

Quality. Uncompromised.

# ROTEL®

## PUBLIC ADDRESS AMPLIFIER WITH AM/FM TUNER

# QA-100

# INSTRUCTION MANUAL

**WARNING**  
TO PREVENT FIRE OR SHOCK HAZARD,  
DO NOT EXPOSE THIS APPLIANCE TO  
RAIN OR MOISTURE

Write your SERIAL NUMBER here.

The number is located near the name  
plate on the rear panel.

AUG. 11, 1986

## PRECAUTIONS

To ensure maximum safety, please carefully follow the instructions below:

### 1. Check the power source

Plug the unit only into a power source whose voltage and frequency ratings match those given in the instruction manual.

### 2. Power cord

The unit is provided with a 3-core type a.c. line cord with a grounding wire. Insert the plug only into a 3-conductor outlet (containing grounding wire) of 120V/60Hz. Or if a 3-conductor outlet is not available, use an adaptor, connecting the grounding wire to a grounding screw on a wall, etc. Insert or unplug the a.c. line cord only after making certain the unit's power switch is turned off, to prevent shock noise from damaging the speakers.

### 3. Ventilation

To offset heat generated by the unit, it is necessary to provide ample ventilation around the unit. Avoid blocking or impeding the ventilation holes on the unit. To prevent unnecessary problems, install the unit on a place free from any vibrations, direct sunlight, humidity or dust circulation.

### 4. Do not open the cabinet

The unit has been completely factory adjusted. To avoid electric shock or harm to the human body or to the unit, never open the cabinet.

### 5. If the unit gets wet or foreign matter enters

In case the unit gets wet or any water or foreign matter gets into the cabinet, immediately disconnect the a.c. line cord, and consult your dealer or qualified electrician.

### 6. Instruction manual

Keep the instruction manual near the unit, and record the serial number (found on the rear panel) on the cover.

## SWITCHES, CONTROLS AND OPERATION

### (1) Power Button

Depress this button to turn on power. Pressing it a second time will turn off power.

### (2) Power Indicator

Glow when the power is turned on, indicating that the unit is in operation.

### (3) Microphone Jack (MIC 1)

An input terminal used to connect a high impedance microphone with standard type plug to the unit. On the rear panel of the unit are screw-type MIC 1 terminals. Since the MIC jack on the front panel takes priority over the rear MIC terminals, the MIC jack on the front panel should not be connected with a microphone plug when the MIC 1 terminals on the rear panel are in use.

### (4) MIC 1, 2 Level Controls

These controls regulate the input levels from microphones connected to the respective MIC terminals. Rotate each knob clockwise to raise the input level, and counterclockwise to reduce it. Turning the knob

fully counterclockwise (to position "0") cuts all input from microphone.

### (5) AUX Level Control

This knob regulates the level of input from any equipment connected to the AUX jack on the rear panel, such as chimes, tape deck, rhythm box, synthesizer, etc. Rotate the knob clockwise to raise the level and counterclockwise to reduce it. Turning the knob fully counterclockwise (to position "0") cuts all input from above equipment.

### (6) PHONO/TUNER Level Control

This knob regulates the level of input from the tuner section of the unit, or connected record player. Rotate the knob clockwise to raise the level of input from the built-in tuner, and counterclockwise to raise the level of input from the record player. At midposition ("0"), input from either source is cut. This control operates on either tuner or record player, not both at once; signals cannot be mixed.

### (7) MASTER Volume Control

This knob controls at one time the combined signals coming from MICs 1, 2, AUX, and PHONO/TUNER. Rotate the knob clockwise to raise the overall level of those signals together, and rotate it counterclockwise to reduce it. Turning the knob fully counterclockwise (to "0" position) cuts all inputs.

Note that this control should be used at position "5" or higher. If the master volume control is set lower than "5", the separate con-

trols for MIC, AUX or PHONO/TUNER set higher may cause "clipping" of input signals and increased distortion in sound.

