

SERVICE MANUAL

4-CHANNEL/2-CHANNEL AMPLIFIER

SANSUI QA-5000
QA-6000



Sansui

SANSUI ELECTRIC CO., LTD.

1. SPECIFICATIONS

1-1. QA-5000

AUDIO SECTION

POWER OUTPUT

10watts per channel, min. RMS, four channels driven into 8 ohms from 40Hz to 20KHz, with no more than 0.8% total harmonic distortion.

Music power (IHF)70W (4 ohms 1,000Hz)
65W (8 ohms 1,000Hz)

Continuous RMS power output per channel
four channels driven12W (8 ohms 1,000Hz)
BTL connection14W (8 ohms 1,000Hz)

LOAD IMPEDANCE.....8 ohms

POWER BANDWIDTH40 to 20,000Hz
at or below rated min.
RMS power output and
total harmonic distortion

TOTAL HARMONIC DISTORTION

OVERALL (from AUX)....less than 0.8%
at or below rated min.
RMS power output

INTERMODULATION DISTORTION

(70Hz:7000Hz=4:1 SMPTE method)
OVERALL (from AUX)....less than 0.8%
at rated min. RMS power
output

FREQUENCY RESPONSE (at 1 Watt power output)

OVERALL (from AUX)....30 to 30,000Hz ± 1 dB

EQUALIZATION (RIAA curve)
.....30 to 15,000Hz ± 1.0 dB

DAMPING FACTOR40 (8 ohms)

CHANNEL SEPARATION (at 1,000Hz)

PHONObetter than 45dB

TUNER, AUX, TAPEbetter than 45dB

HUM AND NOISE (IHF)

PHONObetter than 65dB

TUNER, AUX, TAPEbetter than 70dB

INPUT SENSITIVITY AND IMPEDANCE (1,000Hz for rated power output)

PHONO2.5mV 50K Ω

(Max. input capability; more than 100mV at 0.5% distortion)

TUNER, AUX150mV 50K Ω

TAPE PLAY Pin Jacks150mV 50K Ω

TAPE REC/PLAY DIN Socket
.....150mV 50K Ω

RECORDING OUTPUT

TAPE REC Pin Jack150mV

TAPE REC/PLAY DIN Socket
.....30mV

TONE CONTROLS

BASS+12dB, -12dB at 50Hz

TREBLE+12dB, -12dB at 10,000Hz

LOUDNESS+8dB at 50Hz
+3dB at 10,000Hz

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1-2. QA-6000

AUDIO SECTION

POWER OUTPUT

18watts per channel, min. RMS, four channels driven into 8 ohms from 20Hz to 20KHz, with no more than 0.5% total harmonic distortion.

Music power (IHF) 120W (4 ohms 1,000Hz)

100W (8 ohms 1,000Hz)

BTL connection 150W (8 ohms 1,000Hz)

Continuous RMS power output

each channel driven 25W/ch. (8 ohms 1,000Hz)

BTL connection 50W/ch. (8 ohms 1,000Hz)

four channels driven 22W×4 (8 ohms 1,000Hz)

BTL connection 45W×2 (8 ohms 1,000Hz)

BTL connection 40W×2 (8 ohms 20~20,000Hz)

LOAD IMPEDANCE 8 ohms

POWER BANDWIDTH 20 to 20,000Hz

at or below rated min.

RMS power output and
total harmonic distortion

TOTAL HARMONIC DISTORTION

OVERALL (from AUX).... less than 0.5%

at or below rated min.

RMS power output

INTERMODULATION DISTORTION

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

OVERALL (from AUX).... less than 0.5%

at rated min. RMS power
output

FREQUENCY RESPONSE (at 1 Watt power output)

OVERALL (from AUX).... 20 to 40,000Hz $\pm 1/2$ dB

EQUALIZATION (RIAA curve)

..... 30 to 15,000Hz ± 0.5 dB

DAMPING FACTOR 50 (8 ohms)

CHANNEL SEPARATION (at 1,000Hz)

PHONO better than 45dB

TUNER, AUX, TAPE better than 50dB

HUM AND NOISE (IHF)

PHONO better than 65dB

TUNER, AUX, TAPE better than 70dB

INPUT SENSITIVITY AND IMPEDANCE (1,000Hz for rated power output)

PHONO 2.5mV 50K Ω

(Max. input capability; more than 270mV at 0.5% distortion)

TUNER, AUX 100mV 50K Ω

TAPE PLAY Pin Jacks 100mV 50K Ω

TAPE REC/PLAY DIN Socket

..... 100mV 50K Ω

RECORDING OUTPUT

TAPE REC Pin Jacks 100mV

TAPE REC/PLAY DIN Socket

..... 30mV

SWITCHES AND CONTROLS

BASS +12dB, -12dB at 50Hz

TREBLE +12dB, -12dB at 15,000Hz

LOUDNESS +8dB at 50Hz

+3dB at 10,000Hz

LOW FILTER -3dB at 70Hz (6dB/oct)

HIGH FILTER -3dB at 7,000Hz (6dB/oct)

1-3. QA-5000, QA-6000

4-CHANNEL DECODER SECTION

QS DECODER (TYPE-A QS VARIO MATRIX*)

SEPARATION 20dB between adjacent
channels

30dB between diagonal
channels

DISTORTION less than 0.1% at 1,000Hz

FREQUENCY RESPONSE 20 to 30,000Hz

QS SYNTHESIZER (TYPE-A QS VARIO MATRIX)

SEPARATION Equivalent to QS DECODER

DISTORTION Equivalent to QS DECODER

FREQUENCY RESPONSE

..... Equivalent to QS DECODER

SQ FUNCTION (PHASE MATRIX**)

SEPARATION 20dB (LF-RF)

12dB (CF-CB)

CD-4 DEMODULATOR

SEPARATION (STD test signal at 1,000Hz)

..... 45dB (L-R)

25dB (F-B)

FREQUENCY RESPONSE (STD test signal at REC OUT)

..... 30 to 15,000Hz MAIN-CH.

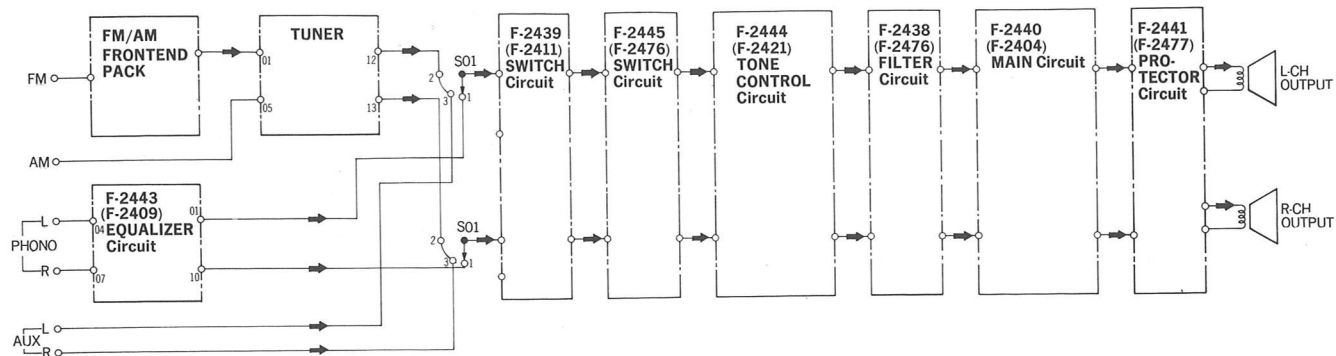
*U.S. Patent No. 3825684

**U.S. Patent No. 3783192

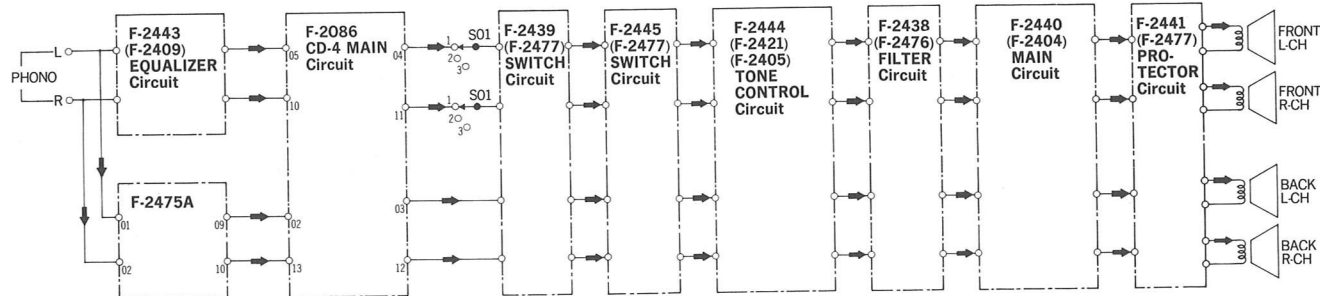
* Design and specifications subject to change without notice for improvements.

2. BLOCK DIAGRAM (QA-5000, QA-6000)

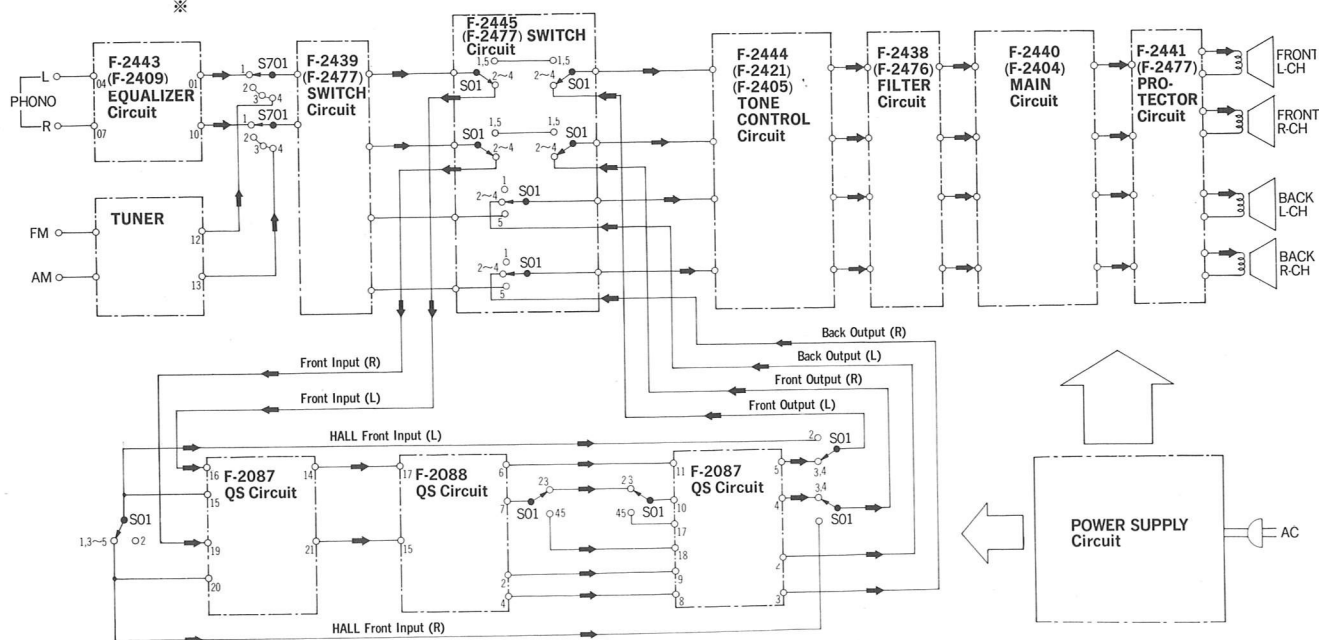
2-CH DIRECT OPERATIVE BLOCK DIAGRAM



CD-4/4-CH DIRECT OPERATIVE BLOCK DIAGRAM



SYNTHESIZER, QS, SQ, OPERATIVE BLOCK DIAGRAM



S701: SELECTOR

1. PHONO
2. FM AUTO
3. FM MONO (FM MUT. OFF)
4. AM

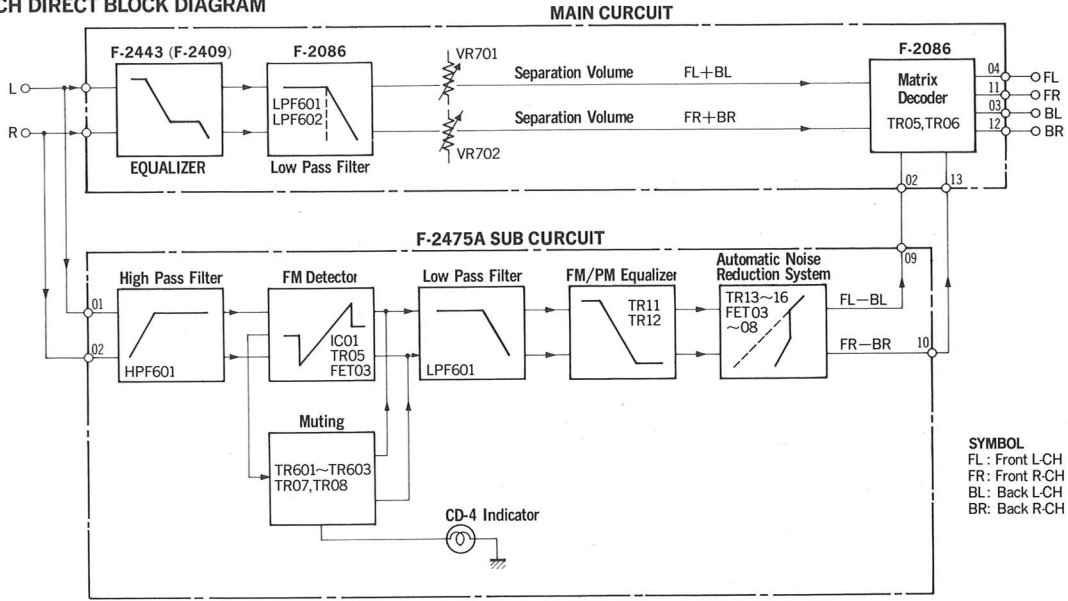
S01: FUNCTION

1. 2-CH
2. SYNTHESIZER SURROUND
3. SYNTHESIZER HALL
4. QS
- ※5. SQ
6. CD-4/DIRECT

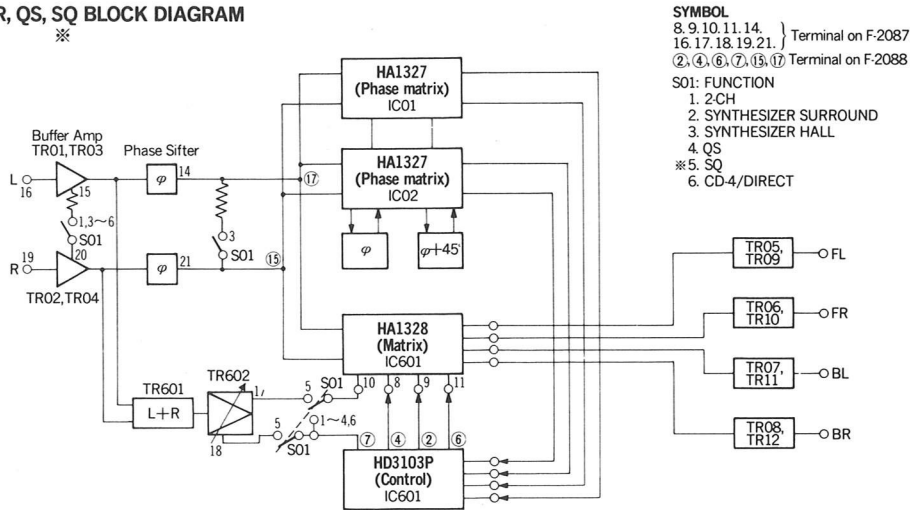
* F-number described in parentheses () means the name of Printed Circuit Board used in QA-5000.

※SQ is a trade mark of CBS, INC''

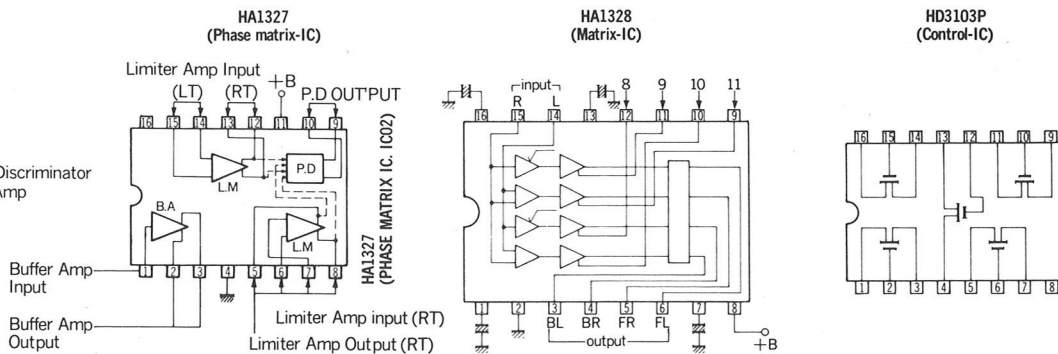
CD-4/4-CH DIRECT BLOCK DIAGRAM



SYNTHESIZER, QS, SQ BLOCK DIAGRAM



SYMBOL
L.M: Limiter
P.D: Phase Discriminator
B.A: Buffer Amp



3. ALIGNMENT AND ADJUSTMENT

3-1. Regulated Supply Voltage Adjustment (QA-5000, QA-6000)

- Note:** 1. Master VolumeMinimum
 2. Check volt AC power line

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT		ADJUST		ADJUST FOR
			QA-5000	QA-6000	QA-5000	QA-6000	
1	Supply voltage to 4-CH	DC Volt Meter	Terminal of 01 on F-2477 (Fig. 3-1)	Lead Colour of Red on F-2479 (Fig. 3-3)	VR01 on F-2477 (Top Side) (Fig. 3-4)	VR601 no F-2459 (Fig. 3-3)	0 25V
2	Supply voltage to B.T.L.	DC Volt Meter	Collector of TR10 on F-2405 (Fig.3-4)	Test Point of Bottom side on F-2445 (Fig. 3-2)	VR02 on F-2477 (Fig. 3-4)	VR602 on F-2459 (Fig. 3-3)	0 0V

Fig. 3-1

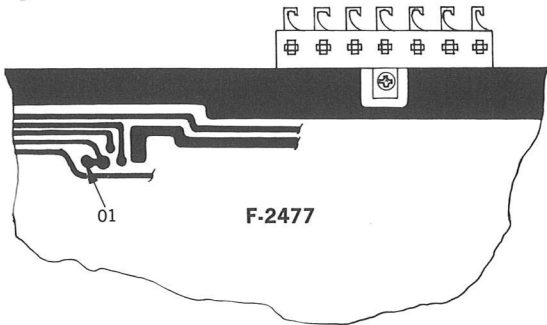


Fig. 3-3

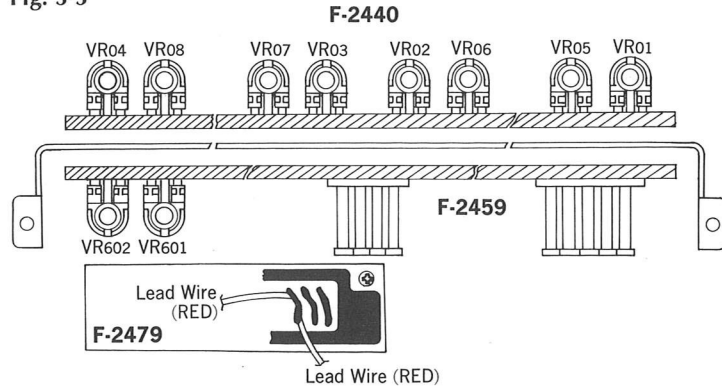


Fig. 3-2

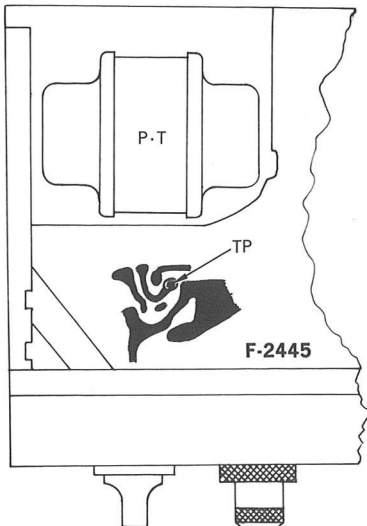
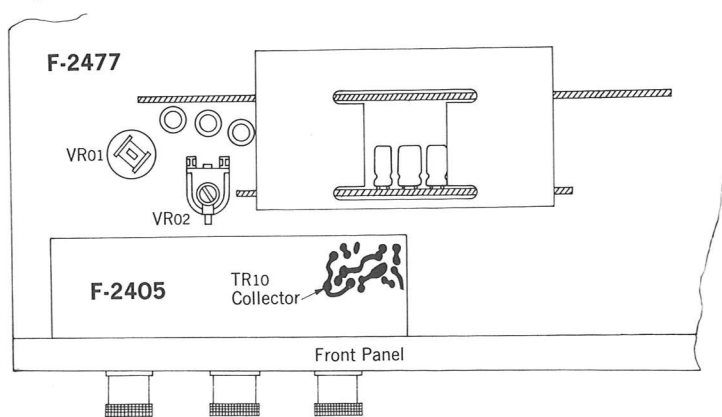


