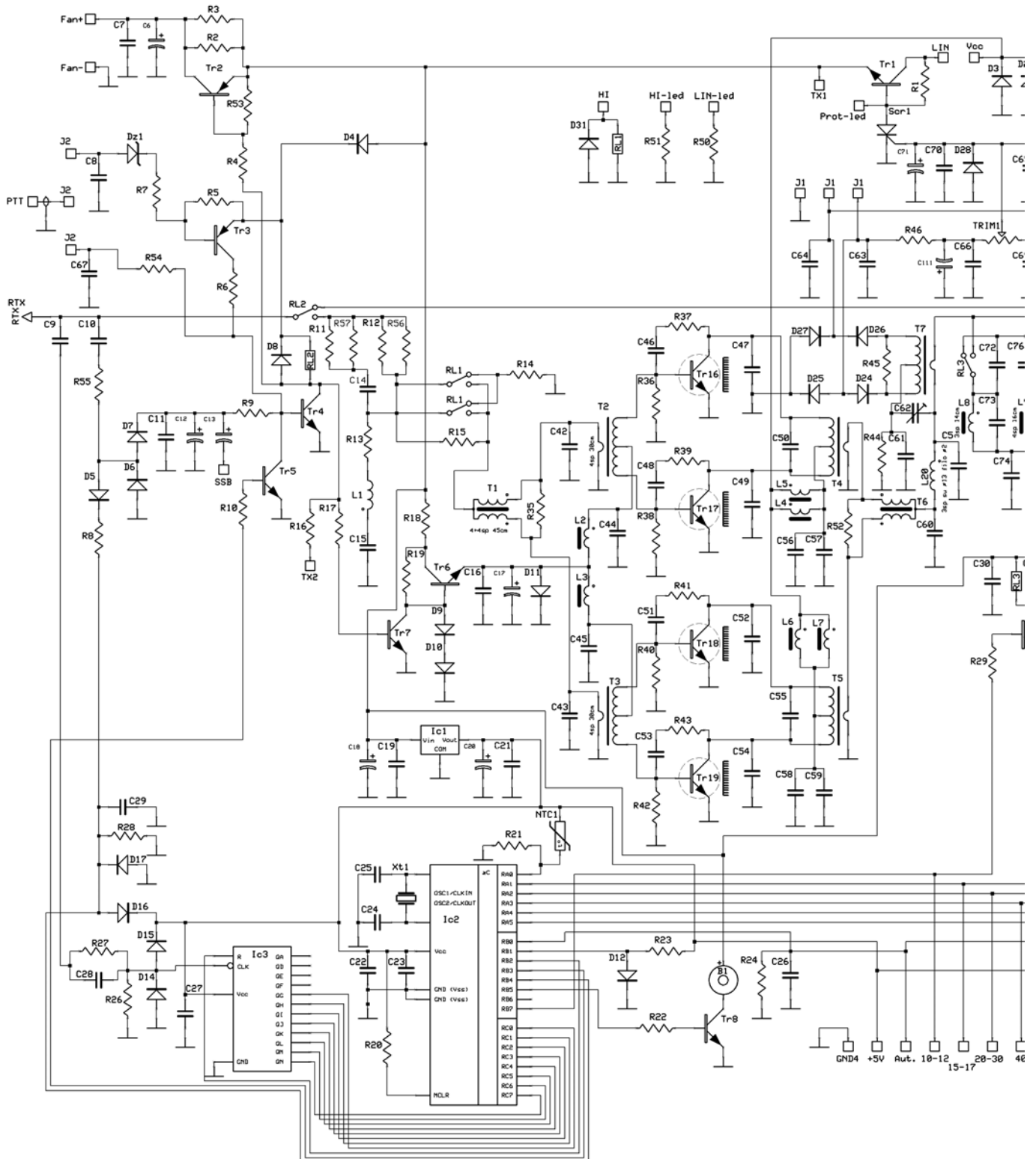