### (8) BASS/TREBLE Tone Controls

These are rotary controls that regulate the balance of tone of input signals coming from MICs 1, 2, AUX, or PHONO/TUNER. BASS regulates the low frequency range and TREBLE the high frequency range. Rotate the respective knobs to the right to increase the response, and to the left to decrease it.

BASS is effective in reducing low-frequency noise produced by record warpage, and TREBLE reduces the scratch noise on a record or the hiss on a tape. Also use these controls to compensate for acoustic conditions.

### (9) Tuning Dial

This knob tunes in the desired AM or FM broadcast station. Use the lower half of the knob for AM band, and the upper half for FM band reception. Rotate the knob to bring the pointer on the knob to the desired position on the frequency scale around the knob.

### (10) AM/FM Selector

For selecting receiving frequency bands. Set the selector to AM to receive AM stations, and to FM for FM stations. Set at FM AFC position to prevent tuning drift due to frequency deviation. Generally, when receiving FM stations, first set the selector to FM and tune in to the desired station; then set the selector to FM AFC. When not

using the tuner function, turn selector to OFF.

### (11) Ferrite-bar Antenna

This is a built-in antenna for use in AM broadcast reception. Erect the bar towards you, and position it where the reception is optimal.

### (12) Antenna Input Terminals

Use the terminals labeled 300Ω when parallel feeder is used, and the terminals labeled 75Ω for coaxial cable. The AM terminal is used to connect external antenna when sufficient electric field strength cannot be obtained with the built-in ferrite bar antenna.

### (13) TUNER Output Jack

This is a tuner output jack for RCA pin plug. It transmits signal from the built-in tuner independently, without mixing. To mute tuner, short-circuit the jack with shorting plug.

### (14) PRE OUT Terminal

Output from the preamplifier section appears at this terminal. Use this terminal when operating unit's preamplifier section separately, or when coupling the unit with separate power amplifier.

### (15) MAIN IN Terminal

Terminal for feeding signal into the unit's main amplifier section. Use when operating main amplifier section, or when coupling the unit with separate preamplifier.

### (16) Main Amplifier SEPARATE/UNITE Switch

This switch permits either separate use of main amplifier section or

combined use of main amplifier section with preamplifier section. In SEPARATE position, the main amplifier section is disconnected from the preamplifier section so that you can use the main amplifier section separately. In the UNITE position, the preamplifier and the main amplifier sections are connected. In the UNITE position, the MAIN IN terminal cannot be used.

### (17) PHONO Input Jack

This is a phonograph input terminal for RCA pin plug. When using stereo phonograph, use Y-adaptor for RCA plug connection.

Note: The PHONO input jack is for record player with MM type cartridge. Plug player with ceramic or crystal cartridge into the AUX jack.

### (18) AUX Input Jack

This is an auxiliary input jack for RCA pin plug.

### (19) GND Terminal

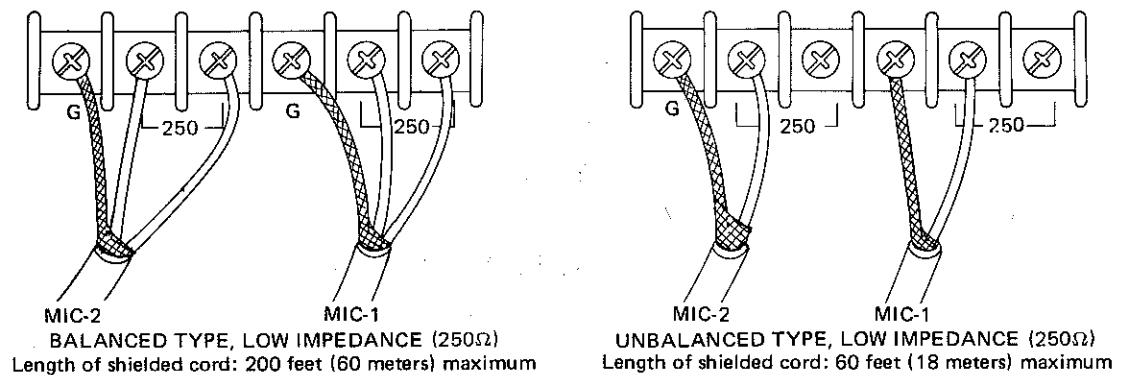
This terminal is the connection for grounding wire of record player, etc., to reduce inter-equipment hum noise or induction noise, or to prevent static electricity.

