Quality. Uncompromised.
ROTEL®

Technical Manual

STEREO OCTAVE EQUALIZER
RE-1010

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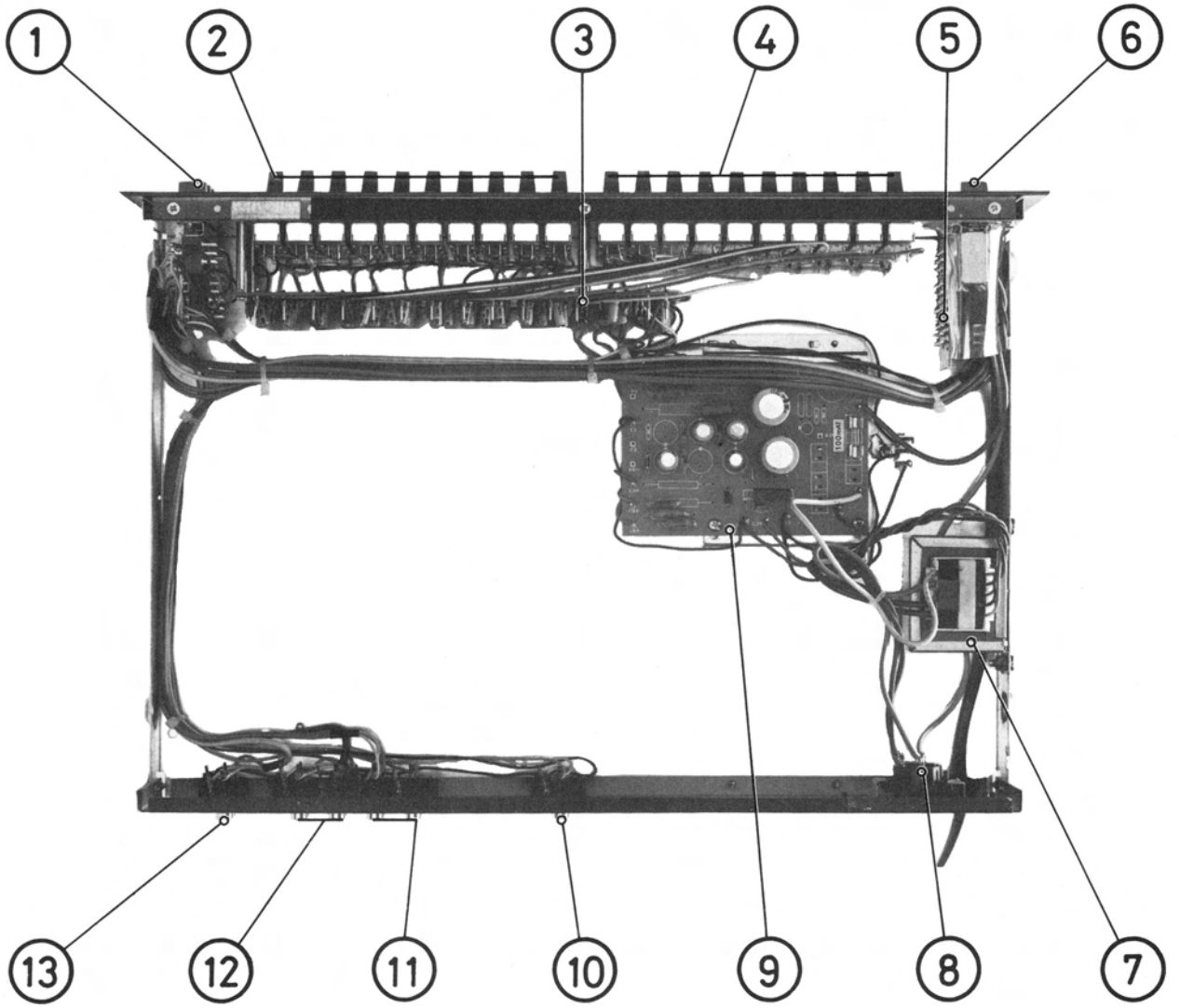
TABLE DES MATIERES

Serial No. Beginning
NC 54316

THE ROTEL CO., LTD. 1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN
ROTEL ELECTRONICS CO., LTD. 2ND FLOOR, EVERGLORY BLDG., NO. 305, SECTION 3, NANKING E. ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA
ROTEL OF AMERICA, INC. 1055 SAW MILL RIVER ROAD, ARDSLEY, N.Y. 10502, U.S.A.
ROTEL HI FI LIMITED 2-4 ERICA ROAD, STACEY BUSHES, MILTON KEYNES, BUCKINGHAMSHIRE, ENGLAND

