

# Technical Manual

## STEREO CONTROL AMPLIFIER

# RC-5000

### TABLE OF CONTENTS

|   |         |  |   |
|---|---------|--|---|
| Chassis Layout (Top View) . . . . .                                   | 2       | Selectors Circuit Board Diagram . . . . .                | B |
| Chassis Layout (Bottom View) . . . . .                                | 3       | Volume Control Amp Circuit Board Diagram . . . . .       | C |
| Adjustment Procedures . . . . .                                       | 4       | Cannon Output Relay Circuit Board Diagram . . . . .      | C |
| Specifications . . . . .  | 7       | Octave Equalizer Circuit Board Diagram . . . . .         | J |
| Repair Parts List . . . . .   | 8       | Power Supply (for Relay) Circuit Board Diagram . . . . . | J |
| Block Diagram . . . . .   | 10      | Phono-1, -2, -3 Amp Circuit Board Diagram . . . . .      | J |
| Addendum . . . . .  | 12      | Phono-3 MC Head Amp Circuit Board Diagram . . . . .      | K |
| Schematic Diagram . . . . .   | DEF-GHI | Acoustic Control Circuit Board Diagram . . . . .         | L |
| Mic and Filters Amp Circuit Board Diagram . . . . .                   | A       | Cannon Input Amp Circuit Board Diagram . . . . .         | L |
| Cannon Output Amp and<br>Power Supply Circuit Board Diagram . . . . . | A       | Phono Selector Circuit Board Diagram . . . . .           | L |

### INHALTSVERZEICHNIS

|   |         |  |   |
|---|---------|--|---|
| Chassis-Anordnung (Oberansicht) . . . . .                                     | 2       | Bestückungsplan der Wahlschalter-Schaltung . . . . .                                 | B |
| Chassis-Anordnung (Unteransicht) . . . . .                                    | 3       | Bestückungsplan des Lautstärkereger-Verstärkers . . . . .                            | C |
| Einstellung . . . . .   | 4       | Bestückungsplan der Cannon-Ausgangsrelais-Schaltung . . . . .                        | C |
| Technische Daten . . . . .  | 7       | Bestückungsplan des Oktav-Entzerrers . . . . .                                       | J |
| Reparaturteilliste . . . . .  | 8       | Bestückungsplan des Netzteils (für Relais) . . . . .                                 | J |
| Blockschaltbild . . . . .   | 10      | Bestückungsplan des Verstärkers für Phono-1, -2, -3 . . . . .                        | J |
| Nachtrag . . . . .  | 12      | Bestückungsplan des Phono-3-Verstärkers für<br>dynamische Tonabnehmer (MC) . . . . . | K |
| Schaltungsschema . . . . .  | DEF-GHI | Bestückungsplan des Tonregler-Schaltung . . . . .                                    | L |
| Bestückungsplan des Mikrofon- und Filter-Verstärkers . . . . .                | A       | Bestückungsplan des Cannon-Eingangsverstärkers . . . . .                             | L |
| Bestückungsplan des Cannon-Ausgangsverstärkers und<br>des Netzteils . . . . . | A       | Bestückungsplan der Phonowahlschalter-Schaltung . . . . .                            | L |

### TABLE DES MATIERES

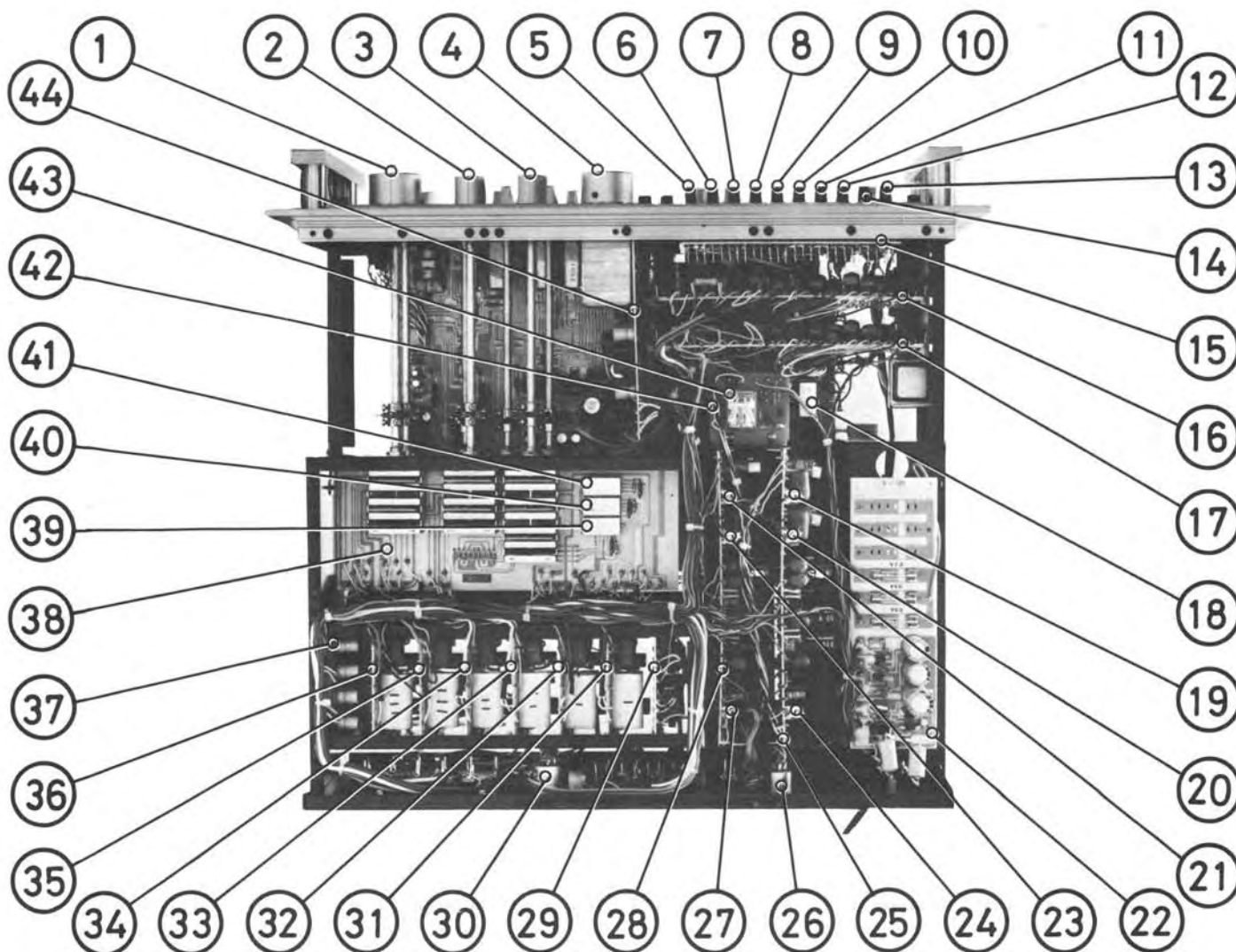
|  |         |  |   |
|--|---------|--|---|
| Installation du châssis (vue de dessus) . . . . .  | 2       | Diagramme de la plaquette d'amplification<br>de la commande du volume . . . . .                  | C |
| Installation du châssis (vue de dessous) . . . . .   | 3       | Diagramme de la plaquette du relais de sortie Cannon . . . . .                                   | C |
| Processus de réglage . . . . .   | 4       | Diagramme de la plaquette de l'égalisateur de fréquences . . . . .                               | J |
| Caractéristiques . . . . .   | 7       | Diagramme de la plaquette d'alimentation (pour le relais) . . . . .                              | J |
| Liste des pièces de rechange . . . . .   | 8       | Diagramme de la plaquette d'amplification de<br>Phono-1, -2, et -3 . . . . .                     | J |
| Schéma synoptique . . . . .  | 10      | Diagramme de la plaquette d'amplification pour cellule à<br>bobine mobile (MC) Phono-3 . . . . . | K |
| Addendum . . . . .   | 12      | Diagramme de la plaquette de commande acoustique . . . . .                                       | L |
| Diagramme schématique . . . . .  | DEF-GHI | Diagramme de la plaquette d'amplification de<br>l'entrée Cannon . . . . .                        | L |
| Diagramme de la plaquette d'amplification<br>micro et filtres . . . . .                      | A       | Diagramme de la plaquette du sélecteur Phono . . . . .   | L |
| Diagramme de la plaquette d'alimentation et d'amplification<br>de la sortie Cannon . . . . . | A       |  |   |
| Diagramme de la plaquette des sélecteurs . . . . .   | B       |  |   |

**Serial No. Beginning**  
**NB58581**  
**R32352**

# Chassis Layout (Top View)

## Chassis-Anordnung (Oberansicht)

## Installation du châssis (vue de dessus)



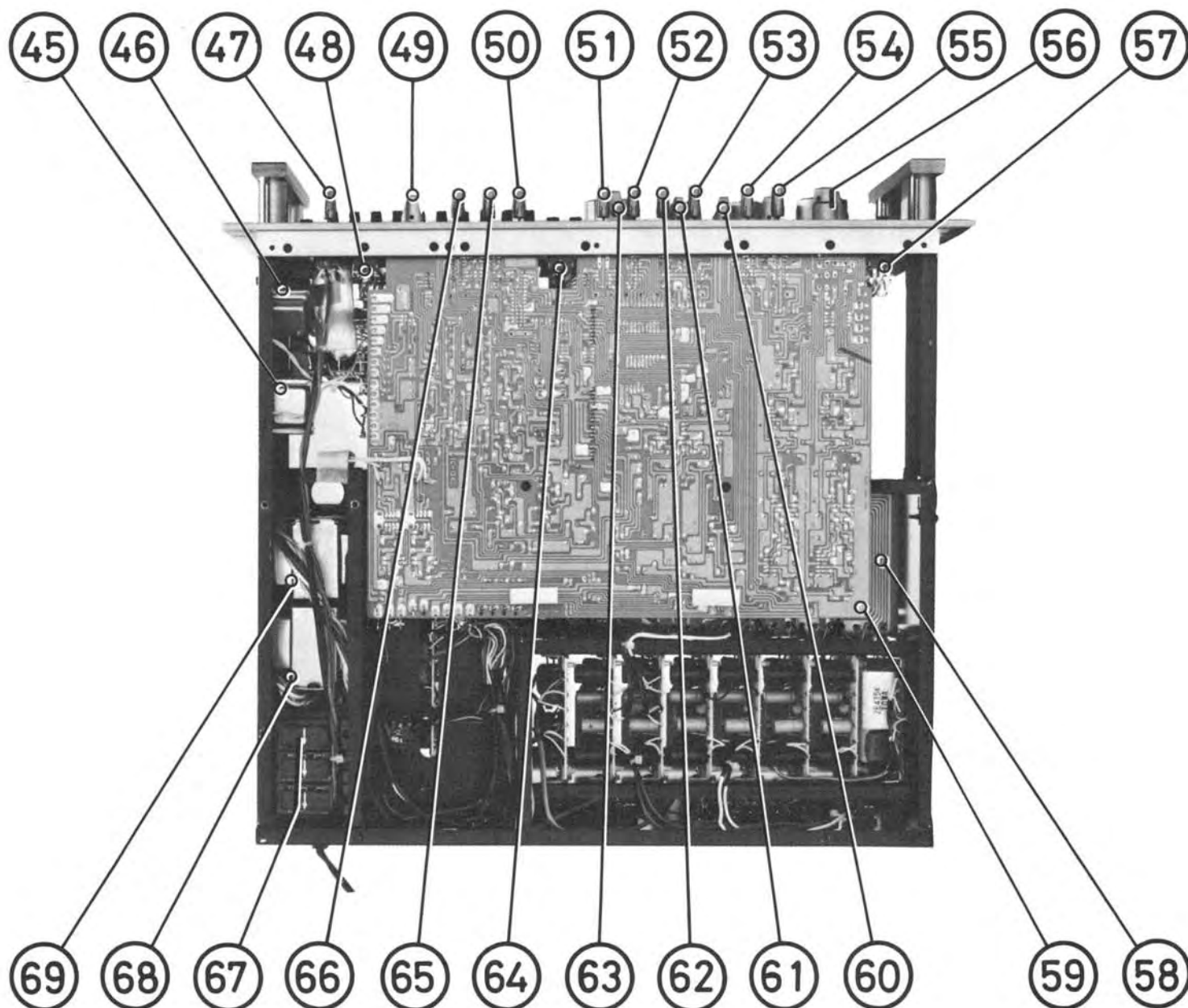
1. S4, INPUT SELECTOR
2. S5, TAPE MONITOR SWITCH
3. S6, REC OUT SWITCH
4. VOLUME CONTROL
5. ACOUSTIC CONTROL, 16kHz
6. ACOUSTIC CONTROL, 8kHz
7. ACOUSTIC CONTROL, 4kHz
8. ACOUSTIC CONTROL, 2kHz
9. ACOUSTIC CONTROL, 1kHz
10. ACOUSTIC CONTROL, 500Hz
11. ACOUSTIC CONTROL, 250Hz
12. ACOUSTIC CONTROL, 125Hz
13. ACOUSTIC CONTROL, 32Hz
14. ACOUSTIC CONTROL, 63Hz
15. ACOUSTIC CONTROL CIRCUIT BOARD
16. L-CH, OCTAVE EQUALIZER CIRCUIT BOARD
17. R-CH, OCTAVE EQUALIZER CIRCUIT BOARD
18. RY5001, PHONES OUTPUT RELAY
19. VR901, L-CH PHONO +B VOLTAGE ADJ
20. VR902, L-CH PHONO -B VOLTAGE ADJ
21. VR901', R-CH PHONO +B VOLTAGE ADJ
22. RELAYS POWER SUPPLY CIRCUIT BOARD
23. VR902', R-CH PHONO -B VOLTAGE ADJ

24. VR903, L-CH CANNON AMP PHASE ADJ
25. L-CH CANNON OUTPUT AMP & POWER SUPPLY CIRCUIT BOARD
26. CANNON OUTPUT CONNECTOR
27. VR903', R-CH CANNON AMP PHASE ADJ
28. R-CH CANNON OUTPUT AMP & POWER SUPPLY CIRCUIT BOARD
29. CANNON INPUT AMP CIRCUIT BOARD
30. CANNON INPUT CONNECTOR
31. L-CH PHONO-1 AMP CIRCUIT BOARD
32. R-CH PHONO-1 AMP CIRCUIT BOARD
33. L-CH PHONO-2 AMP CIRCUIT BOARD
34. R-CH PHONO-2 AMP CIRCUIT BOARD
35. L-CH PHONO-3 AMP CIRCUIT BOARD
36. R-CH PHONO-3 AMP CIRCUIT BOARD
37. PHONO-3 MC HEAD-AMP CIRCUIT BOARD
38. INPUT SELECTOR CIRCUIT BOARD
39. RY133, TAPE-3 OUTPUT RELAY
40. RY132, TAPE-2 OUTPUT RELAY
41. RY131, TAPE-1 OUTPUT RELAY
42. CANNON OUTPUT RELAY CIRCUIT BOARD
43. RY231, CANNON OUTPUT RELAY
44. VOLUME CONTROL CIRCUIT BOARD

# Chassis Layout (Bottom View)

## Chassis-Anordnung (Unteransicht)

### Installation du châssis (vue de dessous)



- 45. T004, L-CH HEADPHONE OUTPUT TRANSFORMER
- 46. T005, R-CH HEADPHONE OUTPUT TRANSFORMER
- 47. S19, POWER SWITCH
- 48. HEADPHONES JACK
- 49. S16, PHONES IMPEDANCE SWITCH
- 50. S7, TONE SWITCH
- 51. S15, MUTING SWITCH
- 52. S12, LOUDNESS SWITCH
- 53. S10, MODE SWITCH
- 54. S14, MIC MODE SWITCH
- 55. S13, MIC IMPEDANCE SWITCH
- 56. MIC MIXING LEVEL CONTROL
- 57. MIC INPUT JACK

- 58. PHONO SELECTOR CIRCUIT BOARD
- 59. MIC AND FILTERS AMP CIRCUIT BOARD
- 60. S1, PHONO LOAD IMPEDANCE SELECTOR
- 61. S2, PHONO ADDITIONAL CAPACITANCE SWITCH
- 62. S11, MODE SWITCH
- 63. BALANCE CONTROL
- 64. TAPE-3 JACK
- 65. S9, HIGH FILTER SWITCH
- 66. S8, LOW FILTER SWITCH
- 67. LINE VOLTAGE SELECTOR
- 68. T001, L-CH POWER TRANSFORMER
- 69. T002, R-CH POWER TRANSFORMER

# Adjustment Procedures

**Instruments:** DC Voltmeter, AC Millivoltmeter, Audio Generator, Oscilloscope, 600-ohm non-inductive resistors

**Notes:**

- 1) Be sure to use high precision instruments.
- 2) The AC Millivoltmeter should be able to read at least  $-90\text{dB}$ , and fitted up with IHF A-network.
- 3) The Audio Generator should be accurately calibrated for frequency and output level.

## A. Adjustment of B Voltage of Phono Amp Power Supply

1. Connect the plus lead of the DC Voltmeter to pin

+B5 on the Power Supply PC board (B-128) and the minus lead to the chassis ground. Set the meter in the 150V range and the polarity to +DC position.

