

L'ÉLECTRO ACOUSTIQUE APPLIQUÉE

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-*- SQUARE 1000 -*-

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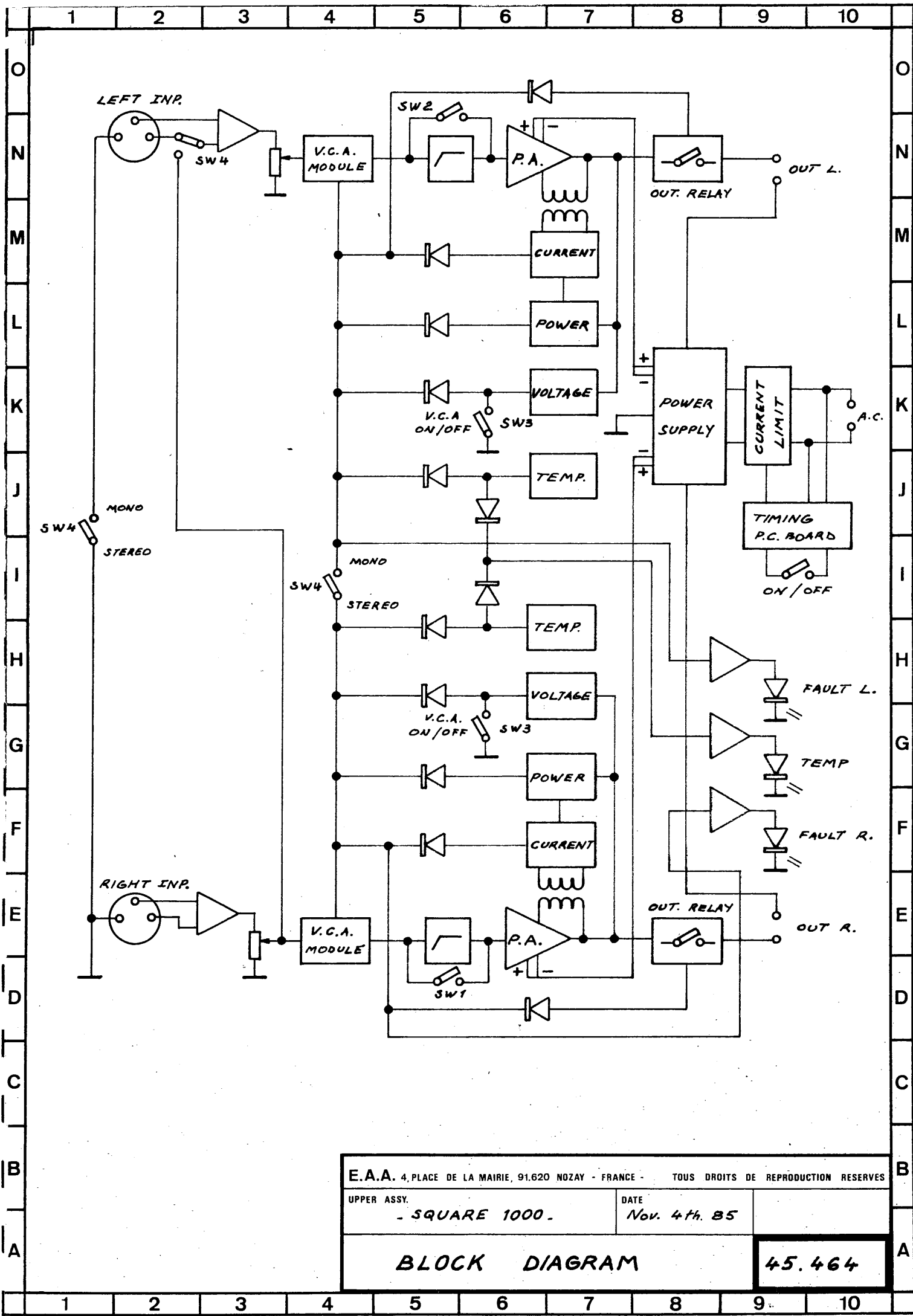
SCHEMATIC DIAGRAMS

AND

CALIBRATION PROCEDURE

Rev. April 1986

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E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.

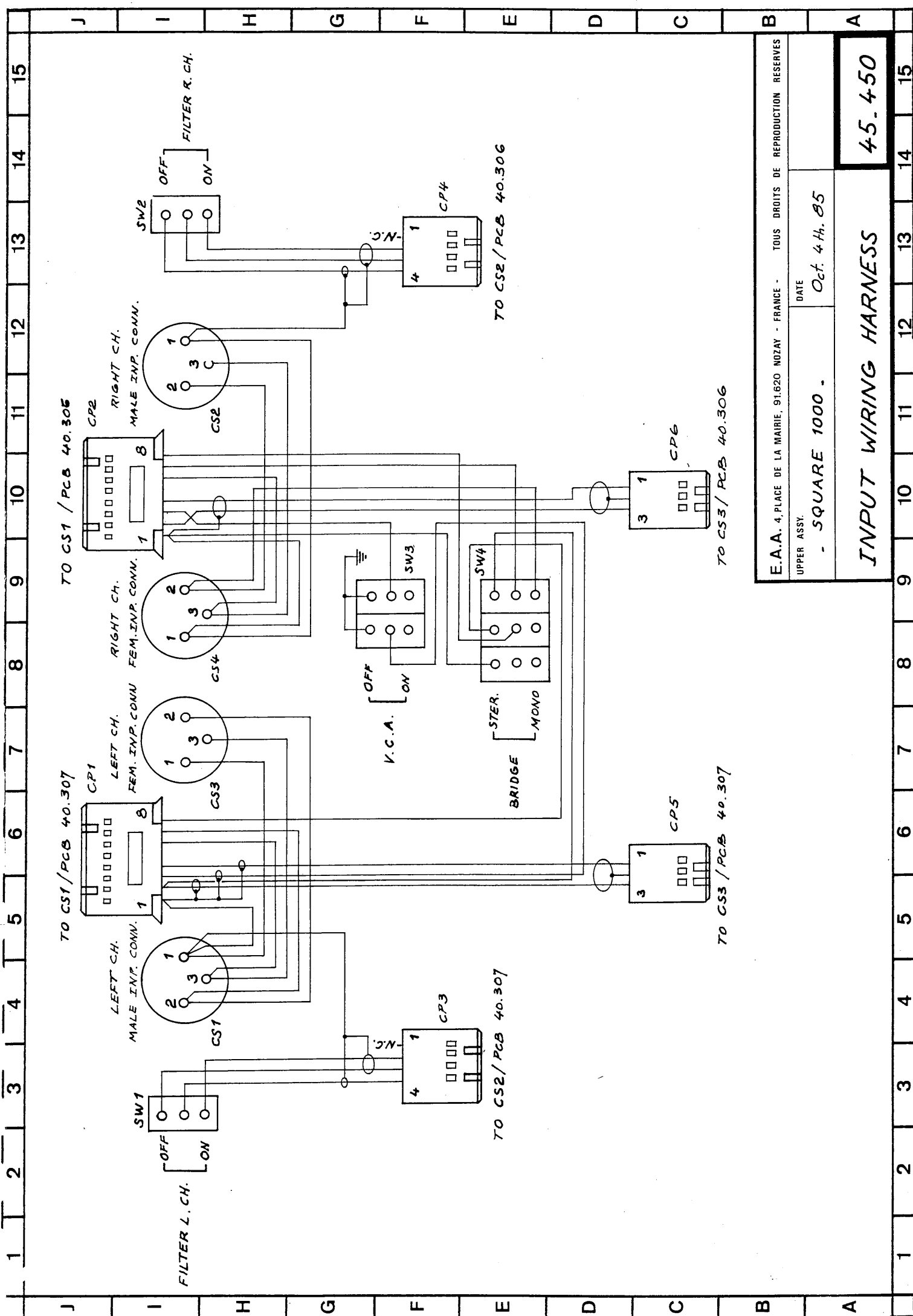
- SQUARE 1000 -

DATE

Nov. 4th. 85

BLOCK DIAGRAM

45.464



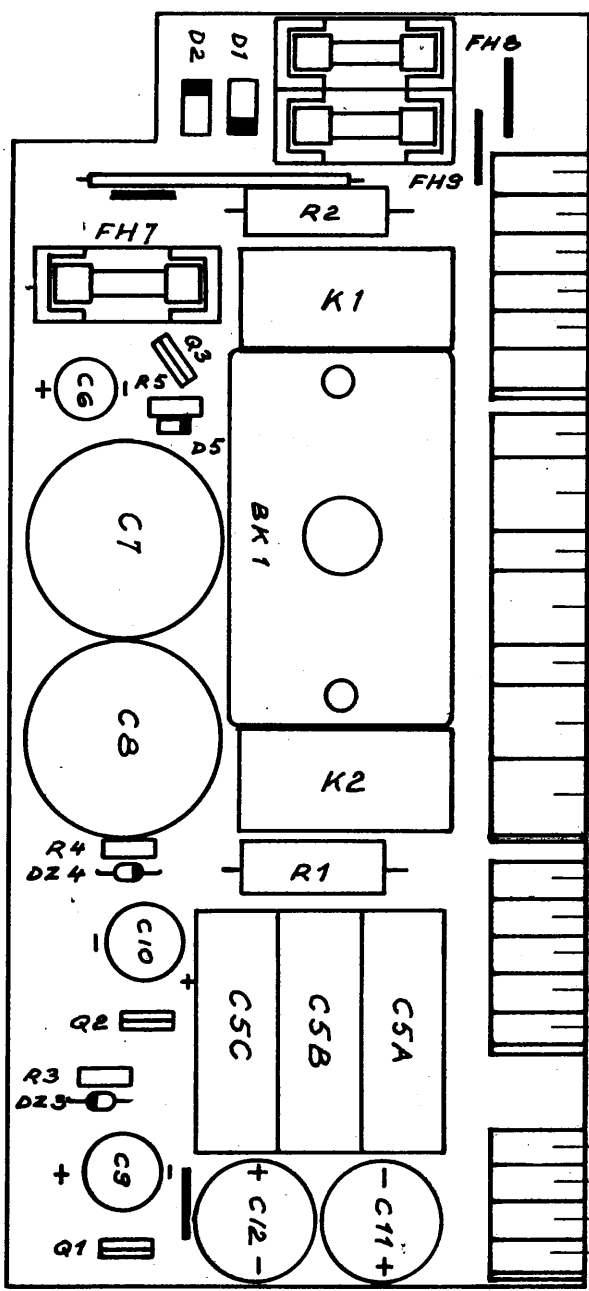
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UPPER ASSY.	DATE		
SQUARE 1000 -	Oct. 4th. 85		
INPUT WIRING HARNESS		45-450	

[illegible]

Item no.	Sch.ref.	Description	Qty.	EAA Part number
852	B 1	I Blower, 45 l/s, 115VAC, 50/60 Hz, 20W, ref. 4600N	1	4600N
853	BB 1	I Bus bar, grounding, ref. 33.318D	1	33.318D
855	C 1	I Capacitor, electrolytic, case 72x114mm, 22000 to 30000 mF, 100V	4	374579
856	C 2	I Ident. to C1	1	
857	C 3	I Ident. to C1	1	
858	C 4	I Ident. to C1	1	
859	C 13	I Capacitor, film, 0.1 to 0.22mF, 250V	2	
860	C 14	I Ident. to C13	1	
861	CP 1	I Clamp for power cord, ref. DMB	1	DMB
863	DB 1	I Diode bridge, 25A 400V, ref. FB3504	3	FB3504
864	DB 2	I Ident. to DB1	1	
865	DB 3	I Ident. to DB1	1	
867	F 1	I Fuse, 1/4" x 1 1/4", slo-blow, 20A, ref. 313020	2	313020
868	F 2	I Ident. to F1	1	
869	F 3	I Fuse, 1/4" x 1 1/4", slo-blow, 25A, ref. 326025	4	326025
870	F 4	I Ident. to F3	1	
871	F 5	I Ident. to F3	1	
872	F 6	I Ident. to F3	1	
873	FH1	I Fuse holder, ref. 345603	2	345603
874	FH2	I Ident. to FH1	1	
875	FH3 + FH4	I Fuse holder, ref. 354802-6Y	2	354802-6Y
876	FH5 + FH6	I Ident. to FH3+FH4	1	
878	PC 1	I Power cord, H07-RNF 3x2.5mm2	1	H07-RNF-3x2.5
880	SW 1	I Switch, toggle, 1 section, ref. 5636A16	1	5636A16
882	T 1	I Transformer, 115/240 VAC, 50/60 Hz, ref. AD32C1TM	1	AD32C1TM
883	TB1 + TB2	I Terminal block assembly, including:	1	TB1+TB2
884		I - 4 Terminal block, ref. 261-301	1	
885		I - 1 End plate, ref. 261-361	1	
886	TB 3	I Terminal block assembly, including:	1	TB3
887		I - 2 Terminal block, ref. 262-301	1	
888		I - 1 End plate, ref. 262-361	1	
889	TSW 1	I Thermo-switch, normally open contact, ref. 65-0-98-22-040-030	2	65-0-98-22-040-030
890	TSW 2	I Ident. to TSW1	1	
892		I Transformer assembly,	1	AD32C1TM/ASSY.
893		I (including: transformer, transformer brackets and hardware)	1	
895		I Power capacitors assembly	1	374579/ASSY.
896		I (including capacitors C1 to C4, bus bar BB1 and connect. cables)	1	

