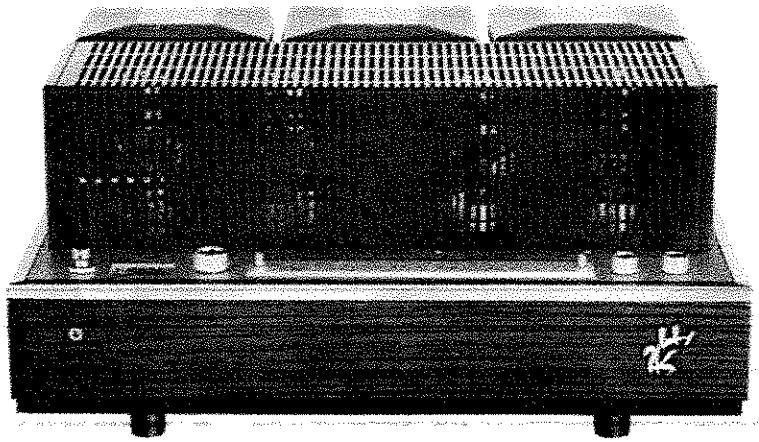
OPERATING INSTRUCTIONS & SERVICE MANUAL

STEREOPHONIC BASIC AMPLIFIER

SANSUI BA-303



Sansui

SANSUI ELECTRIC COMPANY LIMITED

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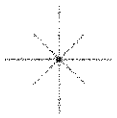


BA-303

Congratulations, you are now the owner of a new stereo power amplifier manufactured by Sansui, the world's leading manufacturer of amplifiers, tuners, receivers, record players, speakers and transformers.

Yours is a hand-made amplifier designed exclusively for most critical audio perfectionists. Sansui's technical staff made years of rigid tests and painstaking efforts to make the "finest power amplifier". Proctically all power transistors or tubes available have been, of course, carefully examined, but the GEC's KT-88 power output tube in the triode connection has been proved to be the best.

Featuring the damping factor selector, bias test meter, bias test switches, bias adjusters and black-tone finished housing your BA-303 is a finest power amplifier worthy of professional use.

This manual has been prepared to guide you in operation and maintenance of your amplifier. Please read it carefully and keep it for future reference.

CONTENTS

FEATURES

Power Output Tubes

Although the world's famous GEC KT-88 power output tubes are capable of delivering 100-watt power if they are used as beam power tubes, we ventured to employ them in the triode connections of Class AB_1 push-pull design in order to minimize the internal resistance, THD total harmonic distortion and IM distortion and to raise the damping factor over bass range. The BA-303 solves such problems on hi-fi reproduction as boomy and exaggerated bass tones. All the stages from the first to the driver are composed of the select triodes with minimum internal resistance and maximum amplification factor possible. Thus, the BA-303 is not subject to the Miller effect and its treble response is much improved.

Performance

The BA-303 delivers 60-watt music power (IHF) at 0.5% harmonic distortion. Both harmonic and IM distortion are not audible at the lowest to full output levels. The THD is less than 0.5% at 20 to 20,000 Hz.

Output Transformer

The output transformer employs the highest quality oriented core for greater primary inductance at low frequencies. In addition, the Sansui's exclusive winding minimizes the leakage inductance and distributed capacity. Combined with the power transformer featuring the best regulation, the BA-303 makes high performance and stability compatible.

Damping Factor Selector

The six push-button switches on the control panel select from among the six different damping factors to match the output impedance of the amplifier to the optimum of driving speakers for higher fidelity of your stereo system.

Built-In Bias Test Meter

The built-in bias meter aids to pinpoint the optimum operation of output tubes and the AC power supply voltage. This meter simplifies the bias adjustment of the output tubes.

Input Level Adjuster

The two separate input level adjuster, one for each channel, compensates for the level deviation that results from variations in speaker efficiency and voice coil impedance.

Two Pairs of Inputs

One set of inputs (marked TEST) are connected directly to the input level controls and function in the same way as ordinary inputs. The other set of inputs (marked MUSIC), connected to the input level controls through filters having cut-off frequency of 20 Hz, eliminate any distorted sound below 20 Hz.

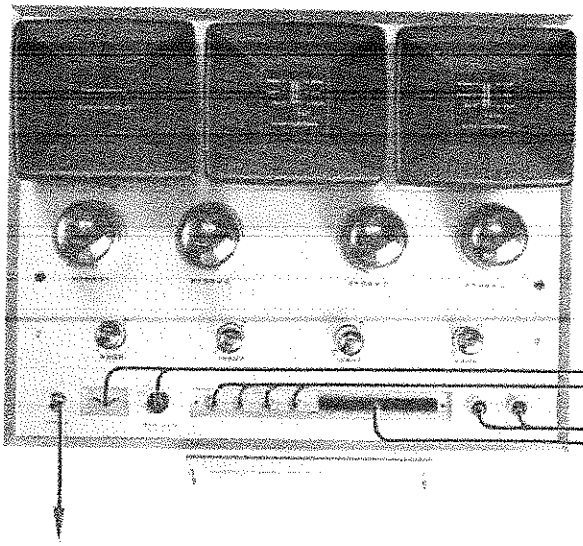
Multi-Channel System

The BA-303 can develop its outstanding performance as a power amplifier for woofers in the multi-channel system as well.

Appearance

Alumite finish control panel, chrome-plated aluminum frame, walnut open-pore finish base, non-glare perforated bonnet of baking finish, convenient combination of plastic stands and nylon casters and functional parts layout.

OPERATION AND CONNECTIONS



Power Switch

The power is applied to the amplifier when the POWER switch is pushed on. The power to the amplifier is cut off when the POWER switch is pushed again.

Damping Factor Selector

This push-button selector selects from among the six damping factors of 1, 2, 4, 8, 15 and 30 at 8-ohm load or 1.5, 3, 6, 12, 23 and 45 at 16-ohm load. Push any of the six push buttons according to the speakers used and to your personal taste.

Volume Control

The Volume control adjusts the overall sound level of both channels. Turning the control clockwise increases the overall sound level. The Volume control consists of two separate knobs, one for each channel.

Bias Test Switch and Meter

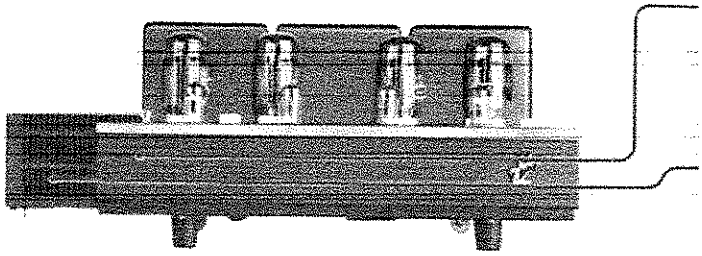
The bias test switch and meter are used to check both power supply voltage and bias current in the output tubes (KT-88). To check the power supply voltage, set the switch to the AC position. To check the bias current in the output tubes V_1, V_2, V_3 or V_4, set it to V_1, V_2, V_3 or V_4 respectively.

