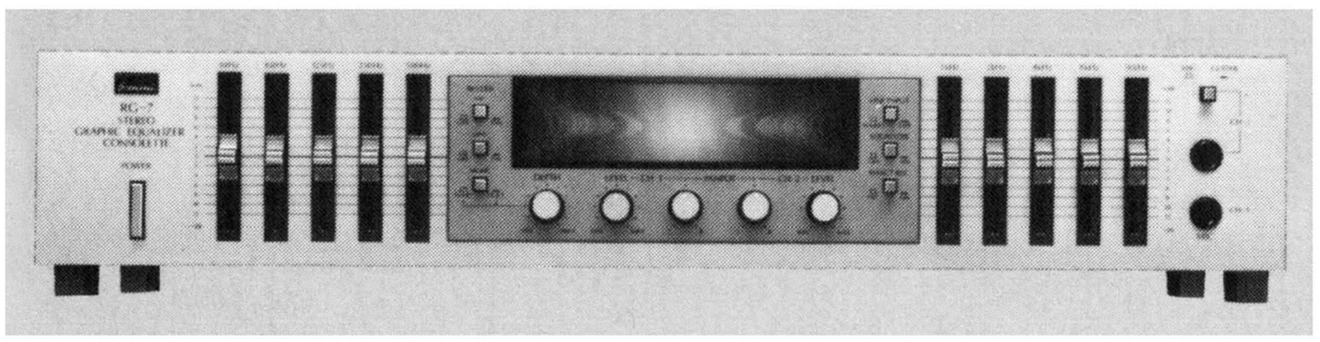
SERVICE MANUAL

STEREO GRAPHIC EQUALIZER CONSOLETTE

SANSUI RG-7



Sansui

SANSUI ELECTRIC CO., LTD.

RG-7

• SPECIFICATIONS

Input sensitivity and impedance (1kHz)
SOURCE IN, TAPE PLAY
. . . . . 150mV/47 kilohms
(Max. input capability; 5V, 20Hz to 20kHz)
MIC . . . . . 0.8mV/10 kilohms
(Max. input capability; 25mV, 100Hz to 15kHz)
GUITAR . . . . . 9mV/100 kilohms

Output level (1kHz)
TAPE REC 150mV
PRE AMP OUTPUT . 150mV

Total harmonic distortion (1V, 20Hz to 20kHz)
SOURCE IN, TAPE PLAY
. . . . . 0.05%

Frequency response (150mV)
SOURCE IN, TAPE PLAY
. . . . . 20Hz to 20kHz,
+0dB, −0.5dB

Signal to noise ratio (Short-circuit, A-network)
SOURCE IN, TAPE PLAY
. . . . . 70dB

Channel separation (1kHz)
SOURCE IN, TAPE PLAY
. . . . . 60dB

Others

Power voltage . . . . . 110 ~ 120, 220 ~ 240V
(50/60Hz)
For U.S.A. and Canada
. . . . . 120V (60Hz)
Power consumption . . 16 watts Rated
Dimensions . . . . . 430mm (16-15/16") W
87mm (3-7/16") H
228mm (9") D
Weight . . . . . 3.3kg (7.3lbs.) net
3.9kg (8.6lbs.) packed

* Design and specifications subject to change without notice for improvements.