Adjust potentiometer VR901 on the Power Supply PC board (B-128) so that DC Voltmeter reads +60V.

2. Next, connect the plus lead to pin  $-B5$ , and switch the polarity of the meter to  $-DC$  position. (Or connect the minus lead to pin  $-B5$ , and the plus lead to the chassis ground.)

Adjust potentiometer VR902 on the Power Supply PC board (B-128) so that the DC Voltmeter reads  $-60\text{V}$ .

# Einstellung

**Instrumente:** Gleichstrom-Voltmeter, Wechselstrom-Millivoltmeter, Tongenerator, Oszillograph, induktions-freie Widerstände (600 Ohm)

**Hinweise:**

- 1) Verwenden Sie nur Instrumente mit hoher Genauigkeit.
- 2) Das Wechselstrom-Millivoltmeter sollte mindestens  $-90\text{dB}$  anzeigen und mit einem IHF A Netzwerk ausgestattet sein.
- 3) Die Frequenz und der Ausgangspegel des Tongenerators sollten genau eingestellt sein.

## A. Einstellung der B-Spannung des Netzteils für den Phonoverstärker

1. Verbinden Sie das Pluskabel des Gleichstrom-

Voltmeters mit dem Steckerstift +B5 auf der Netzteil-Leiterplatte (B-128) und das Minuskabel mit dem Erdanschluß des Chassis. Das Meter auf den 150V-Bereich und die Polarität auf +DC stellen. Stellen Sie nun das Potentiometer VR901 auf der Netzteil-Leiterplatte (B-128) so ein, daß auf dem Gleichstrom-Voltmeter eine Anzeige von +60V erhalten wird.

2. Das Pluskabel nun an den Steckerstift  $-B5$  anschließen und das Voltmeter auf  $-DC$  stellen. (Oder das Minuskabel an  $-B5$  und das Pluskabel an den Erdanschluß des Chassis anschließen.) Das Potentiometer VR902 auf der Netzteil-Leiterplatte (B-128) so einstellen, daß  $-60\text{V}$  am Gleichstrom-Voltmeter angezeigt werden.

# Processus de réglage

**Instruments:** Voltmètre à courant continu, millivoltmètre à courant alternatif, générateur d'audio-fréquences, oscilloscope, résistances non inductives de 600 ohms

**Remarques:**

- 1) S'assurer que seuls des appareils de haute précision sont utilisés.
- 2) Le millivoltmètre à courant alternatif doit pouvoir donner une lecture d'au moins  $-90\text{dB}$  et doit être équipé d'un réseau IHF A.
- 3) Le générateur d'audio-fréquences doit être étalonné avec précision en ce qui concerne fréquences et niveau de sortie.

## A. Réglage de la tension B de l'alimentation de l'ampli phono

1. Brancher le conducteur positif du voltmètre à courant continu à la fiche +B5 de la plaquette du circuit d'alimentation (B-128) et le conducteur négatif à la masse du châssis. Placer le compteur dans la zone 150V et régler la polarité sur la position +DC. Régler le potentiomètre VR901 de la plaquette du circuit d'alimentation (B-128) de façon à ce que la voltmètre à courant continu indique +60V.

2. Raccorder ensuite le conducteur positif à la fiche  $-B5$  et commuter le compteur sur la position  $-DC$ . (Ou encore, connecter le conducteur négatif à la fiche  $-B5$  et le conducteur positif à la masse du châssis.) Régler le potentiomètre VR902 de la plaquette du circuit d'alimentation (B-128) de façon à ce que le voltmètre à courant continu indique  $-60\text{V}$ .



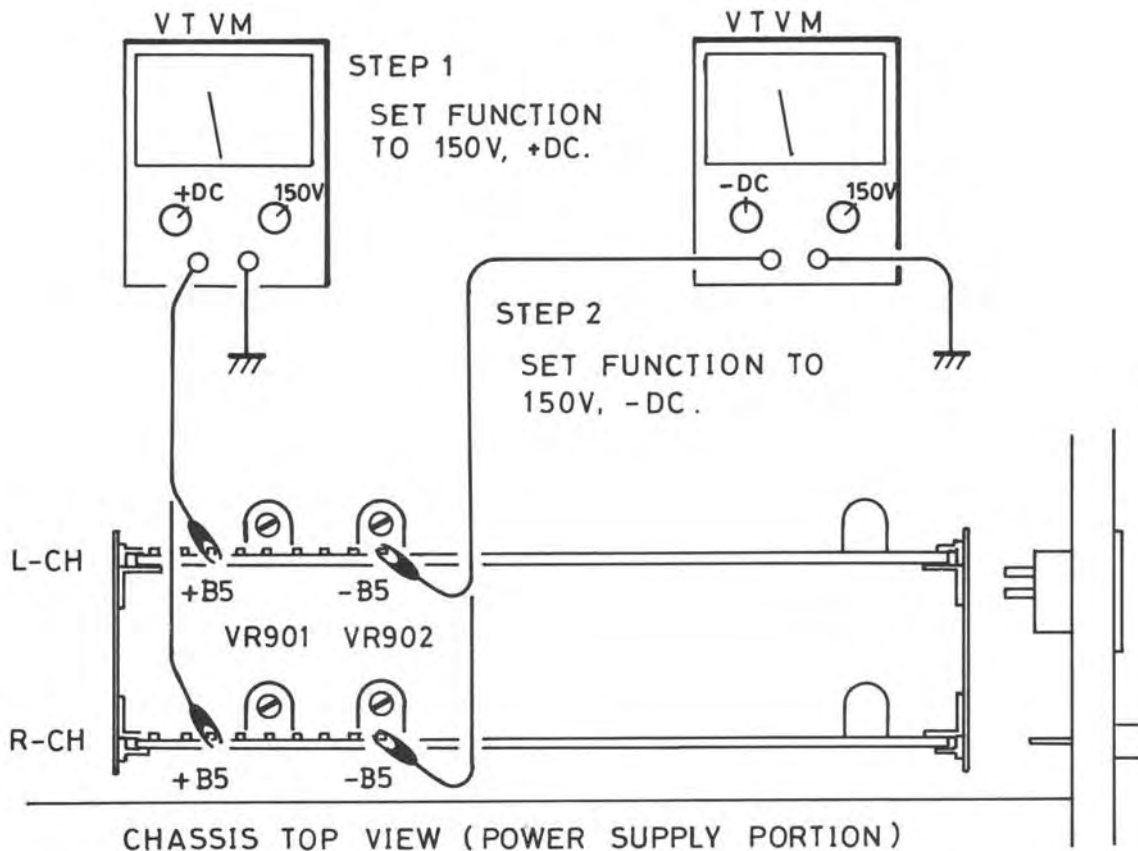


Fig. 1. Voltage Adjustment  
 Abb. 1. Spannungseinstellung  
 Fig. 1. Réglage de la tension

## B. Adjustment of Phase of Cannon Output Amp

1. Connect 600-ohm load resistors to the Cannon Output connector (between pins 2 and 1, and between pins 3 and 1). Short pins 2 and 3, and connect the Oscilloscope across the load resistor. Set AUX-1 Input switch and Pre-Out switch on the rear panel (S17 and S18 in Schematic Diagram) to Cannon J. position.
2. Connect the Audio Generator to AUX-1 Cannon Input connector (across pins 2 and 1, or pins 3 and 1), and feed in 1,000Hz 75mV (sine wave) signal.

Then adjust potentiometer VR903 on the Cannon Output and Power Supply PC board (B-128) so that the output waveform on the scope is minimum.

3. After completing adjustment, open the shorted pin. Connect the AC Voltmeter across 600-ohm load resistor, and make sure the output level at pins 2 and 1, and 3 and 1 is  $500\text{mV} \pm 1\text{dB}$ .
4. Carry out steps 1 to 3 above for the other channel.

### NOTE:

Sound will not come out for about seven seconds due to the relay protection circuit built in to prevent loud pop noise when the Power switch is flipped on.

## B. Phaseneinstellung des Cannon-Ausgangsverstärkers

1. Die Belastungswiderstände (600 Ohm) an den Cannon-Ausgangsanschluß anschließen (zwischen Stifte 2 und 1, und zwischen Stifte 3 und 1). Die Stifte 2 und 3 miteinander verbinden und den Oszillographen an einen Belastungswiderstand anschließen. Den AUX-1-Eingangsschalter und den Pre-Out-Schalter auf der Rückseite (S17 und S18 im Schaltungsschema) auf Stellung Cannon J. stellen.

stellen, daß die Ausgangswelle auf dem Oszillographen möglichst klein ist.

2. Den Tongenerator an den AUX-1 Cannon-Eingangsanschluß anschließen (an Steckerstifte 2 und 1 oder 3 und 1) und ein 1kHz-75mV-Signal (Sinus) zuführen. Nun das Potentiometer VR903 auf der Cannon-Ausgang und Netzteil-Leiterplatte (B-128) so ein-

3. Nach dieser Einstellung die kurzgeschlossenen Steckerstifte 2 und 3 voneinander trennen. Das Wechselstrom-Voltmeter an einen 600 Ohm-Belastungswiderstand anschließen und nachprüfen, ob der Ausgangspegel an den Stiften 2 und 1 (bzw-3 und 1)  $500\text{mV} \pm 1\text{dB}$  beträgt.

4. Die Schritte 1 bis 3 für den anderen Kanal durchführen.

### Hinweis:

Erst nach etwa 7 Sekunden erscheint ein Ausgangssignal infolge des eingebauten Relais-Schutzkreises zur Verhinderung von sehr lauten Signalen beim Einschalten des Netzschalters.

## B. Mise en phase de l'ampli de sortie Cannon

1. Brancher les résistances de charge de 600 ohms à la borne de sortie Cannon (entre les fiches 2 et 1, et entre les fiches 3 et 1). Court-circuiter les fiches 2 et 3 et brancher l'oscilloscope à travers la résistance de charge. Placer le commutateur d'entrée AUX-1 ainsi que le commutateur Pre-Out du panneau arrière (S17 et S18 sur le diagramme schématique) sur la position Cannon J.
2. Raccorder le générateur d'audio-fréquences à la borne d'entrée Cannon AUX-1 (à travers les fiches 2 et 1, ou les fiches 3 et 1); envoyer un signal de 1.000Hz 75mV (onde sinusoïdale). Régler alors le potentiomètre VR903 de la plaquette du circuit de sortie Cannon et du circuit d'alimentation (B128) de façon à ce que

la forme de l'onde de sortie soit réduite au minimum sur l'écran.

3. Après avoir terminé le réglage, libérer la fiche court-circuitée. Brancher le voltmètre à courant alternatif à travers la résistance de charge de 600 ohms et vérifier que le niveau de sortie aux fiches 2 et 1, et 3 et 1, est de 500mV à  $\pm 1$ dB.
4. Répéter les opérations 1 à 3 ci-dessus pour l'autre canal.

### Remarque:

Le son ne sort pas pendant une durée d'environ 7 secondes à cause du circuit de protection à relais incorporé dans le but d'éviter le choc sonore lorsque l'on actionne le commutateur d'alimentation.

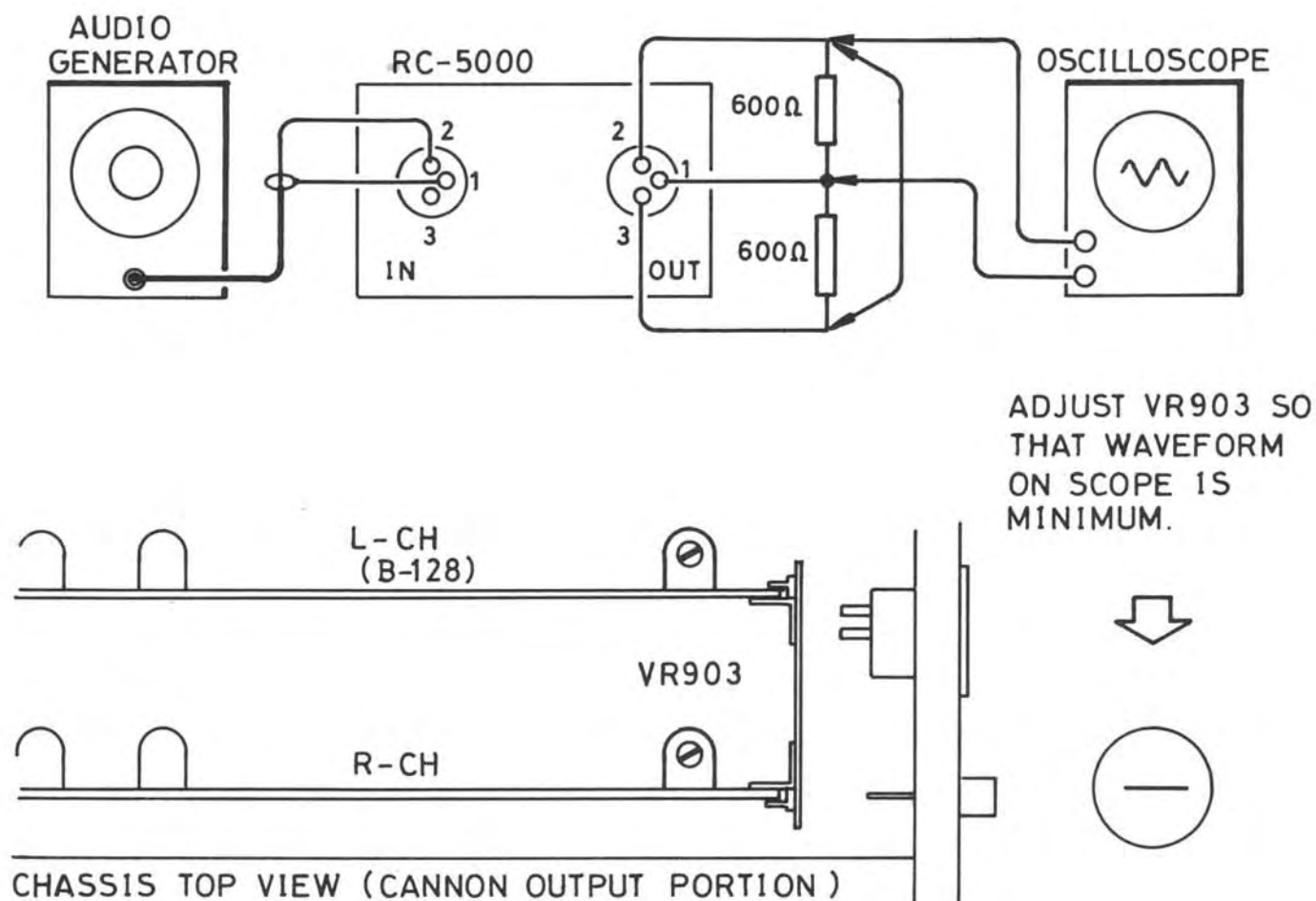


Fig. 2. Phase Adjustment

Abb. 2. Phaseneinstellung

Fig. 2. Mise en phase

# Specifications

## Technische Daten

## Caractéristiques

### A. PHONO EQUALIZER AMP SECTION (measured at TAPE OUT)

- Output Voltage (at 1kHz)  
Rated Output:  
Pin Jack Output . . . . . 150mV  
DIN Socket Output . . . . . 50mV  
Maximum Output:  
Pin Jack (at 0.5% THD) . . . . . 30V
  - Harmonic Distortion (at 5V output, 20Hz to 20 kHz)  
Phono-1, -2 (MAG): . . . . . 0.009%  
Phono-3 (MC): . . . . . 0.009%
  - Phono Equalization (20Hz to 20kHz)  
Phono-1, RIAA STD. . . . .  $\pm 0.4$ dB  
Phono-2, -3 RIAA STD. . . . .  $\pm 0.3$ dB
  - Hum and Noise (at 1V output, IHF A-network)  
Phono-1, -2 . . . . . 75dB  
Phono-3 . . . . . 65dB
  - Input Sensitivity/Impedance (at rated output)  
Phono-1 (MAG) . . . . . 2mV to 8mV/ $\pm 1$ dB, 15k $\Omega$  to 100k $\Omega$  (Additional Cap: 0 to 400pF)  
Phono-2 (MAG) . . . . . 2mV/ $\pm 1$ dB, 50k $\Omega$   
Phono-3 (MC) . . . . . 90 $\mu$ V/ $\pm 1$ dB, 22 $\Omega$
  - Overload (at 1kHz, 0.5% THD)  
Phono-1 . . . . . 450mV to 1,800mV  
Phono-2 . . . . . 450mV  
Phono-3 . . . . . 15mV
  - IM Distortion, 70Hz:7kHz (4:1) .0012%
- Note:** S/N (measured at Pre-Out Jack, 16Hz Subsonic ON)  
Phono-1, -2 . . . . . 63dB  
Phono-3 . . . . . 51.5dB