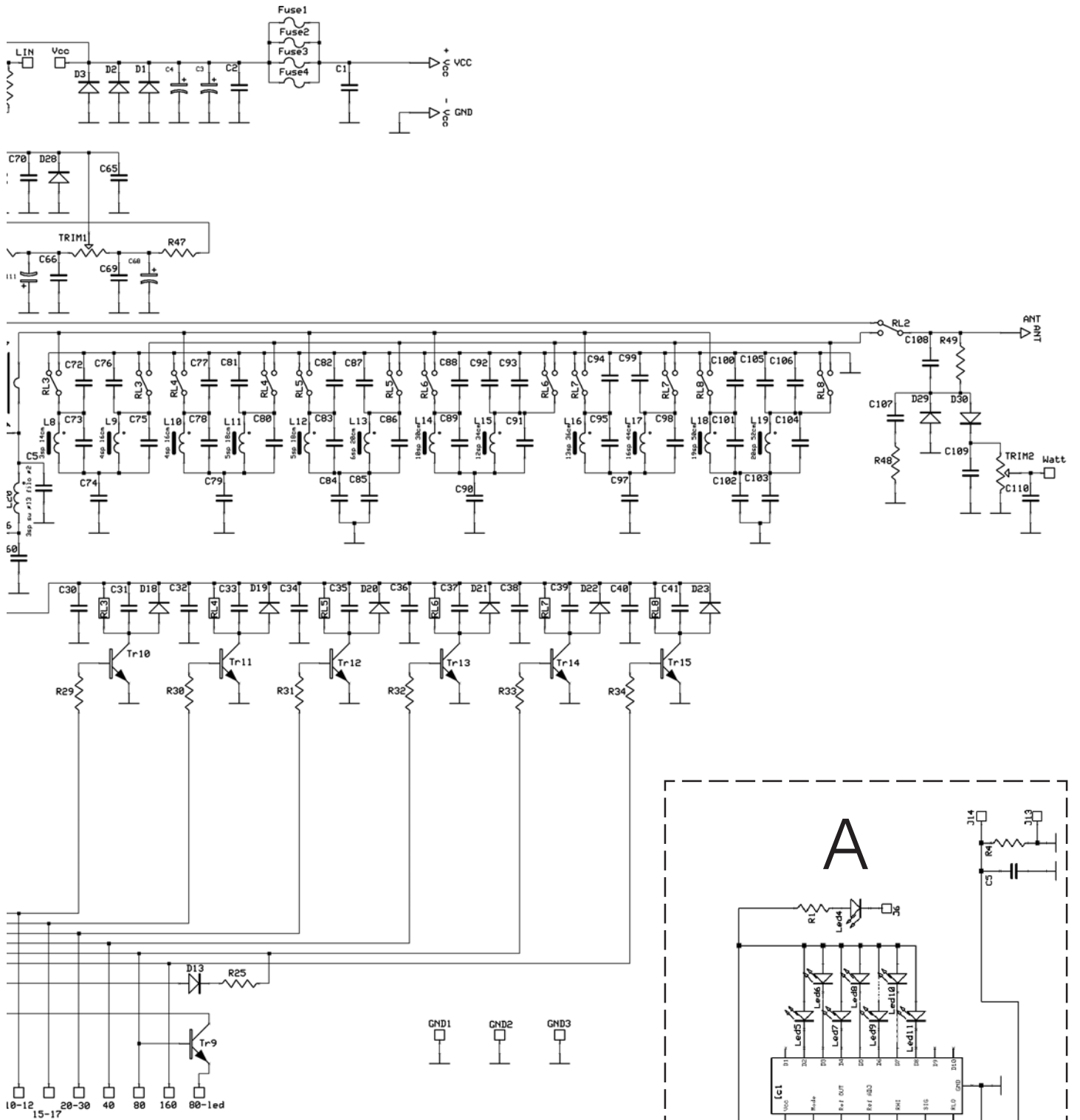