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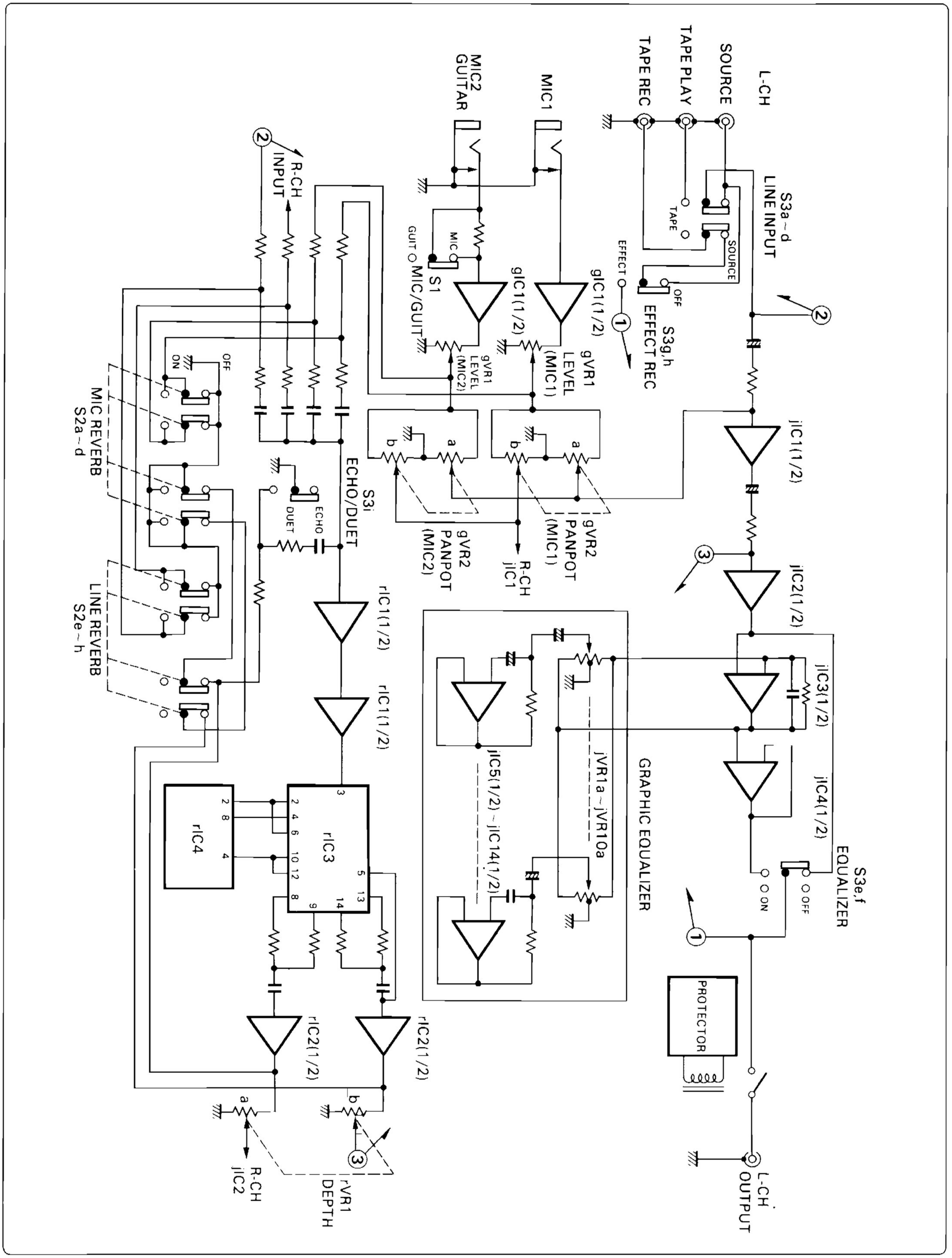
1. BLOCK DIAGRAM



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2. OPERATIONS

Model RG-7 is a sound consolette including 10 band graphic equalizer and newly featured electronic reverberation circuit.
Most of sound consolettes have been used a mechanical reverberation unit which utilized mechanical spring in the reverberation circuit. Model RG-7 realizes more natural reverberation effect by use of Bucket Brigade Device (BBD) which gives effective time delay to an audio signal electronically.

2-1. Operation of BBD IC (MN3010)

The BBD IC (MN3010) consists of dual 512-step BBD, and basically, single 512-step BBD has 512 pairs of which each is combined with a transistor and a capacitor. Fig. 2-1 shows the circuit diagram of single 512-step BBD. On this circuit diagram, each transistor works as a switch to transfer electric charge in former capacitor into next. These transistors are controlled by external dual phased clock pulses $\phi 1$ and $\phi 2$, and electric charge corresponding to an audio signal is transferred by turns. After all, similar audio signal with time delay is applied to output terminals. This delay time is determined by both the number of BBD step and the frequency of the clock pulses.

2-2. Operation of BBD Clock Driver IC (MN3101)

To generate the clock pulses $\phi 1$, $\phi 2$ and V_{GG}, and to drive the BBD IC, the BBD Clock Driver IC (MN3101) consists of an oscillator, a flip-flop, a wave-form shaper, a V_{GG} generator and a driver as Fig. 2-2.
The clock pulses $\phi 1$ and $\phi 2$ are reverse phase each other, and both frequencies are determined by externally connected one capacitor and two resistors to OX terminals.