### B. PRE AMP SECTION (measured at Pre Out)

- Output Voltage/Impedance  
Pin Jack  
Rated Output . . . . . 1V/300 $\Omega$   
Maximum Output at 0.5% THD . . . . . 7V  
Cannon Connector  
Rated Output . . . . . 1V/600 $\Omega$   
Maximum Output at 0.5% THD . . . . . 4.5V
- Harmonic Distortion (at rated output)  
Pin Jack Output (20Hz to 20 kHz) . . . . . 0.01%  
Cannon Connector Output (20Hz to 20 kHz) . . . . . 0.02%
- Frequency Response  
Pin Jack Output, +0dB . . . . . 5kHz to 200kHz  
-1dB . . . . .  
Cannon Connector Output, +0dB . . . . .  
-1dB . . . . . 15Hz to 150kHz
- Hum and Noise (IHF A-network)  
Tuner, AUX-1 (Pin Jack), AUX-2 . . . . . 92dB  
Tape Monitor-1, -2 . . . . . 92dB  
AUX-1 (Cannon Connector) . . . . . 80dB  
Residual (Volume Control at Min.) . . . . . 10 $\mu$ V/100dB
- Input Sensitivity/Impedance (at rated output)  
Tuner, AUX-1 (Pin Jack), AUX-2 . . . . . 150mV/ $\pm 1$ dB/50k $\Omega$   
Tape Monitor-1, -2 . . . . . 150mV/ $\pm 1$ dB/50k $\Omega$   
AUX-1 (Cannon Connector) . . . . . 150mV/ $\pm 1$ dB/600 $\Omega$
- Overload (at 1kHz, 0.5% THD)  
Tuner, AUX-1 (Pin Jack), AUX-2 . . . . . 7V  
AUX-1 (Cannon Connector) . . . . . 7V
- IM Distortion, 70Hz:7kHz (4:1) .005%

### C. MIC AMP SECTION (at rated preamp output)

- Harmonic Distortion . . . . . 0.1%
- Frequency Response, +0dB . . . . . 25Hz to 20 kHz  
-3dB . . . . .
- Hum and Noise (IHF A-network) .68dB
- Residual Noise (IHF A-network) .32 $\mu$ V/90dB
- Input sensitivity/Impedance . . . . . 4mV/ $\pm 1$ dB/600 $\Omega$  to 50k $\Omega$
- Overload (at 1kHz, 0.5% THD) . . 1V

### D. HEADPHONE AMP SECTION (at rated preamp input)

- Harmonic Distortion . . . . . 0.1%
- Frequency Response, +0dB . . . . . High Imp: 80Hz to 18kHz  
-1dB . . . . . Low Imp: 70Hz to 35kHz
- Hum and Noise (IHF A-network) .75dB
- Rated Output  
(at 1kHz, rated input . . . . . 20mW/8 $\Omega$  load  
12mW/600 $\Omega$  load)
- Maximum Output (at 1kHz, 0.5% THD)  
Both channels driven . . . . . 0.5W/8 $\Omega$  load  
Both channels driven . . . . . 0.35W/600 $\Omega$  load
- Output Impedance: Low . . . . . 4 $\Omega$  to 16 $\Omega$   
High . . . . . 600 $\Omega$

### E. CONTROL CHARACTERISTICS

- Division Frequency  
32Hz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
63Hz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
125Hz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
250Hz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
500Hz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
1kHz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
2kHz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
4kHz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
8kHz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB  
16kHz . . . . . +12dB  $\sim$  -12dB/ $\pm 1$ dB
- Loudness-1 at 50Hz . . . . . +13dB $\pm 1$ dB  
10kHz . . . . . + 6dB $\pm 1$ dB  
-2 at 50Hz . . . . . + 7dB $\pm 1$ dB  
10kHz . . . . . + 3dB $\pm 1$ dB
- High Filter-1 at 12kHz . . . . . 12dB/oct  
-2 at 24kHz . . . . . 12dB/oct
- Low Filter-1 at 16Hz . . . . . 12dB/oct  
-2 at 4Hz . . . . . 12dB/oct
- Muting . . . . . -20dB $\pm 1$ dB
- Tone Defeat  
(at 1kHz, IN to OUT) . . . . . 0dB $\pm 1$ dB
- Volume Difference between Left and Right Channels:  
At maximum position . . . . . 1dB  
At 9 to 3 o'clock position . . . . . 1.5dB

# Repair Parts List

## Reparaturteilliste

### Liste des pièces de rechange

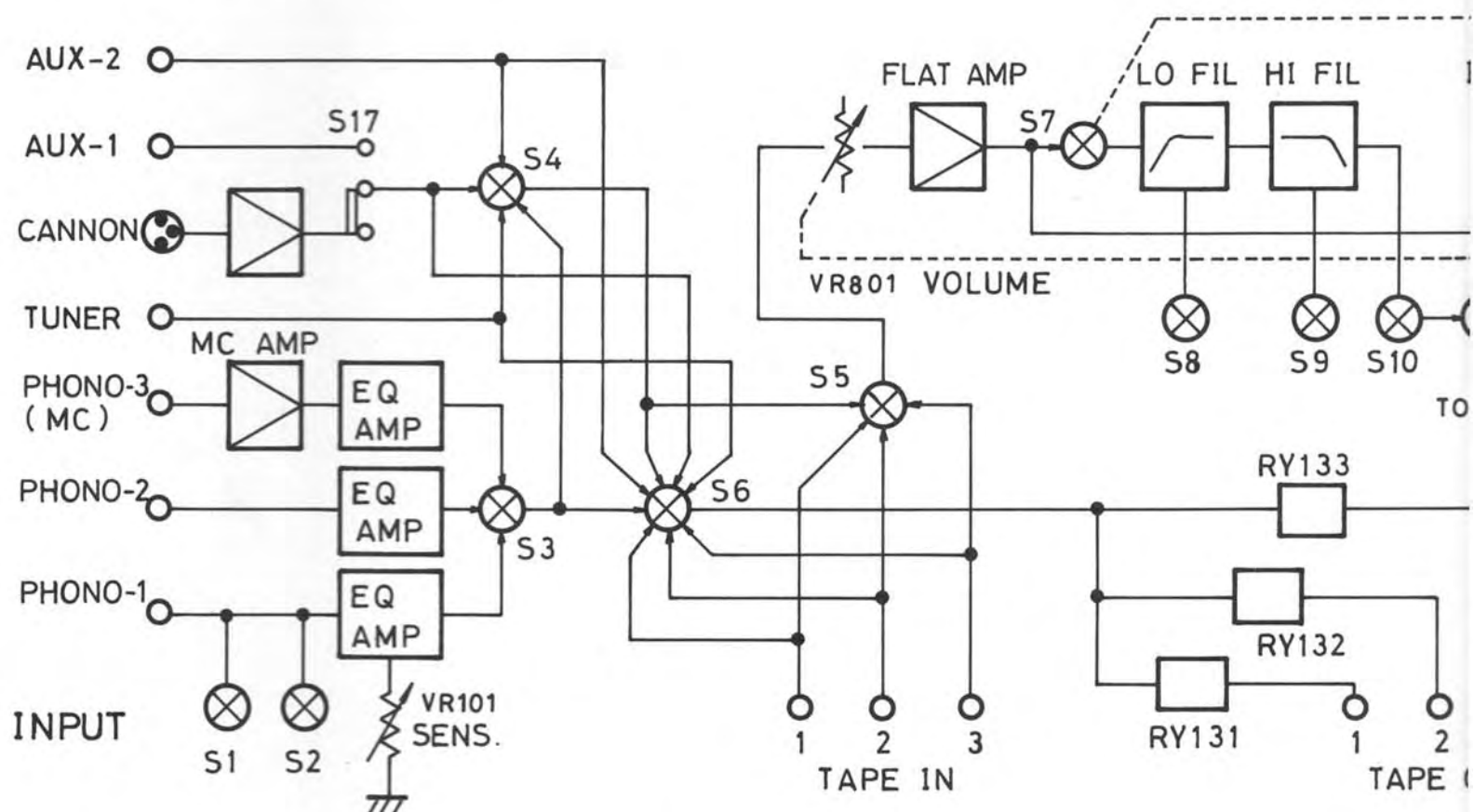
| Schematic Location   | Part No.  | Description             |
|--|-----------|-------------------------|
| TRANSISTORS, DIODES AND IC'S   |           |                         |
| Q201, 202, 203<br>204, 209, 210<br>211, 212, 219<br>220, 223, 224<br>225, 226  | 301201180 | 2SC1844                 |
| Q205, 206, 207<br>208, 213, 214<br>215, 216, 217<br>218, 221, 222<br>227, 228  |           |                         |
| Q251, 962  |           |                         |
| Q252   |           |                         |
| Q301, 302, 303<br>304, 401, 404<br>5001, 5002, 5005<br>5006, 5013, 5014<br>5015, 5016, 633<br>634, 635, 801<br>802, 803, 804<br>807, 808, 809<br>810, 821, 822<br>909, 910, 911<br>912 |           |                         |
| Q305, 306, 307<br>308, 313, 314<br>406, 408, 601<br>606, 607, 612<br>613, 618, 619<br>624, 625, 630<br>631, 811, 812<br>813, 814, 819<br>820, 908, 913<br>914, 917, 918                | 301001149 | 2SA991                  |
| Q309, 310, 311<br>312, 315, 316<br>317, 318, 403<br>407, 602, 605<br>608, 611, 614<br>617, 620, 623<br>626, 629, 632<br>805, 806, 815<br>816, 817, 818<br>907, 915, 916                |           |                         |
| Q402, 405  |           |                         |
| Q409   |           |                         |
| Q410, 5003, 5004<br>5009, 5010, 5011<br>5012, 5017, 5018<br>636, 823, 824  |           |                         |
| Q603, 604, 609<br>610, 615, 616<br>621, 622, 627<br>628  | 301201115 | 2SK130A (L) or (M)      |
| Q901   |           |                         |
| Q902   |           |                         |
| Q903   |           |                         |
| Q904   |           |                         |
| Q905   | 301201158 | 2SC1885 (R) or (S)      |
| Q906   |           |                         |
| Q961   |           |                         |
| Q963   |           |                         |
| D131 ~ 142<br>231, 232, 5001<br>5002, 965  |           |                         |
| D201, 202, 803<br>804, 966   | 301001142 | 2SC1318 (R) or (S)      |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301001132 | 2SA912 (R) or (S)       |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301001123 | 2SC1384 (R) or (S)      |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301201185 | 2SA684 (R) or (S)       |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301201153 | 2SC1827 (Y), (G) or (B) |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301201157 | 2SA769 (Y), (G) or (B)  |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301001135 | 2SC1567 (R) or (S)      |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301201170 | 2SA794 (R) or (S)       |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301201170 | 2SC1984                 |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 301301134 | 2SD571 (K)              |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 300111010 | 1S2472                  |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  | 300212002 | KB-265                  |
|  |           |                         |
|  |           |                         |
|  |           |                         |
|  |           |                         |



| Schematic Location | Part No.  | Description                                    |
|--------------------|-----------|--|
| T004, 005          | 227111012 | Transformer, Phones Output                     |
| F961, 962          | 341221050 | Fuse, 0.5A-3AG, for 100V, 120V Areas           |
|                    | 341221025 | Fuse, 0.25A-3AG, for 220V, 240V Areas          |
|                    | 345952020 | Fuse, 200mA T, for Europe                      |
| F963               | 341221020 | Fuse, 0.2A-3AG, for 100V, 120V Areas           |
|                    | 341221015 | Fuse, 0.15A-3AG, for 220V, 240V Areas          |
|                    | 345952006 | Fuse, 63mA T, for Europe                       |
|                    | 626110028 | Jack, Headphones, Tape Out-3                   |
|                    | 627117826 | Jack, Mic                                      |
|                    | 626110029 | Jack, Tape In-3                                |
|                    | 624201202 | Pin Jack, 2P, Pre Out                          |
|                    | 624202204 | Pin Jack, 4P, Phono, Tuner, AUX                |
|                    | 624203204 | Pin Jack, 4P, Tape Monitor-1, -2               |
|                    | 625001115 | DIN Socket, 5P w/Switch, Tape Monitor          |
|                    | 628111122 | Cannon Socket 3P F-type                        |
|                    | 628111121 | Cannon Socket 3P M-type                        |
|                    | 648211141 | AC Outlet                                      |
|                    | 796301115 | Line Cord, for USA, etc.                       |
|                    | 796301125 | Line Cord, for Australia                       |
|                    | 796301130 | Line Cord, for UK                              |
|                    | 796301139 | Line Cord, for Europe                          |
|                    | 111911395 | Front Panel Ass'y wo/Handles, (Gold)           |
|                    | 111911402 | Front Panel Ass'y wo/Handles, (Black)          |
|                    | 670101115 | Handle (Gold)                                  |
|                    | 670101116 | Handle (Black)                                 |
|                    | 116310215 | Knob (Gold), Volume, Input Selector            |
|                    | 116310211 | Knob (Gold), Phono Input Selector, Balance     |
|                    | 116310216 | Knob (Gold), Tape Monitor, Rec Out             |
|                    | 116310217 | Knob (Gold), Phono Sensitivity Selector, etc.  |
|                    | 116310221 | Knob (Gold), Mic Mix Level, R-ch               |
|                    | 116310222 | Knob (Gold), Mic Mix Level, L-ch               |
|                    | 116310212 | Knob (Gold), Loudness, Filter, etc.            |
|                    | 116310165 | Knob, Acoustic Control, (White Marker)         |
|                    | 116310226 | Knob (Black), Volume, Input Selector           |
|                    | 116310227 | Knob (Black), Balance, Phono Input Selector    |
|                    | 116310228 | Knob (Black), Tape Monitor, Rec Out            |
|                    | 116310229 | Knob (Black), Phono Sensitivity Selector, etc. |
|                    | 116310230 | Knob (Black), Mic Mix Level, R-ch              |
|                    | 116310231 | Knob (Black), Mic Mix Level, L-ch              |
|                    | 116310232 | Knob (Black), Loudness, Filter, etc.           |
|                    | 116310233 | Knob, Acoustic Control (Red Marker)            |
|                    | 770911189 | Collar, Handle Mtg (Gold)                      |
|                    | 770911205 | Collar, Handle Mtg (Black)                     |
|                    | 673402018 | Foot   |
|                    | 770202007 | Shorted Pin Plug, Phono Output                 |