Chassis Layout (Top View)
Installation du châssis (vue de dessus)



1. MODE SELECTOR (NORMAL, BYPASS, EQ REC)
2. R-CH ACOUSTIC CONTROLS
3. RESONATOR PCB
4. L-CH ACOUSTIC CONTROLS
5. MONITOR SWITCH PCB
6. POWER SWITCH
7. POWER TRANSFORMER
8. VOLTAGE SELECTOR
9. POWER SUPPLY PCB
10. OUTPUT TERMINALS
11. TAPE 2 IN/OUT TERMINALS
12. TAPE 1 IN/OUT TERMINALS
13. INPUT TERMINALS

Checking of Operation

Checking Procedures

Instruments: Audio Generator, Oscilloscope and AC Voltmeter

1. Set Power and Monitor (Tape 1, 2) switches to OFF, and NORMAL switch to ON. Set Acoustic Controls to 0 (mid-position).
2. Connect Audio Generator to LINE IN and feed in 1,000 Hz (sine wave), 0.775 V signal. Connect the oscilloscope and AC voltmeter to LINE OUT.
3. Set Power switch to ON. (From the moment Power switch is turned on, 4 to 7 seconds should elapse before an output waveform appears on the oscilloscope.) Then check the following items.
   a) The output signal level in this instance should be 0.775 V±1 dB.
   b) The difference in the output level between L-ch and R-ch should be within 1 dB.
   c) In this state, the output level at LINE OUT terminal should be considered 0 dB. When the 1 kHz acoustic control is set at +12 position, the output level should be +12 dB±1 dB; and at −12 dB, the output level should be −12 dB±1 dB.
   d) Follow the same procedures for all remaining acoustic controls (2 kHz, 4 kHz, 8 kHz, 16 kHz, 500 Hz, 250 Hz, 125 Hz, 63 Hz and 32 Hz), by matching the input signal frequency from Audio Generator with each control. Be sure that each output level is within the specified range. (For frequency response, see Fig. 1.)

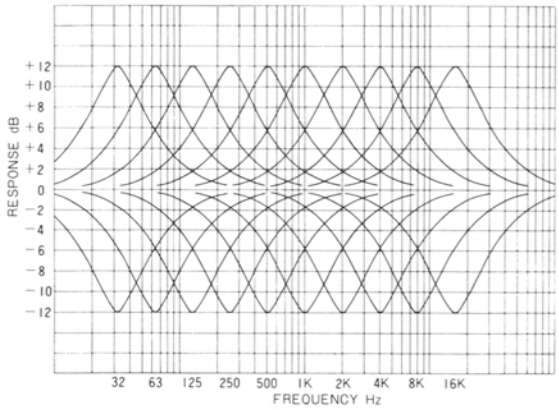


Fig. 1 Frequency Response

Contrôle du fonctionnement

Processus de contrôle

Instruments: Générateur d'autdio-fréquences, oscilloscope et voltmètre à courant alternatif

1. Placer l'interrupteur d'alimentation (POWER) et les commutateurs MONITOR (TAPE 1 et TAPE 2) sur l'arrêt (OFF). Placer le commutateur NORMAL sur la position ON. Régler les commandes acoustiques sur 0 (position médiane).
2. Raccorder le générateur d'audio-fréquences à l'entrée de ligne (LINE IN) et envoyer un signal de 1.000 Hz (onde sinusoïdale) 0,775 V. Brancher l'oscilloscope en sortie de ligne (LINE OUT).
3. Mettre l'appareil sous tension. De 4 à 7 secondes doivent s'écouler, à partir du moment où l'appareil est mis sous tension, avant que la forme de l'onde de sortie se matérialise sur l'oscilloscope. Puis vérifier les points suivants:
   a) Dans ces circonstances, le niveau du signal de sortie doit être de 0,775 V ±1 dB.
   b) La différence de niveau de sortie entre le canal gauche et le canal droit doit être de moins d'1 dB.
   c) Dans ces conditions, le niveau de sortie aux bornes LINE OUT doit être considéré comme étant 0 dB. Lorsque la commande acoustique 1 kHz est placée sur la position +12, le niveau de sortie doit être +12 dB à ±1 dB; sur −12, le niveau de sortie doit être de −12 dB à ±1 dB.
   d) Suivre le même processus pour toutes les autres commandes acoustique (2 kHz, 4 kHz, 8 kHz, 16 kHz, 500 Hz, 250 Hz, 125 Hz, 63 Hz et 32 Hz) en faisant coïncider la fréquence du signal déntrée en provenance du générateur d'audio-fréquences avec chaque commande.
   S'assurer que le niveau d'entrée est bien à l'intérieur de la plage spécifiée. (Pour la réponse en fréquence, voir la fig. 1.)

