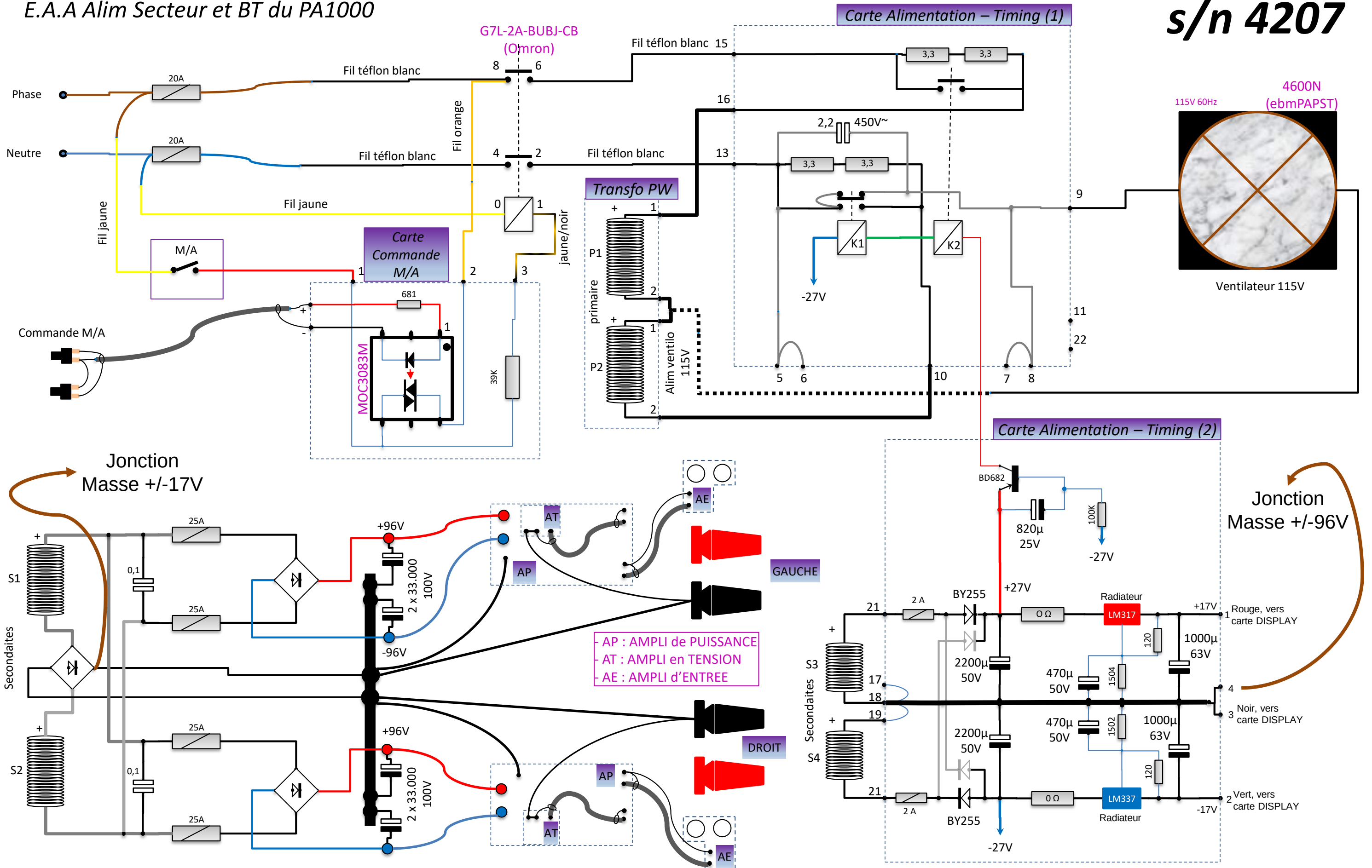
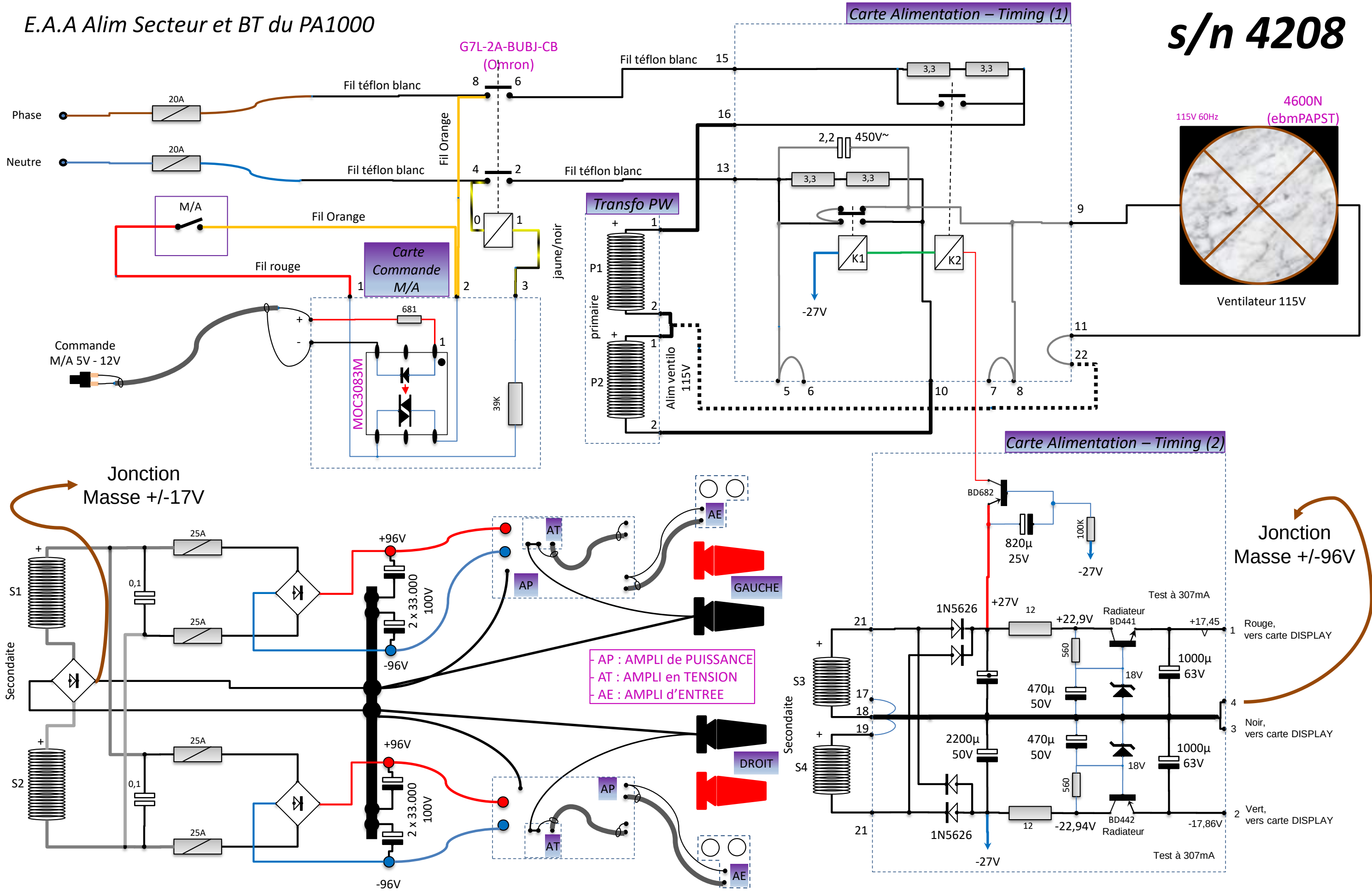
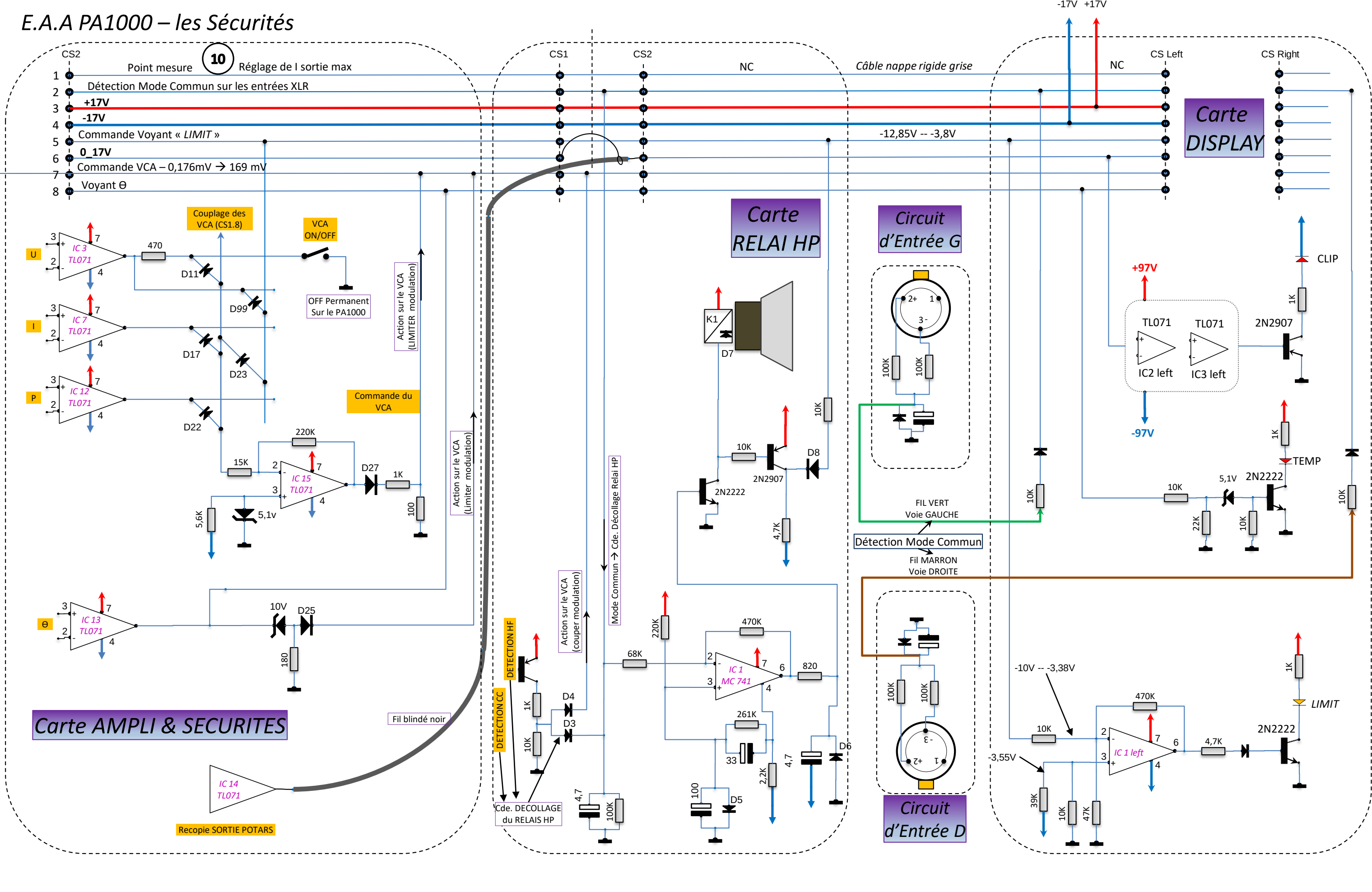






