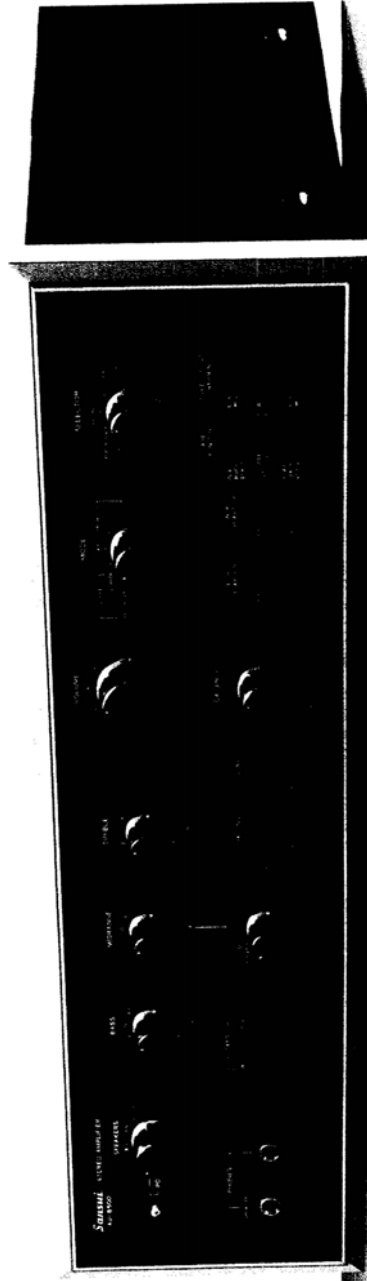


SERVICE MANUAL

STEREO AMPLIFIER

SANSUI AU-8500



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-8500 correctly.

When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts List.

For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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1. SPECIFICATIONS

POWER OUTPUT (at rated distortion)

MUSIC POWER (IHF) ... 240W (4Ω, 1,000Hz)
180W (8Ω, 1,000Hz)

CONTINUOUS POWER (each channel driven)

..... 110/110W (4Ω, 1,000Hz)
70/ 70W (8Ω, 1,000Hz)

CONTINUOUS POWER (both channel driven)

..... 90+90W (4Ω, 1,000Hz)
64+64W (8Ω, 1,000Hz)
60+60W (8Ω, 20 to 20,000Hz)

TOTAL HARMONIC DISTORTION (at rated output)

OVERALL (from AUX) .. less than 0.1%

PRE AMPLIFIER ONLY .. less than 0.05%

POWER (MAIN) AMPLIFIER ONLY .. less than 0.1%

INTERMODULATION DISTORTION (at rated output

70Hz: 7,000Hz=4:1 SMPTE method)

OVERALL (from AUX) .. less than 0.1%

PRE AMPLIFIER ONLY .. less than 0.05%

POWER (MAIN) AMPLIFIER ONLY .. less than 0.1%

POWER BANDWIDTH (IHF, each channel driven at

rated distortion) 5 to 40,000Hz

FREQUENCY RESPONSE (power output at 1W)

OVERALL (from AUX) .. 15 to 30,000Hz ± 0.2 dB

POWER (MAIN) AMPLIFIER ONLY

..... 3 to 50,000Hz ± 0.6 dB

RIAA CURVE DEVIATION

PHONO-1, 2 30 to 15,000Hz ± 0.5 dB

LOAD IMPEDANCE 4 to 16Ω

DAMPING FACTOR 50 (8Ω)

INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)

PHONO-1 2.5mV 50kΩ

PHONO-2 2.5mV 30kΩ, 50kΩ, 100kΩ
(adjustable)

Max. input capability .. 300mV (THD: less than 0.5%)

MIC 2.5mV 50kΩ

TUNER 100mV 50kΩ

AUX 100mV 50kΩ (input level
adjustable)

TAPE DECK-1, 2 (PIN) .. 100mV 50kΩ (input level
adjustable)

TAPE DECK-2 (DIN) 100mV 50kΩ

4-CH. ADAPTOR 100mV 50kΩ

N.R. ADAPTOR 100mV 50kΩ

POWER (MAIN) INPUT .. 800mV 50kΩ

OUTPUT LEVEL AND IMPEDANCE (at 1,000Hz)

TAPE DECK-1, 2 (PIN) ... 100mV 1.5kΩ

TAPE DECK-2 (DIN) 30mV 70kΩ

4-CH. ADAPTOR 100mV 1.5kΩ

N.R. ADAPTOR 100mV 1.5kΩ

PRE OUTPUT 800mV 1.5kΩ

Max. output level 5V (THD less than 0.5%)

CROSSTALK (rated output at 1,000Hz)

PHONO-1, 2 better than 50dB

MIC better than 50dB

TUNER better than 50dB

AUX better than 50dB

MAIN INPUT better than 60dB

HUM AND NOISE (IHF)

PHONO-1, 2 better than 75dB

MIC better than 65dB

TUNER better than 85dB

AUX better than 85dB

MAIN INPUT better than 100dB

CONTROLS

BASS ± 15 dB at 20Hz

MIDRANGE ± 5 dB at 1,500Hz

Midrange tone selector

TREBLE DEFEAT 750Hz, 1.5kHz, 3kHz

LOUDNESS (volume control): -30 dB

..... $+10$ dB at 50Hz

..... $+8$ dB at 10,000Hz

LOW FILTER -3 dB at 50Hz (12dB/oct.)

HIGH FILTER -3 dB at 12,000Hz (12dB/oct.)

OTHERS

SEMICONDUCTORS

TRANSISTORS 58

FETS 2

DIODES 33

ZENER DIODES 5

POWER REQUIREMENTS

VOLTAGE 100, 110, 117, 127, 220, 230

..... 240, 250V 50/60Hz

CONSUMPTION 140W (rated), 450VA (max.)

DIMENSIONS 140mm (5 $\frac{5}{16}$ ") H,

..... 500mm (19 $\frac{1}{16}$ ") W,

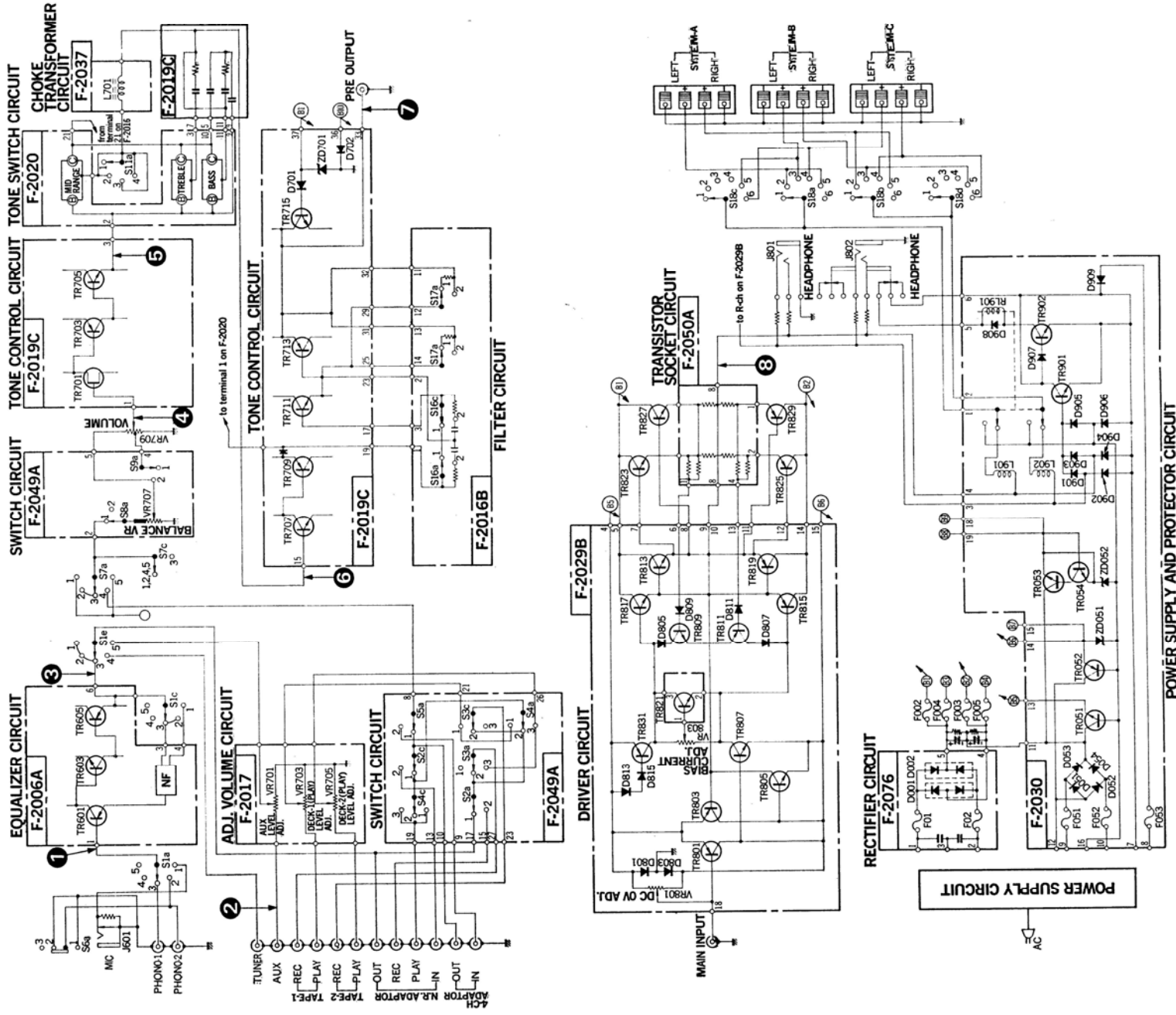
..... 347mm (13 $\frac{1}{16}$ ") D

WEIGHT 20.5 kg (45.2 lbs)

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

2. BLOCK DIAGRAM AND LEVEL DIAGRAM

2-1. Block Diagram

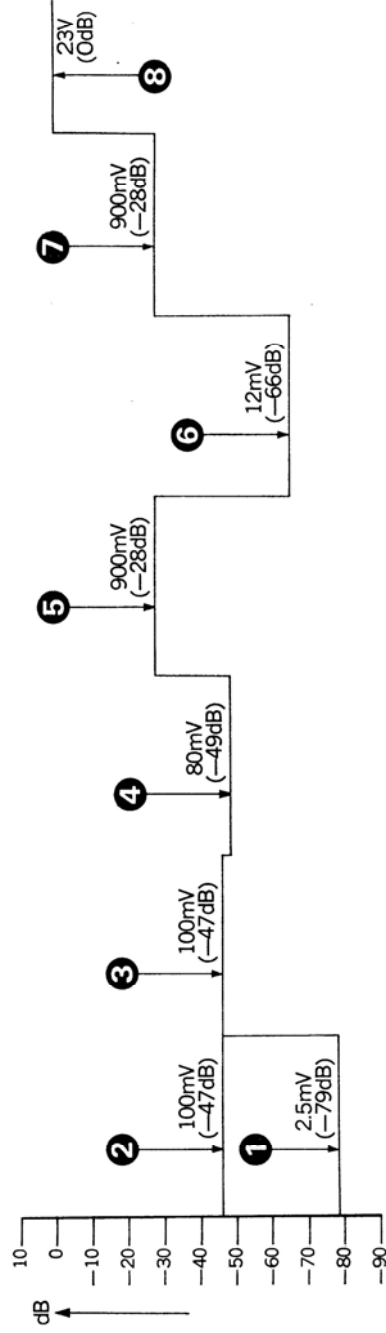


2-2. Level Diagram

*Each number (①, ②, ③...) indicated in Level Diagram undermentioned corresponds to the number in Block Diagram.

