SERVICE MANUAL

STEREO AMPLIFIER

SANSUI AU-4400

Sansui

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the AU-4400 correctly.
When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts Lists.
For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

TABLE OF CONTENTS

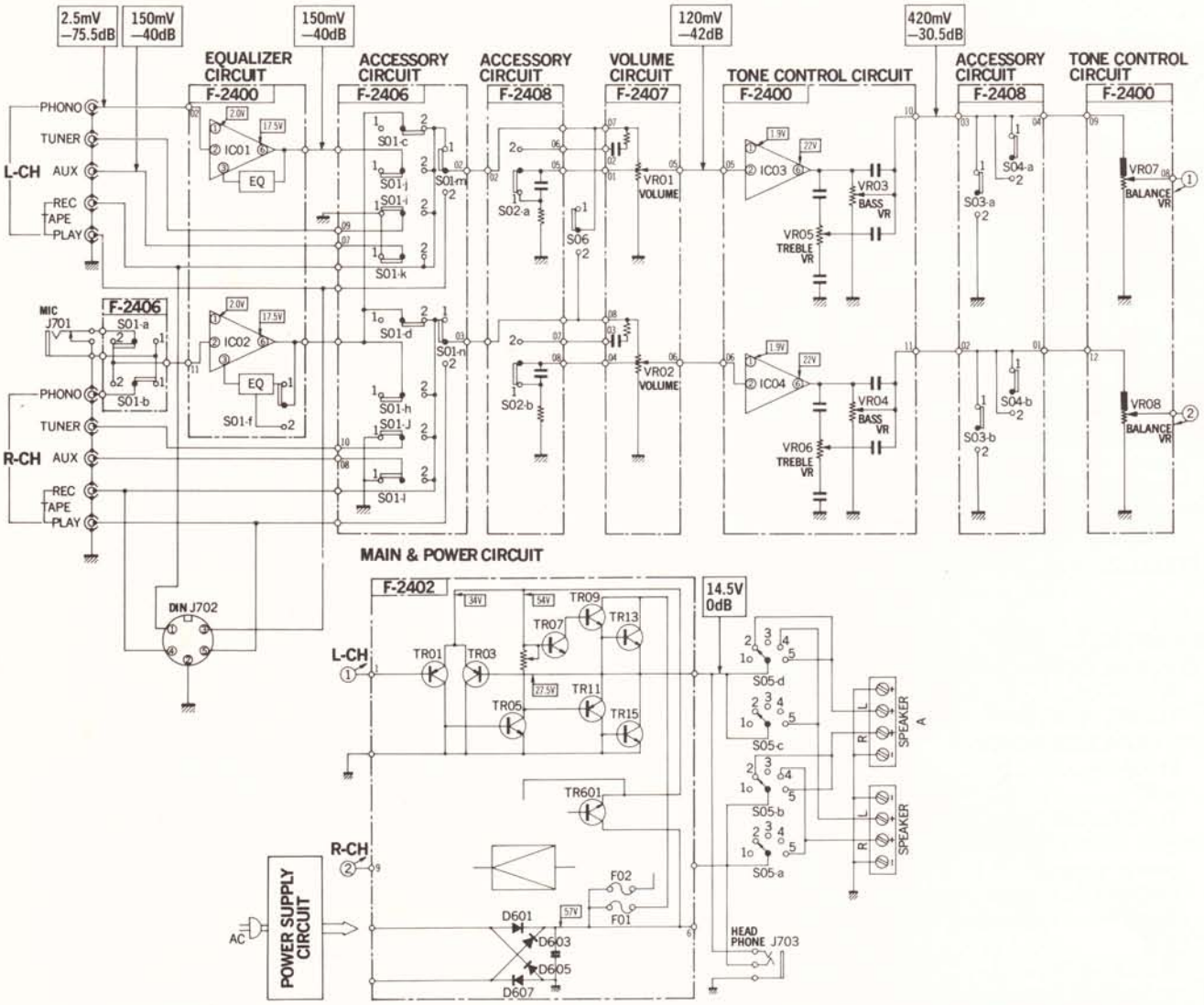
1. SPECIFICATIONS

CONTINUOUS RMS POWER OUTPUT
.....20 Watts per channel × 2
(both channels driven)
LOAD IMPEDANCE 8Ω
POWER BAND .....40 to 20,000Hz
TOTAL HARMONIC DISTORTION
.....less than 0.3%
(from AUX inputs)
Music power (IHF) 96W (4Ω 1,000Hz)
70W (8Ω 1,000Hz)
Continuous RMS power output..23+23W (8Ω 1,000Hz)
INTERMODULATION DISTORTION
(at rated power output, 70Hz: 7kHz=4 : 1 SMPTE method)
OVERALL (from AUX) ..less than 0.5%
FREQUENCY RESPONSE (at 1 Watt power output)
OVERALL (from AUX) ..20 to 30,000Hz $^{+1}_{-2}$dB
EQUALIZATION (at TAPE REC output)
.....RIAA Curve
(30Hz~15kHz ±1dB)
DAMPING FACTOR 50 (8Ω)
CHANNEL SEPARATION (1kHz at rated power output)
PHONO .....better than 45dB
TUNER, AUX, TAPE ....better than 45dB
IHF HUM AND NOISE
PHONO .....better than 70dB
MIC .....better than 70dB
TUNER, AUX, TAPE ....better than 85dB
INPUT SENSITIVITY AND IMPEDANCE (1kHz for rated power output)
PHONO 2.5mV 50kΩ
(Max. input capability: 100mV at 0.2% distortion)
MIC 2.5mV 10kΩ
TUNER, AUX 150mV 50kΩ
TAPE RLAY (Pin jack) ..150mV 50kΩ
TAPE REC/PLAY (DIN socket)
.....150mV 50kΩ
RECORDING OUTPUT
TAPE REC (Pin jack) 150mV
TAPE REC/PLAY (DIN socket)..30mV
SWITCHES AND CONTROLS
BASS .....+12dB, −12dB (50Hz)
TREBLE .....+12dB, −12dB (15kHz)
LOUDNESS (volume control: −30dB)
.....+10dB (50Hz)
+8dB (10kHz)
LOW FILTER .....−3dB (100Hz, 6dB/oct.)
HIGH FILTER .....−3dB (7kHz, 6dB/oct.)

