

T.O.S.

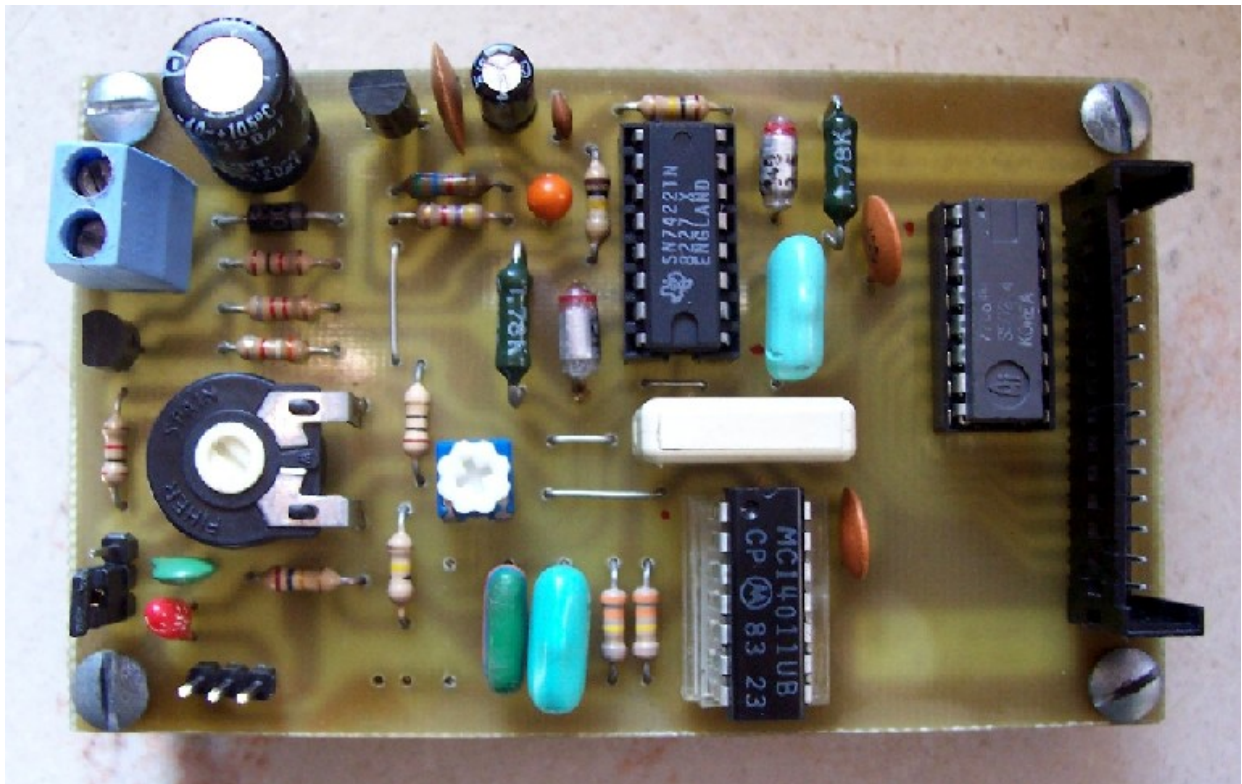
13-note Top Octave Synthesizer

with

M083B1 / M082B1

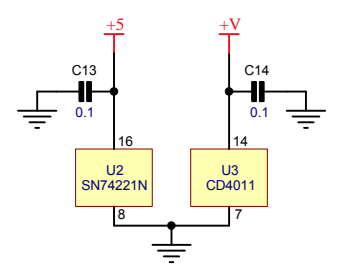
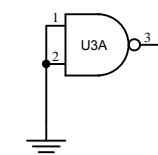
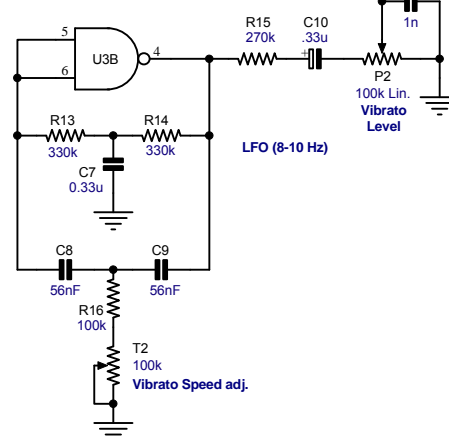
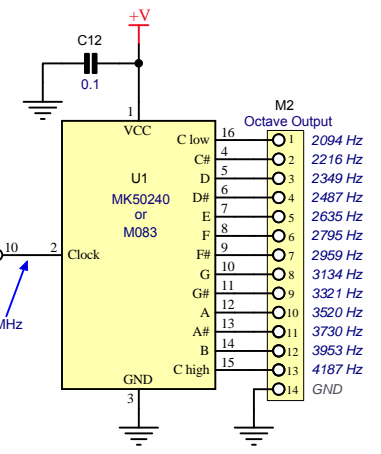
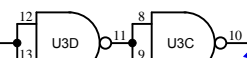
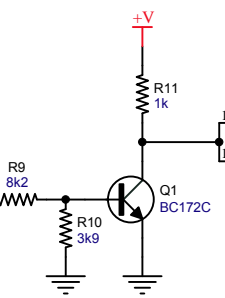
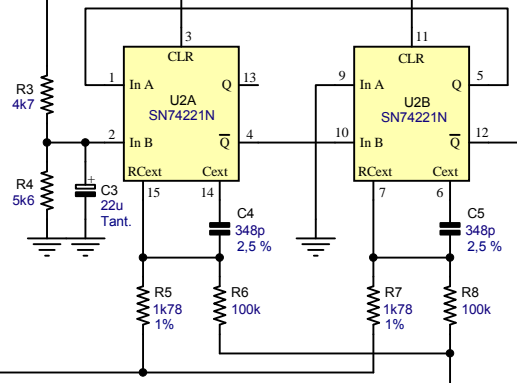
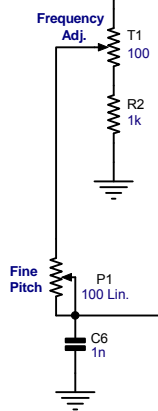
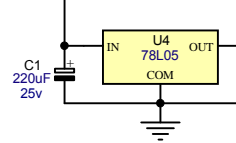
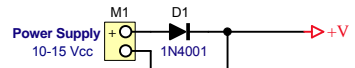
MK50240 / MK50241