Mod. HLA 300 linear amplifier

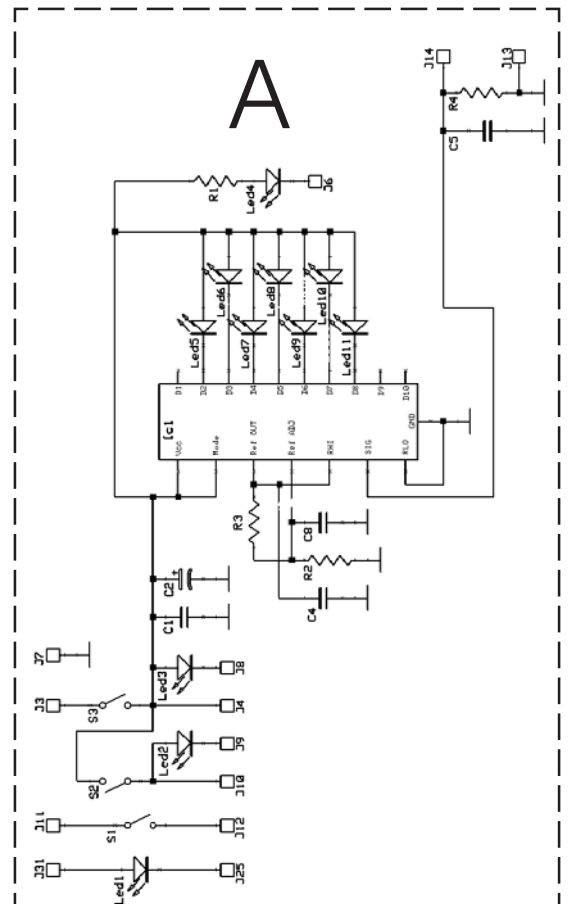
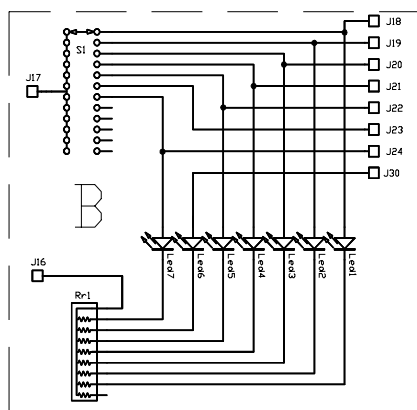
Schematic diagram