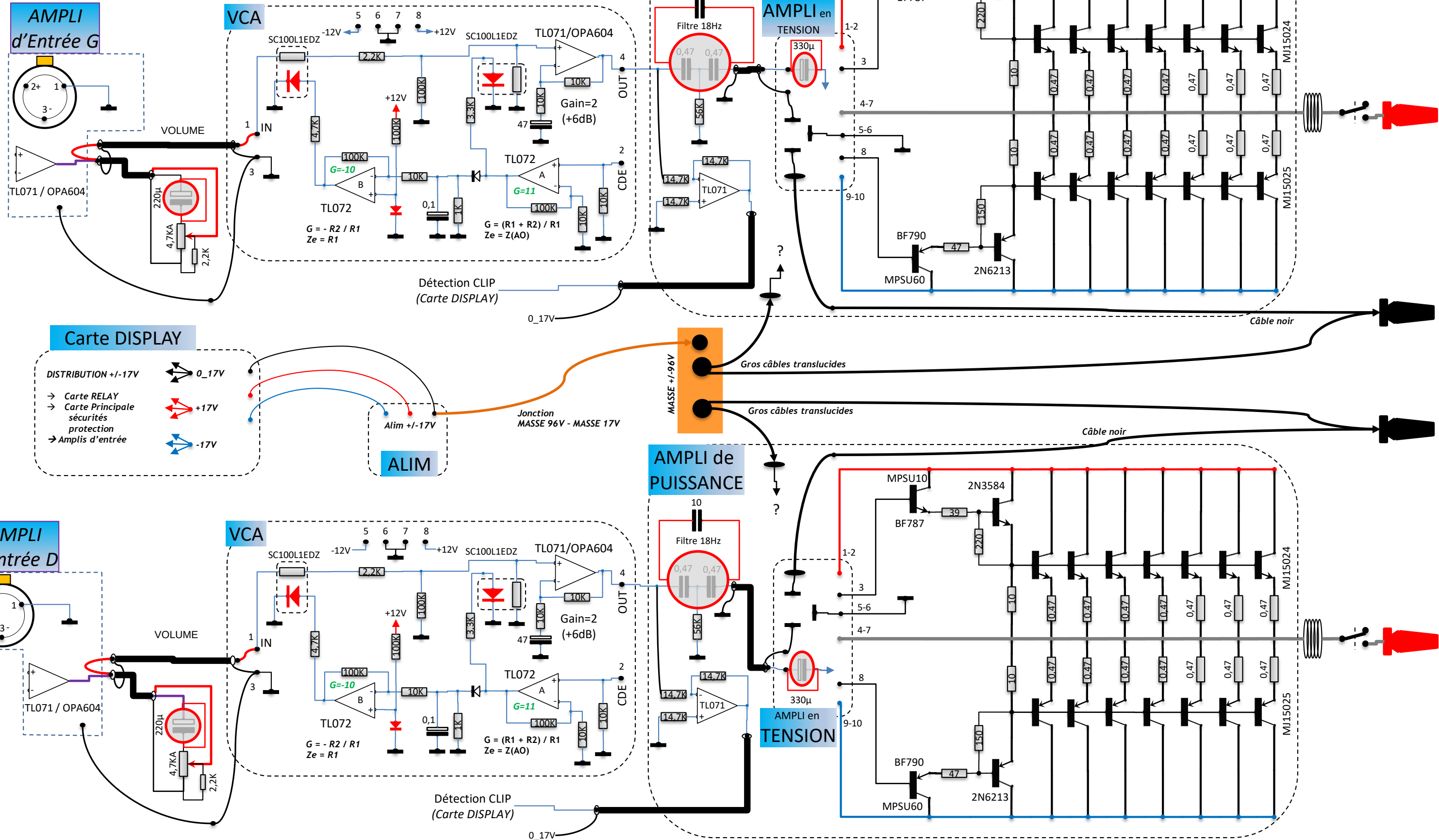
E.A.A PA1000 – les Sécurités



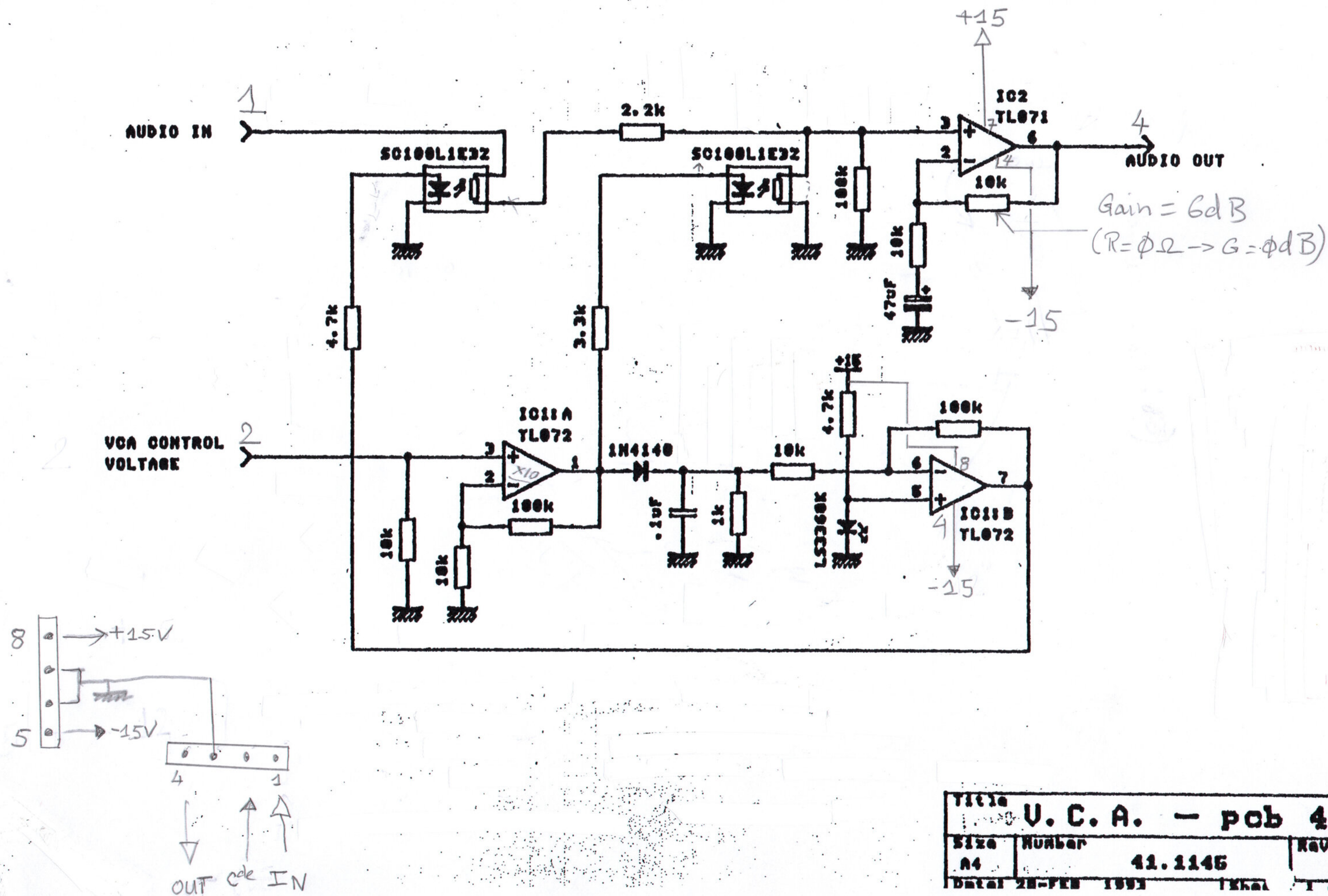
## SYNOPTIQUE DU TRAITEMENT DU SIGNAL

MODIFICATIONS :

- CAPAS de LIAISON SUPPRIMEES (en rouge) : STRAPS
- Filtre 18Hz remplacé par une 10μF
- Amplis d'entrée (TL071) remplacés par des OPA604, sur le s/n 4208
- Ampli VCA (TL071) remplacé par un OPA604, sur le s/n 4208



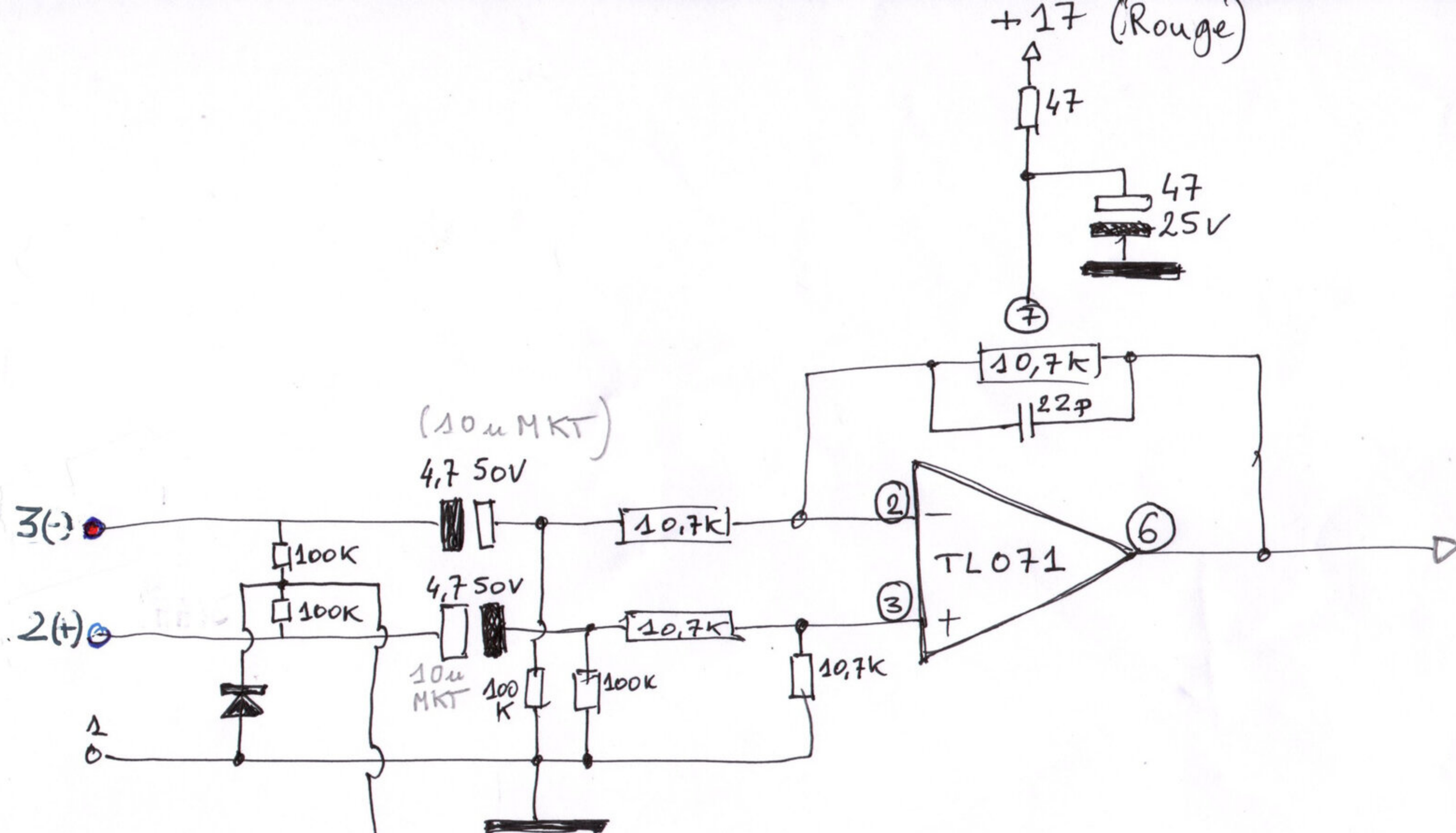




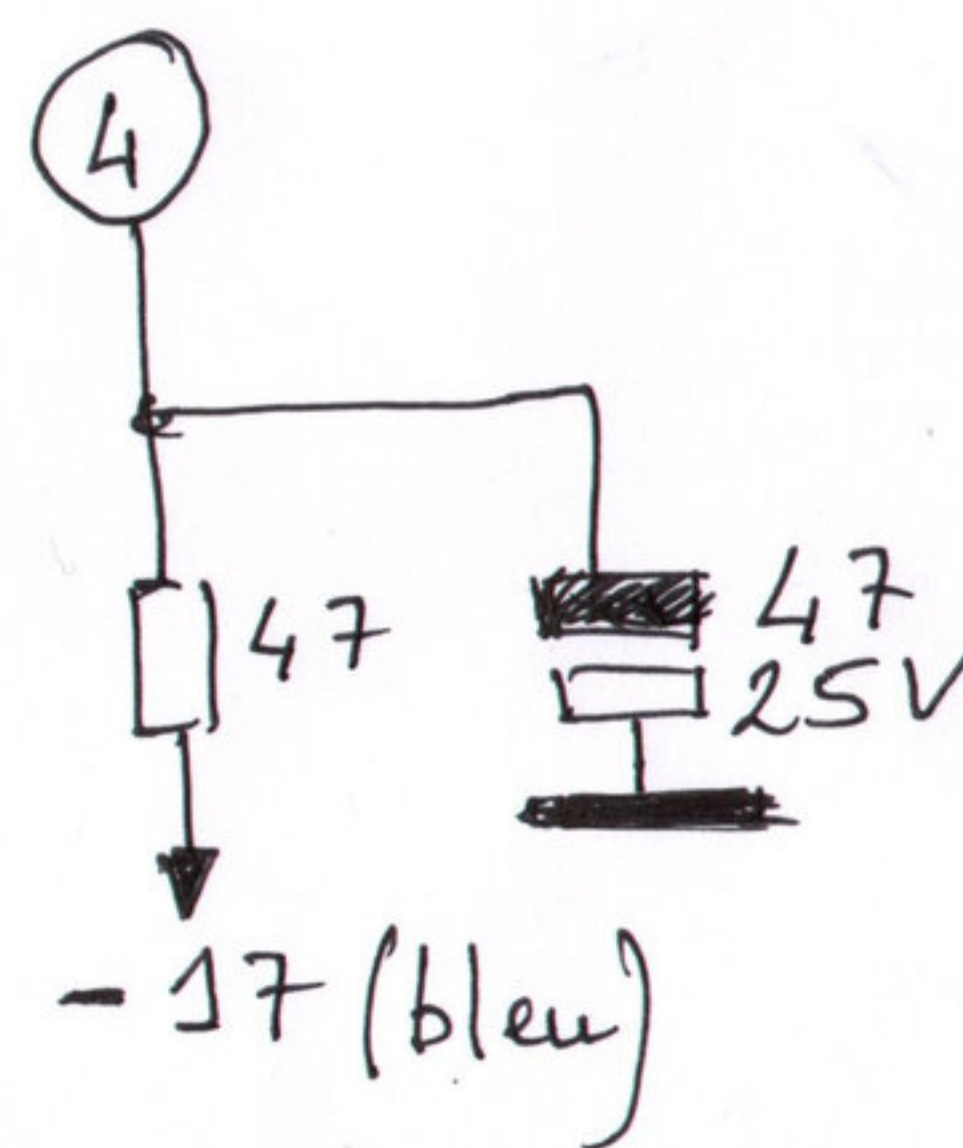
|                                   |                          |                      |
|-----------------------------------|--------------------------|----------------------|
| Title <b>U. C. A. - pcb 46504</b> |                          |                      |
| Size<br><b>A4</b>                 | Number<br><b>41.1145</b> | Revision<br><b>1</b> |
| Date: 28-FEB 1993                 |                          |                      |