1. MASTER VOLUME controlMaximum volume control
2. BASS, MIDRANGE, TREBLE, BALANCE volume control
3. Input.....PHONO-1 2.5mV 1kHz Sine Wave
AUX-1 100mV 1kHz Sine Wave
(output impedance of 600Ω at an audio oscillator)
4. Output23V (66W) 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.



S1-σ~f SELECTOR

1. MIC
2. PHONO-2
3. PHONO-1
4. TUNER
5. AUX

S2-σ~d N.R. ADAPTOR

1. OUT
2. IN

S3-σ~d TAPE TO TAPE REPRINT

1. DECK-1▶2
2. SOURCE RECORD
3. DECK-2▶1

S4-σ~d TAPE MONITOR

1. PLAYBACK DECK-1
2. SOURCE
3. PLAYBACK DECK-2

S5-σ, b 4-CH. ADAPTOR

1. OUT
2. IN

S6-σ, b PHONO PICKUP LOAD

1. 30kΩ
2. 50kΩ
3. 100kΩ

S7-σ~c MODE

1. STEREO REVERSE
2. STEREO NORMAL
3. MONO L+R
4. MONO L
5. MONO R

S8-σ, b MUTING

1. NORMAL
2. 20dB

S9-σ, b LOUDNESS

1. OUT
2. IN

S10-σ, b MIDRANGE CONTROL

- 1~5. CUT
6. FLAT
- 7~11. BOOST

S11-σ, b MIDRANGE SELECTOR

1. DEFEAT
2. 750Hz
3. 15kHz
4. 3kHz

S12-σ, b TREBLE CONTROL

- 1~5. CUT
6. FLAT
- 7~11. BOOST

S14-σ, b BASS CONTROL

- 1~5. CUT
6. FLAT
- 7~11. BOOST

S16-σ~d LOW FILTER

1. OUT
2. IN

S17-σ~d HIGH FILTER

1. OUT
2. IN

S18-σ~e POWER and SPEAKER

1. POWER OFF
2. A
3. B
4. C
5. A+B
6. A+C

3. ADJUSTMENTS

3-1. Driver Circuit Board Adjustment (See Figs. 3-1 and 3-2)

Note: 1. Master Volume.....Minimum

2. Make the SP terminal free (no load).

3. Confirm the AC Power Supply voltage.

4. For adjustment, run the unit for more than 3 minutes after the power is switched on.

5. After adjustment, run the unit for more than 5 minutes, then check and readjust necessary.

6. Room temperature should be 18~28°C (65~83°F) for bias current adjustment.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	DC 0V L-ch	DC volt meter	F-2029B terminal 9 (left side board)	F-2029B VR801 (left side board)	0V	○ Step down meter's range accordingly
2	DC 0V R-ch	Same as above	F-2029B terminal 9 (right side board)	F-2029B VR801 (right side board)	Same as above	Same as above
3	Bias current L-ch	DC milliammeter	F002 Fig. 3-1	F-2029B VR803 (left side board)	40mA	○ Step down meter's range accordingly
4	Bias current R-ch	Same as above	F004 Fig. 3-1	F-2029B VR803 (right side board)	Same as above	Same as above

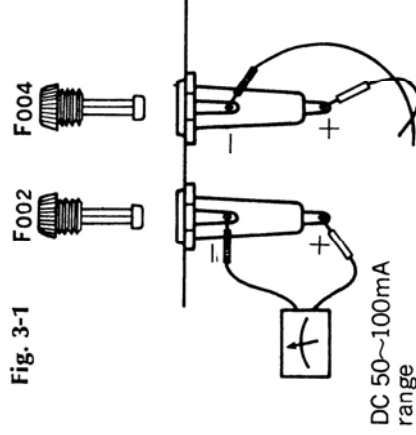


Fig. 3-1

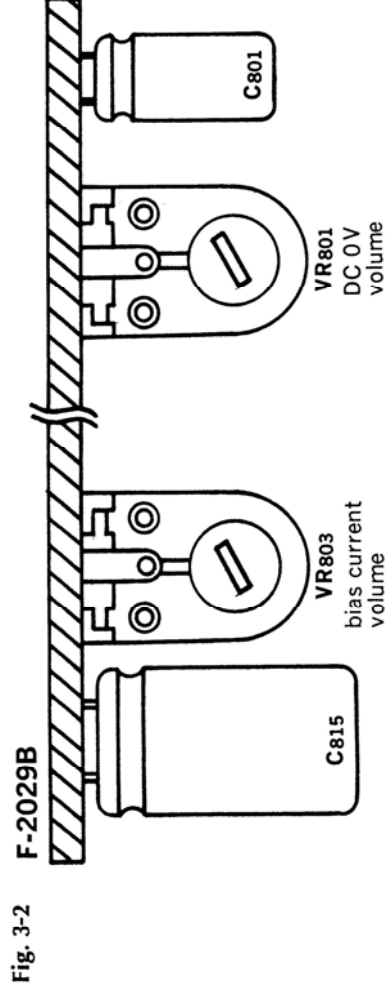


Fig. 3-2

4. TROUBLESHOOTING CHART

4-1. Troubleshooting on Power Supply Section

Symptom	Check Point	Cause & What to Do
1. No power supplied to each section	1-1. Indicator lamp for power not lighted	1. Imperfect contact of power supply cord
		2. Imperfect contact of power switch S _{18a}
		3. Power fuse F ₀₀₁ open
		4. Quick Acting fuse F ₀₀₆ open
1-2. Indicator lamp for power lighted	1) ±43V not supplied to collector on each power transistor (TR ₈₂₃ , TR ₈₂₇ + 43V, TR ₈₂₅ , TR ₈₂₉ - 43V)	5. Indicator lamp for power PL ₀₀₁ open
		6. Defective power transformer
1. Protector circuit inoperative (In case center voltage on power section is over 2.5V)	2) +61V not supplied to terminal [13] on F-2030 3) -60V not supplied to terminal [14] on F-2030 4) +45V not supplied to terminal [19] on F-2030	7. Defective D ₀₀₁ , D ₀₀₂ on F-2074
		8. F ₀₀₂ , F ₀₀₄ (F ₀₀₃ , F ₀₀₅) open
		9. F ₀₅₁ , F ₀₅₂ on F-2030 open
		10. Defective D ₀₅₃ , D ₀₅₄ on F-2030
		11. Defective TR ₀₅₁ on F-2030
		12. F ₀₅₁ , F ₀₅₂ on F-2030 open
		13. Defective D ₀₅₁ , D ₀₅₂ on F-2030
		14. Defective TR ₀₅₂ on F-2030
		15. F ₀₅₁ , F ₀₅₂ on F-2030 open
		16. Defective D ₀₅₃ , D ₀₅₄ on F-2030
		17. Defective TR ₀₅₃ on F-2030

4-2. Troubleshooting on Protector Section

1. Protector circuit inoperative

- (In case center voltage on power section is over 2.5V)
- Defective D₉₀₁ ~ D₉₀₆ on F-2030
- Defective TR₉₀₁ on F-2030

4-3. Troubleshooting on Audio Section

1. No sound from both speakers

- F₅₀₃ on F-2030 open
- Defective D₉₀₉ on F-2030
- Imperfect contact of headphonejack (J₈₀₂)
- Defective RL₉₀₁ on F-2030
- Defective TR₉₀₂ on F-2030
- Defective D₉₀₇ on F-2030

2. Both channels inoperative

- Defective power supply section (See 4-1.)
- Defective protector circuit (See i-2.)
- Protector circuit operates by the defec-tion of power amp. section (See 4. or 5.)

3. One channel inoperative

Symptom	Check Point	Cause & What to Do
3-1. Set MODE switch to L+R		
1) Both channels operative		10. Tape deck or tuner connected into this set has faulty
2) One channel inoperative		11. Defective F-2006A (PHONO position only)
2-1) Reverse L and Rch at PRE OUT, MAIN IN		
1) R and Lch sound reverses		12. Defective F-2019C in Pre-amp.
2) No sound at all		13. Defective Pre-amp. or F-2029A in Main-amp.

4. Quick Acting Fuses not open

- 1) $\pm 43V$ not supplied to collector on each power transistor (TR₈₂₃, TR₈₂₇ + 43V, TR₈₂₅, TR₈₂₉ - 43V) — 14. Defective power supply section (See 4-1.)

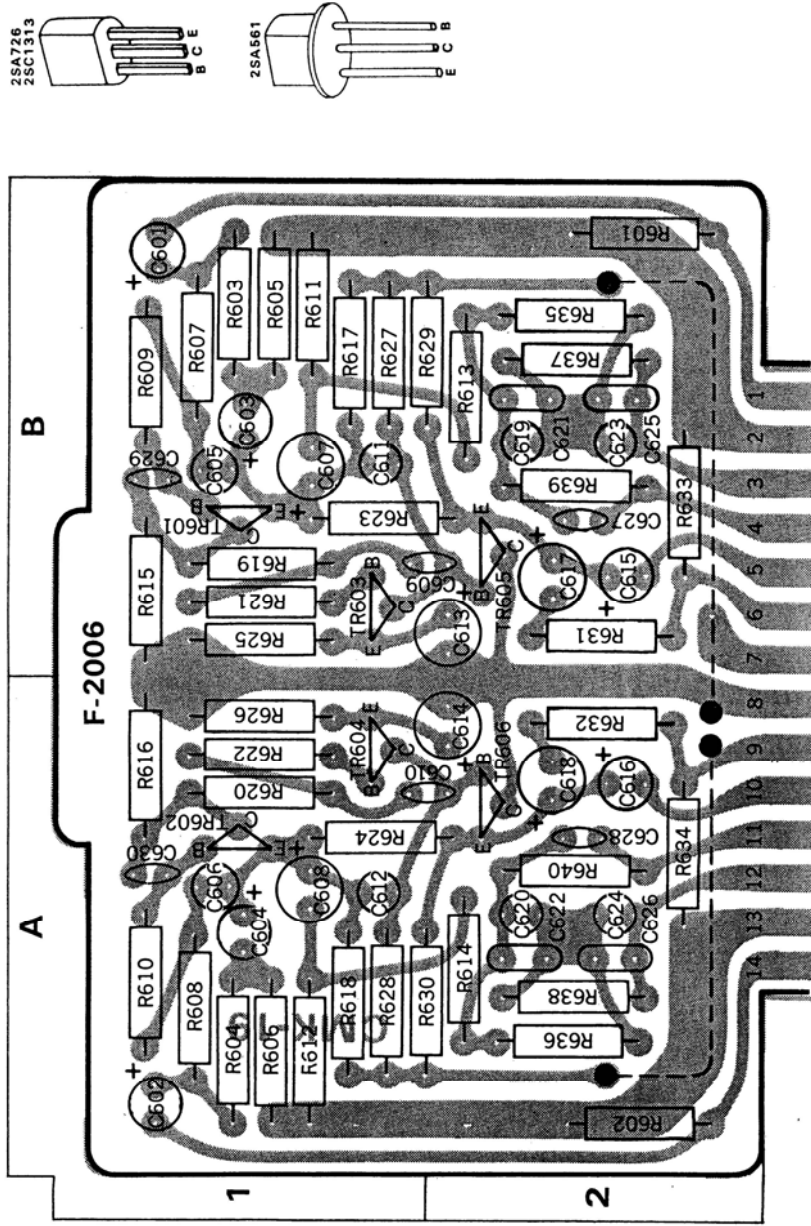
5. Quick Acting Fuses open

- 1) After replacement, fuse not open — 15. Set the bias current to 40mA
- 2) After replacement, fuse open again — 16. Defective TR₈₂₃, TR₈₂₇ on F-2050A
17. Defective TR₈₂₅, TR₈₂₉ on F-2050A
18. Defective TR₈₁₇, TR₈₁₉ on F-2029B
19. Defective TR₈₀₉, TR₈₁₅ on F-2029B
20. Defective TR₈₃₁ on F-2029B
21. Defective TR₈₀₁, TR₈₀₃ on F-2029B