Switch Positioning Vis-à-vis Input/Output Signals **Position du commutateur vis-à-vis signaux d'entrée/sortie**

INPUT	MODE	MONITOR SWITCH	TAPE 1 OUT	TAPE 2 OUT	LINE OUT
LINE IN	EQ REC	TAPE 1 TAPE 2 "OFF"	VIA EQ		DIRECT
	BYPASS		DIRECT		
	NORMAL		DIRECT		VIA EQ
TAPE 1 (or 2) IN	EQ REC	TAPE 1 (or 2) "ON"	—	—	DIRECT
	BYPASS		—	—	
	NORMAL		—	—	VIA EQ
TAPE 1 TAPE 2 IN (Dubbing) 1 – 2	EQ REC	TAPE 1 TAPE 2 "ON"	—	VIA EQ (Tape 1 signal)	DIRECT (Tape 2 signal)
	BYPASS		—	DIRECT (Tape 1 signal)	
	NORMAL		—		VIA EQ (Tape 2 signal)

DIRECT:
- indicates circuit passage of input signal to output, without passing through the equalizer circuit.
- indique le passage direct du signal d'entrée à la sortie, sans passer par le circuit de l'égalisateur.

VIA EQ:
- indicates passage of input signal to output through the equalizer circuit before reaching output.
- indique qu'il y a passage du signal d'entrée par le circuit de l'égalisateur avant de parvenir à la sortie.

Repair Parts List

Liste des pièces de rechange

Schematic Location	Description	Part No.
	TRANSISTORS, DISODES AND IC'S	
Q501, 502	2SC828 (R), (S), Buffer	301201115
D901	RB-152, Rectifier	300919039
D902, 909	SR1K-4, Rectifier	300919024
D903	BZ-240, Zener Regulator, 24V, 1W	300313009
D905, 906	WZ-150, Zener Regulator, 15V, 0.5W	300313027
D907	WZ-120, Zener Regulator, 12V, 0.5W	300313013
D910	SEL-305GC, LED, Power Ind.	300414015
IC501	NJM4558D-D (Low Noise), Tone Amp.	303452152
IC502	AN6135, Muting Delay	303452227
IC503 to 512	NJM4558D, Resonator	303452215
	OTHERS	
VR001 to 020	Variable Resistor, 100kW	581005054
S1	Switch, Push 3-key, Mode	614030833
S2, 3	Switch, Push 2-key, Tape	614020439
S4	Switch, Power	614010138
	Volatage Selector	648211247
T001	Power Transformer	207001483
	Pin Jack, 2P, Line IN, Line OUT	624200202
	Pin Jack, 4P, Tape IN/OUT	624200204
F001	Fuse, 0.3A, 250V, Long Type	341222030
	Fuse, 100mAT, 250V, Midget Type	345952010
Tone Amp and Resonator PCB Ass'y		141810990
Acoustic Control PCB Ass'y		141810989
Power Indicator PCB Ass'y		141810994
Tape Switch PCB Ass'y		141810991
Power Supply PCB Ass'y (w/long Fuse)		141810992
Power Supply PCB Ass'y (w/Midget Fuse)		141810993
Fuse Clip, for Long Fuse		648211146
Fuse Clip, for Midget Fuse		648211147
Power Supply Cord, (STD)		796301115
Power Supply Cord, (UK)		796301138
Power Supply Cord, (Europe)		796301148
Power Supply Cord, (Australia, etc.)		796301140
Cord Stopper, (STD)		675201111
Cord Stopper, (Europe, etc.)		675201114
Cord Stopper, (UK)		675201116
Signal Cord Ass'y		791001112
Front Panel Ass'y, (Black)		111911497
Front Panel Ass'y, (Metallic Brown)		111911496
Bonnet		138011307
Knob, Acoustic Control, (Black)		116310233
Button, Push, Monitor, (Black)		116210057
Button, Push, Power, etc. (Black)		116210059
Knob, Acoustic Control, (Metallic Brown)		116310291
Button, Push, Monitor, (Metallic Brown)		116210056
Button, Push, Power, etc. (Metallic Brown)		116210058
Foot		673402021
Screw, ⊕3 x 6 mm, Binding Head, (Ni)		705213006
Screw, ⊕3 x 6 mm, Oval-countersunk, (Ni)		702213006
Screw, ⊕3 x 10 mm, Tapping, (BLZ)		726223010
Screw, ⊕3 x 8 mm, Tapping, (Ni)		726213008
Screw, ⊕3 x 12 mm, Tapping, (Ni)		726213012
Screw, ⊕3 x 6 mm, Tapping, Oval-countersunk (Ni)		722213006
Screw, ⊕4 x 10 mm, Tap-tight, Binding Head, (Ni)		765214010
Screw, ⊕3 x 8 mm, Binding Head, (BLZ)		705223008
Screw, ⊕3 x 6 mm, Countersunk, (Ni)		701213006
Screw, ⊕3 x 10 mm, Tapping, (Ni)		726213010
Screw, ⊕4 x 8 mm, Binding Head w/washer, (BLZ)		755224008
Insert Screw, M3, 33mm(L), Resonator PCB mtg.		770911165
Screw, 3 x 9 mm, Ind PCB Mtg.		770911131
Flat Screw, 3 x 6 mm, (BLZ)		770911166
Washer, ø3.2 x ø8 x t0.5, (Ni)		770500003
Spring Washer, M4		770500011
Nut, M3, (Ni)		770402201
Nut, M4, (Ni)		770402202