XLR d'entrée

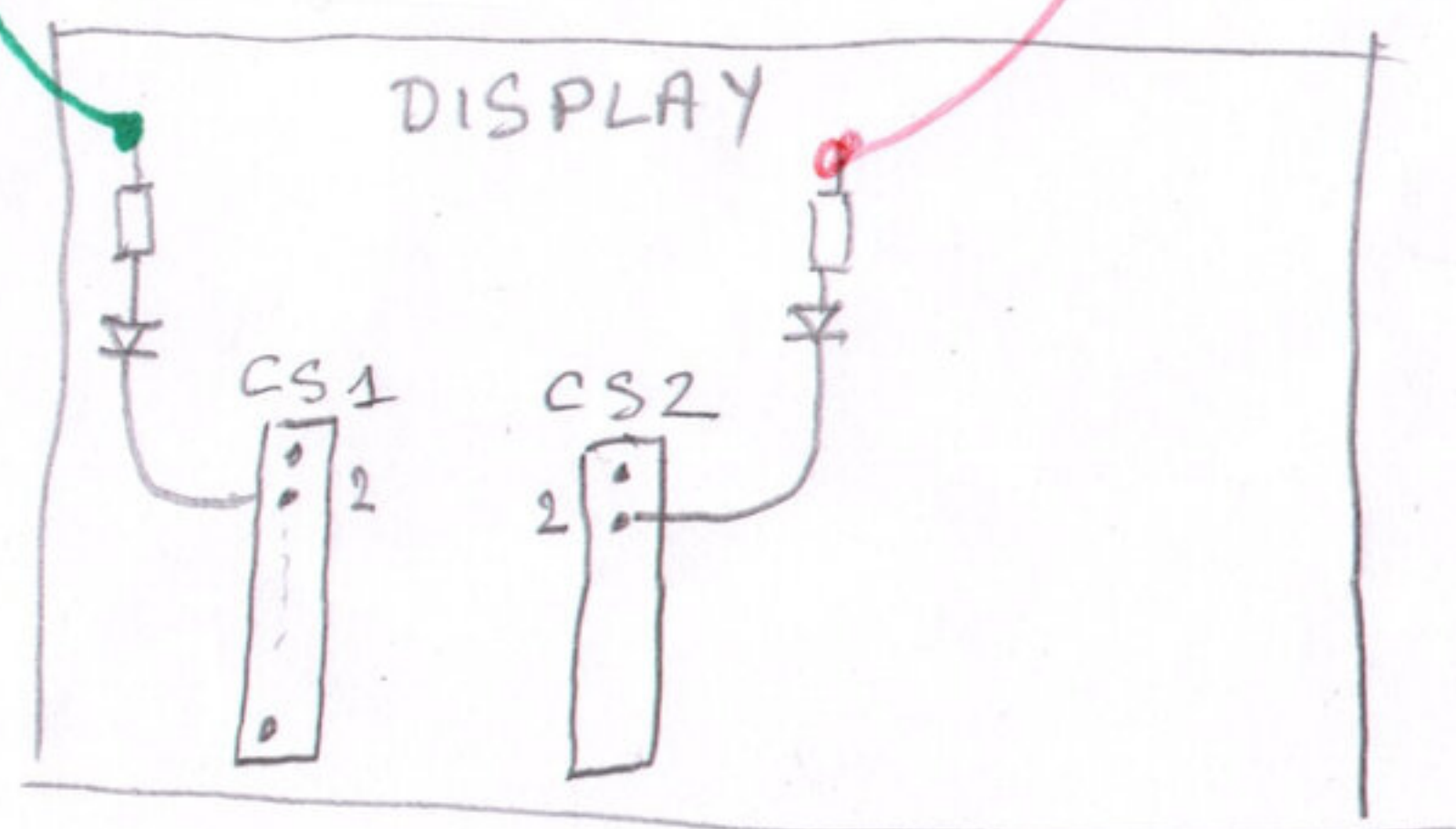


Voie G (V<sub>cc</sub>+) (maroon) VOIE D



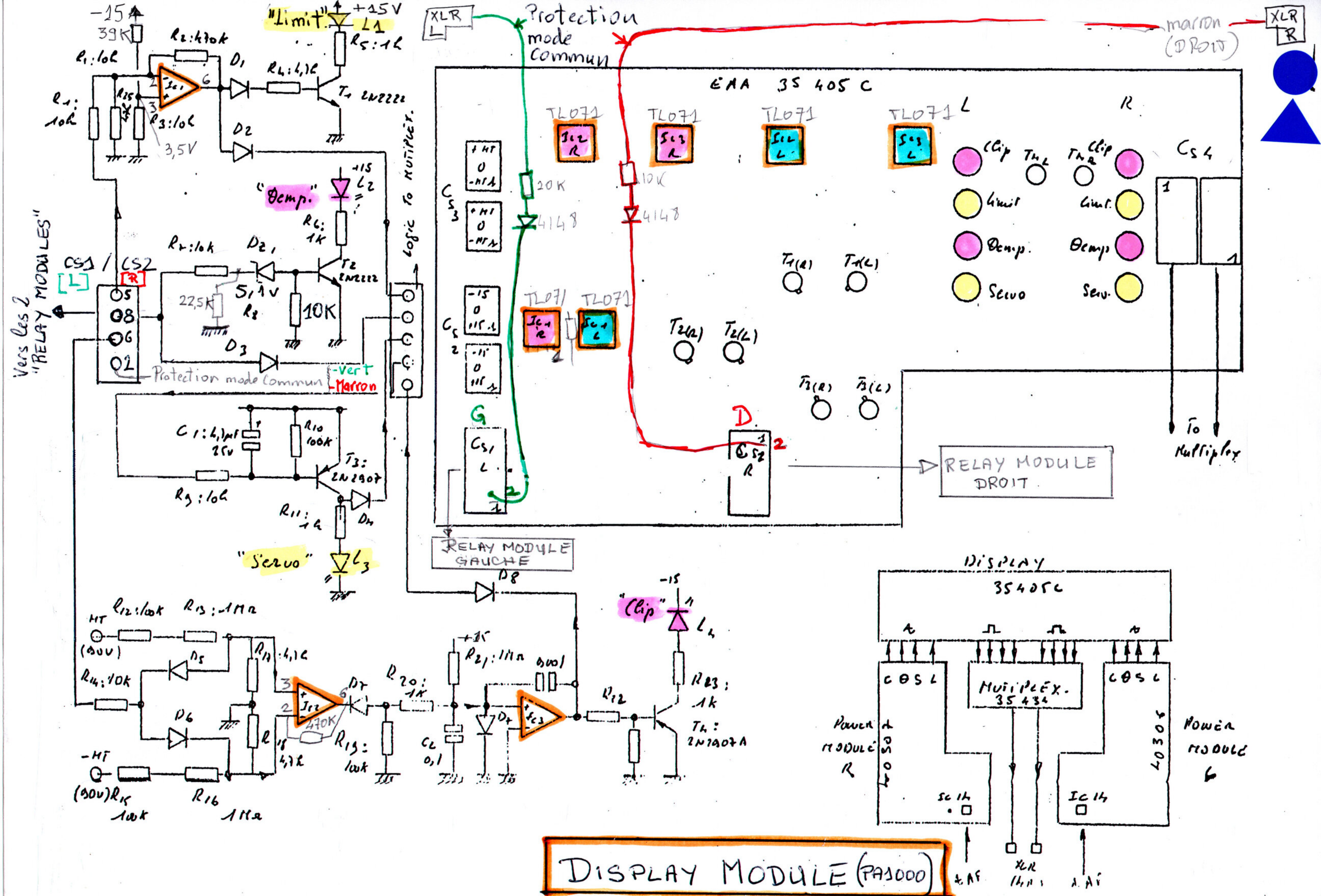
$$RC = 5 \times 10 \times 10^{-6} \times 10^3 = 50 \times 10^{-3}$$

$$f_c = \frac{1}{2 \times \pi \times 50 \times 10^{-3}} = 3.18 \text{ Hz} / 6 \text{ dB/O}$$



AMPLI D'ENTREE



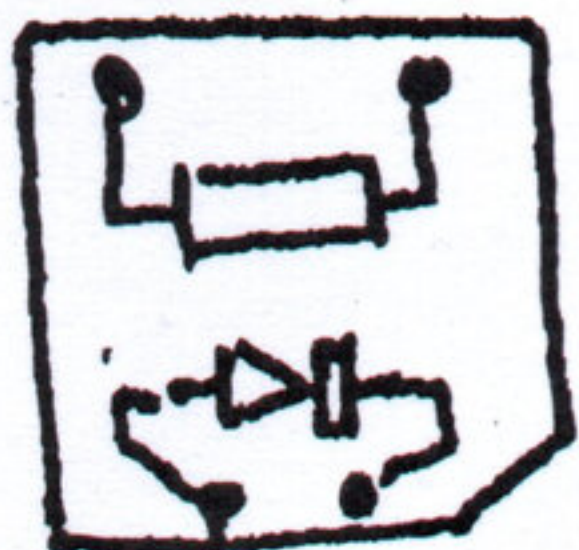




$\text{gain total} = \text{gain ampli} + \text{gain VCA}$   
 $\text{gain ampli} = 26 \text{ dB}$   
 $\text{gain VCA} = 6 \text{ dB}$

VCA DRX 63303 → VCA OPTO 46504

Refaire C27, C34  
 vérifier  $U_{aliu} > 12 \text{ V}$   
 Si  $U_{aliu} < 12 \text{ V} \Rightarrow$   
 $R_{121} = R_{122} = 100 \Omega$



VU DE JESSUP

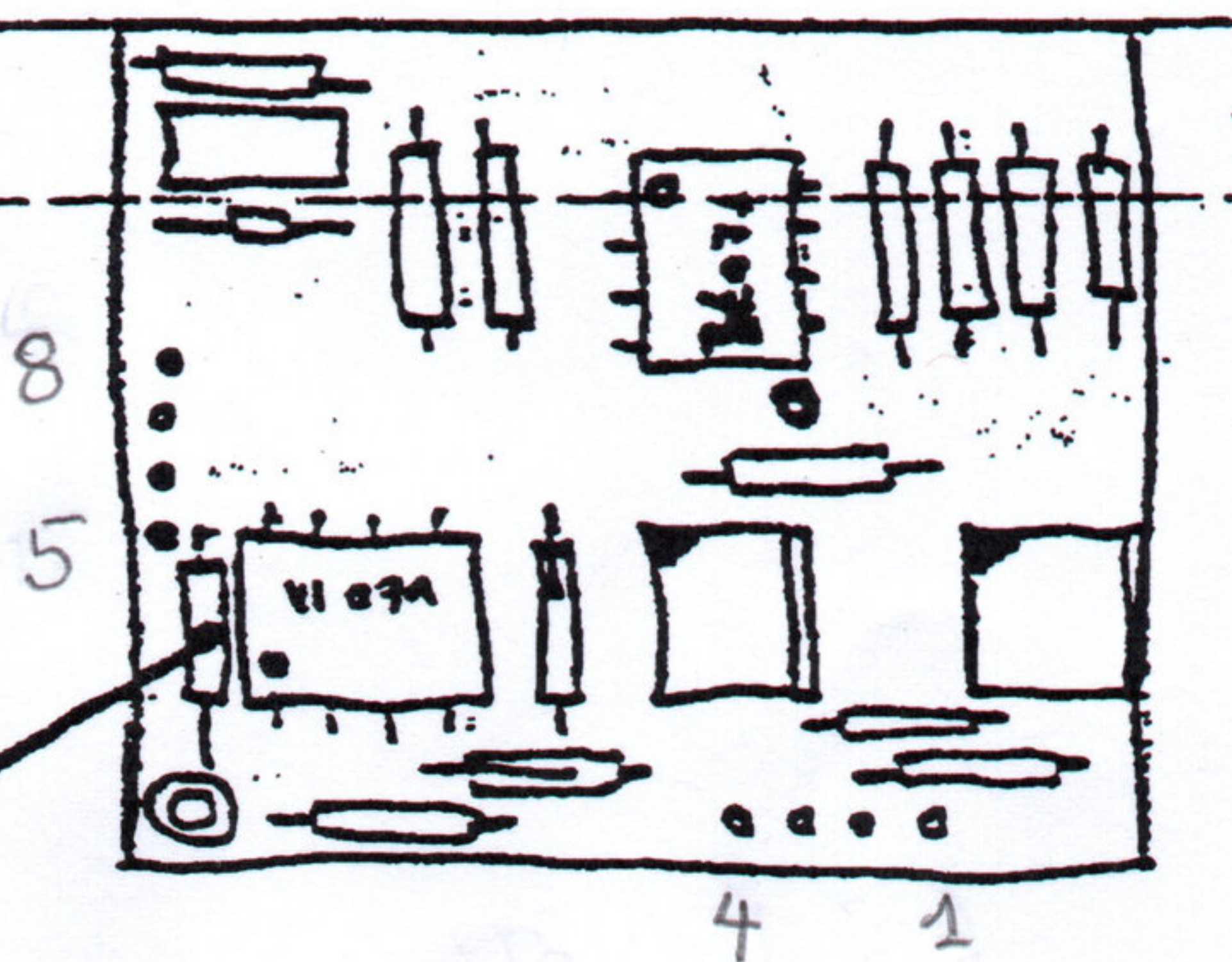
VCA DRX 63303 → VCA OPTO 43325A

Refaire : C27 C34 C35 D230 D274 R102  
 Changer :  $R_{101} = 0 \Omega$   
 $R_{121} = 0 \Omega$   
 $R_{99} = 69 \Omega$   
 $D_{224} = 3.2 \text{ V}$

VCA 43325A → 46504

RHS

OPTO



$10 \text{ k}\Omega \rightarrow +6 \text{ dB} / 0 \Omega \rightarrow 0$

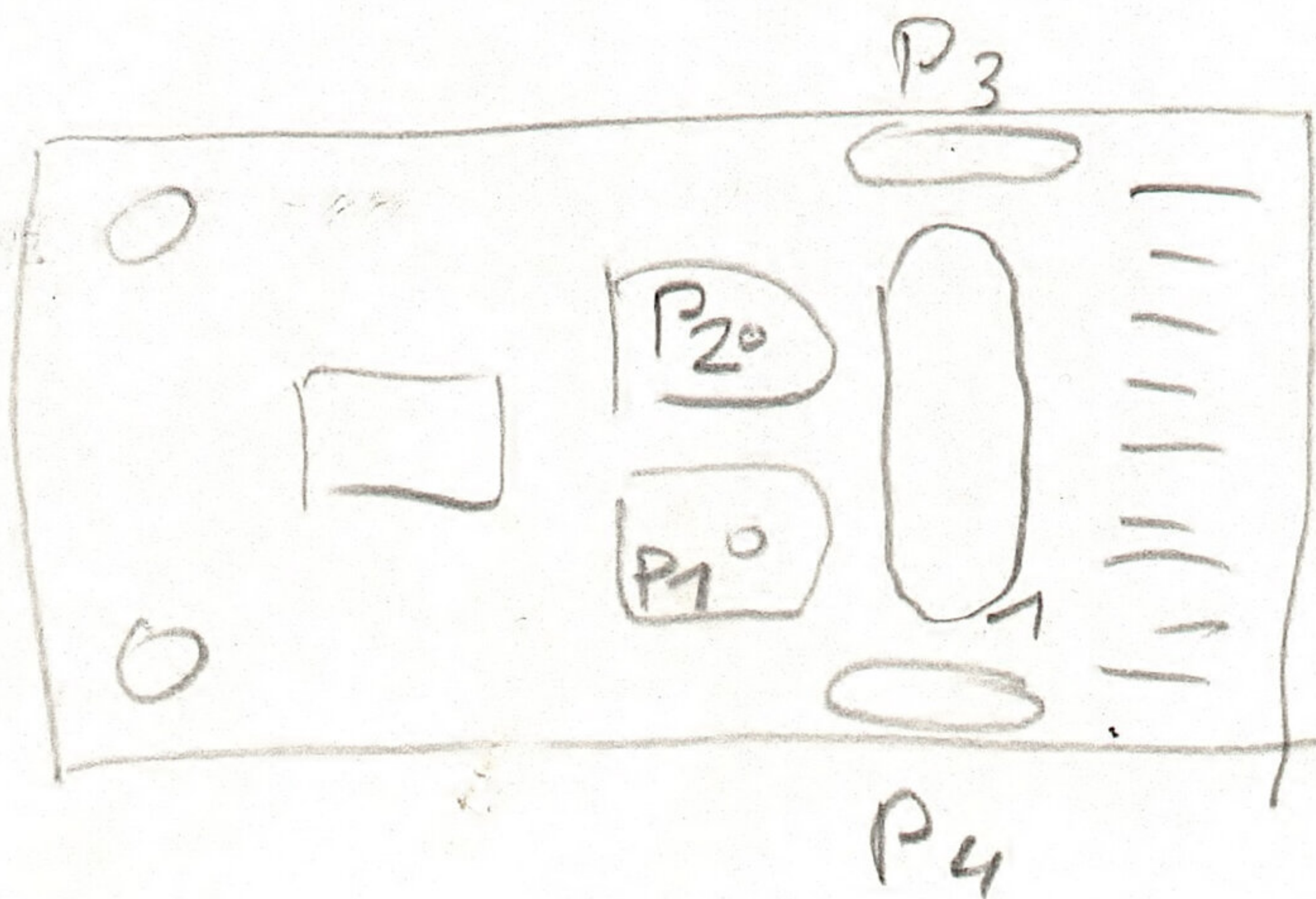
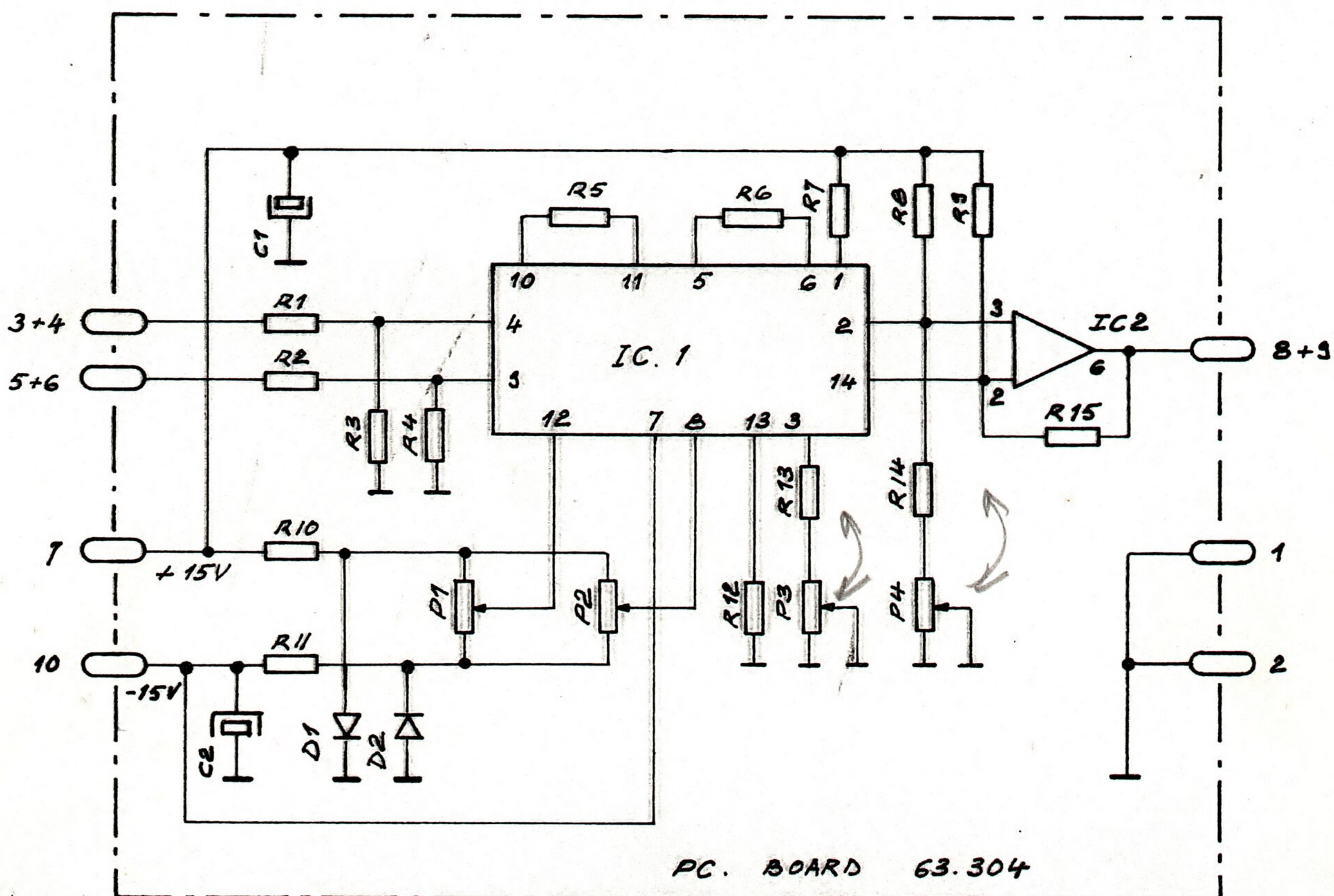
$\text{gain total } 26 \text{ dB} \rightarrow 1 \text{ V à l'entrée} \rightarrow \pm 20 \text{ V sortie}$   
 $\text{" " } 32 \text{ dB} \rightarrow \text{" " " " } \rightarrow \pm 40 \text{ V sortie}$