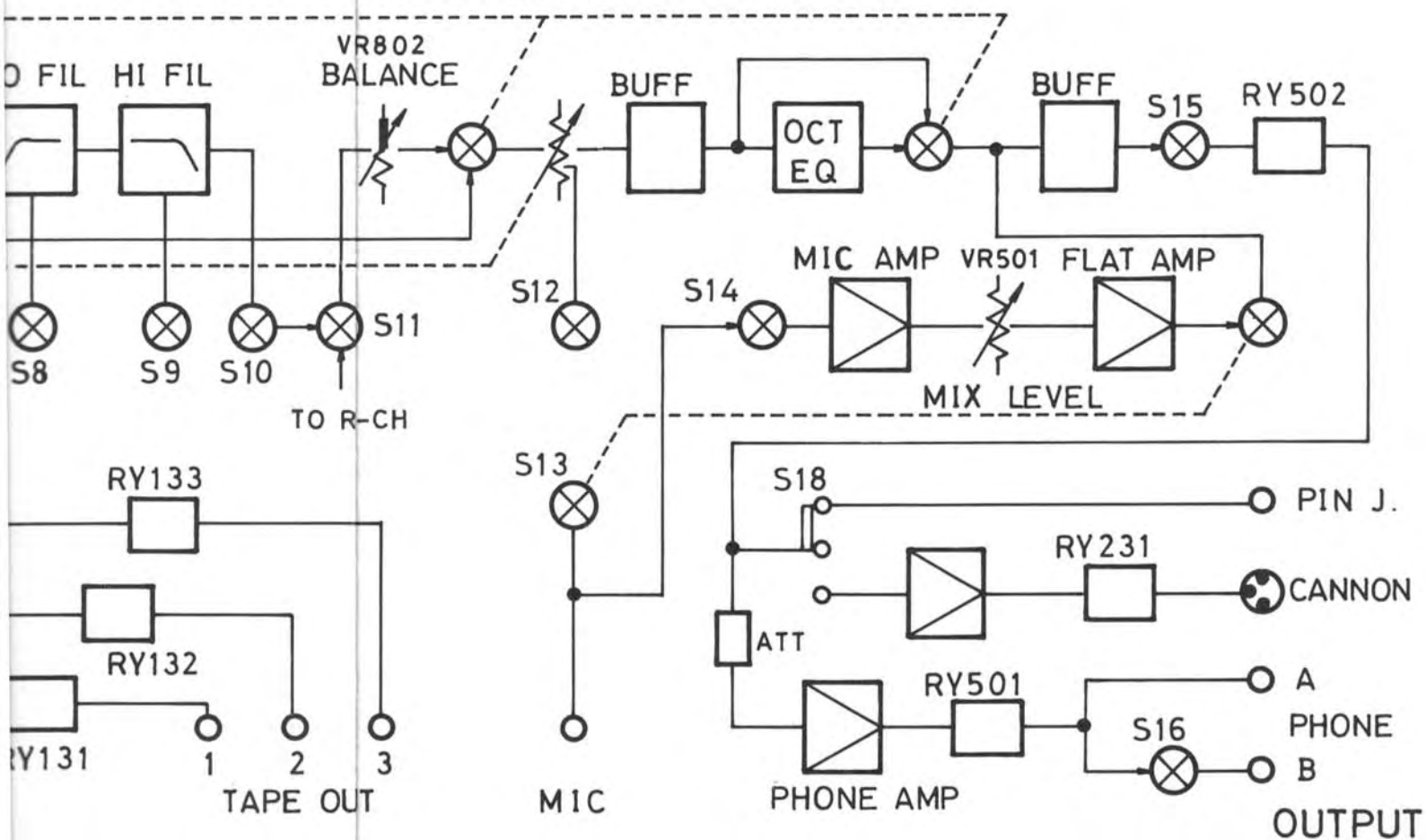
| Schematic Location | Part No.  | Description   |
|--------------------|-----------|---|
|                    | 791001134 | Shielded Cord Ass'y, w/Pin Plug (Gold)                |
|                    | 770911209 | Cap Screw, M6x40mm (BLZ), Handle Mtg                  |
|                    | 770911119 | Ground Terminal                                       |
|                    | 705213004 | Screw, +3x4mm, Binding (Ni), Acoustic Control Mtg     |
|                    | 766223008 | Screw, +3x8mm, Tap-tight (BLZ), DIN Socket Mtg, etc.  |
|                    | 770911130 | Screw, +3x9mm, Pilot Lamp PC Board Mtg                |
|                    | 762213006 | Screw, +3x6mm, Oval Countersunk, Cannon Socket Mtg    |
|                    | 725223008 | Screw, +3x8mm, Tapping (BLZ), Pin Jack Board Mtg      |
|                    | 766213012 | Screw, +3x12mm, Tap-tight, Transistor Mtg, etc.       |
|                    | 766213006 | Screw, +3x6mm, Tap-tight (Ni), Power Switch Mtg, etc. |
|                    | 765224008 | Screw, +4x8mm, Tap-tight (BLZ), Power Trans Mtg       |
|                    | 765224010 | Screw, +4x10mm, Tap-tight (BLZ), Foot Mtg             |
|                    | 725224010 | Screw, +4x10mm, Tapping (BLZ), Bottom Cover Mtg, etc. |
|                    | 770402207 | Nut, Hex, M9  |
|                    | 770402209 | Nut, Hex, M12   |
|                    | 770402201 | Nut, Hex, M3  |
|                    | 770911144 | Nut, Square, M3, Transistor, Mtg                      |
|                    | 770402205 | Nut, Hex, M7  |
|                    | 770402206 | Nut, Hex, M8  |
|                    | 770911147 | Plasti Rivet  |
|                    | 770500008 | Washer, $\phi 9$                                      |
|                    | 770500009 | Washer, $\phi 12$                                     |
|                    | 770500014 | Teethed Washer, $\phi 3$                              |
|                    | 770500001 | Washer, $\phi 3$                                      |
|                    | 770500010 | Spring Washer, $\phi 3$                               |
|                    | 770500006 | Washer, $\phi 7$                                      |
|                    | 141510161 | Phono-1 Amp PC Board Ass'y                            |
|                    | 141510162 | Phono-2 Amp PC Board Ass'y                            |
|                    | 141510163 | Phono-3 Amp PC Board Ass'y                            |
|                    | 141710295 | Mic and Filters Amp PC Board Ass'y                    |
|                    | 141810795 | Volume Control Amp PC Board Ass'y                     |
|                    | 141810796 | Phono MC Head-amp PC Board Ass'y                      |
|                    | 141810797 | Cannon Input Amp PC Board Ass'y                       |
|                    | 141810798 | Selector Circuit PC Board Ass'y                       |
|                    | 141810799 | Phono Selector PC Board Ass'y                         |
|                    | 141810800 | Acoustic Control PC Board Ass'y                       |
|                    | 141810801 | Octave Equalizer PC Board Ass'y                       |
|                    | 141810703 | Pilot Lamp PC Board Ass'y                             |
|                    | 141810802 | Cannon Output and Power Supply PC Board Ass'y         |
|                    | 141810803 | Relays Power Supply PC Board Ass'y                    |
|                    | 141810804 | Cannon Output Relay PC Board Ass'y                    |

Block Diagram  
 Blockschaltbild  
 Schéma synoptique



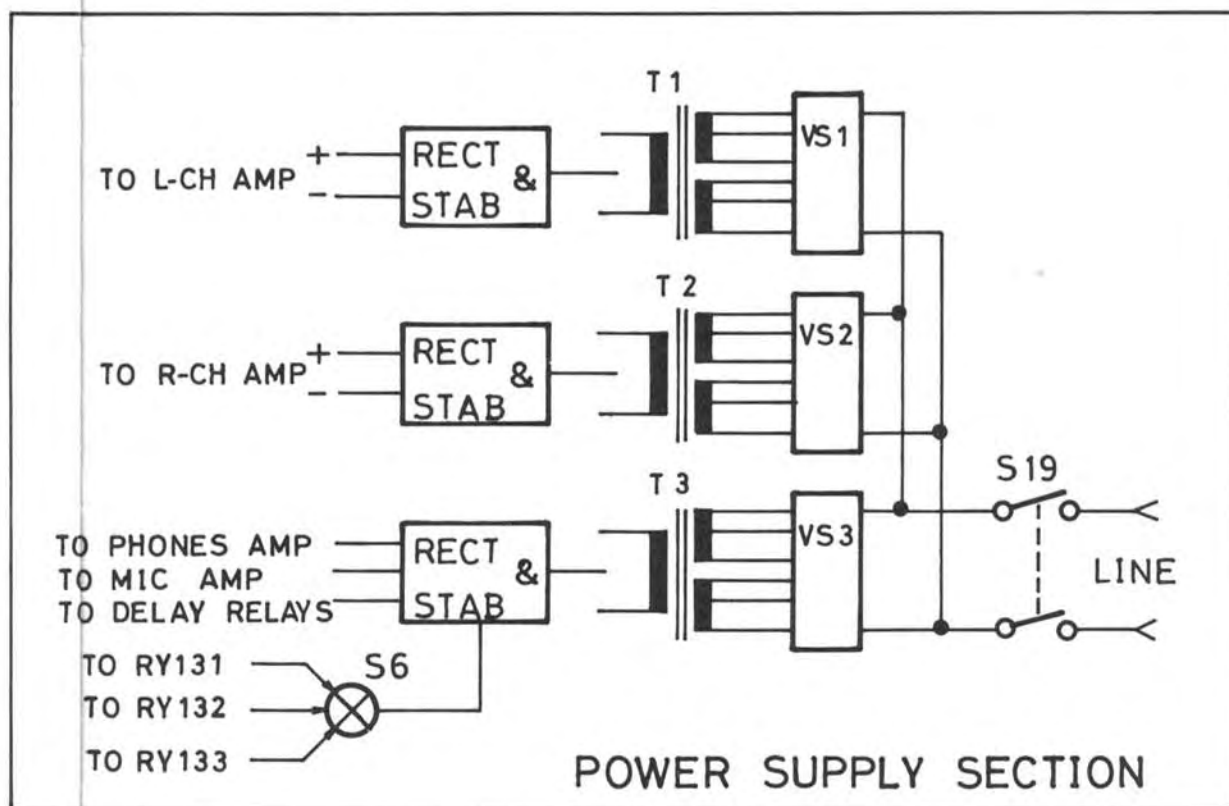
R-CH SAME AS ABOVE

- |                               |                              |
|-------------------------------|------------------------------|
| S1 PHONO-1 LOAD IMP. SELECTOR | S16 PHONES B IMP. SELECTOR   |
| S2 PHONO-1 ADD. CAPACITOR SW  | S17 CANNON IN SWITCH         |
| S3 PHONO INPUT SELECTOR       | S18 CANNON OUTPUT SWITCH     |
| S4 INPUT SELECTOR             | S19 POWER SWITCH             |
| S5 MONITOR SWITCH             | RY131 TAPE OUT 1 RELAY       |
| S6 REC OUT SWITCH             | RY132 TAPE OUT 2 RELAY       |
| S7 TONE SWITCH                | RY133 TAPE OUT 3 RELAY       |
| S8 LOW FILTER SWITCH          | RY231 CANNON OUT DELAY RELAY |
| S9 HIGH FILTER SWITCH         | RY501 PHONES DELAY RELAY     |
| S10 MODE SWITCH (1)           | RY502 OUTPUT DELAY RELAY     |
| S11 MODE SWITCH (2)           |                              |
| S12 LOUDNESS SWITCH           |                              |
| S13 MIC IMPEDANCE SWITCH      | VS VOLTAGE SELECTOR          |
| S14 MIC MODE SWITCH           |                              |
| S15 MUTING SWITCH             |                              |



CTOR  
CH

RELAY  
AY  
AY



## Addendum

The following changes have been made on the units with serial numbers from R32452 and NB66158 onward.

1. Resistance value of resistor R825 (R826 for R-ch) used in the Volume Control Amplifier (X-220) circuit is changed from  $33k\Omega$  to  $22k\Omega$ . (Fig. A)

**Reason:** To prevent deterioration of distortion factor between  $40^{\circ}\text{C}$  and  $50^{\circ}\text{C}$  of ambient temperature.

2. Choke coil ( $47\mu$ ) is added to B circuit for the Cannon Output Amplifier. (Fig. B)

**Reason:** To improve S/N ratio of the Cannon Output Amplifier.

In the Power Supply PC board, circuit paths between +B2 and +B3, and between -B2 and -B3 are cut off, and choke coils are placed in between respectively.

The same modification has already been made for some of the units with serial numbers smaller than NB66158 and R32452.

## Nachtrag

Folgende Veränderungen wurden bei den Geräten mit den Seriennummern R32452 und NB66158 aufwärts vorgenommen.

1. Der Widerstand R825 (R826 für R-Kanal) im Lautstärkereger-Verstärker (X-220) wurde von  $33k\Omega$  auf  $22k\Omega$  herabgesetzt – (Abb. A)

**Grund:** Verhinderung von Verschlechterung des Klirrfaktors bei Umgebungstemperaturen von  $40^{\circ}$  bis  $50^{\circ}$ .

2. Einbau einer Schutzdrossel ( $47\mu$ ) in den B-Kreis des Cannon-Ausgangsverstärkers – (Abb. B)

**Grund:** Verbesserung des Signal-Rauschabstandes des Cannon-Ausgangsverstärkers.

In die Stromkreise zwischen +B2 und +B3 und zwischen -B2 und -B3 auf der Netzteil-Leiterplatte wurden jeweils eine Schutzdrossel eingebaut.

Diese Veränderung wurde bereits bei einigen Geräten mit Seriennummern unter NB66158 und unter R32452 vorgenommen.

## Addendum

Les modifications suivantes ont été apportées aux appareils portant les numéros de série R32452 et NB66158 et au delà.

1. La valeur de la résistance R825 (R826 pour le canal droit) utilisée dans le circuit amplificateur de commande du volume (X-220) est passée de  $33k\Omega$  à  $22k\Omega$ . (Fig. A)

**Raison:** Empêcher une détérioration du facteur de distorsion entre  $40^{\circ}\text{C}$  et  $50^{\circ}\text{C}$  de température ambiante.

2. Une bobine d'arrêt ( $47\mu$ ) est adjointe au circuit B de l'amplificateur de sortie Cannon. (Fig. B)

**Raison:** Amélioration du rapport signal/bruit de l'amplificateur de sortie Cannon.

Sur la plaquette du circuit d'alimentation, les trajectoires du circuit sont coupées entre +B2 et +B3 et entre -B2 et -B3 et des bobines d'arrêt y sont insérées.

Une modification semblable a déjà été apportée à quelques-uns des appareils portant des numéros de série inférieurs à NB66158 et R32452.

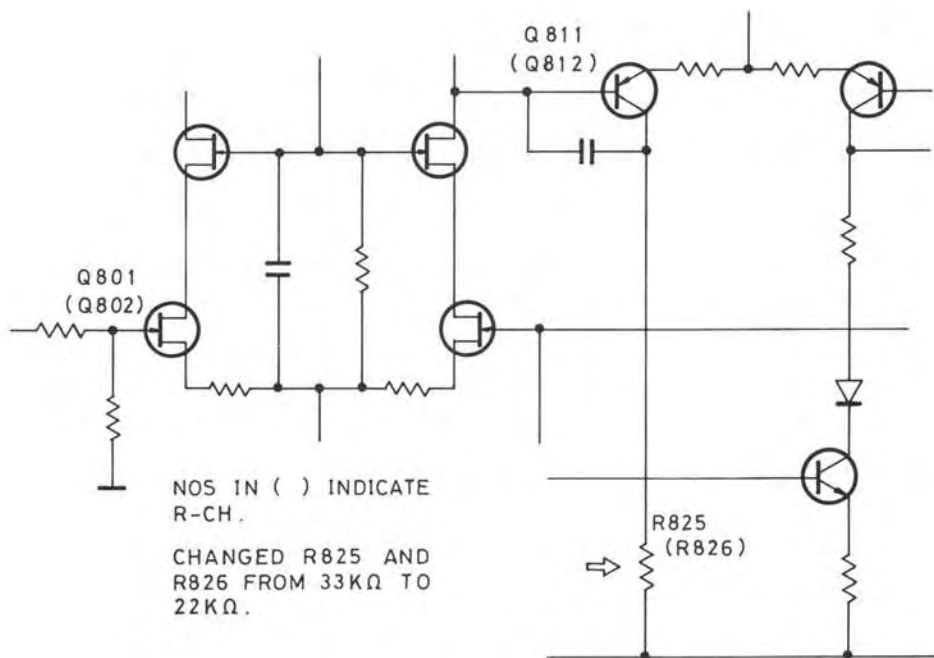


Fig. A. Volume Control Amp Circuit (portion)

Abb. A. Lautstärkereger-Verstärkerkreis (Teil)

Fig. A. Circuit d'amplification de la commande du volume (portion)