Addition to Parts List (October, 1981)

Front Panel Ass'y (Silver)	111911567
Knob, Acoustic Control (Silver)	116310363
Button, Power (Silver)	116210105
Button, Monitor (Silver)	116210104

Specifications

Caracteristiques

Band . . . . . .10 bands per channel (10 center frequencies)

Band Control Characteristics

Increase . . . . . .+12dB

Decrease . . . . . .−12dB

Center Frequency (Hz). 32, 63, 125, 250, 500, 1000, 2000, 4000, 8000, 16,000

Input Sensitivity/Impedance

LINE, TAPE MONITOR 1, 2 . .1.0 V/50 kilohms

Output Voltage/Impedance

LINE, TAPE MONITOR 1, 2 . .1.0 V/600 ohms

Hum and Noise . . . . . .108 dB

Residual Noise. . . . . .3.9 μV

Frequency Response . . . . . .15 Hz to 20,000 Hz, +0 dB, −1 dB

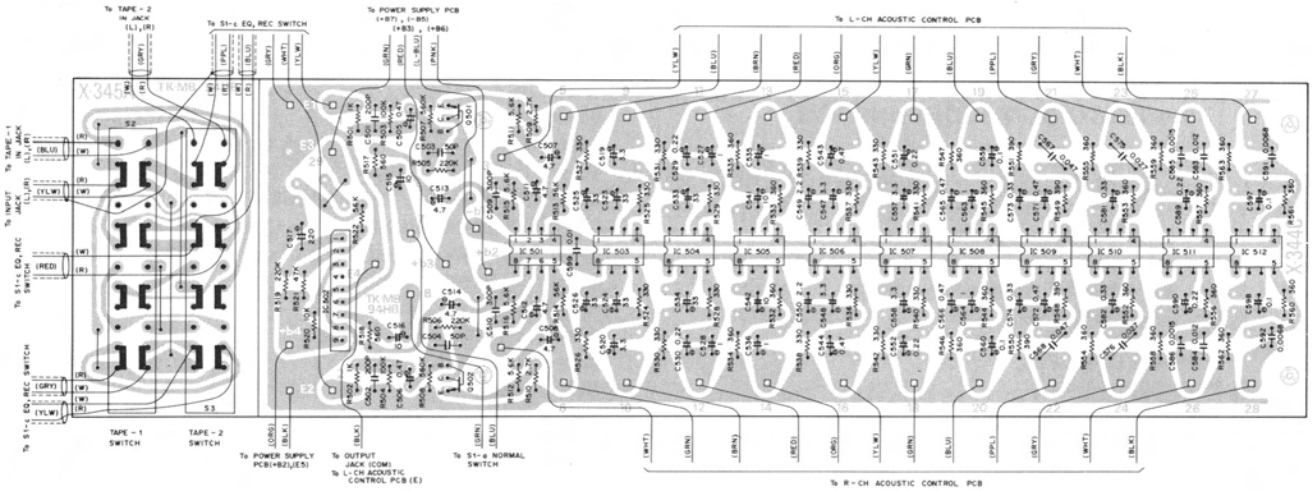
Harmonic Distortion . . . . . .0.009%(20 Hz to 20,000 Hz, 1 V)

Power Requirement. . . . . .120 V/60 Hz, 220 V/50 Hz, 240 V/50 Hz, or 120, 220, 240 V/50-60 Hz

Power Consumption . . . . . .8 watts max.