|                                                    |  |                                      |  |
|----------------------------------------------------|--|--------------------------------------|--|
| E.A.A. 4 PLACE DE LA MAIRIE 91620 MIZAY - FRANCE - |  | Tous droits de reproduction réservés |  |
| UPPER ASST                                         |  | DATE                                 |  |
| PA/SQUARE 1000                                     |  |                                      |  |
| VCA MODULE                                         |  | 46504                                |  |









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

UPPER ASSY.

DATE

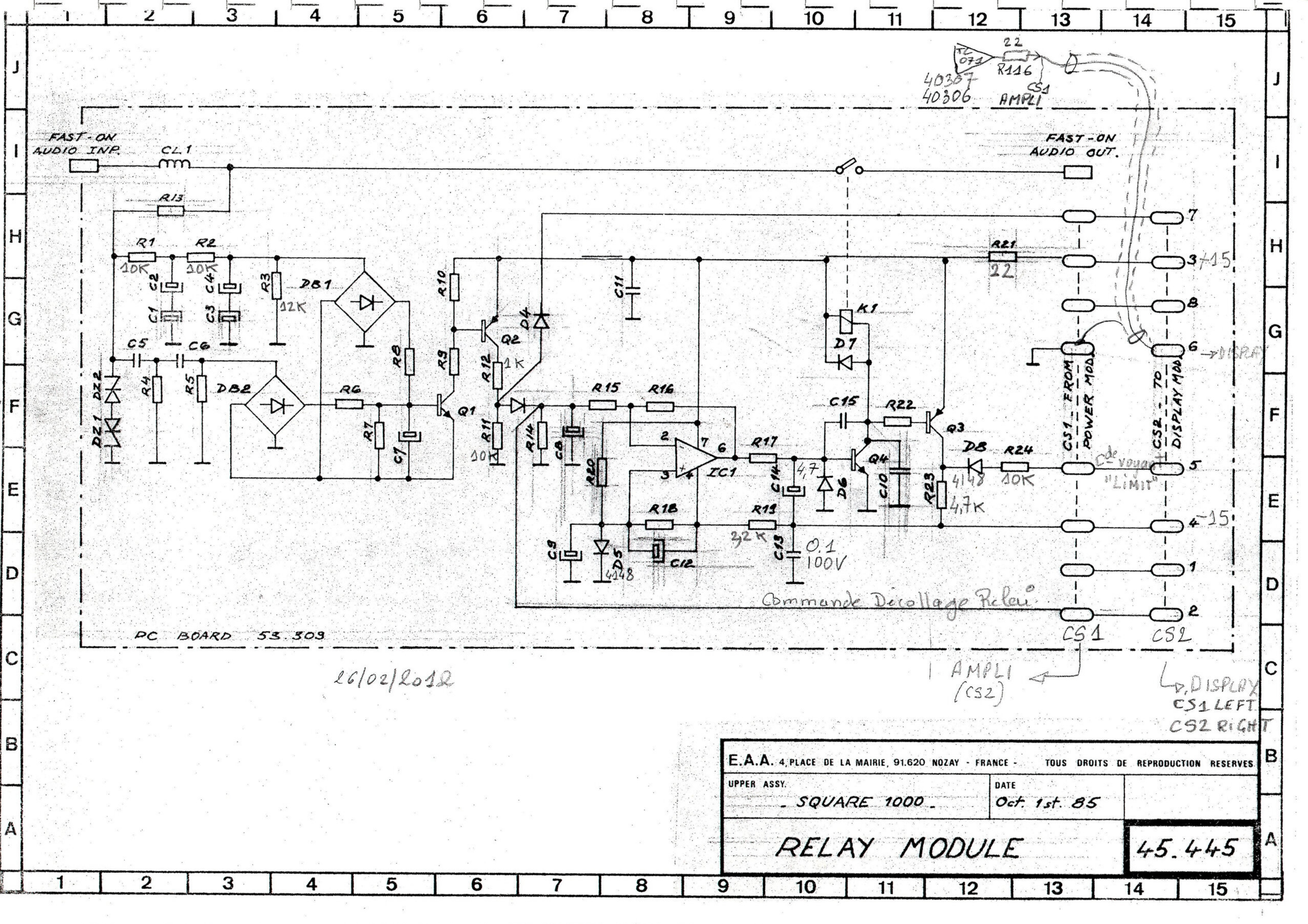
- SQUARE 1000 -

Oct. 1st. 85

MULTIPLIER MODULE

45.444

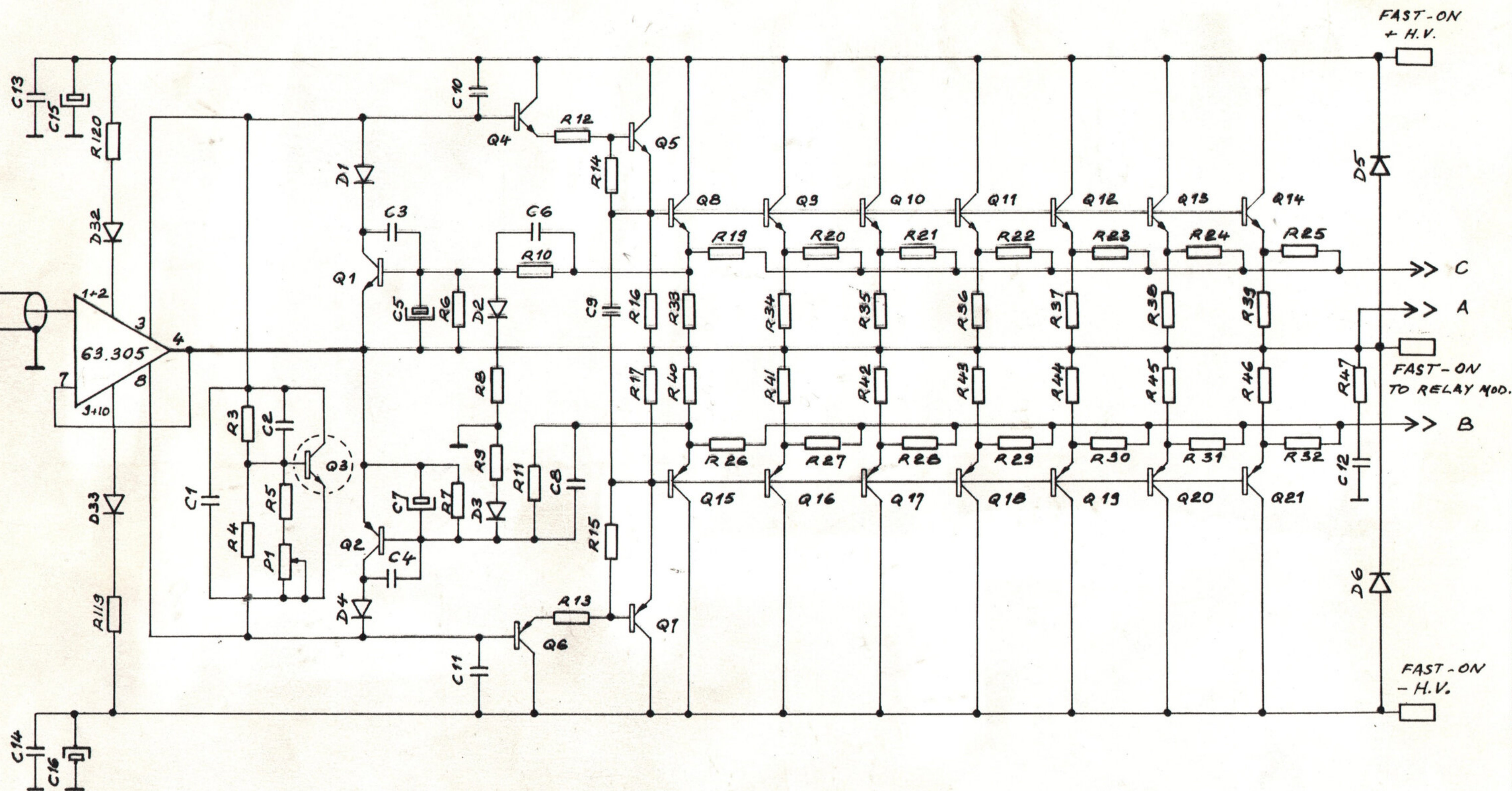




|                                                                                             |                      |
|---------------------------------------------------------------------------------------------|----------------------|
| E.A.A. 4, PLACE DE LA MAIRIE, 91.620 NOZAY - FRANCE - TOUS DROITS DE REPRODUCTION RESERVES. |                      |
| UPPER ASSY.<br>SQUARE 1000.                                                                 | DATE<br>Oct. 1st. 85 |
| RELAY MODULE                                                                                |                      |
| 45.445                                                                                      |                      |



FROM V.C.A. MODULE



MPS410  $\Rightarrow$  NPN  $\Rightarrow$  MJE340  
MPS460  $\Rightarrow$  PNP  $\Rightarrow$  MJE350

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

UPPER ASSY.

- SQUARE 1000 -

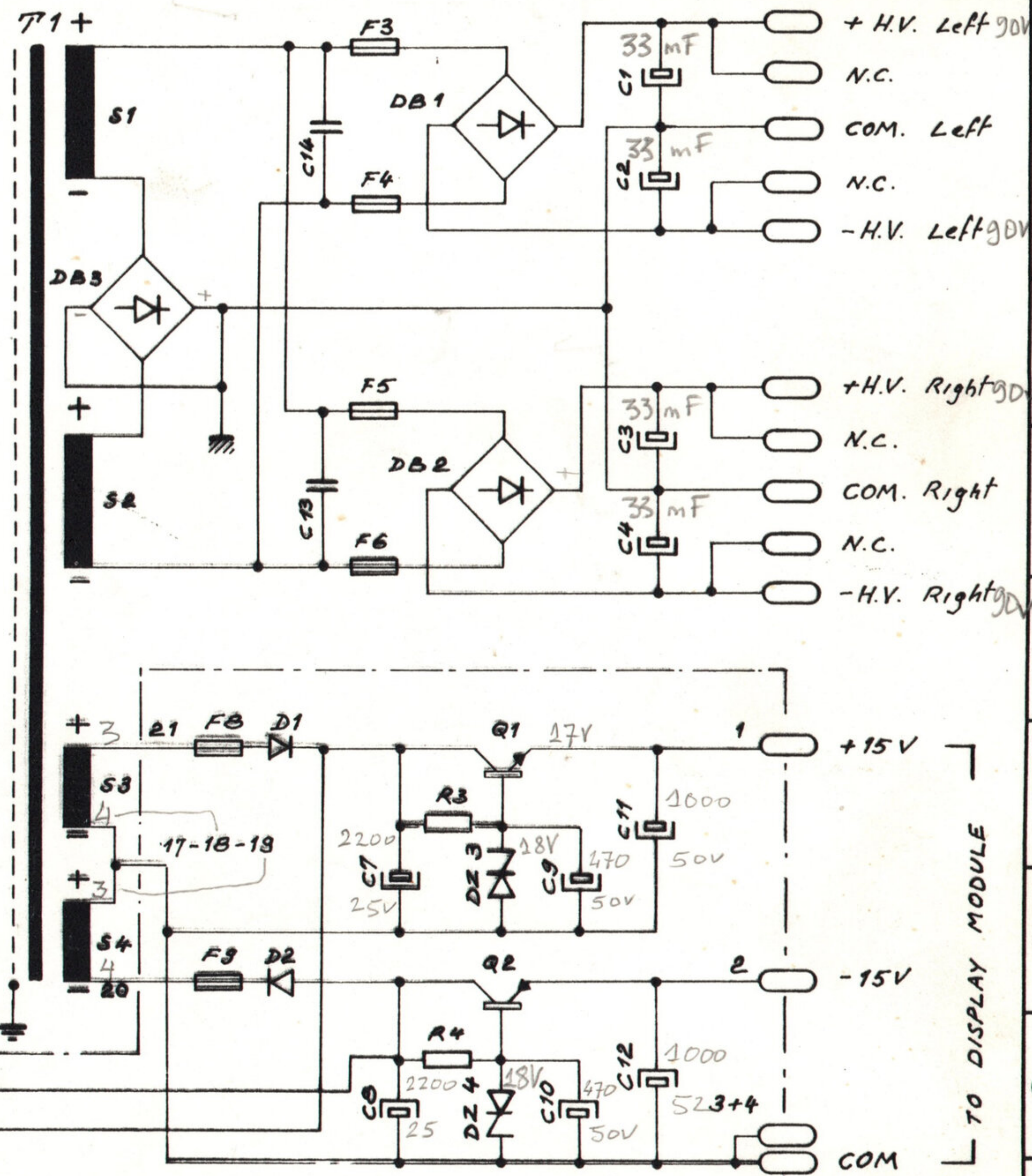
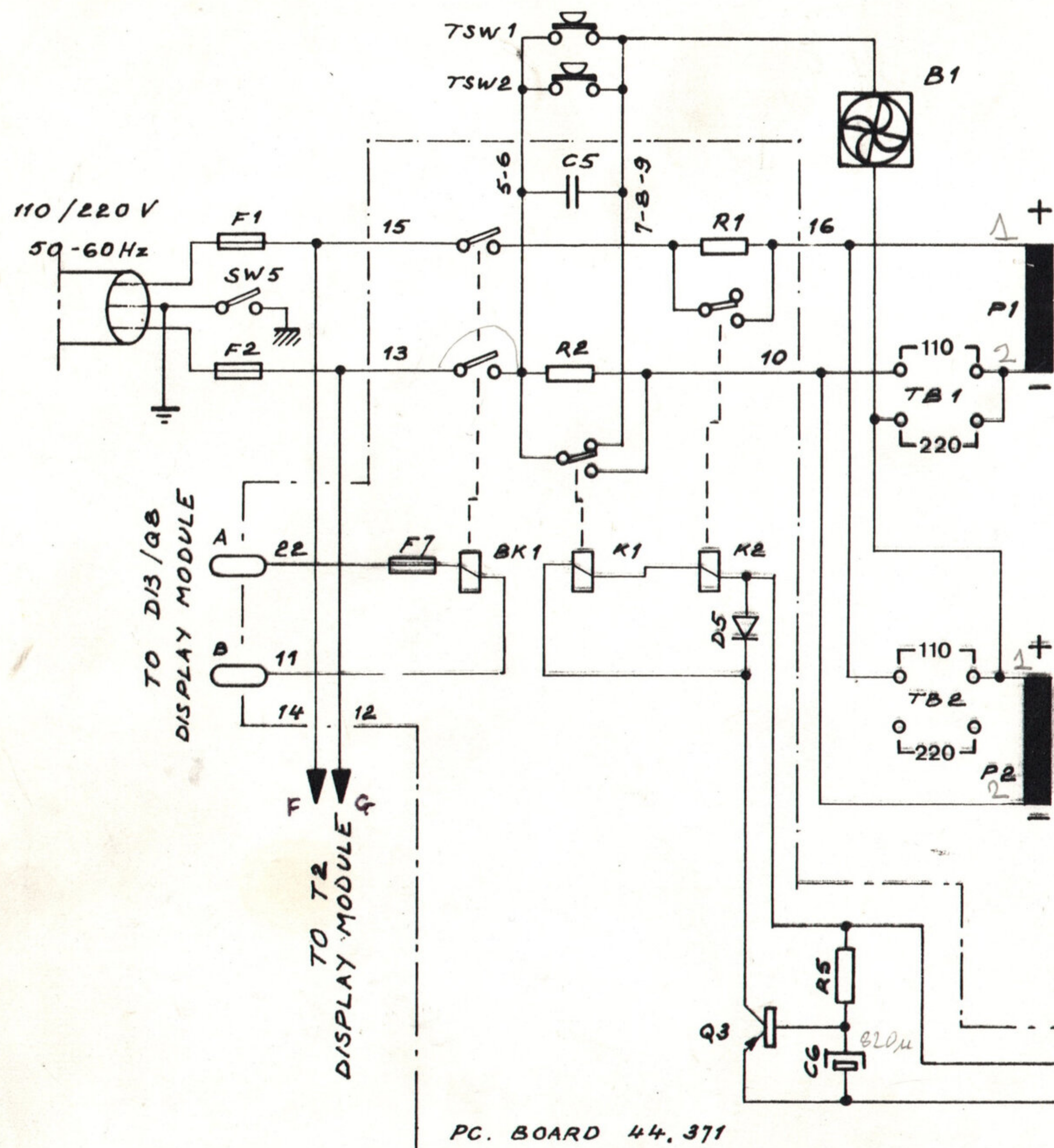
DATE