Fig. 3-4



3-2. Driver Circuit Board Adjustment (QA-6000 Only)

- Note:** 1. Master VolumeMinimum
 2. Make the SP terminals free (no load).
 3. For adjustment, run the unit for more than 3 minutes after the power is switched on.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1.	DC 0V Front L-CH	DC Volt meter	Speaker terminal Front L-CH (Fig. 3-5)	F-2440 VR01 (Fig. 3-7)	0V	◦ Turn all volumes, VR05, 06, 07, 08 counterclockwise fully
2.	Front R-CH	DC Volt meter	Speaker terminal Front R-CH (Fig. 3-5)	F-2440 VR02 (Fig. 3-7)	0V	
3.	DC 0V Back L-CH	DC Volt meter	Speaker terminal Back L-CH (Fig. 3-5)	F-2440 VR03 (Fig. 3-7)	0V	
4.	DC 0V Back R-CH	DC Volt meter	Speaker terminal Back R-CH (Fig. 3-5)	F-2440 VR04 (Fig. 3-7)	0V	
5.	Bias Current Front L-CH	DC milliammeter	F-2441 F01 (Fig. 3-6)	F-2440 VR05 (Fig. 3-7)	27mA	◦ Step down meter's range accordingly.
6.	Bias Current Front R-CH	DC milliammeter	F-2441 F02 (Fig. 3-6)	F-2440 VR06 (Fig. 3-7)	27mA	
7.	Bias Current Back L-CH	DC milliammeter	F-2441 F03 (Fig. 3-6)	F-2440 VR07 (Fig. 3-7)	27mA	
8.	Bias Current Back R-CH	DC milliammeter	F-2441 F04 (Fig. 3-6)	F-2440 VR08 (Fig. 3-7)	27mA	

Fig. 3-5

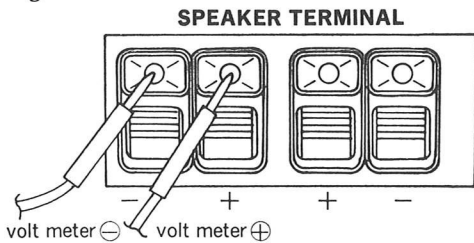


Fig. 3-6

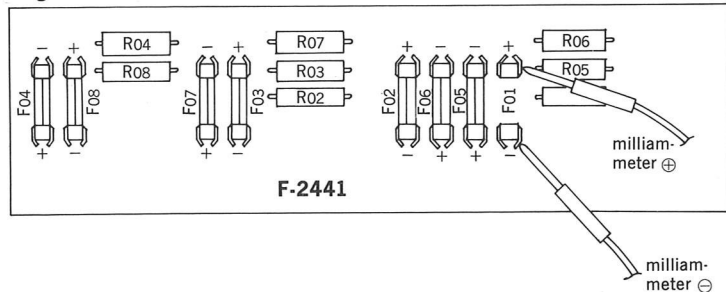
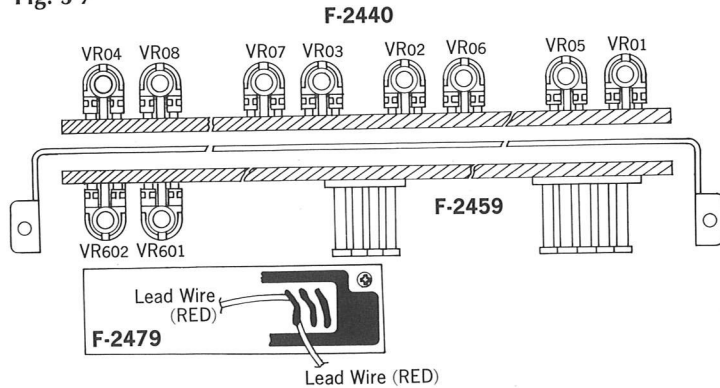
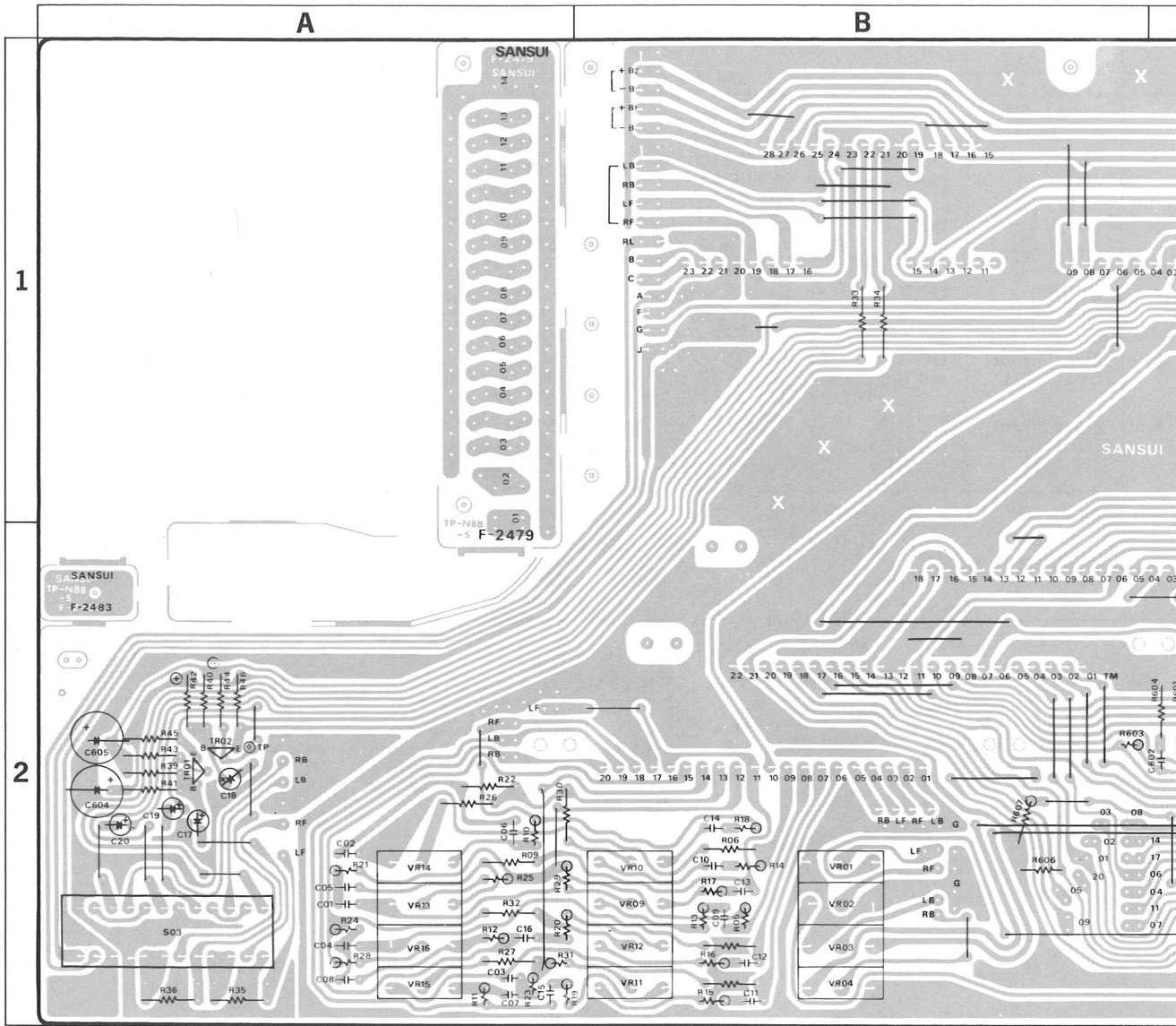


Fig. 3-7



4. PARTS LOCATION AND PARTS LIST

4-1. F-2445 Mother Circuit Board (Stock No. 7592330 Complete Circuit Board F-2445) Conductor Side (QA-6000)

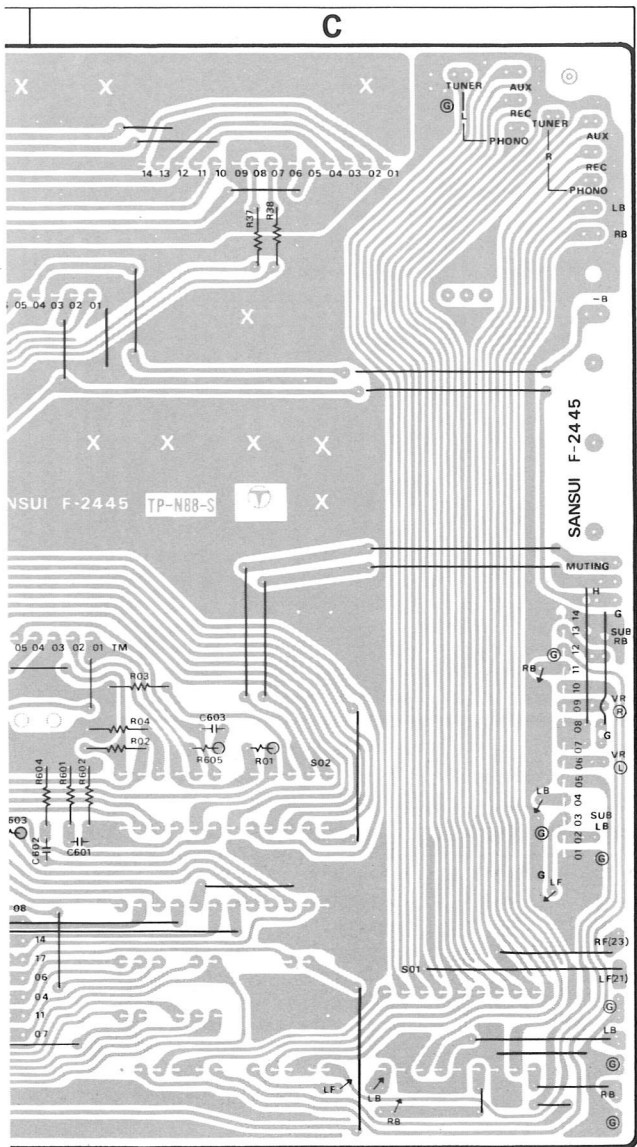


Parts List

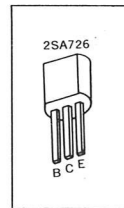
Parts No.	Stock No.	Description	Position
TR01, 02	0300410, 1	2SA726 (F, G) Transistor	2 A
VR01-04	1060350, 1	250kΩ (MN) × 4 Balance VR	2 B
VR09-12	1060430, 1	100kΩ (B) × 4 Treble VR	2 B
VR13-16	1060430, 1	100kΩ (B) × 4 Bass VR	2 A
S01	1102610, 1	SRE-2-5-3 Selector Switch	2 C
S02	1106140, 1	SRE-6-22-5 Decoder Mode Switch	2 C
S03	1102620, 1	SRE-2-9-2 Power Amplifier Switch	2 A
C01, 02	0600567	0.056 μF } 50V M.C.	2 A
C03, 04	0600567		2 A
C05, 06	0600567		2 A
C07, 08	0600567		2 A

Parts No.	Stock No.	Description	Position
C09, 10	0601476	0.0047 μF } 50V M.C.	2 B
C11, 12	0601476		2 B
C13, 14	0601476		2 B
C15, 16	0601476	0.0047 μF	2 A
C17, 18	0519102	3.3 μF } 50V E.C. (BRN)	2 A
C19, 20	0519102		2 A
C601	0600157	0.015 μF } 50V M.C.	2 C
C602	0600227		2 C
C603	0600567		2 C
C604	0513470	47 μF 25V E.C.	2 A
C605	0511470	47 μF 10V E.C.	2 A
C606	0657473	0.047 μF } 50V C.C.	
C607	0657473		

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
 B.P.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



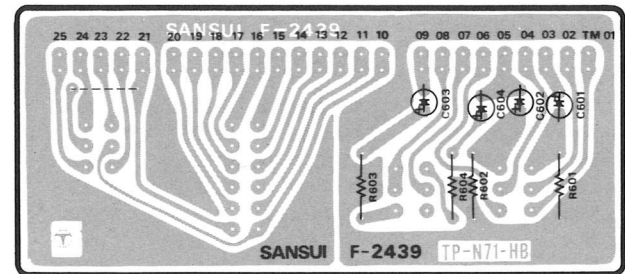
Parts No.	Stock No.	Description	Position
R25, 26	0106272	2.7k Ω	2 A
R27, 28	0106272	2.7k Ω	2 A
R29, 30	0106221	220 Ω	2 A
R31, 32	0106221	220 Ω	1/4 W C.R. (E.L.R)
R33, 34	0106222	2.2k Ω	1 B
R35, 36	0106102	1k Ω	2 A
R37, 38	0106222	2.2k Ω	1 C
R39, 40	0107224	220k Ω	2 A
R41, 42	0107823	82k Ω	2 A
R43, 44	0107392	3.9k Ω	1/4 W C.R.
R45, 46	0107392	3.9k Ω	2 A
R601	0107681	680 Ω	2 C
R602	0107152	1.5k Ω	2 C
R603	0106563	56k Ω	1/4 W C.R. (E.L.R)
R604	0107471	470 Ω	1/4 W C.R.
R605	0106121	120 Ω	2 C
R606	0106154	150k Ω	1/4 W C.R. (E.L.R)
R607	0106154	150k Ω	2 B



4-2. F-2439 Switch Circuit Board

(Stock No. 7592310 Complete Circuit Board F-2439)

Conductor Side (QA-6000)

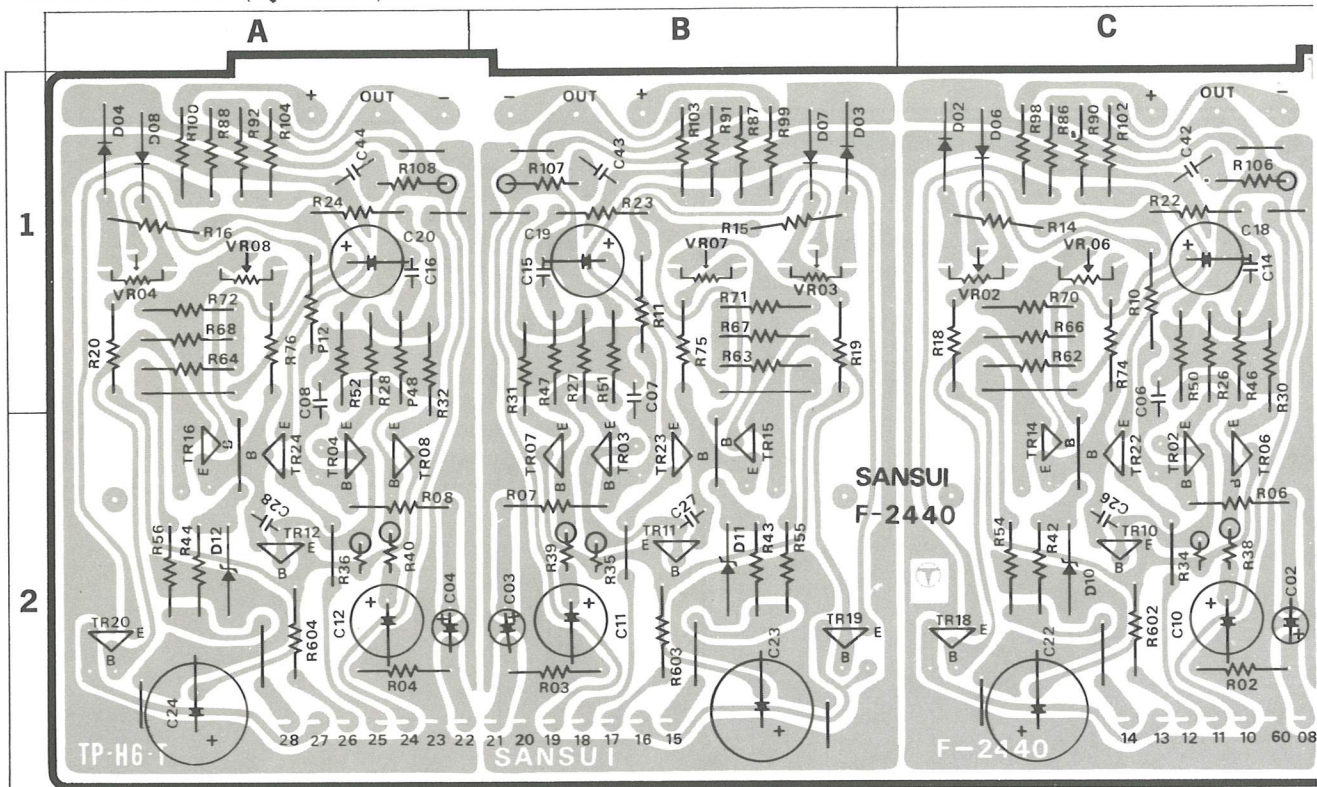


Parts No.	Stock No.	Description	Position
R01	0106563	56k Ω 1/4 W C.R. (E.L.R)	2 C
R02	0107563	56k Ω 1/4 W C.R.	2 C
R03, 04	0107182	1.8k Ω	2 C
R05, 06	0106103	10k Ω	2 C
R07, 08	0106103	10k Ω	
R09, 10	0106103	10k Ω	2 A
R11, 12	0106103	10k Ω	2 A
R13, 14	0106182	1.8k Ω 1/4 W C.R. (E.L.R)	2 B
R15, 16	0106182	1.8k Ω	2 B
R17, 18	0106272	2.7k Ω	2 B
R19, 20	0106272	2.7k Ω	2 A
R21, 22	0106102	1k Ω	2 A
R23, 24	0106102	1k Ω	2 A

Parts List

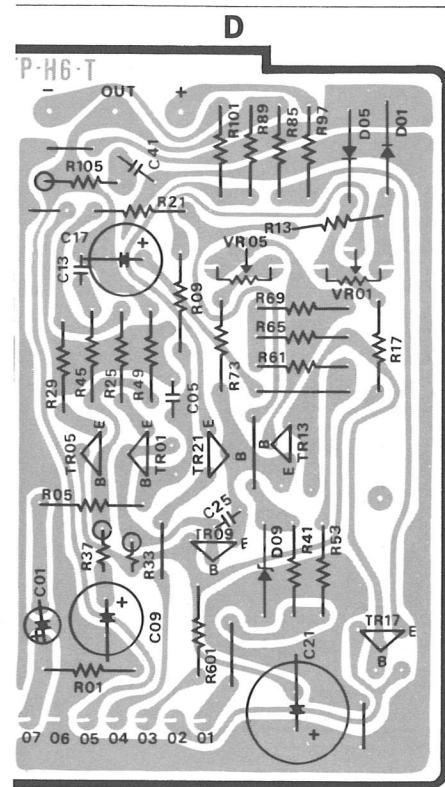
Parts No.	Stock No.	Description
C601	0519001	10 μ F
C602	0519001	10 μ F
C603	0519001	10 μ F
C604	0519001	10 μ F
R601	0107563	56k Ω
R602	0107563	56k Ω
R603	0107392	3.9k Ω
R604	0107562	5.6k Ω
	1170350	SX-15-6, 2-CH TAPE
	1170370	SX-15-8, 4-CH TAPE
	1131030	SUB-24 (2 stage), HALL, SURROUND

4-3. F-2440 Driver Circuit Board (Stock No. 7571030 Complete Circuit Board F-2440)
Conductor Side (QA-6000)