S50240 / S50241 / S50244



SERVICE MANUAL

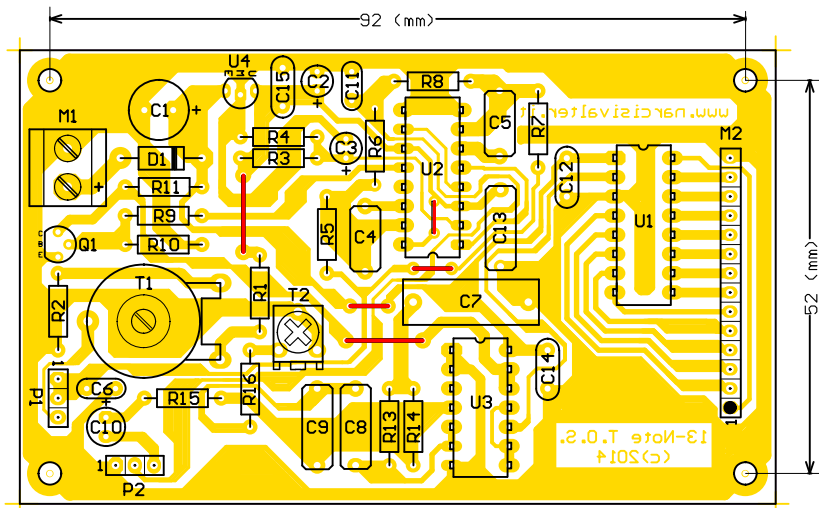




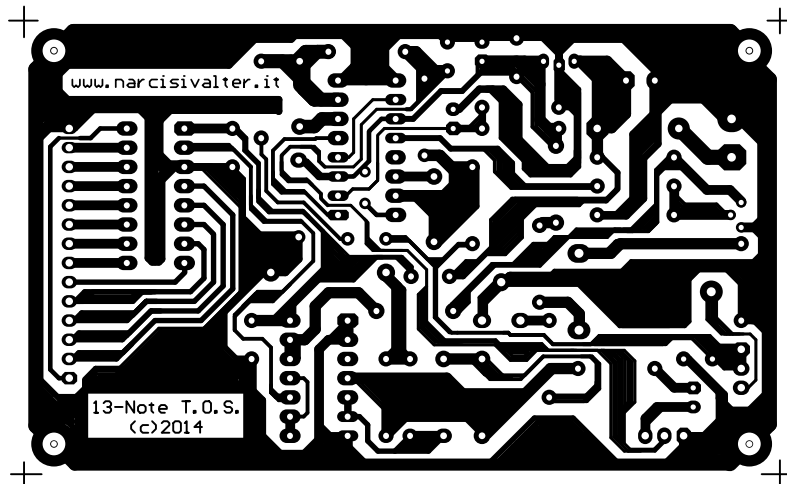
<i>Author:</i> Valter Narcisi - San Benedetto del Tronto (AP)				
<i>Project:</i> TOS - 13-note Top Octave Synth. with M083B1				<i>Year:</i> 2014
<i>Size:</i> —	<i>DWG no.</i> 1	<i>Rev.:</i> 1	<i>Scale:</i> 1:1	<i>Sheet:</i> 1 of 1
<i>Note:</i> www.narcisivalter.it - info@narcisivalter.it				

13-Note Top Octave Synthesizer (M082B1-M083B1-MK50240-MK50241-S50240-S50241-S50244)

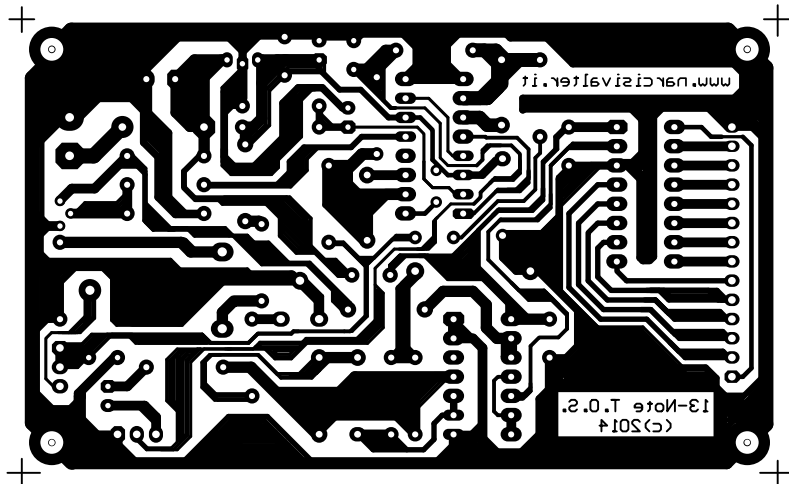
Used	Part Type	Designator	Description
1	220uF	C1	Condensatore Elettrolitico
1	100uF	C2	Condensatore Elettrolitico
1	22u	C3	Condensatore Elettrolitico
2	348p	C4 C5	Condensatore Ceramico/Poliestere
2	1n	C6 C11	Condensatore Ceramico/Poliestere
1	0.33u	C7	Condensatore Ceramico/Poliestere