Fig. 2-1

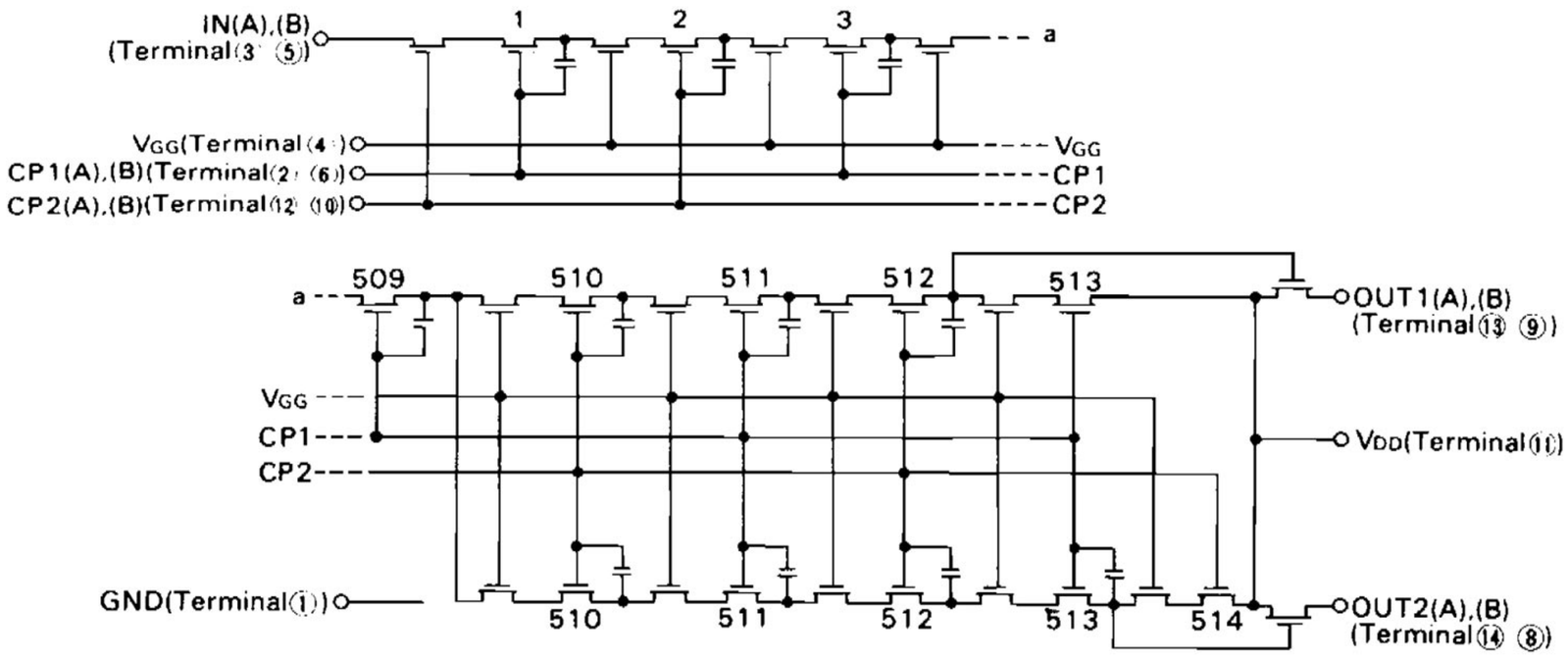
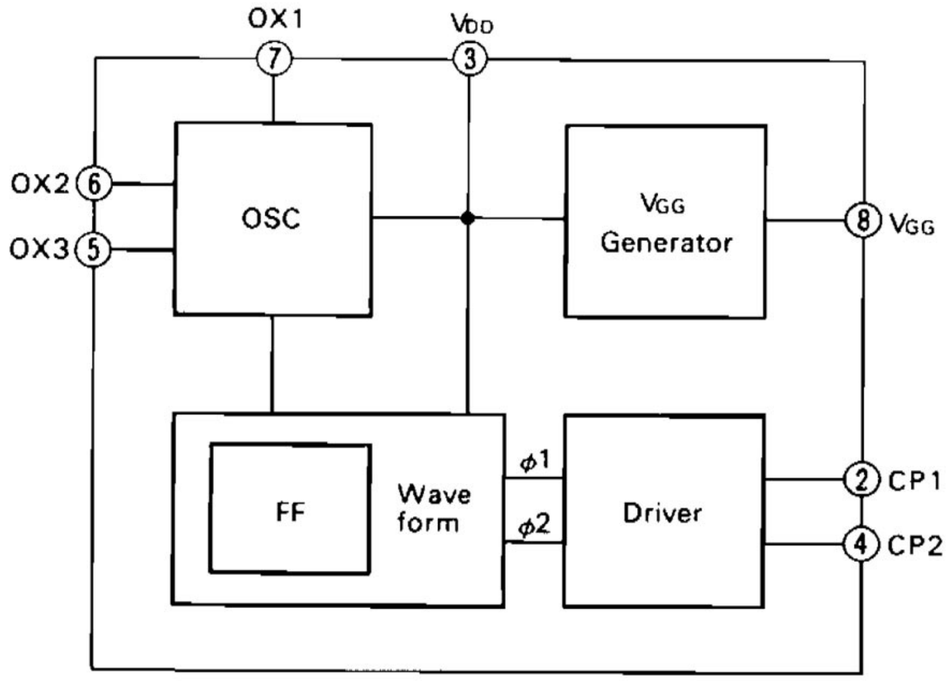


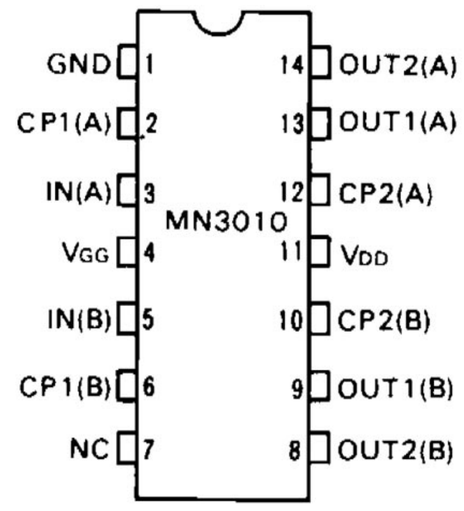
Fig. 2-2

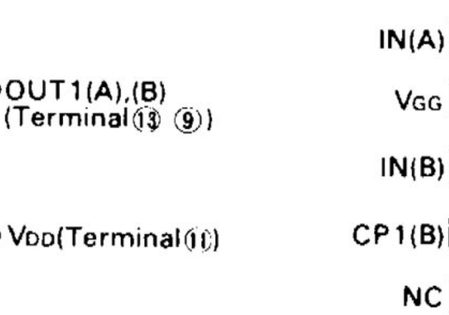


The V_{GG} voltage is regulated to $\frac{14}{15} V_{DD}$ (as GND terminal is in common) in the V_{GG} generator.