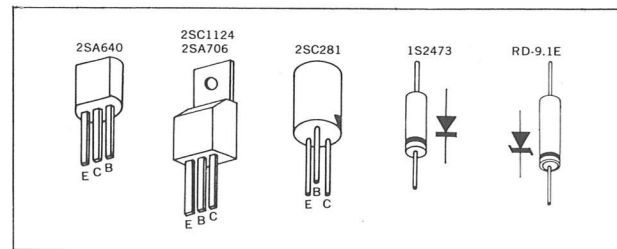
Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	
TR01	0300303, 5	2SA640 (K, L)	Transistor	D05	0311160	1S2473D	1 D	
TR02	0300303, 5	2SA640 (K, L)		D06	0311160	1S2473D	1 C	
TR03	0300303, 5	2SA640 (K, L)		D07	0311160	1S2473D	1 B	
TR04	0300303, 5	2SA640 (K, L)		D08	0311160	1S2473D	1 A	
TR05	0300303, 5	2SA640 (K, L)		D09	{ 0316230 RD-9.1E (C) ar or }	Zener Diode	2 D	
TR06	0300303, 5	2SA640 (K, L)		D10	{ 0316240 RD-9.1E (B) or or }		2 C	
TR07	0300303, 5	2SA640 (K, L)		D11	{ 0316230 RD-9.1E (C) or or }	2 B		
TR08	0300303, 5	2SA640 (K, L)		D12	{ 0316240 RD-9.1E (B) 0316230 RD-9.1E (C) ar or }	2 A		
TR09	0305901, 2	2SC1124 (2, 3)		VR01	1031470	5kΩ (B)	1 D	
TR10	0305901, 2	2SC1124 (2, 3)		VR02	1031470	5kΩ (B)	1 C	
TR11	0305901, 2	2SC1124 (2, 3)		VR03	1031470	5kΩ (B)	1 B	
TR12	0305901, 2	2SC1124 (2, 3)		VR04	1031470	5kΩ (B)	Semi-Variable Resistor	
TR13	0305121, 2	2SC281 (B, C)		VR05	1031440	1kΩ (B)		1 D
TR14	0305121, 2	2SC281 (B, C)		VR06	1031440	1kΩ (B)		1 C
TR15	0305121, 2	2SC281 (B, C)		VR07	1031440	1kΩ (B)		1 B
TR16	0305121, 2	2SC281 (B, C)		VR08	1031440	1kΩ (B)		1 A
TR17	0305901, 2	2SC1124 (2, 3)		C01, 02	0519103	0.47μF		50V E.C. (BRN)
TR18	0305901, 2	2SC1124 (2, 3)		C03, 04	0519103	0.47μF		
TR19	0305901, 2	2SC1124 (2, 3)						2 B, 2 A
TR20	0305901, 2	2SC1124 (2, 3)						
TR21	0300381, 2	2SA706 (2, 3)						
TR22	0300381, 2	2SA706 (2, 3)						
TR23	0300381, 2	2SA706 (2, 3)						
TR24	0300381, 2	2SA706 (2, 3)						
D01	0311160	1S2473D						
D02	0311160	1S2473D						
D03	0311160	1S2473D						
D04	0311160	1S2473D						



Parts No.	Stock No.	Description	Position
C05, 06	0661151	150pF } 50V C.C.	1,2D,12,D
C07, 08	0661151	150pF }	1,2B, 1,2A
C09, 10	0511221	220μF } 10V E.C.	1D, 2C
C11, 12	0511221	220μF }	2B, 2A
C13, 14	0661100	10pF } 50V C.C.	1D, 1C
C15, 16	0661100	10pF }	1B, 1A
C17, 18	0515330	33μF } 50V E.C.	1D, 1C
C19, 20	0515330	33μF }	1B, 1A
C21, 22	0515101	100μF }	1D, 2C
C23, 24	0515101	100μF }	2B, 2A
C25, 26	0661330	33pF } 50V C.C.	1D, 2C
C27, 28	0661330	33pF }	2B, 2A
C33, 34	0660680	68pF }	
C35, 36	0660680	68pF }	
R01, 02	0107104	100kΩ } 2D, 2C	
R03, 04	0107104	100kΩ }	2B, 2A
R05, 06	0107222	2.2kΩ } 2D, 2C	
R07, 08	0107222	2.2kΩ }	2B, 2A
R09, 10	0107104	100kΩ } 1D, 1C	
R11, 12	0107104	100kΩ }	1B, 1A
R13, 14	0107223	22kΩ } 1/4W C.R.	1D, 1C
R15, 16	0107223	22kΩ }	1B, 1A
R17, 18	0107683	68kΩ } 1D, 1C	
R19, 20	0107683	68kΩ }	1B, 1A
R21, 22	0107103	10kΩ } 1D, 1C	
R23, 24	0107103	10kΩ }	1B, 1A
R25, 26	0107100	10Ω } 1D, 1C	
R27, 28	0107100	10Ω }	1B, 1A

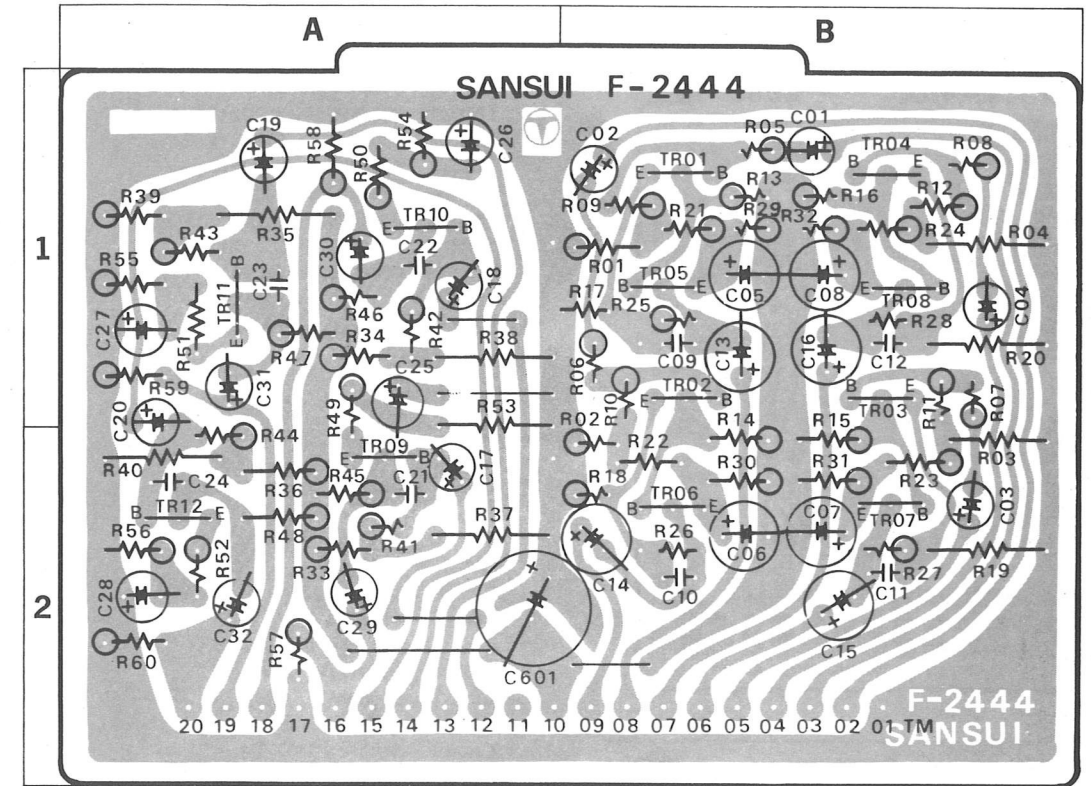
Parts No.	Stock No.	Description	Position
R29, 30	0107100	10Ω } 1,2D,1,2C	
R31, 32	0107100	10Ω }	12C, 1A
R33, 34	0107152	1.5kΩ } 1/4W C.R.	2D, 2C
R35, 36	0107152	1.5kΩ }	2B, 2A
R37, 38	0106222	2.2kΩ } 1/4W C.R. (E.L.R.)	2D, 2C
R39, 40	0106222	2.2kΩ }	2B, 2A
R41, 42	0107682	6.8kΩ } 2D, 2C	
R43, 44	0107682	6.8kΩ }	2B, 2A
R45, 46	0107104	100kΩ } 1D, 1C	
R47, 48	0107104	100kΩ }	1B, 1A
R49, 50	0107223	22kΩ } 1D, 1C	
R51, 52	0107223	22kΩ }	1B, 1A
R53, 54	0107182	1.8kΩ } 2D, 2C	
R55, 56	0107182	1.8kΩ }	2B, 2A
R61, 62	0107472	4.7kΩ } 1D, 1C	
R63, 64	0107472	4.7kΩ }	1B, 1A
R65, 66	0107390	39Ω } 1D, 1C	
R67, 68	0107390	39Ω }	1B, 1A
R69, 70	0107472	4.7kΩ } 1/4W C.R.	1D, 1C
R71, 72	0107472	4.7kΩ }	1B, 1A
R73, 74	0107122	1.2kΩ } 1D, 1C	
R75, 76	0107122	1.2kΩ }	1B, 1A
R85, 86	0107221	220Ω } 1D, 1C	
R87, 88	0104221	220Ω }	1B, 1A
R89, 90	0107221	220Ω } 1D, 1C	
R91, 92	0107221	220Ω }	1B, 1A
R97, 98	0107479	4.7Ω } 1D, 1C	
R99, 100	0107479	4.7Ω }	1B, 1A
R101, 102	0107479	4.7Ω } 1D, 1C	
R103, 104	0107479	4.7Ω }	1B, 1A
R105, 106	0104100	10Ω } 1W C.R.	1D, 1C
R107, 108	0104100	10Ω }	1B, 1A
R601, 602	0107151	150Ω } 2D, 2C	
R603, 604	0107151	150Ω }	2B, 2A



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

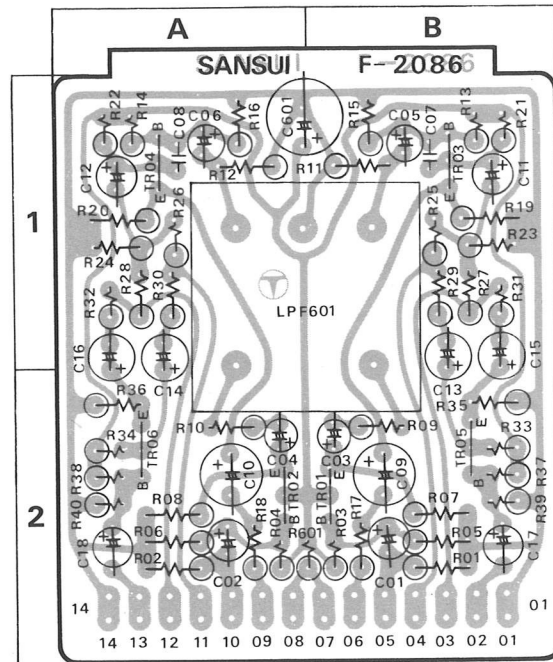
4-4. F-2444 Tone Control Circuit Board (Stock No. 7560940 Complete Circuit Board F-2444) Conductor Side (QA-6000)



Parts List

Parts No.	Stock No.	Description	Position
TR01, 02	0300410, 1	2SA726(F, G) } Transistor	1B
TR03, 04	0300410, 1	2SA726(F, G) }	1B
TR05, 06	0306070, 1	2SC1313(F, G) }	1B, 2B
TR07, 08	0306070, 1	2SC1313(F, G) }	2B, 1B
TR09, 10	0300410, 1	2SA726(F, G) }	2A, 1A
TR11, 12	0300410, 1	2SA726(F, G) }	1A, 2A
C01, 02	0573478	0.47μF } 25V T.C.	1B
C03, 04	0573478	0.47μF }	2B, 1B
C05, 06	0512470	47μF } 16V E.C.	1B, 2B
C07, 08	0512470	47μF }	2B, 1B
C09, 10	0660100	10pF } 50V C.C.	1B, 2B
C11, 12	0660100	10pF }	2B, 1B
C13, 14	0519471	4.7μF } 50V E.C. (BRN)	1B, 2B
C15, 16	0519471	4.7μF }	2B, 1B
C17, 18	0519101	1μF } 50V E.C. (BRN)	2A, 1A
C19, 20	0519101	1μF }	1A, 1,2A
C21, 22	0660220	22pF } 50V C.C.	2A, 1A
C23, 24	0660220	22pF }	1A, 2A
C25, 26	0512330	33μF } 16V E.C.	1A
C27, 28	0512330	33μF }	1A, 2A
C29, 30	0519101	1μF } 50V E.C. (BRN)	2A, 1A
C31, 32	0519101	1μF }	1A, 2A
C601	0515470	47μF } 50V E.C.	2A, B
R01, 02	0106473	47kΩ } 1/4W C.R. (E.L.R.)	1B, 2B
R03, 04	0107473	47kΩ } 1/4W C.R.	2B, 1B
R05, 06	0106122	1.2kΩ } 1/4W C.R. (E.L.R.)	1B
R07, 08	0106122	1.2kΩ }	1B
R09, 10	0106394	390kΩ } 1/4W C.R.	1B
R11, 12	0106394	390kΩ }	1B
R13, 14	0106224	220kΩ } 1/4W C.R.	1B, 2B
R15, 16	0106224	220kΩ }	2B, 1B
R17, 18	0106331	330Ω } 1/4W C.R.	1AB, 2B
R19, 20	0107331	330Ω }	2B, 1B
R21, 22	0106564	560kΩ } 2B, 1B	
R23, 24	0106564	650kΩ }	2B, 1B
R25, 26	0106152	1.5kΩ } 1/4W C.R. (E.L.R.)	1B, 2B
R27, 28	0106152	1.5kΩ }	2B, 1B
R29, 30	0106102	1kΩ } 1/4W C.R. (E.L.R.)	1B, 2B
R31, 32	0106102	1kΩ }	2B, 1B
R33, 34	0106394	390kΩ } 2A, 1A	
R35	0107394	390kΩ } 1/4W C.R.	1A
R36	0106394	390kΩ } 1/4W C.R. (E.L.R.)	2A
R37, 38	0107333	33kΩ } 1/4W C.R.	2A, 1A
R39	0106333	33kΩ } 1/4W C.R. (E.L.R.)	1A
R40	0107333	33kΩ } 1/4W C.R.	2A
R41, 42	0106394	390kΩ } 2A, 1A	
R43, 44	0106394	390kΩ }	1A, 1,2A
R45, 46	0106183	18kΩ } 1/4W C.R. (E.L.R.)	2A, 1A
R47, 48	0106183	18kΩ }	1A, 2A
R49, 50	0106151	150Ω } 1A	
R51, 52	0106151	150Ω }	1A, 2A
R53	0107102	1kΩ } 1/4W C.R.	1A
R54	0106102	1kΩ } 1A	
R55, 56	0106102	1kΩ } 1/4W C.R. (E.L.R.)	1A, 2A
R57, 58	0106104	100kΩ } 2A, 1A	
R59, 60	0106104	100kΩ }	1A, 2A

4-5. F-2086 CD-4 Main Circuit Board
(Stock No. 7650250 Complete Circuit Board F-2086)
Conductor Side (QA-5000, QA-6000)



Parts List

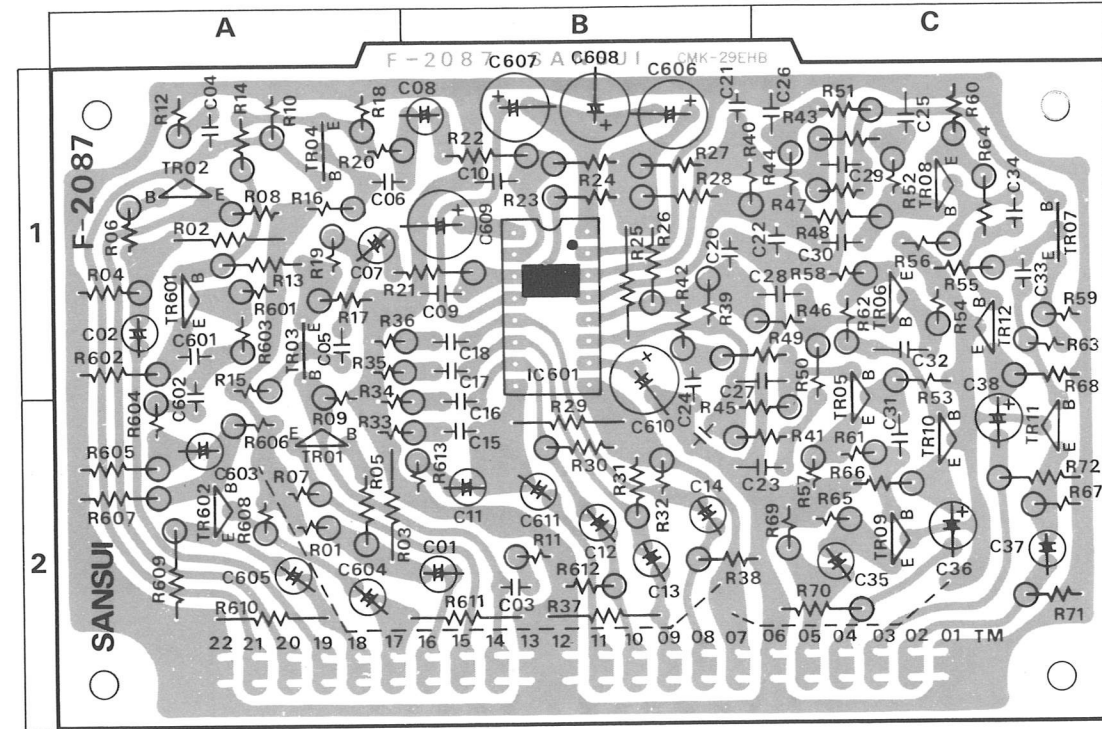
Parts No.	Stock No.	Description	Position
TR01, 02	0306090, 1	2SC1312 (F, G)	} Transistor
TR03, 04	0306090, 1	2SC1312 (F, G)	
TR05, 06	0306090, 1	2SC1312 (F, G)	
LPF601	0910230	VSL-200-3 Low Pass Filter	2A,B,1A,B
C01, 02	0515109	1μF 50V E.C.	2B. 2A
C03, 04	0513479	4.7μF 25V E.C.	2B. 2A
C05, 06	0515109	1μF 50V E.C.	1B. 1A
C07, 08	0660330	33pF 50V C.C.	1B. 1A
C09, 10	0510101	100μF 6.3V E.C.	2B. 2A
C11, 12	0519105	2.2μF	1B. 1A
C13, 14	0519102	3.3μF	} 50V E.C. (BRN)
C15, 16	0519102	3.3μF	
C17, 18	0515109	1μF 50V E.C.	2B. 2A
C601	0513101	100μF 25V E.C.	1A, B
R01, 02	0106474	470kΩ	2B. 2A
R03, 04	0106274	270kΩ	2B. 2A
R05, 06	0106274	270kΩ	2B. 2A
R07, 08	0106332	3.3kΩ	2B. 2A
R09, 10	0106472	4.7kΩ	2B. 2A
R11, 12	0106472	4.7kΩ	1B. 1A
R13, 14	0106274	270kΩ	1B. 1A
R15, 16	0106823	82kΩ	1B. 1A
R17, 18	0106271	270Ω	2B. 2A
R19, 20	0106392	3.9kΩ	1B. 1A
R21, 22	0106822	8.2kΩ	} 1/4W C.R. (E.L.R.)
R23, 24	0106124	120kΩ	
R25, 26	0106123	12kΩ	1B. 1A
R27, 28	0106103	10kΩ	1B. 1A
R29, 30	0106103	10kΩ	1B. 1A
R31, 32	0106103	10kΩ	1B. 1A
R33, 34	0106102	1kΩ	2B. 2A
R35, 36	0106102	1kΩ	2B. 2A
R37, 38	0106394	390kΩ	2B. 2A
R39, 40	0106274	270kΩ	2B. 2A
R601	0106151	150Ω	2A, B

4-6. F-2087 QS Matrix Circuit Board (Stock No. 7650260 Complete Circuit Board F-2087)

Parts List (QA-5000, QA-6000)