OTHERS
SEMICONDUCTORS
TRANSISTOR 17
DIODES 4
ICs.....4
LED 1
POWER REQUIREMENTS
VOLTAGE 100, 117, 220, 240V 50/60Hz
CONSUMPTION .....56W (rated), 156W (max.)
DIMENSIONS .....400mm (15¾″) W
120mm (4¾″) H
240mm (9½″) D
WEIGHT .....6.3Kg (13.9 lbs) net
7.6Kg (16.8 lbs) packed

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

2. BLOCK DIAGRAM AND VALUE OF EACH LEVEL



S01 (a~l): SELECTOR
1. MIC S01 (a~d)
2. PHONO S01 (e~h)
3. TUNER S01 (i~j)
4. AUX S01 (k, l)

S01 (m, n): TAPE MONITOR
1. SOURCE
2. PLAYBACK

S02 (a, b): LOUDNESS
1. OUT
2. IN

S03 (a, b): HIGH FILTER
1. OUT
2. IN

S04 (a, b): LOW FILTER
1. OUT
2. IN

S05 (a~e): POWER SPEAKERS
1. POWER OFF
2. A
3. SPEAKER OFF
4. B
5. A+B

S06: MODE
1. STEREO
2. MONO

Conditions of Level Measuring

*Value of each level in block diagram was measured by the followings.

1. MASTER VOLUME .....Maximum
2. BASS, TREBLE, BALANCE volume .....Center
3. Input .....PHONO 2.5mV 1kHz Sine Wave
   AUX 150mV 1kHz Sine Wave
   (output impedance of 600Ω at an audio oscillator)
4. Output 14.5V (26W) 8Ω

Note: Each voltage value is for reference and measured by a VTVM. In some recorders, the actual voltage value is in minor difference from the reference value.

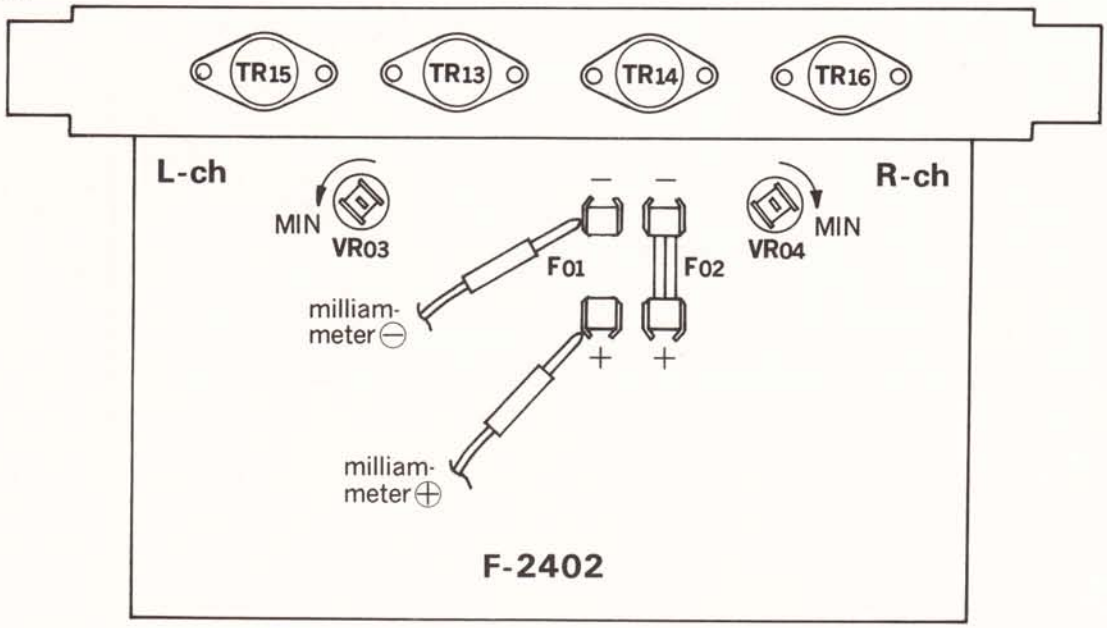
Output .....Each channel driven 8Ω at 1,000kHz

3. ADJUSTMENT

3-1. Bias Current Adjustment

Note: 1. Master Volume .....Minimum
2. Speaker Selector .....SYSTEM (A)
3. Make the SP terminals free (no load).
4. Confirm the AC power supply voltage.
5. After adjustment, run the unit for more than 3 minutes then check and readjust necessary.
6. Room temperature should be 18~28° (65~83°F) for bias current adjustment.
* Before adjustment of bias current, set VR03 and VR04 as follows. (Fig. 3-1)
1) Turn VR03 (L-ch) fully counterclockwise. (The bias current is minimum)
2) Turn VR04 (R-ch) fully clockwise. (The bias current is minimum)