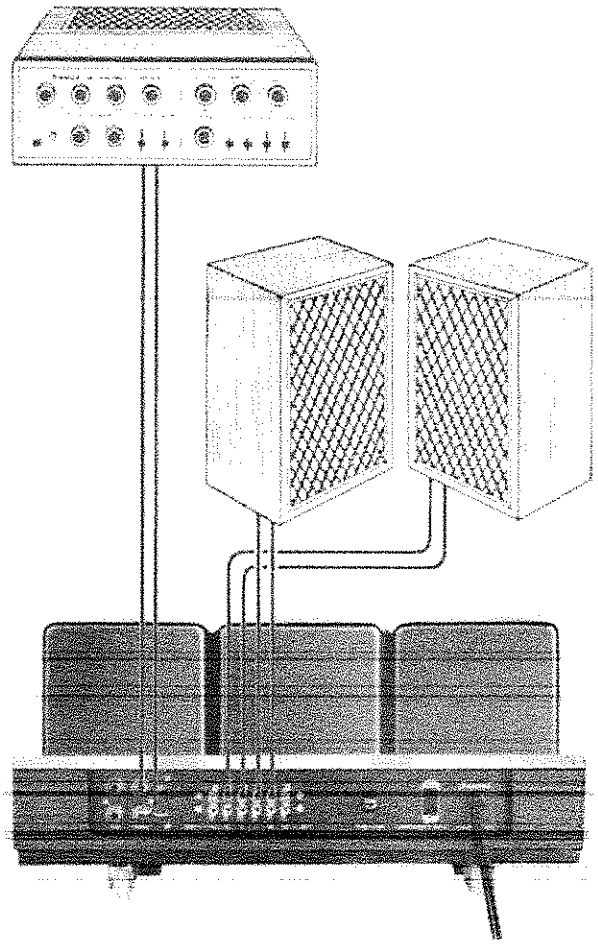
If the voltage is proper, the pointer of the meter moves within the red zone marked A.C. In case of proper bias current, it moves within the green zone marked D.C.

When not in use, the switch should be in the AC position. During the bias check, the right and left volume controls should be set to minimum.

Bias Adjusters

If the bias test shows remarkable difference between V_1, V_2, V_3 and V_4 readings or deviation from the green zone, adjust the bias current by means of these adjusters. Pemove the cover in the control panel and adjust the bias current in the output tubes with a screwdriver. Operate the bias test switch, read the bias test meter, and adjust the V_1, V_2, V_3 and V_4 twice in the same procedure so that the meter indicates the same bias current in each output tube within the green zone marked D.C. Although these adjusters are pre-adjusted at the factory, they may be re-adjusted if desired in such cases that you replace any of output tubes.





Power Indicator

The red indicator lamp glows when the POWER switch is pushed ON. It remains lit during the operation.

Protective Cover

This cover is detachable. To remove it from the amplifier, pull it up while holding the amplifier.

Preamplifier Connections

The BA-303 is provided with two pairs of inputs: TEST and MUSIC. If an ordinary preamplifier is connected to the BA-303, connecions to the MUSIC inputs give better results (See page 7.)

Connect the left-channel output of the preamplifier to the LEFT input on the rear panel of the BA-303. Connect the right-channel output of the preamplifier to the RIGHT input of the BA-303.

Speaker Connections

1. Two Speakers

Connect the + terminal of the left speaker (as viewed from the listening area) to the LEFT 8Ω or 16Ω SPEAKER terminal on the rear of the amplifier and the − terminal to the LEFT C SPEAKER.

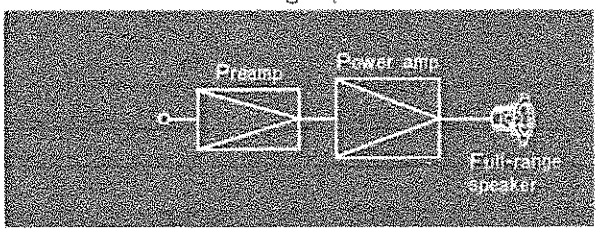
Connect the + terminal of the right speaker to the RIGHT 8Ω or 16Ω SPEAKER terminal on the rear of the amplifier and the − terminal to the RIGHT C SPEAKER.

AC Outlet

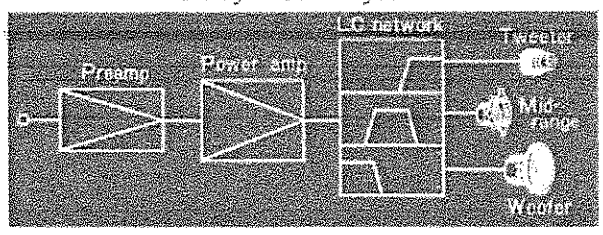
There is one AC outlet on the rear panel of the BA-303. This outlet has a maximum rating of 100VA and is not switched by the POWER switch on the control panel.

MULTI-CHANNEL SYSTEM

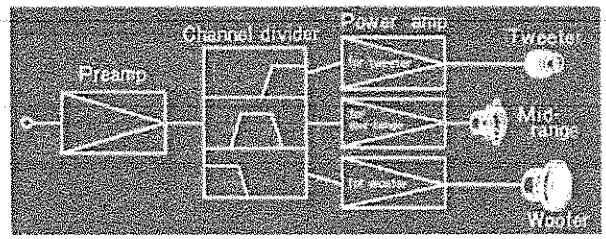
Full-range speaker



3-way network system



Multi-channel system



Multi-Channel System

Audio frequencies range approximately from 20 to 20,000 Hz. An ideal hi-fi system is that it has the least distortion and flattest response uniformly throughout the whole audible frequency range. No system can meet these requirements yet. One of the approaches to such a hi-fi system is to divide frequencies into several ranges and to allot each of them to the speakers specializing in bass, mid-range and treble reproductions.

There are two dividing methods: one is to place LC networks between the power amplifier and the speakers and the other is to install channel dividers between the preamplifier and the power amplifier and to drive the woofer, mid-range and tweeter by use of separate power amplifiers as illustrated bottom left. The latter is said to be one of the most ideal hi-fi systems at present. Below are the outstanding features and advantages of the multi-channel system :

1. Any Speakers Selectable

The use of individual power amplifiers combined with a woofer, mid-range and tweeter allows you to select the speakers from the standpoint of quality only. Difference in efficiency and impedance of the speakers don't concern you at all.