5. PARTS LOCATIONS AND PARTS LIST

5-1. F-2006A Equalizer Circuit Board (Stock No. 7550490 Complete Circuit Board F-2006A)

Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
TR601	0300410, 1	2SA726 (F, G)	1 B
TR602	0300410, 1	2SA726 (F, G)	1 A
TR603	0306070, 1	2SC1313 (F, G)	1 B
TR604	0306070, 1	2SC1313 (F, G)	1 A
TR605	0300101, 2	2SA561 (Y, GR)	2 B
TR606	0300101, 2	2SA561 (Y, GR)	2 A
C601	0510101	1 μ F	1 B
C602	0519101	1 μ F	50V
C603	0511100	10 μ F	50V } E.C.
C604	0511100	10 μ F	10V } E.C.
C605	0660151	150pF	1 A
C606	0660151	150pF	$\pm 10\%$ 50V C.C.
C607	0510470	47 μ F	1 B
C608	0510470	47 μ F	6.3V E.C.
C609	0660100	10pF	1 A
C610	0660100	10pF	± 0.5 PF 50V C.C.
C611	0620331	330pF	12, A
C612	0620331	330pF	1 A
C613	0510470	47 μ F	1 B
C614	0510470	47 μ F	6.3V E.C.
C615	0515479	4.7 μ F	2 A
C616	0515479	4.7 μ F	2 B
C617	0519102	3.3 μ F	50V E.C.
C618	0519102	3.3 μ F	2 A
			2 B

Parts No.	Stock No.	Description	Position
C619	0600126	0.0012 μ F	2 B
C620	0600126	0.0012 μ F	2 A
C621	0600806	$\pm 5\%$ 50V M.C.	2 B
C622	0600806	0.008 μ F	2 A
C623	0620471	470pF	2 B
C624	0620471	470pF	2 A
C625	0600226	0.0022 μ F	2 B
C626	0600226	0.0022 μ F	2 A
C629	0660470	47pF	1 B
C630	0660470	47pF	1 A
R601	0107104	100k Ω	2 B
R602	0107104	100k Ω	2 A
R603	0107104	100k Ω	1 B
R604	0107104	100k Ω	1 A
R605	0107473	47k Ω	1 B
R606	0107473	47k Ω	1 A

Abbreviations

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

to be continued

F-2006A Parts List

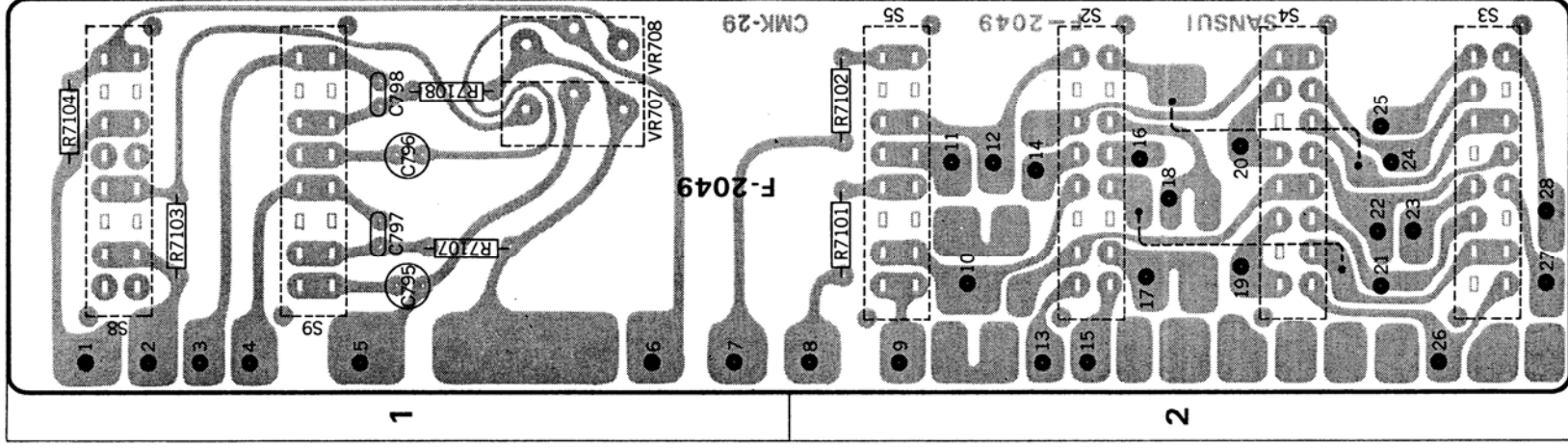
Parts No.	Stock No.	Description	Position
R607	0107222	2.2kΩ	1 B
R608	0107222	2.2kΩ	1 A
R609	0107221	220Ω	1 B
R610	0107221	220Ω	1 A
R611	0107821	820Ω	1 B
R612	0107821	820Ω	1 A
R613	0107331	330Ω	2 B
R614	0107331	330Ω	1, 2 A
R615	0107223	22kΩ	1 B
R616	0107223	22kΩ	1 A
R617	0107684	680kΩ	1 B
R618	0107684	680kΩ	1 A
R619	0107561	560Ω	1 B
R620	0107561	560Ω	1 A
R621	0107561	560Ω	1 B
R622	0107561	560Ω	1 A
R623	0107824	820kΩ	1, 2 B
R624	0107824	820kΩ	1, 2 A
R625	0107272	2.7kΩ	1 B
R626	0107272	2.7kΩ	1 A
R627	0107823	82kΩ	1 B
R628	0107823	82kΩ	1 A
R629	0107562	5.6kΩ	1, 2 B
R630	0107562	5.6kΩ	1, 2 A
R631	0107152	1.5kΩ	2 B
R632	0107152	1.5kΩ	2 A
R633	0107104	100kΩ	2 A
R634	0107104	100kΩ	2 A
R635	0107564	560kΩ	2 B
R636	0107564	560kΩ	2 A
R637	0107273	27kΩ	2 B
R638	0107273	27kΩ	2 A
R639	0107333	33kΩ	2 B
R640	0107333	33kΩ	2 A

± 5% 1/4W C.R.

5-2. F-2049A Switch Circuit Board

(Stock No. 7591810 Complete Circuit Board F-2049A)

Conductor Side

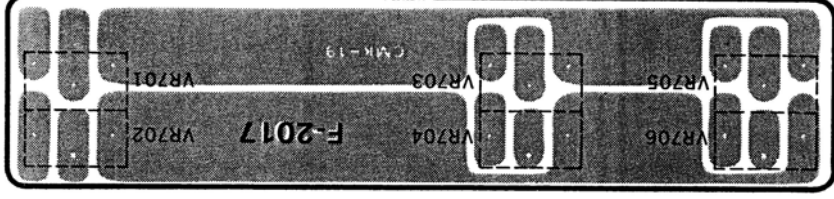


Parts List

Parts No.	Stock No.	Description	Position
C795	0620431	430pF	1
C796	0620431	430pF	1
C797	0600247	± 5% 50V P.C.	1
C798	0600247	± 5% 50V M.C.	1
R7101	0107123	12kΩ	2
R7102	0107123	12kΩ	2
R7103	0107824	820kΩ	1
R7104	0107824	± 5% 1/4W C.R.	1
R7107	0107223	22kΩ	1
R7108	0107223	22kΩ	1
VR707, 708	1010870, 1	250kΩ (MN) × 2 BALANCE	1
S2	1170300	Lever Switch, noise reduction adaptor	2
S3	1170290	Lever Switch, tape to tape reprint	2
S4	1170290	Lever Switch, tape monitor	2
S5	1170300	Lever Switch, 4-ch adaptor	2
S8	1170270	Lever Switch, muting	1
S9	1170270	Lever Switch, loudness	1

5-3. F-2017 Adjusting Volume Circuit Board

(Stock No. 7591360 Complete Circuit Board F-2017)
Conductor Side



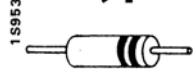
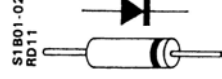
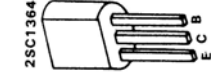
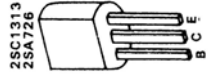
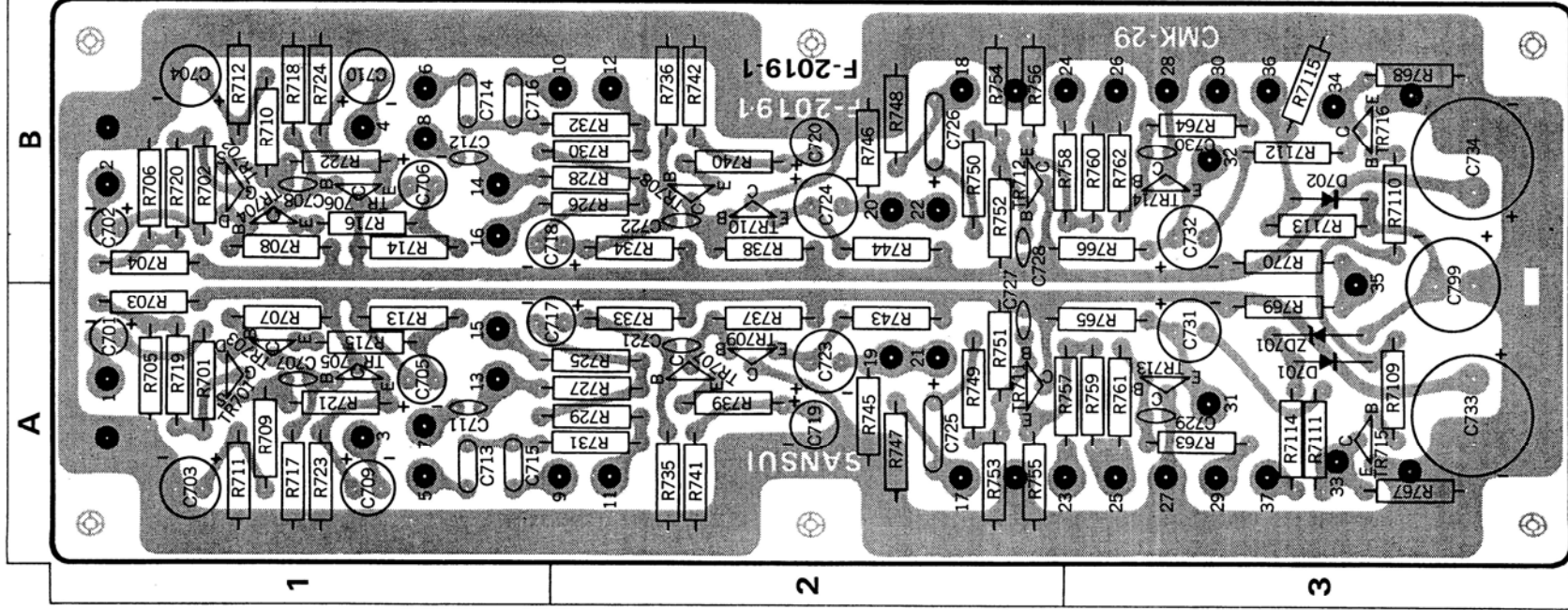
Parts List

Parts No.	Stock No.	Description
VR701,2	1015060	250kΩ (B) × 2 AUX Level Adj.
VR703,4	1015060	250kΩ (B) × 2 DECK-1 (PLAY) Level Adj.
VR705,6	1015060	250kΩ (B) × 2 DECK-2 (PLAY) Level Adj.