Oct. 2nd 85

POWER AMPLIFIER MODULE

45.446





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

UPPER ASSY.

- SQUARE 1000 -

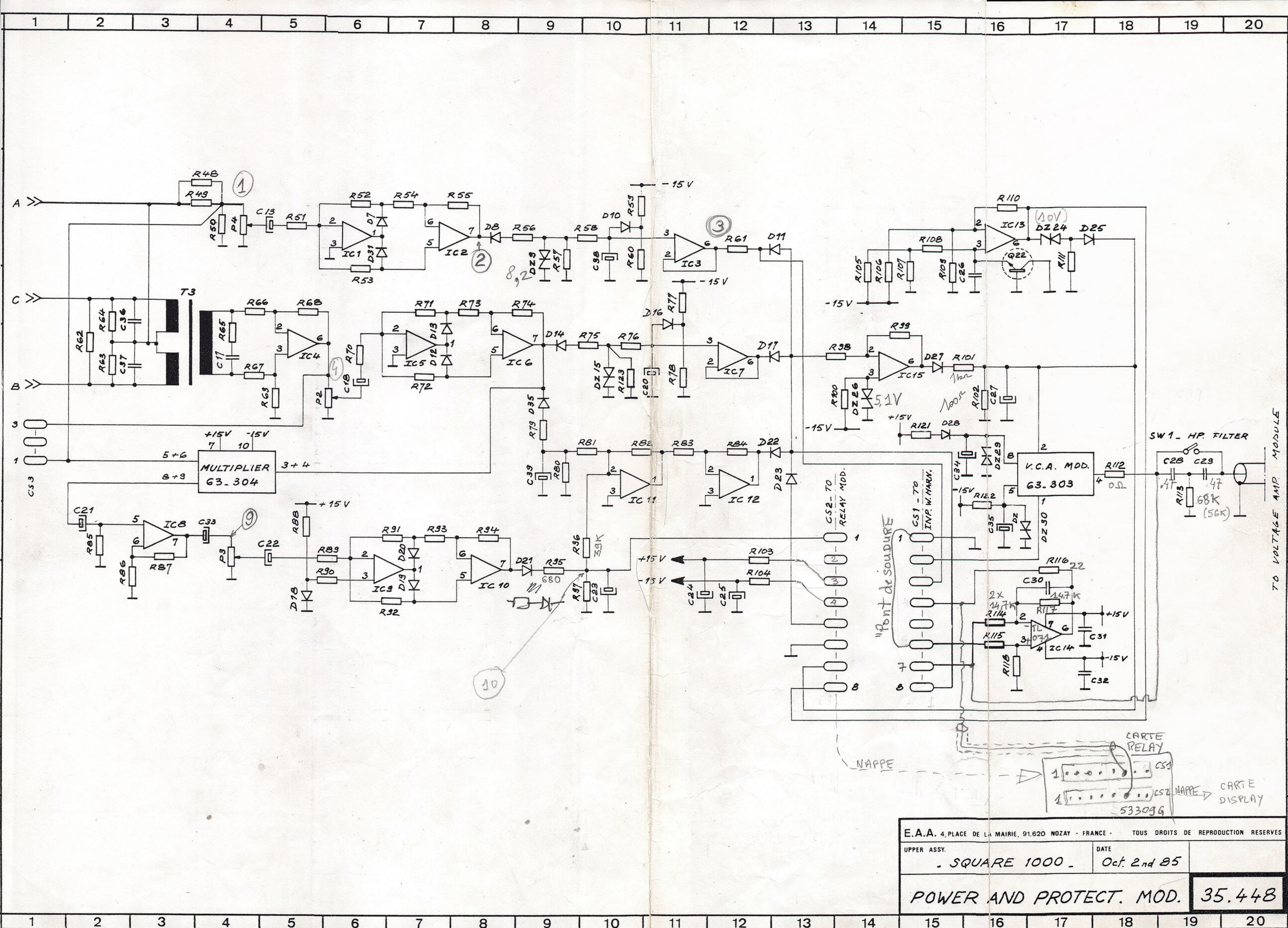
DATE

Oct. 2nd 85

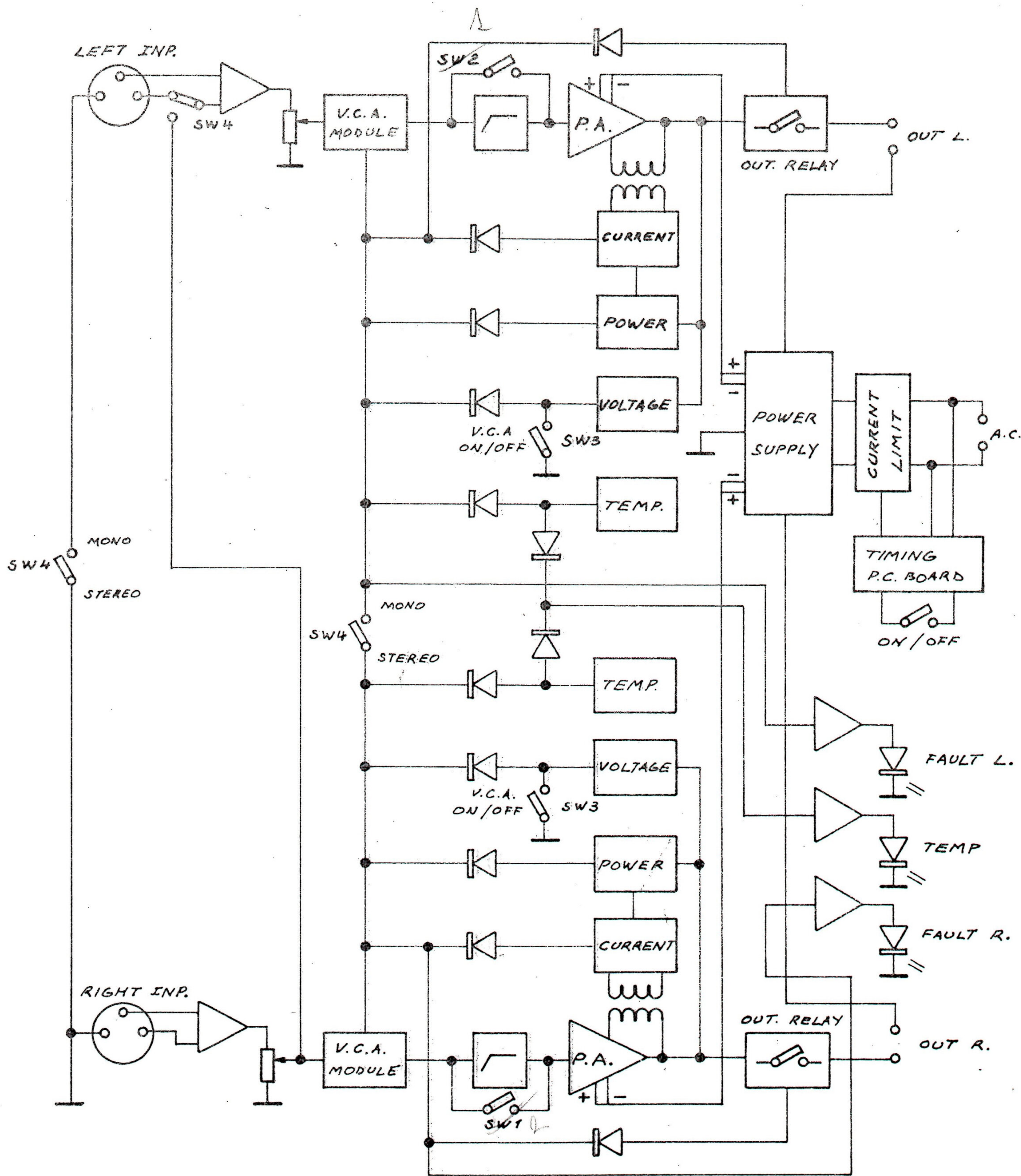
POWER SUPPLY AND TIMING

45.447









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

UPPER ASSY.

- SQUARE 1000 -

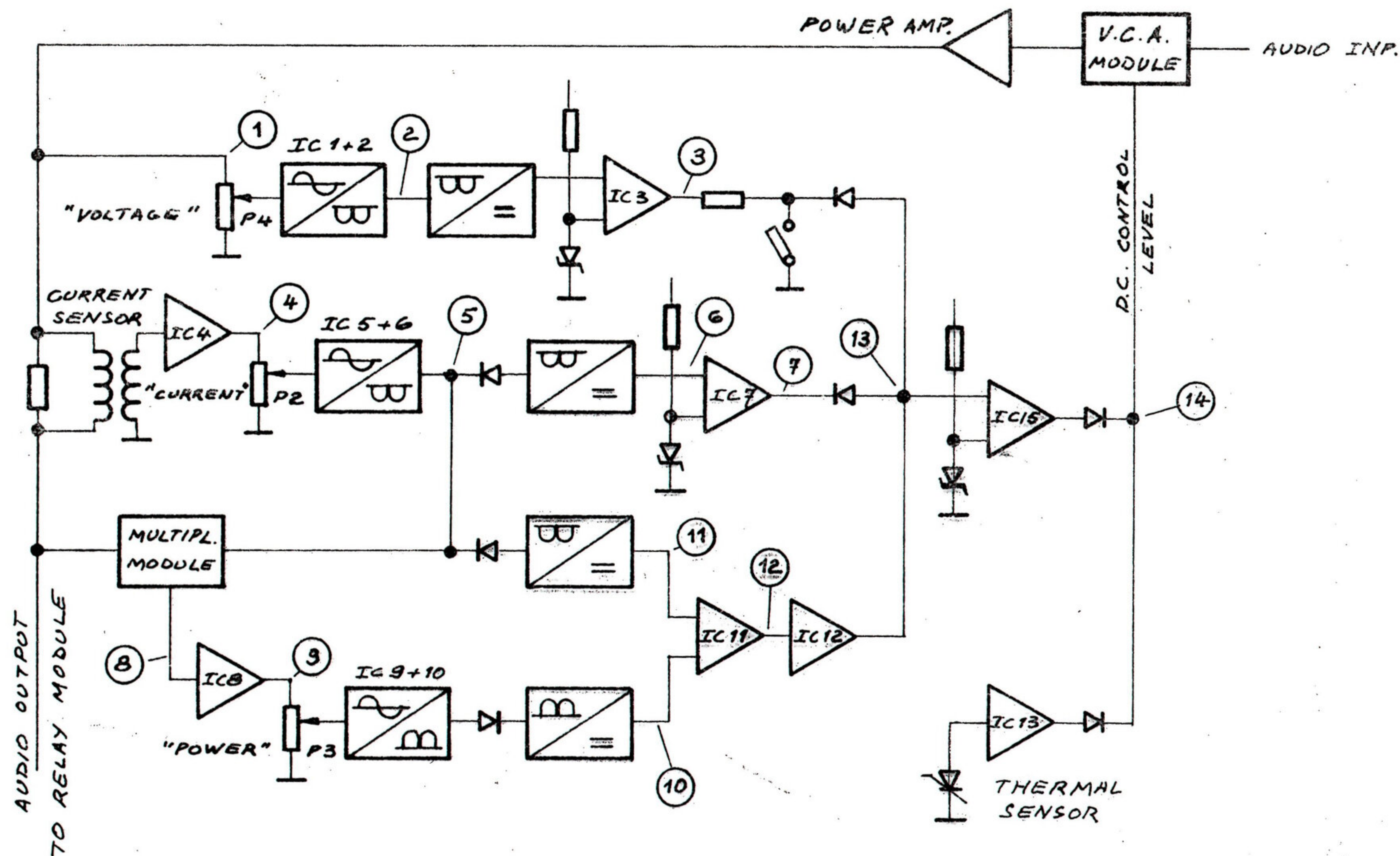
DATE

Nov. 4th. 85

BLOCK DIAGRAM

45.464





# OPERATING CONDITIONS

- Input freq. 1kHz
- Output voltage 40 V AC
- Load impedance 2 ohms

| Test Point | Signal scope   |                | Level |       |
|------------|----------------|----------------|-------|-------|
|            | $Z_L = \infty$ | $Z = 2 \Omega$ | A.C.  | D.C.  |
| 1          |                |                | 5V    | 0     |
| 2          |                |                | 1,75V | 3,5V  |
| 3          | D.C.           | D.C.           | 0     | -4,7V |
| 4          | 0              |                | 7,6V  | 0     |
| 5          | 0              |                | 1,9V  | -4V   |
| 6          | 0              | D.C.           | 0     | -4,7V |
| 7          | D.C.           | D.C.           | 0     | -4,7V |
| 8          | 0              |                | 4,9V  | 0     |
| 9          | 0              |                | 5,5V  | 0     |
| 10         | 0              | D.C.           | 0     | +10V  |
| 11         | D.C.           | D.C.           | 0     | -4,6V |
| 12         | D.C.           | D.C.           | 0     | -10V  |
| 13         | D.C.           | D.C.           | 0     | -4,5V |
| 14         | D.C.           | D.C.           | 0     | 0     |

FOR LOCATION OF TEST POINTS 1 TO 14  
PLEASE REFER TO DRAWINGS 35.454 AND 35.45B

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

UPPER ASSY.