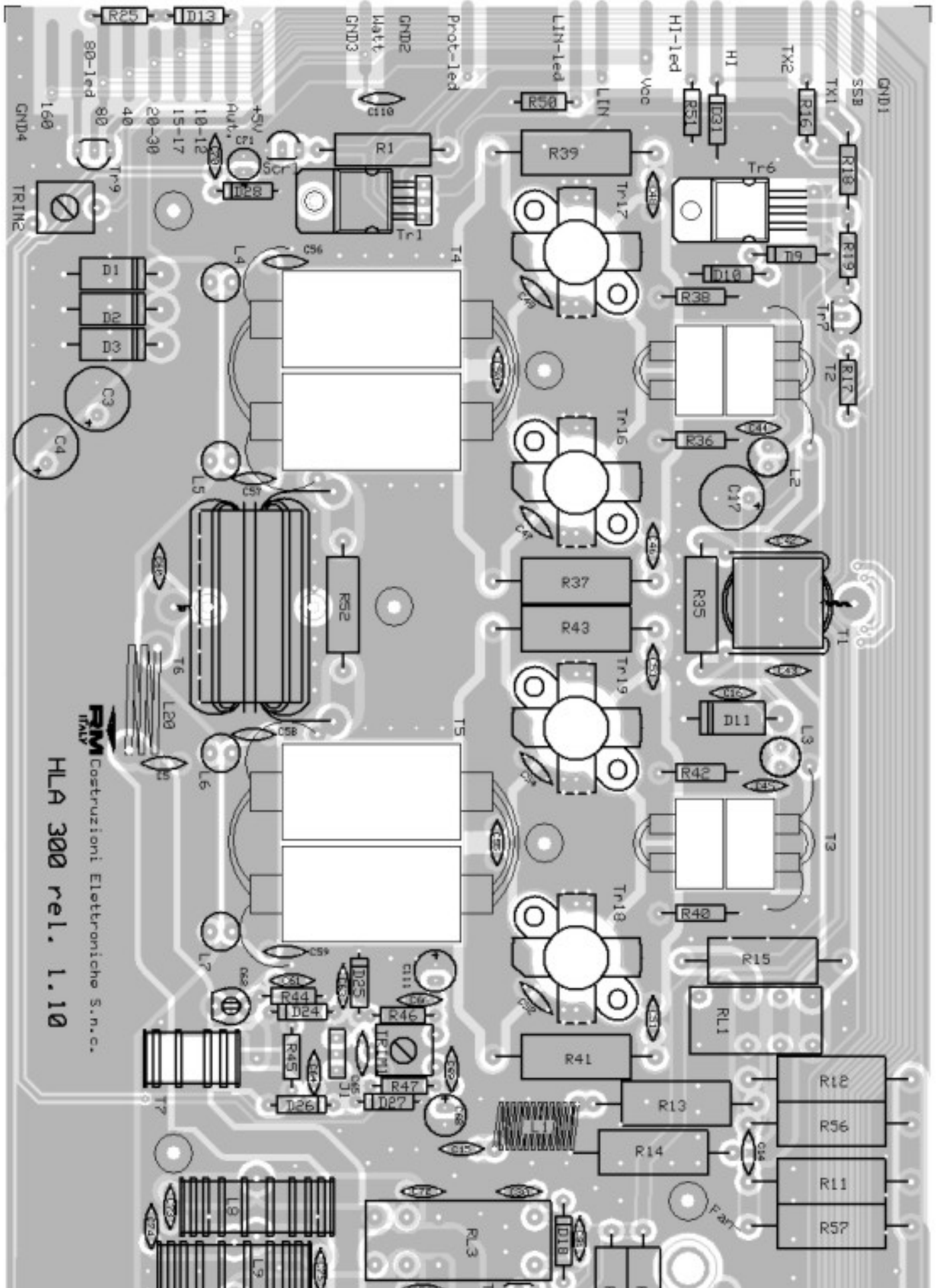
Version 1.10



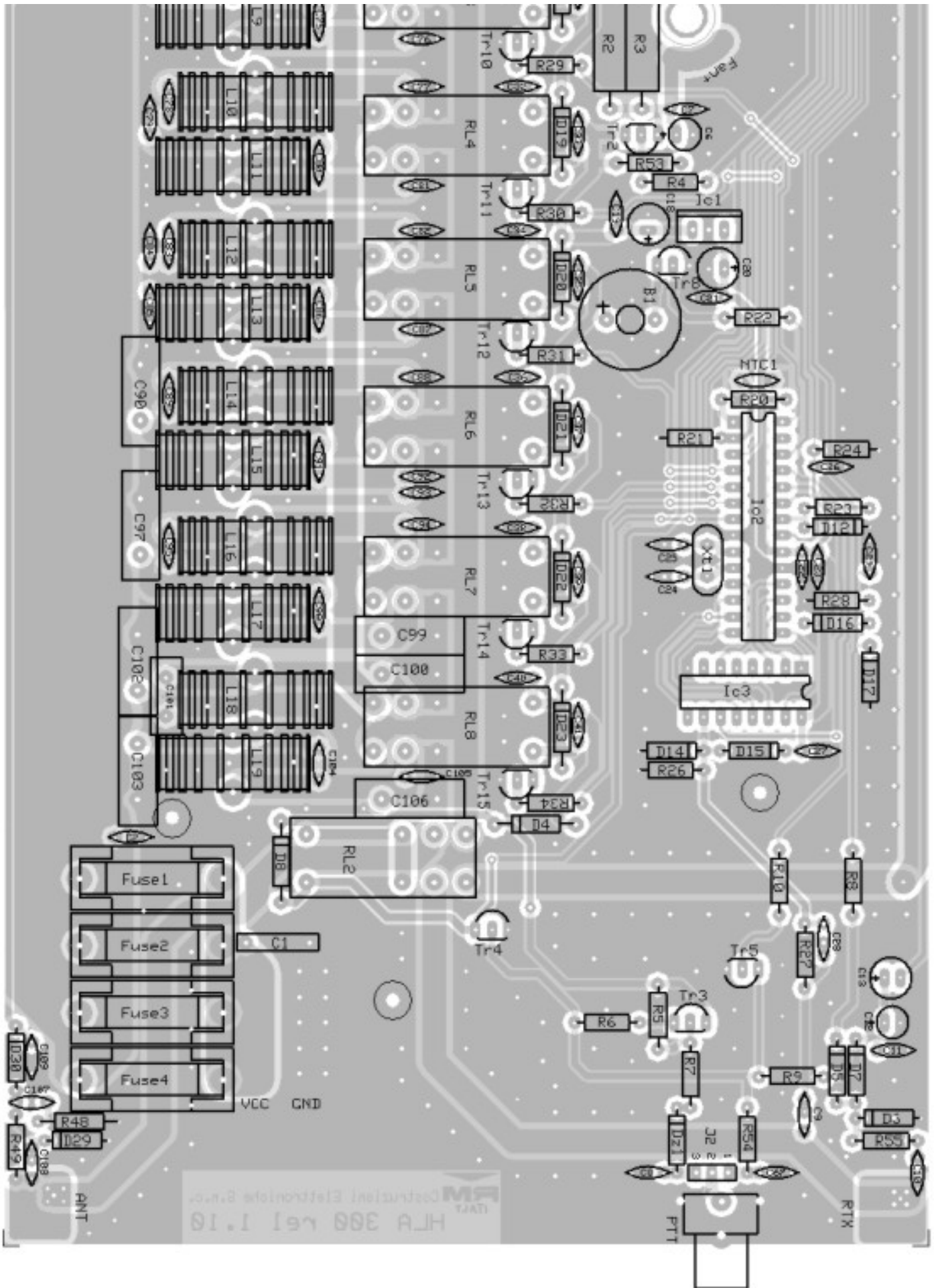


10-12 15-17 20-30 40 80 160 80-led