2. Lower Im Distortion

The separate connections of each speaker to its own power amplifier minimize the distortion which results from intermodulation.

3. Better Filter Characteristic

The multi-channel system can easily select any crossover frequencies and attenuation for better filter characteristic.

4. Damping Factor not Affected

In this system, no component is installed between the speakers and the power amplifiers. Thus, the

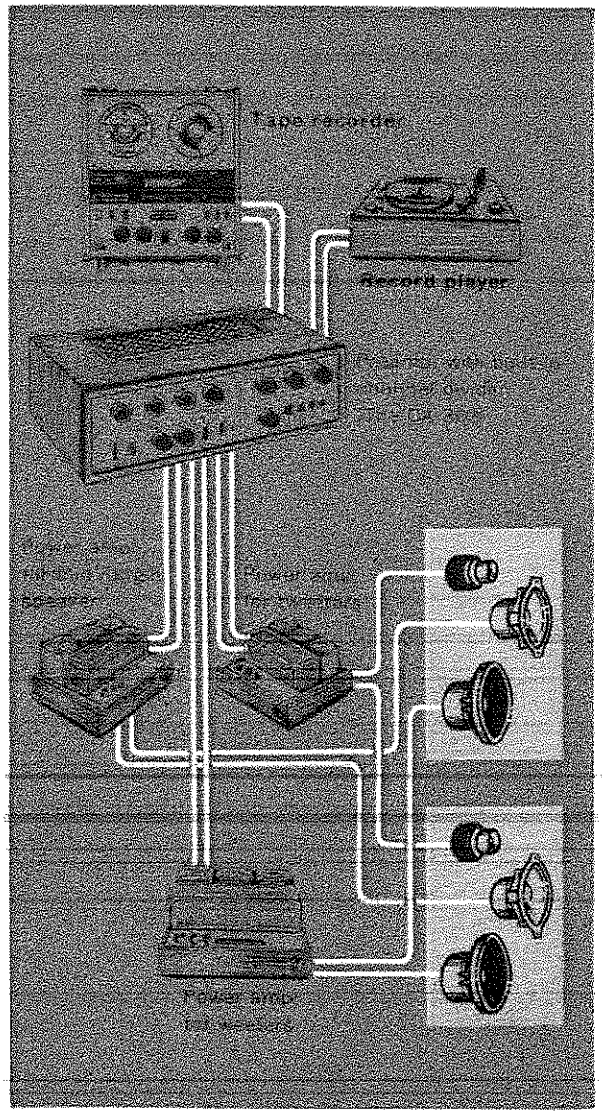
damping factor of the amplifiers is given to the speakers as it is.

5. Power Amplifier Effectively Usable

For instance, a big output power amplifier can be used with a woofer and high-performance power amplifiers can be used with mid-range and tweeter. Only one drawback of this system is the necessity of additional power amplifiers and channel divider. If you'll start to build the multi-channel system, note the following:

1. The output impedance of the pre-amplifier should be sufficiently lower than the input impedance of the channel divider. This relation also applies between the channel divider and power amplifier.

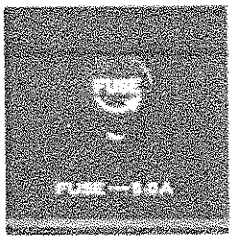
2. The output voltages of the preamplifier and the channel divider should be matched to the input voltage of the power amplifiers. Either channel divider or power amplifier should have a level adjuster. To do the level adjustment, use an oscillator or a test record the for best results. With the BA-303 is used with the CA-303 control amplifier having a built-in chan nel divider, you need not consider the above matters and can build this system easily.



MAINTENANCE

Power Fuse

Should the amplifier fail to operate and the power indicator fail to light up when the POWER switch is turned on, the probable cause is either a power stoppage or a blown fuse. To check, pull of the power plug from the power source turn the fuse holder on the rear panel counterclockwise, and remove the fuse. If it is blown, replace it with a new glass-enclosed fuse of the same capacity (5 amperes) after determining and eliminating the trouble source that caused the fuse to blow.



Ventilation

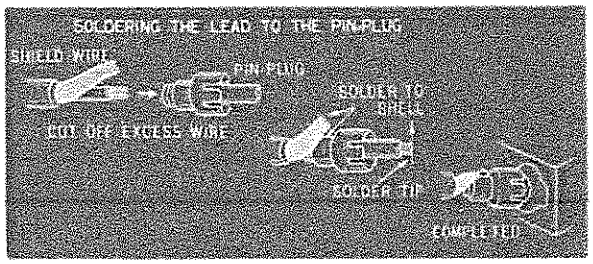
Adequate ventilation is essential for proper performance of your amplifier. Be sure that several inches of free space are kept between the amplifier and its enclosure. Nothing should be placed directly on the amplifier.

Phasing of Speakers

Improper speaker phasing causes sound cancellation at some frequencies or in some listening locations. Particularly when listening to monophonic reproduction, this condition is noticeable by an absence of sound at a point midway between right and left speakers. To correct this, interchange the plus and minus leads to one of the speakers only.

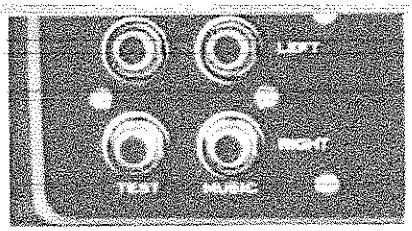
Wire Connections

When connecting speakers and preamplifier to the BA-303, be sure to use shielded wire having little distributed capacity. The use of an ordinary lamp cord or vinyl wire may cause humming and buzzing. Be sure that all leads between the power amplifier and components are properly connected. If the connections are loose or in touch with other parts, the amplifier will not function properly, may pick up noise, and even break down over a period of time.