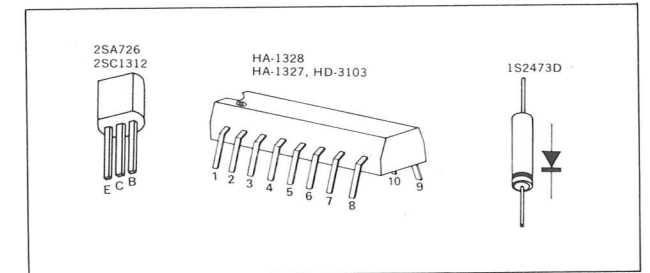
Parts No.	Stock No.	Description	Position
TR01, 02	0300410, 1	2SA726 (F, G)	2A. 1A
TR03, 04	0306090, 1	2SC1312 (F, G)	1A
TR05, 06	0306091	2SC1312 (G)	1,2C. 1C
TR07, 08	0306091	2SC1312 (G)	1C
TR09, 10	0306090, 1	2SC1312 (F, G)	2C
TR11, 12	0306090, 1	2SC1312 (F, G)	2C. 1C
TR601	0306090, 1	2SC1312 (F, G)	1A
TR602	0306090, 1	2SC1312 (F, G)	2A
IC601	0360210	HA-1328 1C	1B
C01, 02	0515339	3.3μF 50V E.C.	2B. 1A
C03, 04	0600686	0.0068μF	2B. 1A
C05, 06	0600107	0.01μF	1A
C07, 08	0519101	1μF 50V E.C.	1A. 1B
C09	0660151	150pF	1B
C10	0660151	150pF	1B
C11	0513100	10μF	2B.
C12	0513100	10μF	2B.
C13	0513100	10μF	25V E.C.
C14	0513100	10μF	2B.
C15	0600276	0.0027μF	2B.
C16	0600276	0.0027μF	50V M.C.
C17	0600276	0.0027μF	1B
C18	0600276	0.0027μF	1B
C19, 20	0620561	560pF	1B
C21, 22	0620561	560pF	50V P.C.
C23, 24	0600337	0.033μF	1B. 1C
C25, 26	0600337	0.033μF	2B,C,1,2B
C27, 28	0600107	0.01μF	1C
C29, 30	0600107	0.01μF	1B,C. 1C
C31, 32	0600397	0.039μF	2C. 1C
C33	0620561	560pF 50V P.C.	1C
C34	0600276	0.0027μF 50V M.C.	1C
C35, 36	0515339	3.3μF	2C
C37, 38	0515339	3.3μF	2C
C601	0600396	0.0039μF	50V M.C.
C602	0600107	0.01μF	1, 2A
C603	0515339	3.3μF	2A
C604	0519102	3.3μF	50V E.C.
C605	0519102	3.3μF	2A
C606	0511101	100μF	1B
C607	0511470	47μF	1B
C608	0511101	100μF 10V E.C.	1B
C609	0511470	47μF	1A
C610	0511470	47μF	1B
C611	0519105	2.2μF 50V E.C. (BRN)	2B
R01	0106473	47kΩ 1/4W C.R. (E.L.R.)	2A
R02	0107473	47kΩ	1A
R03	0107104	100kΩ	1/4W C.R.
R04	0106104	100kΩ	2A
R05, 06	0106102	1kΩ	1A
R07, 08	0106222	2.2kΩ	2A. 1A
R09, 10	0106222	2.2kΩ	2A. 1A
R11, 12	0106332	3.3kΩ	1, 2A. 1A
R13, 14	0106104	100kΩ	2B. 1A
R15, 16	0106222	2.2kΩ	1A
R17, 18	0106222	2.2kΩ	1A
R19, 20	0106223	22kΩ	1A
R21, 22	0106683	68kΩ	1A, B. 1B
R23	0106273	27kΩ	1B
R24	0106273	27kΩ	1/4W C.R. (E.L.R.)
R25	0107223	22kΩ	1B
R26	0106223	22kΩ	1B
R27	0106223	22kΩ	1/4W C.R. (E.L.R.)
R28	0106223	22kΩ	1B
R29	0107153	15kΩ	1/4W C.R.
R30	0106153	15kΩ	2B
R31	0106153	15kΩ	2B
R32	0106153	15kΩ	2B
R33	0106101	100Ω	1/4W C.R. (E.L.R.)
R34	0106101	100Ω	2A, B
R35	0106101	100Ω	1A
R36	0106101	100Ω	1A, B
R37	0107152	1.5kΩ	1/4W C.R.
R38	0106152	1.5kΩ	2B
R39, 40	0106104	100kΩ	1B. 1B,C
R41, 42	0106223	22kΩ	2B,C. 1B
R43, 44	0106273	27kΩ	1C
R45, 46	0106224	220kΩ	2B,C,1B,C
R47, 48	0106224	220kΩ	1C
R49, 50	0106224	220kΩ	1/4W C.R. (E.L.R.)
R51, 52	0106224	220kΩ	1C
R53, 54	0106272	2.7kΩ	1C
R55, 56	0106272	2.7kΩ	1C
R57, 58	0106272	2.7kΩ	2B,C. 1C
R59, 60	0106272	2.7kΩ	1C
R61, 62	0106333	33kΩ	2C. 1C
R63, 64	0106333	33kΩ	1C
R65, 66	0106472	4.7kΩ	2C
R67, 68	0106472	4.7kΩ	2C. 1C
R69, 70	0106104	100kΩ	2C
R71, 72	0106104	100kΩ	2C

Conductor Side



Parts List

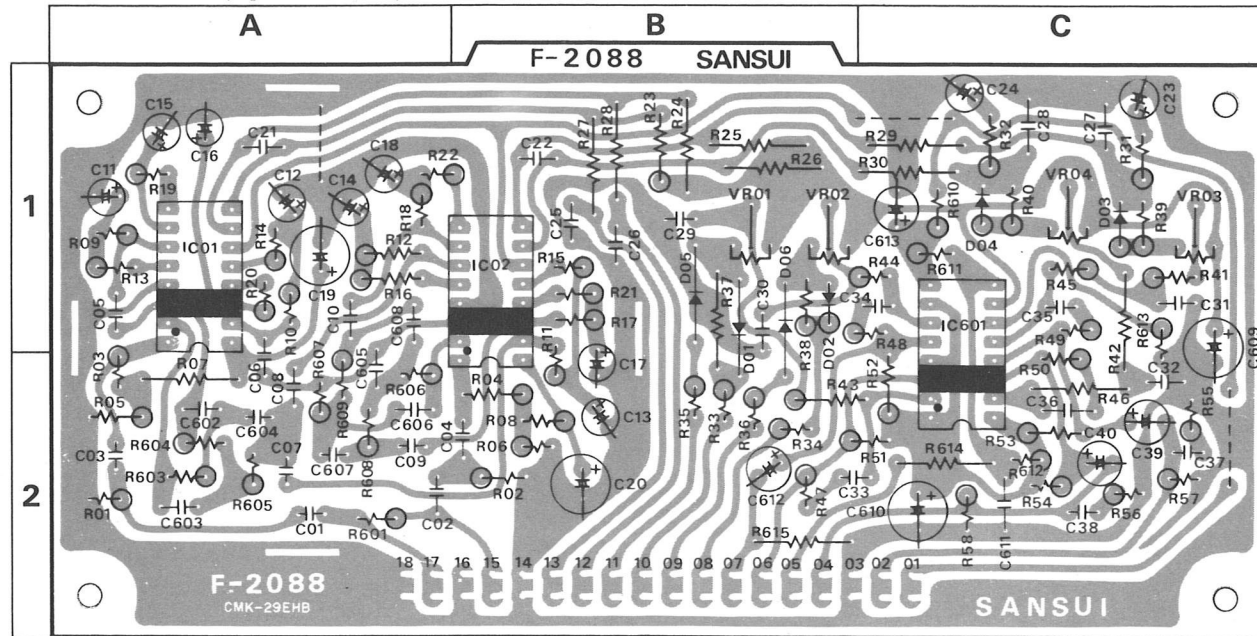
Parts No.	Stock No.	Description	Position
R601	0106152	1.5kΩ	1A
R602	0106152	1.5kΩ	1A
R603	0106682	6.8kΩ	} 1/4W C.R. (E.L.R.)
R604	0106683	68kΩ	
R605	0106183	18kΩ	2A
R606	0106224	220kΩ	2A
R607	0106154	150kΩ	2A
R608	0106182	1.8kΩ	2A
R609	0106153	15kΩ	2A
R610	0107223	22kΩ	2A
R611	0107822	8.2kΩ	1/4W C.R.
R612	0106104	100kΩ	2B
R613	0106152	1.5kΩ	1/4W C.R. (E.L.R.)



Abbreviations

C.R. : Carbon Resistor	B.P.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

4-7. F-2088 QS Phase Control Circuit Board (Stock No. 7650270 Complete Circuit Board F-2088)
Conductor Side (QA-5000, QA-6000)

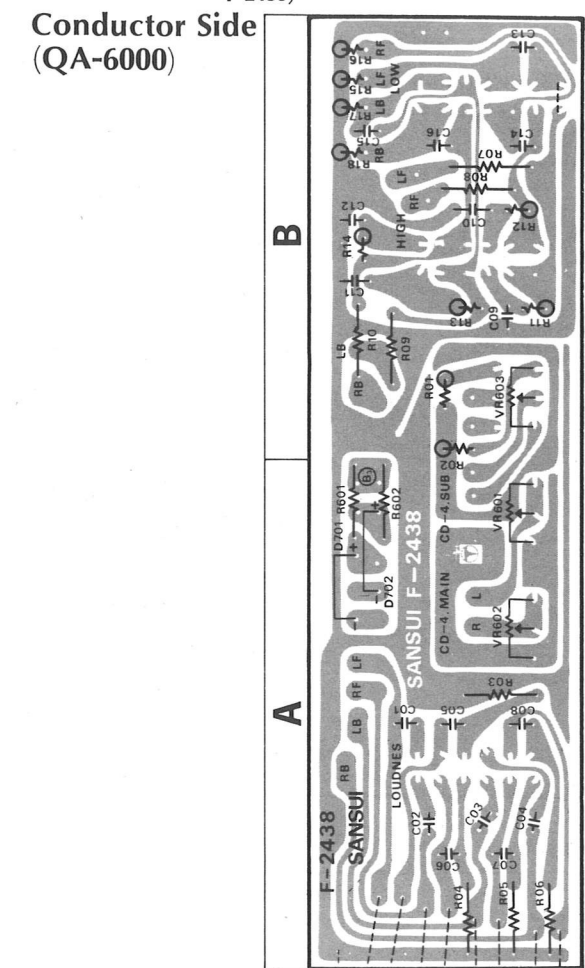


Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	
IC01	0360090-2	HA1327	} IC 1 A	C23	0515109	1μF	} 50V E.C. 1 C	
IC02	0360090-2	HA1327		1 A	C24	0515109		1μF
IC601	3600100	HD3103B		1, 2 C	C25	0600567		0.056μF
D01	0311160	1S2473D	} Diode 1, 2 B	C26	0600567	0.056μF	1 B	
D02	0311160	1S2473D		1 B	C27	0600567	0.056μF	1 C
D03	0311160	1S2473D		1 C	C28	0600567	0.056μF	1 C
D04	0311160	1S2473D		1 C	C29	0600107	0.01μF	1 B
D05	0311160	1S2473D		1 B	C30	0600107	0.01μF	1 B
D06	0311160	1S2473D		1, 2 B	C31	0600337	0.033μF	1 C
VR01	1035490	1MΩ (B)	} Semi-Variable Resistor (Solid Type) 1 B	C32	0600337	0.033μF	} 50V M.C. 2 B	
VR02	1035490	1MΩ (B)		1 B	C33	0600226		0.0022μF
VR03	1035490	1MΩ (B)		1 C	C34	0600226	0.0022μF	1 C
VR04	1035490	1MΩ (B)		1 C	C35	0600226	0.0022μF	1 C
C01	0600106	0.001μF	} 50V M.C. 2 A	C36	0600226	0.0022μF	2 C	
C02	0600106	0.001μF		2 A	C37	0600187	0.018μF	2 C
C03	0620331	330pF	} 50V P.C. 2 A	C38	0600187	0.018μF	2 C	
C04	0620331	330pF		2 B	C39	0519105	2.2μF	} 50V E.C. (BRN) 2 C
C05	0600396	0.0039μF	} 50V M.C. 1 A	C40	0519105	2.2μF	2 C	
C06	0600396	0.0039μF		2 A	C601	0660101	100pF	} 50V C.C. 2 A
C07	0620681	680pF	} 50V P.C. 2 A	C602	0600337	0.033μF	2 A	
C08	0620681	680pF		2 A	C603	0600337	0.033μF	2 A
C09	0620681	680pF	} 50V P.C. 2 A	C604	0620471	470pF	} 50V P.C. 2 A	
C10	0620681	680pF		2 A	C605	0600687		0.068μF
C11	0513479	4.7μF	} 25V E.C. 1 A	C606	0600687	0.068μF	2 A	
C12	0513479	4.7μF		1 A	C607	0620471	470pF	} 50V P.C. 2 A
C13	0513479	4.7μF	} 25V E.C. 1 A	C608	0620471	470pF	1 A	
C14	0513479	4.7μF		2 B	C609	0513330	33μF	} 25V E.C. 1, 2 C
C15	0513479	4.7μF	1 A	C610	0513330	33μF	2 C	
C16	0513479	4.7μF	} 25V E.C. 1 A	C611	0660151	150pF	} 50V C.C. 2 C	
C17	0513479	4.7μF		1 A	C612	0519105		2.2μF
C18	0513479	4.7μF	} 25V E.C. 1 A	C613	0513100	10μF	1 C	
C19	0513330	33μF		1 A	R01	0106224	220kΩ	} 1/4W C.R. (E.L.R.) 2 A
C20	0513330	33μF	2 B	R02	0106224	220kΩ	2 B	
C21	0600687	0.068μF	} 50V M.C. 1 A	R03	0106684	680kΩ	} 1/4W C.R. (E.L.R.) 1, 2 A	
C22	0600687	0.068μF		1 B	R04	0106684		680kΩ
				R05	0106334	330kΩ	2 A	
				R06	0106334	330kΩ	2 B	
				R07	0107684	680kΩ	1/4W C.R.	2 A

Parts No.	Stock No.	Description	Position
R08	0106684	680kΩ	2 B
R09	0106274	270kΩ	1 A
R10	0106274	270kΩ	1 A
R11	0106334	330kΩ	1, 2 B
R12	0106334	330kΩ	1 A
R13	0106124	120kΩ	1 A
R14	0106124	120kΩ	1 A
R15	0106124	120kΩ	1 B
R16	0106124	120kΩ	1 A
R17	0106334	330kΩ	1 B
R18	0106334	330kΩ	1 A
R19	0106394	390kΩ	1 A
R20	0106394	390kΩ	1 A
R21	0106124	120kΩ	1 B
R22	0106124	120kΩ	1 A, B
R23	0106124	120kΩ	1 B
R24	0107124	120kΩ	1 B
R25	0107124	120kΩ	1 B
R26	0107124	120kΩ	1 B
R27	0107563	56kΩ	} 1/4W C.R. 1 B
R28	0107563	56kΩ	
R29	0107563	56kΩ	1 C
R30	0107563	56kΩ	1 C
R31	0106563	56kΩ	1 C
R32	0106563	56kΩ	1 C
R33	0106474	470kΩ	} 1/4W C.R. (E.L.R.) 2 B
R34	0106474	470kΩ	
R35	0106564	560kΩ	2 B
R36	0106564	560kΩ	2 B
R37	0113225	2.2MΩ	1 B
R38	0113225	2.2MΩ	1 B
R39	0113155	1.5MΩ	} 1/4W S.R. 1 C
R40	0113155	1.5MΩ	
R41	0106334	330kΩ	} 1/4W C.R. (E.L.R.) 1 C
R42	0107334	330kΩ	
R43	0106105	1MΩ	2 B
R44	0106105	1MΩ	} 1/4W C.R. (E.L.R.) 1 B, C
R45	0106105	1MΩ	
R46	0107105	1MΩ	} 1/4W C.R. 2 C
R47	0106104	100kΩ	
R48	0106104	100kΩ	1 B, C
R49	0106104	100kΩ	1 C
R50	0106104	100kΩ	2 C
R51	0106123	12kΩ	} 2 B, C
R52	0106123	12kΩ	
R53	0106153	15kΩ	2 C
R54	0106153	15kΩ	2 C
R55	0106561	560Ω	2 C
R56	0106561	560Ω	2 C
R57	0106333	33kΩ	2 C
R58	0106333	33kΩ	2 C
R601	0106224	220kΩ	} 1/4W C.R. (E.L.R.) 2 A
R603	0106682	6.8kΩ	
R604	0106682	6.8kΩ	2 A
R605	0106333	33kΩ	2 A
R606	0106682	6.8kΩ	2 A
R607	0106682	6.8kΩ	2 A
R608	0106683	68kΩ	2 A
R609	0106683	68kΩ	2 A
R610	0106472	4.7kΩ	1 C
R611	0106272	2.7kΩ	1 C
R612	0106223	22kΩ	2 C
R613	0106103	10kΩ	1, 2 C
R614	0107272	2.7kΩ	} 1/4W C.R. 2 C
R615	0107104	100kΩ	

4-8. F-2438 Filter & Volume Circuit Board (Stock No. 7592290 Complete Circuit Board F-2438)
Conductor Side (QA-6000)

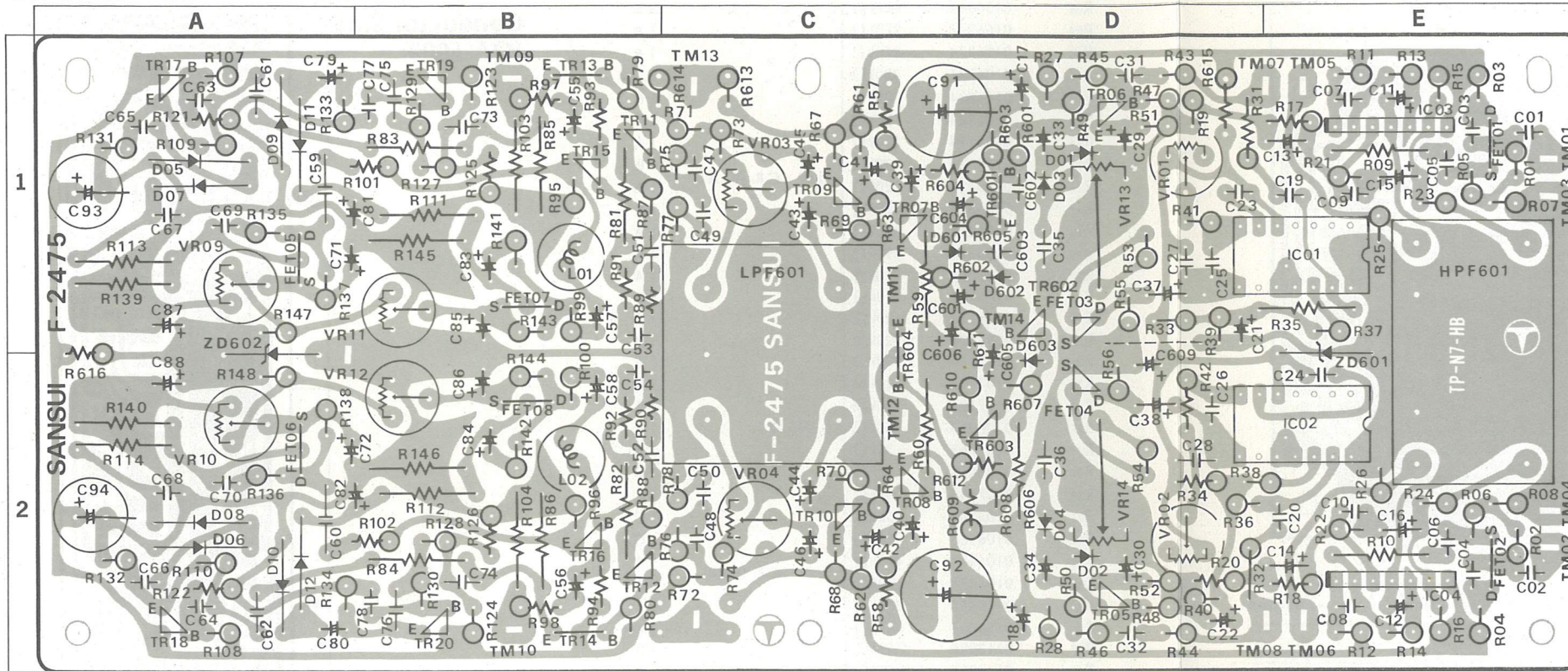


Parts List

Parts No.	Stock No.	Description	Position	
VR05-08	1060420, 1	250kΩ (B) × 4 Master VR		
VR601	1005150, 1	50kΩ (C) (16φ)	A	
VR602	1005150, 1	50kΩ (C) (16φ)	A	
VR603	1015100	10kΩ (B) × 2 (16φ)	B	
	1170370	SX-15-18	} Lever Switch	
	1170370	SX-15-18		
	1170370	SX-15-18		
C01, 02	0620151	150pF	} 50V P.C. A	
C03, 04	0620151	150pF		A
C05, 06	0600182	0.018μF	A	
C07, 08	0600182	0.018μF	A	
C09, 10	0601686	0.0068μF	} 50V M.C. B	
C11, 12	0601686	0.0068μF		B
C13, 14	0600567	0.056μF		B
C15, 16	0600567	0.056μF	B	
R01, 02	0106102	1kΩ	} 1/4W C.R. (E.L.R.) B	
R03, 04	0107333	33kΩ		A
R05, 06	0107333	33kΩ	} 1/4W C.R. A	
R07, 08	0107332	3.3kΩ		B
R09, 10	0107332	3.3kΩ	B	
R11, 12	0106824	820kΩ	} 1/4W C.R. (E.L.R.) B	
R13, 14	0106824	820kΩ		B
R601, 602	0107221	220Ω	} 1/4W C.R. A	
R15, 16	0106104	100kΩ		B
R17, 18	0106104	100kΩ	1/4W C.R. (E.L.R.)	B

4-9. F-2475 CD-4 Sub-Channel Unit Circuit Board (Stock No. 7650370 Complete Circuit Board F-2475A... QA-6000)
 Conductor Side (Stock No. 7650390 Complete Circuit Board F-2475B... QA-5000)

The differences between QA-5000 and QA-6000 are values of two resistors, *97, *98 only.