### (20) Music Muting Terminals

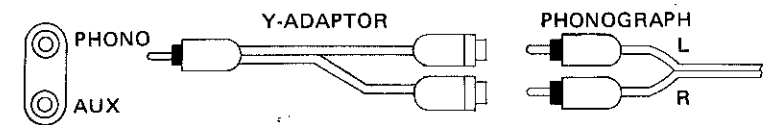
Short-circuiting GND and S terminals will immediately cut input signals at AUX and PHONO/TUNER (and signal from built-in tuner). Remove the short-circuit to regain state already established by front panel controls. This function is effective in interrupting music signals to insert announcement, etc. by means of microphones.

### (21) Microphone Input Terminals

## • MICROPHONE INPUT TERMINAL CONNECTION



## • PHONO INPUT JACK CONNECTION WHEN USING STEREO PHONOGRAPH



These are screw-type microphone input terminals. The 3 right-hand terminals are for MIC 1 connections, and the 3 left-hand terminals are for MIC 2 connections. Both MIC 1 and MIC 2 connections can be made simultaneously. These terminals have been already adjusted to accept low impedance (250 Ohms) balanced or unbalanced microphone. The stranded wire from the microphone should be hooked up to G terminal.

### (22) Speaker Terminals

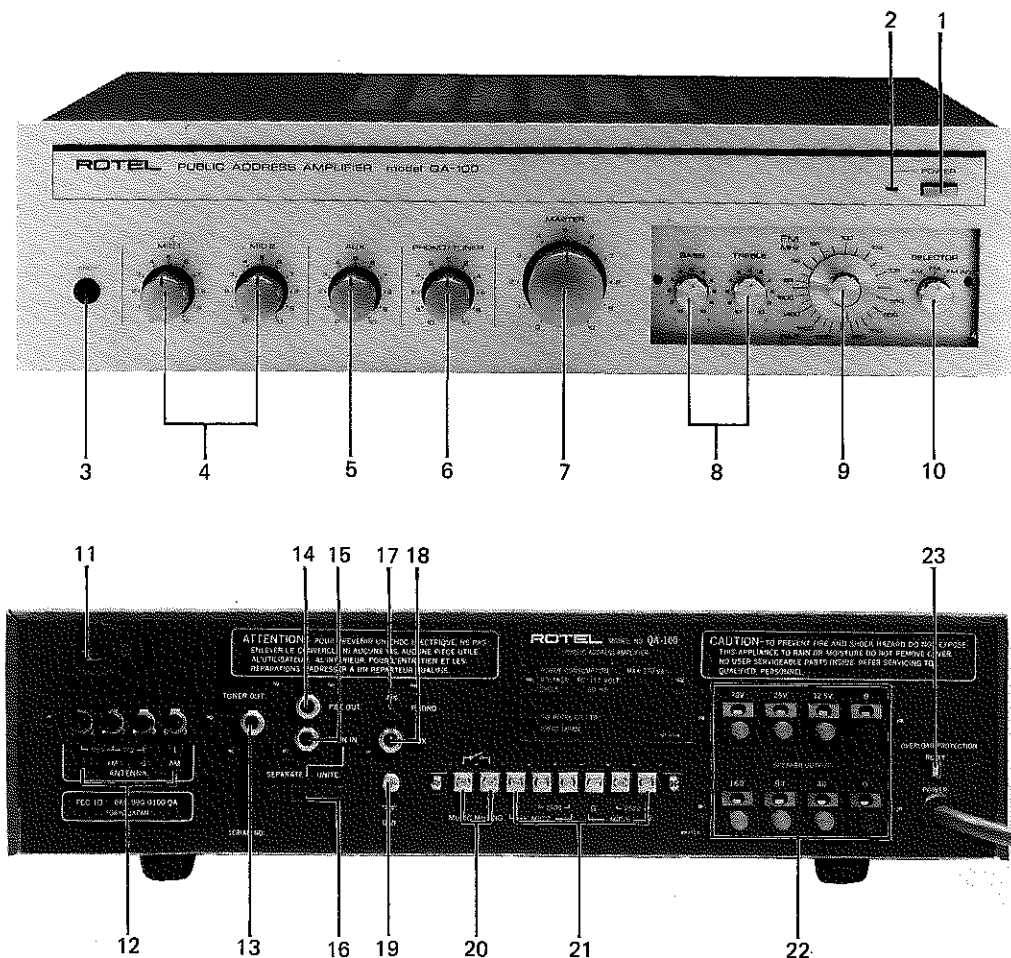
Unit is provided with 2 sets of speaker terminals; one for low im-