2-3. Operation of Reverberation Circuit on RG-7

Each audio signal of MIC, GUITAR and LINE is first amplified by rIC1, and applied to input terminal No. 3 of the BBD IC. Then this signal is delayed in one single 512-step BBD, and outputted from terminals No. 13 and 14. These signals are amplified by rIC2 on left channel after mixed together, and transferred to mix with original left channel audio signal through DEPTH control volume.
In addition, the mixed signal after outputted from the terminals No. 13 and 14, is also applied to input terminal No. 5 of the BBD IC. In the same manner, the signal is delayed again in other one single 512-step BBD, and outputted from terminals No. 8 and 9. These signals are amplified by rIC2 on right channel after mixed together, and transferred to mix with original right channel audio signal through DEPTH control volume.
As the result, compairing to the original input signal, the signal delayed 25mS is outputted to the left channel, and the signal delayed 40mS is outputted to the right channel.
The above expression is the operation when REVERB MODE is set to DUET. When REVERB MODE is set to ECHO, the delayed signal outputted to the right channel is returned to the input of the reverberation circuit again. So that the input signal runs on an echo loop until the signal is decreased to zero. This is the echo effect.





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3. PARTS LOCATION & PARTS LIST

- Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors, which was appended previously to Sansui Manual.

3-1. F-3527 Control Amp. Circuit Board (Stock No. 00644301)

Component Side

Parts List

Parts No.	Stock No.	Description
●IC		
jIC1 ~ 4	03607700	NJM4558D
●Transistor		
IQ1	07194801	2SC1815
IQ2	07194701	2SA1015
●Diode		
ID1	03117000	RB-152
ID2	03117600	1S2473D
ID3	03103400	10D-1
●Zener Diode		
IDZ1	03178200	RD9.1E-B
IRL1	11504700	Relay (Protector)
●Transistor		
mQ1	07194801	3SC1815
mQ2	07194701	2SA1015
mQ3	03086101	2SD357
	03083901	2SD313AL
mQ4	03034401	2SB527
	03032301	2SB507V11AL
●Diode		
mD1	03117000	RB-152
●Zener Diode		
mDZ1, 2	03179400	RD16E-B
●Transistor		
nQ1	07194801	2SC1815
nQ2	03083901	2SD313AL
nQ3	07194801	2SC1815
nQ4	03083901	2SD313AL
●Zener Diode		
nDZ1	03179000	RD13E-B
nR6	00186800	150Ω 2W N.I.R.
●IC		
rIC1, 2	03607700	NJM4558D
rIC3	46080200	MN3010
rIC4	46080300	MN3101
●Diode		
rD1, 2	03117600	1S2473D
●Capacitor		
rC1 ~ 5	07216200	22000pF 25V C.C.
rC8,12,16	07216800	68000pF 25V C.C.
rC9	07215300	3900pF 25V C.C.
rC13	07215400	4700pF 25V C.C.
rC14	07214800	1500pF 25V C.C.
rC15	07214900	1800pF 25V C.C.
rC17	07215900	12000pF 25V C.C.
rVR2	10351900	Semi Variable Resistor 100kΩ B (Echo Adj.)

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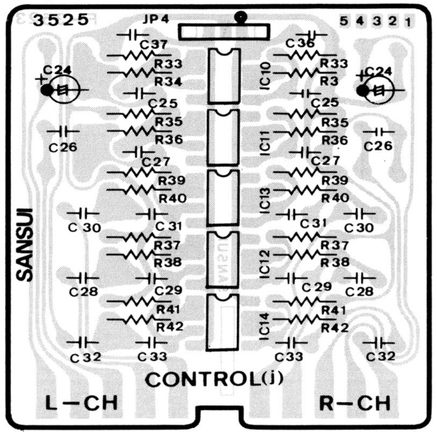
3-2. F-3523 Low Range Filter Amp. Circuit Board

(Stock No. 00643901)

Component Side



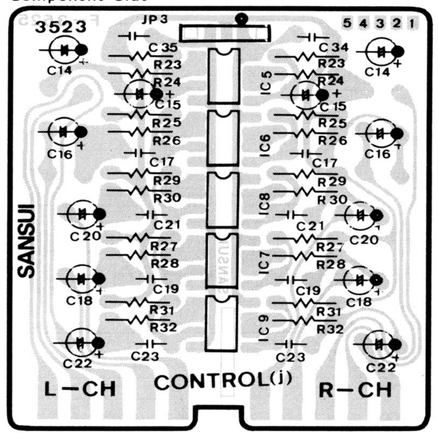
Parts List

Parts No.	Stock No.	Description
•IC		
jIC5 ~ 9	03607700	NJM4558D
jC16	46034700	1.5μF 50V E.L.