Parts No.	Stock No.	Description	Position
C81, 82	0573338	0.33μF } 25V T.C.	1A.B. 2AB
C83, 84	0573338	0.33μF }	1B. 2B
C85, 86	0511330	33μF 10V E.C.	1B. 2B
C87, 88	0510470	47μF 6.3V E.C.	1A. 2A
C91, 92	0513221	220μF } 25V E.C.	1CD. 2CD
C93, 94	0513101	100μF }	1A. 2A
C601	0573108	0.1μF 25V T.C.	1C. D
C602	0660221	220pF 50V C.C.	1D
C603	0600476	0.0047μF 50V M.C.	1D
C604	0515109	1μF 50V E.C.	1C. D
C605	0512330	33μF 16V E.C.	1, 2D
C606	0515109	1μF 50V	1D
R01, 02	0106105	1MΩ	1E. 2E
R03, 04	0106102	1kΩ	1E. 2E
R05, 06	0106221	220Ω } 1/4W C.R. (E.L.R.)	1E. 2E
R07, 08	0106123	12kΩ	1E. 2E
R09, 10	0107479	4.7Ω } 1/4W C.R.	1E. 2E
R11, 12	0106684	680kΩ	1E. 2E
R13, 14	0106562	5.6kΩ	1E. 2E
R15, 16	0106103	10kΩ	1E. 2E
R17, 18	0106332	3.3kΩ	1E. 2E
R19, 20	0106470	47Ω	1D. 2D
R21, 22	0106223	22kΩ } 1/4W C.R. (E.L.R.)	1E. 2E
R23, 24	0106332	3.3kΩ	1E. 2E
R25, 26	0106562	5.6kΩ	1E. 2E
R27, 28	0106152	1.5kΩ	1D. 2D
R31, 32	0106272	2.7kΩ	1D. 2D
R33, 34	0106103	10kΩ	1D. 2D
R35	0107472	4.7kΩ } 1/4W C.R.	1D. E
R36	0106472	4.7kΩ	2D
R37, 38	0106472	4.7kΩ	1E. 2DE
R39, 40	0106103	10kΩ } 1/4W C.R. (E.L.R.)	1D. 2D
R41, 42	0106222	2.2kΩ	1D. 2D
R43, 44	0106152	1.5kΩ	1D. 2D
R45, 46	0106154	150kΩ	1D. 2D
R47, 48	0106274	270kΩ	1D. 2D
R49, 50	0106102	1kΩ	1D. 2D
R51, 52	0106222	2.2kΩ	1D. 2D
R53, 54	0106683	68kΩ	1D. 2D
R55, 56	0106104	100kΩ	1D. 2D
R57, 58	0106562	5.6kΩ	1D. 2D
R59, 60	0107102	1kΩ } 1/4W C.R.	
R61, 62	0106333	33kΩ	
R63, 64	0106474	470kΩ	
R67, 68	0106221	220Ω	1C. 2C
R69, 70	0106472	4.7kΩ	1C. 2C
R71, 72	0106474	470kΩ } 1/4W C.R. (E.L.R.)	1C. 2C
R73, 74	0106473	47kΩ	1C. 2C
R75, 76	0106333	33kΩ	1C. 2C
R77, 78	0106472	4.7kΩ	1C. 2C
R79, 80	0106273	27kΩ	1B. 2B
R81, 82	0107272	2.7kΩ	1B. 2B
R83, 84	0107479	4.7Ω } 1/4W C.R.	1B. 2B
R85, 86	0107103	10kΩ	1B. 2B
R87, 88	0106473	47kΩ	1B. 2B
R89, 90	0106103	10kΩ	1B. 2B
R91, 92	0106223	22kΩ } 1/4W C.R. (E.L.R.)	1B. 2B
R93, 94	0106103	10kΩ	1B. 2B
R95, 96	0106392	3.9kΩ	1B. 2B
*R97, 98	0106223	22kΩ } 1/4W C.R. (QA-6000)	1B. 2B
*R97, 98	0106272	2.7kΩ } 1/4W C.R. (QA-5000)	1B. 2B
R99, 100	0106271	270Ω } 1/4W C.R. (E.L.R.)	1B. 2B
R101, 102	0106561	560Ω	1A.B. 2AB
R103, 104	0107333	33kΩ } 1/4W C.R.	1B. 2B

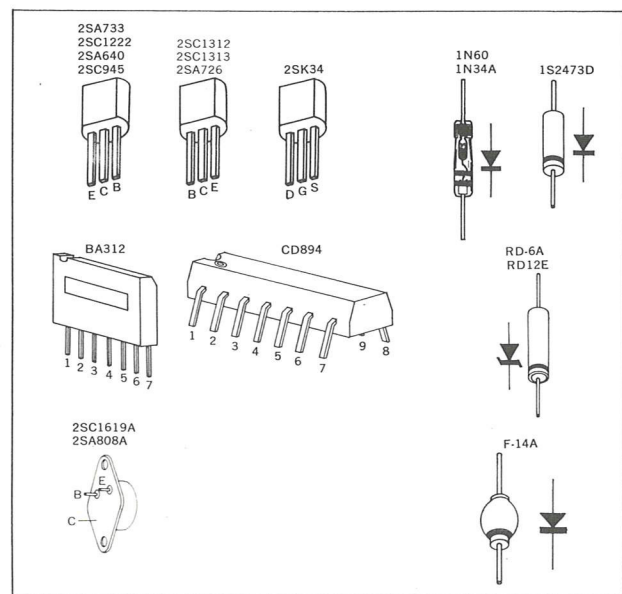
Parts List

Parts No.	Stock No.	Description	Position
TR05, 06	0305951, 2, 3	2SC945 (Q, P, K)	2D. 1D
TR07, 08	0305951, 2, 3	2SC945 (Q, P, K)	1D. 2C
TR09, 10	0300301, 3, 5	2SA640 (M, K, L)	1D. 2C
	0300410, 1	or 2SA726 (F, G)	
	0306090, 1	or 2SC1312R (F, G)	
TR11, 12	0306011, 2	2SC1222 (E, F)	1B. 2B
	0306090, 1	or 2SC1312R (F, G)	
TR13, 14	0306011, 2	2SC1222 (E, F)	Transistor 1B. 2B
	0306090, 1	or 2SC1312R (F, G)	
TR15, 16	0306011, 2	2SC1222R (E, F)	1B. 2B
TR17, 18	0305951, 2, 3	2SC945 (Q, P, K)	1A. 2A
TR19, 20	0305951, 2, 3	2SC945 (Q, P, K)	1B. 2B
TR601	0305951, 2, 3	2SC945 (Q, P, K)	1D
TR602	0305951, 2, 3	2SC945 (Q, P, K)	1D
TR603	0300510, 1	2SA733 (Q, P)	2D
TR604	0305951, 2, 3	2SC945 (Q, P, K)	1, 2C
FET01, 02	0370150, 1	2SK34 (B, C)	1E. 2E
FET03, 04	0370150	2SK34 (B)	FET 1D. 2D
FET05, 06	0370151	2SK34 (C)	FET 1A. 2A
FET07, 08	0370151	2SK34 (C)	FET 1B. 2B
IC01, 02	0360110	CD894A	IC 1DE. 2DE
IC03, 04	0360200	BA312S	IC 1E. 2E
D01, 02	0311160	IS2473D Diode	1D. 2D

Parts No.	Stock No.	Description	Position
D03, 04	0311160	IS2473D	1D. 2D
D05, 06	0310400	IN34A	1A. 2A
D07, 08	0310400	IN34A	1A. 2A
D09, 10	0310400	IN34A	1A. 2A
D11, 12	0310400	IN-34A	Diode 1A. 2A
D601, 602	0310330	IN-60	1CD. 2D
D603	0310330	IN-60	2D
ZD601	0316290	RD-12E (B)	1, 2E
ZD602	0315530	RD-6A (K)	1, 2A
VR01, 02	1035100	3.3kΩ (B)	1D. 2D
VR03, 04	1035110	4.7kΩ (B)	1C. 2C
VR09, 10	1035150	22kΩ (B)	1A. 2A
VR11, 12	1035150	22kΩ (B)	1B. 2B
VR13, 14	1032520, 1	100kΩ (B)	1D. 2B
L01, 02	4900220	100mH	1D. 2D
HPF601	0910250	High Pass Filter	1, 2E
LPF601	0910240	Low Pass Filter	1, 2C
C01, 02	0601106	0.001μF 50V M.C.	1E. 2E
C03, 04	0660220	22pF 50V C.C.	1E. 2E
C05, 06	0600226	0.0022μF 50V M.C.	1E. 2E
C07, 08	0660100	10pF } 50V C.C.	1E. 2E
C09, 10	0660151	150pF }	1E. 2E
C11, 12	0515339	3.3μF } 50V E.C.	1E. 2E
C13, 14	0515109	1μF }	1E. 2E
C15, 16	0515109	1μF }	1E. 2E
C17, 18	0512330	33μF 16V E.C.	1D. 2D
C19, 20	0601276	0.0027μF 50V M.C.	1E. 2E
C21, 22	0515109	1μF 50V E.C.	1D. 2D

Parts No.	Stock No.	Description	Position
C23, 24	0600276	0.0027μF 50V M.C.	1D. 2E
C25, 26	0657102	0.001μF 50V C.C.	1D. 2D
C27, 28	0600276	0.0027μF 50V M.C.	1D. 2D
C29, 30	0511330	33μF 10V E.C.	1D. 2D
C31, 32	0620681	680pF 50V P.C.	1D. 2D
C33, 34	0515109	1μF 50V E.C.	1D. 2D
C35, 36	0601157	0.015μF 50V M.C.	1D. 2D
C37, 38	0512330	33μF 16V E.C.	1D. 2D
C39, 40	0519102	3.3μF } 50V E.C.	1C. 2C
C41, 42	0519102	3.3μF }	1C. 2C
C43, 44	0513479	4.7μF 25V E.C.	1C. 2C
C45, 46	0515109	1μF 50V E.C.	1C. 2C
C47, 48	0620331	330pF 50V P.C.	1C. 2C
C49, 50	0600476	0.0047μF } 50V M.C.	1C. 2C
C51, 52	0600827	0.082μF }	1B. 2B
C53, 54	0620331	330pF }	1B. 2B
C55, 56	0515109	1μF 50V E.C.	1B. 2B
C57, 58	0573688	0.68μF 25V T.C.	1B. 2B
C59, 60	0600158	0.15μF 50V M.C.	1A. 2A
C61, 62	0600686	0.0068μF } 50V M.C.	1A. 2A
C63, 64	0600686	0.0068μF }	1A. 2A
C65, 66	0600226	0.0022μF } 50V M.C.	1A. 2A
C67, 68	0601227	0.022μF }	1A. 2A
C69, 70	0601476	0.0047μF }	1A. 2A
C71, 72	0512100	10μF 16V E.C.	1A.B. 2A
C73, 74	0600127	0.012μF } 50V M.C.	1B. 2B
C75, 76	0600157	0.015μF }	1B. 2B
C77, 78	0600157	0.015μF 50V M.C.	1B. 2B
C79, 80	0573338	0.33μF 25V T.C.	1A. 2A

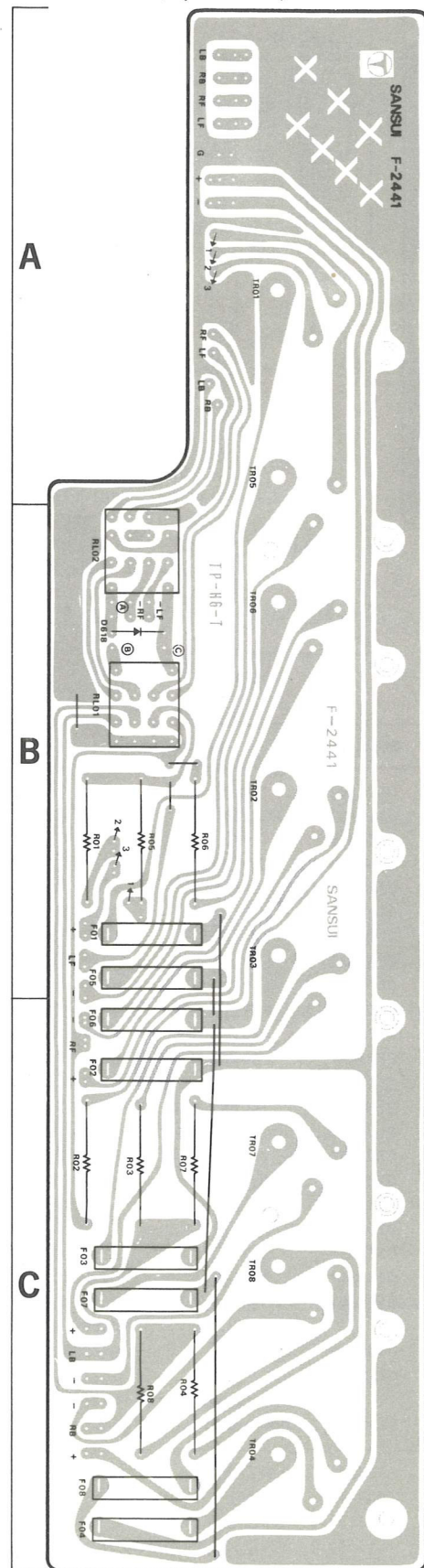
Parts No.	Stock No.	Description	Position
R107, 108	0106473	47kΩ } 1/4W C.R. (E.L.R)	1 A. 2 A
R109, 110	0106823	82kΩ }	1 A. 2 A
R111, 112	0107473	47kΩ } 1/4W C.R.	1 B. 2 A
R113, 114	0107563	56kΩ }	1 A. 2 A
R121, 122	0106473	47kΩ } 1/4W C.R. (E.L.R)	1 A. 2 A
R123, 124	0106473	47kΩ }	1 B. 2 B
R125, 126	0106473	47kΩ }	1 B. 2 B
R127, 128	0106103	10kΩ }	1 B. 2 B
R129, 130	0106103	10kΩ }	1 B. 2 B
R131, 132	0106682	6.8kΩ } 1/4W C.R. (E.L.R)	1 A. 2 A
R133, 134	0106682	6.8kΩ }	1 A. 2 A
R135, 136	0106104	100kΩ }	1 A. 2 A
R137, 138	0106183	18kΩ }	1 A. 2 A
R139, 140	0107474	470kΩ }	1 A. 2 A
R141, 142	0106104	100kΩ }	1 B. 2 B
R143, 144	0106183	18kΩ }	1 B. 2 B
R145, 146	0107394	390kΩ }	1 B. 2 A
R147, 148	0106102	1kΩ }	1 A. 2 A
R601	0106272	2.7kΩ }	1 D
R602	0106472	4.7kΩ }	1 C, D
R603	0106103	10kΩ }	1 D
R604	0106471	470Ω }	1 C, D
R605	0106272	2.7kΩ }	1 D
R606	0107562	5.6kΩ } 1/4W C.R.	2 D
R607	0106103	10kΩ }	2 D
R608	0106102	1kΩ }	2 D
R609	0109103	10kΩ }	2 D
R610	0106392	3.9kΩ }	2 D
R611	0106821	820Ω } 1/4W C.R. (E.L.R)	1 D
R612	0106102	1kΩ }	2 C, D
R613	0106390	39Ω }	1 C
R614	0106820	82Ω }	1 B, C
R615	0104331	330Ω } 1W C.R.	1 D
R616	0104681	680Ω } 1W C.R. (E.L.R)	1, 2 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

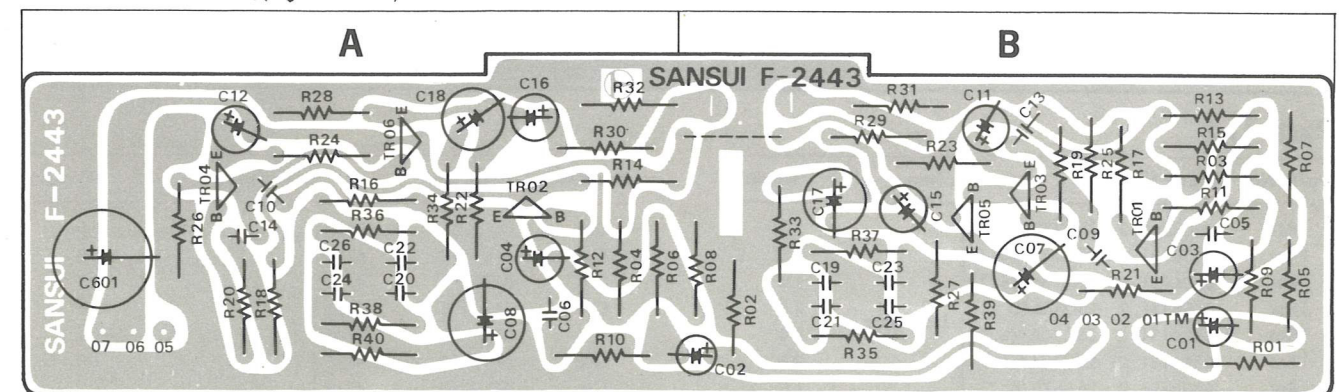
4-10. F-2441 Power Transistor Circuit Board (Stock No. 7592320 Complete Circuit Board F-2441)
Conductor Side (QA-6000)



Parts List

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
TR01	0306212, 3	2SC1619A (O, Y)	C01, 02	0515109	1μF 50V E.C.
TR02	0306212, 3	2SC1619A (O, Y)	R01, 02	0133478	} 0.47Ω 3W Ce.R.
TR03	0306212, 3	2SC1619A (O, Y)	R03, 04	0133478	
TR04	0306212, 3	2SC1619A (O, Y)	R05, 06	0133478	
TR05	0300632, 3	2SA808A (O, Y)	R07, 08	0133478	
TR06	0300632, 3	2SA808A (O, Y)	F01, 02	0433620	} 3A 250V Quick Acting Fuse
TR07	0300632, 3	2SA808A (O, Y)	F03, 04	0433620	
TR08	0300632, 3	2SA808A (O, Y)	F05, 06	0433620	
			F07, 08	0433620	
D618, 619	0310940	F-14A Diode			
RL01, 02	1150101	MY4-DC24V Relay			