Abbreviations

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- M.C. : Mylar Capacitor
- E.C. : Electrolytic Capacitor
- BP.E.C.: Bi-Polar Electrolytic Capacitor
- C.C. : Ceramic Capacitor
- Mi.C. : Mica Capacitor
- O.C. : Oil Capacitor
- P.C. : Polystyrene Capacitor
- T.C. : Tantalum Capacitor

5-4. F-2019C Tone Control Circuit Board (Stock No. 7560730 Complete Circuit Board F-2019C)
Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
TR701	0370102	2SK30 (Y)	1A
TR702	0370102	2SK30 (Y)	1B
TR703	0300410, 1	2SA726Ⓢ (F, G)	1A
TR704	0300410, 1	2SA726Ⓢ (F, G)	1B
TR705	0306070, 1	2SC1313Ⓢ (F, G)	1A
TR706	0306070, 1	2SC1313Ⓢ (F, G)	1B
TR707	0306070, 1	2SC1313Ⓢ (F, G)	2A
TR708	0306070, 1	2SC1313Ⓢ (F, G)	2B
TR709	0300410, 1	2SA726Ⓢ (F, G)	2A
TR710	0300410, 1	2SA726Ⓢ (F, G)	2B
TR711	0306070, 1	2SC1313Ⓢ (F, G)	2A
TR712	0306070, 1	2SC1313Ⓢ (F, G)	2B
TR713	0300410, 1	2SA726Ⓢ (F, G)	3A
TR714	0300410, 1	2SA726Ⓢ (F, G)	3B
TR715	0306131, 2	2SC1364 (6, 7)	3A
TR716	0306131, 2	2SC1364 (6, 7)	3B
D701	0311050	1S953	3A
D702	0311150	S1B01-02	3B
ZD701	0315260	RD11A (M)	3A
C701	0601158	0.15μF	1A
C702	0601158	0.15μF	1B
C703	0512470	47μF	1A
C704	0512470	47μF	1B
C705	0510470	47μF	1A
C706	0510470	47μF	1B
C707	0660100	10 pF	1A
C708	0660100	10 pF	1B
C709	0519106	4.7μF	1A
C710	0519106	4.7μF	1B
C711	0600186	0.0018μF	1A
C712	0600186	0.0018μF	1B
C713	0600477	0.047μF	1A
C714	0600477	0.047μF	1B
C715	0600477	0.047μF	1A
C716	0600477	0.047μF	1B
C717	0519105	2.2μF	1, 2 A
C718	0519105	2.2μF	1, 2 B
C719	0510470	47μF	2A
C720	0510470	47μF	2B
C721	0660100	10 pF	2A
C722	0660100	10 pF	2B
C723	0519106	4.7μF	2A
C724	0519106	4.7μF	2B
C725	0601228	0.22μF	2A
C726	0601228	0.22μF	2B

Parts List

Parts No.	Stock No.	Description	Position
C727	0660220	22 pf	2 A
C728	0660220	22 pf ± 10%	2 B
C729	0660470	47 pf 50V C.C.	3 A
C730	0660470	47 pf	3 B
C731	0519106	4.7 μF 50V	3 A
C732	0519106	4.7 μF 50V	2 B
C733	0514221	220 μF 35V E.C.	3 A
C734	0514221	220 μF 35V	3 B
C799	0513221	220 μF 25V	3 A, B
R701	0107102	1kΩ	1 A
R702	0107102	1kΩ	1 B
R703	0107104	100kΩ	1 A
R704	0107104	100kΩ	1 B
R705	0107473	47kΩ	1 A
R706	0107473	47kΩ	1 B
R707	0107103	10kΩ	1 A
R708	0107103	10kΩ	1 B
R709	0107102	1kΩ	1 A
R710	0107102	1kΩ	1 B
R711	0107822	8.2kΩ	1 A
R712	0107822	8.2kΩ	1 B
R713	0107332	3.3kΩ	1 A
R714	0107332	3.3kΩ	1 B
R715	0107100	10Ω	1 B
R716	0107100	10Ω	1 B
R717	0107473	47kΩ	1 A
R718	0107473	47kΩ	1 B
R719	0107105	1MΩ	1 A
R720	0107105	1MΩ	1 B
R721	0107103	10kΩ	1 A
R722	0107103	10kΩ	1 B
R723	0107822	8.2kΩ	1 A
R724	0107822	8.2kΩ	1 B
R725	0107153	15kΩ	1, 2 A
R726	0107153	15kΩ	1, 2 B
R727	0107152	1.5kΩ	1, 2 A
R728	0107152	1.5kΩ	1, 2 B
R729	0107822	8.2kΩ	1, 2 A
R730	0107822	8.2kΩ	1, 2 B
R731	0107332	3.3kΩ	1, 2 A
R732	0107332	3.3kΩ	1, 2 B
R733	0107824	820kΩ	2 A
R734	0107824	820kΩ	2 B
R735	0107154	150kΩ	2 A
R736	0107154	150kΩ	2 B
R737	0107123	12kΩ	2 A
R738	0107123	12kΩ	2 B
R739	0107121	120Ω	2 A
R740	0107121	120Ω	2 B
R741	0107332	3.3kΩ	2 A
R742	0107332	3.3kΩ	2 B
R743	0107332	3.3kΩ	2 A
R744	0107332	3.3kΩ	2 B
R745	0107124	120kΩ	2 A
R746	0107124	120kΩ	2 B
R747	0107105	1MΩ	2 A
R748	0107105	1MΩ	2 B
R749	0107102	1kΩ	2 A
R750	0107102	1kΩ	2 B
R751	0107824	820kΩ	2 A
R752	0107824	820kΩ	2 B
R753	0107105	1MΩ	2 A

Parts No.	Stock No.	Description	Position
R754	0107105	1MΩ	2 B
R755	0107683	68kΩ	2 A
R756	0107683	68kΩ	2 B
R757	0107184	180kΩ	2, 3 B
R758	0107184	180kΩ	2, 3 B
R759	0107472	4.7kΩ	3 A
R760	0107472	4.7kΩ	3 B
R761	0107123	12kΩ ± 5% 1/4W C.R.	3 A
R762	0107123	12kΩ	3 B
R763	0107221	220Ω	3 A
R764	0107221	220Ω	3 B
R765	0107822	8.2kΩ	2, 3 A
R766	0107822	8.2kΩ	2, 3 B
R767	0107124	120kΩ	3 A
R768	0107124	120kΩ	3 B
R769	0103821	820Ω ± 5% 1/2W C.R.	3 B
R770	0103821	820Ω	3 A
R7109	0107103	10kΩ	3 B
R7110	0107103	10kΩ	3 B
R7111	0107152	1.5kΩ	3 A
R7112	0107152	1.5kΩ	3 B
R7113	0107563	56kΩ	3 B
R7114	0107683	68kΩ	3 A

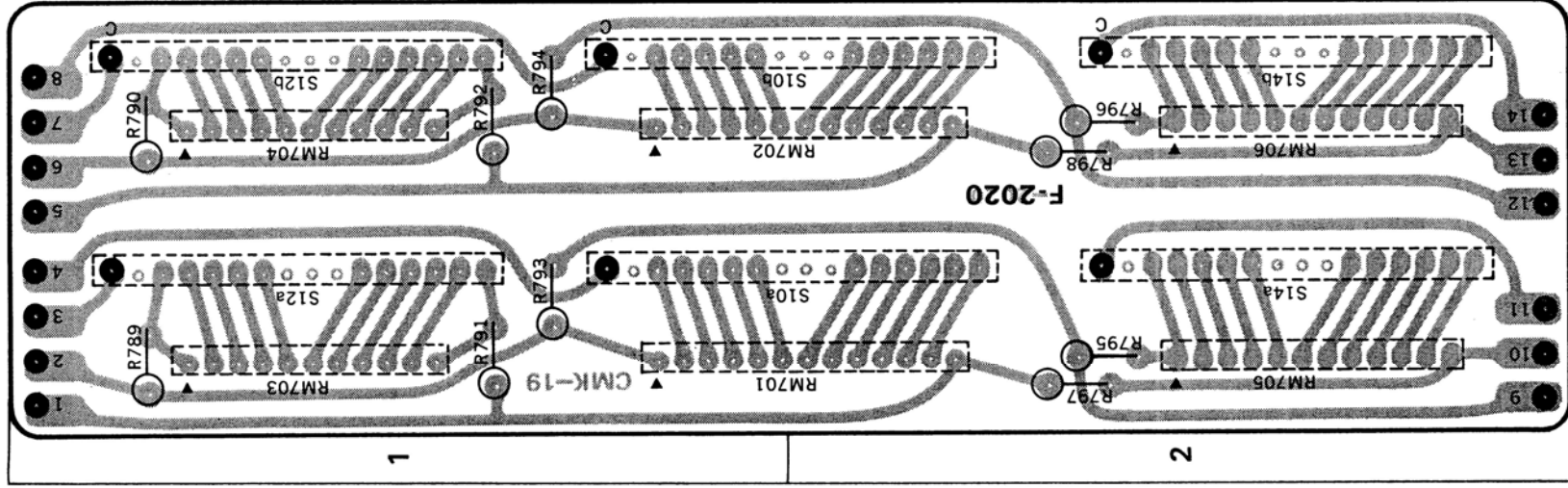
Abbreviations

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

5-5. F-2020 Tone Switch Circuit Board

(Stock No. 7591320 Complete Circuit Board F-2020)

Conductor Side



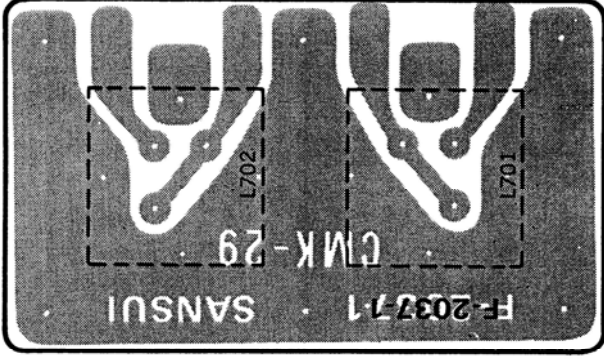
Parts List

Parts No.	Stock No.	Description	Position
R789	0106122	1.2k Ω	1
R790	0106122	1.2k Ω	1
R791	0106152	1.5k Ω	1
R792	0106152	1.5k Ω	1
R793	0106103	10k Ω	1
R794	0106103	10k Ω	1
R795	0106272	2.7k Ω	2
R796	0106272	2.7k Ω	2
R797	0106103	10k Ω	2
R798	0106103	10k Ω	2
RM701	0800260	RM-1205	1, 2
RM702	0800260	RM-1205	1, 2
RM703	0800250	RM-1006	1
RM704	0800250	RM-1006	1
RM705	0800240	RM-1104	2
RM706	0800240	RM-1104	2
S10	1102470	Rotary Switch FP-2-2-11, midrange	1, 2
S12	1102470	Rotary Switch FP-2-2-11, treble	1
S14	1102470	Rotary Switch FP-2-2-11, bass	2

5-6. F-2037-1 Choke Transformer Circuit Board

(Stock No. 7591330 Complete Circuit Board F-2037-1)