Music and Test Inputs

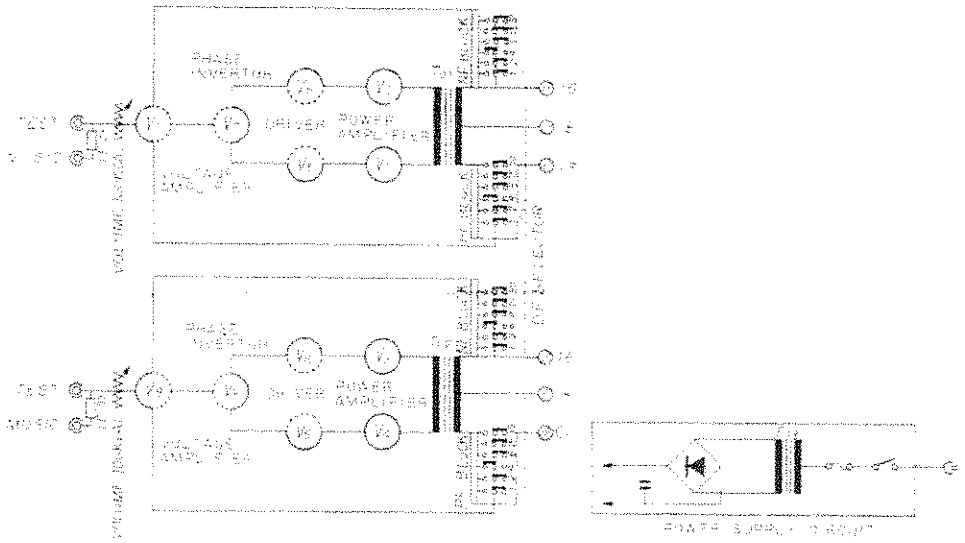
The BA-303 is provided with two pairs of inputs: MUSIC and TEST. The TEST inputs function in the same way as the ordinary inputs. The MUSIC inputs cut the unnecessary signals below 20 Hz so that the speakers are driven by the effective signals only. These music inputs are used to compensate for *too* high performance of the BA-303 which can reproduce the incredibly deep bass. In the ordinary hi-fi systems, connections to the MUSIC inputs give better results. The TEST inputs shall be used for such measurement as performance test of the BA-303.

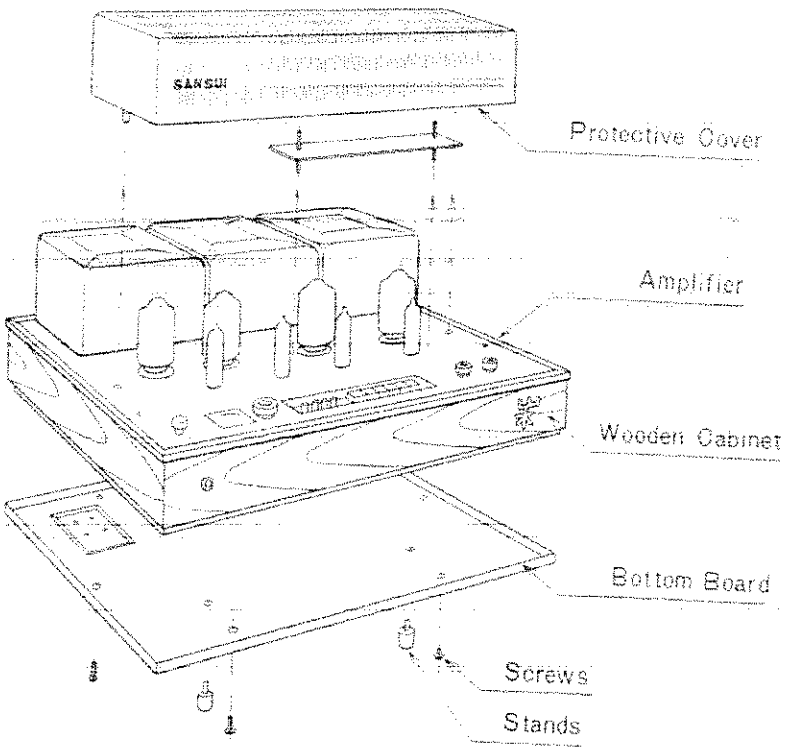


Mains Supply Voltage

Mains supply voltage of the amplifier is set to AC 220 volts. You can change the voltage by changing connection to the power transformer. (See circuit diagram a attached.)

BLOCK DIAGRAM/EXPLODED VIEW OF BA-303





TROUBLESHOOTING CHART

If a trouble should occur in your hi-fi system, pinpoint the trouble to a particular unit or part as indicated below.

1. In the chart below, troubles are classified according to the results heard. Find out the trouble you are confronted with from the items in the column under SYMPTOM.
2. To isolate the trouble to a particular unit or part, refer to the columns under PROBABLE CAUSE and CHECK POINT.
3. If the part number or numbers are given in the column under CHECK POINT, look up the PARTS LIST given later in this manual. It tells you the position of the part or parts in both PART LAYOUT and CIRCUIT DIAGRAM of the amplifier.
4. Check the part or parts and, if they are at fault, repair or replace them.

SYMPTOM	PROBABLE CAUSE		CHECK POINT
No sound	A. Defective speaker	1. Speaker cable, open or loose terminal connection	
		2. Voice coil, open or shorted	
	B. Defective preamp	1. Connecting cable, open, shorted or loose terminal connection	
		2. Poor output voltage	
	C. No power supply	1. No power comes from the power source.	
		2. Defective power switch	S_8
		3. Defective power cord	
		4. Power plug, defective or loose contact	
		5. Blown fuse	FU_1
		6. If the fuse should be blown again as soon as it is replaced, the trouble may be attributed to:	
		a Shorted power transformer:	T_{03}
		b Shorted capacitor:	C_{23}, C_{24}
		c Shorted rectifiar.	$D_1 \sim D_4$
		d Shorted power supply circuit.	
		7. Open primary winding of power transformer	T_{03}
	D. Defective power supply circuit	Measured voltage differs from voltage specified in Circuit Diagram.	Measure voltage in power supply circuit and replace defective part or parts.
	E. Defective amplification circuit	1. Measured voltage differs from voltage specified in circuit Diagram.	Measure voltage in amp circuit and replace defective part or parts.
		2. Tube heater open	$V_1 \sim V_6$
		3. Capacitor, shorted or open	$C_{01} \sim C_{14}$
		4. Defective resistor	$R_{19} \sim R_{22}$, $R_{23} \sim R_{28}$
Weak sound	A. Defective speaker	Voice coil shorted	
	B. Defective preamplifier	Poor output voltage	
	C. Defective power supply circuit	Measured voltage differs from voltage specified in Circuit Diagram.	Measure voltage in power supply circuit and replace defective part or parts.
	D. Defective amplification circuit	1. Measured voltage differs from voltage specified in Circuit Diagram.	Measure voltage in amplification circuit and replace defective part or parts.