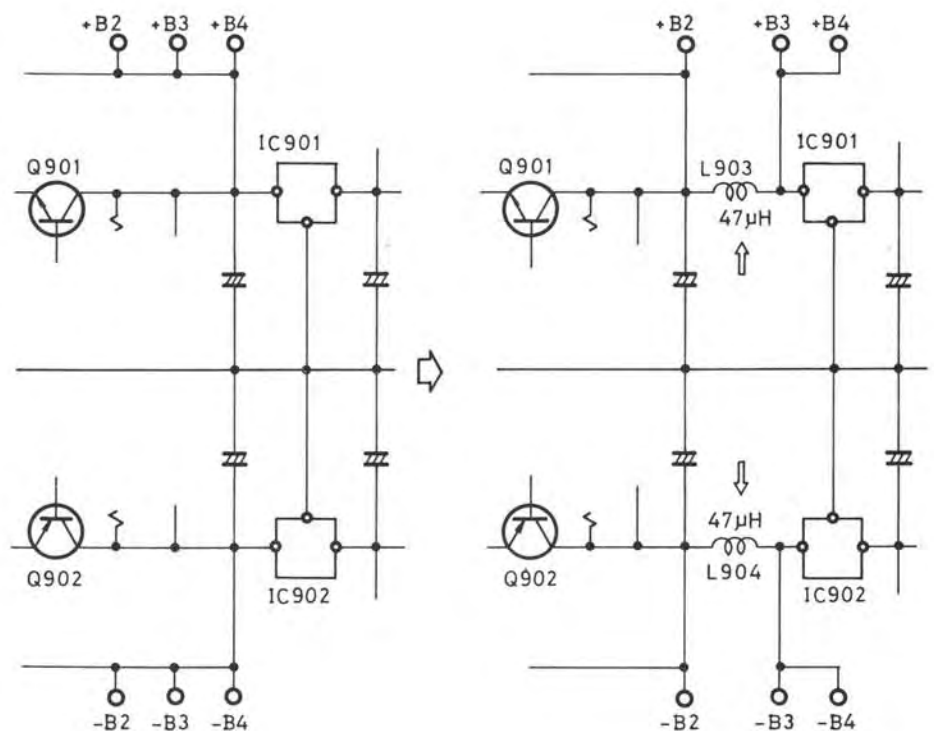


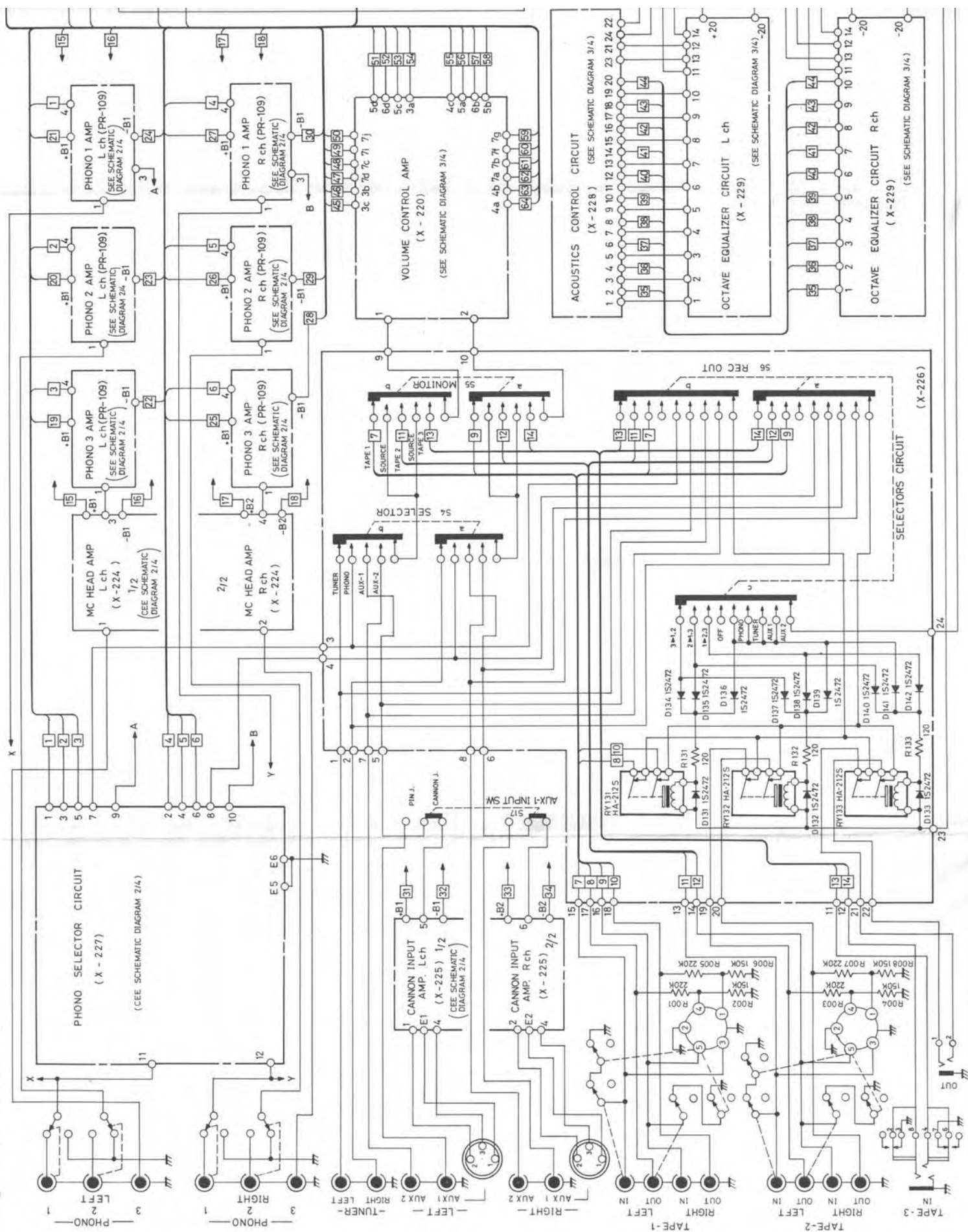
Fig. B. Power Supply Circuit (Portion)

Abb. B. Netzteil (Teil)

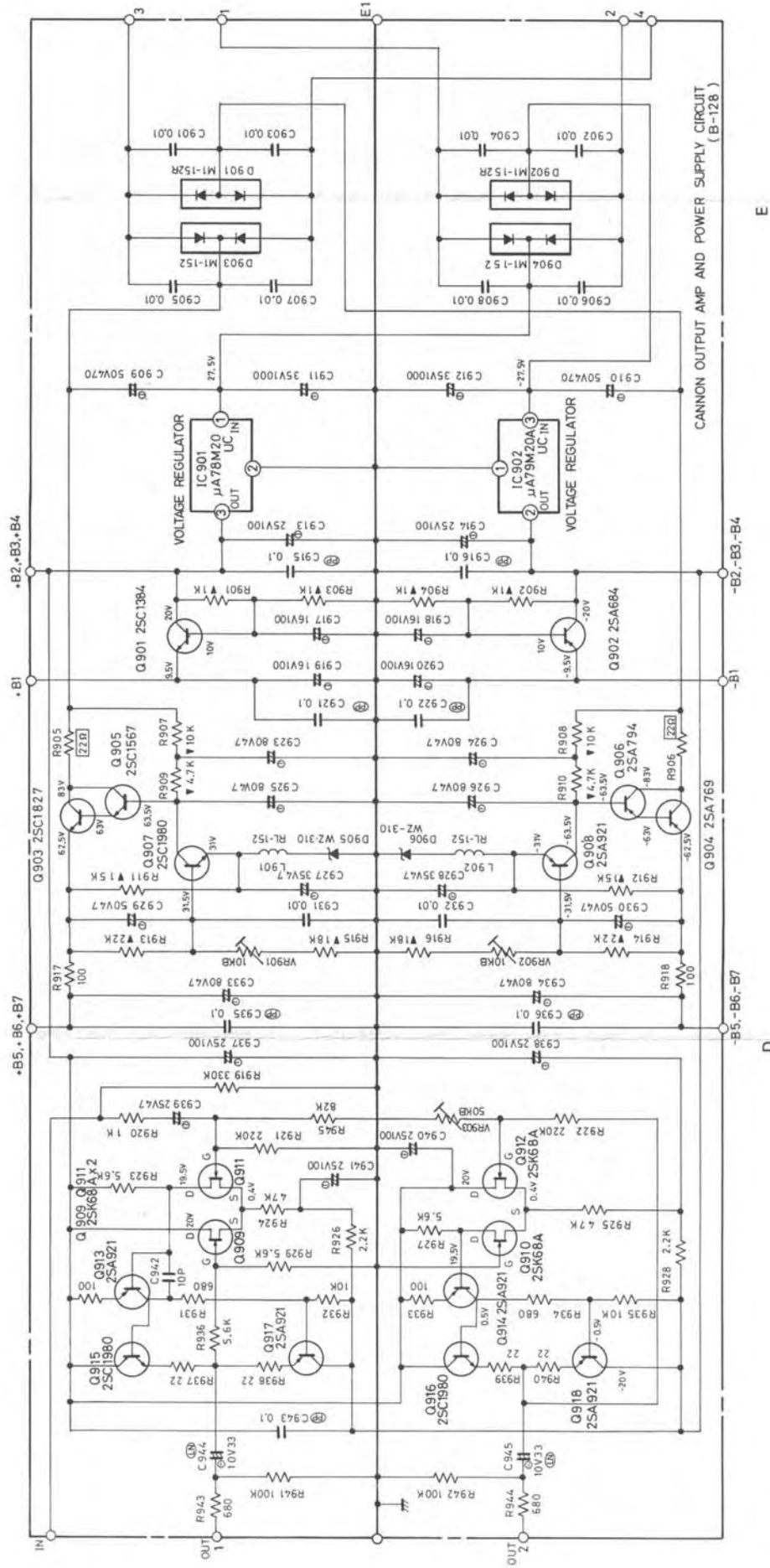
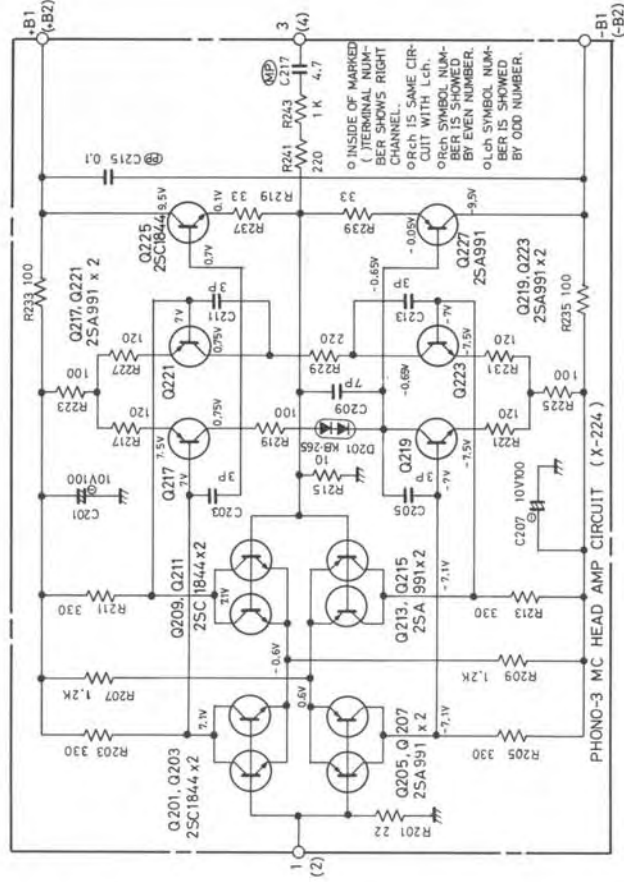
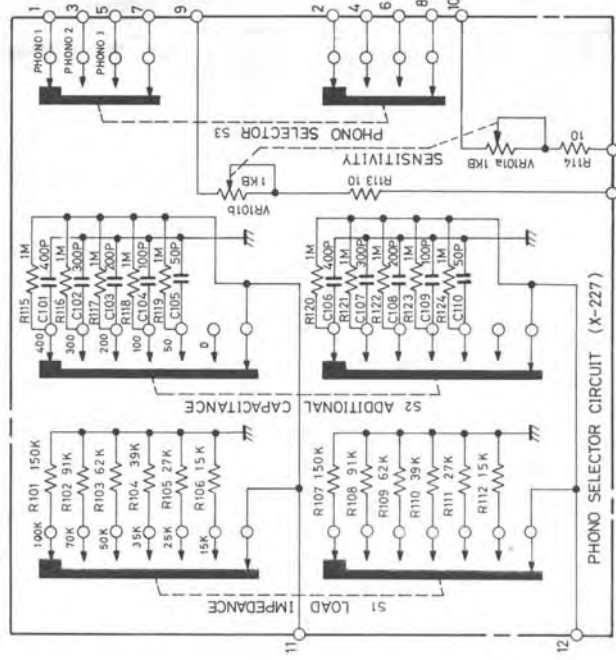
Fig. B. Circuit d'alimentation (portion)

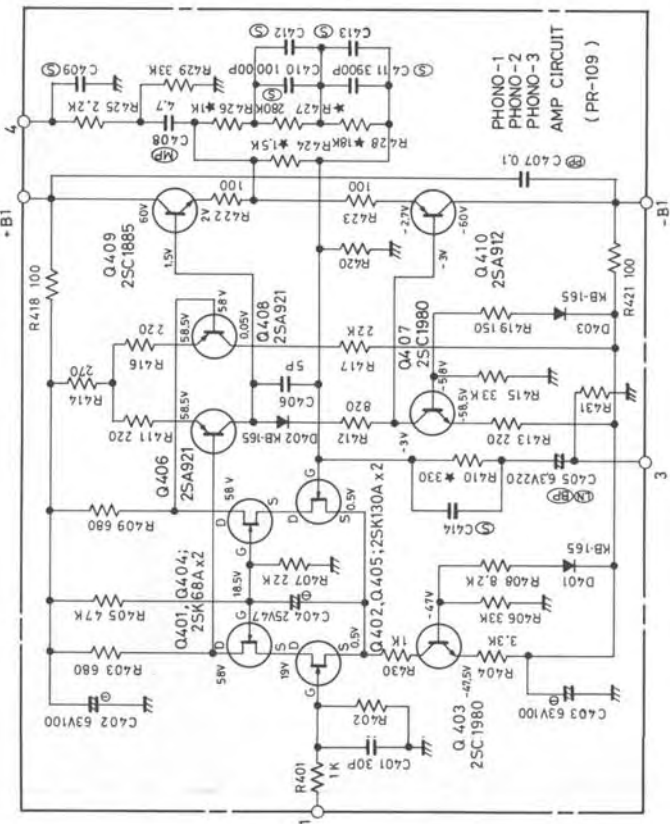


Schematic Diagram  
Schaltungsschema  
Diagramme schématique







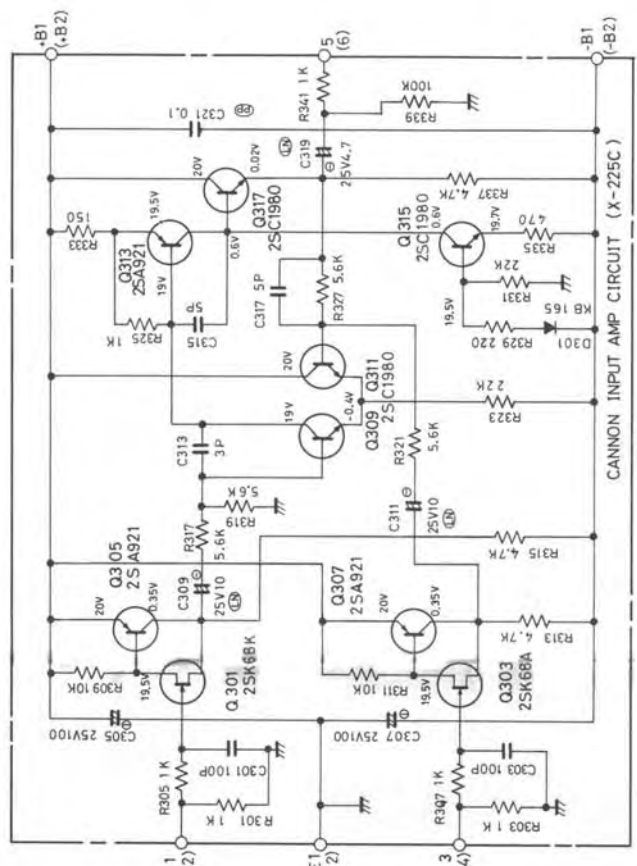


PHONO-1, PHONO-2, PHONO-3 AMP CIRCUIT TABLE OF VALUE

| POSITION SYMBOL NO. | PHONO-1 | PHONO-2  | PHONO-3  |
|---------------------|---------|----------|----------|
| R402                | 330K    | 56K      | 330K     |
| R420                | 10K     | 3.3K     | 3.3K     |
| R431                | 10K     | SHORT    | SHORT    |
| C412                | 3500P   | 4400P    | 4400P    |
| C413                | 300P    | 360P     | 360P     |
| C414                | 17800P  | NOT USED | NOT USED |
| C409                | 3200P   | 1350P    | 1350P    |

FUSE TABLE OF VALUE

|       | 100 or 120V  | 220 or 240V   | STANDARD TYPE   | EUROPEAN TYPE |
|-------|--------------|---------------|-----------------|---------------|
| F 961 | 0.5 A (long) | 0.25 A (long) | 200 mA T (mini) |               |
| F 962 | 0.5 A (long) | 0.25 A (long) | 200 mA T (mini) |               |
| F 963 | 0.2 A (long) | 0.15 A (long) | 63 mA T (mini)  |               |



NOTE: ( ) INSIDE OF MARKED ( ) TERMINAL NUMBERS SHOWS RIGHT CHANNEL.

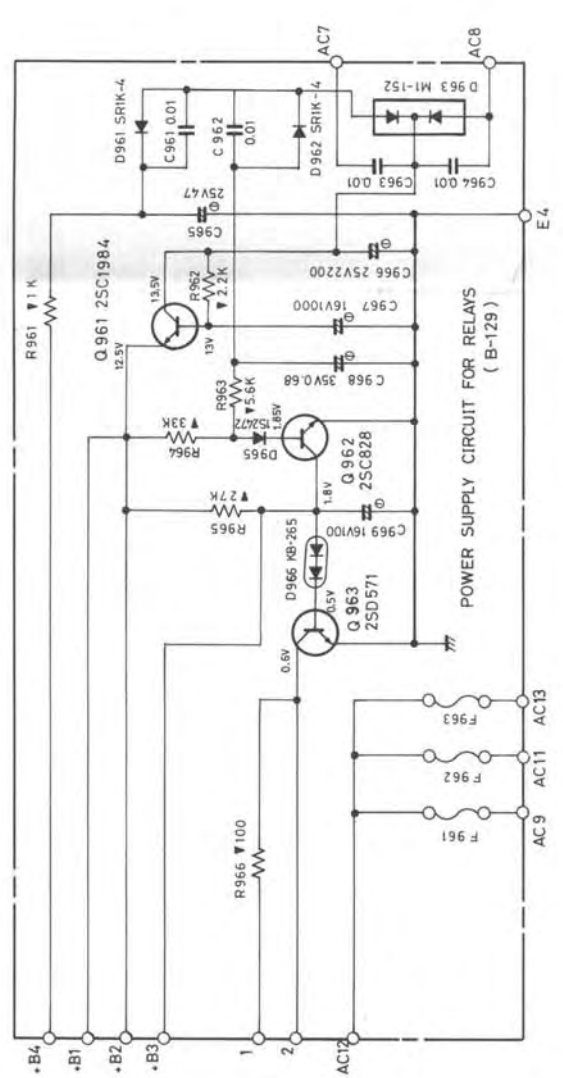
- Rch IS SAME CIRCUIT WITH Lch.
- Rch SYMBOL NUMBER IS SHOWN BY EVEN NUMBER.
- Lch SYMBOL NUMBER IS SHOWN BY ODD NUMBER.

( RESISTORS )

- 5% TOLERANCE UNLESS OTHERWISE NOTED.
- K --- KILO OHM.
- M --- MEGA OHM.
- ★ --- TEMPERATURE COEFFICIENT RESISTORS.
- --- NON-FLAMMABLE CARBON FILM RESISTORS 1/2 WATT.
- --- FILM RESISTORS.
- NON MARK --- LOW NOISE TYPE CARBON RESISTORS 1/4 WATT.