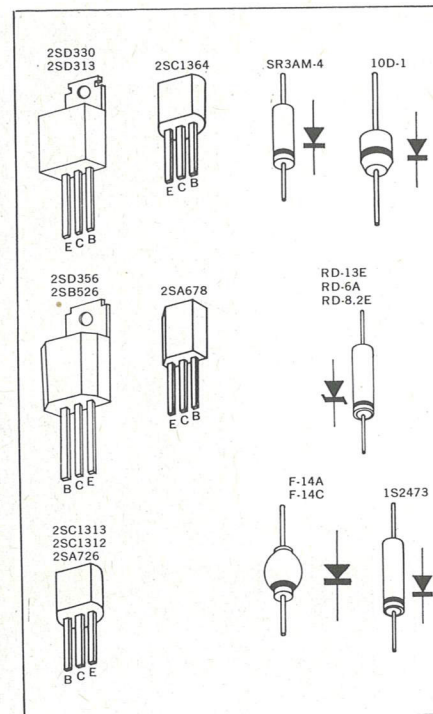
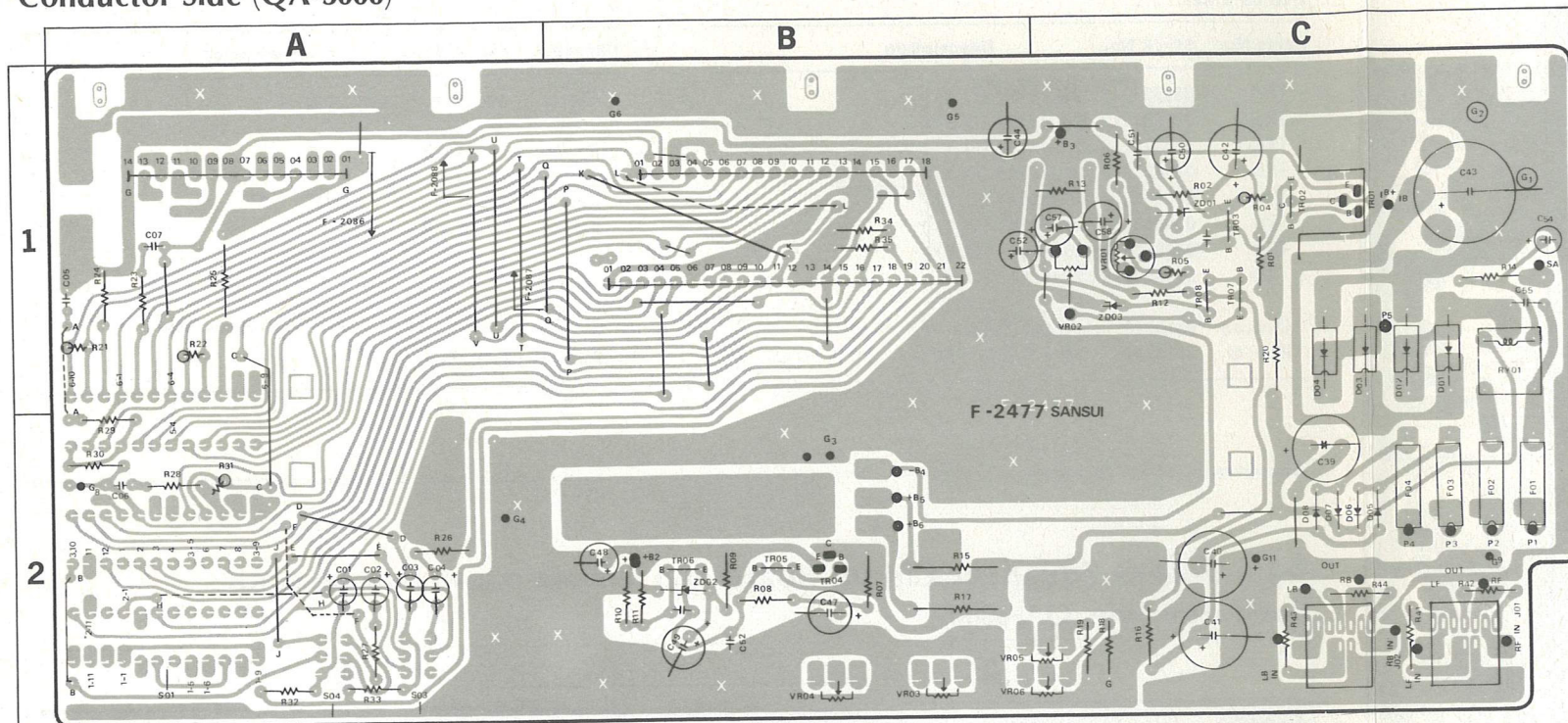
4-11. F-2443 Equalizer Circuit Board (Stock No. 7550660 Complete Circuit Board F-2443)
Conductor Side (QA-6000)



Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01, 02	0300410, 1	2SA726 (F, G)	B. A	R01, 02	0107473	47kΩ	B
TR03, 04	0306070, 1	2SC1313 (F, G)	B. A	R03, 04	0107224	220kΩ	B. A
TR05, 06	0300410, 1	2SA726 (F, G)	B. A	R05, 06	0107104	100kΩ	B. A
				R07, 08	0107563	56kΩ	B
				R09, 10	0107222	2.2kΩ	B. A
				R11, 12	0107221	220Ω	B. A
				R13, 14	0107223	22kΩ	B. A
				R15, 16	0107104	100kΩ	B. A
				R17, 18	0107561	560Ω	B. A
				R19, 20	0107561	560Ω	B. A
				R21, 22	0107824	820kΩ	} 1/4W C.R.
				R23, 24	0107122	1.2kΩ	
				R25, 26	0107683	68kΩ	
				R27, 28	0107682	6.8kΩ	
				R29, 30	0107152	1.5kΩ	B. A
				R31, 32	0107683	68kΩ	B. A
				R33, 34	0107561	560Ω	B. A
				R35, 36	0107564	560kΩ	B. A
				R37, 38	0107273	27kΩ	B. A
				R39, 40	0107821	820Ω	B. A
C01, 02	0519105	2.2μF 50V (BRN) E.C.	B. A, B				
C03, 04	0513100	10μF 25V E.C.	B. A				
C05, 06	0660151	150pF 50V C.C.	B. A				
C07, 08	0512470	47μF 16V E.C.	B. A				
C09, 10	0620391	390pF 50V P.C.	B. A				
C11, 12	0511330	33μF 10V E.C.	B. A				
C13, 14	0660120	12pF 50V C.C.	B. A				
C15, 16	0519102	3.3μF 50V (BRN) E.C.	B. A				
C17, 18	0515100	10μF 50V E.C.	B. A				
C19, 20	0600826	0.0082μF 50V M.C.	B. A				
C21, 22	0620152	1500pF 50V P.C.	B. A				
C23, 24	0600226	0.0022μF 50V M.C.	B. A				
C25, 26	0620221	220pF 50V P.C.	B. A				
C27, 28	0660101	100pF 50V C.C.	B. A				
C601	0515101	100μF 50V E.C.	A				

4-12. F-2477 Power Supply Circuit Board (Stock No. 7592360 Complete Circuit Board F-2477)
Conductor Side (QA-5000)



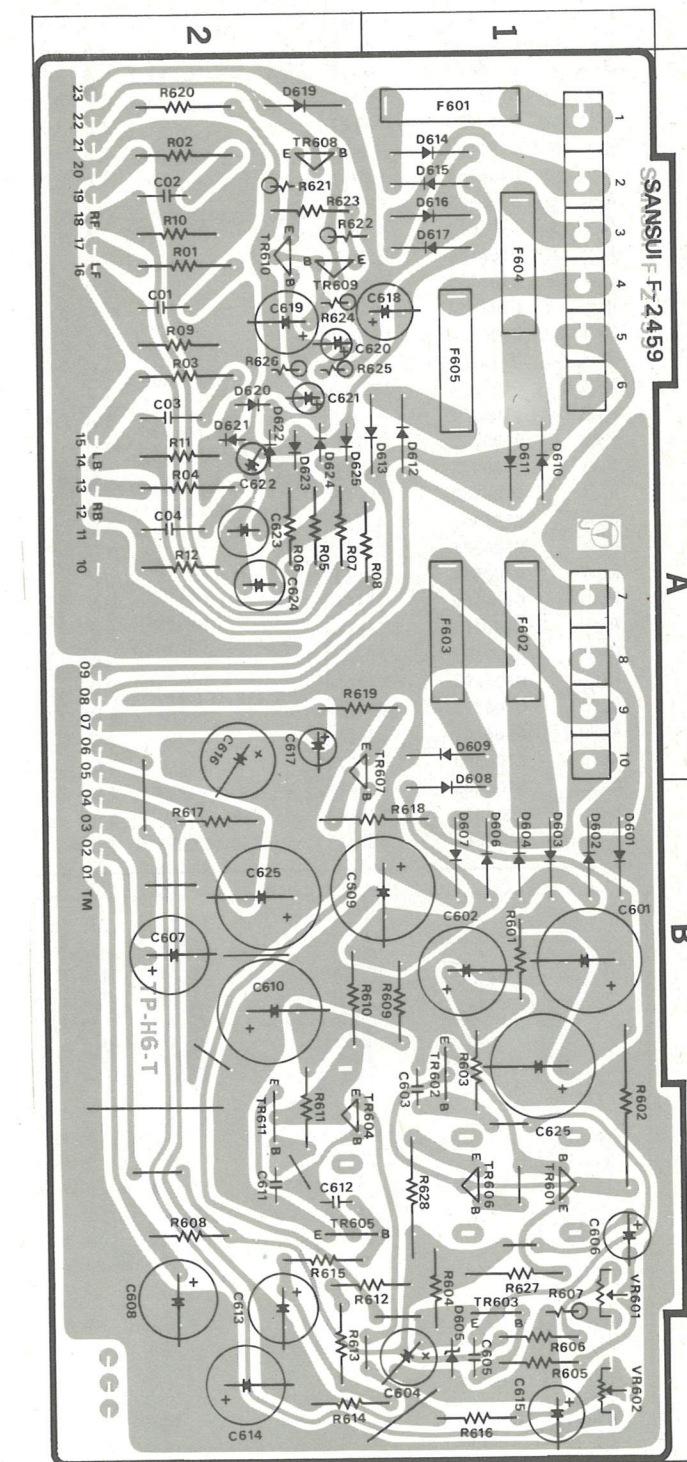
Parts List

Parts No.	Stock No.	Description	Position
TR01	0308362.3	2SD330 (D, E)	1C
TR02	0306131.2	2SC1364 (6, 7)	1C
TR03	0306131.2	2SC1364 (6, 7)	1C
TR04	0308451.2	2SD356 (D, E)	2B
TR05	0306131.2	2SC1364 (6, 7)	2B
TR06	0306131.2	2SC1364 (6, 7)	2B
TR07	0300291.2	2SA678 (6, 7)	1C
TR08	0300291.2	2SA678 (6, 8)	1C
D01-04	0311240	SR3AM-4	1C
D05-08	0310340	10D-1	2C
D09	0310340	10D-1	2C
ZD01	0316320	RD-13E (C)	1C
ZD02	0316320	RD-13E (C)	2B
ZD03	0315550	RD-6A (M)	1C
C01	0519001	10 μ F (BRN)	2A
C02	0519001	10 μ F (BRN)	2A
C03	0519001	10 μ F (BRN)	2A
C04	0519001	10 μ F (BRN)	2A
C05	0600157	0.015 μ F	1A
C06	0600227	0.022 μ F	2A
C07	0600567	0.056 μ F	1A
C39	0516331	330 μ F	2C
C40	0516331	330 μ F	63V E.C.
C41	0516331	330 μ F	2C
C42	0515101	100 μ F	50V E.C.
C43	0549108	4700 μ F	50V E.C.
C44	0513470	47 μ F	25V E.C.
C45	0657223	0.022 μ F	50V C.C.
C46	0660151	150 pF	

Parts No.	Stock No.	Description	Position
C47	0515101	100 μ F	50V E.C.
C48	0515470	47 μ F	2B
C49	0512470	47 μ F	2B
C50	0512470	47 μ F	1C
C51	0512470	47 μ F	16V E.C.
C52	0512470	47 μ F	1B, C
C53	0512470	47 μ F	
C55	0659011	0.01 μ F	500V C.C.
C56	0660151	150 pF	50V C.C.
C601	0519001	10 μ F	
C602	0519001	10 μ F	25V E.C.
C603	0519001	10 μ F	
C604	0519001	10 μ F	
R01	0107562	5.6k Ω	1/4W C.R.
R02	0107392	3.9k Ω	1/4W C.R.
R03			
R04	0106392	3.9k Ω	1/4W C.R. (E.L.R)
R05	0106123	12k Ω	1/4W C.R. (E.L.R)
R06	0107103	10k Ω	1/4W C.R. (E.L.R)
R07	0107392	3.9k Ω	1/4W C.R. (E.L.R)
R08	0107152	1.5k Ω	1/4W C.R. (E.L.R)
R09	0107682	6.8k Ω	1/4W C.R. (E.L.R)
R10	0107123	12k Ω	1/4W C.R. (E.L.R)
R11	0107153	15k Ω	1/4W C.R. (E.L.R)
R12	0107562	5.6k Ω	1/4W C.R. (E.L.R)
R13	0107122	1.2k Ω	1/4W C.R. (E.L.R)
R14	0104152	1.5k Ω	1W C.R. (E.L.R)
R15	0105222	2.2k Ω	2W C.R. (E.L.R)
R16	0103562	5.6k Ω	1/2W C.R. (E.L.R)
R17	0105222	2.2k Ω	2W C.R. (E.L.R)

Parts No.	Stock No.	Description	Position
R18	0106102	1k Ω	1/4W C.R. (E.L.R)
R19	0106102	1k Ω	1/4W C.R. (E.L.R)
R20	0135390	39 Ω	5W Ce.R.
R21	0106563	56k Ω	1/4W C.R. (E.L.R)
R22	0106563	56k Ω	1/4W C.R. (E.L.R)
R23	0107121	120 Ω	1/4W C.R. (E.L.R)
R24	0107182	1.8k Ω	1/4W C.R. (E.L.R)
R25	0107182	1.8k Ω	1/4W C.R. (E.L.R)
R26	0107392	3.9k Ω	1/4W C.R. (E.L.R)
R27	0107562	5.6k Ω	1/4W C.R. (E.L.R)
R28	0107471	470 Ω	1/4W C.R. (E.L.R)
R29	0107681	680 Ω	1/4W C.R. (E.L.R)
R30	0107152	1.5k Ω	1/4W C.R. (E.L.R)
R31	0106563	56k Ω	1/4W C.R. (E.L.R)
R32	0107563	56k Ω	1/4W C.R. (E.L.R)
R33	0107563	56k Ω	1/4W C.R. (E.L.R)
R34	0107154	150k Ω	1/4W C.R. (E.L.R)
R35	0107154	150k Ω	1/4W C.R. (E.L.R)
R41	0103391	390 Ω	1/4W C.R. (E.L.R)
R42	0103391	390 Ω	1/4W C.R. (E.L.R)
R43	0103391	390 Ω	1/2W C.R. (E.L.R)
R44	0103391	390 Ω	1/2W C.R. (E.L.R)
F01, 02	0430910	6A	2C
F03, 04	0430830	1A	2C
RY01	1150150	Power Relay	1C
VR01	1035090	2.2k Ω (B)	1C
VR02	1032440	1k Ω (B)	2B
VR03, 04	1005150, 1	50k Ω (B) Carrier Level VR	2C, B
VR05, 06	1015100, 1	10k Ω x 2 Separation VR	2C, B

4-13. F-2459 Power Supply Circuit Board (Stock No. 7501040 Complete Circuit Board F-2459)
Conductor Side (QA-6000)



— Abbreviations —

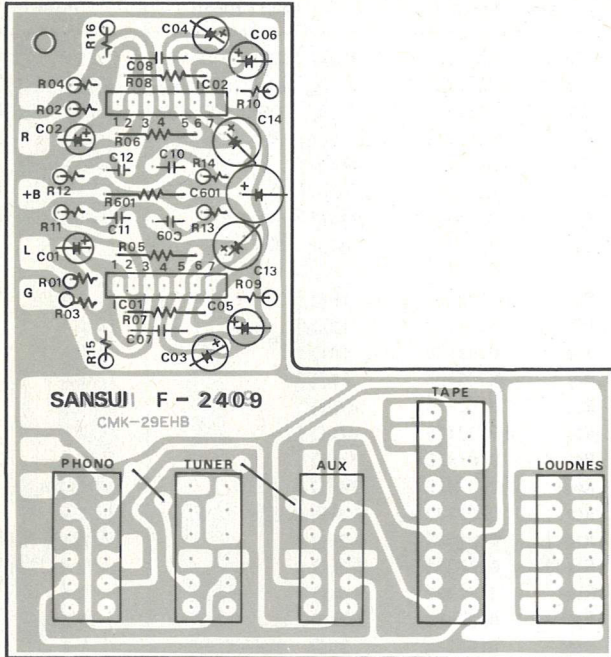
C.R. : Carbon Resistor	BP.E.C.: Bi-Polar Electrolytic Capacitor
S.R. : Solid Resistor	C.C. : Ceramic capacitor
Ce.R. : Cement Resistor	M.C. : Mica Capacitor
M.R. : Metallized Film Resistor	O.C. : Oil Capacitor
M.C. : Mylar Capacitor	P.C. : Polystyrene Capacitor
E.C. : Electrolytic Capacitor	T.C. : Tantalum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

Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR601	0308392, 3	2SD313 (E, F)	1 B	C619	0510331	330 μ F 6.3V E.C.	2 A
TR602	0306071, 2	2SC1313 (F,G)	1 B	C620	0519103	0.47 μ F 50V E.C. (BRN)	2 A
TR603	0306090, 1	2SC1312 (F,G)	1 B	C621	0515109	1 μ F 50V E.C.	2 A
TR604	0303281, 2	2SB526 (D, E)	2 B	C622	0535109	1 μ F 50V BP. E.C.	2 A
TR605	0300410, 1	2SA726 (F,G)	1, 2 B	C623	0530470	47 μ F } 6.3V BP. E.C.	2 A
TR606	0308392, 3	2SD313 (E, F)	1 B	C624	0530470	47 μ F }	2 A
TR607	0308392, 3	2SD313 (E, F)	2 A, B	C625	0515221	220 μ F 50V E.C.	1 B
TR608	0306090, 1	2SC1312 (E, F)	2 A	C626	0519903	100 μ F 80V E.C.	
TR609	0306090, 1	2SC1312 (E, F)	2 A	R01	0103100	10 Ω }	2 A
TR610	0306090, 1	2SC1312 (E, F)	2 A	R02	0103100	10 Ω }	2 A
TR611	0300470, 1	2SA726 (F,G)	2 B	R03	0103100	10 Ω } $\frac{1}{2}$ W C.R.	2 A
D601	0310940	F-14A	1 B	R04	0103100	10 Ω }	2 A
D602	0310940	F-14A	1 B	R05	0107473	47k Ω }	2 A
D603	0310940	F-14A	1 B	R06	0107473	47k Ω }	2 A
D604	0310940	F-14A	1 B	R07	0107473	74k Ω }	2 A
D605	0316210	RD-8.2E(B) Zener Diode	1 B	R08	0107473	74k Ω }	1, 2 A
D606	0310940	F-14A	1 B	R09	0107332	3.3k Ω } $\frac{1}{4}$ W C.R.	2 A
D607	0310940	F-14A	1 B	R10	0107332	3.3k Ω }	2 A
D608	0310940	F-14A	1 B	R11	0107332	3.3k Ω }	2 A
D609	0310940	F-14A	1 A	R12	0107332	3.3k Ω }	2 A
D610	0311200	F-14C	1 A	R601	0107472	4.7k Ω }	1 B
D611	0311200	F-14C	1 A	R602	0105330	33 Ω 2W C.R.	1 B
D612	0311200	F-14C	1 A	R603	0107182	1.8k Ω }	1 B
D613	0311200	F-14C	1 A	R604	0107562	5.6k Ω }	1 B
D614	0310940	F-14A	1 A	R605	0107470	47 Ω } $\frac{1}{4}$ W C.R.	1 B
D615	0310940	F-14A	1 A	R606	0107822	8.2k Ω }	1 B
D616	0310940	F-14A	1 A	R607	0106332	3.3k Ω } $\frac{1}{4}$ W C.R. (E.L.R)	1 B
D617	0310940	F-14A	1 A	R608	0107332	3.3k Ω }	2 B
D620	0311160	1S2473D	2 A	R609	0107332	3.3k Ω } $\frac{1}{4}$ W C.R.	1 B
D621	0311160	1S2473D	2 A	R610	0103181	180 Ω } $\frac{1}{2}$ W C.R.	2 B
D622	0311160	1S2473D	2 A	R611	0107332	3.3k Ω }	2 B
D623	0311160	1S2473D	2 A	R612	0107123	12k Ω }	1, 2 B
D624	0311160	1S2473D	2 A	R613	0107102	1k Ω }	2 B
D625	0311160	1S2473D	2 A	R614	0107223	22k Ω } $\frac{1}{4}$ W C.R.	1, 2 B
VR601	1031440	1k Ω (B)	1 B	R615	0107470	47 Ω }	2 B
VR602	1031470	47k Ω (B)	1 B	R616	0107123	12k Ω }	1 B
C01	0601108	0.1 μ F	2 A	R617	0103331	330 Ω } $\frac{1}{2}$ W C.R.	2 B
C02	0601108	0.1 μ F	2 A	R618	0104471	470 Ω 1W C.R.	1, 2 B
C03	0601108	0.1 μ F	2 A	R619	0107479	47 Ω }	1, 2 A
C04	0601108	0.1 μ F	2 A	R620	0107100	10 Ω } $\frac{1}{4}$ W C.R.	2 A
C601	0515221	220 μ F	1 B	R621	0106479	4.7 Ω }	2 A
C602	0515101	100 μ F	1 B	R622	0106102	1k Ω } $\frac{1}{4}$ W C.R. (E.L.R)	1, 2 A
C603	0657103	0.01 μ F 50V C.C.	1 B	R623	0107124	120k Ω } $\frac{1}{4}$ W C.R.	2 A
C604	0511470	47 μ F 10V E.C.	1 B	R624	0106154	150k Ω }	2 A
C605	0660181	180pF 50V C.C.	1 B	R625	0106394	390k Ω } $\frac{1}{4}$ W C.R. (E.L.R)	2 A
C606	0513330	33 μ F 25V E.C.	1 B	R626	0106474	470k Ω }	2 A
C607	0515470	47 μ F 50V E.C.	2 B	F601	0430830		1 A
C608	0513470	47 μ F 25V E.C.	2 B	F602	0430830		1 A
C609	0519903	100 μ F	1, 2 B	F603	0430830	1A 250V AC Miniature Fuse	1 A
C610	0519903	100 μ F	2 B	F604	0430830		1 A
C611	0657103	0.01 μ F	2 B	F605	0430830		1 A
C612	0660181	180pF	2 B		2410620	4P Connector	
C613	0515330	33 μ F	2 B		2410640	6P Connector	
C614	0515470	47 μ F	2 B				
C615	0511470	47 μ F 10V E.C.	1 B				
C616	0515470	47 μ F 50V E.C.	2 A, B				
C617	0512100	10 μ F 16V E.C.	2 A				
C618	0515100	10 μ F 50V E.C.	1, 2 A				