Item no.	Sch.ref.	Description	Qty.	EAA Part number
902	Y 3	I Transformer, lower bracket, ref. 23.292E	1	23.292E
903	Y 4	I Transformer, upper bracket, ref. 23.293E	1	23.293E
		I	1	
		I	1	
		I	1	
		I Hardware used to secure blower B1	1	
908	Z 5	I Machine screw, metric, TC-4x50	4	TC4x50
		I	1	
		I	1	
		I Hardware used to secure bus bar BB1	1	
912	Z 6	I Machine screw, metric, TC-4x10	4	TC4x10
913	Z 7	I Lockwasher, Z14	8	Z14
914	Z 8	I Hex. nut, metric, Hm4	4	Hm4
915	X 12	I Tabs, grounding terminals, ref. 300B6	1	300B6
		I	1	
		I	1	
		I Hardware used to secure electrolytic power capacitors C1 to C4	1	
919	Y 5	I Capacitor bracket, ref. 33.299B	2	33.299B
920	Z 9	I Hex. machine screw, metric, TH5x50	2	TH-5x50
921	Z 10	I Washer, flat, M5x12	2	M5x12
		I	1	
		I	1	
		I Hardware used to secure diode bridges DB1 to DB3	1	
925	Z 11	I Machine screw, metric, TFHC5x20	3	TFHC5x20
926	Z 12	I Hex. nut, metric, Hm5	3	Hm5
		I	1	
		I	1	
		I Hardware used to secure fuse holders FH3 to FH6	1	
930	Z 13	I Pop rivet, 3.2x8mm	4	TAP/046
		I	1	
		I	1	
		I Hardware used to secure toggle switch SW1	1	
934	Z 4	I Dress nut, ref. U500	1	U500
		I	1	
		I	1	
		I Hardware used to secure transformer T1	1	
938	Z 14	I Machine screw, metric, TFHC5x12	6	TFHC5x12
939	Z 15	I Hex. machine screw, metric, TH6x80	4	TH6x80
940	Z 16	I Snap-in nut metric, M6, ref. NUT0956	4	NUT0956
941	Z 17	I Washer, flat, L6x18	4	L6x18
942	Z 18	I Lockwasher, W6	4	W6
943	Z 19	I Grounding rivet, pop type, ref. 7240360	3	7240360
944	X 13	I Spacer, snap-in, height 10.5mm, ref. 223.01.1024	4	223.01.1024
945	X 14	I Damper, silicone rubber, ref. PARA.80x25x1	8	PARA.80x25x1
		I	1	
		I	1	

PARTS LIST			2 of 2	45.480



- 22
- BLUE - TO DISPLAY MOD./E
- FROM T1/S3 +
- FROM T1/S4 +
- FROM T1/S3 -
- FROM T1/S4 -
- N.C.
- FROM T1/P1 +
- BROWN FROM FH1
- TO T2/P - DISPLAY MOD.F
- BLUE FROM FH2
- TO T2/P - DISPLAY MOD.G
- BLUE - TO DISPLAY MOD./D
- FROM T1/P2 -
- BLACK - TO FAN B1
- TO TSW2
- TO TSW1
- TO TSW2
- TO TSW1
- BROWN - COMMUN TO DB3
- BLACK - COMM. TO DISP./C
- BLUE - -15V TO DISP./B
- RED - +15V TO DISP./A

E.A.A. 4, PLACE DE LA MAIRIE, 91620 NOZAY - FRANCE - TOUTS DROITS DE REPRODUCTION RESERVES

UPPER ASSY

- SQUARE 1000 -

DATE

Oct. 18th 85

TIMING MOD. COMP. LAYOUT

45.456

Item no.	Sch.ref.	Description	Qty.	EAA Part number
301	BK 1	Relay, mains switching, 24VDC	1	RY20.200L1
303	C 5A	Capacitor, film, 0.68mF, 400V	3	
304	C 5B	Ident. to C5A		
305	C 5C	Ident. to C5A		
306	C 6	Capacitor, electrolytic, 47mF, 16V, MM or MG type	1	
307	C 7	Capacitor, electrolytic, 2200mF, 25V, GPS type	2	2200/25V-GPS
308	C 8	Ident. to C7		
309	C 9	Capacitor, electrolytic, 470mF, 50V, MM or MG type	2	
310	C 10	Ident. to C9		
311	C 11	Capacitor, electrolytic, 1000mF, 50V, MM or MG type	2	
312	C 12	Ident. to C11		
314	CB 1	Printed circuit board	1	44.371C/PCB
316	D 1	Diode, BY255	2	
317	D 2	Ident. to D1		
318	D 5	Diode, 1N4006	1	
319	DZ 3	Diode, zener, BZX55C18V	2	
320	DZ 4	Ident. to DZ3		
322	F 7	Fuse, 5x20mm, 0.5Amp. slow blow	1	
323	F 8	Fuse, 5x20mm, 2Amp. slow blow	2	
324	F 9	Ident. to F8		
326	FH 7	Fuse holder, ref.910	3	910
327	FH 8	Ident. to FH7		
328	FH 9	Ident. to FH7		
330	K 1	Relay, 24VDC, ref. RR23001L1	2	RR2301L1
331	K 2	Ident. to K1		
333	Q 1	Transistor BD441	1	
334	Q 2	Transistor BD442	1	
335	Q 3	Transistor BD682	1	
337	R 1	Resistor, wirewound, 3.3 ohms, 7W, ref.R2C.8x35	2	R2C.8x35
338	R 2	Ident. to R1		
339	R 3	Resistor, 560 ohms, 0.25W, 5%	2	
340	R 4	Ident. to R3	2	
341	R 5	Resistor, 100k, 0.25W, 5%		
343	TB 1	Terminal block, pitch 0.2" (5.08mm), ref. 236-401	18	236-401
344	TB 2	Terminal block, pitch 0.375" (10mm), ref. 236-601	4	236-601
345	TB 3	End plate, snap-on, ref. 236-100	4	236-100
347		Timing module assembly		44.371C/PCB.ASSY.
PARTS LIST - SQUARE 1000 - TIMING MODULE - ref. 44.371				
1 of 1				45.467

Item no.	Sch.ref.	Description	Qty.	EAA Part number
I	I	I	I	I
352	C 1	I Capacitor, film, 0.47mF, 63V, MMKO	7 I	I
353	C 2	I Capacitor, ceramic, 220pF	3 I	I
354	C 3	I Ident. to C2	I	I
355	C 4	I Ident. to C2	I	I
356	C 5	I Capacitor, electrolytic, 4.7mF, 25V, MM type	2 I	I
357	C 6	I Ident. to C1	I	I
358	C 7	I Ident. to C5	I	I
359	C 8	I Ident. to C1	I	I
360	C 9	I Ident. to C1	I	I
361	C 10	I Capacitor, ceramic, 100pF, 500V	1 I	I
362	C 11	I Capacitor, ceramic, 330pF, 500V	1 I	I
363	C 12	I Capacitor, film, 22nF, 250V, MMKO	1 I	I
364	C 13	I Capacitor, film, 0.47mF, 100V, pitch 0.6" (15.24mm)	2 I	I
365	C 14	I Ident. to C13	I	I
366	C 15	I Capacitor, electrolytic, 47mF, 100V, MM or MG type	2 I	I
367	C 16	I Ident. to C15	I	I
I	C 17	I N.A.	I	I
369	C 18	I Capacitor, electrolytic, 100mF, 25V, MG type	10 I	I
370	C 19	I Ident. to C18	I	I
371	C 20	I Ident. to C18	I	I
372	C 21	I Capacitor, electrolytic, 47mF, 16V, MU or MG type	4 I	I
373	C 22	I Ident. to C18	I	I
374	C 23	I Ident. to C21	I	I
375	C 24	I Ident. to C18	I	I
376	C 25	I Ident. to C18	I	I
377	C 26	I Ident. to C1	I	I
378	C 27	I Capacitor, electrolytic, 220mF, 16V, MM or MG type	1 I	I
379	C 28	I Ident. to C1	I	I
380	C 29	I Ident. to C1	I	I
381	C 30	I Capacitor, ceramic, 47pF	1 I	I
382	C 31	I Ident. to C18	I	I
383	C 32	I Ident. to C18	I	I
384	C 33	I Ident. to C18	I	I
385	C 34	I Capacitor, electrolytic, 330mF, 16V, MM or MG type	1 I	I
386	C 35	I Ident. to C21	I	I
387	C 36	I Capacitor, film, 0.1mF, 100V, MMKO	7 I	I
388	C 37	I Ident. to C36	I	I
389	C 38	I Ident. to C18	I	I
390	C 39	I Ident. to C21	I	I
I	I	I	I	I
392	CB 1	I Printed circuit board, right channel	1 I	40.306F/PCB
I	I	I	I	I
394	CB 2	I Printed circuit board, left channel	1 I	40.307F/PCB
I	I	I	I	I
396	CD	I Capacitor, film, decoupling, ident. to C36	5 I	I
I	I	I	I	I
I				
-- PARTS LIST --			I 1 of 7 I	45.468 I
I				

Item no.	Sch.ref.	Description	Qty.	EAA Part number
352	CS 1	I Connector, socket, 8 positions, pitch 2.5mm, ref. MSFW8	1	MKS2858-1-0-808
353	CS 2	I Connector, socket, 8 positions, pitch 2.5mm, ref. MSF8	1	MKS1858-1-0-808
354	CS 3	I N.C.	1	
355	CS 4	I Connector, socket, 4 positions, pitch 2.5mm, ref. MSF4	1	MKS1854-1-0-404
356	CS 5	I Connector, socket, 4 positions, ref. J2080-20/4	3	J2080-20/4
357	CS 6	I Ident. to CS5	1	
358	CS 7	I Connector, socket, 6 positions, ref. J2080-20/6	1	J2080-20/6
359	CS 8	I Ident. to CS5	1	
361	D 1	I Diode, 1N4148	25	
362	D 2	I Ident. to D1	1	
363	D 3	I Ident. to D1	1	
364	D 4	I Ident. to D1	1	
365	D 5	I Diode, 1N4006	4	
366	D 6	I Ident. to D5	1	
367	D 7	I Ident. to D1	1	
368	D 8	I Ident. to D1	1	
369	D 10	I Ident. to D1	1	
370	D 11	I Ident. to D1	1	
371	D 12	I Ident. to D1	1	
372	D 13	I Ident. to D1	1	
373	D 14	I Ident. to D1	1	
374	D 16	I Ident. to D1	1	
375	D 17	I Ident. to D1	1	
376	D 18	I Ident. to D1	1	
377	D 19	I Ident. to D1	1	
378	D 20	I Ident. to D1	1	
379	D 21	I Ident. to D1	1	
380	D 22	I Ident. to D1	1	
381	D 23	I Ident. to D1	1	
382	D 25	I Ident. to D1	1	
383	D 27	I Ident. to D1	1	
384	D 28	I Ident. to D1	1	
385	D 31	I Ident. to D1	1	
386	D 32	I Ident. to D5	1	
387	D 33	I Ident. to D5	1	
388	D 34	I Ident. to D1	1	
389	D 35	I Ident. to D1	1	
391	DZ 9	I Diode, zener, BZX55C8V2	2	
392	DZ 15	I Ident. to DZ9	1	
393	DZ 24	I Diode, zener, BZX55C10V	1	
394	DZ 26	I Diode, zener, BZX55C5V1	1	
395	DZ 29	I Diode, zener, BZX55C12V	2	
396	DZ 30	I Ident. to DZ29	1	
-- PARTS LIST -- SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307				
			2 of 7	45.469