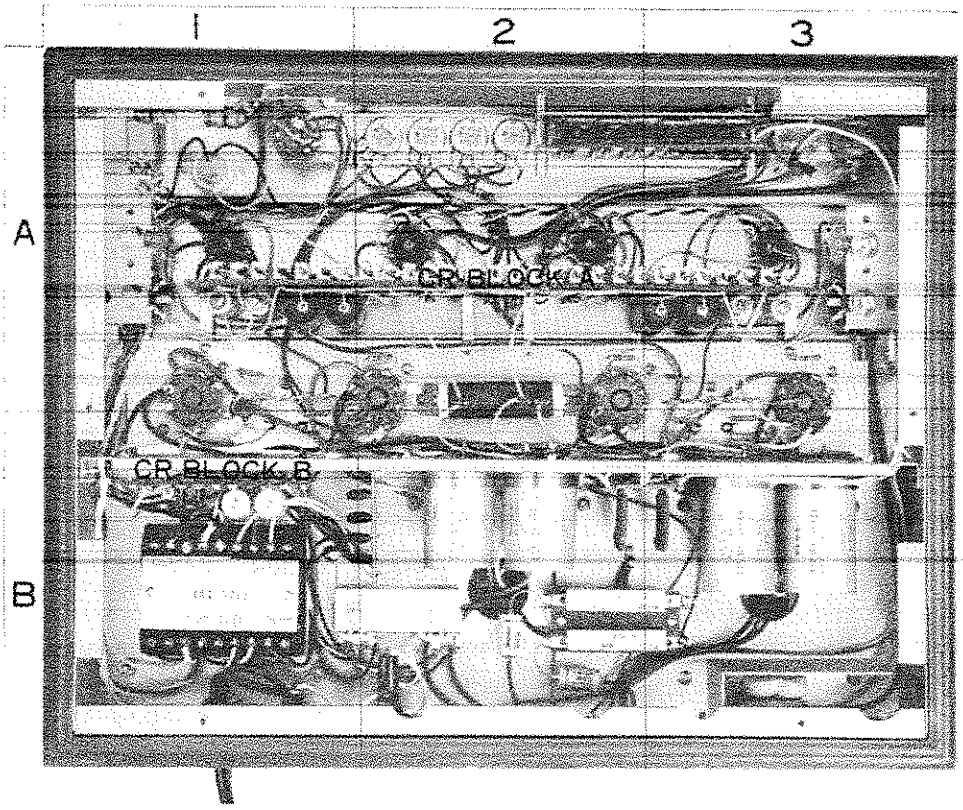
SYMPTOM	PROBABLE CAUSE		CHECK POINT
(Continued)		2. Output transformer shorted	T_{01}, T_{02}
		3. Capacitor, shorted or poor capacitance	C_{05}, C_{06}, C_{07}~C_{10}, C_{11}~C_{14}
		4. Weak tube	V_1~V_5
Distortion	A. Defective speaker	1. Voice coil defective 2. Cone paper or damper defective	
	B. Defective pre-amplifier	Distorted output	
	C. Defective power supply circuit	Measured voltage differs from voltage specified in Circuit Diagram.	Measure voltage in power supply circuit and replace defective part or parts.
	D Defective amplification circuit	1. Measured voltage differs from voltage specified in Circuit Diagram.	Measure voltage in amplification circuit and replace defective part or parts.
		2. Weak tube	V_1~V_5
		3. Output transformer shorted	T_{01}, T_{02}
Hum	A. Defective power supply circuit	1. Hum balance not adjusted properly	VR_{10}, VR_{11}
		2. Poor capacitance of capacitor	C_{24}~C_{26}
	B. Defective pre-amplifier	1 Pre- and main amplifiers not connected properly	
		2 Hum-induced pre-amplifier 3. Humming in pre-amplifier	
	C. Defective amplification circuit	1. Tube, defective or its insulation incomplete	V_1~V_5
		2. Poor capacitance of capacitor	C_{21}, C_{22}
		3. Fixed resistor open	R_{49}~R_{54}
Noise	A. Defective speaker	1. Voice coil defective 2. Speaker parts shorted 3. Defective cone paper or damper	
	B. Defective pre-amplifier	1. Pre- and main amplifiers not connected properly	
		2. Defective pre-amplifier	
	C. Defective power supply circuit	Measured voltage differs from voltage specified in Circuit Diagram.	Measured voltage in power supply circuit and replace defective part or parts.
Noise	D. Defective amplification circuit	1. Fixed resistor defective	R_{11}, R_{12}, R_{13}, R_{16}, R_{17}, R_{18}, R_{20}, R_{26}, R_{27}, R_{28},
		2. Variable resistor defective	VR_{06}, VR_{09}
		3 Capacitor, shorted or having incomplete insulation	C_{23}
		4. Shorted primary winding of output transformer	T_{01}, T_{02}
		5. Defective tube	V_1~V_5
		6. Weak master volume	VR_{07} VR_{08}

ADJUSTMENT

When any output tube is replaced, the bias current of all four output tubes must be adjusted again for the best results. In general, if the pointer of the built-in bias check meter comes to the center of the DC green zone, the bias adjustment is OK'd. If the pointer deviates from the center considerably, the bias should be adjusted as given below:

STEP	ITEM	ADJUSTMENT PROCEDURE	STANDARD
1	Preparation for adjustment	Connect an 8-ohm load resistor to the output terminals of BA-303; turn V_1(VR_{B+}), V_2(VR_{B+}), V_3(VR_{B+}) and V_4(VR_{B+}) to the minimum counterclockwise position; and set the right and left volume controls to minimum. Observe the power supply by means of a 0.5 class a.c. voltmeter and turn the power switch of BA-303 on. Adjust the mains supply voltage as specified.	Power supply voltage: Rated.
2	Bias adjustment	After heating for 40 to 60 min., connect (−) of the 0.5 class d. c. ampere meter to C_{13} and R_{14} and (+) to the plate of the KT-88 and adjust the bias adjusting volumes (adjusting VR's) to the specified current. The KT-88 output tube V_1 should be repeatedly adjusted by means of the bias adjusting volume V_1; V_2 by V_2; V_3 by V_3 and V_4 by V_4.	KT-88 plate current: 64 milliamperes
3	Meter calibration (bias test)	Set the bias test switch to the V_1 position. Make sure the plate current is as specified above, and adjust the VR_{13}(10KΩB) so that the pointer of the bias check meter indicates the center of the d.c. green zone. During the adjustment, the meter should be placed horizontally.	The built-in bias check meter must read the center of the DC green zone.
4	Meter calibration (Checking power supply voltage)	Set the bias test switch to the AC position. Make sure the power supply voltage is as specified and then adjust VR_{13}(1KΩB) so that the pointer of the meter indicates the center of the AC red zone. During the adjustment, the meter should be placed horizontally.	The test meter must read the center of the AC red zone.
5	Hum	Connect VTVM to the output terminals of the amplifier and adjust VR_{14}(left-channel)and VR_{14}(right-channel) to the minimum hum.	
6	AC balance	Connect a distortion-factor meter to the output terminals, give 1-KHz signals, and deliver the rated output. Adjust VR_{15} and VR_{16} to the minimum distortion.	
7	AC balance	Connect the distortion-factor meter to the output terminals, give 20-KHz, and deliver the rated output. Adjust VR_{15} and VR_{16} to the minimum distortion.	