2	56nF	C8 C9	Condensatore Ceramico/Poliestere
1	.33u	C10	Condensatore Elettrolitico
3	0.1	C12 C13 C14	Condensatore Ceramico/Poliestere
1	47nF	C15	Condensatore Ceramico/Poliestere
1	10	R1	Resistenza
2	1k	R2 R11	Resistenza
1	4k7	R3	Resistenza
1	5k6	R4	Resistenza
2	1k78	R5 R7	Resistenza
3	100k	R6 R8 R16	Resistenza
1	8k2	R9	Resistenza
1	3k9	R10	Resistenza
1	-	R12	Eliminata
2	330k	R13 R14	Resistenza
1	270k	R15	Resistenza
1	78L05	U4	Stab. Pos. 78L05 (100 mA)
1	100	T1	Trimmer
1	100 Lin.	P1	Potenziometro
1	100k	T2	Trimmer
1	100k Lin.	P2	Potenziometro
1	1N4001	D1	Diodo
1	BC172C	Q1	Transistor NPN
1	M083B1/MK50240	U1	TOS - 13 Note Top Octave Synthesizer
1	SN74221N	U2	SC74221N - Dual Monostable Multivibrators
1	CD4011	U3	CD4011 - Quad 2-Input NAND
1	2-Vie	M1	Morsettiera 2 vie
1	14-Vie	M2	Connettore 14 vie



