

TB-EF v2.0.3 BOM

The part numbers may seem strange at first.

To try and simplify things, the parts that come directly from the original 303 schematic maintain the 303 original part numbering.

The parts added for this design are generally numbered 300+ for the voice board, and 400+ for the control board.

Things like IC, pots, jacks etc don't follow this numbering. They just start from part number 1 etc.

Part substitution is fine, if you have lots of 1% resistors, then go for it.

The only thing to watch is the height of electrolytics, low profile ones can be used (an example Mouser part is provided)

However standard 11mm electrolytics can be used, just lay them flat against the board (where space permits) or place them at 45degrees to the board.

Voltages also not an issue, anything over 16v should be good, maybe 25v for the 47uF in the power filtering.

Standard 11mm clearance between the two boards, so just keep that in mind.

If you are sourcing your own transistors, Aliexpress has loads of modern 733,945,1815 etc, I've tested these and they work fine and have >300hfe mostly

In the Mouser column, I've either placed a part number or search terms. Due to part shortages etc, the string that will find you suitable parts to choose from what is in stock etc.

Value	Count	Location	Mouser	Alternatives	Notes
Resistors					
5% Carbon 1/4W					
22R	2	R147,R150	Search "CFR 1K 1/4w" etc		
100R	2	R95,R152			
1K8	1	R401			*** May cause drop out on the TL072 op amp, depending on class, replace with 4K7 if issue when pushing "drive" to maximum.
2K2	7	R67,R68,R69,R70,R71,R98,R108			
4K7	2	R97A, R401			Combines with VR97 to tweak rez chirp - 10K fixed in original 303 - so if no B5K pots, try 10K and R100 here or such
10K	17	R47,R61,R64,R65,R94,R96,R109,R112,R115,R116,R142,R143,R144,R145,R148,R149,R400			
22K	5	R110,R111,R117,R146,R151			
33K	1	R62			Initial "hotness" of input signal - reduce for more "drive" distortion - but beware it reduces resonance beyond a certain point
68K	1	R138			
100K	10	R66,R73,R99,R113,R114,R122,R139			
		R140,R141,R300			
220K	2	R63,R121			
Capacitors					
MLCC					
10n	1	C305	mlcc leaded 0.01uf		2.5mm leg spacing
100n	4	C303,C304,C306,C307	mlcc leaded 0.1uf		2.5mm leg spacing
					2.5mm leg spacing
Tantalum					
1uF/35	1	C62	581-TAP105K035SRS		2.5mm leg spacing
Polyester (Nichicon QYX "yellow") - Panasonic "red" - old style "greenies" or poly box in theory					
10n	2	C20*,C21	"qyx 10nf 50v"		C20* - Marked C22 input to VCA on 303 service notes, but already C22 in filter - should be C20 !
18n	1	C18	"qyx 18nf 50v"		The "missing" 4th pole - could try 33n here to make 4pole?!
33n	3	C19,C24,C26	"qyx 33nf 50v"		
47n	1	C54	"qyx 47nf 50v"		
100n	2	C25,C27	"qyx 100nf 50v"		
Electrolytic					
0.33u/25	1	C302			Low profile, but normal 11mm will fit laying flat
1u/50	6	C14,C15,C17,C22,C23,C29			C17 - can use higher capacitance, say 10uF and will allow hotter signal into filter - especially if overdriving with R62 at lower values
10u/16	3	C16,C30,C72			
47u/25	4	C28,C55,C300,C301			
Diodes					

1N4148	5 D26,D27,D28,D37, D29	512-1N4148	See errata in build guide. D29 missing from v2.0.1 control board.
1N5817	2 D301,D302	511-1N5817	

IC			
4066	1 IC1	595-CD4066BE	MC14066B,HD14066BP
78L05	1 IC2	511-L78L05ABZ	
TL072	1 IC3	595-TL074ACN	

Transistors				
2SC1583	2 or 0 Q12,Q21	NOS rare part	*	If you use Q12 and Q21 leave Q12A,Q12B,Q21A and Q21B empty
2SC2291	1 or 0 Q22	NOS rare part	*	If you use Q22 leave Q22A and Q22B empty
2SA733P	3 Q9,Q10,Q38	NOS rare part	2SA1015,2SA608**	
2SC945P	15 or 21			
	Q11,Q13,Q14,Q15,Q16,Q17,Q18,Q19			
	Q20,Q23,Q35,Q36,Q37,Q40,Q41			
	[Q12A,Q12B,Q21A,Q21B,Q22A,Q22B]	NOS rare part	2SA1815,2SC536F**	If you use Q26A and Q26B then leave Q26 empty
2SK30A-Y	1	NOS rare part		

* To be clear, the board has space for either. If you don't have any 1583,2291 as real ones are getting harder to find and can be costly, a matched pair of the NPN you are using will be fine. So if you are using a matched pair, use the A and B locations, and ignore the 5 pin footprints.

** Ignore most of the voodoo around transistor types, the original 303 used all NPN types listed during production, so any will be fine.

These are provided in the partial kit option.

Trimmer			
500K	1 TM3	652-3362P-1-504LF	3362

Misc				
B5K	1 VR97-CHIRP	Thonk etc	9mm alpha	See notes re R97A - can use B10K with different resistor at R97A
B50K	1 VR4-REZ	Thonk etc	9mm alpha	
A50K	2 VR3-CUTOFF, VR5-ENV-MOD	Thonk etc	9mm apha	
A100K	1 VR1-DRIVE	Thonk etc	9mm alpha	
A1M	1 VR2-ACCENT	Thonk etc	9mm alpha	
PJ301M	5 U1-U5	Thonk etc		Thonkiconn
PWR	1			10pin euro power header or 2x5 pin header
1x3	2			1x3 male header 2.54mm
1x5	1			1x5 male header 2.54mm
2x3	2			2x3 male header 2.54mm
1x3	2			1x3 female header 2.54mm
1x5	1			1x5 female header 2.54mm
2x3	2			2x3 female header 2.54mm
11mm	4 Standoff			
3mm	8 Screws			