Fig. 3-1

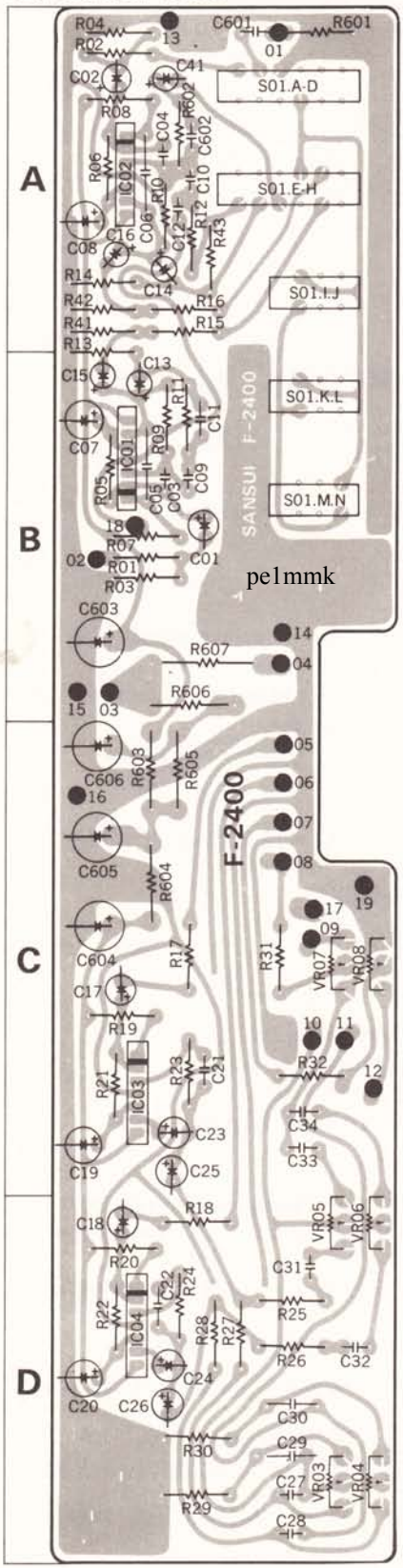


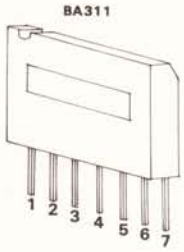
STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	Bias current L-ch	DC milliam-meter	F-2402 F01 (Fig. 3-1)	F-2402 VR03 (Fig. 3-1)	20mA±1mA	◦Step down meter's range accordingly
2	Bias current R-ch	Same as above	F-2402 F02 (Fig. 3-1)	F-2402 VR04 (Fig. 3-1)	20mA±1mA	◦Change lead's porarity if meter swings backward

5. PARTS LOCATIONS AND PARTS LISTS

5-1. F-2400A Equalizer, Tone Control Circuit Board (Stock No. 7560860 Complete Circuit Board F-2400)