PARTS LAYOUT / TEST POINTS



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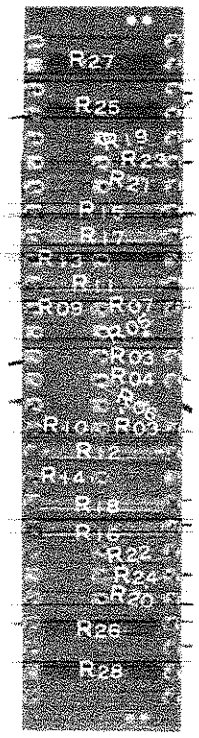

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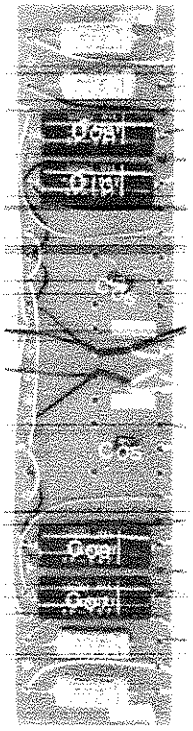

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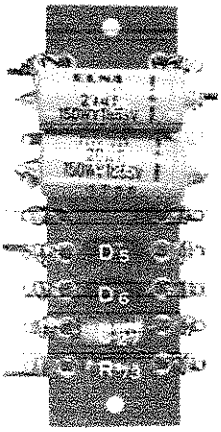


PARTS LIST

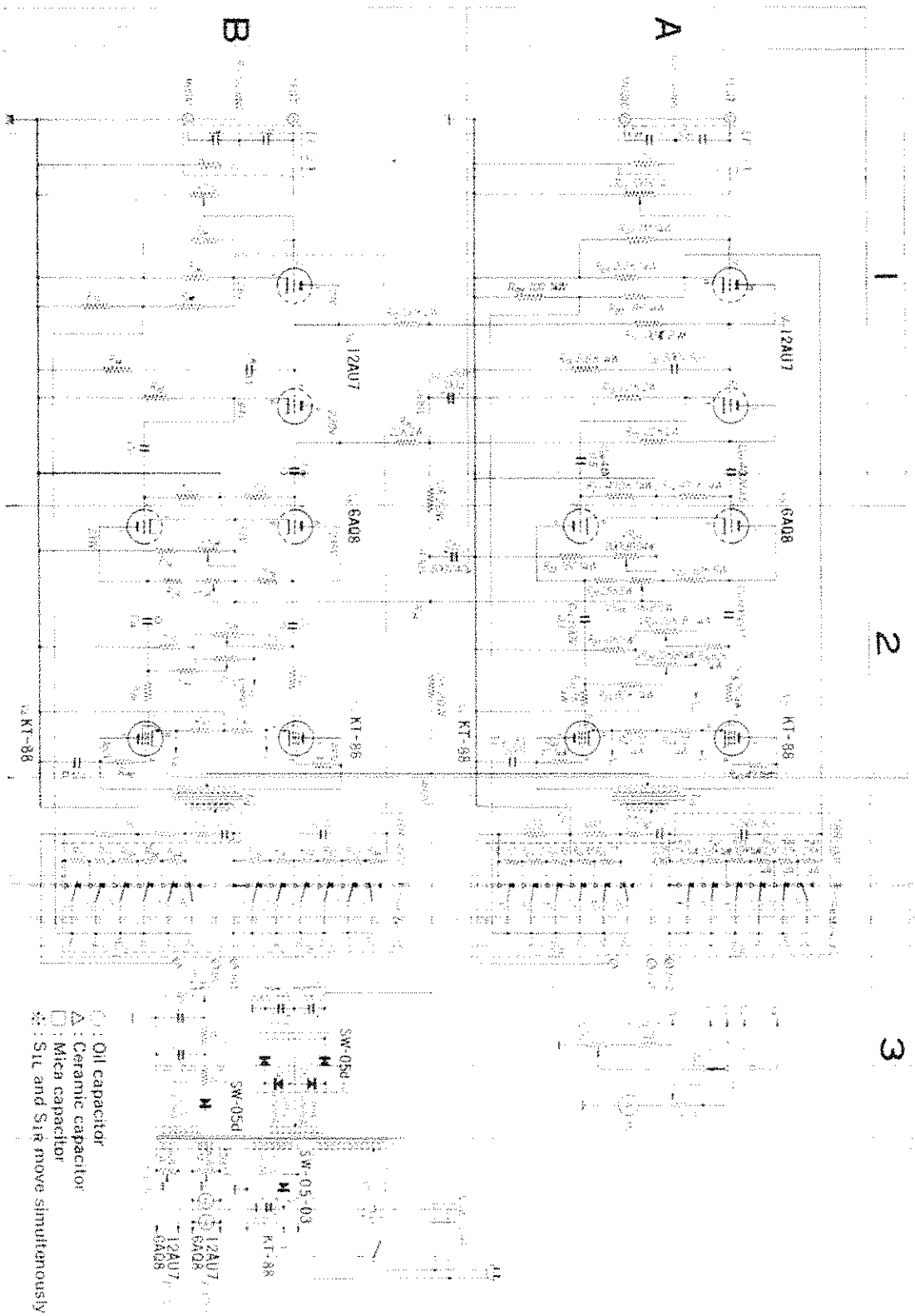
A . Part No.
B . Part Name
C . Position of Partin Circuit Diagram
D . Position of Partin Part Layout