pedance use, and the other for high impedance or constant voltage use. For low impedance use, 0, 4, 8, and 16 ohm terminals are available. For high impedance or constant voltage use, 0, 12.5, 25, and 70 volt terminals are available.

Terminals are screw-knob type. Loosen the knob, and the hole above it will open. Insert the bared end of speaker cable into the hole, and then tighten the knob so that the cable is securely fixed. (Refer to "CONSIDERATIONS FOR PA SPEAKER LAYOUT for details on use of these speaker terminals.)

### (23) Overload Protection Reset Button

This button resets the built-in protection device, which would cut the output when main amplifier section is overloaded because of mismatching of speaker impedance, etc. If the protection device is activated to prevent the unit from being damaged, remove the cause of overload, and press the Overload Protection Reset button to start normal operation.



## USING RACK MOUNTING BRACKETS

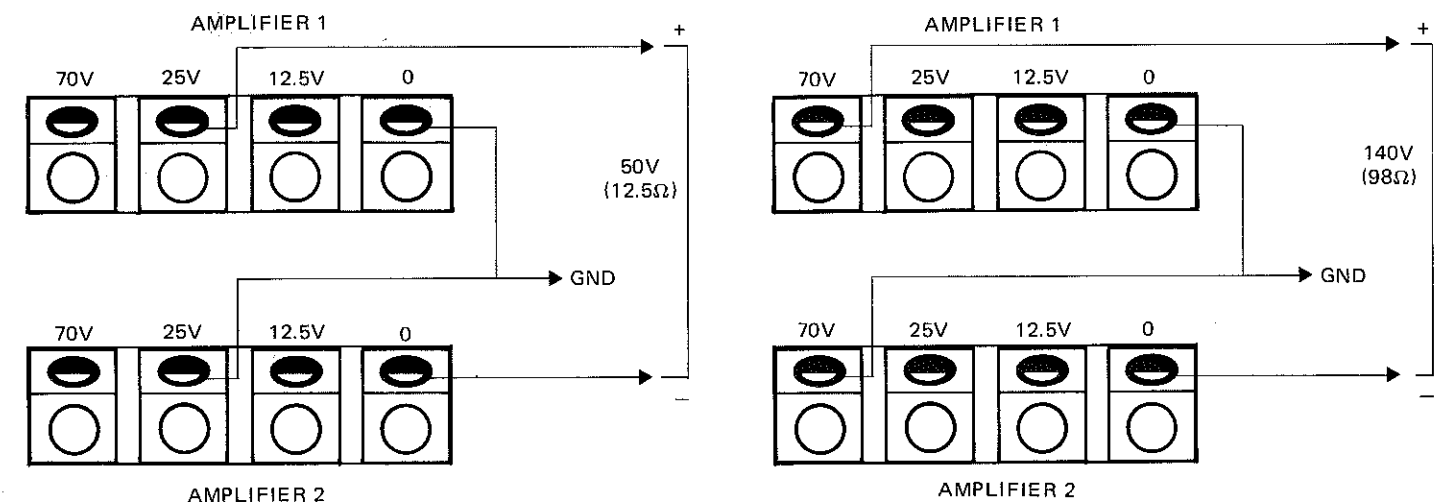
The unit is mountable into a 19-inch rack. When rack-mounting the unit, remove screws near the front panel at both sides of the cabinet, and install the rack-mounting brackets supplied with the screws. The unit can also be placed in upright position for wall mounting. For that purpose, remove screws on the bottom plate of the unit, and install suitable brackets with the screws.