Conductor Side



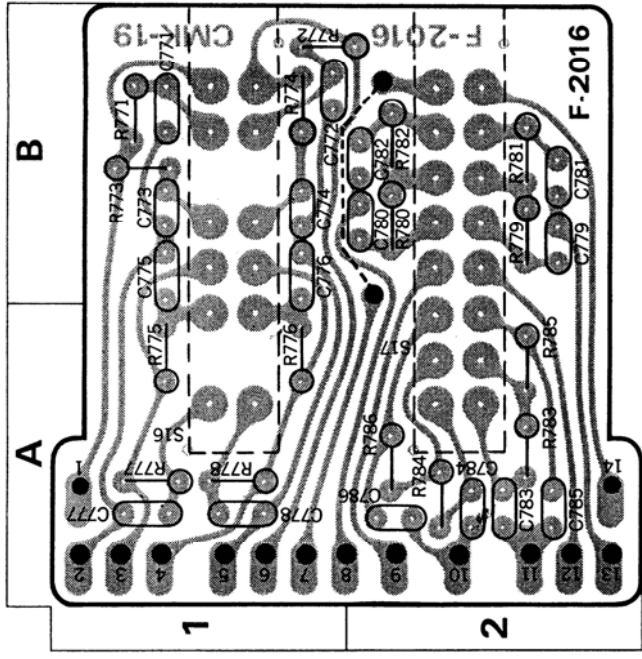
Parts List

Parts No.	Stock No.	Description
L701	4010060	Choke Transformer
L702	4010060	

5-7. F-2016C Filter Circuit Board

(Stock No. 7591800 Complete Circuit Board F-2016C)

Conductor Side



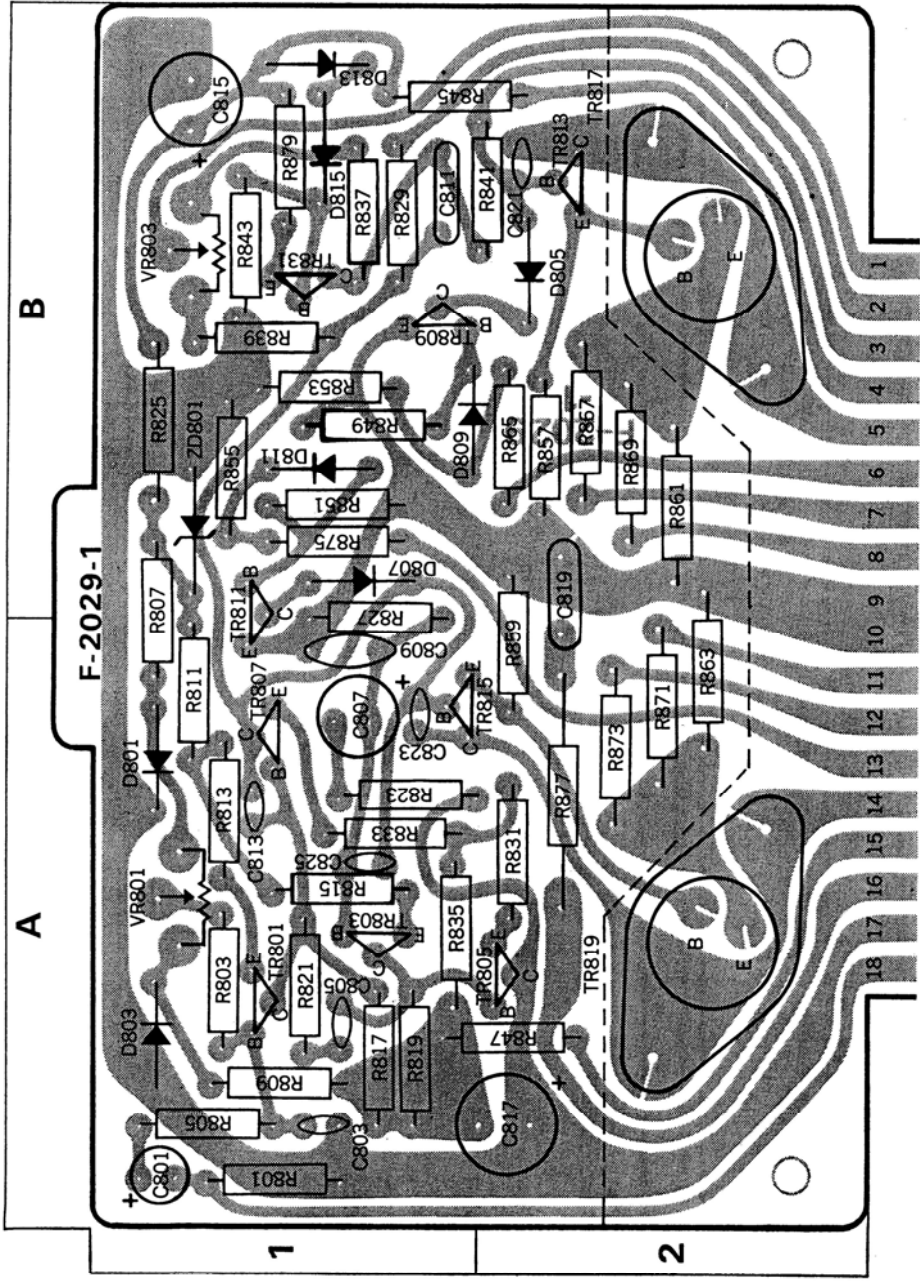
Parts List

Parts No.	Stock No.	Description	Position
C773	0600247	0.024 μ F	1B
C774	0600247	0.024 μ F	1B
C777	0600107	0.01 μ F	1A
C778	0600107	0.01 μ F	1A
C779	0600246	\pm 5% 50V M.C.	2B
C780	0600246	0.0024 μ F	2B
C783	0600106	0.001 μ F	2A
C784	0600106	0.001 μ F	2A
R773	0106105	1M Ω	1B
R774	0106105	1M Ω	1B
R777	0106105	1M Ω	1A
R778	0106105	1M Ω	1A
R779	0106105	1M Ω	2B
R780	0106105	1M Ω	2B
R783	0106105	1M Ω	2A
R784	0106105	1M Ω	2A

Abbreviations

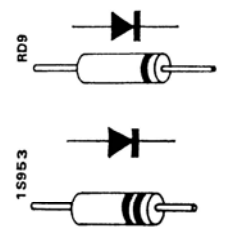
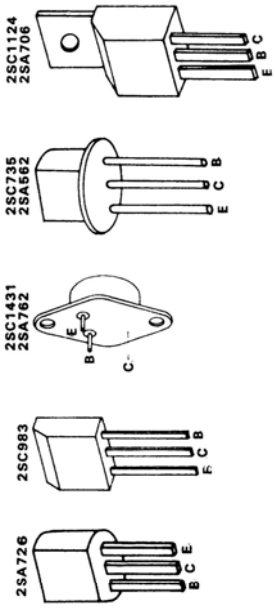
- C.R. : Carbon Resistor
- S.R. : Solid Resistor
- Ce.R. : Cement Resistor
- M.R. : Metallized Film Resistor
- M.C. : Mylar Capacitor
- E.C. : Electrolytic Capacitor
- BP.E.C.: Bi-Polar Electrolytic Capacitor
- C.C. : Ceramic Capacitor
- Mi.C. : Mica Capacitor
- O.C. : Oil Capacitor
- P.C. : Polystyrene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

**5-8. F-2029B Driver Circuit Board (Stock No. 7570780 Complete Circuit Board F-2029B)
Conductor Side**



Parts List

Parts No.	Stock No.	Description	Position
TR801	0300470, 1	2SA726Ⓢ (F, G)	1 A
TR803	0300470, 1	2SA726Ⓢ (F, G)	1 A
TR805	0306021, 2	2SC983 (O, Y)	2 A
TR807	0306021, 2	2SC983 (O, Y)	1 A
TR809	0305640, 1	2SC735 (O, Y)	1 B
TR811	0300220, 1	2SA562 (O, Y)	1 A, B
TR813	0305900, 1	2SC1124 (1, 2)	2 B
TR815	0300480, 1	2SA706-5 (1, 2)	1 A
TR817	0306120, 1	2SC1431-1 (1, 2)	2 B
TR819	0300570, 1	2SA762-1 (1, 2)	2 A
TR831	0300480, 1	2SA706-5 (1, 2)	1 B
} Transistor			
D801	0311050	1S953	1 A
D803	0311050	1S953	1 A
D805	0311050	1S953	2 B
D807	0311050	1S953	1 B
D809	0311050	1S953	1 B
D811	0311050	1S953	1 B
D813	0311050	1S953	1 B
D815	0311050	1S953	1 B
ZD801	0315220	RD9A(M)	1 B
} Diode			



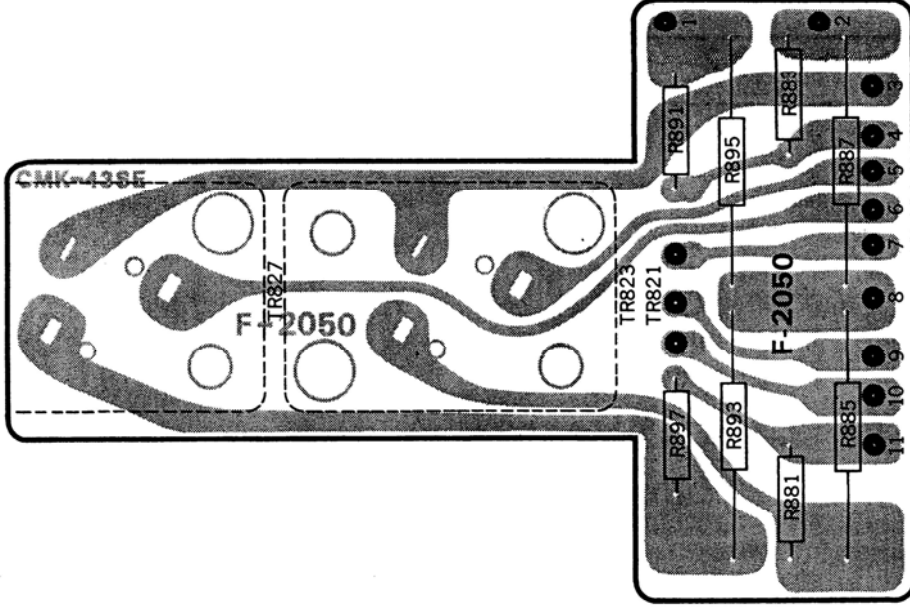
Parts List

Parts No.	Stock No.	Description	Position
C801	0519105	2.2 μ F	1 A
C803	0660330	33pF	50V E.C.
C805	0620681	680pF	50V C.C.
C807	0531470	47 μ F	50V P.C.
C809	0660209	2pF	10V BP.E.C.
C811	0601108	0.1 μ F	50V C.C.
C813	0660100	10pF	50V M.C.
C815	0519902	47 μ F	50V C.C.
C817	0519902	47 μ F	80V E.C.
C819	0601477	0.047 μ F	50V M.C.
C821	0660150	15pF	50V C.C.
C823	0660150	15pF	50V C.C.
C825	0660509	5pF	50V C.C.
R801	0107823	82k Ω	1 A
R803	0107104	100k Ω	1 A
R805	0107103	10k Ω	1 A
R807	0107822	8.2k Ω	1 A, B
R809	0107473	47k Ω	1 A
R811	0107472	4.7k Ω	5% 1/4W C.R.
R813	0107151	150 Ω	1 A
R815	0107151	150 Ω	1 A
R817	0107682	6.8k Ω	1 A
R819	0107682	6.8k Ω	1 A
R821	0107221	220 Ω	1 A
R823	0107332	3.3k Ω	1 A
R825	0103822	8.2k Ω	5% 1/2W C.R.
R827	0107104	100k Ω	1 A, B
R829	0107820	82 Ω	1 B
R831	0107330	33 Ω	5% 1/4W C.R.
R833	0107330	33 Ω	1 A
R835	0103471	470 Ω	5% 1/2W C.R.
R837	0107102	1k Ω	1 B
R839	0107271	270 Ω	1 B
R841	0107560	56 Ω	2 B
R843	0107473	47k Ω	1 B
R845	0107821	820 Ω	5% 1/4W C.R.
R847	0107331	330 Ω	1, 2 B
R849	0107680	68 Ω	1 B
R851	0107680	68 Ω	1 B
R853	0107333	33k Ω	1 B
R855	0107333	33k Ω	1 B
R857	0107561	560 Ω	5% 1/4W C.R.
R859	0107561	560 Ω	2 A, B
R861	0103470	47 Ω	2 B
R863	0103470	47 Ω	5% 1/2W C.R.
R865	0107479	4.7 Ω	5% 1/4W C.R.
R867	0103100	10 Ω	2 B
R869	0103100	10 Ω	2 B
R871	0103100	10 Ω	5% 1/2W C.R.
R873	0103100	10 Ω	2 A
R875	0107479	4.7 Ω	5% 1/4W C.R.
R877	0132100	10 Ω	5% 1/4W C.R.
R879	0107121	120 Ω	5% 1/4W C.R.
VR801	1031092	5k Ω (B)	1 A
VR803	1031022	200 Ω (B)	Semi-Variable Resistor 1 B