Conductor Side



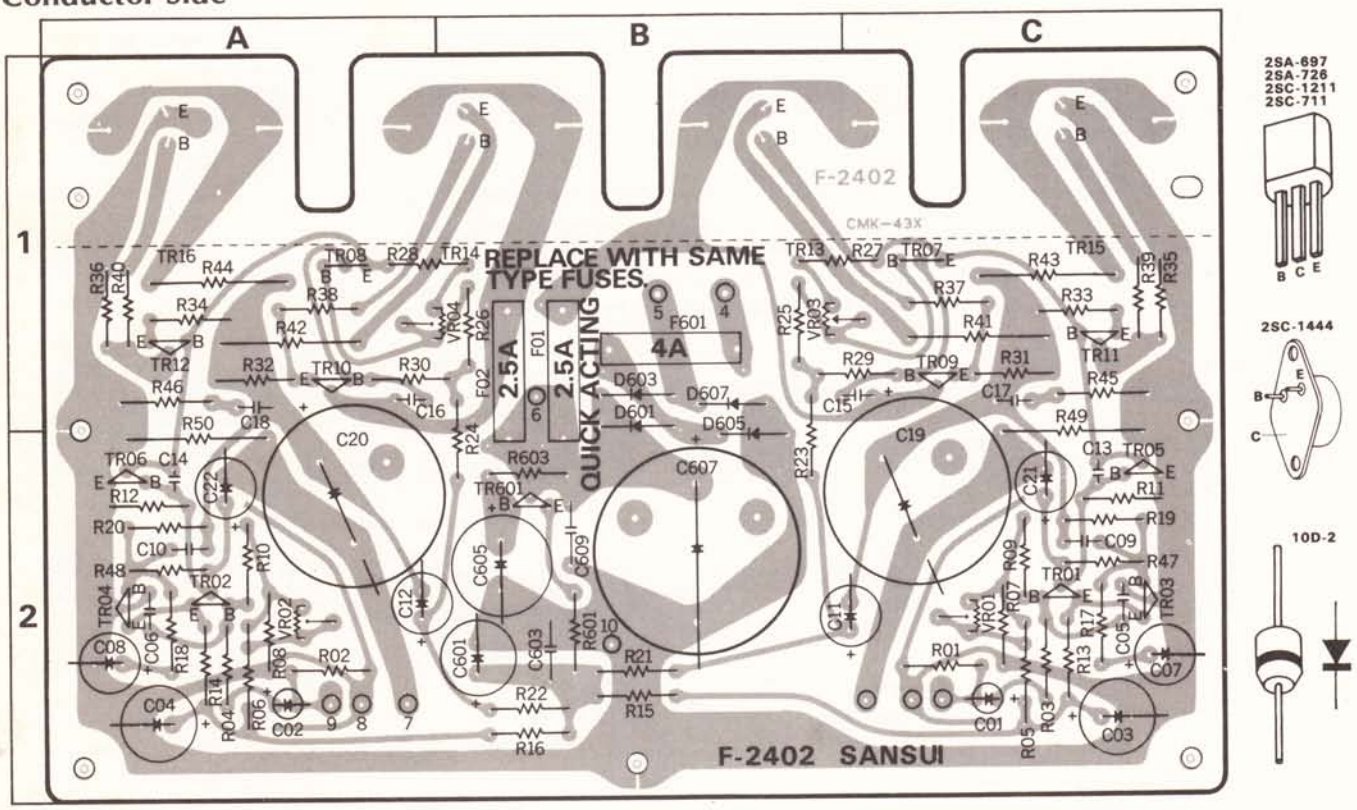


Parts List

Parts No.	Stock No.	Description	Position
IC01, 02	0360171, 2	BA311(E, F) } IC	B . A
IC03, 04	0360181, 2	BA311Ⓢ(E, F) } IC	C . D
C01, 02	0519102	3.3μF 50V E.C.	A . B
C03, 04	0660470	47pF } 50V C.C.	B . A
C05, 06	0660101	100pF } 50V C.C.	B . A
C07, 08	0511330	33μF 10V E.C.	B . A
C09, 10	0600227	0.022μF } 50V M.C.	B . A
C11, 12	0600626	0.0062μF } 50V M.C.	B . A
C13, 14	0513100	10μF 25V E.C.	B . A
C15, 16	0519104	1.5μF } 50V E.C.	B . A
C17, 18	0515339	3.3μF } 50V E.C.	C . D
C19, 20	0510101	100μF 6.3V E.C.	C . D
C21, 22	0660470	47pF 50V C.C.	C . D
C23, 24	0513100	10μF 25V E.C.	C . D
C25, 26	0515109	1μF 50V E.C.	C . D
C27, 28	0601227	0.022μF }	D
C29, 30	0601228	0.22μF } 50V M.C.	D
C31, 32	0601476	0.0047μF } 50V M.C.	D
C33, 34	0601477	0.047μF } 50V M.C.	C
C41	0515109	1μF 50V E.C.	A
C601	0601687	0.068μF 50V M.C.	A
C602	0660221	220pF 50V C.C.	A
C603	0515221	220μF }	B
C604	0515101	100μF } 50V E.C.	C
C605	0515101	100μF } 50V E.C.	C
C606	0515101	100μF } 50V E.C.	C
C901	0660100	10pF } 50V C.C.	
C902	0660100	10pF } 50V C.C.	
R01, 02	0107222	2.2kΩ	B . A
R03, 04	0107104	100kΩ	B . A
R05, 06	0107104	100kΩ	B . A
R07, 08	0107684	680kΩ	B . A
R09, 10	0107154	150kΩ	B . A
R11, 12	0107123	12kΩ	B . A
R13, 14	0107473	47kΩ	A
R15, 16	0107221	220Ω	A
R17, 18	0107222	2.2kΩ	C . D
R19, 20	0107684	680kΩ } ¼W C.R.	C . D
R21, 22	0107104	100kΩ } ¼W C.R.	C . D
R23, 24	0107822	8.2kΩ } ¼W C.R.	C . D
R25, 26	0107102	1kΩ	D
R27, 28	0107153	15kΩ	D
R29, 30	0107152	1.5kΩ	D
R31, 32	0107222	22kΩ	C
R41, 42	0107104	100kΩ	A
R43	0107105	1MΩ	A
R601	0107123	12kΩ	A
R602	0107153	15kΩ	A
R603	0103102	1kΩ } ½W C.R.	C
R604	0103471	470Ω } ½W C.R.	C
R605	0107221	220Ω ¼W C.R.	C
R606	0103102	1kΩ ½W C.R.	B
R607	0182392	3.9kΩ 2 W *C.R.	B
R901	0107471	470Ω ¼W C.R.	
VR03, 04	1015080, 1	100kΩ (A)×2 } Variable Resistor	D
VR05, 06	1015080, 1	100kΩ (A)×2 } Variable Resistor	D
VR07, 08	1015070, 1	100kΩ (MN)×2 } Variable Resistor	C
S01(a~n)	1130860	SUB54 Push Switch	A, B

5-2. F-2402 Main & Power Supply Circuit Board (Stock No. 7570950 Complete Circuit Board F-2402)

Conductor Side



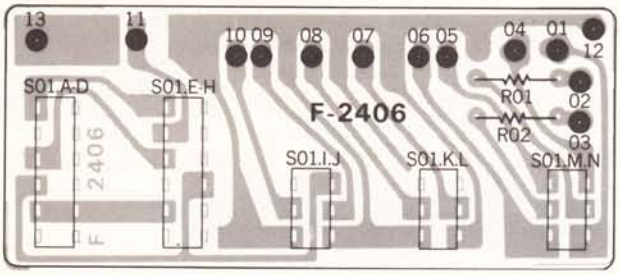
Parts List

Parts No.	Stock No.	Description	Position
TR01, 02	0300470, 1	2SA726W (F, G)	2C.2A
TR03, 04	0300470, 1	2SA726W (F, G)	2C.2A
TR05, 06	0305931	2SC1211D	2C.2A
TR07, 08	0305731	2SC711E	1C.1A
TR09, 10	0305930, 1	2SC1211 (C, D) Transistor	1C.1A
TR11, 12	0300310, 1	2SA697 (C, D)	1C.1A
TR13, 14	0306101, 2	2SC1444 (O, Y)	1B
TR15, 16	0306101, 2	2SC1444 (O, Y)	1C.1A
TR601	0305931	2SC1211D	2B
D601	0310350	10D-2 Diode	1, 2B
D603	0310350	10D-2 Diode	1B
D605	0310350	10D-2 Diode	2B
D607	0310350	10D-2 Diode	1B
C01, 02	0519103	0.47μF 50V E.C.	2C.2A
C03, 04	0515101	100μF 50V E.C.	2C.2A
C05, 06	0660331	330pF 50V C.C.	2C.2A
C07, 08	0515470	47μF 50V E.C.	2C.2A
C09, 10	0660509	5pF 50V C.C.	2C.2A
C11, 12	0515330	33μF 50V E.C.	2B,C.2A,B
C13, 14	0660220	22pF 50V C.C.	2C.2A
C15, 16	0660221	220pF 50V C.C.	1C.1A
C17, 18	0601477	0.047μF 50V M.C.	1C.1A
C19, 20	0549107	1500μF 50V E.C.	1,2.B, 2A
C21, 22	0515100	10μF 50V E.C.	2C.2A
C601	0519902	47μF 80V E.C.	2B
C603	0659010	0.0047μF 500V C.C.	2B
C605	0519903	100μE 80V E.C.	2B
C607	0549205	2200μF 63V E.C.	2B
C609	0659011	0.01μF 500V C.C.	2B