- SQUARE 1000 -

DATE

Nov. 28th 85

POWER AND PROTEC. MODULE  
BLOCK DIAGRAM AND TEST POINTS

45.471



| 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                                                             | 102              | I | C 1      | I                                               | Capacitor, electrolytic, 47mF / 16V / MU type | I | 2    | I      |                   | I      |   |
| I                                                             | 103              | I | C 2      | I                                               | Ident. to C1                                  | I |      | I      |                   | I      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I                                                             | 105              | I | CB 1     | I                                               | Printed circuit board                         | I | 1    | I      | 63.304A/PCB.      | I      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I                                                             | 107              | I | CP 1     | I                                               | Connector, plug, 4 positions                  | I | 1    | I      | J2088-20/4        | I      |   |
| I                                                             | 108              | I | CP 2     | I                                               | Connector, plug, 6 positions                  | I | 1    | I      | J2088-20/6        | I      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I                                                             | 110              | I | D 1      | I                                               | Diode, 1N4148                                 | I | 2    | I      |                   | I      |   |
| I                                                             | 111              | I | D 2      | I                                               | Ident. to D1                                  | I |      | I      |                   | I      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I                                                             | 113              | I | IC 1     | I                                               | Integrated circuit MC1495L                    | I | 1    | I      |                   | I      |   |
| I                                                             | 114              | I | IC 2     | I                                               | Integrated circuit TL071CP                    | I | 1    | I      |                   | I      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I                                                             | 116              | I | P 1      | I                                               | Potentiometer, adjustable, 10k                | I | 2    | I      | PT10V-H2.5-10k    | I      |   |
| I                                                             | 117              | I | P 2      | I                                               | Ident. to P1                                  | I |      | I      |                   | I      |   |
| I                                                             | 118              | I | P 3      | I                                               | Potentiometer, adjustable, 4.7k               | I | 1    | I      | PT10H-H2.5-4.7k   | I      |   |
| I                                                             | 119              | I | P 4      | I                                               | Potentiometer, adjustable, 22k                | I | 1    | I      | PT10H-H2.5-22k    | I      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I                                                             | 121              | I | R 1      | I                                               | Resistor 22k, 0.25W, 5%                       | I | 1    | I      |                   | I      |   |
| I                                                             | 122              | I | R 2      | I                                               | Resistor 10k, 0.25W, 5%                       | I | 3    | I      |                   | I      |   |
| I                                                             | 123              | I | R 3      | I                                               | Ident. to R2                                  | I |      | I      |                   | I      |   |
| I                                                             | 124              | I | R 4      | I                                               | Ident. to R2                                  | I |      | I      |                   | I      |   |
| I                                                             | 125              | I | R 5      | I                                               | Resistor 8.2k, 0.25W, 5%                      | I | 1    | I      |                   | I      |   |
| I                                                             | 126              | I | R 6      | I                                               | Resistor 27k, 0.25W, 5%                       | I | 1    | I      |                   | I      |   |
| I                                                             | 127              | I | R 7      | I                                               | Resistor 3.3k, 0.25W, 5%                      | I | 5    | I      |                   | I      |   |
| I                                                             | 128              | I | R 8      | I                                               | Ident. to R7                                  | I |      | I      |                   | I      |   |
| I                                                             | 129              | I | R 9      | I                                               | Ident. to R7                                  | I |      | I      |                   | I      |   |
| I                                                             | 130              | I | R 10     | I                                               | Ident. to R7                                  | I |      | I      |                   | I      |   |
| I                                                             | 131              | I | R 11     | I                                               | Ident. to R7                                  | I |      | I      |                   | I      |   |
| I                                                             | 132              | I | R 12     | I                                               | Resistor 27k, 0.25W, 5%                       | I | 1    | I      |                   | I      |   |
| I                                                             | 133              | I | R 13     | I                                               | Resistor 15k, 0.25W, 5%                       | I | 1    | I      |                   | I      |   |
| I                                                             | 134              | I | R 14     | I                                               | Resistor 3.9k, 0.25W, 5%                      | I | 2    | I      |                   | I      |   |
| I                                                             | 135              | I | R 15     | I                                               | Ident. to R14                                 | 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                                                             | 140              | I |          | I                                               | Multiplier module assembly                    | I |      | I      | 63.304A/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      |   |
| I                                                             |                  | I |          | I                                               |                                               | I |      | I      |                   | I      |   |
| I=====I                                                       |                  |   |          |                                                 |                                               |   |      |        |                   |        |   |
| I                                                             | -- PARTS LIST -- |   | I        | - SQUARE 1000 - MULTIPLIER MODULE - ref. 63.304 |                                               |   | I    | 1 of 1 | I                 | 45.463 | I |
| I=====I                                                       |                  |   |          |                                                 |                                               |   |      |        |                   |        |   |



| Item no. | Sch.ref. | Description                                                | Qty.  | EAA Part number |
|----------|----------|------------------------------------------------------------|-------|-----------------|
| I        | I        | I                                                          | I     | I               |
| I        | I        | I                                                          | I     | I               |
| I        | 203      | C 1 I Capacitor, electrolytic, 330mF, 16V, MM or MG type   | I 1 I | I               |
| I        | 204      | C 2 I Capacitor, ceramic, 330pF, 63V                       | I 1 I | I               |
| I        | 205      | C 3 I Capacitor, film, 0.1mF / 100V / MMKO                 | I 2 I | I               |
| I        | 206      | C 4 I Ident. to C3                                         | I I   | I               |
| I        | 207      | C 5 I Capacitor, electrolytic, 100mF, 25V, MG type         | I 2 I | I               |
| I        | 208      | C 6 I Ident. to C5                                         | I I   | I               |
| I        | 209      | C 7 I Capacitor, ceramic, 22pF, 63V                        | I 2 I | I               |
| I        | 210      | C 8 I Ident. to C7                                         | I I   | I               |
| I        | 211      | C 9A I Capacitor, electrolytic, 470mF, 6.3V, MM or MG type | I I   | I               |
| I        | 212      | C 9B I Ident. to C9A                                       | I I   | I               |
| I        | 213      | C 10 I Capacitor, electrolytic, 10mF, 25V, MM type         | I 1 I | I               |
| I        | 214      | C 11 I Capacitor, electrolytic, 100mF, 6.3V, MM or MG type | I 1 I | I               |
| I        | 215      | C 12 I Capacitor, electrolytic, 47mF, 25V, MM or MG type   | I 1 I | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | 218      | CB 1 I Printed circuit board                               | I 1 I | 63.305C/PCB     |
| I        | I        | I                                                          | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | 221      | CP 1 I Connector, plug, 5 positions                        | I 2 I | J2088-20/5      |
| I        | 222      | CP 2 I Ident. to CP1                                       | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | 225      | DZ 1 I Diode, zener, BZX55C18V                             | I 2 I | I               |
| I        | 226      | DZ 2 I Ident. to DZ1                                       | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | 229      | IC 1 I Integrated circuit TL071CP                          | I 1 I | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | 232      | P 1 I Potentiometer, adjustable, cermet, 10k               | I 1 I | VA05H-10k       |
| I        | I        | I                                                          | I I   | I               |
| I        | I        | I                                                          | I I   | I               |
| I        | 235      | Q 1 I Transistor 2N5551 (matched with Q2)                  | I 2 I | I               |
| I        | 236      | Q 2 I Ident. to Q1                                         | I I   | I               |
| I        | 237      | Q 3 I Transistor 2N5401 (matched with Q4)                  | I 2 I | I               |
| I        | 238      | Q 4 I Ident. to Q3                                         | I I   | I               |
| I        | I        | Q5 I MPSU 60                                               | I I   | I               |
| I        | I        | Q6 I MPSU 10                                               | 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 | Item no.             | Sch.ref.    | Description                                               | I | Qty.                | EAA Part number |
|---|----------------------|-------------|-----------------------------------------------------------|---|---------------------|-----------------|
| I | I                    | I           | I                                                         | I | I                   | I               |
| I | I                    | I           | I                                                         | I | I                   | I               |
| I | 253                  | R 1         | I Resistor 47k, 0.25W, 5%                                 | I | 1 I                 | I               |
| I | 254                  | R 2         | I Resistor 2.2k, 0.25W, 5%                                | I | 5 I                 | I               |
| I | 255                  | R 3         | I Resistor 680 ohms, 0.25W, 5%                            | I | 4 I                 | I               |
| I | 256                  | R 4         | I Ident. to R3                                            | I | I                   | I               |
| I | 257                  | R 5         | I Ident. to R2                                            | I | I                   | I               |
| I | 258                  | R 6         | I Resistor 6.8k, 0.5W, 5%                                 | I | 2 I                 | I               |
| I | 259                  | R 7         | I Ident. to R6                                            | I | I                   | I               |
| I | 260                  | R 8         | I Ident. to R2                                            | I | I                   | I               |
| I | 261                  | R 9         | I Resistor 150 ohms, 0.25W, 5%                            | I | 6 I                 | I               |
| I | 262                  | R 10        | I Ident. to R9                                            | I | I                   | I               |
| I | 263                  | R 11        | I Resistor 10k, 0.25W, 5%                                 | I | 1 I                 | I               |
| I | 264                  | R 12        | I Resistor 15k, 0.25W, 5%                                 | I | 1 I                 | I               |
| I | 265                  | R 13        | I Ident. to R9                                            | I | I                   | I               |
| I | 266                  | R 14        | I Ident. to R9                                            | I | I                   | I               |
| I | 267                  | R 15        | I Ident. to R2                                            | I | I                   | I               |
| I | 268                  | R 16        | I Ident. to R2                                            | I | I                   | I               |
| I | 269                  | R 17        | I Ident. to R9 -                                          | I | I                   | I               |
| I | 270                  | R 18        | I Ident. to R3                                            | I | I                   | I               |
| I | 271                  | R 19        | I Resistor 33k, 0.25W, 5%                                 | I | 2 I                 | I               |
| I | 272                  | R 20        | I Resistor 1.5k, 0.25W, 5%                                | I | 1 I                 | I               |
| I | 273                  | R 21        | I Resistor 100 ohms, 0.25W, 5%                            | I | 1 I                 | I               |
| I | 274                  | R 22        | I Ident. to R3                                            | I | I                   | I               |
| I | 275                  | R 23        | I Resistor 30k, 0.25W, 5%                                 | I | 1 I                 | I               |
| I | 276                  | R 24        | I Ident. to R9                                            | I | I                   | I               |
| I | 277                  | R 25        | I Ident. to R19                                           | I | I                   | I               |
| I | 278                  | R 26        | I Resistor 100k, 0.25W, 5%                                | I | 2 I                 | I               |
| I | 279                  | R 27        | I Ident. to R26 100K 1%                                   | I | I                   | I               |
| I |                      | R 28        | I 10K 1%                                                  | I | I                   | I               |
| I | 281                  | RS          | I Resistor, strap                                         | I | 1 I                 | I               |
| I |                      | NA          | I 27 K 5%                                                 | 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 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        |



| 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 M6 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 M6 type  | 2      |                   |
| 310        | C 10     | Ident. to C9                                        |        |                   |
| 311        | C 11     | Capacitor, electrolytic, 1000mF, 50V, MM or M6 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 |          |                                                     | 1 of 1 | 45.467            |
| -----      |          |                                                     |        |                   |



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

-- PARTS LIST --  
 SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307  
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 45.468