A	B	C	D
R_{01}	LF-03 (C_{01} – C_{03} – R_{01}) Composite Part	1 A	3 B
R_{02}	LF-03 (C_{02} – C_{04} – R_{02}) Composite Part	1 B	3 B
R_{03}	1MΩ ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{04}	1MΩ ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{05}	3.3KΩ ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{06}	3.3KΩ ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{07}	1.8KΩ ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{08}	1.8KΩ ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{09}	100Ω ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{10}	100Ω ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{11}	100KΩ 2W ±10% Carbon Resistor	1 A	CP Block A
R_{12}	100KΩ 2W ±10% Carbon Resistor	1 B	CP Block A
R_{13}	5.6KΩ ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{14}	5.6KΩ ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{15}	22KΩ 2W ±10% Carbon Resistor	1 A	CP Block A
R_{16}	22KΩ 2W ±10% Carbon Resistor	1 B	CP Block A
R_{17}	22KΩ 2W ±10% Carbon Resistor	1 A	CP Block A
R_{18}	22KΩ 2W ±10% Carbon Resistor	1 B	CP Block A
R_{19}	470KΩ ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{20}	470KΩ ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{21}	470KΩ ¼W ±10% Carbon Resistor	1 A	CP Block A
R_{22}	470KΩ ¼W ±10% Carbon Resistor	1 B	CP Block A
R_{23}	150Ω ¼W ±10% Carbon Resistor	2 A	CP Block A
R_{24}	150Ω ¼W ±10% Carbon Resistor	2 B	CP Block A
R_{25}	39KΩ 5W ±10% Metal Film Resistor	2 A	CP Block A
R_{26}	39KΩ 5W ±10% Metal Film Resistor	2 B	CP Block A
R_{27}	25KΩ 5W ±10% Metal Film Resistor	2 A	CP Block A
R_{28}	25KΩ 5W ±10% Metal Film Resistor	2 B	CP Block A
R_{29}	82KΩ ¼W ±10% Carbon Resistor	2 A	1 B
R_{30}	82KΩ ¼W ±10% Carbon Resistor	2 B	3 B
R_{31}	10KΩ ¼W ±10% Carbon Resistor	2 A	2 A
R_{32}	10KΩ ¼W ±10% Carbon Resistor	2 B	2 A
R_{33}	82KΩ ¼W ±10% Carbon Resistor	2 A	1 B
R_{34}	82KΩ ¼W ±10% Carbon Resistor	2 B	3 B
R_{35}	1KΩ ¼W ±10% Carbon Resistor	2 A	1 A
R_{36}	1KΩ ¼W ±10% Carbon Resistor	2 B	3 A
R_{37}	1KΩ ¼W ±10% Carbon Resistor	2 A	2 A
R_{38}	1KΩ ¼W ±10% Carbon Resistor	2 B	3 A
R_{39}	18Ω ¼W ±10% Carbon Resistor	2 A	1 B
R_{40}	10Ω ¼W ±10% Carbon Resistor	2 B	3 B
R_{41}	10Ω ¼W ±10% Carbon Resistor	2 A	1 B
R_{42}	10Ω ¼W ±10% Carbon Resistor	2 B	3 B
R_{43}	47Ω ¼W ±10% Carbon Resistor	2 A	2 A
R_{44}	47Ω ¼W ±10% Carbon Resistor	2 B	2 A
R_{45}	47Ω ¼W ±10% Carbon Resistor	2 A	1 A
R_{46}	47Ω ¼W ±10% Carbon Resistor	2 B	3 A
R_{47}	25KΩ ¼W ±10% Carbon Resistor	3 A	3 A
R_{48}	25KΩ ¼W ±10% Carbon Resistor	3 B	3 A
R_{49}	1.2KΩ ¼W ±10% Carbon Resistor	3 A	3 A
R_{50}	1.2KΩ ¼W ±10% Carbon Resistor	3 B	3 A
R_{51}	1.2KΩ ¼W ±10% Carbon Resistor	3 A	3 A
R_{52}	1.2KΩ ¼W ±10% Carbon Resistor	3 B	3 A
R_{53}	3.9KΩ ¼W ±10% Carbon Resistor	3 A	3 A
R_{54}	3.9KΩ ¼W ±10% Carbon Resistor	3 B	3 A
R_{55}	5.6KΩ ¼W ±10% Carbon Resistor	3 A	2 A
R_{56}	5.6KΩ ¼W ±10% Carbon Resistor	3 B	2 A
R_{57}	12KΩ ¼W ±10% Carbon Resistor	3 A	2 A
R_{58}	12KΩ ¼W ±10% Carbon Resistor	3 B	2 A

A	B	C	D
R_{59}	20Ω 10W ±10% Cement Resistor	3 A	3 B
R_{60}	20Ω 10W ±10% Cement Resistor	3 B	2 B
R_{61}	0.32Ω – 0.07Ω ±10% Card Resistor	3 A	2 B
R_{62}	0.32Ω – 0.07Ω ±10% Card Resistor	3 B	3 B
R_{63}	27Ω ¼W ±10% Carbon Resistor	3 A	3 A
R_{64}	27Ω ¼W ±10% Carbon Resistor	3 B	3 A
R_{65}	33Ω ¼W ±10% Carbon Resistor	3 A	3 A
R_{66}	33Ω ¼W ±10% Carbon Resistor	3 B	3 A
R_{67}	33Ω ¼W ±10% Carbon Resistor	3 A	3 A
R_{68}	33Ω ¼W ±10% Carbon Resistor	3 B	3 A
R_{69}	12Ω ¼W ±10% Carbon Resistor	3 A	2 A
R_{70}	12Ω ¼W ±10% Carbon Resistor	3 B	2 A
R_{71}	10Ω ¼W ±10% Carbon Resistor	3 A	2 A
R_{72}	10Ω ¼W ±10% Carbon Resistor	3 B	2 A
R_{73}	4.7KΩ ¼W ±10% Carbon Resistor	3 A	CP Block B
R_{74}	10KΩ – 1.5KΩ 15W Shielded Resistor	2 B	2 A
R_{75}	3KΩ 1W ±10% Carbon Resistor	3 B	1 B
R_{76}	1KΩ ¼W ±10% Carbon Resistor	3 B	1 B
C_{01}	LF-03 (C_{01} – C_{03} – R_{01}) Composite Part	1 A	3 B
C_{02}	LF-03 (C_{02} – C_{04} – R_{02}) Composite Part	1 B	3 B
C_{03}	LF-03 (C_{01} – C_{03} – R_{01}) Composite Part	1 A	3 B
C_{04}	LF-03 (C_{02} – C_{04} – R_{02}) Composite Part	1 B	3 B
C_{05}	50pF 500WV ±10% Mica zip	1 A	CP Block A
C_{06}	60pF 400WV ±10% Mica zip	1 B	CP Block A
C_{07}	0.5μF 400WV ±10% Oil Tubular	1 A	CP Block A
C_{08}	0.5μF 400WV ±10% Oil Tubular	1 B	CP Block A
C_{09}	0.5μF 400WV ±10% Oil Tubular	1 A	CP Block A
C_{10}	0.5μF 400WV ±10% Oil Tubular	1 B	CP Block A
C_{11}	0.1μF 600WV ±10% Oil Tubular	2 A	CP Block A
C_{12}	0.1μF 600WV ±10% Oil Tubular	2 B	CP Block A
C_{13}	0.1μF 600WV ±10% Oil Tubular	2 A	CP Block A
C_{14}	0.1μF 600WV ±10% Oil Tubular	2 B	CP Block A
C_{15}	300pF 1KWV ±10% RA Mica	2 A	1 B
C_{16}	300pF 1KWV ±10% RA Mica	2 B	3 B
C_{17}	30pF 250WV ±10% Ceramic Disc	3 A	3 A
C_{18}	30pF 250WV ±10% Ceramic Disc	3 A	3 A
C_{19}	0.05μF 400WV ±10% Oil Tubular	2 B	2 B
C_{20}	0.05μF 400WV ±10% Oil Tubular	2 B	2 B
C_{21}	100μF 350WV ±10% Electrolytic Lug Terminal	3 B	3 B
C_{22}	20μF 2 500WV $^{+100}_{-0}$% Electrolytic Lug Terminal	2 B	2 B
C_{23}	200μF 300WV $^{+100}_{-0}$% Electrolytic Lug Terminal	3 B	3 B
C_{24}	200μF 300WV $^{+100}_{-0}$% Electrolytic Lug Terminal	3 B	3 B
C_{25}	20μF 150WV $^{+100}_{-0}$% Electrolytic Tubular	3 B	CP Block B
C_{26}	20μF 150WV $^{+100}_{-0}$% Electrolytic Lug Terminal	3 B	CP Block B
C_{27}	10μF 16WV $^{+100}_{-0}$% Electrolytic Tubular	3 B	CP Block B
VR_{01}	100KΩ(A) Variable Resistor 24φ	1 A	3 A
VR_{02}	100KΩ(A) Variable Resistor 24φ	1 B	3 A
VR_{03}	200Ω(B) Variable Resistor Driven-Type 24φ	2 A	1 A
VR_{04}	200Ω(B) Variable Resistor Driven-Type 24φ	2 B	3 A
VR_{05}	10KΩ(B) 2W Variable Resistor Driven-Type 30φ	2 A	1 A
VR_{06}	10KΩ(B) 2W Variable Resistor Driven-Type 30φ	2 B	3 A
VR_{07}	20KΩ(B) Variable Resistor Driven-Type 180	2 A	2 A