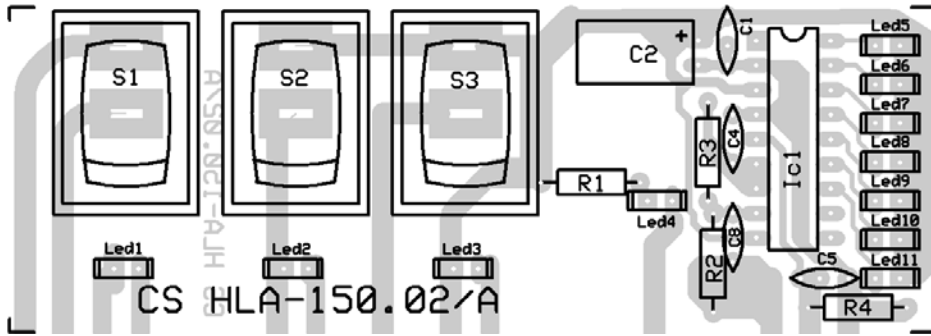




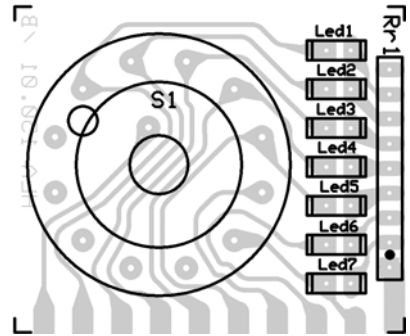
RM
 ITALY
 Costruzioni Elettroniche S.n.c.
 HLA 300 rel. 1.10