| Item no.                                                    | Sch.ref. | Description                                             | Qty.   | EAA Part number |
|-------------------------------------------------------------|----------|---------------------------------------------------------|--------|-----------------|
| 352                                                         | CS 1     | Connector, socket, 8 positions, pitch 2.5mm, ref. MSFW8 | 1      | MKS2858-1-0-808 |
| 353                                                         | CS 2     | Connector, socket, 8 positions, pitch 2.5mm, ref. MSF8  | 1      | MKS1858-1-0-808 |
| 354                                                         | CS 3     | N.C.                                                    |        |                 |
| 355                                                         | CS 4     | Connector, socket, 4 positions, pitch 2.5mm, ref. MSF4  | 1      | MKS1854-1-0-404 |
| 356                                                         | CS 5     | Connector, socket, 4 positions, ref. J2080-20/4         | 3      | J2080-20/4      |
| 357                                                         | CS 6     | Ident. to CS5                                           |        |                 |
| 358                                                         | CS 7     | Connector, socket, 6 positions, ref. J2080-20/6         | 1      | J2080-20/6      |
| 359                                                         | CS 8     | Ident. to CS5                                           |        |                 |
|                                                             |          |                                                         |        |                 |
| 361                                                         | D 1      | Diode, 1N4148                                           | 25     |                 |
| 362                                                         | D 2      | Ident. to D1                                            |        |                 |
| 363                                                         | D 3      | Ident. to D1                                            |        |                 |
| 364                                                         | D 4      | Ident. to D1                                            |        |                 |
| 365                                                         | D 5      | Diode, 1N4006                                           | 4      |                 |
| 366                                                         | D 6      | Ident. to D5                                            |        |                 |
| 367                                                         | D 7      | Ident. to D1                                            |        |                 |
| 368                                                         | D 8      | Ident. to D1                                            |        |                 |
| 369                                                         | D 10     | Ident. to D1                                            |        |                 |
| 370                                                         | D 11     | Ident. to D1                                            |        |                 |
| 371                                                         | D 12     | Ident. to D1                                            |        |                 |
| 372                                                         | D 13     | Ident. to D1                                            |        |                 |
| 373                                                         | D 14     | Ident. to D1                                            |        |                 |
| 374                                                         | D 16     | Ident. to D1                                            |        |                 |
| 375                                                         | D 17     | Ident. to D1                                            |        |                 |
| 376                                                         | D 18     | Ident. to D1                                            |        |                 |
| 377                                                         | D 19     | Ident. to D1                                            |        |                 |
| 378                                                         | D 20     | Ident. to D1                                            |        |                 |
| 379                                                         | D 21     | Ident. to D1                                            |        |                 |
| 380                                                         | D 22     | Ident. to D1                                            |        |                 |
| 381                                                         | D 23     | Ident. to D1                                            |        |                 |
| 382                                                         | D 25     | Ident. to D1                                            |        |                 |
| 383                                                         | D 27     | Ident. to D1                                            |        |                 |
| 384                                                         | D 28     | Ident. to D1                                            |        |                 |
| 385                                                         | D 31     | Ident. to D1                                            |        |                 |
| 386                                                         | D 32     | Ident. to D5                                            |        |                 |
| 387                                                         | D 33     | Ident. to D5                                            |        |                 |
| 388                                                         | D 34     | Ident. to D1                                            |        |                 |
| 389                                                         | D 35     | Ident. to D1                                            |        |                 |
|                                                             |          |                                                         |        |                 |
| 391                                                         | DZ 9     | Diode, zener, BZX55C8V2                                 | 2      |                 |
| 392                                                         | DZ 15    | Ident. to DZ9                                           |        |                 |
| 393                                                         | DZ 24    | Diode, zener, BZX55C10V                                 | 1      |                 |
| 394                                                         | DZ 26    | Diode, zener, BZX55C5V1                                 | 1      |                 |
| 395                                                         | DZ 29    | Diode, zener, BZX55C12V                                 | 2      |                 |
| 396                                                         | DZ 30    | Ident. to DZ29                                          |        |                 |
|                                                             |          |                                                         |        |                 |
| -----                                                       |          |                                                         |        |                 |
| 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 Integrated circuit, TL072CP          | 4    | I               |
| I        | 405      | IC 3 Integrated circuit, TL071CP            | 7    | I               |
| I        | 406      | IC 4 Ident. to IC3                          | I    | I               |
| I        | 407      | IC 5+6 Ident. to IC1+2                      | I    | I               |
| I        | 408      | IC 7 Ident. to IC3                          | I    | I               |
| I        | 409      | IC 8+11 Ident. to IC1+2                     | I    | I               |
| I        | 410      | IC 9+10 Ident. to IC1+2                     | I    | I               |
| I        | 411      | IC 12 Ident. to IC3                         | I    | I               |
| I        | 412      | IC 13 Ident. to IC3                         | I    | I               |
| I        | 413      | IC 14 Ident. to IC3                         | I    | I               |
| I        | 414      | IC 15 Ident. to IC3                         | I    | I               |
| I        | I        | I                                           | I    | I               |
| I        | I        | I                                           | I    | I               |
| I        | 417      | P 1 Potentiometer, adjustable, cermet, 2.2k | 1    | VA05H-2.2k      |
| I        | 418      | P 2 Potentiometer, adjustable, 2.2k         | 3    | PT10V-H2.5-2.2k |
| I        | 419      | P 3 Ident. to P2                            | I    | I               |
| I        | 420      | P 4 Ident. to P2                            | I    | I               |
| I        | I        | I                                           | I    | I               |
| I        | I        | I                                           | I    | I               |
| I        | 423      | Q 1 Transistor, 2N2222A                     | 1    | I               |
| I        | 424      | Q 2 Transistor, 2N2907A                     | 1    | I               |
| I        | 425      | Q 3 Transistor, BD441                       | 2    | I               |
| I        | 426      | Q 4 Transistor, BF787, (matched with Q6)    | 1    | I               |
| I        | 427      | Q 5 Transistor, 2N3584, (matched with Q7)   | 1    | I               |
| I        | 428      | Q 6 Transistor, BF790, (matched with Q4)    | 1    | I               |
| I        | 429      | Q 7 Transistor, 2N212, (matched with Q5)    | 1    | I               |
| I        | 430      | Q 8 Transistor, MJ15024, (matched with Q15) | 7    | I               |
| I        | 431      | Q 9 Ident. to Q8                            | I    | I               |
| I        | 432      | Q 10 Ident. to Q8                           | I    | I               |
| I        | 433      | Q 11 Ident. to Q8                           | I    | I               |
| I        | 434      | Q 12 Ident. to Q8                           | I    | I               |
| I        | 435      | Q 13 Ident. to Q8                           | I    | I               |
| I        | 436      | Q 14 Ident. to Q8                           | I    | I               |
| I        | 437      | Q 15 Transistor, MJ15025, (matched with Q8) | 7    | I               |
| I        | 438      | Q 16 Ident. to Q15                          | I    | I               |
| I        | 439      | Q 17 Ident. to Q15                          | I    | I               |
| I        | 440      | Q 18 Ident. to Q15                          | I    | I               |
| I        | 441      | Q 19 Ident. to Q15                          | I    | I               |
| I        | 442      | Q 20 Ident. to Q15                          | I    | I               |
| I        | 443      | Q 21 Ident. to Q15                          | I    | I               |
| I        | 444      | Q 22 Ident. to Q3                           | I    | I               |
| I        | I        | I                                           | I    | I               |
| I        | I        | I                                           | I    | I               |
| I        | I        | I                                           | I    | I               |

MPS0 10

MPS0 60



| Item no.                                                                         | Sch.ref. | Description                         | Qty.     | EAA Part number |
|----------------------------------------------------------------------------------|----------|-------------------------------------|----------|-----------------|
| I                                                                                | I        | I                                   | I        | I               |
| I                                                                                | R 1      | I N.A.                              | I        | I               |
| I                                                                                | R 2      | I N.A.                              | I        | I               |
| I 454                                                                            | R 3      | I Resistor, 3.9k, 0.25W, 5%         | I 1      | I               |
| I 455                                                                            | R 4      | I Resistor, 1k, 0.25W, 5%           | I 6      | I               |
| I 456                                                                            | R 5      | I Ident. to R4                      | I        | I               |
| I 457                                                                            | R 6      | I Resistor, 220 ohms, 0.25W, 5%     | I 15     | I               |
| I 458                                                                            | R 7      | I Ident. to R6                      | I        | I               |
| I 459                                                                            | R 8      | I Resistor, 4.7k, 0.25W, 5%         | I 7      | I               |
| I 460                                                                            | R 9      | I Ident. to R8                      | I        | I               |
| I 461                                                                            | R 10     | I Resistor, 150 ohms, 0.25W, 5%     | I 3      | I               |
| I 462                                                                            | R 11     | I Ident. to R10                     | I        | I               |
| I 463                                                                            | R 12     | I Resistor, 39 ohms, 0.25W, 5%      | I 1      | I               |
| I 464                                                                            | R 13     | I Resistor, 47 ohms, 0.25W, 5%      | I 3      | I               |
| I 465                                                                            | R 14     | I Ident. to R6                      | I        | I               |
| I 466                                                                            | R 15     | I Ident. to R10                     | I        | I               |
| I 467                                                                            | R 16     | I Resistor, 10 ohms, 1W, 5%         | I 3      | I               |
| I 468                                                                            | R 17     | I Ident. to R16                     | I        | I               |
| I                                                                                | R 18     | I N.A.                              | I        | I               |
| I 470                                                                            | R 19     | I Ident. to R6                      | I        | I               |
| I 471                                                                            | R 20     | I Ident. to R6                      | I        | I               |
| I 472                                                                            | R 21     | I Ident. to R6                      | I        | I               |
| I 473                                                                            | R 22     | I Ident. to R6                      | I        | I               |
| I 474                                                                            | R 23     | I Ident. to R6                      | I        | I               |
| I 475                                                                            | R 24     | I Ident. to R6                      | I        | I               |
| I                                                                                | R 25     | I N.A.                              | I        | I               |
| I 477                                                                            | R 26     | I Ident. to R6                      | I        | I               |
| I 478                                                                            | R 27     | I Ident. to R6                      | I        | I               |
| I 479                                                                            | R 28     | I Ident. to R6                      | I        | I               |
| I 480                                                                            | R 29     | I Ident. to R6                      | I        | I               |
| I 481                                                                            | R 30     | I Ident. to R6                      | I        | I               |
| I 482                                                                            | R 31     | I Ident. to R6                      | I        | I               |
| I                                                                                | R 32     | I N.A.                              | I        | I               |
| I 484                                                                            | R 33     | I Resistor wirewound, 0.47 ohms, 4W | I 14     | I RSC4x21-0.47E |
| I 485                                                                            | R 34     | I Ident. to R33                     | I        | I               |
| I 486                                                                            | R 35     | I Ident. to R33                     | I        | I               |
| I 487                                                                            | R 36     | I Ident. to R33                     | I        | I               |
| I 488                                                                            | R 37     | I Ident. to R33                     | I        | I               |
| I 489                                                                            | R 38     | I Ident. to R33                     | I        | I               |
| I 490                                                                            | R 39     | I Ident. to R33                     | I        | I               |
| I 491                                                                            | R 40     | I Ident. to R33                     | I        | I               |
| I 492                                                                            | R 41     | I Ident. to R33                     | I        | I               |
| I 493                                                                            | R 42     | I Ident. to R33                     | I        | I               |
| I 494                                                                            | R 43     | I Ident. to R33                     | I        | I               |
| I 495                                                                            | R 44     | I Ident. to R33                     | I        | I               |
| I 496                                                                            | R 45     | I Ident. to R33                     | I        | I               |
| I 497                                                                            | R 46     | I Ident. to R33                     | I        | I               |
| I                                                                                |          |                                     |          |                 |
| I -- PARTS LIST -- I SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307 |          |                                     | I 4 of 7 | I 45.471        |
| 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 470 5%                                    | 14     |                 |
| 517      | R 62       | I Ident. to R4 12                                           | 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 56k                                         | 1      |                 |
| 538      | R 83       | I Ident. to R51 10K                                         | 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       | I Ident. to R48                                                     | 1                                                           |                    |
| 553      | R 94       | I Ident. to R48                                                     | 1                                                           |                    |
| 554      | R 95       | I Resistor, 680 ohms, 0.25W, 5%                                     | 1                                                           |                    |
| 555      | R 96       | I Resistor, 39k, 0.25W, 5%                                          | 2                                                           |                    |
| 556      | R 97       | I Resistor, 8.2k, 0.25W, 5%                                         | 1                                                           |                    |
| 557      | R 98       | I Ident. to R50                                                     | 1                                                           |                    |
| 558      | R 99       | I Resistor, 220k, 0.25W, 5%                                         | 1                                                           |                    |
| 559      | R 100      | I Ident. to R51                                                     | 1                                                           |                    |
| 560      | R 101      | I Ident. to R4                                                      | 1                                                           |                    |
| 561      | R 102      | I Resistor, 100 ohms, 0.25W, 5% <i>1KΩ</i>                          | 1                                                           |                    |
| 562      | R 103      | I Ident. to R63                                                     | 1                                                           |                    |
| 563      | R 104      | I Ident. to R63                                                     | 1                                                           |                    |
| 564      | R 105      | I Ident. to R96 - <i>39k 5%</i>                                     | 1                                                           |                    |
| 565      | R 106      | I Ident. to R81 - <i>56k</i>                                        | 1                                                           |                    |
| 566      | R 107      | I Ident. to R4 <i>1k</i>                                            | 1                                                           |                    |
| 567      | R 108      | I Ident. to R90 <i>47kΩ</i>                                         | 1                                                           |                    |
| 568      | R 109      | I Ident. to R4 <i>1k</i>                                            | 1                                                           |                    |
| 569      | R 110      | I Ident. to R84 <i>100k</i>                                         | 1                                                           |                    |
| 570      | R 111      | I Resistor, 180 ohms, 0.25W, 5%                                     | 1                                                           |                    |
|          | R 112      | I N.A.                                                              | 1                                                           |                    |
| 572      | R 113      | I Ident. to R81                                                     | 1                                                           |                    |
| 573      | R 114      | I Resistor, metal film, 14.7k, 0.125W, 1%                           | 4                                                           |                    |
| 574      | R 115      | I Ident. to R114                                                    | 1                                                           |                    |
| 575      | R 116      | I Ident. to R63 <i>22Ω</i>                                          | 1                                                           |                    |
| 576      | R 117      | I Ident. to R114 <i>14.7k</i>                                       | 1                                                           |                    |
| 577      | R 118      | I Ident. to R114 <i>14.7k</i>                                       | 1                                                           |                    |
| 578      | R 119      | I Ident. to R63                                                     | 1                                                           |                    |
| 579      | R 120      | I Ident. to R63                                                     | 1                                                           |                    |
|          |            | I                                                                   | 1                                                           |                    |
| 581      | RS         | I Ident. to R61                                                     | 1                                                           |                    |
|          |            | I                                                                   | 1                                                           |                    |
| 583      | T 3        | I Transformer, ref. 13.041E                                         | 1                                                           | 13.041E            |
|          |            | I                                                                   | 1                                                           |                    |
| 585      | TSW 1      | I Thermo switch, circuit normally open, ref. 65.0.98.22.040.030     | 1                                                           | 65.0.98.22.040.030 |
|          |            | I                                                                   | 1                                                           |                    |
| 587      | X 1        | I Spade 1/4", printed circuit, ref. Y320A                           | 4                                                           | Y320A              |
| 588      | X 2        | I Thermally conducting isolating washers, T03 package, ref. SE3C    | 14                                                          | SE3C               |
| 589      | X 3        | I Thermally conducting isolating washers, T066 package, ref. SE66   | 2                                                           | SE66               |
| 590      | X 4        | I Thermally conducting isolating washers, T0220 package, ref. SE220 | 2                                                           | SE220              |
| 591      | X 5        | I Insulating standoff, for T03 package, ref. 43314                  | 28                                                          | 43314              |
| 592      | X 6        | I Insulating standoff, for T066 package, ref. 43313B                | 4                                                           | 43313B             |
| 593      | X 7        | I Nut, PCB soldering, ref. 1976                                     | 28                                                          | 1976               |
| 594      | X 8        | I Spacer, snap-in, height 6.5mm, ref. 223.01.0976                   | 4                                                           | 223.01.0976        |
| 595      | X 9        | I Spacer, snap-in, height 9.5mm, ref. 223.01.0977                   | 1                                                           | 223.01.0977        |
| 596      | X 10       | I Terminal, female, gold plated, for T03 package                    | 28                                                          | 312.00.34.000.400  |
| 597      | X 11       | I Terminal, female, gold plated, for T066 package                   | 4                                                           | 312.02.16.000.400  |
| -----    |            |                                                                     |                                                             |                    |
| ---      | PARTS LIST | ---                                                                 | SQUARE 1000 - POWER AMPLIFIER MODULE - ref. 40.306 / 40.307 | 6 of 7             |
|          |            |                                                                     |                                                             | 45.473             |
| -----    |            |                                                                     |                                                             |                    |



| Item no. | Sch.ref. | Description                                                                                          | Qty. | EAA Part number   |
|----------|----------|------------------------------------------------------------------------------------------------------|------|-------------------|
| 604      | Y 1      | Heatsink, primary, ref.23294D                                                                        | 1    | 23.294D           |
| 605      | Y 2      | Heatsink, ref. 33289B                                                                                | 2    | 33.289B           |
| 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         |
| 619      |          | Power module, right channel, printed circuit board assembly                                          | 1    | 40.306F/PCB.ASSY. |
| 622      |          | Power module, left channel, printed circuit board assembly                                           | 1    | 40.307F/PCB.ASSY. |
| 628      |          | Power module, right channel, module assembly<br>(including power transistors and heatsinks assembly) | 1    | 40.306F/MOD.ASSY. |
| 632      |          | Power module, left channel, module assembly<br>(including power transistors and heatsinks assembly)  | 1    | 40.307F/MOD.ASSY. |
| 639      |          | Matched transistors maintenance kit, including:<br>Q5 and Q7, Q8 to Q14, Q15 to Q22                  | 1    | TMK1              |