Parts No.	Stock No.	Description	Position
R01, 02	0107474	470kΩ	2C.2A
R03, 04	0107222	2.2kΩ	2C.2A
R05, 06	0107223	22kΩ	2C.2A
R07, 08	0107563	56kΩ	2C.2A
R09, 10	0107473	47kΩ	2C.2A
R11, 12	0107222	2.2kΩ	2C.2A
R13, 14	0107123	1.2kΩ	2C.2A
R15, 16	0107123	12kΩ	2B.2B
R17, 18	0107821	820Ω	2C.2A
R19, 20	0107563	56kΩ ¼W C.R.	2C.2A
R21, 22	0107182	1.8kΩ	2C.2B
R23, 24	0107472	4.7kΩ	1,2B.1,2B
R25, 26	0107222	2.2kΩ	1B.1B
R27, 28	0107821	820Ω	1B,C.1A,B
R29, 30	0107390	39Ω	1B,C.1A,B
R31, 32	0107221	220Ω	1C.A
R33, 34	0107100	10Ω	1C.A
R35, 36	0107221	220Ω	1C.A
R37, 38	0107100	10Ω	1C.A
R39, 40	0107100	10Ω	1C.A
R41, 42	0122338	0.33Ω 2W Ce. R.	1C.A
R43, 44	0122338	0.33Ω 2W Ce. R.	1C.A
R45, 46	0103479	4.7Ω ½W C.R.	1C.A
R47, 48	0107823	82kΩ ¼W C.R.	2C.2A
R49, 50	0104471	470Ω 1W C.R.	2C.2A
R601	0107101	100Ω ¼W C.R.	2B
R603	0210153	15kΩ ½W C.R.	2B
VR03, 04	1035070	1kΩB Bias Current Volume	1B,C.1A,B
F01, 02	0433670	2.5A Quick Acting Fuse	1B.1B
	5937080	Heat Sinker	

5-3. F-2406 Selector Switch Circuit Board

Conductor Side

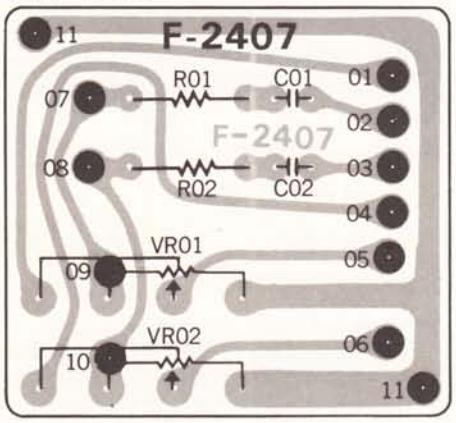


Parts List

Parts No.	Stock No.	Description
R01, 02	0107103	10kΩ ¼W C.R.
S01	0130860	Push Switch (Selector)
C903	0657473	0.047μF 50V C.C.

5-4. F-2407 Volume Circuit Board

Conductor Side



Parts List

Parts No.	Stock No.	Description
C01	0621561	560pF } 50V P.C.
C02	0621561	560pF }
R01	0107153	15kΩ } ¼W C.R.
R02	0107153	15kΩ }
VR01	1011010, 1	250kΩ (B)×2 } Variable Resistor
VR02	1011010, 1	250kΩ (B)×2 }

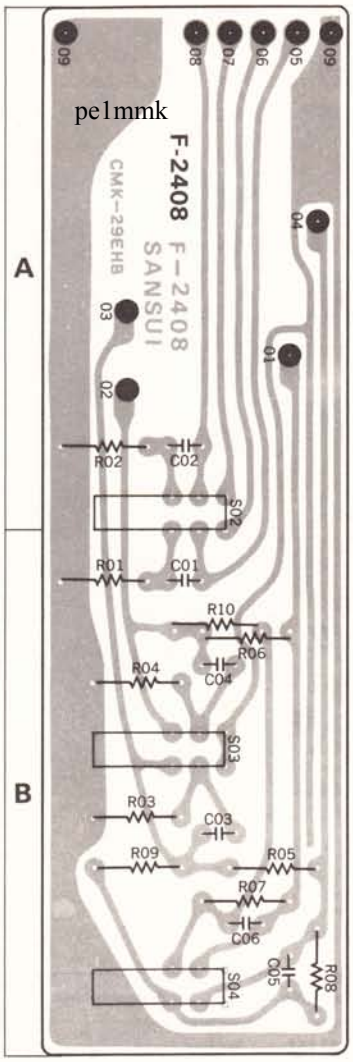
Abbreviations

C.R.	: Carbon Resistor	BP.E.C.	: Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor		
Ce.R.	: Cement Resistor	C.C.	: Ceramic capacitor
M.R.	: Metallized Film Resistor	Mi.C.	: Mica Capacitor
		O.C.	: Oil Capacitor
M.C.	: Mylar Capacitor	P.C.	: Polystyrene Capacitor
E.C.	: Electrolytic Capacitor	T.C.	: Tantalum Capacitor

5-5. F-2408A Accessory Circuit Boarb

(Stock No. 7592200 Complete Circuit Board F-2408)