5-9. F-2050A Transistor Socket
Circuit Board

(Stock No. 7591820 Complete Circuit Board F-2050A)

Conductor Side



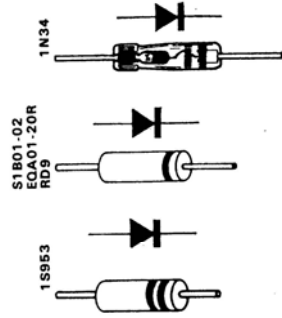
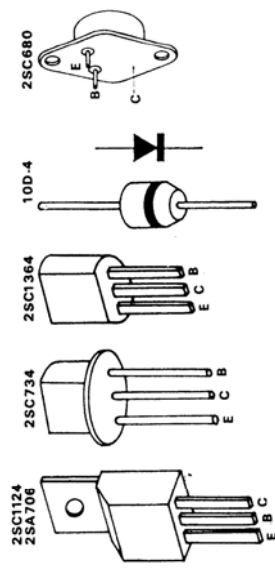
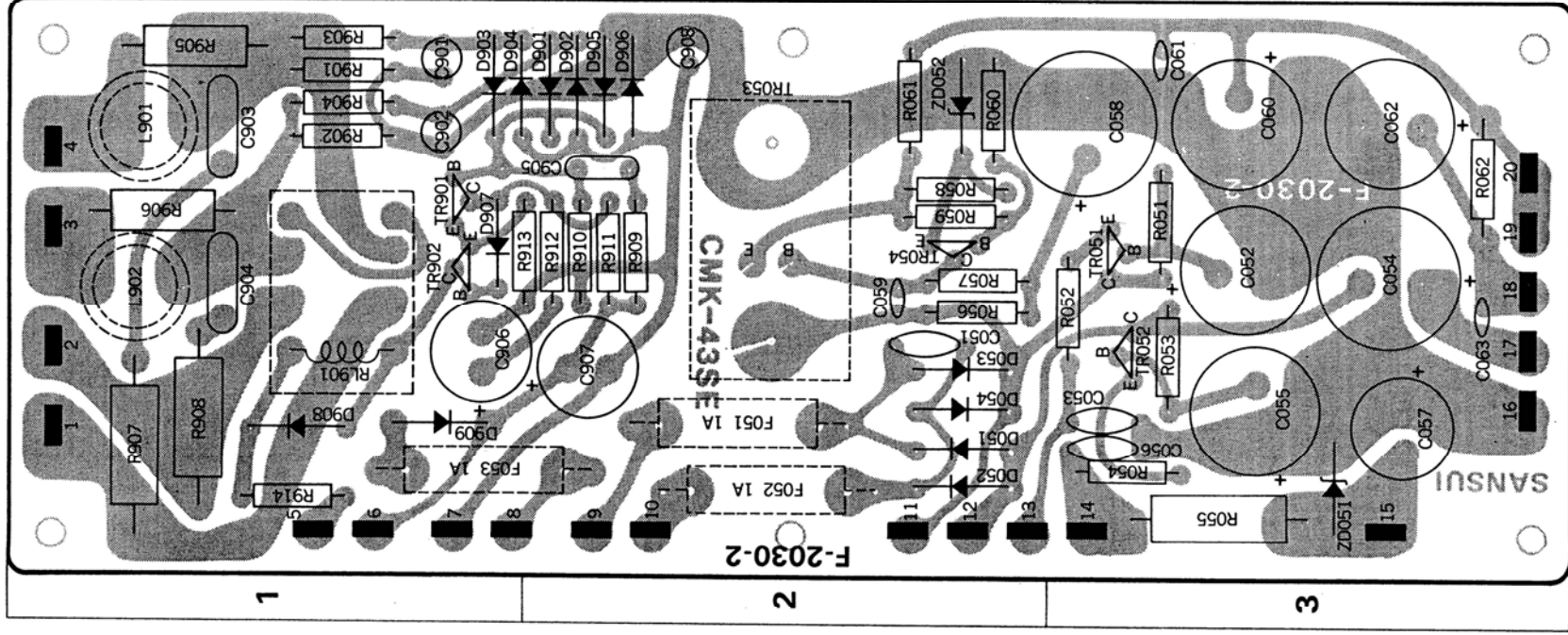
Parts List

Parts No.	Stock No.	Description
TR821	0305872	25C984 (C) Transistor
R881	0107151	150 Ω ± 5% 1/4W C.R.
R883	0107151	150 Ω ± 5% 1/4W C.R.
R885	0133478	0.47 Ω ± 10% 3W Ce.R.
R887	0133478	0.47 Ω ± 10% 3W Ce.R.
R889	0107151	150 Ω ± 5% 1/4W C.R.
R893	0133478	0.47 Ω ± 10% 3W Ce.R.
R895	0133478	0.47 Ω ± 10% 3W Ce.R.
R897	0107151	150 Ω ± 5% 1/4W C.R.
	2030020	Transistor Socket

Abbreviations

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

5-10. F-2030-1 Power & Protector Circuit Board (Stock No. 7500740 Complete Circuit Board F-2030-1)
Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
TR051	0305901.2	2SC1124 (2, 3)	3
TR052	0300391.2	2SA706 (2, 3)	3
TR053	0305621.2	2SC680 (B, C)	2
TR054	0305360.1	2SC734 (O, Y)	2
TR901	0306131.2	2SC1364 (6, 7)	1
TR902	0306131.2	2SC1364 (6, 7)	1
D051	0310360	10D-4	2
D052	0310360	10D-4	2
D053	0310360	10D-4	2
D054	0310360	10D-4	2
D901	0310401	1N34A	2
D902	0310401	1N34A	2
D903	0310401	1N34A	1
D904	0310401	1N34A	1
D905	0310401	1N34A	2
D906	0310401	1N34A	2
D907	0311050	1S953	1
D908	0311150	S1B01-02	1
D909	0311150	S1B01-02	1
ZD051	0315220	RD9A (M)	3
ZD052	0316040	EQA01-20R	2
L901	4210190	1.5μH	1
L902	4210190	1.5μH	1
RL901	1150250	MY-2 DC24V Relay	1
C051	0659011	0.01μF +80% -20%	2
C052	0519301	100μF 75V E.C.	3
C053	0659011	0.01μF +80% -20%	3
C054	0519302	220μF 75V E.C.	3
C055	0519301	100μF 75V E.C.	3
C056	0659011	0.01μF +80% -20%	3

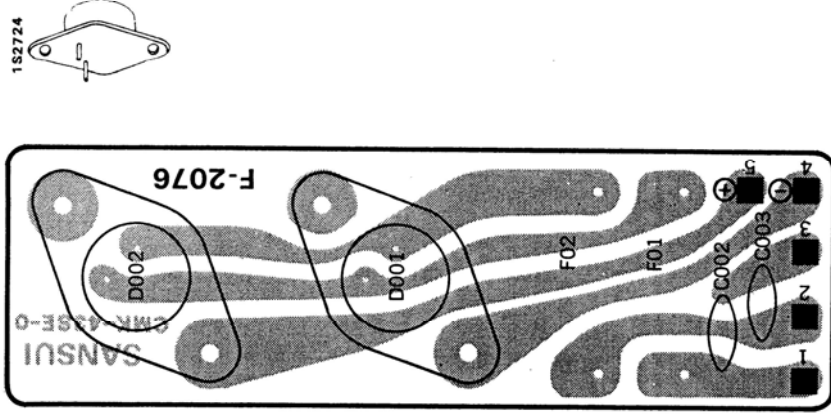
Parts List

Parts No.	Stock No.	Description	Position
C057	0512471	470 μ F	3
C058	0519302	220 μ F	3
C059	0657102	0.001 μ F +80% -20%	2
C060	0515221	220 μ F	3
C061	0657103	0.01 μ F +80% -20%	3
C062	0515221	220 μ F	3
C063	0657103	0.01 μ F +80% -20%	3
C901	0531470	47 μ F	1
C902	0531470	47 μ F	1
C905	0601338	0.33 μ F \pm 10%	2
C906	0510102	1000 μ F	1
C907	0515101	100 μ F	2
C908	0535109	1 μ F	2
R051	0107103	10k Ω	3
R052	0107680	68 Ω	3
R053	0107103	10k Ω	3
R054	0107680	68 Ω	3
R055	0105332	3.3k Ω	3
R056	0107222	2.2k Ω	2
R057	0107332	3.3k Ω	2
R058	0107683	68k Ω	2
R059	0107562	5.6k Ω	2
R060	0107472	4.7k Ω	2
R061	0107680	68 Ω	2
R062	0103471	470 Ω	2
R901	0107472	4.7k Ω	3
R902	0107472	4.7k Ω	1
R903	0107473	47k Ω	1
R904	0107473	47k Ω	1
R905	0104479	4.7 Ω	1
R906	0104479	4.7 Ω	1
R909	0107394	390k Ω	2
R910	0107224	220k Ω	2
R911	0107683	68k Ω	2
R912	0107220	22 Ω	2
R913	0107100	10 Ω	2
R914	0107100	10 Ω	2
F051	0432830	1A Wired-in Fuse	2
F052	0432830		2
F053	0432830		1, 2

5-11. F-2076 Rectifier Circuit Board

(Stock No. 7500860 Complete Circuit Board F-2076)

Conductor Side



Parts List

Parts No.	Stock No.	Description
D001	0311230	1S2724-R (S40R) Diode
D002	0311220	1S2724-R (S40)
C002	0659011	0.01 μ F +80% 500V C.C.
C003	0659011	0.01 μ F -20% 500V C.C.