3-3. F-3525 High Range Filter Amp. Circuit Board

(Stock No. 00644101)

Component Side

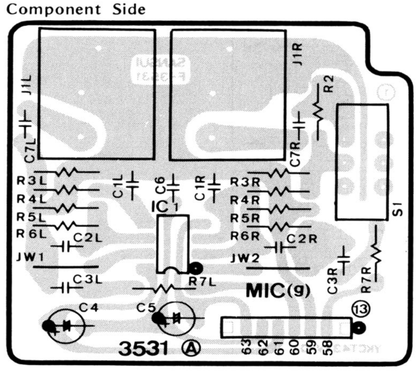


Parts List

Parts No.	Stock No.	Description
•IC		
jIC10 ~ 14	03607700	NJM4558D
jC25	07215100	2700pF 25V C.C.
jC26	07216500	3900pF 25V C.C.
jC27	07214800	1500pF 25V C.C.
jC28	07216100	18000pF 25V C.C.
jC29	07211700	1000pF 25V C.C.
jC30	07215800	10000pF 25V C.C.
jC32	07215400	4700pF 25V C.C.

3-4. F-3531 Mic Amp. Circuit Board (Stock No. 00644701)

Component Side



Parts List

Parts No.	Stock No.	Description
•IC		
gIC1	03607700	NJM4558D
gC3	07216800	68000pF 25V C.C.
gC7	46132200	0.1μF 25V C.C.
oS1	46097800	Push Switch (Mic/Guitar)
oJ1	46085000	Phone Jack (Mic)

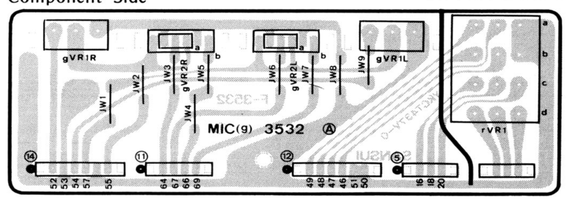
• Abbreviations

C.R.	Carbon Resistor	E.L.	Low Leak Electrolytic Capacitor
S.R.	Solid Resistor	E.B.	Bi-Polar Electrolytic Capacitor
Ce.R.	Cement Resistor	E.BL.	Low Leak Bi-Polar Electrolytic Capacitor
M.R.	Metal Film Resistor	Ta.C.	Tantalum Capacitor
F.R.	Fusing Resistor	F.C.	Film Capacitor
N.I.R.	Non-Inflammable Resistor	M.P.	Metalized Paper Capacitor
C.C.	Ceramic Capacitor	P.C.	Polystyrene Capacitor
C.T.	Ceramic Capacitor, Temperature Compensation	G.C.	Gimmic Capacitor
E.C.	Electrolytic Capacitor		

• Note: The circuit board, F-3532, F-3524, F-3526, F-3528, F-3529 & F-3530 are not supplied as the assembled. However, the individual parts on the circuit board are provided by orders.

3-5. F-3532 Mic & Reverberation Control Volume Circuit Board

Component Side



Parts List

Parts No.	Stock No.	Description
gVR1	46097600	Variable Resistor 20kΩ A (Mic Level)
gVR2	46097500	Variable Resistor 250kΩ MN (Panpot)
rVR1	46097700	Variable Resistor 100kΩ x 4 (Reverb Depth)

3-6. F-3524 Low Range Volume Circuit Board

Parts List

Parts No.	Stock No.	Description
jVR1 ~ 5	46086200	Slide Variable Resistor 250kΩ x 2

3-7. F-3526 High Range Volume Circuit Board

Parts List

Parts No.	Stock No.	Description
jVR6 ~ 10	46086200	Slide Variable Resistor 250kΩ x 2

3-8. F-3528 Power Switch Circuit Board

Parts List

Parts No.	Stock No.	Description
pC1	08302200	10000pF 125V C.C.
pS1	46085800	Push Switch (Power)

3-9. F-3529 Reverberation Switch Circuit Board

Parts List

Parts No.	Stock No.	Description
oS2	46097900	Push Switch (Reverb)

3-10. F-3530 Input Switch Circuit Board

Parts List

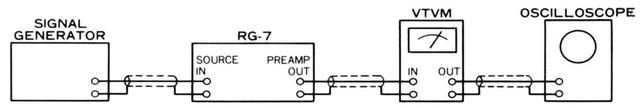
Parts No.	Stock No.	Description
oS3	46098000	Push Switch (Selector)

4. ECHO LEVEL ADJUSTMENT

SETTING: 1) Connect the measurement units as Fig. 4-1.
2) Set the control knobs as follows.