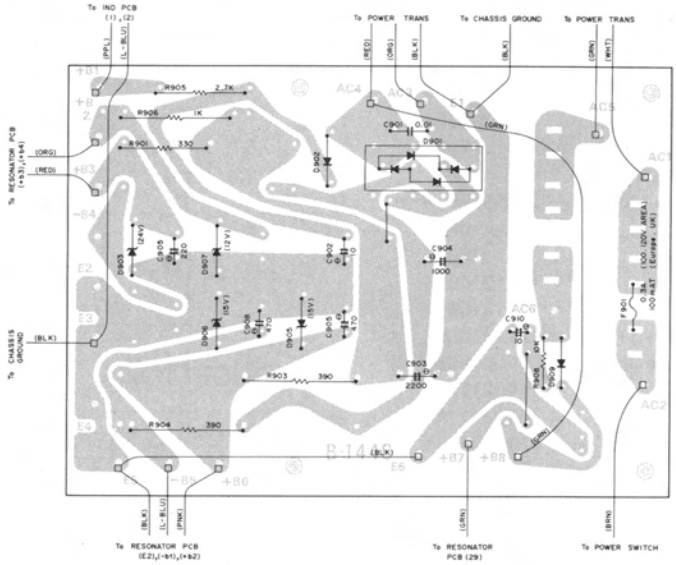
Specifications and design subject to possible modification without notice.

TONE AMP AND RESONATOR CIRCUIT
CIRCUIT DE L'AMPLI DE TONALITE ET RESONATEUR

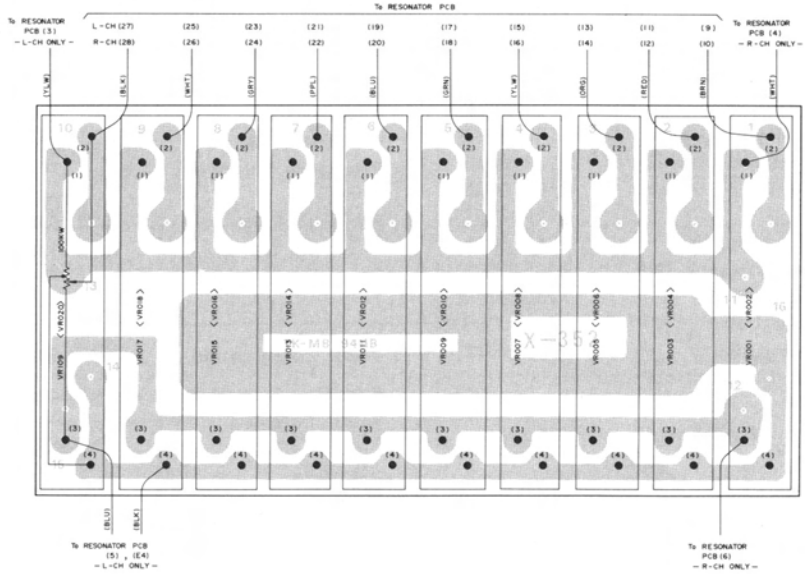


Note: IC501 is a low noise type.