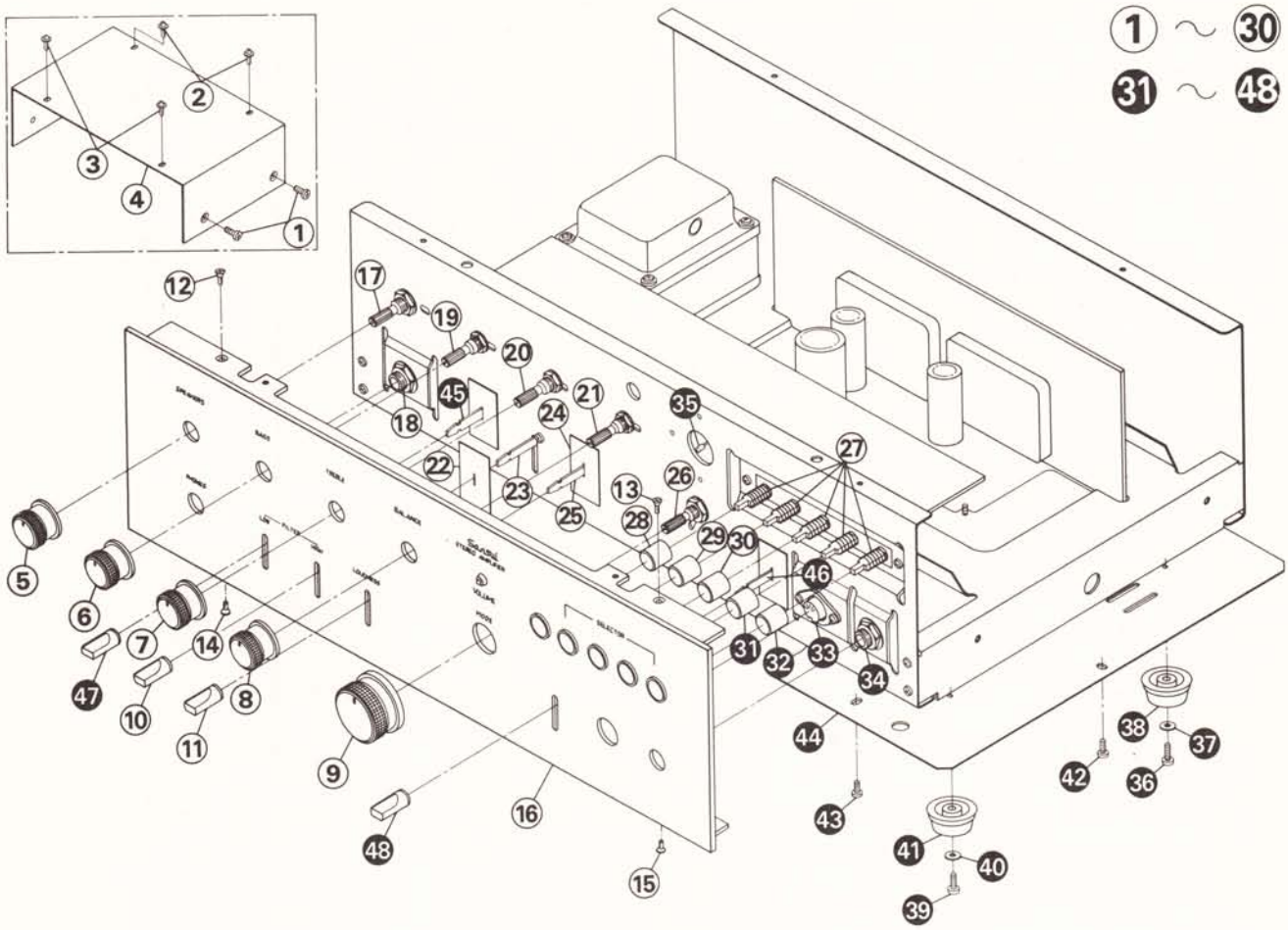
Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
C01, 02	0601157	0.015μF } 50V M.C.	B . A
C03, 04	0601227	0.22μF }	B
C05, 06	0601477	0.047μF }	B
R01, 02	0107223	22kΩ } ¼W C.R.	B . A
R03, 04	0107104	100kΩ }	B
R07, 08	0107474	470kΩ }	B
R09, 10	0107222	2.2kΩ }	B
S02(a,b)	1170340	SX15-5 } Lever Switch	A
S03(a,b)	1170350	SX15-5 }	B
S04(a,b)	1170340	SX15-5 }	B

5-6. Other Parts (Front Side)