Item no.	Sch.ref.	Description	Qty.	EAA Part number
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	404	IC 1+2 I Integrated circuit, TL072CP	4	I
I	405	IC 3 I Integrated circuit, TL071CP	7	I
I	406	IC 4 I Ident. to IC3	I	I
I	407	IC 5+6 I Ident. to IC1+2	I	I
I	408	IC 7 I Ident. to IC3	I	I
I	409	IC 8+11 I Ident. to IC1+2	I	I
I	410	IC 9+10 I Ident. to IC1+2	I	I
I	411	IC 12 I Ident. to IC3	I	I
I	412	IC 13 I Ident. to IC3	I	I
I	413	IC 14 I Ident. to IC3	I	I
I	414	IC 15 I Ident. to IC3	I	I
I	I	I	I	I
I	I	I	I	I
I	417	P 1 I Potentiometer, adjustable, cermet, 2.2k	1	I VA05H-2.2k
I	418	P 2 I Potentiometer, adjustable, 2.2k	3	I PT10V-H2.5-2.2k
I	419	P 3 I Ident. to P2	I	I
I	420	P 4 I Ident. to P2	I	I
I	I	I	I	I
I	I	I	I	I
I	423	Q 1 I Transistor, 2N2222A	1	I
I	424	Q 2 I Transistor, 2N2907A	1	I
I	425	Q 3 I Transistor, BD441	2	I
I	426	Q 4 I Transistor, BF787, (matched with Q6)	1	I
I	427	Q 5 I Transistor, 2N3584, (matched with Q7)	1	I
I	428	Q 6 I Transistor, BF790, (matched with Q4)	1	I
I	429	Q 7 I Transistor, 2N6212, (matched with Q5)	1	I
I	430	Q 8 I Transistor, MJ15024, (matched with Q15)	7	I
I	431	Q 9 I Ident. to Q8	I	I
I	432	Q 10 I Ident. to Q8	I	I
I	433	Q 11 I Ident. to Q8	I	I
I	434	Q 12 I Ident. to Q8	I	I
I	435	Q 13 I Ident. to Q8	I	I
I	436	Q 14 I Ident. to Q8	I	I
I	437	Q 15 I Transistor, MJ15025, (matched with Q8)	7	I
I	438	Q 16 I Ident. to Q15	I	I
I	439	Q 17 I Ident. to Q15	I	I
I	440	Q 18 I Ident. to Q15	I	I
I	441	Q 19 I Ident. to Q15	I	I
I	442	Q 20 I Ident. to Q15	I	I
I	443	Q 21 I Ident. to Q15	I	I
I	444	Q 22 I Ident. to Q3	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I-----I				
I	--	PARTS LIST --	I	SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307
I			I	3 of 7
I			I	45.470
I-----I				

I	Item no.	I	Sch.ref.	I	Description	I	Qty.	I	EAA Part number	I
I		I		I		I		I		I
I		I	R 1	I	N.A.	I		I		I
I		I	R 2	I	N.A.	I		I		I
I	454	I	R 3	I	Resistor, 3.9k, 0.25W, 5%	I	1	I		I
I	455	I	R 4	I	Resistor, 1k, 0.25W, 5%	I	6	I		I
I	456	I	R 5	I	Ident. to R4	I		I		I
I	457	I	R 6	I	Resistor, 220 ohms, 0.25W, 5%	I	15	I		I
I	458	I	R 7	I	Ident. to R6	I		I		I
I	459	I	R 8	I	Resistor, 4.7k, 0.25W, 5%	I	7	I		I
I	460	I	R 9	I	Ident. to R8	I		I		I
I	461	I	R 10	I	Resistor, 150 ohms, 0.25W, 5%	I	3	I		I
I	462	I	R 11	I	Ident. to R10	I		I		I
I	463	I	R 12	I	Resistor, 39 ohms, 0.25W, 5% $\times$	I	1	I		I
I	464	I	R 13	I	Resistor, 47 ohms, 0.25W, 5%	I	3	I		I
I	465	I	R 14	I	Ident. to R6	I		I		I
I	466	I	R 15	I	Ident. to R10	I		I		I
I	467	I	R 16	I	Resistor, 10 ohms, 1W, 5%	I	3	I		I
I	468	I	R 17	I	Ident. to R16	I		I		I
I		I	R 18	I	N.A.	I		I		I
I	470	I	R 19	I	Ident. to R6	I		I		I
I	471	I	R 20	I	Ident. to R6	I		I		I
I	472	I	R 21	I	Ident. to R6	I		I		I
I	473	I	R 22	I	Ident. to R6	I		I		I
I	474	I	R 23	I	Ident. to R6	I		I		I
I	475	I	R 24	I	Ident. to R6	I		I		I
I		I	R 25	I	N.A.	I		I		I
I	477	I	R 26	I	Ident. to R6	I		I		I
I	478	I	R 27	I	Ident. to R6	I		I		I
I	479	I	R 28	I	Ident. to R6	I		I		I
I	480	I	R 29	I	Ident. to R6	I		I		I
I	481	I	R 30	I	Ident. to R6	I		I		I
I	482	I	R 31	I	Ident. to R6	I		I		I
I		I	R 32	I	N.A.	I		I		I
I	484	I	R 33	I	Resistor wirewound, 0.47 ohms, 4W	I	14	I	RSC4x21-0.47E	I
I	485	I	R 34	I	Ident. to R33	I		I		I
I	486	I	R 35	I	Ident. to R33	I		I		I
I	487	I	R 36	I	Ident. to R33	I		I		I
I	488	I	R 37	I	Ident. to R33	I		I		I
I	489	I	R 38	I	Ident. to R33	I		I		I
I	490	I	R 39	I	Ident. to R33	I		I		I
I	491	I	R 40	I	Ident. to R33	I		I		I
I	492	I	R 41	I	Ident. to R33	I		I		I
I	493	I	R 42	I	Ident. to R33	I		I		I
I	494	I	R 43	I	Ident. to R33	I		I		I
I	495	I	R 44	I	Ident. to R33	I		I		I
I	496	I	R 45	I	Ident. to R33	I		I		I
I	497	I	R 46	I	Ident. to R33	I		I		I

Item no.	Sch.ref.	Description	Qty.	EAA Part number
502	R 47	I Ident. to R16	1	
503	R 48	I Resistor, 22k, 0.25W, 5%	14	
504	R 49	I Ident. to R48	1	
505	R 50	I Resistor, 15k, 0.25W, 5%	3	
506	R 51	I Resistor, 10k, 0.25W, 5%	7	
507	R 52	I Ident. to R48	1	
508	R 53	I Ident. to R48	1	
509	R 54	I Ident. to R48	1	
510	R 55	I Ident. to R48	1	
511	R 56	I Ident. to R13	1	
512	R 57	I Resistor, 82k, 0.25W, 5%	1	
513	R 58	I Ident. to R8	1	
514	R 59	I Ident. to R51	1	
515	R 60	I Ident. to R8	1	
516	R 61	I Resistor, strap	14	
517	R 62	I Ident. to R4	1	
518	R 63	I Resistor, 22 ohms, 0.25W, 5%	7	
519	R 64	I Ident. to R63	1	
	R 65	I N.A.	1	
521	R 66	I Resistor, 5.6k, 0.25W, 5%	1	
522	R 67	I Ident. to R61	1	
	R 68	I N.A.	1	
524	R 69	I Ident. to R8	1	
525	R 70	I Ident. to R50	1	
526	R 71	I Ident. to R48	1	
527	R 72	I Ident. to R48	1	
528	R 73	I Ident. to R48	1	
529	R 74	I Ident. to R48	1	
530	R 75	I Ident. to R13	1	
531	R 76	I Resistor, 470 ohms, 0.25W, 5%	2	
532	R 77	I Ident. to R51	1	
533	R 78	I Ident. to R8	1	
534	R 79	I Ident. to R76	1	
535	R 80	I Ident. to R8	1	
536	R 81	I Resistor, 56k, 0.25W, 5%	4	
537	R 82	I Ident. to R81	1	
538	R 83	I Ident. to R51	1	
539	R 84	I Resistor, 100k, 0.25W, 5%	3	
540	R 85	I Ident. to R84	1	
541	R 86	I Ident. to R51	1	
542	R 87	I Resistor, 1.8k, 0.25W, 5%	1	
543	R 88	I Ident. to R51	1	
544	R 89	I Resistor, 180k, 0.25W, 5%	1	
545	R 90	I Resistor, 47k, 0.25W, 5%	2	
546	R 91	I Ident. to R48	1	
547	R 92	I Ident. to R48	1	

--- PARTS LIST ---
SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307
5 of 7
45.472

Item no.	Sch.ref.	Description	Qty.	EAA Part number
552	R 93	Ident. to R48	1	
553	R 94	Ident. to R48	1	
554	R 95	Resistor, 680 ohms, 0.25W, 5%	1	
555	R 96	Resistor, 39k, 0.25W, 5%	2	
556	R 97	Resistor, 8.2k, 0.25W, 5%	1	
557	R 98	Ident. to R50	1	
558	R 99	Resistor, 220k, 0.25W, 5%	1	
559	R 100	Ident. to R51	1	
560	R 101	Ident. to R4	1	
561	R 102	Resistor, 100 ohms, 0.25W, 5%	1	
562	R 103	Ident. to R63	1	
563	R 104	Ident. to R63	1	
564	R 105	Ident. to R96	1	
565	R 106	Ident. to R81	1	
566	R 107	Ident. to R4	1	
567	R 108	Ident. to R90	1	
568	R 109	Ident. to R4	1	
569	R 110	Ident. to R84	1	
570	R 111	Resistor, 180 ohms, 0.25W, 5%	1	
	R 112	N.A.	1	
572	R 113	Ident. to R81	1	
573	R 114	Resistor, metal film, 14.7k, 0.125W, 1%	4	
574	R 115	Ident. to R114	1	
575	R 116	Ident. to R63	1	
576	R 117	Ident. to R114	1	
577	R 118	Ident. to R114	1	
578	R 119	Ident. to R63	1	
579	R 120	Ident. to R63	1	
			1	
581	RS	Ident. to R61	1	
			1	
583	T 3	Transformer, ref. 13.041E	1	13.041E
			1	
585	TSW 1	Thermo switch, circuit normally open, ref. 65.0.98.22.040.030	1	65.0.98.22.040.030
			1	
587	X 1	Spade 1/4", printed circuit, ref. Y320A	4	Y320A
588	X 2	Thermally conducting isolating washers, T03 package, ref. SE3C	14	SE3C
589	X 3	Thermally conducting isolating washers, T066 package, ref. SE66	2	SE66
590	X 4	Thermally conducting isolating washers, T0220 package, ref. SE220	2	SE220
591	X 5	Insulating standoff, for T03 package, ref. 43314	28	43314
592	X 6	Insulating standoff, for T066 package, ref. 43313B	4	43313B
593	X 7	Nut, PCB soldering, ref. 1976	28	1976
594	X 8	Spacer, snap-in, height 6.5mm, ref. 223.01.0976	4	223.01.0976
595	X 9	Spacer, snap-in, height 9.5mm, ref. 223.01.0977	1	223.01.0977
596	X 10	Terminal, female, gold plated, for T03 package	28	312.00.34.000.400
597	X 11	Terminal, female, gold plated, for T066 package	4	312.02.16.000.400