A	B	C	D
VR_{08}	20KΩ(B) Variable Resistor Driver Type 186	2 B	2 A
VR_{09}	20KΩ(B) Variable Resistor Driver Type 186	2 A	2 A
VR_{10}	20KΩ(B) Variable Resistor Driver Type 186	2 B	2 A
VR_{11}	1KΩ(B) Variable Resistor Driver Type 186	3 A	1 A
VR_{12}	10KΩ(B) Variable Resistor Driver Type	3 A	1 A
VR_{13}	100Ω(B) Hum Balancer	3 B	1 B
VR_{14}	100Ω(B) Hum Balancer	3 B	2 B
V_1	KT-88 Power Amplification	2 A	1 A
V_2	KT-88 Power Amplification	2 A	2 A
V_3	KT-88 Power Amplification	2 B	2 A
V_4	KT-88 Power Amplification	2 B	3 A
V_5	6AQ8 Driver	2 A	1 A
V_6	6AQ8 Driver	2 B	3 A
V_7	12AU7 Voltage Amplification Phase Inverter	1 A	2 A
V_8	12AU7 Voltage Amplification Phase Inverter	1 B	2 A
D_1	SW-0.5d Silicon Diode PIV—1000V 0.5A	3 B	2 B
D_2	SW-0.5d Silicon Diode PIV—1000V 0.5A	3 B	2 B
D_3	SW-0.5d Silicon Diode PIV—1000V 0.5A	3 B	2 B
D_4	SW-0.5d Silicon Diode PIV—1000V 0.5A	3 B	2 B
D_5	SW-0.5d Silicon Diode PIV—1000V 0.5A	3 B	1 B
D_6	SW-0.5-03 Silicc Diode PIV—400V 0.5A	3 B	1 B
T_1	Output Transformer	3 A	2 B
T_2	Output Transformer	3 B	3 B
T_3	Power Trasformer	3 B	1 B
LF-03	Low Filter C_{01}, C_{02}, R_{01}, C_{03}, C_{04}, R_{02}		
TRR-001	Printed Circuit	3 A	3 B
TRR-002	Printed Circuit	3 B	3 A
DS-1A	Printed Circuit	3 E	3 A
S_{11} S_{12}	Damping Factor Selector Switch		
S_3	Rotary Switch	3 A	2 B
S_4	Power Switch	3 B	3 A
M_1	Meter	3 A	1 A
CO_1	AC Outlet	3 B	1 A
FU_1	Fuse 5A	3 B	1 B
PL	Pilot Lamp	2 B	1 A

CIRCUIT DIAGRAM



SPECIFICATIONS

POWER OUTPUT:

MUSIC POWER (IHF):	60 watts
CONTINUOUS POWER (EACH CHAN.):	27/27 watts
CONTINUOUS STEREO POWER:	25 watts × 2
TOTAL HARMONIC DISTORSION:	less than 0.3% (at rated output 30 to 15,000 Hz) less than 0.5% (at rated output 20 to 20,000 Hz)
INTERMODULATION DISTORTION:	less than 0.7% 60 Hz: 7kHz(4:1)
FREQUENCY RESPONCE:	15 to 50,000 Hz ±1db at rated output
CHANNEL SEPARATION:	better than 60db at rated output
HUM & NOISE:	better than −80db below rated output
SENSITIVITY:	0.9 volts ±3db
INPUT IMPEDANCE:	100 Kohms
OUTPUT IMPEDANCE:	8 & 16 ohms
DAMPING FACTOR:	1, 2, 4, 8, 15 & 30 ±3db (8 ohm load) 1.5, 3, 6, 12, 23 & 45 ±3db (16 ohm load)
TUBES & DIODES USED:	6AQ8 × 2, 12AU7 × 2, KT-88 (Triode connection) × 4, Diodes × 6
POWER REQUIREMENTS:	50/60 Hz AC 100, 117, 220 & 240 volts (Preset: 220 volts)
POWER CONSUMPTION:	270 VA (Zero signal) 360 VA (Max. signal)
DIMENSIONS:	17" wide, 13 1/16" deep and 7 1/16" high (excluding knobs & stands)
WEIGHT:	58.5 lbs.

Sansui®

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