Board A



Board B



List of components

C 1 = 470 nF	100 V	Polyester	C 61 = 470 pF	50 V	N750
C 2 = 100 nF	50 V		C 62 = HCU06C100	3-10 pF (Bianco)	
C 3 = 470 µF	25 V		C 63 to C 67 = 100 nF	50 V	
C 4 = 470 µF	25 V		C 68 = 33 µF	25 V	
C 5 = 22 pF	500 V	NP0	C 69 = 100 nF	50 V	
C 6 = 22 µF	25 V		C 70 = 100 nF	50 V	
C 7 = 100 nF	50 V		C 71 = 10 µF	25 V	
C 8 = 100 nF	50 V		C 72 = 8,2 pF	500 V	NP0
C 9 = 15 pF	50 V	NP0	C 73 = 33 pF	500 V	NP0
C 10 = 2,2 nF	50V		C 74 = 150 pF	500 V	NP0
C 11 = 100 nF	50 V		C 75 = 12 pF	500 V	NP0
C 12 = 2,2 µF	25 V		C 76 = 100 pF	500 V	NP0
C 13 = 33 µF	25 V		C 77 = 47 pF	500 V	NP0
C 14 = 22 pF	500 V	NP0	C 78 = 33 pF	500 V	NP0
C 15 = 10 nF	50 V		C 79 = 220 pF	500 V	NP0
C 16 = 100 nF	50 V		C 80 = 15 pF	500 V	NP0
C 17 = 470 µF	25 V		C 81 = 100 pF	500 V	NP0
C 18 = 10 µF	25 V		C 82 = 82 pF	500 V	NP0
C 19 = 100 nF	50 V		C 83 = 82 pF	500 V	NP0
C 20 = 22 µF	25 V		C 84 = 100 pF	500 V	NP0
C 21 = 100 nF	50 V		C 85 = 220 pF	500 V	NP0
C 22 = 220 nF	50 V	Multilayer	C 86 = 56 pF	500 V	NP0
C 23 = 100 nF	50 V		C 87 = 150 pF	500 V	NP0
C 24 = 27 pF	50 V	NP0	C 88 = 180 pF	500 V	NP0
C 25 = 27 pF	50 V	NP0	C 89 = 100 pF	500 V	NP0
C 26 = 100 nF	50 V		C 90 = 620 pF	500 V	Silvered mica
C 27 = 100 nF	50 V		C 91 = 33 pF	500 V	NP0
C 28 = 4,7 pF	50 V	NP0	C 92 = 220 pF	500 V	NP0
C 29 = 10 nF	50 V		C 93 = 100 pF	500 V	NP0
C 30 to C 41 = 100 nF	50 V		C 94 = 150 pF	500 V	NP0
C 42 = 100 pF	50 V	NP0	C 95 = 120 pF	500 V	NP0
C 43 = 100 pF	50 V	NP0	C 96 = not present		
C 44 = 100 nF	50 V		C 97 = 1300 pF	500 V	Silvered mica
C 45 = 100 nF	50 V		C 98 = 82 pF	500 V	NP0
C 46 = 47 nF	50 V		C 99 = 620 pF	500 V	Silvered mica
C 47 = 180 pF	500 V	NP0	C 100 = 1600 pF	500 V	Silvered mica
C 48 = 47 nF	50 V		C 101 = 390 pF	500 V	Silvered mica
C 49 = 180 pF	500 V	NP0	C 102 = 1600 pF	500 V	Silvered mica
C 50 = 620 + 390 pF	500V	Silvered mica	C 103 = 560 pF	500 V	Silvered mica
C 51 = 47 nF	50 V		C 104 = 150 pF	500 V	NP0
C 52 = 180 pF	500 V	NP0	C 105 = 390 pF	500 V	Silvered mica
C 53 = 47 nF	50 V		C 106 = 620 pF	500 V	Silvered mica
C 54 = 180 pF	500 V	NP0	C 107 = 33 pF	50 V	NP0
C 55 = 620 + 390 pF	500V	Silvered mica	C 108 = 2,2 pF	50 V	NP0
C 56 to C 59 =	100 nF	50 V	C 109 = 100 nF	50 V	
C 60 = 82 pF	500 V	NP0	C 110 = 10 nF	50 V	

