an older mono style plug (which also fits in the jack) you should make a minor change to the board. On both ends of the board you will see a pair of square solder pads. Cut the tiny trace between both pairs. If later you switch to stereo plugs, you can bridge the gap between the pads with solder.