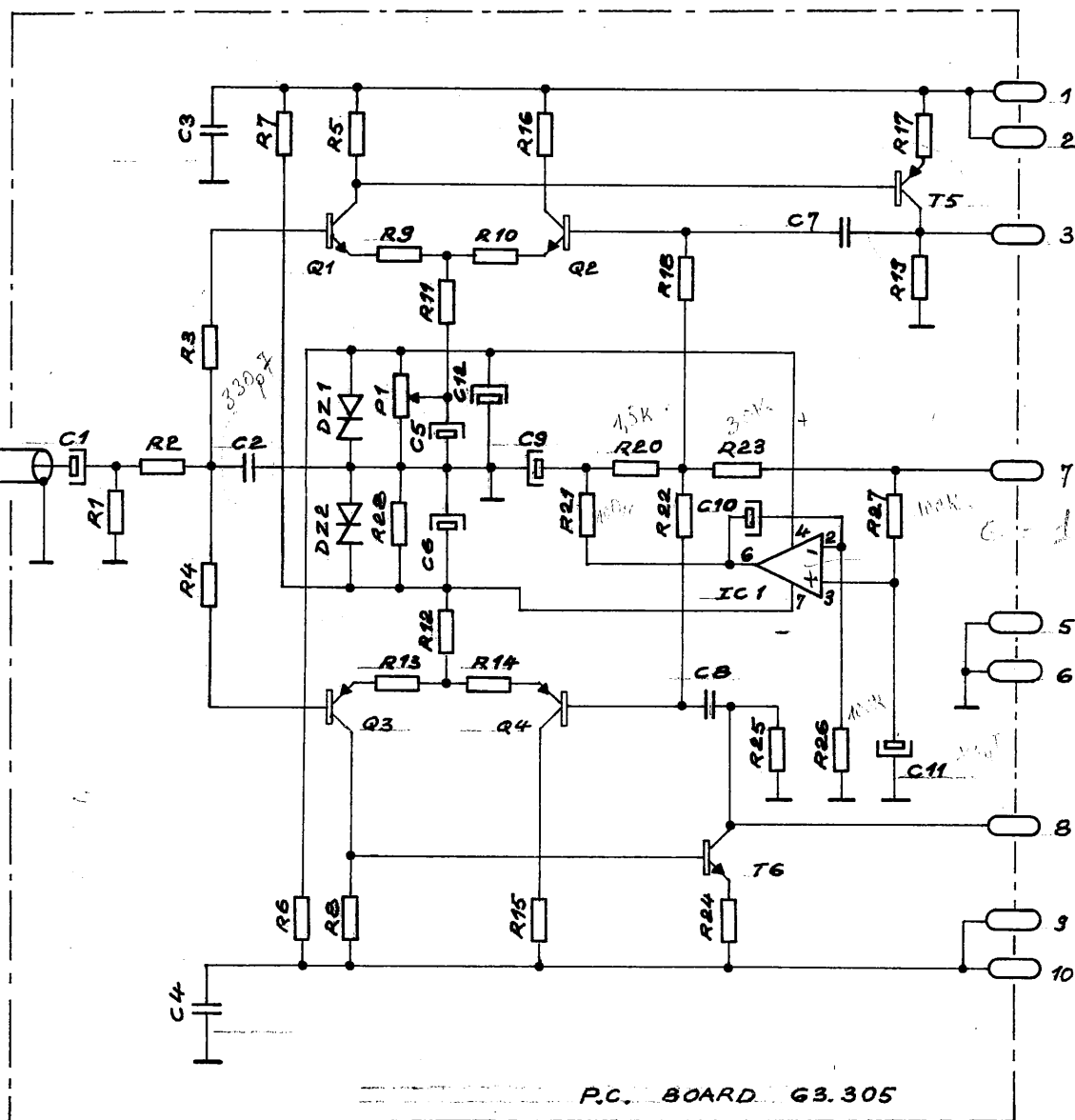
45.473

SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307

6 of 7

Item no.	Sch.ref.	Description	Qty.	EAA Part number
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
604	Y 1	Heatsink, primary, ref.232940	1	23.2940
605	Y 2	Heatsink, ref. 33289B	2	33.289B
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
609	Z 1	Machine screw, metric, TC-3x20	32	TC-3x20
610	Z 2	Machine screw, metric, TC-3x8	2	TC-3x8
611	Z 3	Machine screw, metric, TCHC-5x12	12	TCHC-5x12
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
619	I	Power module, right channel, printed circuit board assembly	1	40.306F/PCB.ASSY.
I	I	I	I	I
I	I	I	I	I
622	I	Power module, left channel, printed circuit board assembly	1	40.307F/PCB.ASSY.
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
628	I	Power module, right channel, module assembly	1	40.306F/MOD.ASSY.
I	I	(including power transistors and heatsinks assembly)	I	I
I	I	I	I	I
I	I	I	I	I
632	I	Power module, left channel, module assembly	1	40.307F/MOD.ASSY.
I	I	(including power transistors and heatsinks assembly)	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
639	I	Matched transistors maintenance kit, including:	I	TMK1
I	I	Q5 and Q7, Q8 to Q14, Q15 to Q22	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I

-- PARTS LIST --	I	SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307	7 of 7	I 45.474



MATING CONNECTOR = POWER AMPLIFIER MODULE CSB+CS9

E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE -

TOUS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.

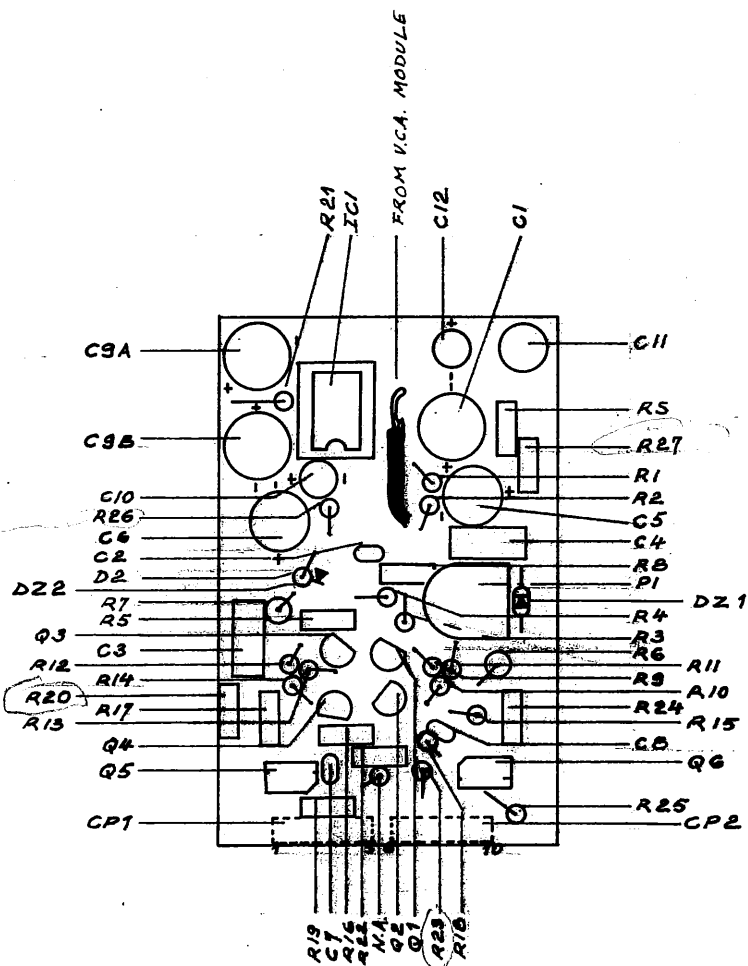
DATE

- SQUARE 1000 -

Sept. 30th. 85

VOLTAGE AMPLIFIER MODULE

45_441



E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.
- SQUARE 1000 -

DATE
Oct. 15/4. 85

VOLTAGE AMP. COMPON. LAYOUT

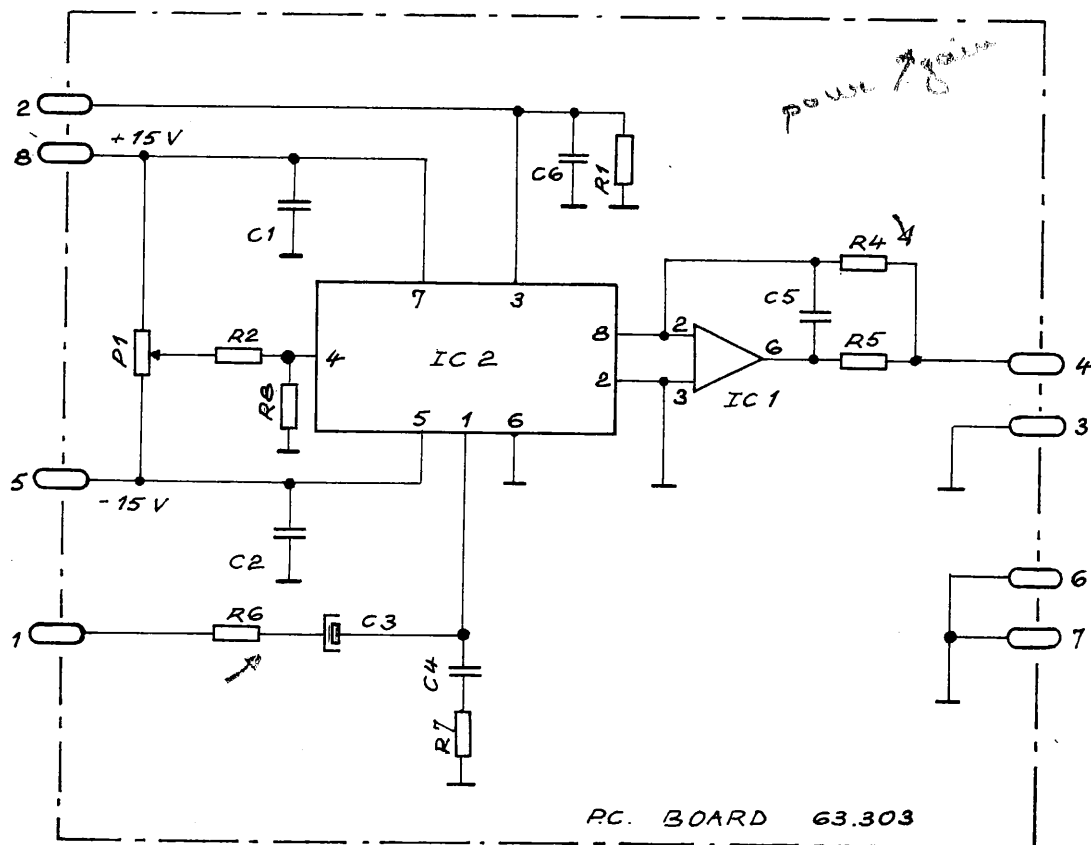
45. 453

Item no.	Sch.ref.	Description	Qty.	EAA Part number
203	C 1	Capacitor, electrolytic, 330mF, 16V, MM or MG type	1	
204	C 2	Capacitor, ceramic, 330pF, 63V	1	
205	C 3	Capacitor, film, 0.1mF / 100V / MMKO	2	
206	C 4	Ident. to C3	1	
207	C 5	Capacitor, electrolytic, 100mF, 25V, MG type	2	
208	C 6	Ident. to C5	1	
209	C 7	Capacitor, ceramic, 22pF, 63V	2	
210	C 8	Ident. to C7	1	
211	C 9A	Capacitor, electrolytic, 470mF, 6.3V, MM or MG type	1	
212	C 9B	Ident. to C9A	1	
213	C 10	Capacitor, electrolytic, 10mF, 25V, MM type	1	
214	C 11	Capacitor, electrolytic, 100mF, 6.3V, MM or MG type	1	
215	C 12	Capacitor, electrolytic, 47mF, 25V, MM or MG type	1	
218	CB 1	Printed circuit board	1	63.305C/PCB
221	CP 1	Connector, plug, 5 positions	2	J2088-20/5
222	CP 2	Ident. to CP1	1	
225	DZ 1	Diode, zener, BZX55C18V	2	
226	DZ 2	Ident. to DZ1	1	
229	IC 1	Integrated circuit TL071CP	1	
232	P 1	Potentiometer, adjustable, cermet, 10k	1	VA05H-10k
235	Q 1	Transistor 2N5551 (matched with Q2)	2	
236	Q 2	Ident. to Q1	1	
237	Q 3	Transistor 2N5401 (matched with Q4)	2	
238	Q 4	Ident. to Q3	1	

-- PARTS LIST --
SQUARE 1000 - VOLTAGE AMPLIFIER MODULE - ref. 63.305
1 of 2
45.465

I	Item no.	Sch.ref.	Description	I Qty.	EAA Part number
I	I	I	I	I	I
I	I	I	I	I	I
I	253	R 1	I Resistor 47k, 0.25W, 5%	1 I	I
I	254	R 2	I Resistor 2.2k, 0.25W, 5%	5 I	I
I	255	R 3	I Resistor 680 ohms, 0.25W, 5%	4 I	I
I	256	R 4	I Ident. to R3	I	I
I	257	R 5	I Ident. to R2	I	I
I	258	R 6	I Resistor 6.8k, 0.5W, 5%	2 I	I
I	259	R 7	I Ident. to R6	I	I
I	260	R 8	I Ident. to R2	I	I
I	261	R 9	I Resistor 150 ohms, 0.25W, 5%	6 I	I
I	262	R 10	I Ident. to R9	I	I
I	263	R 11	I Resistor 10k, 0.25W, 5%	1 I	I
I	264	R 12	I Resistor 15k, 0.25W, 5%	1 I	I
I	265	R 13	I Ident. to R9	I	I
I	266	R 14	I Ident. to R9	I	I
I	267	R 15	I Ident. to R2	I	I
I	268	R 16	I Ident. to R2	I	I
I	269	R 17	I Ident. to R9	I	I
I	270	R 18	I Ident. to R3	I	I
I	271	R 19	I Resistor 33k, 0.25W, 5%	2 I	I
I	272	R 20	I Resistor 1.5k, 0.25W, 5%	1 I	I
I	273	R 21	I Resistor 100 ohms, 0.25W, 5%	1 I	I
I	274	R 22	I Ident. to R3	I	I
I	275	R 23	I Resistor 30k, 0.25W, 5%	1 I	I
I	276	R 24	I Ident. to R9	I	I
I	277	R 25	I Ident. to R19	I	I
I	278	R 26	I Resistor 100k, 0.25W, 5%	2 I	I
I	279	R 25 ⁹	I Ident. to R26	I	I
I	I	I	I	I	I
I	281	RS	I Resistor, strap	1 I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I Matched transistors maintenance kit, including Q1 to Q4	I	I TMK2
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I Voltage amplifier module assembly	I	I 63.305C/PCB.ASSY.
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	I	I	I	I	I
I	-*- PARTS LIST -*	I SQUARE 1000 - VOLTAGE AMPLIFIER MODULE - ref. 63.305	I 2 of 2 I	45.466	I

MATING CONNECTOR = POWER AMPLIFIER MODULE



E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.