4-14. F-2409 Equalizer Circuit Board

(Stock No. 7550670 Complete Circuit Board F-2409)
Conductor Side (QA-5000)

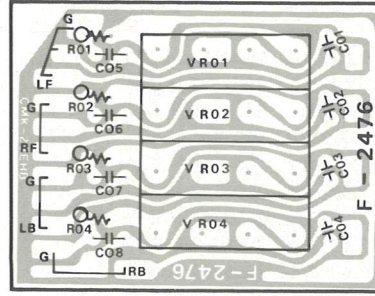


Parts List

Parts No.	Stock No.	Description
IC01, 02	0360190	BA312 IC
C01, 02	0519105	2.2 μ F 50V (BRN) E.C.
C03, 04	0511330	33 μ F 10V E.C.
C05, 06	0515499	4.7 μ F 50V (BRN) E.C.
C07, 08	0660101	100pF 50V C.C.
C09, 10	0600227	0.022 μ F } 50V M.C.
C11, 12	0600566	
C13, 14	0660151	150pF C.C.
C15, 16	0660101	100pF C.C.
C601	0514101	100 μ F E.C.
C705, 706	0657473	0.047 μ F C.C.
R01, 02	0106222	2.2k Ω } $\frac{1}{4}$ W C.R. (E.L.R.)
R03, 04	0106104	
R05, 06	0107104	100k Ω } $\frac{1}{4}$ W C.R.
R07, 08	0107474	
R09, 10	0106104	100k Ω } $\frac{1}{4}$ W C.R. (E.L.R.)
R11, 12	0106123	
R13, 14	0106124	12k Ω } $\frac{1}{4}$ W C.R. (E.L.R.)
R15, 16	0106221	
R601	0107221	220 Ω $\frac{1}{4}$ W C.R.
S02-05	1130140	Push Switch (Selector)

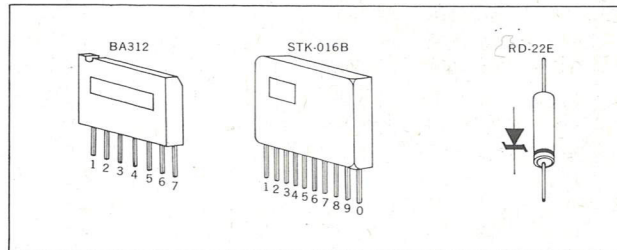
4-15. F-2476 Control Circuit Board

(Stock No. 7592350 Complete Circuit Board F-2476)
Conductor Side (QA-5000)



Parts List

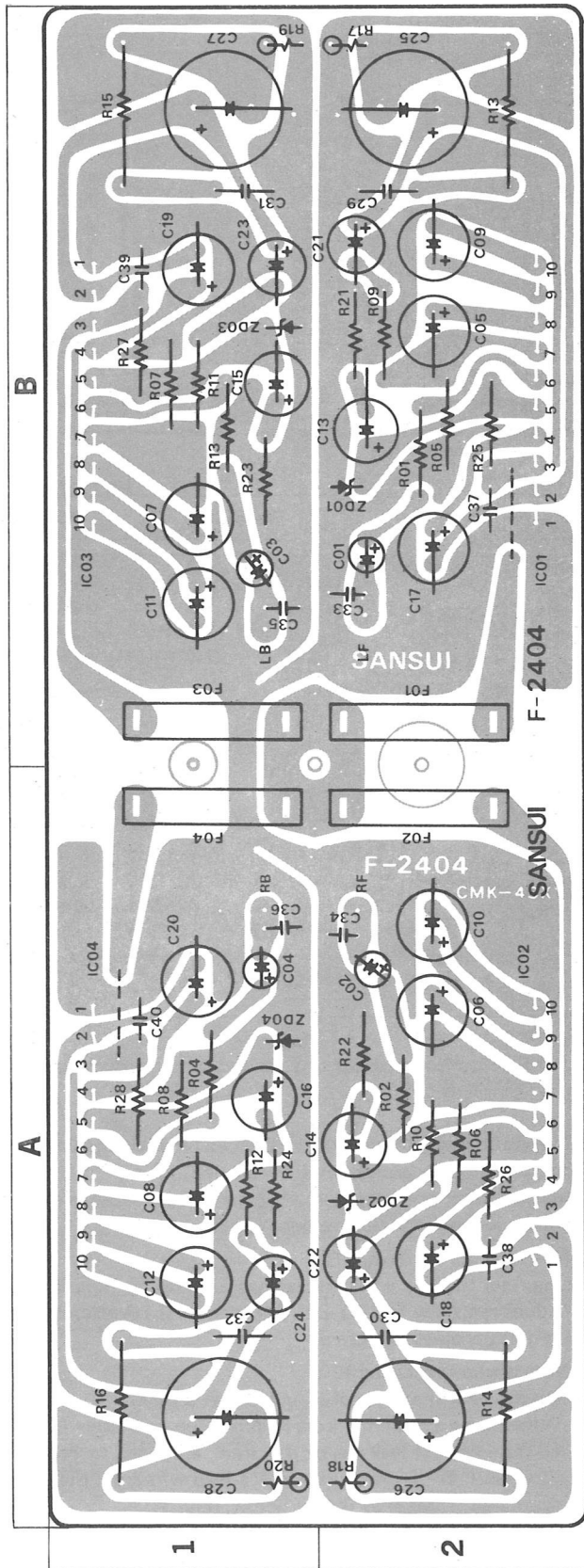
Parts No.	Stock No.	Description
C01, 02	0621151	150 pF } 50V P.C.
C03, 04	0621151	
C05, 06	0600187	0.018 μ F } 50V M.C.
C07, 08	0600187	
R01, 02	0107273	27k Ω } $\frac{1}{4}$ W C.R.
R03, 04	0107273	
VR01, 02	1060420, 1	250k Ω \times 4 } Volume
VR03, 04	1060420, 1	



— 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 |

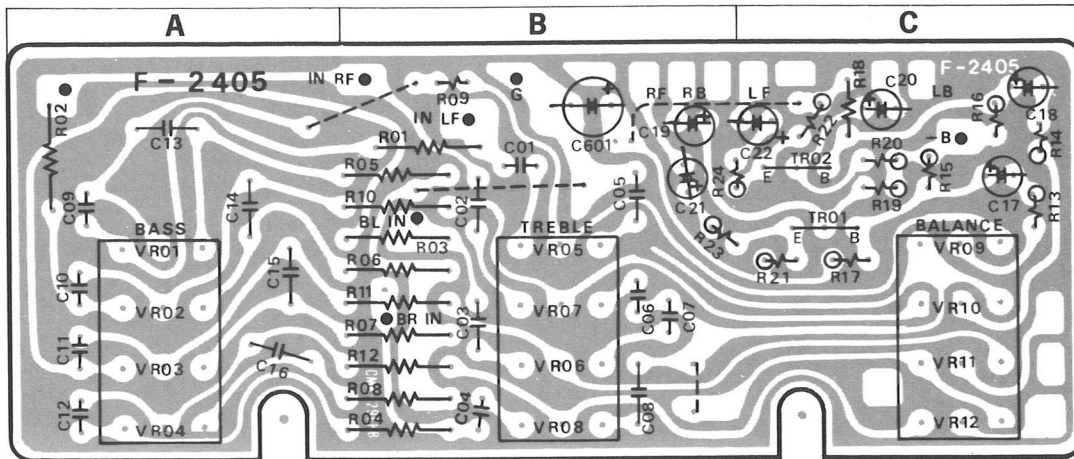
4-16. F-2404 Main Amplifier Circuit Board (Stock No. 7571040 Complete Circuit Board F-2404) Conductor Side (QA-5000)



Parts List

Parts No.	Stock No.	Description	Position
IC01, 02	0360130	STK-016B	} IC 2 B . 2 A
IC03, 04	0360130	STK-016B	
ZD01, 02	0316490	RD-22E(B)	} Zener Diode 2 B . 2 A
ZD03, 04	0316490	RD-22E(B)	
C01, 02	0515109	1 μ F	} 50V E.C. 2 B . 2 A
C03, 04	0515109	1 μ F	
C05, 06	0513470	47 μ F	2 B . 2 A
C07, 08	0513470	47 μ F	1 B . 1 A
C09, 10	0513470	47 μ F	2 B . 2 A
C11, 12	0513470	47 μ F	1 B . 1 A
C13, 14	0513470	47 μ F	2 B . 2 A
C15, 16	0513470	47 μ F	} 25V E.C. 1 B . 1 A
C17, 18	0513470	47 μ F	
C19, 20	0513470	47 μ F	1 B . 1 A
C21, 22	0513470	47 μ F	2 B . 2 A
C23, 24	0513330	33 μ F	1 B . 1 A
C25, 26	0515330	33 μ F	2 B . 2 A
C27, 28	0514102	1000 μ F	} 35V E.C. 1 B . 1 A
C29, 30	0514102	1000 μ F	
C31, 32	0601477	0.047 μ F	1 B . 1 A
C33	0601477	0.047 μ F	} 50V M.C. 2 B
C34, 35	0660221	220 pF	
C36, 37	0660221	220 pF	1 A . 2 B
C38, 39	0660473	0.047 μ F	} 50V C.C. 2 A . 1 B
C40, 41	0660473	0.047 μ F	
R01, 02	0107222	2.2k Ω	2 B . 2 A
R03, 04	0107222	2.2k Ω	1 A
R05, 06	0107470	47 Ω	} 1/4 W C.R. 2 B . 2 A
R07, 08	0107470	47 Ω	
R09, 10	0107182	1.8k Ω	2 B . 2 A
R11, 12	0107182	1.8k Ω	1 B . 1 A
R13, 14	0201100	10 Ω	} 1 W C.R. 2 B . 2 A
R15, 16	0201100	10 Ω	
R17, 18	0103471	470 Ω	} 1/2 W C.R. 2 B . 2 A
R19, 20	0103471	470 Ω	
R21, 22	0107680	68 Ω	} 1/4 W C.R. 2 B . 2 A
R23, 24	0107680	68 Ω	
R25, 26	0107222	2.2k Ω	2 B . 2 A
R27, 28	0107222	2.2k Ω	1 B . 1 A
F01, 02	0433610	2A 125V	} Quik Acting Fuse 2 B . 2 A
F03, 04	0433610	2A 125V	

4-17. F-2405 Tone Control Circuit Board (Stock No. 7560950 Complete Circuit Board F-2405)
Conductor Side (QA-5000)



Parts List

Parts No.	Stock No.	Description	Position
TP09, 10	0300470, 1	2SA726 (F, G) Transistor	
C01, 02	0600150	0.0015 μ F	B
C03, 04	0600150	0.0015 μ F	B
C05, 06	0600107	0.01 μ F	B
C07, 08	0600107	0.01 μ F	B
C09, 10	0600127	0.012 μ F	A
C11, 12	0600127	0.012 μ F	A
C13, 14	0600108	0.1 μ F	A
C15, 16	0600108	0.1 μ F	A
C17, 18	0519101	1 μ F	C
C19, 20	0519101	1 μ F	B, C
C21, 22	0519101	1 μ F	B, B C
C601	0513470	47 μ F 25V E.C.	B
R01, 02	0107183	18k Ω } $\frac{1}{4}$ W C.R.	B, A
R03, 04	0107183	18k Ω }	B
R05, 06	0107272	2.7k Ω } $\frac{1}{4}$ W C.R.	B

Parts No.	Stock No.	Description	Position
R07, 08	0107272	2.7k Ω } $\frac{1}{4}$ W C.R.	B
R09	0106103	10k Ω } $\frac{1}{4}$ W C.R. (E.L.R)	B
R10, 11	0107103	10k Ω }	B
R12	0107103	10k Ω }	B
R13, 14	0106102	1k Ω }	C
R15, 16	0106224	220k Ω }	C
R17, 18	0106823	82k Ω }	C
R19, 20	0106392	3.9k Ω }	C
R21, 22	0106392	3.9k Ω }	C
R23, 24	0106101	100 Ω }	B, B C
R601	0106822	8.2k Ω }	
VR01, 02	1065040, 1	100k Ω (A) \times 4	A
VR03, 04			A
VR05, 06	1065040, 1	100k Ω (A) \times 4	B
VR07, 08			B
VR09, 10	1065030, 1	250k Ω (M, N) \times 4	C
VR11, 12			C

Troubleshooting Notices:

※When repairing the unit, refer to schematic diagram, block diagram, adjustment.

※Each voltage value shown in the schematic diagram is slightly different from an actual measured value. The each value was measured by V.T.V.M. at no input signal.

※In order to check the normal conductivity of transistor by volt-ohm meter (V.O.M.), please see the arrow direction showing current flows in Fig. 1.

1. Put lead + side of V.O.M. to emitter or collector and lead - side to base of N.P.N. transistor.

2. Put lead - side of V.O.M. to emitter or collector and lead + side to base of P.N.P. transistor.

(Terminal -, (+) of V.O.M. is connected with +, (-) side of battery inside).

※On Light Emitted Diode (LED)

The LED used as Pilot Lamp driven by constant current has characteristics of extreme low reverse breakdown voltage (DC

3V) and also it would be easily influenced by discharge voltage from capacitors in power amplifier section.

Therefore, after power switch is turned OFF and lapse of a few seconds, perform the replacement of LED.

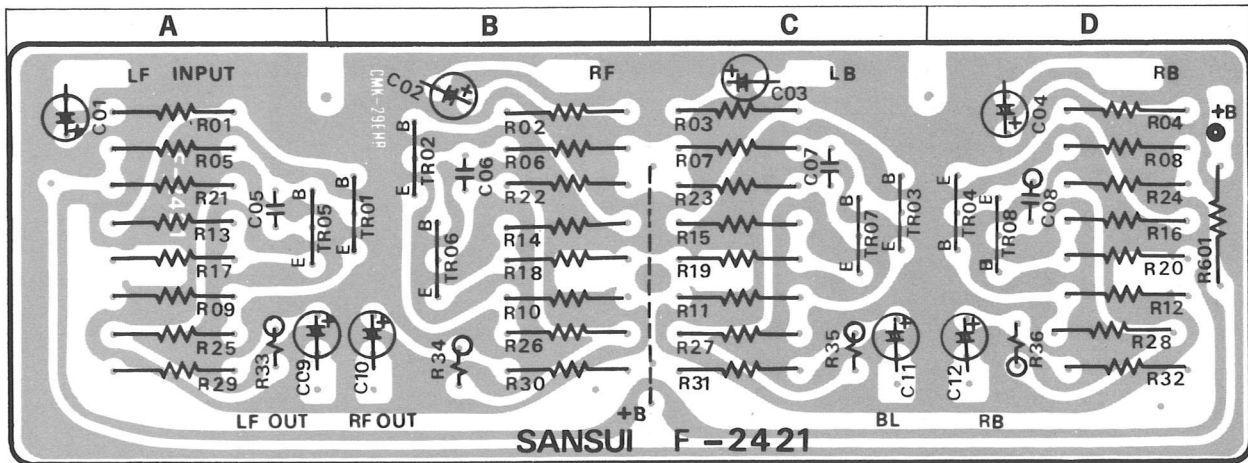
※Notice when replacing LED

Please refer to Fig. 2 when replacing LED, as the polarity of LED does not show on LED and the socket. If reversely connected, it becomes defective.

※Notice when replacing IC

- 1) Do not vent the leads of IC more than 3 times.
- 2) When using a soldering iron, IC should be absolutely isolated from current leakage of the iron. In order to protect IC against break-down, connect a lead wire from the iron to ground (chassis) as shown below. (Fig. 3)
- 3) As IC is extremely weak against heat; use a soldering iron as quick as possible.