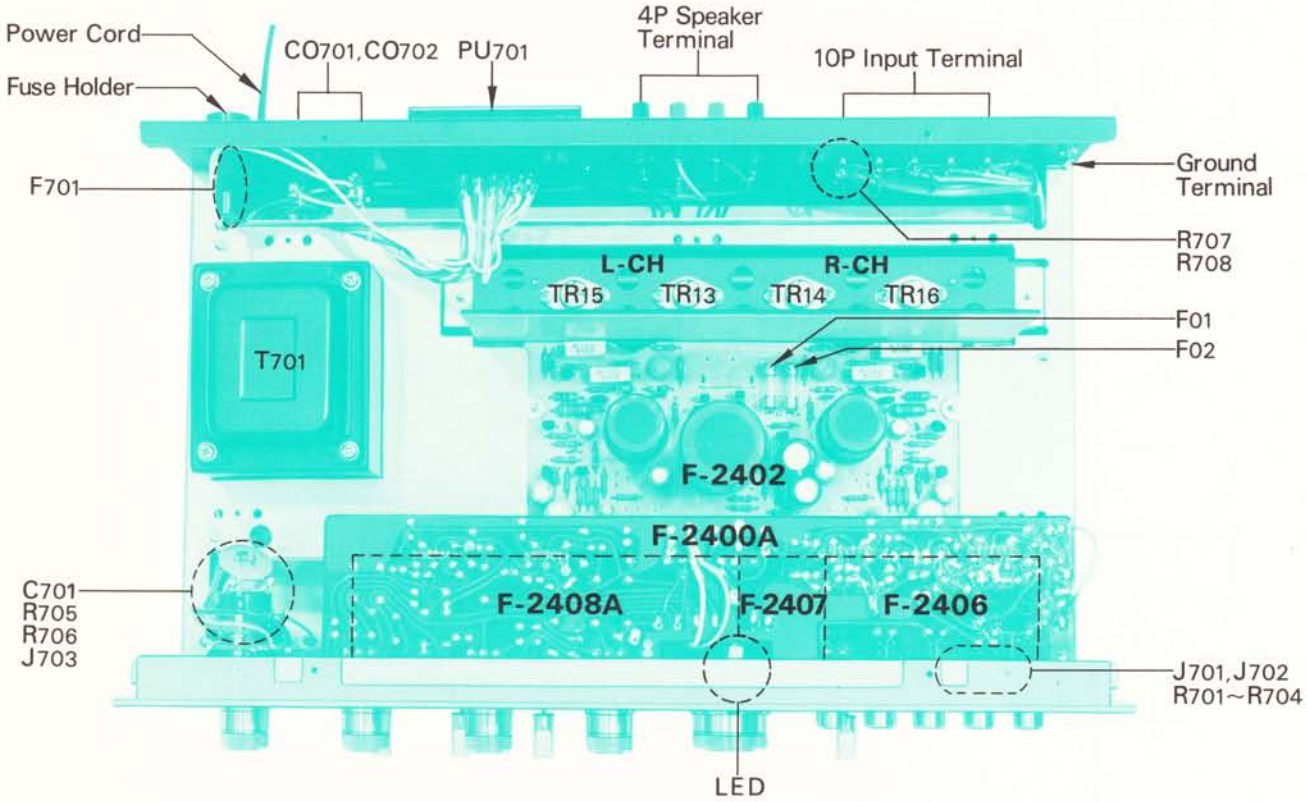


Parts List

Parts No.	Stock No.	Description
1	5101161	Binding Head Screw, M4×6
2	5109222	Binding Head Tapping Screw, 3×8
3	5109222	Binding Head Tapping Screw, 3×8
4	5006350	Bonnet
5	5317880	S-5 Type Knob, SPEAKERS
6	5317880	S-5 Type Knob, BASS volume
7	5317880	S-5 Type Knob, TREBLE volume
8	5317880	S-5 Type Knob, BALANCE volume
9	5317911	M-5 Type Knob, VOLUME
10	5326460	E-1 Type Knob, LEVER Switch
11	5326460	E-1 Type Knob, LEVER Switch
12	5102543	F Type Screw, M3×6
13	5102543	F Type Screw, M3×6
14	5109122	Binding Head Tapping Screw, 3×8
15	5109122	Binding Head Tapping Screw, 3×8
16	5309332	Front Panel
17	1101550	Rotary Switch Y-1-2-5, SPEAKERS
18	2430190	Headphone Jack
19	1015080	100kΩ (A)×2 BASS volume
20	1015080	100kΩ (A)×2 TREBLE volume
21	1015070	100kΩ (MN)×2 BALANCE volume
22	5047460	Masking, High Filter Switch
23	1170350	LEVER Switch, High Filter
24	5047460	Masking, Loudness Switch

Parts No.	Stock No.	Description
25	1170340	LEVER Switch, Loudness
26	1011010, 1	250kΩ (B)×2 VOLUME
27	1130860	Push Switch (5 Stage)
28	5326500	B Type Push Button
29	5326500	B Type Push Button
30	5326500	B Type Push Button
31	5326500	B Type Push Button
32	5326500	B Type Push Button
33	2430050	DIN Connector
34	2430160	Mic Jack
35	7726080	LED Ass'y (Light Emited Diode)
36	5166520	Binding Head Screw, M3×12
37	5121340	Washer, M3ϕ
38	5516940	Rubber Foot
39	5166520	Binding Head Screw, M3×12
40	5121340	Washer, M3ϕ
41	5516940	Rubber Foot
42	5109222	Binding Head Screw, M3×8
43	5109222	Binding Head Screw, M3×8
44	5058190	Bottom Plate
45	1170340	Lever Switch, LOW FILTER
46	1170340	Lever Switch, MODE
47	5326460	E-1 TYPE Knob, LOW FILTER switch
48	5326460	E-1 TYPE Knob, MODE switch

5-7. Other Parts (Top Side)



Parts List

Parts No.	Stock No.	Description
TR13~16	0306101, 2	2SC1444 (O, Y) Transistor
C701	0659801	0.01μF 1.4kV C.C.
R701, 702	0107224	220kΩ } ¼W C.R.
R703, 704	0107104	100kΩ }
R705, 706	0103331	330Ω ½W C.R.
R707, 708	0106334	330kΩ ¼W C.R. (E.L.R)
LED	7726080	Light Emited Diode Ass'y
J701	2430160	Mic Jack
J702	2430050	DIN Jack
J703	2430190	Phone Jack
CO701,702	2450060	AC Outlet