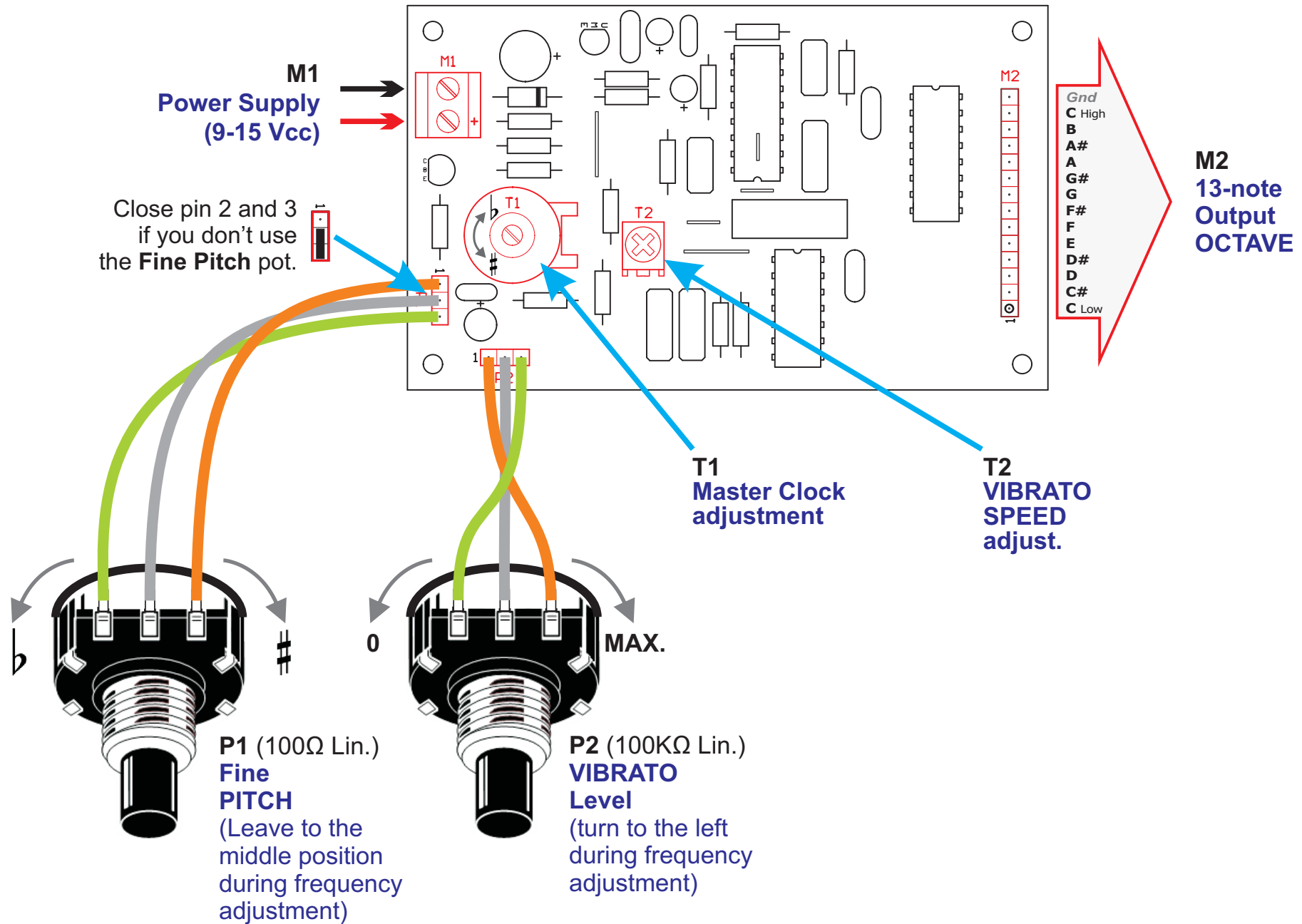
PCB 13-note Top Octave Synthesizer (100 x 60 mm)