( CAPACITORS )

- MY --- MYLAR FILM CAPACITORS.
- PS --- POLYSTYRENE FILM CAPACITORS.
- T --- TANTALUM CAPACITORS.
- LN --- LOW NOISE TYPE CAPACITORS.
- EP --- POLYPROPYLENE FILM CAPACITORS.
- BP --- BI-POLAR ELECTROLYTIC CAPACITORS.
- SL --- SUPER LOW NOISE TYPE CAPACITORS.
- EL --- ELECTROLYTIC CAPACITORS.
- NON MARK --- CERAMIC CAPACITORS.
- UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD.
- VOLTAGE READING WITH VTVM FROM THE POINT SHOWN TO THE CHASSIS GROUND ( LINE VOLTAGE 117 VOLT )
- VOLTAGE READING MAY VARY  $\pm 20\%$ .

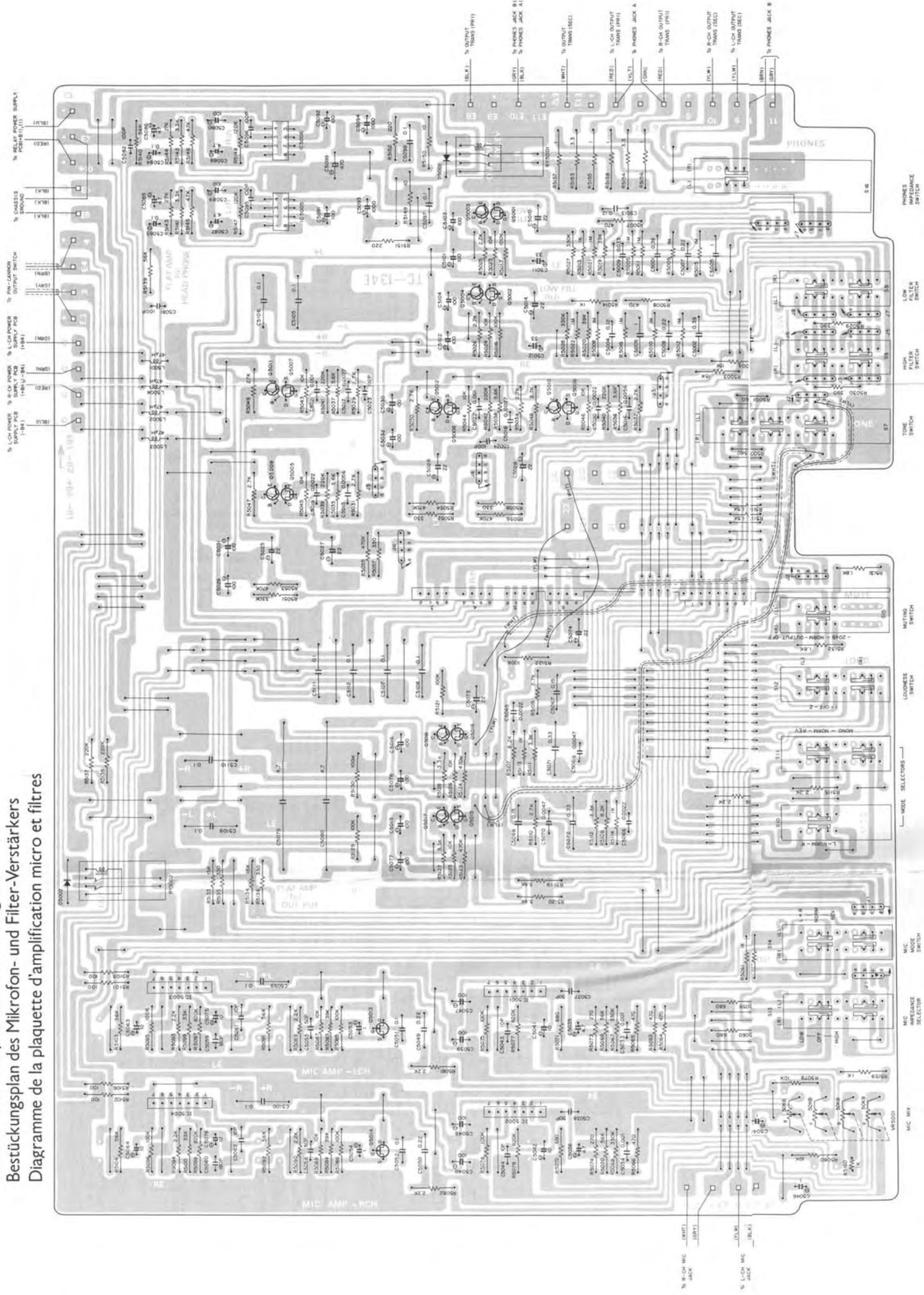




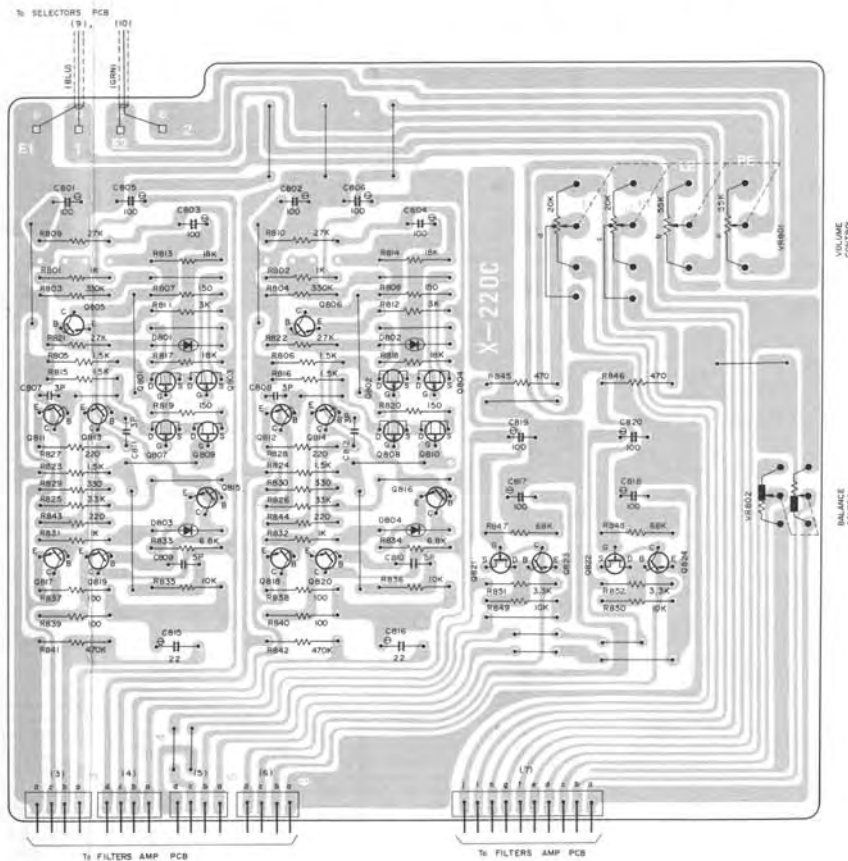
## Mic and Filters Amp Circuit Board Diagram

### Bestückungsplan des Mikrofon- und Filter-Verstärkers

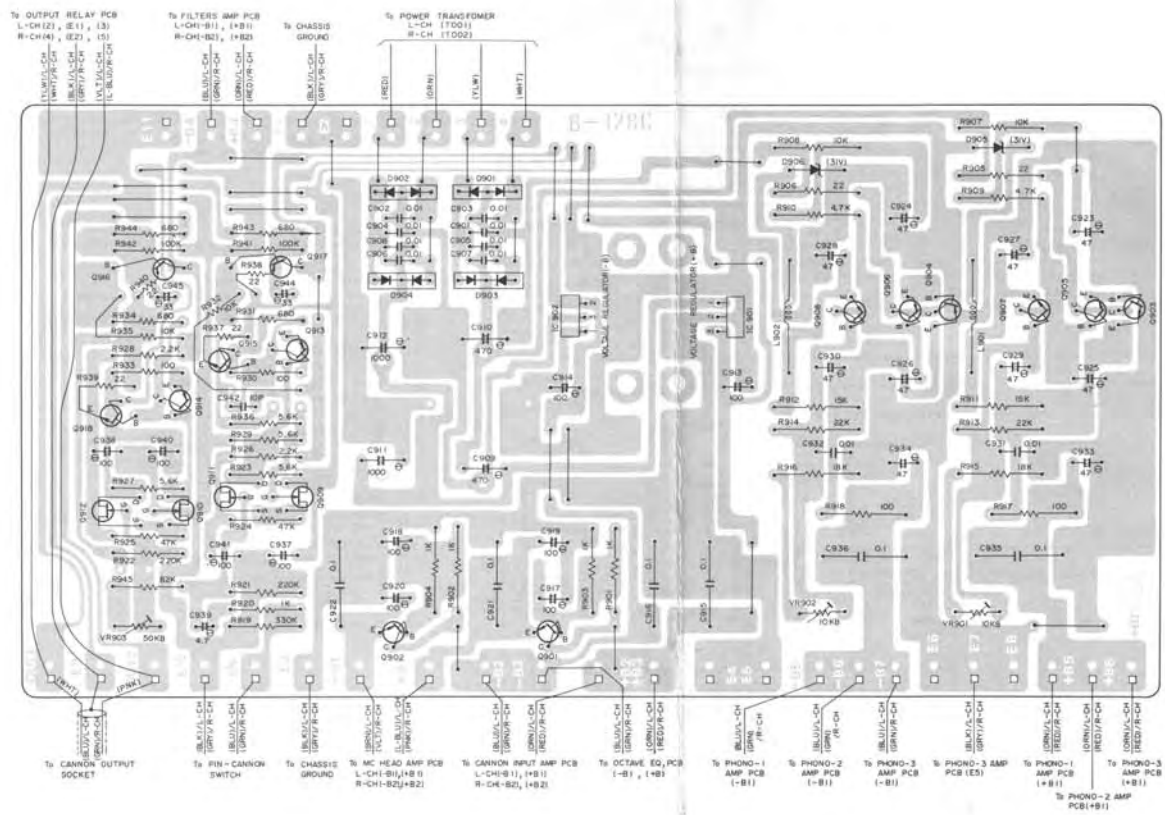
### Diagramme de la plaquette d'amplification micro et filtres



Volume Control Amp Circuit Board Diagram  
 Bestückungsplan des Lautstärkereger-Verstärkers  
 Diagramme de la plaque d'amplification de la commande du volume



Cannon Output Amp and Power Supply Circuit Board Diagram  
 Bestückungsplan des Cannon-Ausgangsverstärkers und des Netzteils  
 Diagramme de la plaque d'alimentation et d'amplification de la sortie Cannon



### Diagramme de la plaquette du relais de sortie Cannon

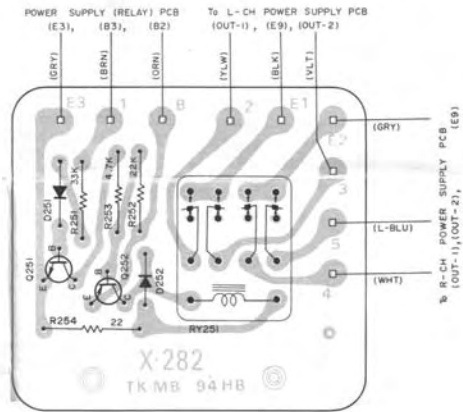
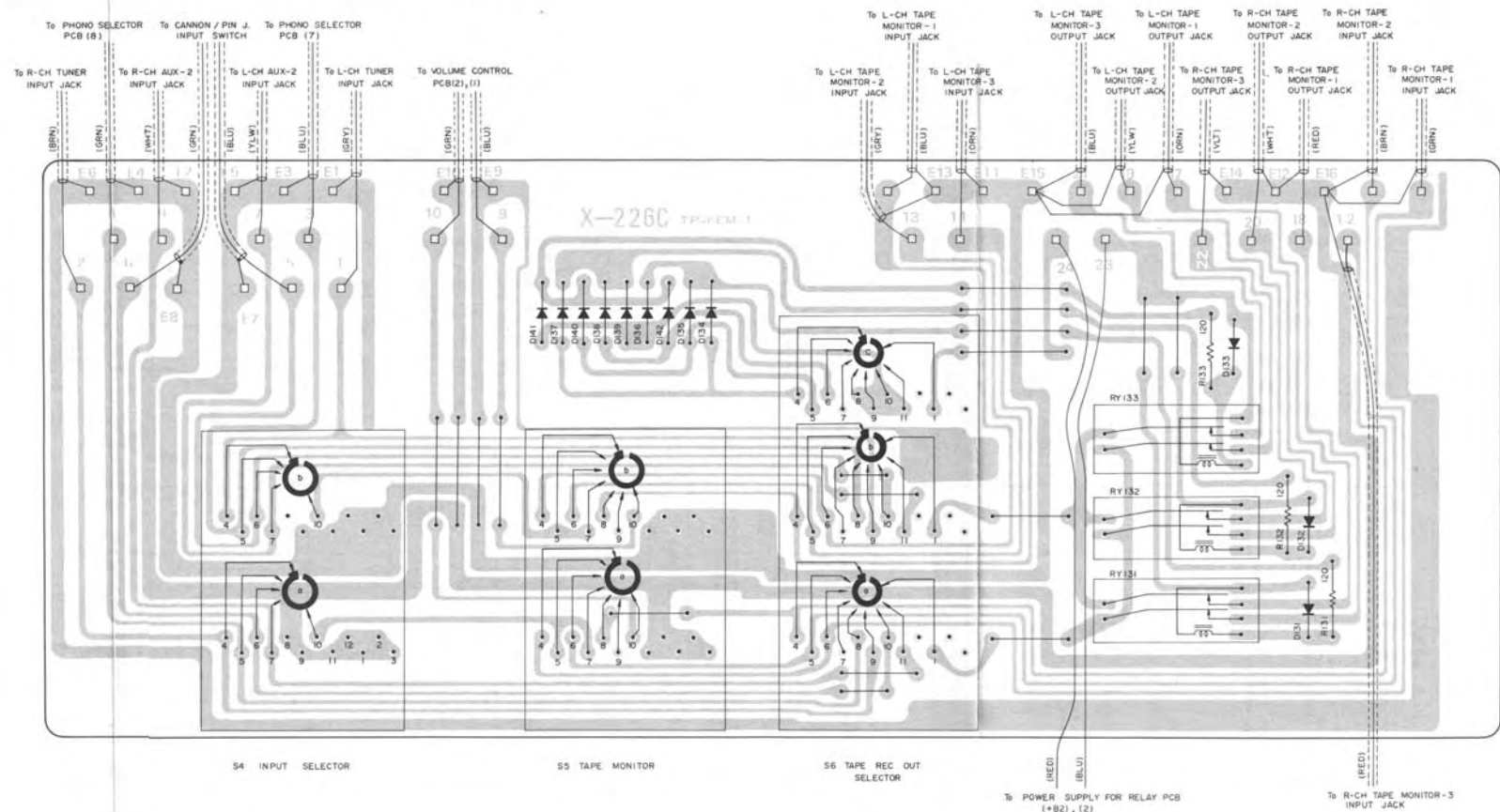
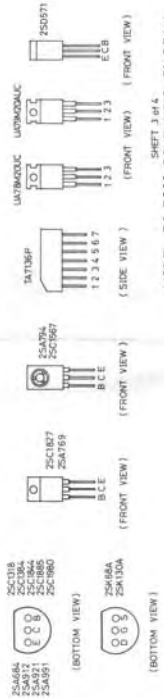
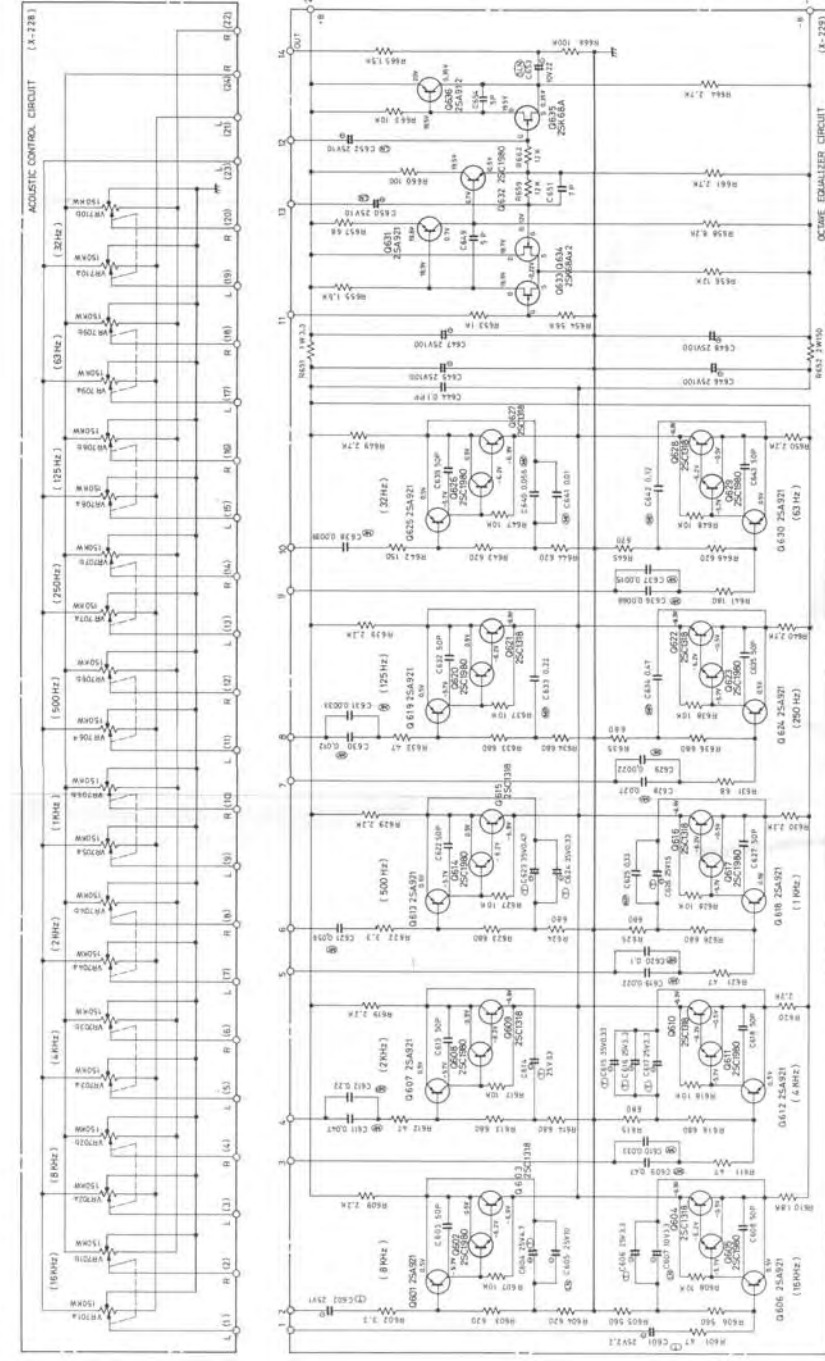