45.474

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PARTS LIST

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



| Item no. | Sch.ref.  | Description                                                      | Qty. | EAA Part number    |
|----------|-----------|------------------------------------------------------------------|------|--------------------|
| 852      | B 1       | Blower, 45 l/s, 115VAC, 50/60 Hz, 20W, ref. 4600N                | 1    | 4600N              |
| 853      | BB 1      | Bus bar, grounding, ref. 33.318D                                 | 1    | 33.318D            |
| 855      | C 1       | Capacitor, electrolytic, case 72x114mm, 22000 to 30000 mF, 100V  | 4    | 374579             |
| 856      | C 2       | Ident. to C1                                                     | 1    |                    |
| 857      | C 3       | Ident. to C1                                                     | 1    |                    |
| 858      | C 4       | Ident. to C1                                                     | 1    |                    |
| 859      | C 13      | Capacitor, film, 0.1 to 0.22mF, 250V                             | 2    |                    |
| 860      | C 14      | Ident. to C13                                                    | 1    |                    |
| 861      | CP 1      | Clamp for power cord, ref. DMB                                   | 1    | DMB                |
| 863      | DB 1      | Diode bridge, 25A 400V, ref. FB3504                              | 3    | FB3504             |
| 864      | DB 2      | Ident. to DB1                                                    | 1    |                    |
| 865      | DB 3      | Ident. to DB1                                                    | 1    |                    |
| 867      | F 1       | Fuse, 1/4" x 1 1/4", slo-blow, 20A, ref. 313020                  | 2    | 313020             |
| 868      | F 2       | Ident. to F1                                                     | 1    |                    |
| 869      | F 3       | Fuse, 1/4" x 1 1/4", slo-blow, 25A, ref. 326025                  | 4    | 326025             |
| 870      | F 4       | Ident. to F3                                                     | 1    |                    |
| 871      | F 5       | Ident. to F3                                                     | 1    |                    |
| 872      | F 6       | Ident. to F3                                                     | 1    |                    |
| 873      | FH1       | Fuse holder, ref. 345603                                         | 2    | 345603             |
| 874      | FH2       | Ident. to FH1                                                    | 1    |                    |
| 875      | FH3 + FH4 | Fuse holder, ref. 354802-6Y                                      | 2    | 354802-6Y          |
| 876      | FH5 + FH6 | Ident. to FH3+FH4                                                | 1    |                    |
| 878      | PC 1      | Power cord, HD7-RNF 3x2.5mm2                                     | 1    | HD7-RNF-3x2.5      |
| 880      | SW 1      | Switch, toggle, 1 section, ref. 5636A16                          | 1    | 5636A16            |
| 882      | T 1       | Transformer, 115/240 VAC, 50/60 Hz, ref. AD32C1TH                | 1    | AD32C1TH           |
| 883      | TB1 + TB2 | Terminal block assembly, including:                              | 1    | TB1+TB2            |
| 884      |           | - 4 Terminal block, ref. 261-301                                 | 1    |                    |
| 885      |           | - 1 End plate, ref. 261-361                                      | 1    |                    |
| 886      | TB 3      | Terminal block assembly, including:                              | 1    | TB3                |
| 887      |           | - 2 Terminal block, ref. 262-301                                 | 1    |                    |
| 888      |           | - 1 End plate, ref. 262-361                                      | 1    |                    |
| 889      | TSW 1     | Thermo-switch, normally open contact, ref. 65-0-98-22-040-030    | 2    | 65-0-98-22-040-030 |
| 890      | TSW 2     | Ident. to TSW1                                                   | 1    |                    |
| 892      |           | Transformer assembly,                                            | 1    | AD32C1TH/ASSY.     |
| 893      |           | (including: transformer, transformer brackets and hardware)      | 1    |                    |
| 895      |           | Power capacitors assembly                                        | 1    | 374579/ASSY.       |
| 896      |           | (including capacitors C1 to C4, bus bar BB1 and connect. cables) | 1    |                    |

HEITO 50°/35° ± 3°  
M 1 E (ou M 16)



| 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 Hardware used to secure blower B1                              | 1        |                 |
| 908              | Z 5      | I Machine screw, metric, TC-4x50                                 | 4        | TC4x50          |
|                  |          | 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. 30086                          | 1        | 30086           |
|                  |          | 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 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 Hardware used to secure fuse holders FH3 to FH6                | 1        |                 |
| 930              | Z 13     | I Pop rivet, 3.2x8mm                                             | 4        | TAP/046         |
|                  |          | I Hardware used to secure toggle switch SW1                      | 1        |                 |
| 934              | Z 4      | I Dress nut, ref. U500                                           | 1        | U500            |
|                  |          | 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    |
| -----            |          |                                                                  |          |                 |
| -- PARTS LIST -- |          |                                                                  | I 2 of 2 | 45.480          |
| -----            |          |                                                                  |          |                 |



| Item no. | Sch.ref. | Description                                               | Qty. | EAA Part number   |
|----------|----------|-----------------------------------------------------------|------|-------------------|
| I        | I        | I                                                         | I    | I                 |
| I 952    | I C 1    | I Capacitor, electrolytic, 10mF, 35 to 50V, MM or MG type | I 5  | I                 |
| I 953    | I C 2    | I Ident. to C1                                            | I    | I                 |
| I 954    | I C 3    | I Ident. to C1                                            | I    | I                 |
| I 955    | I C 4    | I Ident. to C1                                            | I    | I                 |
| I 956    | I C 5    | I Capacitor, ceramic, 330pF                               | I 2  | I                 |
| I 957    | I C 6    | I Ident. to C5                                            | I    | I                 |
| I 958    | I C 7    | I Capacitor, electrolytic, 4.7mF, 25 to 50V MM or MG type | I 3  | I                 |
| I 959    | I C 8    | I Ident. to C7                                            | I    | I                 |
| I 960    | I C 9    | I Capacitor, electrolytic, 47mF, 25V, MM or MG type       | I 1  | I                 |
| I 961    | I C 10   | I Capacitor, film, 0.1mF, 100V,MMKO                       | I 3  | I                 |
| I 962    | I C 11   | I Ident. to C10                                           | I    | I                 |
| I 963    | I C 12   | I Ident. to C1                                            | I    | I                 |
| I 964    | I C 13   | I Ident. to C10                                           | I    | I                 |
| I 965    | I C 14   | I Ident. to C7                                            | I    | I                 |
| I 966    | I C 15   | I Capacitor, ceramic, 220pF                               | I 1  | I                 |
| I        | I        | I                                                         | I    | I                 |
| I 968    | I CB 1   | I Printed circuit board                                   | I 1  | I 53.3096/PCB.    |
| I        | I        | I                                                         | I    | I                 |
| I 970    | I CL 1   | I Coil, AF, 4 turns                                       | I 1  | I CL1             |
| I        | I        | I                                                         | I    | I                 |
| I 972    | I CS 1   | I Connector, socket, 8 positions, pitch 2.5mm, ref. MSF8  | I 2  | I MKS1858-1-0-808 |
| I 973    | I CS 2   | I Ident. to CS2                                           | I    | I                 |
| I        | I        | I                                                         | I    | I                 |
| I 975    | I D 3    | I Diode, 1N4148                                           | I 5  | I                 |
| I 976    | I D 4    | I Ident. to D3                                            | I    | I                 |
| I 977    | I D 5    | I Ident. to D3                                            | I    | I                 |
| I 978    | I D 6    | I Ident. to D3                                            | I    | I                 |
| I 979    | I D 7    | I Diode, 1N4006                                           | I    | I                 |
| I 980    | I D 8    | I Ident. to D3                                            | I    | I                 |
| I        | I        | I                                                         | I    | I                 |
| I 982    | I DB 1   | I Diode bridge, W04F                                      | I 2  | I                 |
| I 983    | I DB 2   | I Ident. to DB1                                           | I    | I                 |
| I        | I        | I                                                         | I    | I                 |
| I 985    | I DZ 1   | I Diode, zener, BZX55C5V1                                 | I 2  | I                 |
| I 986    | I DZ 2   | I Ident. to DZ1                                           | I    | I                 |
| I        | I        | I                                                         | I    | I                 |
| I 988    | I IC 1   | I Integrated circuit, TL071CP                             | I 1  | I                 |
| I        | I        | I                                                         | I    | I                 |
| I 990    | I K 1    | I Relay, 24VDC, ref. RR23001L1                            | I 1  | I RR2301L1        |
| I        | I        | I                                                         | I    | I                 |
| I 992    | I Q 1    | I Transistor 2N2222A                                      | I 2  | I                 |
| I 993    | I Q 2    | I Transistor 2N2907A                                      | I 2  | I                 |
| I 994    | I Q 3    | I Ident. to Q2                                            | I    | I                 |
| I 995    | I Q 4    | I Ident. to Q1                                            | I    | I                 |
| I        | I        | I                                                         | I    | I                 |
| I        | I        | I                                                         | I    | I                 |

I -- PARTS LIST -- I - SQUARE 1000 - RELAY MODULE - ref. 53.309 I 1 of 2 I 45.481



[illegible]



| 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                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1055     | B 1 Blower, 45l/s, 115VAC, 50/60 Hz, 20W, ref. 4600N                                            | 1    | 4600N                                             |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1057     | BP 1 Binding post, black, ref. B3                                                               | 2    | B3                                                |
| I                    | 1058     | BP 2 Binding post, red, ref. B31                                                                | 2    | B31                                               |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1063     | X 15 Connector socket, female, 3 positions, XLB3-31                                             | 2    | XLB3-31                                           |
| I                    | 1064     | X 16 Connector socket, male, 3 positions, XLB3-32                                               | 2    | XLB3-32                                           |
| I                    | 1065     | X 17 Finger guard, steel wire, zinc plated, ref. LZ20                                           | 1    | LZ20                                              |
| I                    | 1066     | X 18 Foot, neoprene rubber, ref. 735-30                                                         | 4    | 735-30                                            |
| I                    | 1067     | X 19 Feed-thru insulator, neoprene rubber, ref. DA30-70-30                                      | 1    | DA30-70-30                                        |
| I                    | 1068     | X 20 Air filter, plastic foam, ref. Bulpren-S10                                                 | 1    | Bulpren-S10                                       |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1073     | Y 6 Main chassis, aluminium, black anodised, ref. 03.297F                                       | 1    | 03.297F                                           |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1075     | Main chassis, sub-assy, (main chassis equipped with swaged nuts)                                | 1    | 03.297F/SUB.ASSY.                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1077     | Y 7 Main cover, aluminium, black anodised, ref. 33.298B                                         | 1    | 33.298B                                           |
| I                    | 1078     | Y 8 Front panel, aluminium, black anodised, ref. 23.312B                                        | 1    | 23.312B                                           |
| I                    | 1079     | Y 9 Handle, aluminium, anodised, ref. 03.176                                                    | 4    | 03.176                                            |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1081     | Y 10 Fan cover, ref. 33.290D                                                                    | 1    | 33.290D                                           |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1083     | Fan cover sub assembly, (fan cover equipped with finger guard X17, clip Z26 and air filter X20) | 1    | 33.290D/SUB.ASSY.                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1086     | Y 11 Voltage amplifier cover, zinc plated, ref. 33.316B                                         | 2    | 33.316B                                           |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | I        | I                                                                                               | I    | I                                                 |
| I                    | 1091     | Z 26 Clip, air filter fastening, ref. C4413                                                     | 2    | C4413                                             |
| I                    | 1092     | Z 27 Hex. standoff, metric, zinc plated, H5x20, ref. 2083                                       | 2    | 2083                                              |
| I                    | 1093     | Z 28 Pin, air filter fastening, ref. R6213                                                      | 2    | R6213                                             |
| 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                                                                                     | -    | MISCELLANEOUS MECANICAL PARTS - I 1 of 2 I 45.483 |
| -----                |          |                                                                                                 |      |                                                   |



| Item no | Sch.ref.        | Description                                                    | Qty.     | EAA Part number |
|---------|-----------------|----------------------------------------------------------------|----------|-----------------|
| I       | I               | I                                                              | I        | I               |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure blower B1                            | I        | I               |
| I 1104  | I Z 5           | I Machine screw, metric, TC4x50                                | I 4      | I TC4x50        |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure input sockets connectors X15 and X16 | I        | I               |
| I 1107  | I Z 20          | I Pop rivet, 3x8mm                                             | I 8      | I SNA380        |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware swaged on main chassis Y6                           | I        | I               |
| I 1110  | I Z 21          | I Nut, swage type, metric, ref. RF01M4                         | I 4      | I RF01M4        |
| I 1111  | I Z 22          | I Nut, swage type, metric, ref. RF01M5                         | I 8      | I RF01M5        |
| 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 Hardware used to secure main cover Y7                        | I        | I               |
| I 1115  | I Z 14          | I Machine screw, metric, TFHC5x12                              | I 12     | I TFHC5x12      |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure front panel handles Y9               | I        | I               |
| I 1118  | I Z 25          | I Machine screw, metric, TFHC5x16                              | I 4      | I TFHC5x16      |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure rear panel handles Y9                | I        | I               |
| I 1121  | I Z 14          | I Machine screw, metric, TFHC5x12                              | I 4      | I TFHC5x12      |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure finger guard X17 and clip Z26 on     | I        | I               |
| I       | I               | I fan cover Y10                                                | I        | I               |
| I 1125  | I Z 13          | I Pop rivet, 3.2x8mm                                           | I 4      | I TAP/046       |
| I 1126  | I Z 26          | I Pop rivet, 4x12mm                                            | I 4      | I TAP/510       |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure pin Z28                              | I        | I               |
| I 1129  | I Z 29          | I Lockwasher, Z15                                              | I 3      | I Z15           |
| I 1130  | I Z 12          | I Hex. nut, metric, Hm5                                        | I 2      | I Hm5           |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure rubber feet X18                      | I        | I               |
| I 1133  | I Z 30          | I Machine screw, metric, TC5x20                                | I 4      | I TC5x20        |
| I 1134  | I Z 31          | I Washer, flat, L5x16                                          | I 4      | I L5x16         |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure voltage amplifier cover Y11          | I        | I               |
| I 1137  | I Z 32          | I Machine screw, metric, TC4x8                                 | I 4      | I TC4x8         |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure hex. standoffs Z27                   | I        | I               |
| I 1140  | I Z 14          | I Machine screw, metric, TFHC5x12                              | I 2      | I TFHC5x12      |
| I 1141  | I Z 31          | I Washer, flat, L5x16                                          | I 2      | I L5x16         |
| I 1142  | I Z 29          | I Lockwasher, Z15                                              | I 2      | I Z15           |
| I       | I               | I                                                              | I        | I               |
| I       | I               | I Hardware used to secure power modules assemblies             | 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 - MISCELLANEOUS MECHANICAL PARTS -             | I 2 of 2 | I 45.484        |
| I-----I |                 |                                                                |          |                 |







- 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.

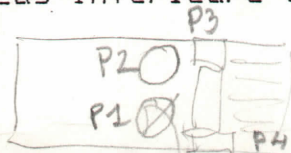
- 2.7 - Vérifier que le niveau du signal de sortie est revenu à sa valeur d'origine soit 58V AC environ.

⑨ 415mV  
- 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.



7mV  
18/3/12 avec P2 multitor

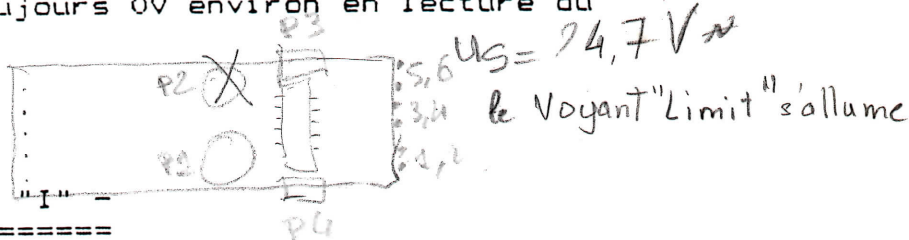


- 3.4 - Simuler un court-circuit en disposant un condensateur de 100 à 330mF / 25V entre masse (1+2 de CP1) et entrée tension (5+6 de CP1) du multiplicateur.

- 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 R34 (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 3a.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.







- 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 ingrated circuit TL071CF 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 minimm 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 - =====

- 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 - =====

- 5.1 - Install a dc millivoltmeter between the extreme points of resistors R41 and R34 ( 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 -  
=====

- 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 -  
=====

- 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 -  
=====

- 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 -  
=====

- 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.