## CONNECTING SPEAKERS IN SERIES

If two PA music amplifier units are connected in series, the same speaker system can be driven with double power output. When using 2 units in series, for example, set the SEPARATE/UNITE switch on amplifier "1", which will be used for source control, to UNITE position, and set the SEPARATE/UNITE switch on amplifier "2", whose main amplifier section alone will be used, to SEPARATE

position. Connect PRE OUT terminal on amplifier "1" to MAIN IN terminal on amplifier "2" using RCA pin cord. (See figure for speaker cable connections in series combination of amplifiers.)

Note: When amplifiers are connected in series, the 0V terminal on amplifier "2" cannot be used as grounding terminal. Never attempt to ground the terminal.

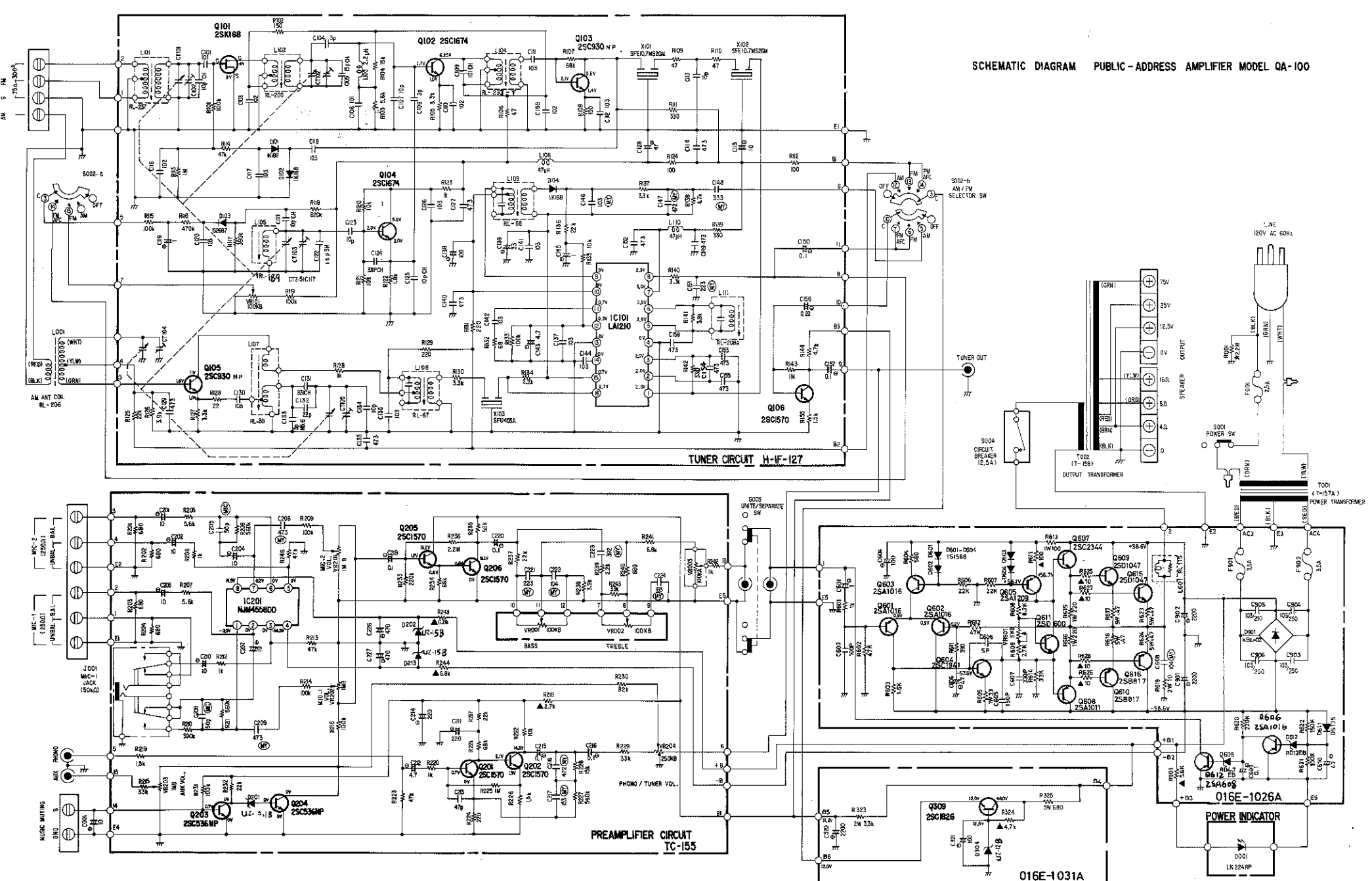




REPAIR PARTS LIST

Schematic Location	Computer No.	Description
<b>TRANSISTORS, DIODES AND IC'S</b>		
Q101	TR50000139	2SK168-F
Q102	TR30000133	2SC1674/LC1674 (K, L)
Q103	TR30000339	2SC930 (E) S
Q104	TR30000133	2SC1674/LC1674 (K, L)
Q105	TR30000339	2SC930 (E) S
Q106	TR30000327	2SC1570/71GH/2SC536G
Q201-206	TR30000029	2SC1826 (O, Y)
Q309	TR10000023	2SA1016 (G, H)
Q601-603	TR30000169	2SC1941 (K, L)
Q604	TR10000217	2SA1209-ST
Q605	TR10000023	2SA1016 (G, H)
Q606	TR30000303	2SC2344 (D, E)
Q607	TR10000138	2SA1011 (E, D)
Q608	TR40000045	2SD1047 (D, E)
Q609	TR20000040	2SB817 (D, E)
Q610	TR40000069	2SD600K (E, F)
Q611	TR10000126	2SA608K (F, G)