REVERB-MIC	OFF	REVERB-LINE	ON
REVERB-MODE	ECHO	REVERB-DEPTH	Max.
CH1/CH2 LEVEL	Min.	CH1/CH2 PANPOT	Center
LINE INPUT	SOURCE	EQUALIZER	OFF

Fig. 4-1



INPUT SIGNAL	MEASURE OUTPUT	STEP	ADJUSTMENT
800Hz 1.5V SG SOURCE	PREAMP OUT VTVM, Scope	1	Turn the semi-variable resistor rVR2 (F-3527) fully clockwise.
		2	Push LINE INPUT switch to set to TAPE position.
		3	Confirm that the reverberation circuit starts to oscillate, and its wave form comes out from PREAMP OUT.
		4	Turn rVR2 slowly counterclockwise until the oscillation stops.

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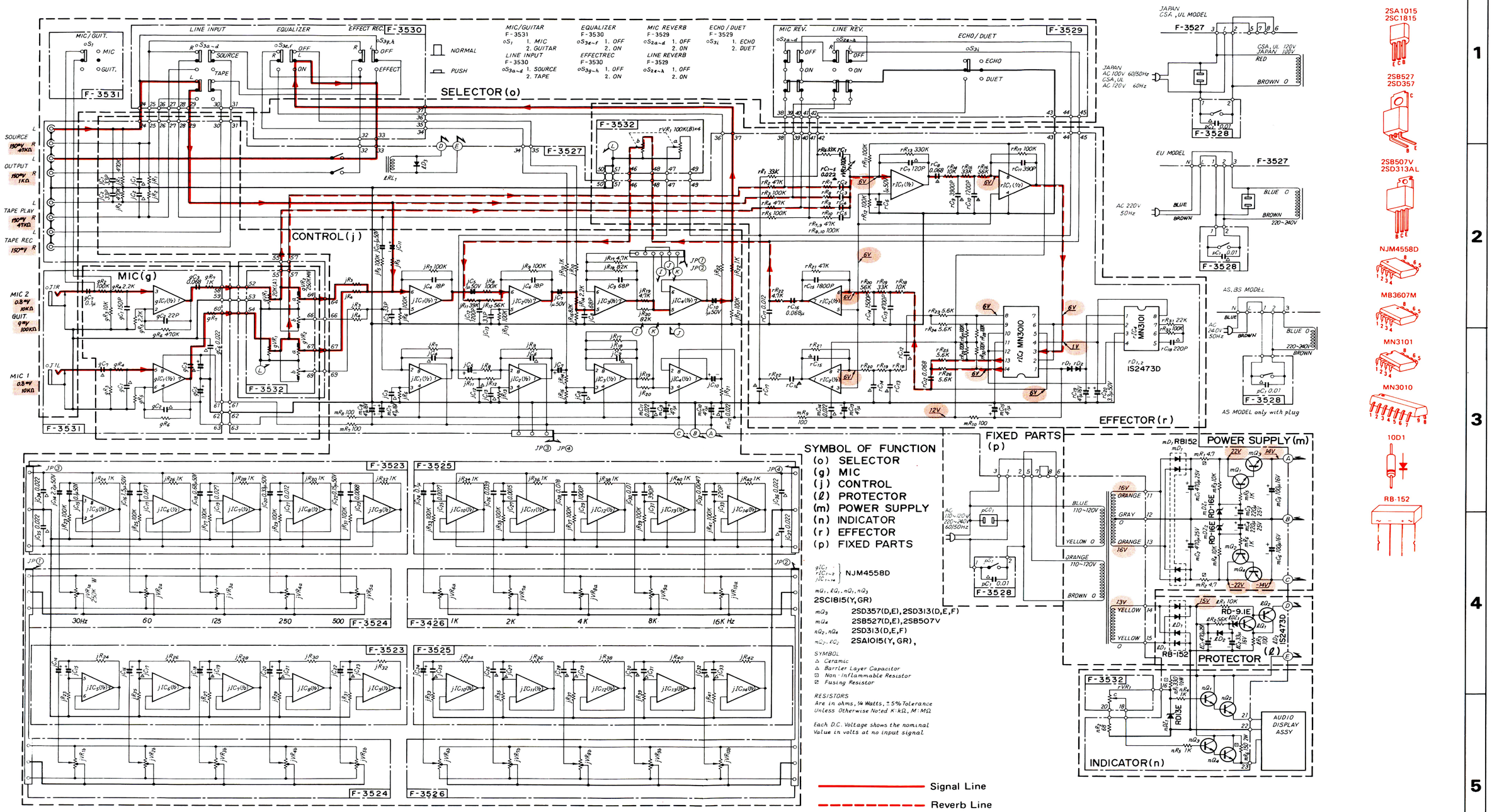
* Design and specifications subject to change without notice for improvement.
* La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
* Anderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