MASTER - Copper side (Lato rame)



MASTER - Mirror side (specchio)



AMI
S50240 - S50241
S50243 - S50244

MOSTEK
MK50240 - MK50241

STMicroelectronics
M082B1 - M083B1

13-note Top Octave Synthesizer

Chip Package: **DIP16**

Power Supply (min./max.): **5 ÷ 18 V**
 Power Supply (typ.): **9 ÷ 15 V**

Duty Cycle: **50%**
S50240 - S50243 - MK50240 - M083B1

Duty Cycle: **30%**
S50241 - S50244 - MK50241 - M082B1
(C Low is always 50%)



Pin No.	Note	Div.	Freq. Output	
			Master Clock (kHz)	
			999,680	1999,360
16	C Low	478	2091,38 Hz	4182,76 Hz
4	C#	451	2216,56 Hz	4433,17 Hz
5	D	426	2346,67 Hz	4693,33 Hz
6	D#	402	2486,76 Hz	4973,53 Hz
7	E	379	2637,68 Hz	5275,36 Hz
8	F	358	2792,40 Hz	5584,80 Hz
9	F#	338	2957,63 Hz	5915,27 Hz
10	G	319	3133,80 Hz	6267,59 Hz
11	G#	301	3321,20 Hz	6642,39 Hz
12	A	284	3520,00 Hz	7040,00 Hz
13	A#	268	3730,15 Hz	7460,30 Hz
14	B	253	3951,30 Hz	7902,61 Hz
15	C High	239	4182,76 Hz	8365,52 Hz

TOS integrated circuits

13-Note Top Octave Generator		12-Note Top Octave Generator	
Integrated Circuits	Brand	Integrated Circuits	Brand
S50240 - S50241 S50243 - S50244	AMI	MK50242	Mostek
MK50240 MK50241	Mostek	S50242 S50245	AMI
M082B1 - M082AB1 M083B1 - M083AB1	SGS-Ates (STMicroelectronics)	M086B1 - M086AB1 M087B1	SGS-Ates (STMicroelectronics)
MM5891AA MM5891AB	National	AY-1-0212 AY-3-0214	General Instruments
SFF5011	Sescosem	SFF5009 SFF5010	Sescosem
SAA1030	ITT	TMS3616 TMS36161	Texas Instruments
S2555 - S2556	AMI		
MM5555 - MM5556 MM5832 - MM5833	National		
M8071 - LM8071	Sanyo		
<p>The chips in RED color require a double power supply</p> <p>http://www.narcisivalter.it/progetti/tos_m083.html</p>			