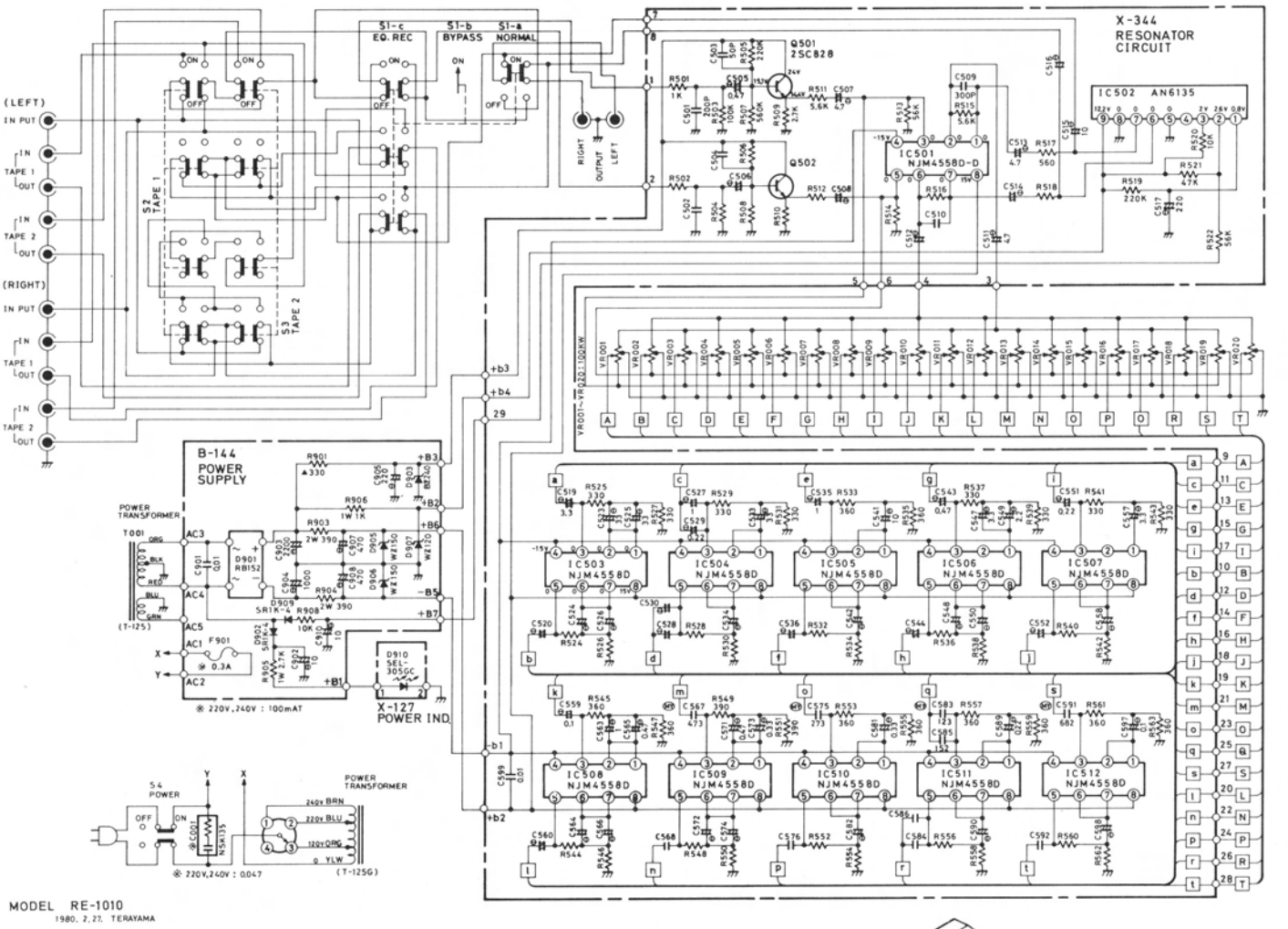
POWER SUPPLY CIRCUIT
CIRCUIT DE L'ALIMENTATION



ACOUSTIC CONTROL CIRCUIT
CIRCUIT DES COMMANDES ACOUSTIQUES



Schematic Diagram
Diagramme schématique



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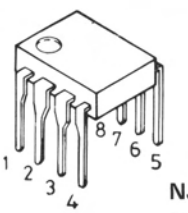
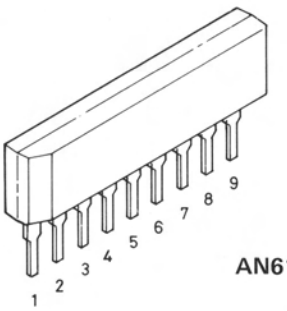


NJM4558D
NJM4558DD



AN6135

RESISTORS

K . . . . . .kilohm,
M . . . . . .Megohm
▲ . . . . . .Uninflammable carbon film resistors, 1/2 watts
Non-marked . . . . . .1/4 watts, carbon film resistor (low noise type)
. . . . . .More than 1 watt, uninflammable metal oxide film resistor

CAPACITORS

MY . . . . . .Mylar film capacitor
⊣⊢ . . . . . .Electrolytic capacitor
Non-marked . . . . . .Ceramic capacitor

- Unless otherwise noted in schematic diagram, all capacitance values are expressed in mfd.

Notes:

- Voltage reading with VTVM: across the point shown and the chassis ground.
- Tolerance in voltage reading: within ±20%