Q612	TR40000045	2SD1047 (D, E)
Q615	TR20000040	2SB817 (D, E)
Q616	DD40000095	LN224R
D001	DD10000111	1K188
D101, 102	DD50000080	034 ISV72
D103	DD10000111	1K188
D104	DD20000200	UZ-5.1 (B)
D201	DD20000193	UZ-15B (M, H)
D202, 203	DD20000016	UZ-12B (M, H)
D304	DD10000100	IN4148
D601, 602	DD10000100	IN4148
D603, 604	DD20000200	UZ-5.1 (B)
D605	DD10000068	DS135D/IN4003
D611	DD20000016	UZ-12B (M, H)
D612	DD10000020	KBL-02
D901	IC00001358	031 LA-1210
IC101	IC00000019	NJM4558DD
IC201		
<b>VARIABLE RESISTORS</b>		
VR101	RV20000168	5BM 100KB
VR201	RV10000871	051 C3324 1MB, MIC-1
VR202	RV10000871	Volume
VR203	RV10000871	051 C3324 1MB, AUX Volume
VR204	RV10000901	PHONO/TUNER Volume
VR601	RV20000272	08-301 5KB
VR001	RV10000895	051 C3826 100KB BASS Control
VR002	RV10000895	051 C3826 100KB TREBLE Control
VR003	RV10000833	051 C3825 100KA MASTER Volume
<b>COILS AND TRANSFORMERS</b>		
L001	LB02060000	RL-206, BAR ANT. Assembly
L101	LC01990004	RL-199, Coil FM ANT.
L102	LC02000000	RL-200, Coil FM RF
L103	LM00000073	2.2UH TRL-239, Micro Inductor
L104	LC02330000	RL-233T, FM IF Coil
L105	LC21890003	TRL-189, FM OSC Coil
L106	LM00000024	47UH TRL-236, Micro Inductor
L107	LC10390002	RL-39T, AM OSC Coil
L108	LC10670000	RL-67T, AM IFT
L109	LC10680004	RL-68, AM IFT
L110	LM00000024	47UH TRL-236, Micro Inductor
L111	LC22081005	RL-208A-T
L601	LC01150002	RL-115, Anti-Parasitic Coil
T001	PT21101049	T-157AF-T, Power Transformer
T002	PT00000163	T-158, Output Transformer