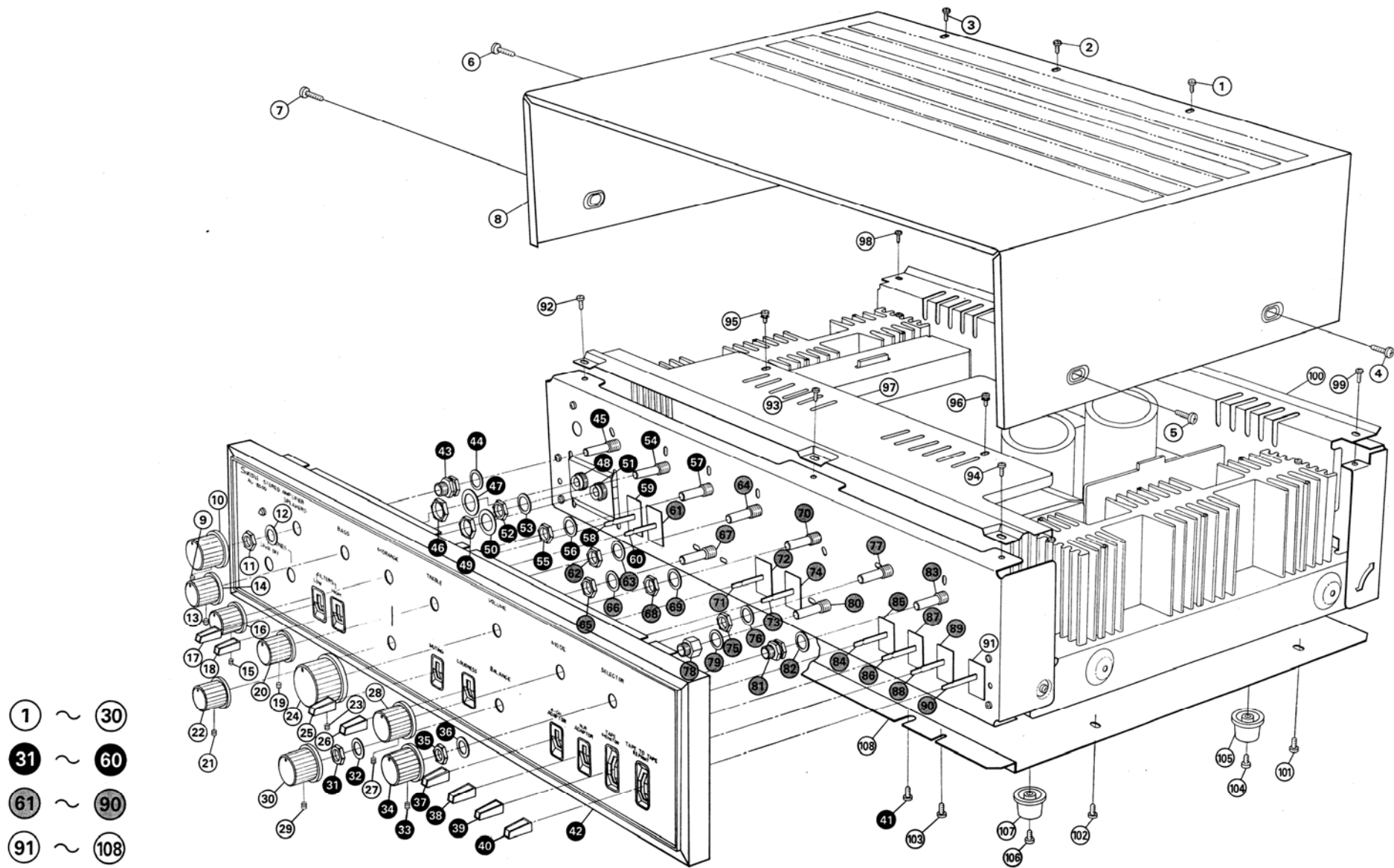
Abbreviations

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

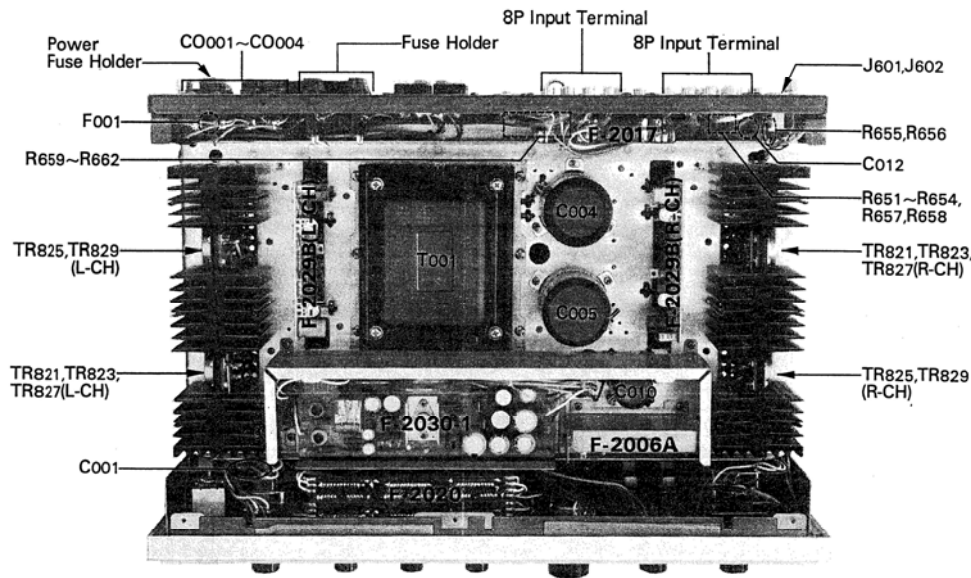
5-12. OTHER PARTS (Front Side)

Parts List

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5101143	Binding Head Screw, M3 x 6	62	5110781	Hex. Nut M9, treble
2	5101143	Binding Head Screw, M3 x 6	63	5120184	Plain Washer 9φ, treble
3	5101143	Binding Head Screw, M3 x 6	64	1102470	Rotary Switch F-2-2-11, treble
4	5101161	Binding Head Screw, M4 x 6	65	5110781	Hex. Nut M9, midrange
5	5101161	Binding Head Screw, M4 x 6	66	5120184	Plain Washer 9φ, midrange
6	5101161	Binding Head Screw, M4 x 6	67	1101490	Rotary Switch N-1-2-4, midrange
7	5101161	Binding Head Screw, M4 x 6	68	5110780	Hex. Nut M8, volume
8	5006272	Metal Bonnet	69	5120183	Plain Washer 8φ, volume
9	5317422	Hex Socket Setscrew, M4 x 0.7 x 6	70	1010580	250kΩ (B) x 2, volume
10	5317422	B-5 Type Knob, speaker	71	1170270	Lever Switch, muting
11	5110781	Hex. Nut M9, speaker	72	5047470	Masking, muting
12	5120184	Plain Washer 9φ, speaker	73	1170270	Lever Switch, Loudness
13	5326342	Hex Socket Setscrew, M4 x 0.7 x 6	74	5047470	Masking, Loudness
14	5317402	Z-4 Type Knob, bass	75	5110781	Hex. Nut M9, mode
15	5317402	Hex Socket Setscrew, M4 x 0.7 x 6	76	5120184	Plain Washer 9φ, mode
16	5317402	Z-4 Type Knob, midrange	77	1101191	Rotary Switch N-1-2-5, mode
17	5326342	Button D, low filter	78	5176251	Spacer Nut C, M8
18	5326342	Button D, high filter	79	5120183	Plain Washer, 8φ
19	5317402	Hex Socket Setscrew, M4 x 0.7 x 6	80	1010870	250kΩ (MN) x 2 Balance Volume
20	5317402	Z-4 Type Knob, treble	81	5176261	Spacer Nut D, M9
21	5317402	Hex Socket Setscrew, M4 x 0.7 x 6	82	5120184	Plain Washer 9φ, selector
22	5317402	Z-4 Type Knob, midrange	83	1104270	Rotary Switch, Y-4-8-5
23	5317412	Hex Socket Setscrew, M4 x 0.7 x 6	84	1170300	Lever Switch 4-Ch, adaptor
24	5326342	Button D, muting	85	5047470	Masking, 4-Ch adaptor
25	5326342	Button D, loudness	86	1170300	Lever Switch, N.R. adaptor
26	5326342	Hex socket Setscrew, M4 x 0.7 x 6	87	5047470	Masking, N.R. adaptor
27	5317422	B-5 Type Knob, mode	88	1170290	Lever Switch, tape monitor
28	5317422	Hex Socket Setscrew, M4 x 0.7 x 6	89	5047470	Masking, tape monitor
29	5317422	B-5 Type Knob, balance	90	1170290	Lever Switch, tape to tape reprint
30	5110781	Hex. Nut M9, balance	91	5047470	Masking, tape to tape reprint
31	5120184	Plain Washer 9φ, balance	92	5101143	Binding Head Screw, M3 x 6
32	5317422	B-5 Type Knob, selector	93	5101143	Binding Head Screw, M3 x 6
33	5110781	Hex. Nut M9, selector	94	5101143	Binding Head Screw, M3 x 6
34	5120184	Plain Washer 9φ, selector	95	5101444	Binding Head SEMS C Screw, M3 x 8
35	5326342	Button D, 4-ch adaptor	96	5101444	Binding Head SEMS C Screw, M3 x 8
36	5326342	Button D, noise reduction adaptor	97	5057812	Shield Plate
37	5326342	Button D, tape monitor	98	5101143	Binding Head Screw, M3 x 6
38	5326342	Button D, tape to tape reprint	99	5101143	Binding Head Screw, M3 x 6
39	5101143	Binding Head Screw, M3 x 6	100	5057821	Rear Panel Cover
40	5308521	Front panel	101	5101061	Binding Head Screw, M4 x 6
41	5176261	Spacer Nut D, M9	102	5101061	Binding Head Screw, M4 x 6
42	5120184	Plain Washer 9φ, speaker	103	5101061	Binding Head Screw, M4 x 6
43	1102460	Rotary Switch N-2-2-6, speaker	104	5100665	Binding Head Tapping Screw, M4 x 16
44	2430230	Hex. Nut M12, jack	105	5516821	Rubber Foot
45	2430230	Jack, headphone	106	5100665	Binding Head Tapping Screw, M4 x 16
46	2430230	Hex. Nut M12, Jack	107	5516821	Rubber Foot
47	2430220	Plain Washer 9φ, Jack	108	5057833	Bottom Plate
48	5110781	Hex. Nut M9, bass			
49	5120184	Plain Washer 9φ, bass			
50	1102470	Rotary Switch F-2-2-11, bass			
51	5110781	Hex. Nut M9, midrange			
52	5120184	Plain Washer 9φ, midrange			
53	1102470	Rotary Switch F-2-2-11, midrange			
54	5120184	Lever Switch, low filter			
55	1170270	Masking, lever switch			
56	5047470	Lever Switch, high filter			
57	1170270	Masking, lever switch			
58	5047470	Lever Switch, high filter			
59	1170270	Masking, lever switch			
60	5047470	Lever Switch, high filter			
61	5047470	Masking, lever switch			



5-13. OTHER PARTS (Top Side)