C₁₁₁ = 22 μ F 25 V
 R₁ = 330 Ω 2W
 R₂ = 68 Ω 2W
 R₃ = 68 Ω 2W
 R₄ = 1,0 K Ω 1/4W
 R₅ = 2,2 K Ω 1/4W
 R₆ = 4,7 K Ω 1/4W
 R₇ = 10 K Ω 1/4W
 R₈ = 10 K Ω 1/4W
 R₉ = 2,2 K Ω 1/4W
 R₁₀ = 1,0 K Ω 1/4W
 R₁₁ = 68 Ω 5W
 R₁₂ = 68 Ω 5W
 R₁₃ = 68 Ω 5W
 R₁₄ = 150 Ω 2W
 R₁₅ = 39 Ω 2W
 R₁₆ = 1,0 K Ω 1/4W
 R₁₇ = 10 K Ω 1/4W
 R₁₈ = 1,0 Ω 1/2W
 R₁₉ = 680 Ω 1/4W
 R₂₀ to R₂₃ = 4,7 K Ω 1/4W
 R₂₄ = 10 K Ω 1/4W
 R₂₅ = 220 Ω 1/4W
 R₂₆ = 22 K Ω 1/4W
 R₂₇ = 4,7 K Ω 1/4W
 R₂₈ = 1,0 M Ω 1/4W
 R₂₉ to R₃₄ = 4,7 K Ω 1/4W
 R₃₅ = 100 Ω 2W
 R₃₆ = 10 Ω 1/2W
 R₃₇ = 68 Ω 5W
 R₃₈ = 10 Ω 1/2W
 R₃₉ = 68 Ω 5W
 R₄₀ = 10 Ω 1/2W
 R₄₁ = 68 Ω 5W
 R₄₂ = 10 Ω 1/2W
 R₄₃ = 68 Ω 5W
 R₄₄ = 1,0 K Ω 1/4W
 R₄₅ = 47 Ω 1/4W
 R₄₆ = 10 K Ω 1/4W
 R₄₇ = 1,0 K Ω 1/4W
 R₄₈ = 27 Ω 1/2W
 R₄₉ = 10 K Ω 1/4W
 R₅₀ = 1,0 K Ω 1/4W
 R₅₁ = 1,0 K Ω 1/4W
 R₅₂ = 100 Ω 2W
 R₅₃ = 1,0 K Ω 1/4W
 R₅₄ = 2,2 K Ω 1/4W
 R₅₅ = 2,2 K Ω 1/4W
 R₅₆ = 68 Ω 5W
 R₅₇ = 68 Ω 5W
 NTC₁ = 4,7 K Ω
 B₁ = Buzzer 12V ARIMB12A12
 Trim₁ = Trimmer PT10LH 10 K Ω
 Trim₂ = Trimmer PT10LH 10 K Ω
 D₁ to D₃ = 1N5400
 D₄ = 1N4007
 D₅ to D₇ = 1N4148
 D₈ to D₁₀ = 1N4007
 D₁₁ = 1N5400
 D₁₂ = Not present

D₁₃ to D₁₇ = 1N4148
 D₁₈ to D₂₃ = 1N4007
 D₂₄ to D₃₀ = 1N4148
 D₃₁ = 1N4007
 Dz₁ = Zener 7,5 V 1/2W
 Fuse₁ to Fuse₄ = 10 A Fast
 Ic₁ = LM 7805
 Ic₂ = Micro RM3
 Ic₃ = 74HC4020
 Tr₁ = BDX 53 BFP
 Tr₂ = BC 327
 Tr₃ = BC 557 B
 Tr₄ - Tr₅ = BC 547 B
 Tr₆ = BD 241 BFP
 Tr₇ - Tr₁₅ = BC 547 B
 Tr₁₆ to Tr₁₉ = SD 1446
 Xt₁ = Xtal 11.059 MHz
 Scr₁ = P0102
 Rl₁ = 30229012
 Rl₂ to Rl₈ = 41529012
 T₁ = Input Decoupler Transformer
 T₂ and T₃ = Input Transformers
 T₄ and T₅ = Output Transformers
 T₆ = Output Coupler Transformer
 T₇ = ANRA 700/12
 L₁ = ANRA 455
 L₂ and L₃ = FH002100
 L₄ to L₇ = FH002110
 L₈ = ANRA 725
 L₉ and L₁₀ = ANRA 725/1
 L₁₁ and L₁₂ = ANRA 725/2
 L₁₃ = ANRA 725/3
 L₁₄ = ANRA 725/4
 L₁₅ = ANRA 725/5
 L₁₆ = ANRA 725/6
 L₁₇ = ANRA 725/7
 L₁₈ = ANRA 725/8
 L₁₉ = ANRA 725/9
 L₂₀ = 3 turn wire ϕ 2 mm on ϕ 13 mm
 PTT = GP305522

Board A

C₁ = 10 nF 50 V
 C₂ = 10 μ F 16 V
 C₄ = 10 nF 50 V
 C₅ = 10 nF 50 V
 C₈ = 10 nF 50 V
 R₁ = 1,0 K Ω 1/4W
 R₂ = 8,2 K Ω 1/4W
 R₃ = 1,0 K Ω 1/4W
 R₄ = 4,7 K Ω 1/4W
 Ic₁ = LM 3915
 Led₁ - Led₁₁ = LED

Board B

S₁ = Switch 1 way 7 positions
 Rr₁ = Resistor networks 7 x 220 Ω
 Led₁ - Led₇ = LED