Schematic Location	Computer No.	Description
<b>OTHERS</b>		
X101, 102	LF00000166	SFE10, 7MS2GA (RED)
X103	LF00000210	SFU455A
F901, 902	FU12000112	Fuse 250V 3.5A UL
S001	SH40000120	Function Switch C-3600B-T
S002	SH30000274	Function Switch 061C-3190
S003	SH20000046	6P Slide Switch SS-13-8
S004	LY00000101	Breaker With Support 063 C-4140A09
	FS20000080	QA-100 Front Panel Assembly
	KB10000286	Knob 012 C-3406A#1
	KB10000361	Knob 012 C-3407A#1 33F
	KB10001175	Knob 012 4NG-10 15F
	KB10001187	Knob 012 4NG-7 30F
	KB10001199	Knob 012 4NG-8 15F
	KB20000106	Push Button 012 C-3372#1
	AU00000579	Upper Cover 014 4NG-13



## OWNER'S WARRANTY

This warranty covers ROTEL QA-100 Tuner/amplifiers.

This equipment is warranted to be free from defects for one year with respect to material and labour from date of purchase by original purchaser under conditions of normal use and service. The warranty covers component parts and shop labour at authorised service stations only. Outside labour charges are not included.

This warranty does not apply to breakage of any kind of equipment, or any of the component parts have been damaged through accident or alteration, abuse or misuse or to any damage caused by fire, flood or other Act of God.

This warranty is in lieu of all warranties expressed or implied and of all obligations or liabilities on its part in connection with the sale of this machine.

In the event of equipment failure, contact your dealer who will advise you, or forward the unit prepaid to one of the service depots listed below. Include a description of the problems and a return address. Sales receipt must accompany the unit to validate the purchase date and hence warranty.

## TITRE DE GARANTIE DU CLIENT

Cette garantie couvre ROTEL QA-100.

Cet équipement est garanti être libre de tous défauts, pour une année en ce qui concerne le matériel et le travail, à partir de la date d'achat par l'acheteur original, et sous conditions normales d'utilisation et de service.

Cette garantie ne couvre pas le bris d'aucune façon, ni l'équipement ni aucune de ses parties endommagés par accident, modifications, abus ou mauvais emploi, ou tout autre dommage causé par le feu, l'inondation ou tout autre cas de force majeure. Cette garantie remplace toute autre garantie expirée ou impliquée, et toute obligation ou responsabilité liée à la vente de cet appareil.

Si des réparations ou des ajustements s'avèrent nécessaires, consulter votre distributeur qui vous renseignera, ou retourner l'appareil défectueux à un des dépôts de service autorisés désignés ci-dessous. Joindre une note indiquant la nature du problème et votre adresse de retour. Inclure la facture pour confirmer la date d'achat et la validité de la garantie.

**CANADIAN AGENT:** BURTEK MARKETING INC., 3879 East 2nd Ave,  
Burnaby, B.C. V5C 3W7

**Ontario Rep:** VICOM ENTERPRISES, 3868 Chesswood Dr., Downsview,  
Ont, M3J 2W6

**Quebec & Maritimes:** S.GREENE AGENCIES INC., 8255 Mountain Sights,  
Ste, 405, Montreal, Quebec, H4P 2B5

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