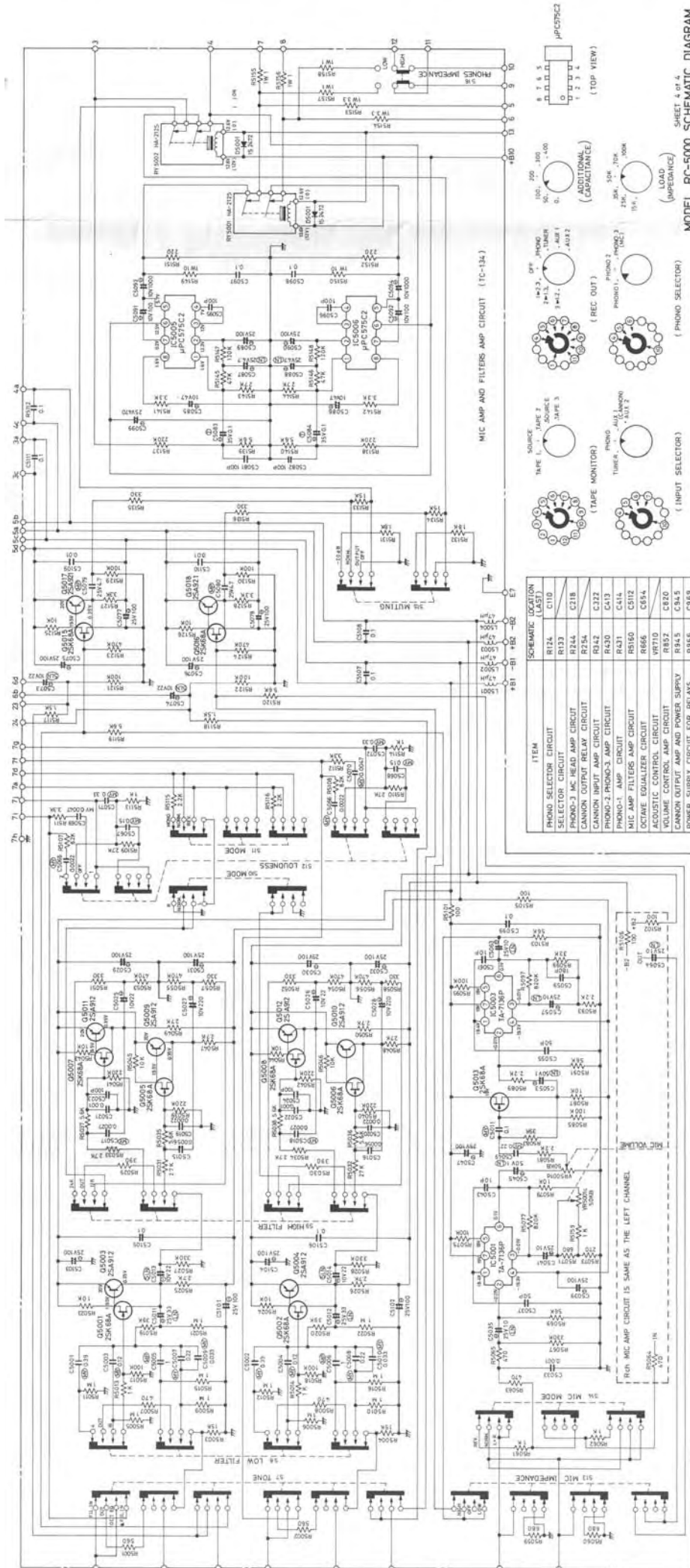
Diagramme de la plaque de sélecteurs



Schematic Diagram  
Schaltungsschema  
Diagramme schématique

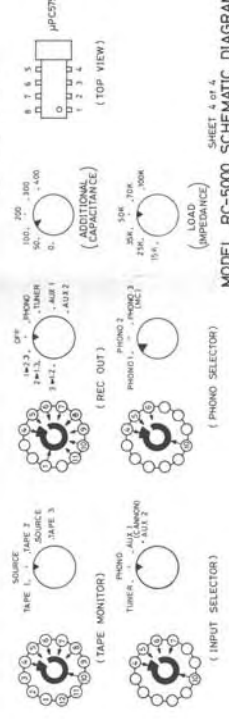






MIC AMP AND FILTERS AMP CIRCUIT (1C-13A)

| ITEM                            | SCHEMATIC LOCATION (LAST) |
|---------------------------------|---------------------------|
| PHONO SELECTOR CIRCUIT          | R124 C110                 |
| SELECTOR CIRCUIT                | R133                      |
| PHONO-3 MC HEAD AMP CIRCUIT     | R144 C118                 |
| CANON OUTPUT RELAY CIRCUIT      | R254                      |
| CANON INPUT AMP CIRCUIT         | R242 C122                 |
| PHONO-1 AMP CIRCUIT             | R420 C143                 |
| PHONO-2 AMP CIRCUIT             | R421 C144                 |
| MIC AMP FILTERS AMP CIRCUIT     | R665 C512                 |
| ACoustic EQUALIZER CIRCUIT      | R666 C514                 |
| VOLUME CONTROL CIRCUIT          | VR710                     |
| CANON OUTPUT AMP CIRCUIT        | R852 C810                 |
| POWER SUPPLY CIRCUIT FOR RELAYS | R845 C815                 |
|                                 | R186 C816                 |

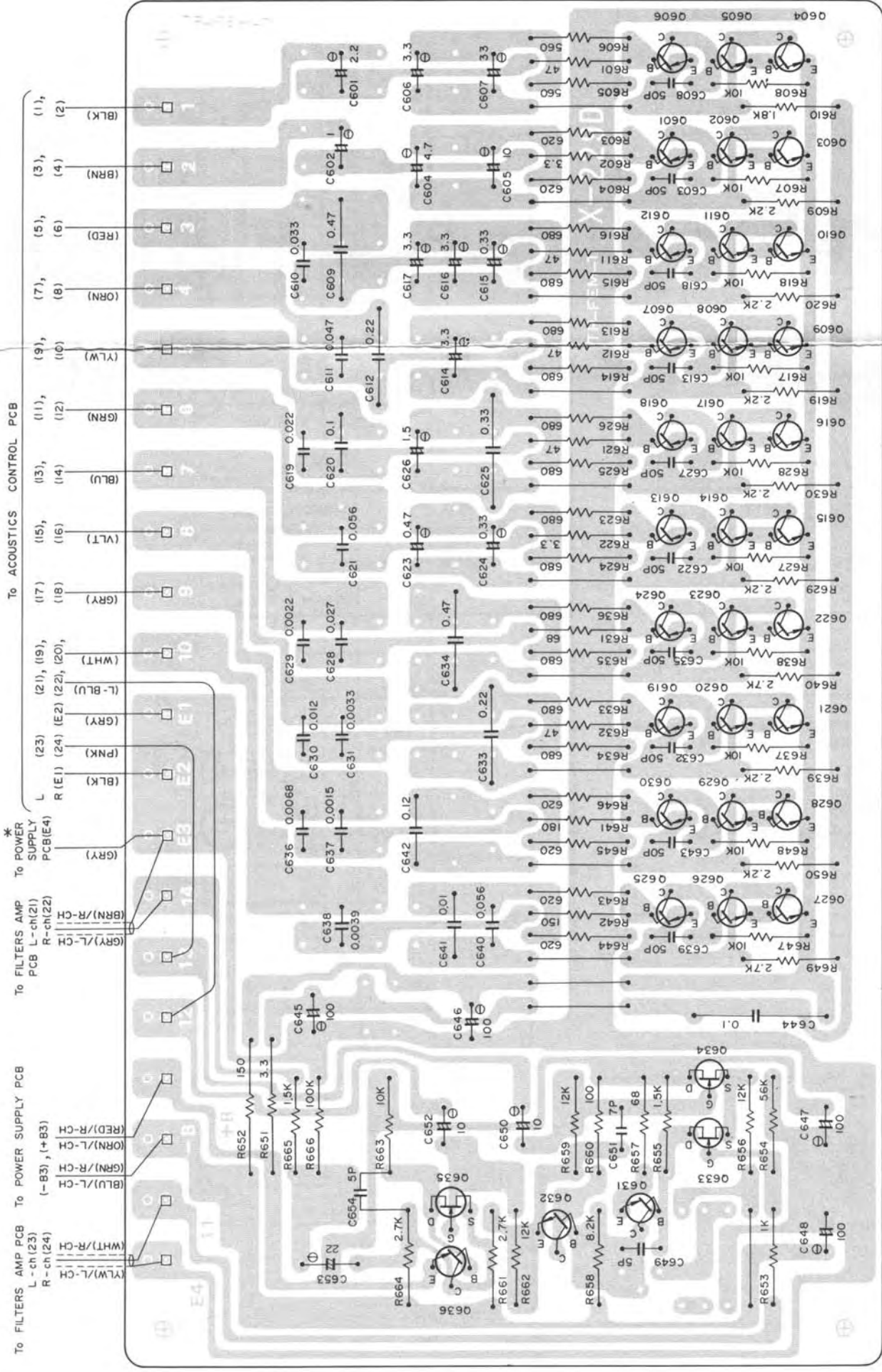


MODEL RC-5000 SCHEMATIC DIAGRAM

# Octave Equalizer Circuit Board Diagram

## Bestückungsplan des Oktav-Entzerrers

## Diagramme de la plaque de l'égalisateur de fréquences

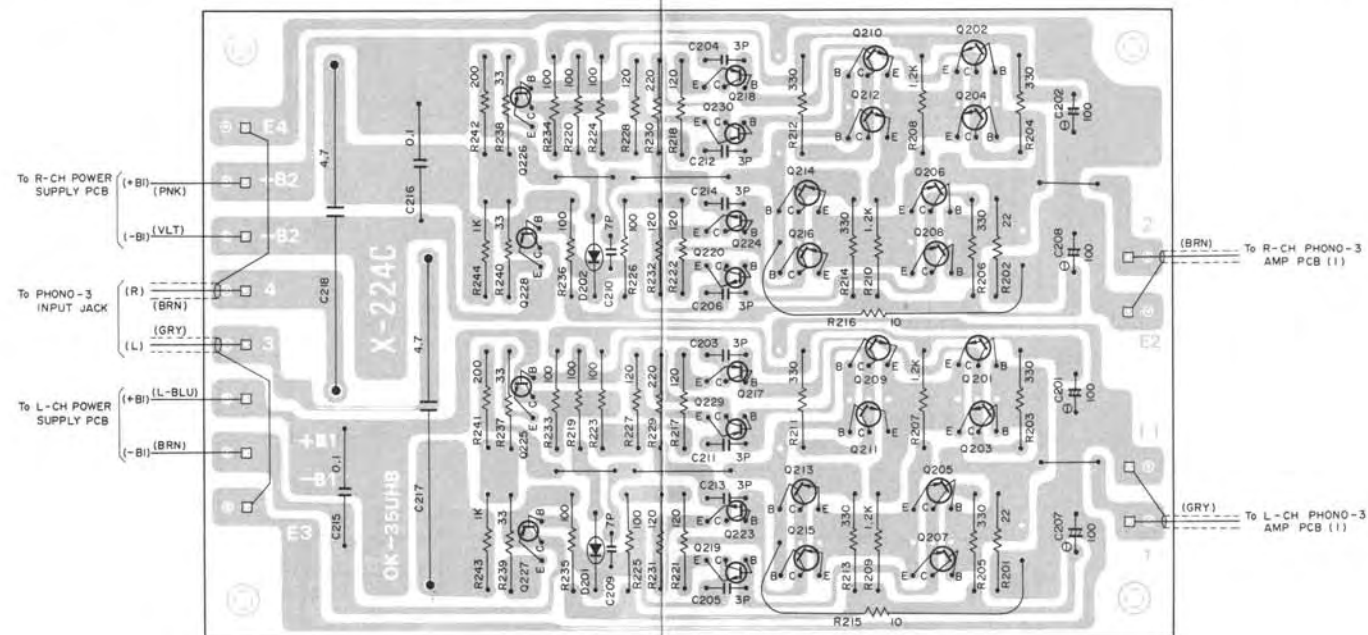


\* USED ONLY FOR R - CH.

## Phono-3 MC Head Amp Circuit Board Diagram

Bestückungsplan des Phono-3-Verstärkers für dynamische Tonabnehmer (MC)

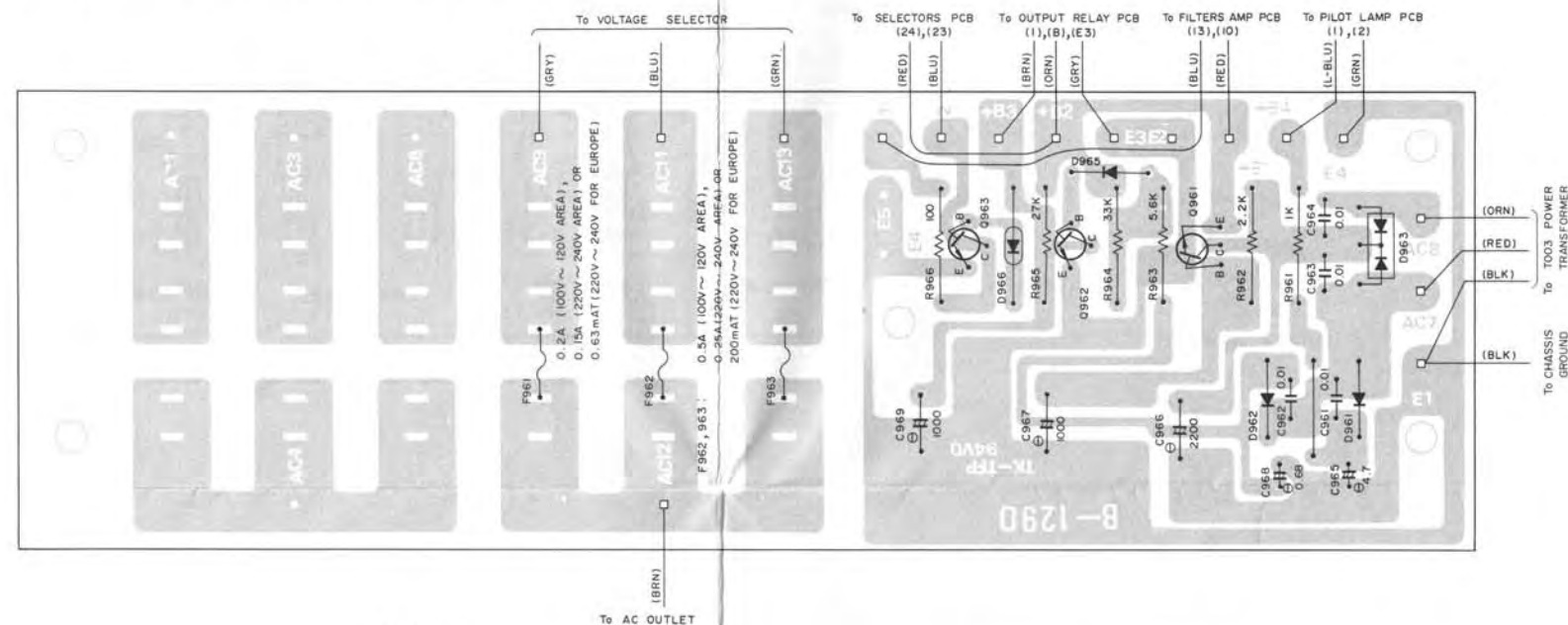
Diagramme de la plaque d'amplification pour cellule à bobine mobile (MC) Phono-3