5. SCHEMATIC DIAGRAM



2SA1015
2SC1815

2SB527
2SD357

2SB507V
2SD313AL

NJM4558D

MB3607M

MN3101

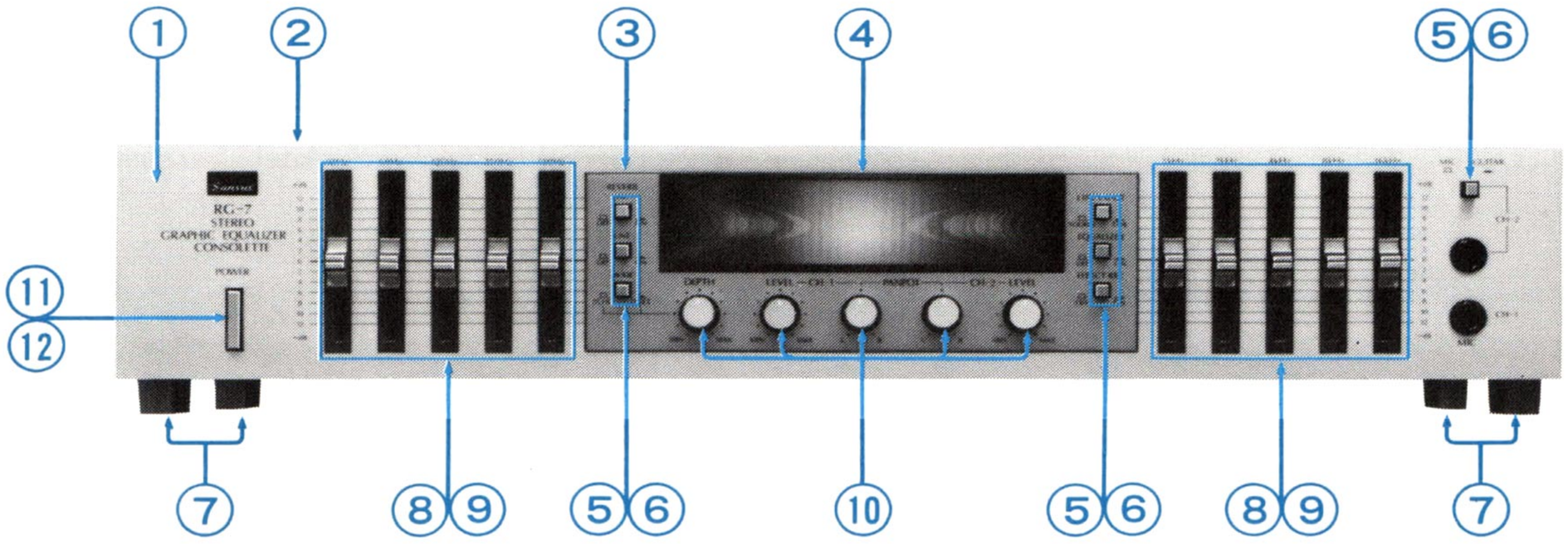
MN3010

10D1

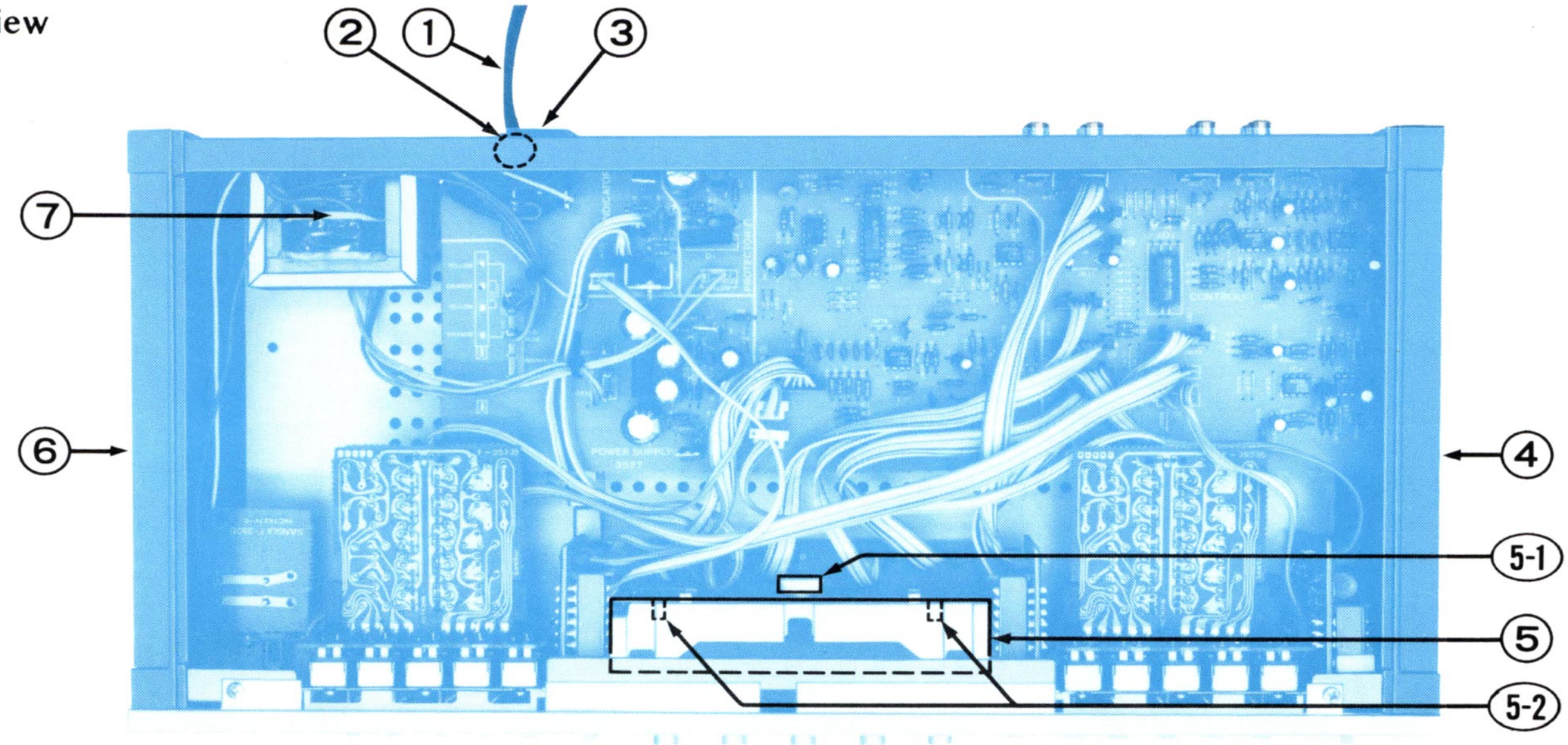
RB-152

6. OTHER PARTS

6-1. Front View



6-2. Top View



Parts List <Front View>

Parts No.	Stock No.	Description
Common Parts		
2	07601400	Bonnet
4	07764300	Indicator Window (Reverb)
7	07601200	Leg
<Silver Model>		
1	07767500	Front Panel Ass'y
3	07765200	Sub Panel Ass'y
5	07580100	Push Knob (Input & Reverb Switch)
6	07580900	Push Knob Guide (Input & Reverb Switch)
8	07777700	Knob (Slide Volume)
9	07772800	Masking Cover (Slide Volume)
10	07764500	Knob (Mic & Reverb Volume)
11	07579800	Push Knob (Power)
12	07581500	Push Knob Guide (Power)
<Black Model>		
1	07767600	Front Panel Ass'y
3	07765300	Sub Panel Ass'y
5	07580200	Push Knob (Input & Reverb Switch)
6	07581400	Push Knob Guide (Input & Reverb Switch)
8	07767000	Knob (Slide Volume)
9	07764200	Masking Cover (Slide Volume)
10	07764600	Knob (Mic & Reverb Volume)
11	07580000	Push Knob (Power)
12	07581400	Push Knob Guide (Power)

Parts List <Top View>

Parts No.	Stock No.	Description
1	38004700	Power Supply Cord
2	39106000	Strain Relief
3	07189600	AC Outlet