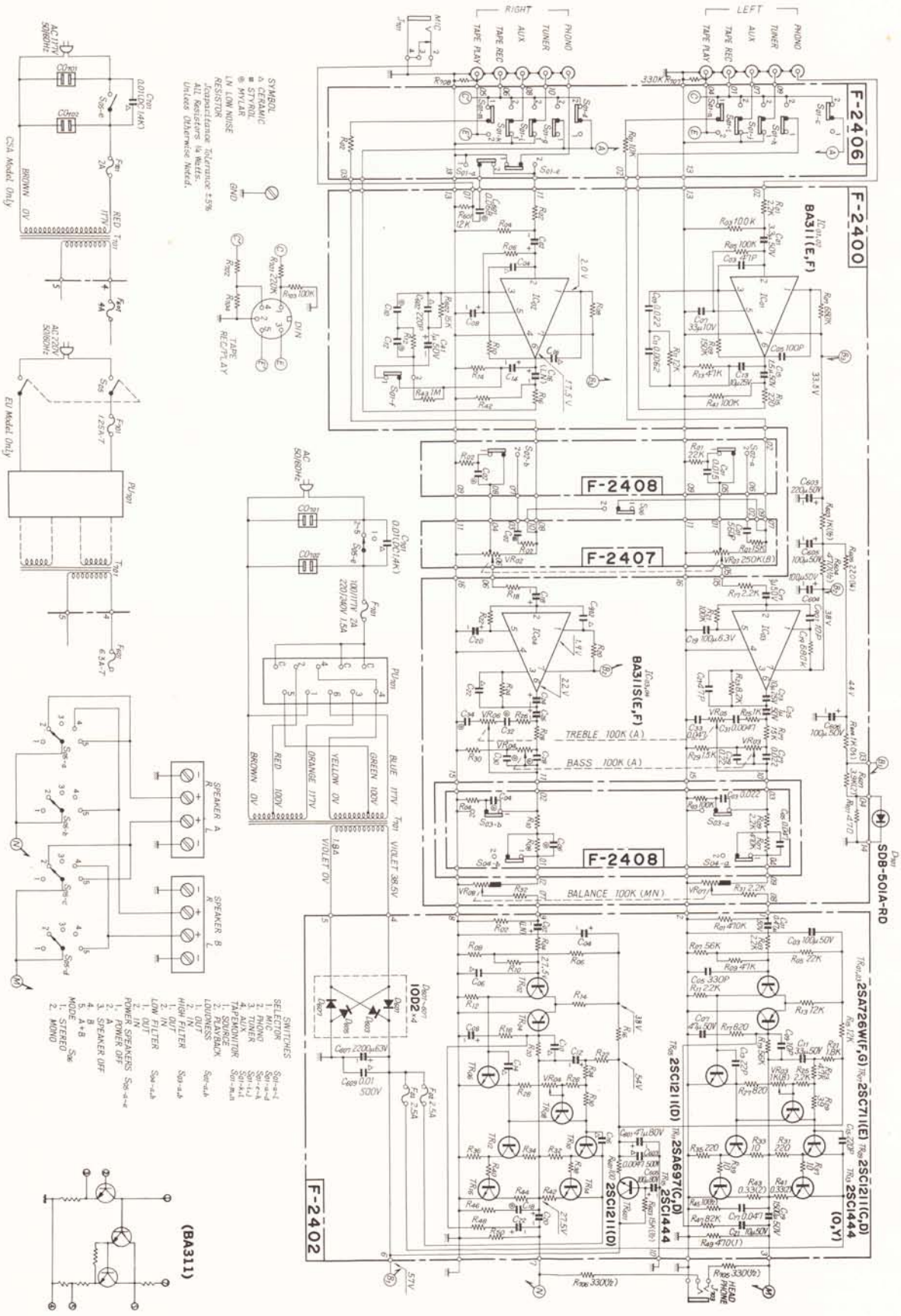
Parts No.	Stock No.	Description
T701	4002120	Power Transformer
F701	0431242	2A (100~117V) } Power Fuse
	0431232	1.5A (220~240V) }
	2300060	Fuse Holder
PU701	2410080	Voltage Selector, Socket
	2410090	Voltage Selector, Plug
	2200350	10P Input Terminal
	2210200	4P Speaker Terminal
	2230050	Ground Terminal
	3800020	Power Cord (KP-200)
	3910490	Power Cord Clip

Abbreviations

C.C.: Ceramic Capacitor
C.R.: Carbon Resistor

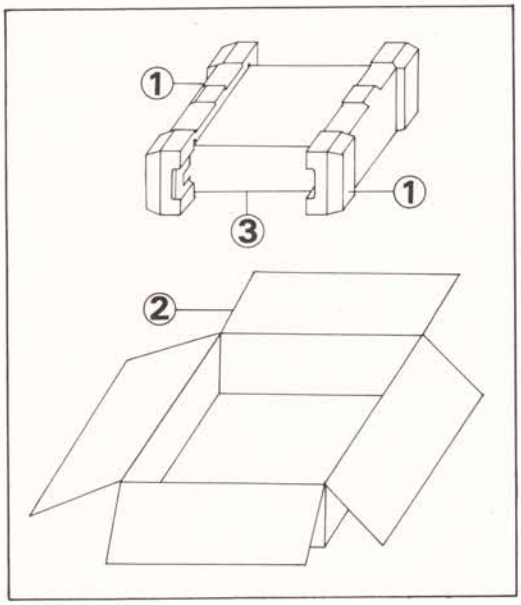
6. SCHEMATIC DIAGRAM

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



7. PACKING LIST

Parts No.	Stock No.	Description
1	9027800	Stylofoam Packing
2	9008151	Corton Case
3	9116640	Vinyl Cover



8. ACCESSORY PARTS LIST

Stock No.	Description
0433670	2.5A Quick Acting Fuse
9208310	Operating Instructions
9228310	Operating Instruction Sheet

Sansui

SANSUI ELECTRIC CO., LTD.
14-1, 2-chome, Izumi, Suginami-ku, Tokyo 168, Japan
TELEPHONE: (03) 323-1111 /TELEX: 232-2076

SM029

Printed in Japan (N4730M)