## Power Supply (for Relay) Circuit Board Diagram

Bestückungsplan des Netzteils (für Relais)

Diagramme de la plaque d'alimentation (pour le relais)



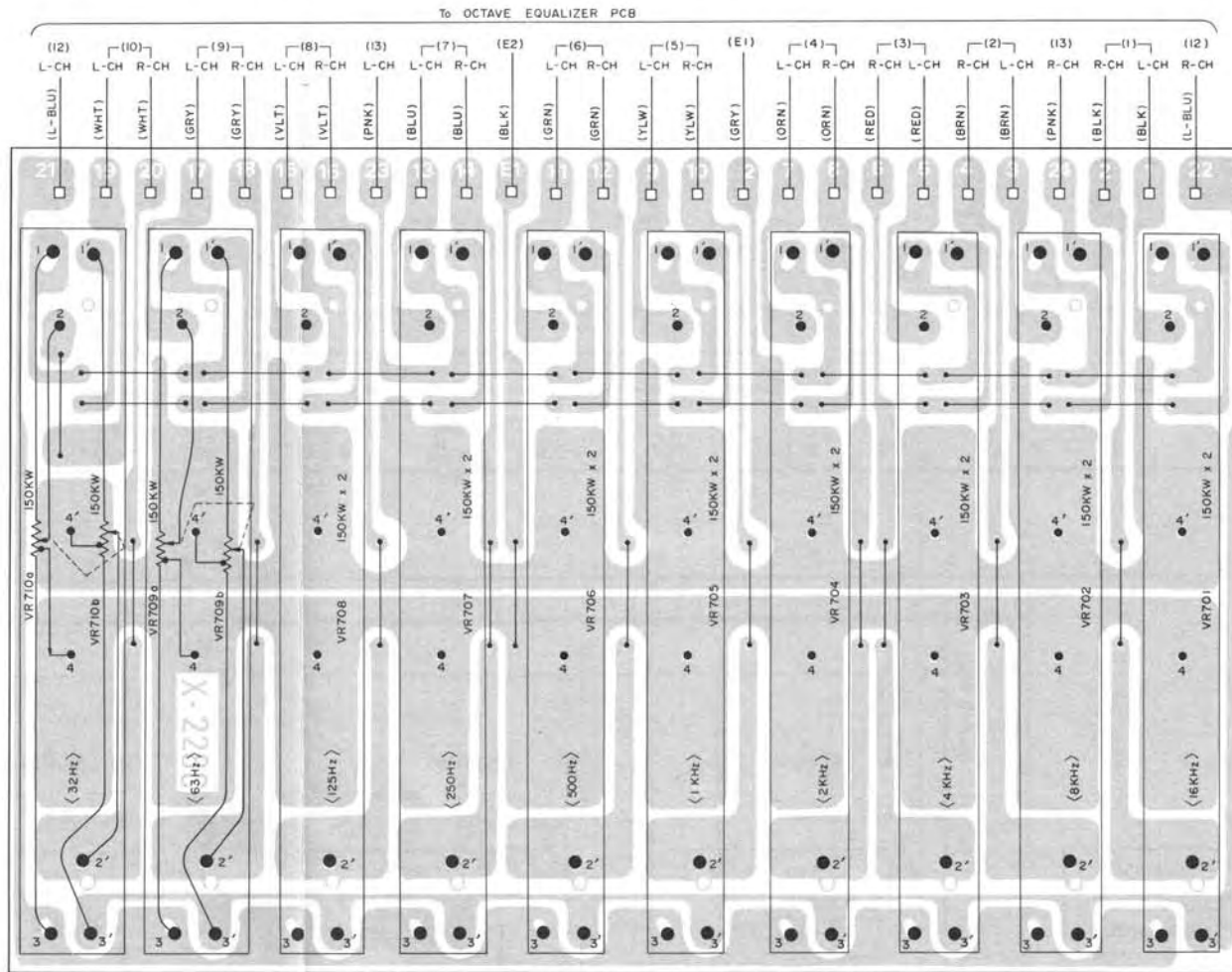
### NOTE:

Parts layout of the units with serial numbers from NB58581 to 66157, or from R32352 to 32451 differs with this diagram, but there is no difference in electrical connection between the two layouts.

# Acoustic Control Circuit Board Diagram

## Bestückungsplan der Tonregler-Schaltung

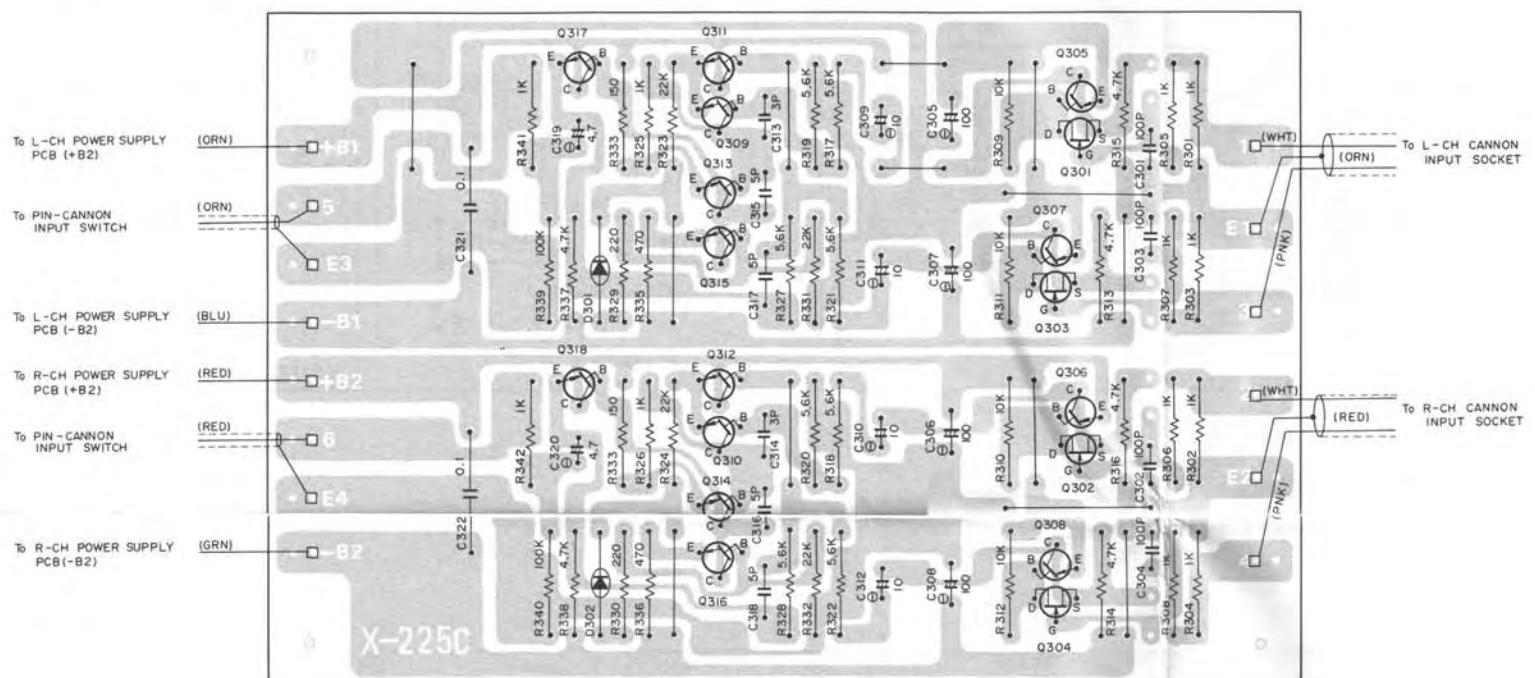
## Diagramme de la plaque de commande acoustique



# Cannon Input Amp Circuit Board Diagram

## Bestückungsplan des Cannon-Eingangsverstärkers

## Diagramme de la plaque d'amplification de l'entrée Cannon

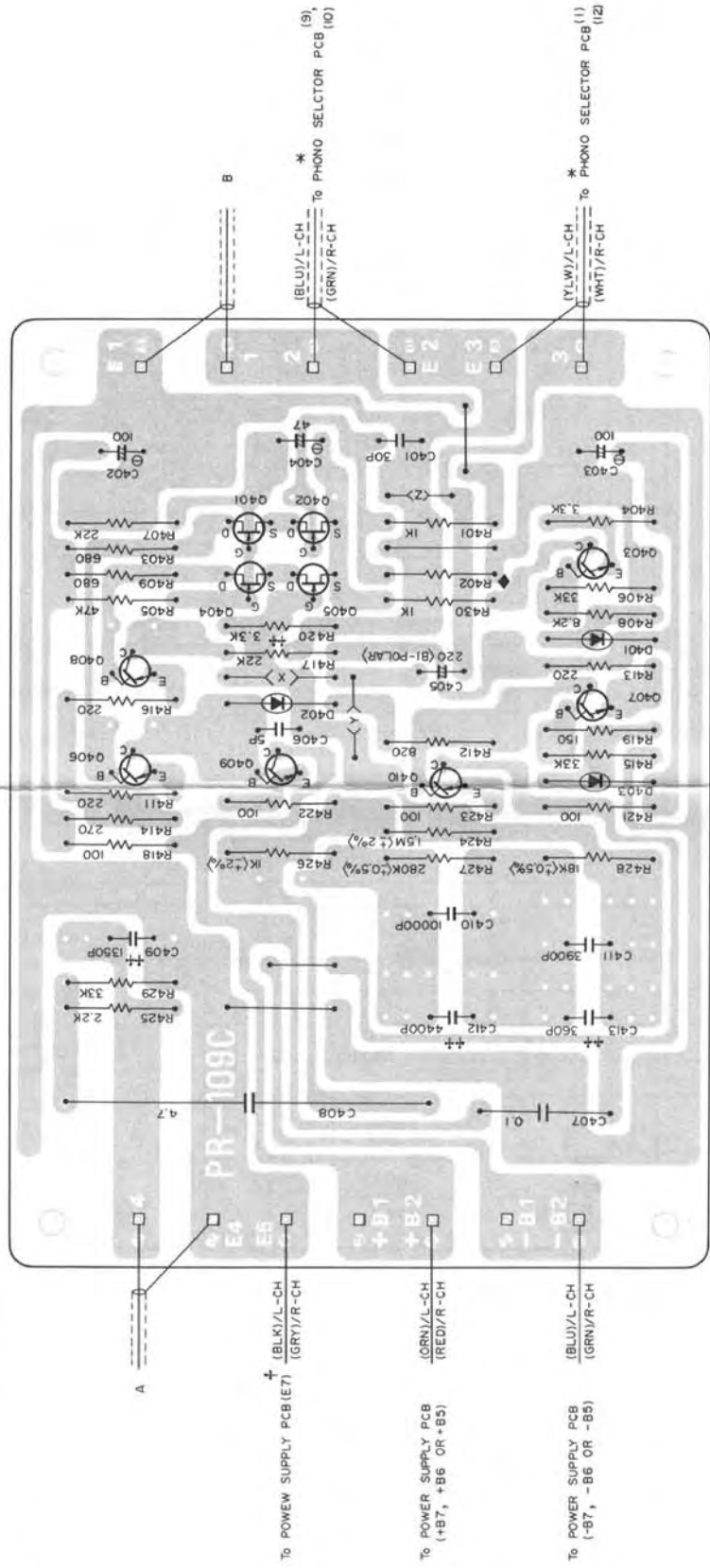




# Phono-1, -2, -3 Amp Circuit Board Diagram

## Bestückungsplan des Verstärkers für Phono-1, -2, -3

## Diagramme de la plaque d'amplification de Phono-1, -2 et -3



### NOTES:

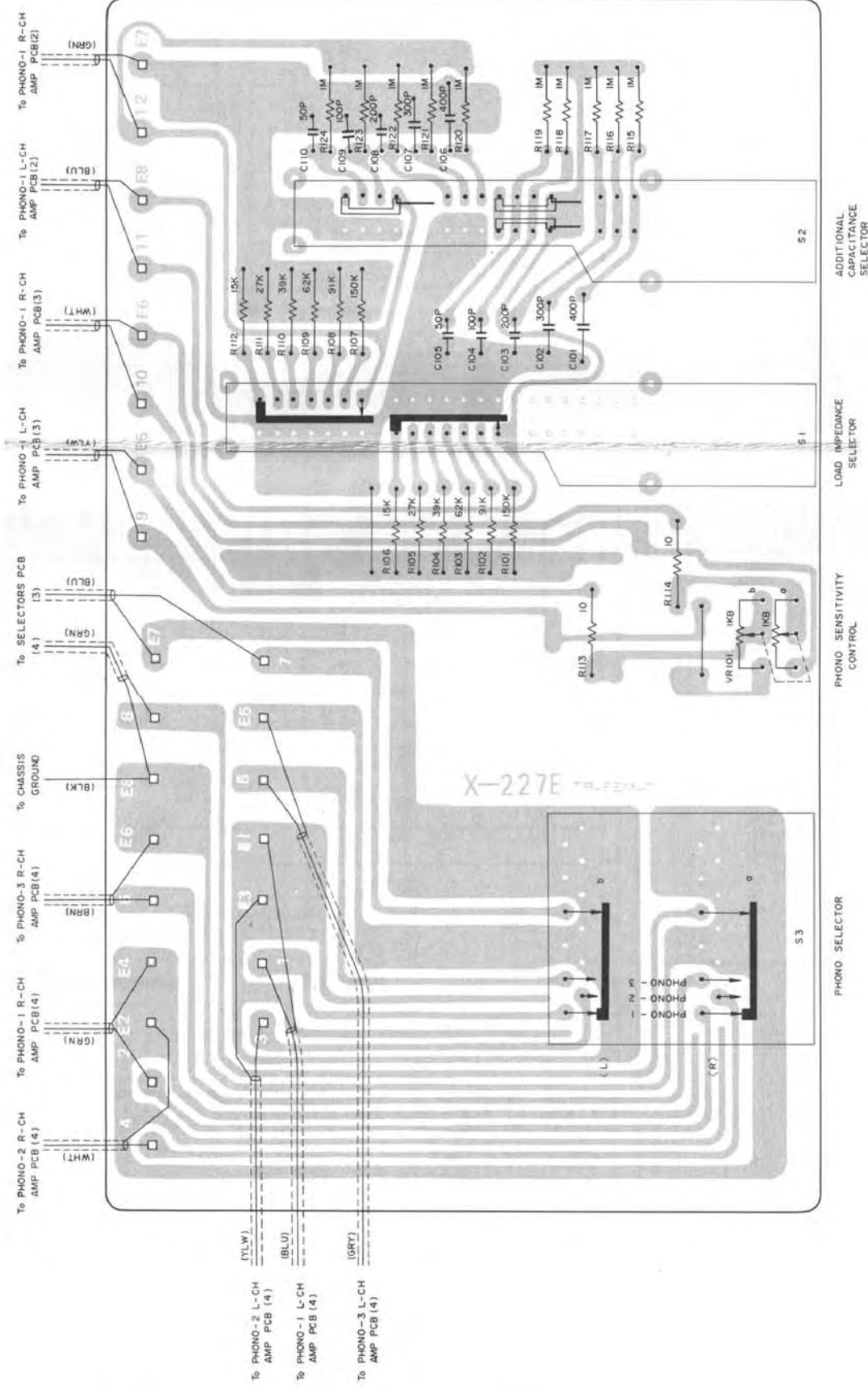
1. <X>: Phono-1. . . . . C414, 17,800pF  
Phono-2, -3 . . . . R410, 330Ω  
<Y>: Phono-1. . . . . R431, 10kΩ  
Phono-2, -3 . . . . Nil  
<Z>: Phono-1. . . . . R431, 10kΩ  
Phono-2, -3 . . . . Shorted
2. ††C409 → 3,200pF (Phono-1)  
C412 → 4,400pF (Phono-1)  
C413 → 300pF (Phono-1)  
R420 → 10kΩ (Phono-1)  
3. R402 → 330kΩ(G) (Phono-1, -3)  
→ 56kΩ(G) (Phono-2)
4. (\*) applies to Phono-1 circuit only.
5. Shielded wire A is not grounded (not connected to E4) for Phono-3 circuit.
6. † applies to Phono-3 circuit only.

| CH | PHONO-1 |     | PHONO-2  |  | PHPNO-3 |  |
|----|---------|-----|--|--|---------|--|
| A  | L       | BLU | To Phono Selector PC board (1): L-ch (2): R-ch |  | GRY     | To Phono Selector PC board (5): L-ch (6): R-ch |
|    | R       | GRN | To Phono-1 Input Jack                          |  | BRN     | To MC Head Amp PC board (3): L-ch (4): R-ch    |
| B  | L       | BLU | To Phono-2 Input Jack                          |  | YLW     |  |
|    | R       | GRN |  |  | WHT     |  |

# Phono Selector Circuit Board Diagram

## Bestückungsplan der Phonowahlschalter-Schaltung

## Diagramme de la plaque du sélecteur Phono



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