Top Side Parts List

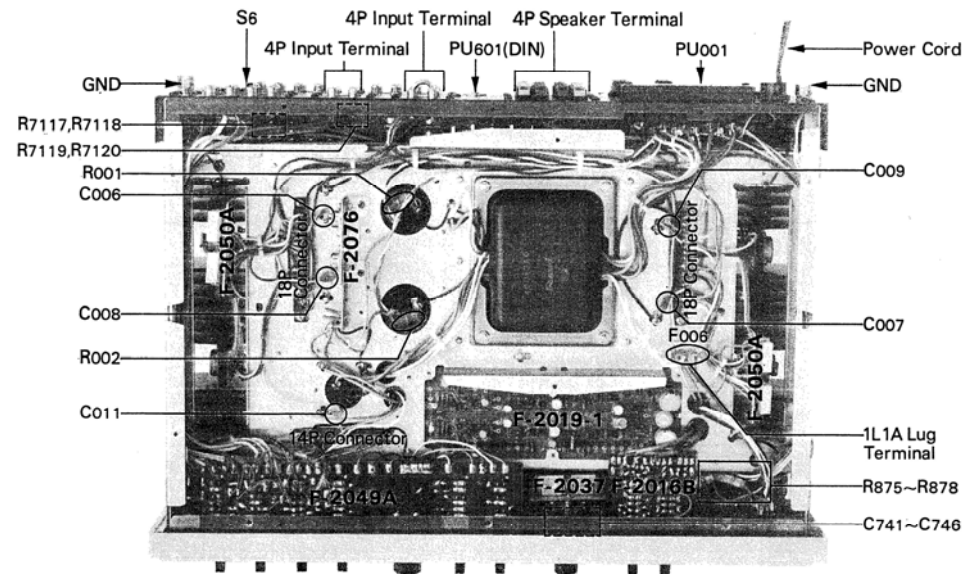
Parts No.	Stock No.	Description
TR821	0305872	25C984 (C)
TR823	0306200, 1	25C1030 (A, B)
TR825	0300560, 1	25A756 (A, B)
TR827	0306200, 1	25C1030 (A, B)
TR829	0300560, 1	25A756 (A, B)
C001	0605477	0.047 μ F 250V M.C.
C004	0559350	15000 μ F 50V
C005	0559350	15000 μ F 50V
C010	0559839	1000 μ F 50V
C012	0800121	0.047 μ F x 4 50V Capacitor Composite Parts
R651	0107563	56k Ω
R652	0107563	56k Ω
R653	0107473	47k Ω
R654	0107473	47k Ω
R655	0107104	100k Ω
R656	0107104	100k Ω
R657	0107104	100k Ω
R658	0107104	100k Ω
R659	0107104	100k Ω
R660	0107104	100k Ω

Parts No.	Stock No.	Description
R661	0107224	220k Ω
R662	0107224	220k Ω
F001	{ 0431270 0431290 2300060	4A Power Fuse (220~250V) 6A Power Fuse (100~127V) Power Fuse Holder
F002~5	{ 0433290 2300020	Wired-in Fuse (6A 250V) Fuse Holder
CO001~4	2450040	AC Outlet
T001	4001350	Power Transformer
	2460070	PM Connector
	2200340	8P Input Terminal

Abbreviations

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

5-14. OTHER PARTS (Bottom Side)



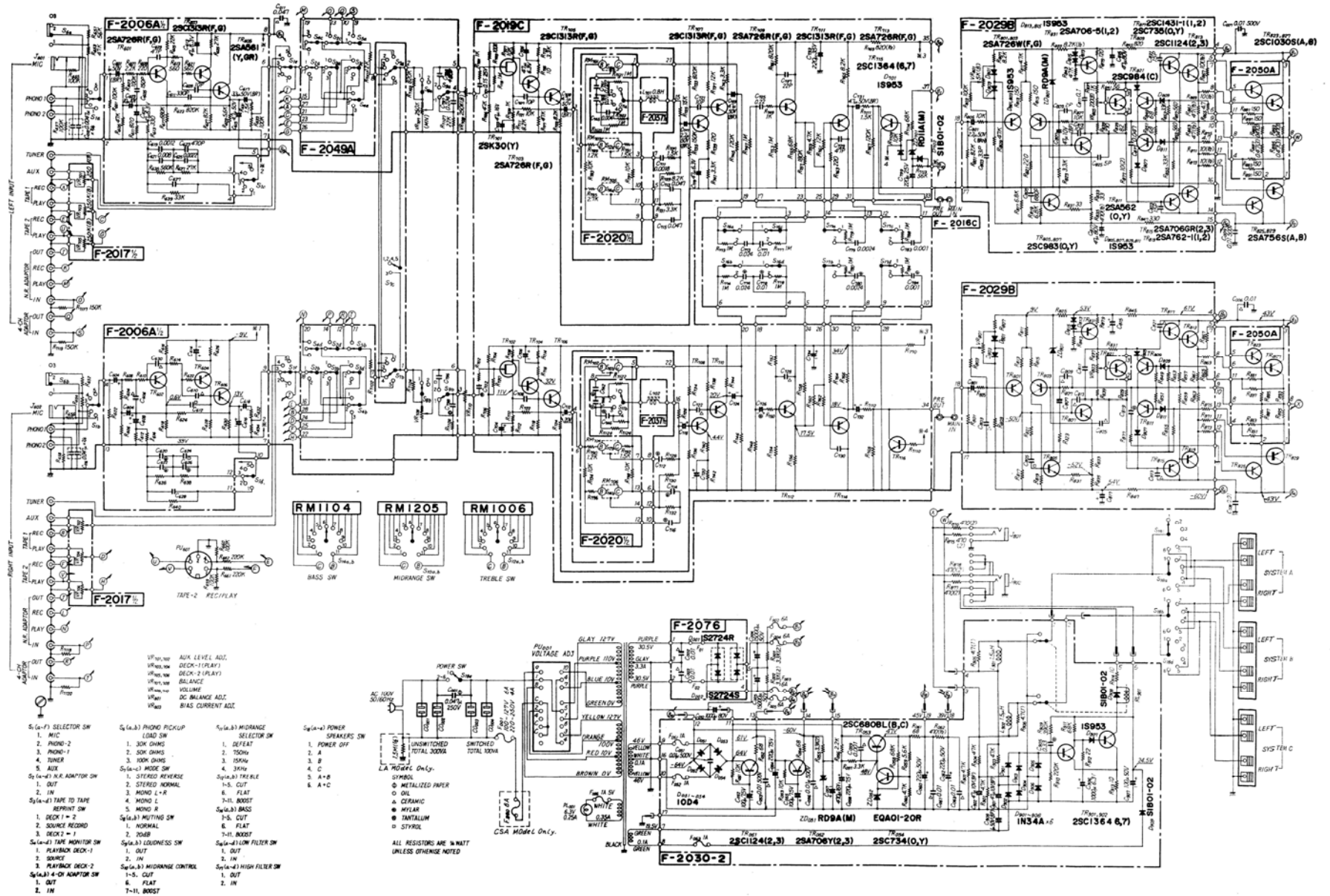
Bottom Side Parts List

Parts No.	Stock No.	Description
C006	0659011	0.01 μ F 500V
C007	0659011	0.01 μ F 500V
C008	0659011	0.01 μ F 500V
C009	0659011	0.01 μ F 500V
C011	0657473	0.047 μ F 50V
C741	0600227	0.022 μ F
C742	0600227	0.022 μ F
C743	0600107	0.01 μ F
C744	0600107	0.01 μ F
C745	0600406	0.004 μ F
C746	0600406	0.004 μ F
R001	0105332	3.3k Ω
R002	0105332	3.3k Ω
R661	0107224	220k Ω
R662	0107224	220k Ω
R875	0152471	470 Ω
R876	0152471	470 Ω
R877	0152471	470 Ω
R878	0152471	470 Ω
R7117	0107154	150k Ω
R7118	0107154	150k Ω

Parts No.	Stock No.	Description
R7119	0107154	150k Ω
R7120	0107154	150k Ω
F006	0432830, 1	Wired-In Fuse (1A 250V)
S6	1110110	Slide Switch
PU001	{ 2410170 2410190 2410180	Voltage Selector, socket Voltage Selector, plug (sub) Voltage Selector, plug (main)
PU601	2430040	DIN Connector
	3800090	Power Cord
	2200320	4P Input Terminal
	2290100	4P Speaker Terminal
	2420040	14P Input Terminal
	2420020	18P Input Terminal
	2230050	Ground Terminal
	2110010	1L1A Lug Terminal

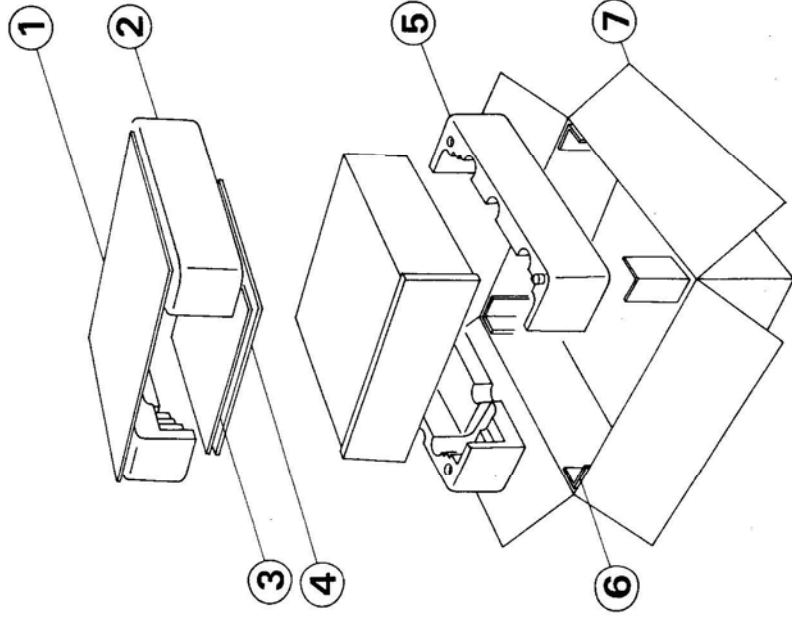
6. SCHEMATIC DIAGRAM

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



7. PACKING LIST

Parts No.	Stock No.	Description
1	9017220	Inner Packing
2	9027713	Stylofoam Packing
3	9017270	Sub Packing
4	9017270	Sub Packing
5	9027713	Stylofoam Packing
6	9017250	Corner Packing
7	9007282	Carton Case

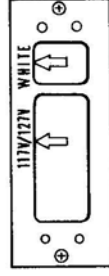


9. MAINTENANCE

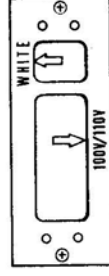
9-1. Voltage Adjustment

The Voltage Selector on the rear panel enables you to operate at correct voltage in any areas. The voltage has been preadjusted at the factory, but can be easily changed as follows.

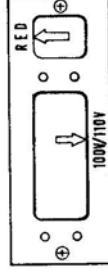
1. Remove the two screws securing the name plate on the rear, then remove the name plate.
2. Set the arrow mark on the Main Voltage Selector Plug to the new voltage: 100, 110, 117, 127, 220, 230, 240, or 250 volts.
3. If the new voltage is indicated in red, set the arrow mark on the adjacent Sub Voltage Selector Plug to "RED". If it is indicated in white, however, set that arrow to "WHITE".
4. Change the power fuse as well whenever the power supply voltage has changed. For 100~127 volts operation, use a 6-ampere grass-tubed fuse. For 220~250 volts operation, use a 4-ampere one.
5. Where the power supply voltage considerably fluctuates, the Main Voltage Selector Plug may be reset to avoid unpleasant side effects of such fluctuation. Reset it to the voltage immediately higher than the peak of the fluctuation.



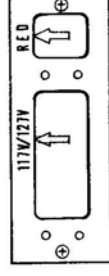
117V



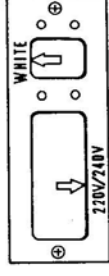
100V



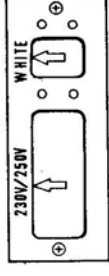
110V



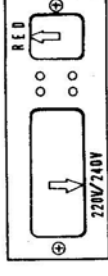
127V



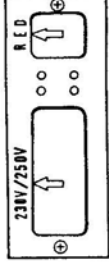
220V



230V



240V



250V

8. ACCESSORY PARTS LIST

Stock No.	Description
9406020	Polishing Cloth
0433290	6A Quick Acting Fuse
2410110	Pin Plug (red)
2410120	Pin Plug (white)
9226940	Operating Instruction Sheet
9206940	Operating Instructions