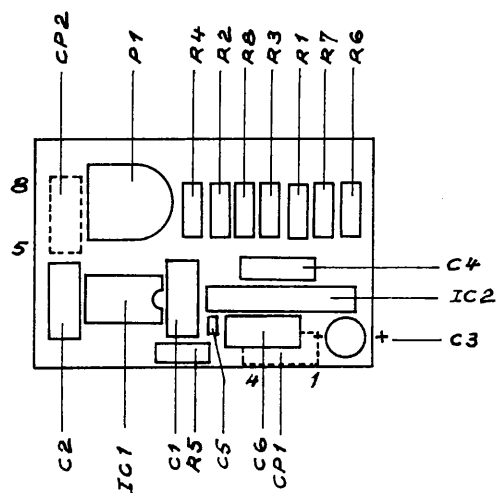
- SQUARE 1000 -

DATE

Oct. 1st. 85

VCA MODULE - Dbx. version

45.443



E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.

- SQUARE 1000 -

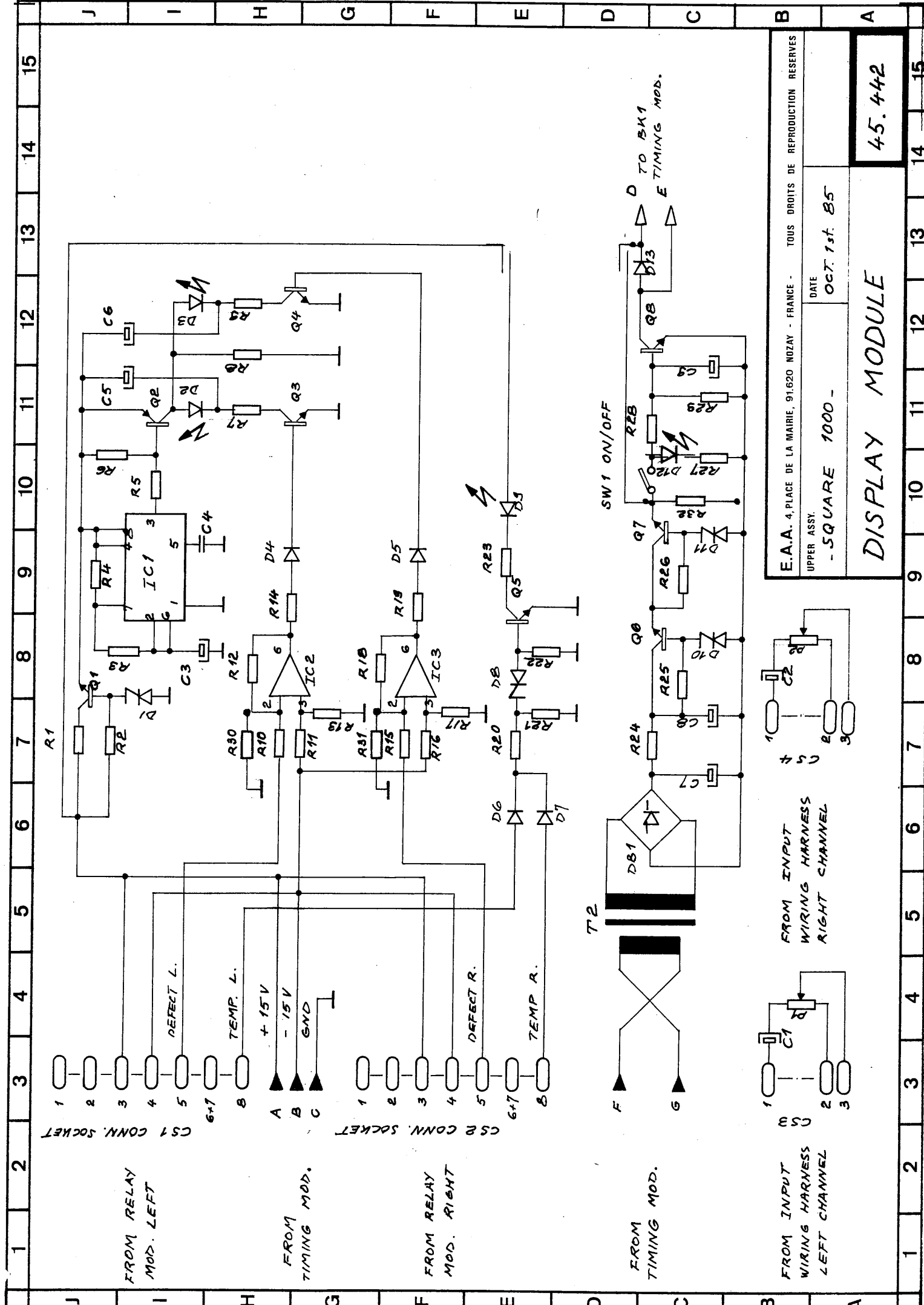
DATE

Oct. 15th 85

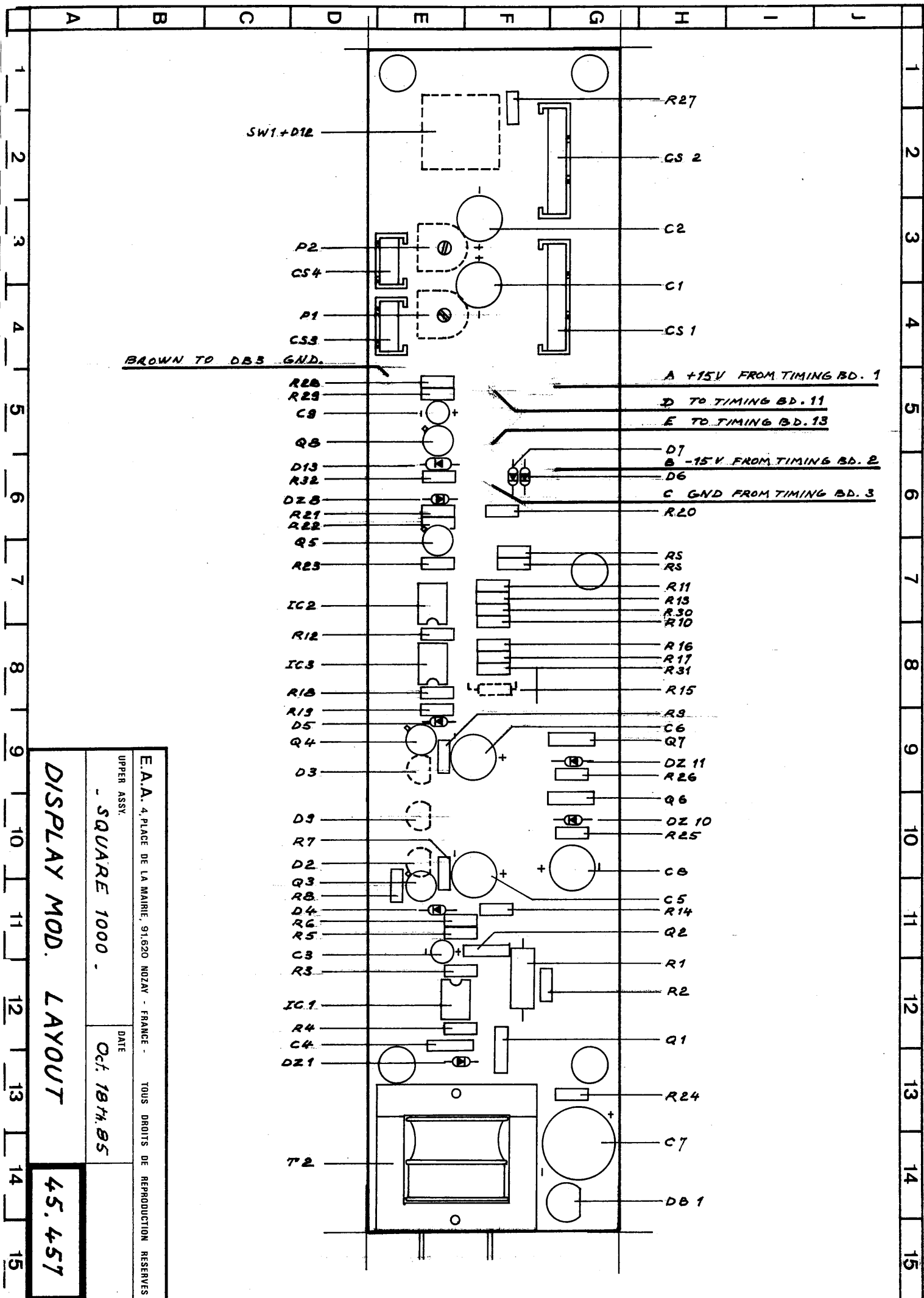
VCA MODULE - COMP. LAYOUT

45.451

Item no.	Sch.ref.	Description	Qty.	EAA Part number
152	C 1	Capacitor, film, 0.1mF / 100V / MMKO	3	
153	C 2	Ident. to C1	1	
154	C 3	Capacitor, electrolytic, 47mF, 25V, MM or MG type	1	
155	C 4	Capacitor, film, 1.5nF / 400V / MMKO	1	
156	C 5	Capacitor, ceramic, 22pF, 63V	1	
157	C 6	Ident. to C1	1	
159	CB 1	Printed circuit board	1	63.303B/PCB.
160	CP 1	Connector, plug, 4 positions	2	J208B-20/4
161	CP 2	Ident. to CP1	1	
163	IC 1	Integrated circuit TL071CP	1	
164	IC 2	Integrated circuit 2150A dBx	1	2150A dBx
166	P 1	Potentiometer, adjustable, 47k	1	PT10V-2.5-47k
168	R 1	Resistor 10k, 0.25W, 5%	1	
169	R 2	Resistor 470k, 0.25W, 5%	1	
170	R 3	Resistor 3.3k, 0.25W, 5%	1	
171	R 4	Resistor 22k, 0.25W, 5%	3	
172	R 5	Resistor 47 ohms, 0.25W, 5%	2	
173	R 6	Ident. to R4	1	
174	R 7	Ident. to R4	1	
175	R 8	Ident. to R5	1	
180		V.C.A. module assembly	1	63.303B/PCB.ASSY.



E.A.A. 4, PLACE DE LA MAIRIE, 91620 NOZAY - FRANCE -		TOUS DROITS DE REPRODUCTION RESERVES	
UPPER ASSY.	- SQUARE 1000 -	DATE	OCT. 1st. 85
DISPLAY MODULE			
45.442			



E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUTS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.