4	07601810	Side Panel (Right)
5	07767800	Indicator Box Ass'y (Reverb)
5-1	46133000	Main Indicator Lamp with Socket
5-2	46132900	Sub Indicator Lamp
6	07601710	Side Panel (Left)
7	15004201	Power Transformer

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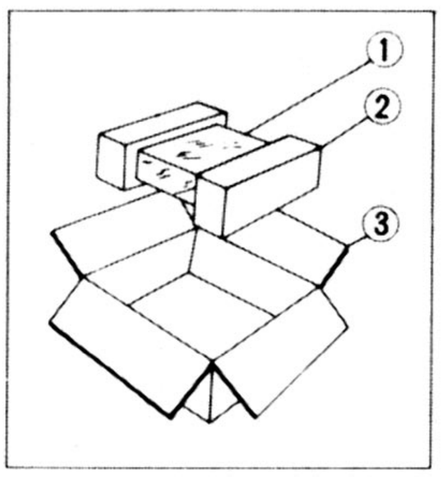
7. PACKING LIST

Parts No.	Stock No.	Description
1	07599500	Vinyl Bag
2	07661900	Styrofoam Packing
3	07764100	Carton Case (Silver Model)
	07764000	Carton Case (Black Model)



8. ACCESSORY LIST

	Stock No.	Description
	46093600	Operating Instruction
	38103300	PJP Cord

SANSUI ELECTRIC COMPANY LTD.: 14-1, Izumi 2-chome, Suginami-ku, Tokyo 168 Japan PHONE:(03) 323-1111/TELEX:232-2076
SANSUI ELECTRONICS CORPORATION: 1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.
333 West Alondra Blvd. Gardena, California 90247 U.S.A.
3036 Koapaka 5t. Honolulu, Hawaii 96819 U.S.A.
SANSUI ELECTRONICS (U.K.) LTD.: Unit 10A, Lyon Industrial Estate, Rockware Avenue, Greenford, Middx UB6, OAA, England
SANSUI ELECTRONICS G.M.B.H.: Arabella center, 6 Frankfurt AM Main, Lyoner Strasse 44-48, West Germany

(SM1-25) Printed in Japan (810830M) ⟨Stock No. 36455900⟩

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