- SQUARE 1000 -

DATE

Oct. 18th. 85

DISPLAY MOD. LAYOUT

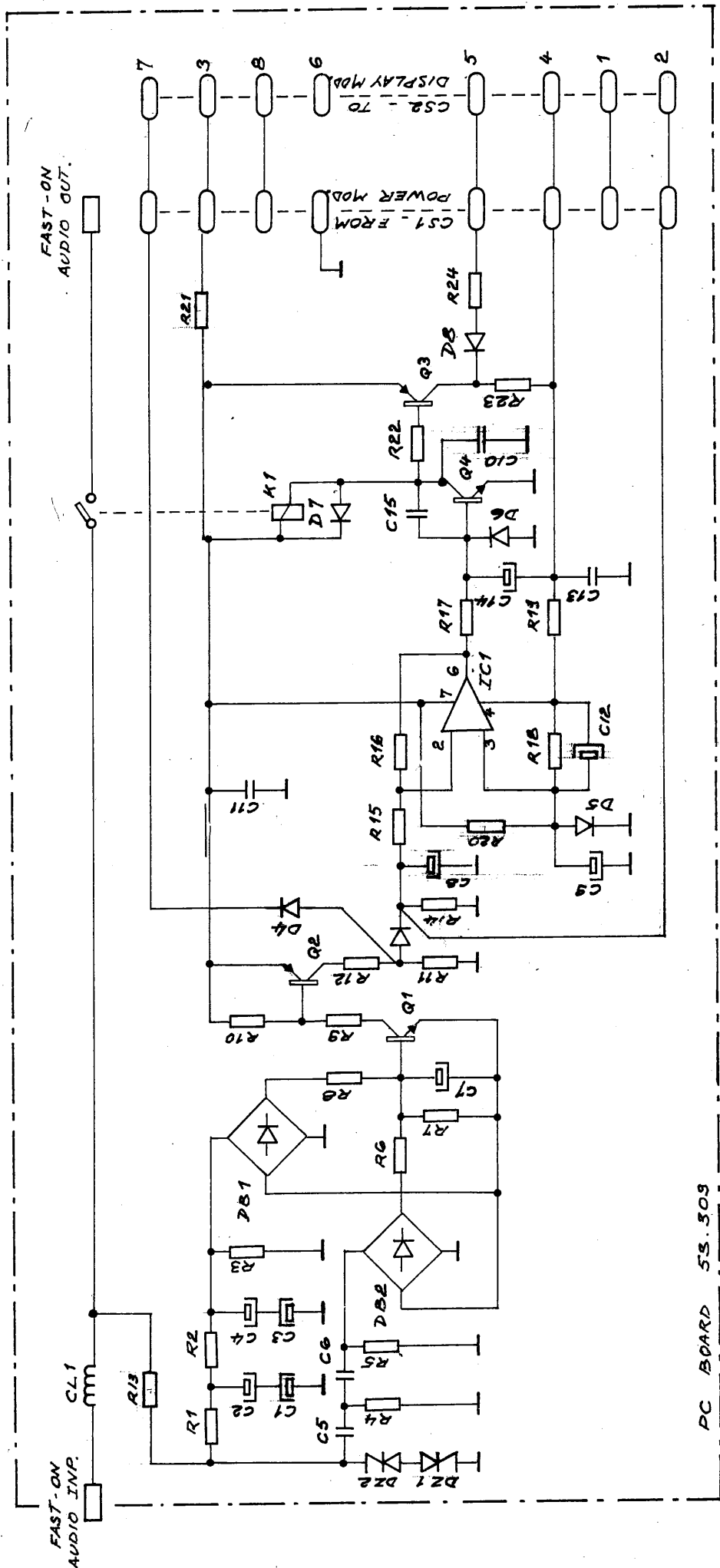
45.457

Item no.	Sch.ref.	Description	Qty.	EAA Part number
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
654	C 1	Capacitor, electrolytic, 220mF, 16V, MM or MG type	4	I
655	C 2	Ident. to C1	I	I
656	C 3	Capacitor, electrolytic, 4.7mF, 25 to 50V, MM or MG type	1	I
657	C 4	Capacitor, film, 10nF, 250V, MMKO	1	I
658	C 5	Ident. to C1	I	I
659	C 6	Ident. to C1	I	I
660	C 7	Capacitor, electrolytic, 470mF, 50V, MM or MG type	1	I
661	C 8	Capacitor, electrolytic, 100mF, 50V, MM or MG type	1	I
662	C 9	Capacitor, electrolytic, 4.7mF, 50V, MM or MG type	1	I
I	I	I	I	I
664	CB 1	Printed circuit board	1	25.406B/PCB
I	I	I	I	I
666	CS 1	Connector, socket, 8 positions, pitch 2.5mm, ref. MSF8	2	MKS1858-1-0-808
667	CS 2	Ident. to CS1	I	I
668	CS 3	Connector, socket, 3 positions, pitch 2.5mm, ref. MSF3	2	MKS1853-1-0-303
669	CS 4	Ident. to CS3	I	I
I	I	I	I	I
671	D 2	Diode, LED, yellow, MV5352	2	I
672	D 3	Ident. to D2	I	I
673	D 4	Diode, 1N4148	4	I
674	D 5	Ident. to D4	I	I
675	D 6	Ident. to D4	I	I
676	D 7	Ident. to D4	I	I
677	D 9	Diode, LED, red, MV6752	1	I
678	D 12	Diode, LED, part of SW1	I	I
679	D 13	Diode, 1N4006	1	I
I	I	I	I	I
681	DZ 1	Diode, zener, BZX55C5V1	2	I
682	DZ 8	Ident. to DZ1	I	I
683	DZ 10	Diode, zener, BZX55C24V	1	I
684	DZ 11	Diode, zener, BZX55C18V	1	I
I	I	I	I	I
686	DB 1	Diode bridge, W04F	I	I
I	I	I	I	I
688	IC 1	Integrated circuit, NE555CP	1	I
689	IC 2	Integrated circuit, TL071CP	2	I
690	IC 3	Ident. to IC2	I	I
I	I	I	I	I
692	P 1	Potentiometer, adjustable, 10k	2	PT10V-H2.5-10k
693	P 2	Ident. to P1	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I

-- PARTS LIST --	I	SQUARE 1000 - DISPLAY MODULE - ref. 25.406	I 1 of 3	45.475

I=====I						I			I		I	
I	Item no.	I	Sch.ref.	I	Description	I	Qty.	I	EAA Part number	I		I
I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I						I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I			I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I		I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I-----I	
I		I		I		I		I		I		I
I	702	I	Q 1	I	Transistor, BD441	I	3	I		I		I
I	703	I	Q 2	I	Transistor, BD442	I	1	I		I		I
I	704	I	Q 3	I	Transistor, 2N2222A	I	4	I		I		I
I	705	I	Q 4	I	Ident. to Q3	I		I		I		I
I	706	I	Q 5	I	Ident. to Q3	I		I		I		I
I	707	I	Q 6	I	Ident. to Q1	I		I		I		I
I	708	I	Q 7	I	Ident. to Q1	I		I		I		I
I	709	I	Q 8	I	Ident. to Q3	I		I		I		I
I		I		I		I		I		I		I
I		I		I		I		I		I		I
I	712	I	R 1	I	Resistor, 10 ohms, 1W, 5%	I	1	I		I		I
I	713	I	R 2	I	Resistor, 1k, 0.25W, 5%	I	2	I		I		I
I	714	I	R 3	I	Resistor, 6.8k, 0.25W, 5%	I	2	I		I		I
I	715	I	R 4	I	Resistor, 3.9k, 0.25W, 5%	I	1	I		I		I
I	716	I	R 5	I	Resistor, 4.7k, 0.25W, 5%	I	3	I		I		I
I	717	I	R 6	I	Resistor, 47k, 0.25W, 5%	I	3	I		I		I
I	718	I	R 7	I	Resistor, 150 ohms, 0.25W, 5%	I	2	I		I		I
I	719	I	R 8	I	Resistor, 10k, 0.25W, 5%	I	6	I		I		I
I	720	I	R 9	I	Ident. to R7	I		I		I		I
I	721	I	R 10	I	Ident. to R8	I		I		I		I
I	722	I	R 11	I	Resistor, 39k, 0.25W, 5%	I	2	I		I		I
I	723	I	R 12	I	Resistor, 470k, 0.25W, 5%	I	2	I		I		I
I	724	I	R 13	I	Ident. to R8	I		I		I		I
I		I	R 14	I	N.A.	I		I		I		I
I		I	R 15	I	N.A.	I		I		I		I
I	727	I	R 16	I	Ident. to R11	I		I		I		I
I	728	I	R 17	I	Ident. to R8	I		I		I		I
I	729	I	R 18	I	Ident. to R12	I		I		I		I
I	730	I	R 19	I	Ident. to R5	I		I		I		I
I	731	I	R 20	I	Ident. to R8	I		I		I		I
I	732	I	R 21	I	Resistor, 22k, 0.25W, 5%	I	2	I		I		I
I	733	I	R 22	I	Ident. to R8	I		I		I		I
I	734	I	R 23	I	Ident. to R2	I		I		I		I
I	735	I	R 24	I	Resistor, 56 ohms, 0.25W, 5%	I	1	I		I		I
I	736	I	R 25	I	Resistor, 3.3k, 0.25W, 5%	I	1	I		I		I
I	737	I	R 26	I	Resistor, 1.5k, 0.25W, 5%	I	1	I		I		I
I	738	I	R 27	I	Ident. to R5	I		I		I		I
I	739	I	R 28	I	Ident. to R21	I		I		I		I
I	740	I	R 29	I	Resistor, 100k, 0.25W, 5%	I	1	I		I		I
I	741	I	R 30	I	Ident. to R6	I		I		I		I
I	742	I	R 31	I	Ident. to R6	I		I		I		I
I	743	I	R 32	I	Ident. to R3	I		I		I		I
I		I		I		I		I		I		I
I		I		I		I		I		I		I
I	746	I	RS	I	Resistor, strap	I	2	I		I		I
I		I		I		I		I		I		I
I=====I						I			I		I	
I	--	I	PARTS LIST	I	--	I	--	I	SQUARE 1000	I	--	I
I		I		I		I		I	DISPLAY MODULE	I		I
I		I		I		I		I	ref. 25.406	I		I
I		I		I		I		I	I 2 of 3	I		I
I		I		I		I		I	45.476	I		I
I=====I						I			I		I	

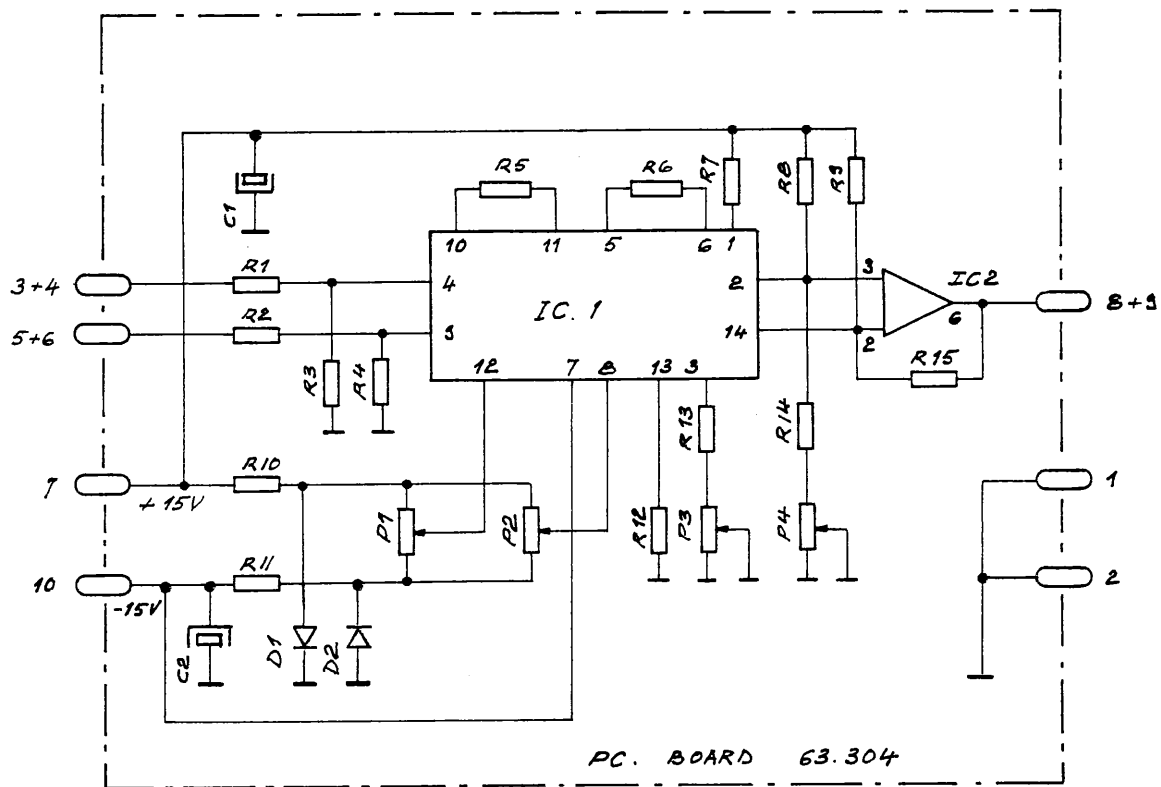
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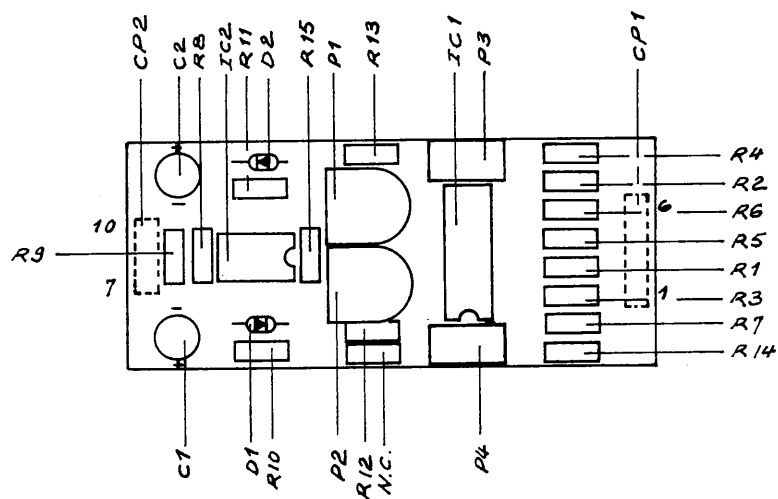
E.A.A. 4, PLACE DE LA MAIRIE, 91620 NOZAY - FRANCE -		TOUS DROITS DE REPRODUCTION RESERVES	
UPPER ASSY.	- SQUARE 1000 -	DATE	Oct. 1st. 85
RELAY MODULE		45.445	

Item no.	Sch.ref.	Description	Qty.	EAA Part number
952	C 1	Capacitor, electrolytic, 10mF, 35 to 50V, MM or MG type	5	
953	C 2	Ident. to C1	1	
954	C 3	Ident. to C1	1	
955	C 4	Ident. to C1	1	
956	C 5	Capacitor, ceramic, 330pF	2	
957	C 6	Ident. to C5	1	
958	C 7	Capacitor, electrolytic, 4.7mF, 25 to 50V MM or MG type	3	
959	C 8	Ident. to C7	1	
960	C 9	Capacitor, electrolytic, 47mF, 25V, MM or MG type	1	
961	C 10	Capacitor, film, 0.1mF, 100V,MMKO	3	
962	C 11	Ident. to C10	1	
963	C 12	Ident. to C1	1	
964	C 13	Ident. to C10	1	
965	C 14	Ident. to C7	1	
966	C 15	Capacitor, ceramic, 220pF	1	
968	CB 1	Printed circuit board	1	53.309B/PCB.
970	CL 1	Coil, AF, 4 turns	1	CL1
972	CS 1	Connector, socket, 8 positions, pitch 2.5mm, ref. MSF8	2	MKS1858-1-0-808
973	CS 2	Ident. to CS2	1	
975	D 3	Diode, 1N4148	5	
976	D 4	Ident. to D3	1	
977	D 5	Ident. to D3	1	
978	D 6	Ident. to D3	1	
979	D 7	Diode, 1N4006	1	
980	D 8	Ident. to D3	1	
982	DB 1	Diode bridge, W04F	2	
983	DB 2	Ident. to DB1	1	
985	DZ 1	Diode, zener, BZX55C5V1	2	
986	DZ 2	Ident. to DZ1	1	
988	IC 1	Integrated circuit, TL071CP	1	
990	K 1	Relay, 24VDC, ref. RR23001L1	1	RR2301L1
992	Q 1	Transistor 2N2222A	2	
993	Q 2	Transistor 2N2907A	2	
994	Q 3	Ident. to Q2	1	
995	Q 4	Ident. to Q1	1	
PARTS LIST - SQUARE 1000 - RELAY MODULE - ref. 53.309 - 1 of 2 - 45.481				

[illegible]



E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE -		TOUS DROITS DE REPRODUCTION RESERVES	
UPPER ASSY.		DATE	
- SQUARE 1000 -		Oct. 1st. 85	
MULTIPLIER MODULE			45.444



E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUS DROITS DE REPRODUCTION RESERVES

UPPER ASSY.

DATE

- SQUARE 1000 -

Oct. 15th 85

MULTIPLIER MOD. LAYOUT

45.452

Item no.	Sch.ref.	Description	Qty.	EAA Part number
102	C 1	Capacitor, electrolytic, 47mF / 16V / MU type	2	
103	C 2	Ident. to C1		
105	CB 1	Printed circuit board	1	63.304A/PCB.
107	CP 1	Connector, plug, 4 positions	1	J2088-20/4
108	CP 2	Connector, plug, 6 positions	1	J2088-20/6
110	D 1	Diode, 1N4148	2	
111	D 2	Ident. to D1		
113	IC 1	Integrated circuit MC1495L	1	
114	IC 2	Integrated circuit TL071CP	1	
116	P 1	Potentiometer, adjustable, 10k	2	PT10V-H2.5-10k
117	P 2	Ident. to P1		
118	P 3	Potentiometer, adjustable, 4.7k	1	PT10H-H2.5-4.7k
119	P 4	Potentiometer, adjustable, 22k	1	PT10H-H2.5-22k
121	R 1	Resistor 22k, 0.25W, 5%	1	
122	R 2	Resistor 10k, 0.25W, 5%	3	
123	R 3	Ident. to R2		
124	R 4	Ident. to R2		
125	R 5	Resistor 8.2k, 0.25W, 5%	1	
126	R 6	Resistor 27k, 0.25W, 5%	1	
127	R 7	Resistor 3.3k, 0.25W, 5%	5	
128	R 8	Ident. to R7		
129	R 9	Ident. to R7		
130	R 10	Ident. to R7		
131	R 11	Ident. to R7		
132	R 12	Resistor 27k, 0.25W, 5%	1	
133	R 13	Resistor 15k, 0.25W, 5%	1	
134	R 14	Resistor 3.9k, 0.25W, 5%	2	
135	R 15	Ident. to R14		
140		Multiplier module assembly	1	63.304A/PCB.ASSY.
-- PARTS LIST --				
SQUARE 1000 - MULTIPLIER MODULE - ref. 63.304			1 of 1	45.463

I	Item no	I	Sch.ref.	I	Description	I	Qty.	I	EAA Part number	I
I		I		I		I		I		I
I		I		I		I		I		I
I		I		I	Hardware used to secure blower B1	I		I		I
I	1104	I	Z 5	I	Machine screw, metric, TC4x50	I	4	I	TC4x50	I
I		I		I		I		I		I
I		I		I	Hardware used to secure input sockets connectors X15 and X16	I		I		I
I	1107	I	Z 20	I	Pop rivet, 3x8mm	I	8	I	SNA380	I
I		I		I		I		I		I
I		I		I	Hardware swaged on main chassis Y6	I		I		I
I	1110	I	Z 21	I	Nut, swage type, metric, ref. RF01M4	I	4	I	RF01M4	I
I	1111	I	Z 22	I	Nut, swage type, metric, ref. RF01M5	I	8	I	RF01M5	I
I	1112	I	Z 23	I	Nut, swage type, metric, ref. RK10M5-300	I	4	I	RK10M5-300	I
I		I		I		I		I		I
I		I		I	Hardware used to secure main cover Y7	I		I		I
I	1115	I	Z 14	I	Machine screw, metric, TFHC5x12	I	12	I	TFHC5x12	I
I		I		I		I		I		I
I		I		I	Hardware used to secure front panel handles Y9	I		I		I
I	1118	I	Z 25	I	Machine screw, metric, TFHC5x16	I	4	I	TFHC5x16	I
I		I		I		I		I		I
I		I		I	Hardware used to secure rear panel handles Y9	I		I		I
I	1121	I	Z 14	I	Machine screw, metric, TFHC5x12	I	4	I	TFHC5x12	I
I		I		I		I		I		I
I		I		I	Hardware used to secure finger guard X17 and clip Z26 on	I		I		I
I		I		I	fan cover Y10	I		I		I
I	1125	I	Z 13	I	Pop rivet, 3.2x8mm	I	4	I	TAP/046	I
I	1126	I	Z 26	I	Pop rivet, 4x12mm	I	4	I	TAP/510	I
I		I		I		I		I		I
I		I		I	Hardware used to secure pin Z28	I		I		I
I	1129	I	Z 29	I	Lockwasher, Z15	I	3	I	Z15	I
I	1130	I	Z 12	I	Hex. nut, metric, Hm5	I	2	I	Hm5	I
I		I		I		I		I		I
I		I		I	Hardware used to secure rubber feet X18	I		I		I
I	1133	I	Z 30	I	Machine screw, metric, TC5x20	I	4	I	TC5x20	I
I	1134	I	Z 31	I	Washer, flat, L5x16	I	4	I	L5x16	I
I		I		I		I		I		I
I		I		I	Hardware used to secure voltage amplifier cover Y11	I		I		I
I	1137	I	Z 32	I	Machine screw, metric, TC4x8	I	4	I	TC4x8	I
I		I		I		I		I		I
I		I		I	Hardware used to secure hex. standoffs Z27	I		I		I
I	1140	I	Z 14	I	Machine screw, metric, TFHC5x12	I	2	I	TFHC5x12	I
I	1141	I	Z 31	I	Washer, flat, L5x16	I	2	I	L5x16	I
I	1142	I	Z 29	I	Lockwasher, Z15	I	2	I	Z15	I
I		I		I		I		I		I
I		I		I	Hardware used to secure power modules assemblies	I		I		I
I	1145	I	Z 24	I	Machine screw, metric, TFHC5x16	I	8	I	TFHC5x16	I
I		I		I		I		I		I
I		I		I		I		I		I

I	-- PARTS LIST --	I	- SQUARE 1000 -	MISCELLAN
---	------------------	---	-----------------	-----------

- 1.0 - Vérification des tensions d'alimentation -
=====

- 1.1 - La lampe de protection étant disposée en série dans la ligne secteur effectuer une brève mise en service de l'appareil en effectuant deux actions successives sur la touche de mise en route s'assurer en disposant un voltmètre entre masse et boîtier des transistors de puissance que l'on obtient une montée progressive des tensions principales de l'alimentation (+HV et -HV sur 45.447). Effectuer cette manipulation pour chacun des modules de puissance.

- 1.2 - Arrêter l'amplificateur.

- 1.3 - Débrancher la lampe de protection.

- 1.4 - Mettre en marche l'appareil normalement, s'assurer en écoutant attentivement que le relais principal BK1 (voir 45.447 et 45.456) s'est enclenché puis, après quelques secondes, que les deux relais K1 (voir 45.459) des sécurités sont commandés à leur tour.

- 1.5 - Vérifier que les tensions principales d'alimentation +HV et -HV présentes sur les collecteurs (boîtiers) des transistors de puissance de chaque module sont d'environ 87V DC.

- 1.6 - Vérifier en se plaçant sur un circuit intégré TL071CP de chaque carte de puissance 40.306 et 40.307 que les tensions des alimentations auxiliaires sont correctes.

On doit obtenir de -16 à -18V environ (pin 4) et de +16 à +18V environ (pin 7).

- 2.0 - Réglage de la limitation de tension -
=====

- 2.1 - Disposer le commutateur SW3 (voir 45.450) de mise en service du VCA sur la position ON.

- 2.2 - Régler à fond (sens horaire) les potentiomètres P1 et P2 (voir 45.452/45.457) de réglage de niveau disposés en face avant.

- 2.3 - L'amplificateur n'étant pas chargé, appliquer un signal de 1kHz sur l'entrée, régler le niveau pour obtenir 58V AC environ en sortie.

- 2.4 - Régler sur chaque canal les ajustables P4 (voir 35.454/35.458) repérés "U" de façon à obtenir une tension de 52V AC sur les bornes de sortie.

- 2.5 - Vérifier que les indicateurs d'écrêtage disposés en face avant (led's jaunes) s'allument.

- 2.6 - Remettre le commutateur de VCA SW3 en position OFF.

- 2.7 - Vérifier que le niveau du signal de sortie est revenu à sa valeur d'origine soit 58V AC environ.

- 3.0 - Réglage du multiplicateur -
=====

- 3.1 - Appliquer sur l'entrée un signal à 1kHz d'un niveau suffisant pour obtenir 40V AC environ sur les bornes de sortie.

- 3.2 - Brancher un millivoltmètre AC entre masse et le point repéré 9 sur la carte de puissance 40.306 ou 40.307 (voir 35.454 / 35.458).

- 3.3 - Régler l'ajustable P1 du module multiplicateur (voir 45.452) pour obtenir la lecture d'une tension minimale sur le millivoltmètre et en tous cas inférieure à 15mV AC.

- 3.4 - Simuler un court-circuit en disposant un condensateur de 100 à 330mF / 25V entre masse (1+2 de CP1) et entrée tension (5+6 de CP1) du multiplicateur.
- 3.5 - Brancher une charge de 4 ohms sur les bornes de sortie.
- 3.6 - Régler l'ajustable P2 (45.452) pour obtenir la lecture d'une tension minimale et en tous cas inférieure à 15mV AC.
- 3.7 - Débrancher la charge ainsi que le condensateur, s'assurer que l'on a toujours 0V environ en lecture du millivoltmètre.

- 4.0 - Réglage de "I" - =====

- 4.1 - Appliquer un signal à 1kHz d'un niveau suffisant pour obtenir 50V AC à vide sur les bornes de sortie (la charge étant débranchée).
- 4.2 - S'assurer que l'ajustable P3 repéré P (voir 35.454 et 35.458) est bien ouvert au 2/3 (sens horaire).
- 4.3 - Appliquer brièvement une charge de 2 ohms et régler l'ajustable P2 repéré "I" (voir 35.454 et 35.458) de façon à obtenir 48V AC en sortie lorsque la charge est en service, ce qui représente un courant de 24A (limite d'écrêtage).
- 4.4 - Retirer la charge.
- 4.5 - Régler le niveau du signal pour obtenir 40,1V AC.
- 4.6 - Remettre la charge de 2 ohms en service.
- 4.7 - Ajuster P3 repéré "P" pour obtenir au point 10 (voir 35.454 et 35.458) une tension continue de 10V DC.
- 4.8 - Débrancher la charge de 2 ohms.
- 4.9 - Reprendre le point 4.3.
- 4.10 - Vérifier par l'application rapide d'une charge de 1 ohm que la tension de sortie est comprise entre 21 et 24V AC.
- 4.11 - Vérifier par une application rapide d'un court-circuit que la tension de sortie est de l'ordre de quelques millivolts (fonction des résistances résiduelles). Le signal délivré à ce moment ne devant pas comporter de déformation apparente ni de superposition de HF; le courant de court-circuit étant à ce moment de l'ordre de 4 à 5A.

- 5.0 - Réglage du courant de repos. =====

- 5.1 - Disposer un millivoltmètre DC entre les points extrêmes des résistances R41 et R³⁴4 (voir 35.455 et 35.460) des cartes 40.306 et 40.307.

- 5.2 - A l'aide d'un tournevis isolé, régler l'ajustable P1 (potentiomètre cermet) au travers du trou disposé dans le circuit de façon à obtenir 5mV DC à froid.

- 5.3 - Reprendre le réglage précédent (5.2) après une heure de mise sous tension aucune modulation n'étant appliquée à l'entrée.

- 6.0 - Vérification de la tension d'offset -
=====

- 6.1 - Disposer un millivoltmètre DC sur les bornes des sorties.

- 6.2 - Vérifier que la tension d'offset des sorties est bien inférieure à 5mV DC.

- 7.0 - Réglage de la limitation de courant -
=====

- 7.1 - Appliquer sur les entrées un signal à 1kHz d'un niveau suffisant pour obtenir une tension de 50V AC sur les bornes des sorties.

- 7.2 - Connecter brièvement une charge de 2 ohms tout en réglant le niveau du signal pour obtenir 48V AC lorsque la charge est connectée, soit un courant de 24A.

- 7.3 - Diminuer progressivement la charge en dessous de 1 ohm, la tension de sortie doit diminuer très rapidement pour atteindre une valeur d'environ 0,3V AC pour un court-circuit (fonction des résistances résiduelles); un oscilloscope disposé sur les bornes des sorties doit alors montrer un signal ne présentant pas de déformation ou distorsion sensible.

- 8.0 - Réglage de la distorsion -
=====

- 8.1 - Débrancher la charge.

- 8.2 - Appliquer un signal de 1 kHz sur l'entrée, d'un niveau suffisant pour obtenir 40V AC en sortie.

- 8.3 - Disposer un distorsiomètre sur les bornes de sortie.

- 8.4 - Régler l'ajustable P1 (voir 45.451) disposé sur le module VCA 63.303 de façon à obtenir une distorsion en sortie inférieure à 0,01%.

- 8.5 - Connecter une charge de 4 ohms.

- 8.6 - Vérifier que la distorsion ne dépasse pas 0,09% (porter attention au câblage)

- 8.7 - Reprendre si besoin est le réglage de P1 ainsi que celui du courant de repos (voir section 5.0) tout en vérifiant que celui-ci ne dépasse pas 25mA à vide, la sortie n'étant pas chargée.

- 9.0 - Vérification du fonctionnement du thermomètre -
=====

- 9.1 - Disposer un décibellemètre/millivoltmètre sur les bornes de sortie.

- 9.2 - Appliquer un signal de 1kHz sur l'entrée, régler le niveau à 1,2V environ, noter celui-ci.

- 9.3 - A l'aide d'un fer à souder, chauffer modérément le transistor de mesure de température Q22 (voir 35.455 et 35.458) (ce transistor comporte les deux connections collecteur/base court-circuitées), l'amplitude du signal de sortie doit alors diminuer rapidement.

- 9.4 - La diode LED d'indication de température D9 (voir 45.457) disposée en face avant (led rouge) doit s'éclairer pour une atténuation du signal d'environ -1dB.

=====

-* CALIBRATION PROCEDURE FOR "SQUARE 1000" AMPLIFIERS -*

=====

I		I
I	ATTENTION !	I
I	=====	I
I		I
I	Due to the high power and voltages present within	I
I	this device, the user should have in series, in the	I
I	mains line, a high power illuminating lamp	I
I	(at least 100W/220V) before performing a manipu-	I
I	lation or a setting.	I
I		I
I	The device should not be connected directly to the	I
I	mains before having made sure that evething is	I
I	operating properly.	I

- 1.0 - Checking the power supply voltages -
=====

- 1.1 - Once the protection lamp is installed in series with the mains line, turn briefly the amplifier on by quickly depressing the on/off switch twice, set up a voltmeter between the chassis ground and the power transistors packages and make sure that there is a gradual rise in the power supply voltages (+Hv and -HV on dwg. 45.447).

Perform this manipulation for each of the power modules

- 1.2 - Turn off the amplifier.
- 1.3 - Remove the protection lamp.
- 1.4 - Turn the amplifier on, and listen attentively to make sure that mains relay BK1 (see dwg. 45.447 and 45.446) activates then, after a few seconds, that the two K1 relays (see dwg. 45.459) are activated in their turn.

- 1.5 - Make sure that the power supply voltages +HV and -HV present on the collectors (metal package) of the power transistors of each modules are approximately + or - 87V dc.

- 1.6 - Make sure that the auxiliary power supply is working properly by checking voltages presents on an integrated circuit TL071CP of each power board 40.306 and 40.307.

About -16V to -18V (pin 4) and about +16V to +18V (pin 7) should be obtained.

- 2.0 - Setting up the voltage limitation -
=====

- 2.1 - Set switch SW3, "VCA", (see dwg. 45.450) to "ON" position

- 2.2 - On the front panel, set level adjustment potentiometers P1 and P2 fully clockwise (see dwg. 45.452 and 45.457)

- 2.3 - The amplifier being unloaded, apply a 1 kHz signal at the input connector, adjust the level to get about 58V ac on the output terminals.

- 2.4 - On each channel adjust the variable resistor P4 (see dwg. 35.454/35.458) labeled "U" in order to get 52V ac at the output terminals.

- 2.5 - Make sure that the clipping indicators on the front panel (yellow LEDs) light.

- 2.6 - Put the switch SW3, "VCA", back to the "OFF" position.

- 2.7 - Make sure that the output signal level has come back to its original value, that is about 58V ac.

- 3.0 - Setting up the multiplier -
=====

- 3.1 - Apply a 1 kHz signal to the input connector with enough level to obtain about 40V ac at the output terminals.

- 3.2 - Connect an ac millivoltmeter between the chassis ground and the point labeled 9 on power boards 40.306 and 40.307 (see dwg. 35.454/35.458).

- 3.3 - Adjust the variable resistor P1 of the multiplier module (see dwg. 45.452) to obtain a minimum voltage reading on the millivoltmeter and in every case less than 15mV ac.

- 3.4 - Simulate a short circuit by installing a capacitor of 100 to 330 mF between chassis ground (1+2 of CP1) and the voltage input (5+6 of CP1) of the multiplier.
- 3.5 - Connect a 4 ohms load to the output terminals.
- 3.6 - Adjust variable resistor P2 (see dwg. 45.452) to obtain a minimum voltage reading and in every case less than 15 mV ac.
- 3.7 - Remove the load and the capacitor, make sure that there is still approximately 0V on the millivoltmeter reading.

- 4.0 - Setting up the current limitation -
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- 4.1 - Apply a 1 kHz signal with a sufficient level to obtain 50V ac on the output terminals (the load being disconnected).
- 4.2 - Make sure that the variable resistor P3, labeled P (see dwg. 35.454 and 35.458) is opened 2/3 of the way clockwise.
- 4.3 - Connect briefly a 2 ohms load and adjust the variable resistor P2, labeled "I" (see dwg. 35.454 and 35.458) in order to obtain 48V ac at the output when the load is connected, which represents a current of 24A (clipping limit)
- 4.4 - Remove the load.
- 4.5 - Set the input signal level to obtain 40.1V ac.
- 4.6 - Replace the 2 ohms load across the output terminals.
- 4.7 - Adjust P3, labeled "P" to obtain at point 10 (see dwg. 35.454 and 35.458) a dc voltage of 10V dc.
- 4.8 - Remove the load.
- 4.9 - Repeat procedure 4.3.
- 4.10 - By quick connection of a 1 ohm load, check that the output voltage is included between 21 and 24V ac.
- 4.11 - By quick connection of a short-circuit to the output terminals, make sure that the output voltage is a few millivolts (depending upon the residual resistances). The signal displayed at this moment should not include any visible deformation or high frequency signal superposition, at this moment the short circuit current is approximately 4 to 5A.

- 5.0 - Setting up the quiescent current -
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- 5.1 - Install a dc millivoltmeter between the extreme points of resistors R41 and R44 (see dwg. 35.455 and 35.460) of boards 40.306 and 40.307.
- 5.2 - Using an insulated screwdriver, adjust variable resistor P1 (cermet) through the hole managed in the circuit in order to obtain 5mV dc when cold.
- 5.3 - Repeat the procedure 5.2 after being operative during about one hour, with no signal at the input.

- 6.0 - Checking the offset voltage -
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- 6.1 - Install a dc millivoltmeter on the output terminals.
- 6.2 - Make sure that the offset voltage at the output terminals is less than 5mV dc.

- 7.0 - Setting up the current limitation -
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- 7.1 - Apply a 1 kHz signal to the input connector with enough level to obtain 50V ac on the output terminals.
- 7.2 - Connect briefly a 2 ohms load while adjusting the signal level to obtain 48V ac when the load is connected i.e. a 24A current.
- 7.3 - Bring the load gradually below 1 ohm. The output voltage level should decrease very quickly to reach an approximate value of .3V ac for a short circuit (based on the residual resistances). An oscilloscope installed at the output terminals should display a signal with no substantial deformation or distortion.

- 8.0 - Adjusting the distortion -
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- 8.1 - Remove the load.
- 8.2 - Feed a 1 kHz signal to the input connector with enough level to obtain 40V ac at the output.
- 8.3 - Install a distortion meter on the output terminals.
- 8.4 - Adjust the variable resistor "P1" (see dwg. 45.451) installed on the vca module 63.303 in order to obtain less than .01% distortion
- 8.5 - Connect a 4 ohms load.
- 8.6 - Make sure that the distortion does not exceed .09% (pay attention to the wiring, ground loops etc ...)
- 8.7 - If necessary, readjust P1 and the quiescent current (see section 5.0) while making sure that it does not exceed 25mA with the load disconnected.

- 9.0 - Checking the thermometer operation -
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- 9.1 - Install a decibelmeter/millivoltmeter to the output terminals.
- 9.2 - Apply a 1 kHz signal to the input connector, set the level at about 1.2V ac, note this value.
- 9.3 - Using a soldering iron, slightly heat the temperature measurement transistor Q22 (see dwg. 35.455 and 35.458) this transistor has his collector/base connections short circuited. The output signal should quickly decrease then.
- 9.4 - Temperature indicating led D9 (see dwg. 45.457) installed on the front panel (red led) should light for a signal attenuation of approximately -1 dB.