4-18. F-2421 Tone Control Circuit Board (Stock No. 7592340 Complete Circuit Board F-2421) Conductor Side (QA-5000)



Parts List

Parts No.	Stock No.	Description	Position
TR01, 02	0306070, 1	2SC1313 [®] (F,G)	B. B
TR03, 04	0306070, 1	2SC1313 [®] (F,G)	C. D
TR05, 06	0306070, 1	2SC1313 [®] (F,G)	A. B
TR07, 08	0306070, 1	2SC1313 [®] (F,G)	C. D
C01, 02	0519101	1 μ F	A. B
C03, 04	0519101	1 μ F 50V E.C. (BRN)	C. D
C05, 06	0660220	22 pF	A. B
C07, 08	0660220	22 pF	C. D
C09, 10	0515109	1 μ F	A, B. C
C11, 12	0515109	1 μ F	C. D
R01, 02	0107222	2.2k Ω	A. B
R03, 04	0107222	2.2k Ω	C. D
R05, 06	0107224	220k Ω	A. B
R07, 08	0107224	220k Ω	C. D

Parts No.	Stock No.	Description	Position
R09, 10	0107392	3.9k Ω	A. B
R11, 12	0107392	3.9k Ω	C. D
R13, 14	0107274	270k Ω	A. B
R15, 16	0107274	270k Ω	C. D
R17, 18	0107561	560 Ω	A. B
R19, 20	0107561	560 Ω	C. D
R21, 22	0107822	8.2k Ω	A. B
R23, 24	0107822	8.2k Ω	C. D
R25, 26	0107104	100k Ω	A. B
R27, 28	0107104	100k Ω	C. D
R29, 30	0107683	68k Ω	A. B
R31, 32	0107683	68k Ω	C. D
R33, 34	0106822	8.2k Ω	A. B
R35, 36	0106822	8.2k Ω	C. D
R601	0107822	8.2k Ω	D

Fig. 1

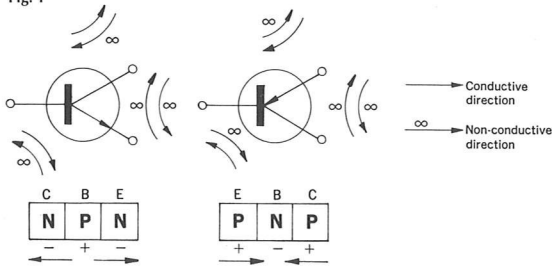


Fig. 2

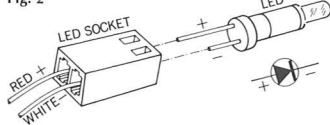
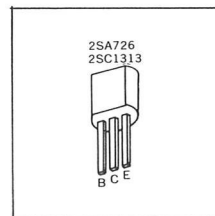
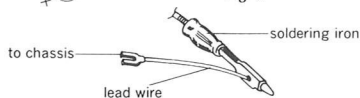


Fig. 3

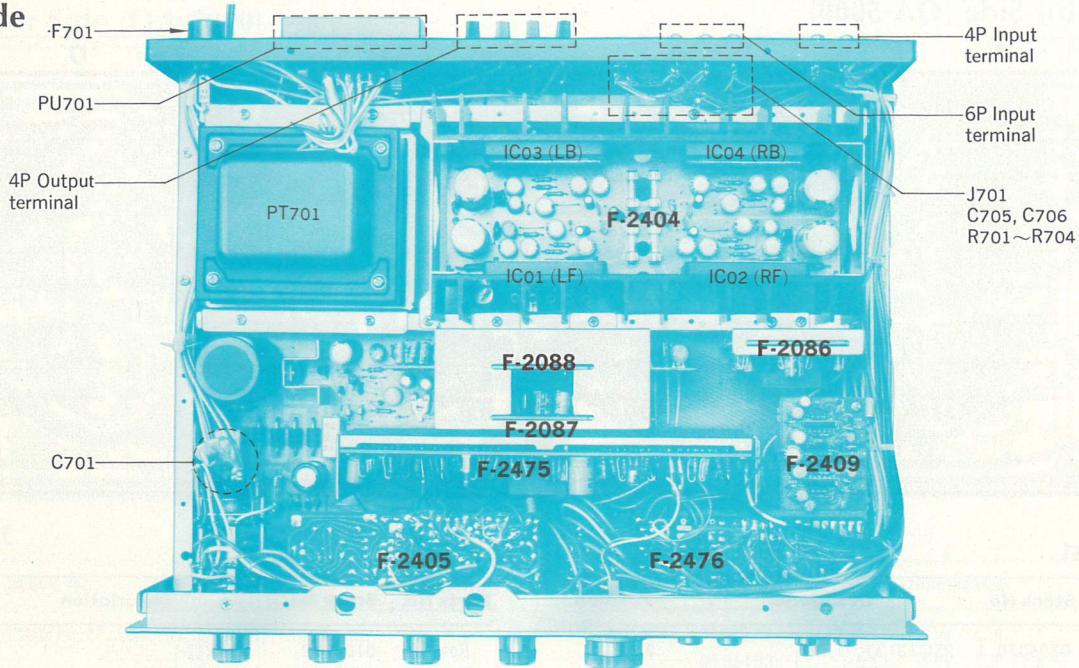


Abbreviations

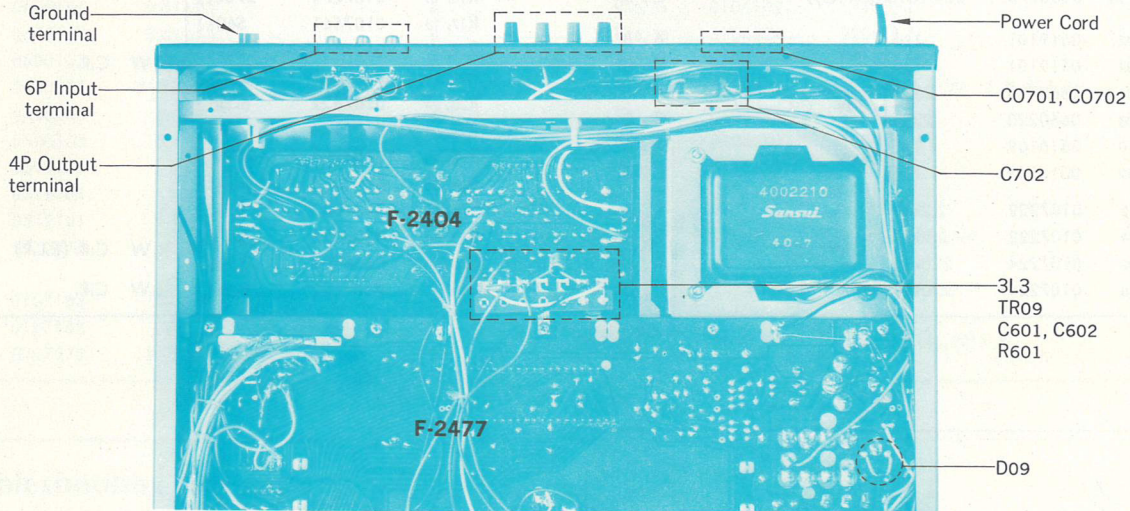
- | | |
|---------------------------------|---|
| C.R. : Carbon Resistor | B.P.E.C.: Bi-Polar Electrolytic Capacitor |
| S.R. : Solid Resistor | C.C. : Ceramic Capacitor |
| Ce.R. : Cement Resistor | Mi.C. : Mica Capacitor |
| M.R. : Metallized Film Resistor | O.C. : Oil Capacitor |
| M.C. : Mylar Capacitor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

4-19. OTHER PARTS (QA-5000)

Top Side



Bottom Side



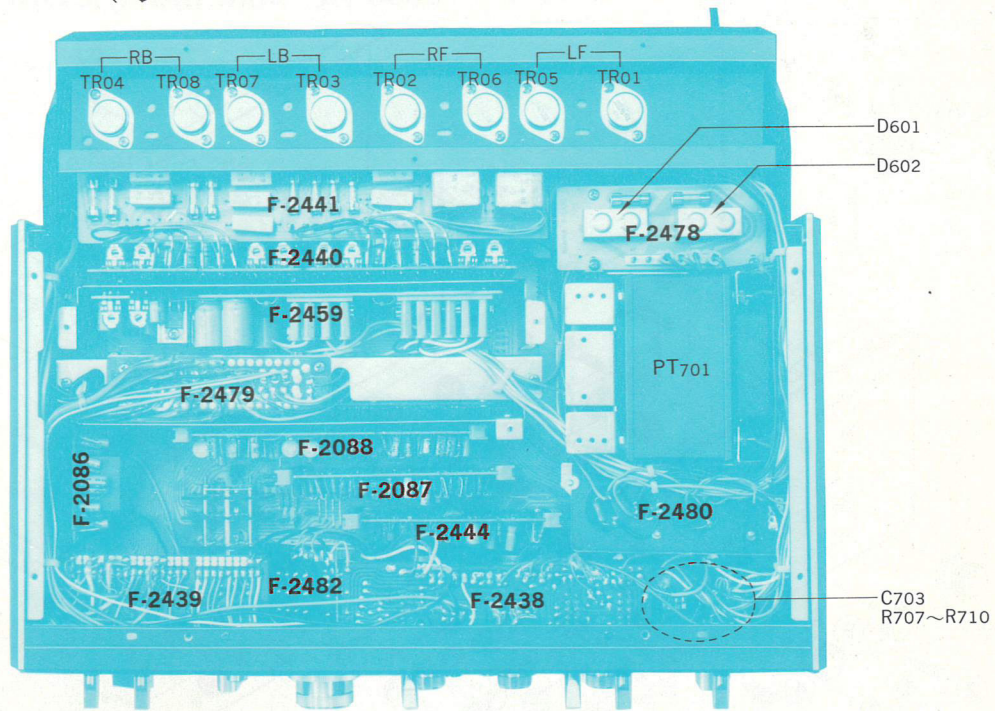
Other Parts List

Parts No.	Stock No.	Description
TR09	0306071, 2	2SC1313 (F, G)
IC01, 02	0360130	STK-016B
IC03, 04	0360130	STK-016B
D09	0310340	10D-1 Diode
C601	0514221	220 μ F 35V E.C.
C602	0515100	10 μ F 50V E.C.
C701	0605107	0.01 μ F
C702	0605476	0.0047 μ F
C705, 706	0657473	0.047 μ F 50V C.C.
R601	0107123	12k Ω
R701, 702	0107394	390k Ω
R703, 704	0107104	100k Ω

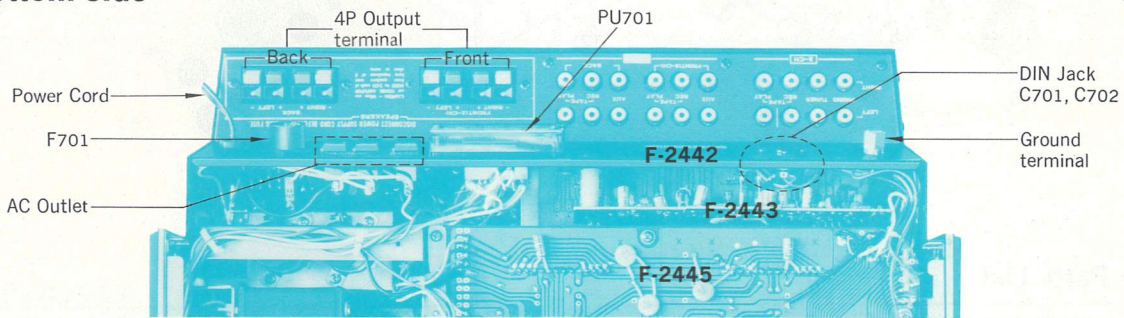
Parts No.	Stock No.	Description
F701	2300060	Fuse Holder
	0431260, 52	3A (100, 117V)
	0431240, 32	2A (220, 240V)
PU701	2410830	Voltage Selector, Socket
	2410090	Voltage Selector, Plug
CO701,702	2450060	AC Outlet
J701	2430040	DIN Connector
PT701	4002210	Power Transformer
	2230051	Ground terminal
	2210200	4P Output terminal
	2200330	6P Input terminal
	2200320	4P Input terminal
	3800020	Power Cord

4-20. OTHER PARTS (QA-6000)

Top Side



Bottom Side

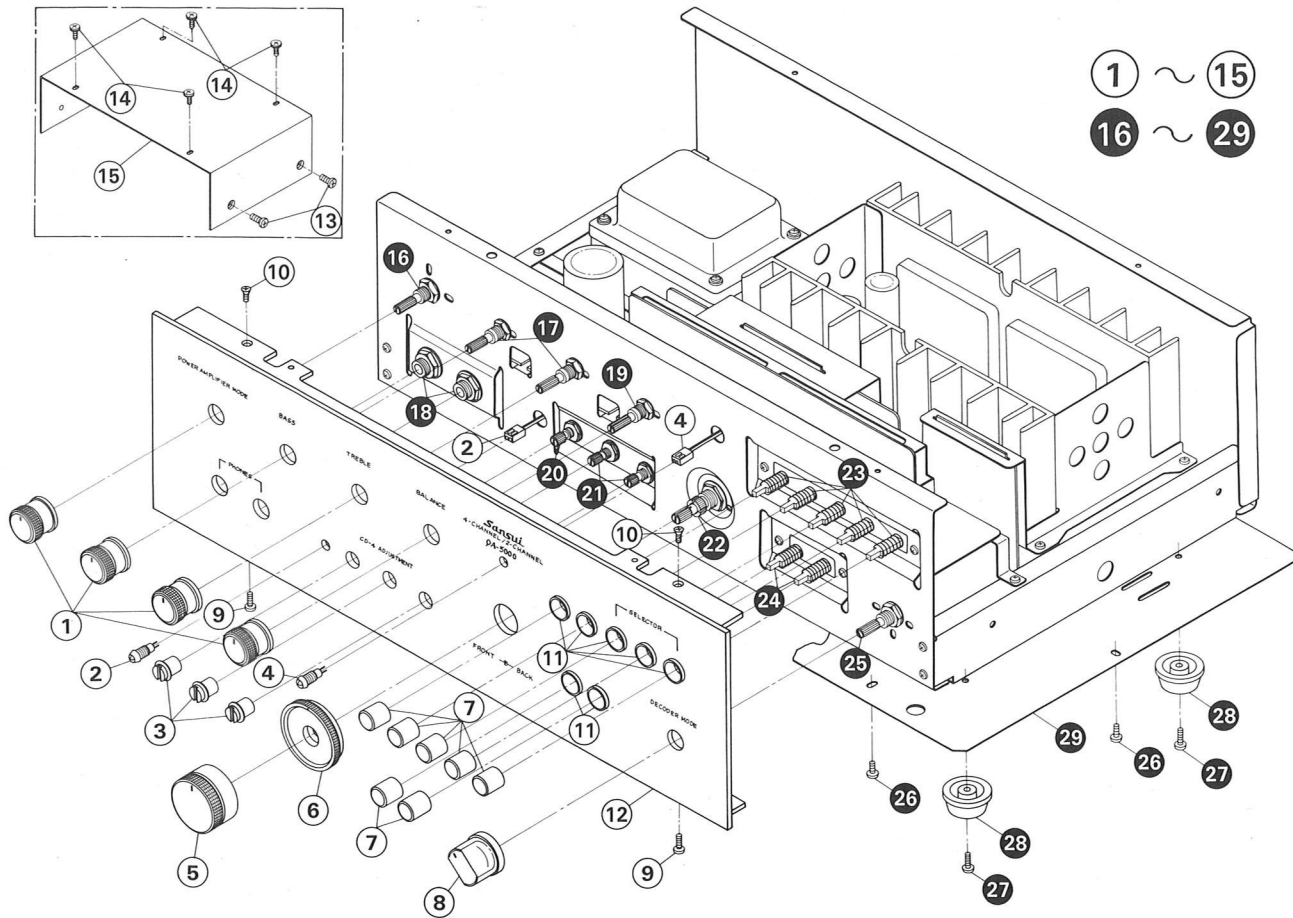


Other Parts List

Parts No.	Stock No.	Description
TR01, 02	0306212, 3	2SC1619A (O, Y)
TR03, 04	0306212, 3	2SC1619A (O, Y)
TR05, 06	0300632, 3	2SA808A (O, Y)
TR07, 08	0300632, 3	2SA808A (O, Y)
D601	0311320	SS-5R } Diode
D602	0311310	SS-5S }
C701, 702	0657473	0.047 μ F 50V C.C.
C703	0659801	0.01 μ F 1.4kV C.C.
R707, 708	0105221	220 Ω } 2W C.R.
R709, 710	0105221	220 Ω }

Parts No.	Stock No.	Description
F701	2300060	Fuse Holder
	0431270, 2	4A (100, 117V)
	0431240, 2	2A (220, 240V)
} Power Fuse		
PU701	2410830	Voltage Selector, Socket
	2410090, 1	Voltage Selector, Plug
PT701	4002200	Power Transformer
	2230050	Ground terminal
	2290100	4P Output terminal
	2450060	AC Outlet
	3800020	Power Cord
	2090040	DIN Jack

4-21. OTHER PARTS (Front Side, QA-5000)

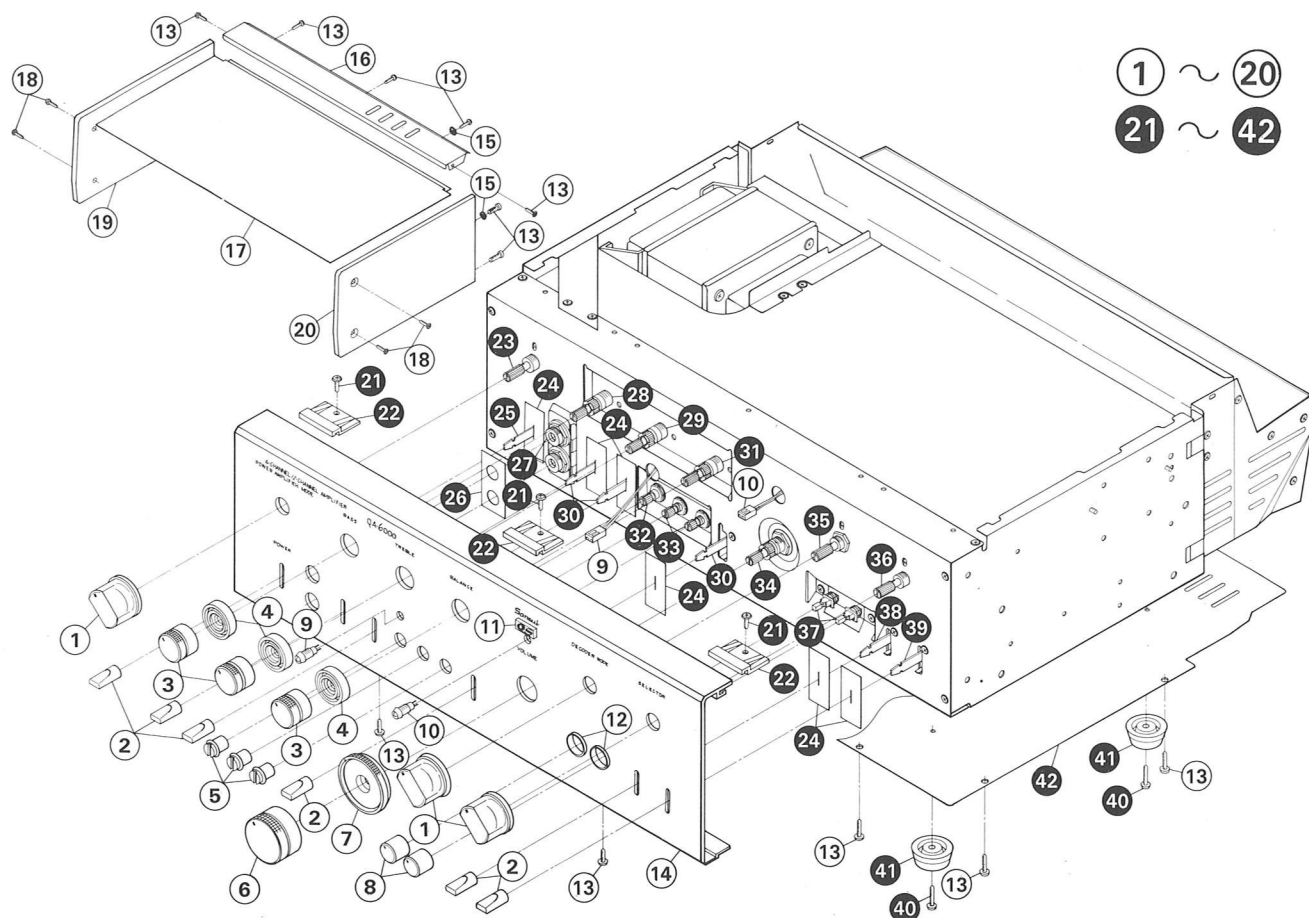


Other Parts List

Parts No.	Stock No.	Description
1	5317880	S-5 Type Knob, power and tone Control volume
2	7726100	Light Emitted Diode Ass'y (c)
3	5318030	CD-4 Adjustment Volume Knob
4	7726080	Light Emitted Diode Ass'y (A)
5	5318160	WIE-1 Type Knob, VOLUME
6	5318080	WO-4 Type Knob, VOLUME
7	5326500	Push Button
8	5317900	T-5 Type Knob, DECODER MODE Switch
9	5101143	Binding Head Screw, M3×6
10	5102843	Flat Countersunk Head Screw, M3×6
11	5396190	Knob Ring
12	5309530	Front Panel
13	5101161	Binding Head Screw, M4×6
14	5109222	Binding Head Tapping Screw, M3×8
15	5006390	Bonnet
16	1103510, 1	Rotary Switch Y-3-11-3
17	1065040, 1	100kΩ (C)×4 BASS, TREBLE Volume
18	2430240	Headphone Jack
19	1065030, 1	250kΩ (B)×4 BALANCE Volume
20	1015100, 1	10kΩ (B)×2 CARRIER LEVEL Volume
21	1005150, 1	50kΩ (C) SEPARATION Volume

Parts No.	Stock No.	Description
22	1060420, 1	250kΩ (A)×4 VOLUME
23	1131040	Push Switch (5 Stage)
24	1131030	Push Switch (2 Stage)
25	1106140	Rotary Switch SRE-6-22-5, DECODER MODE
26	5109222	Binding Head Tapping Screw, M3×8
27	5166520	Washer Head Tapping Screw, M3×12
28	5516940	Foot
29	5058320	Bottom Plote

4-22. OTHER PARTS, (Front Side QA-6000)



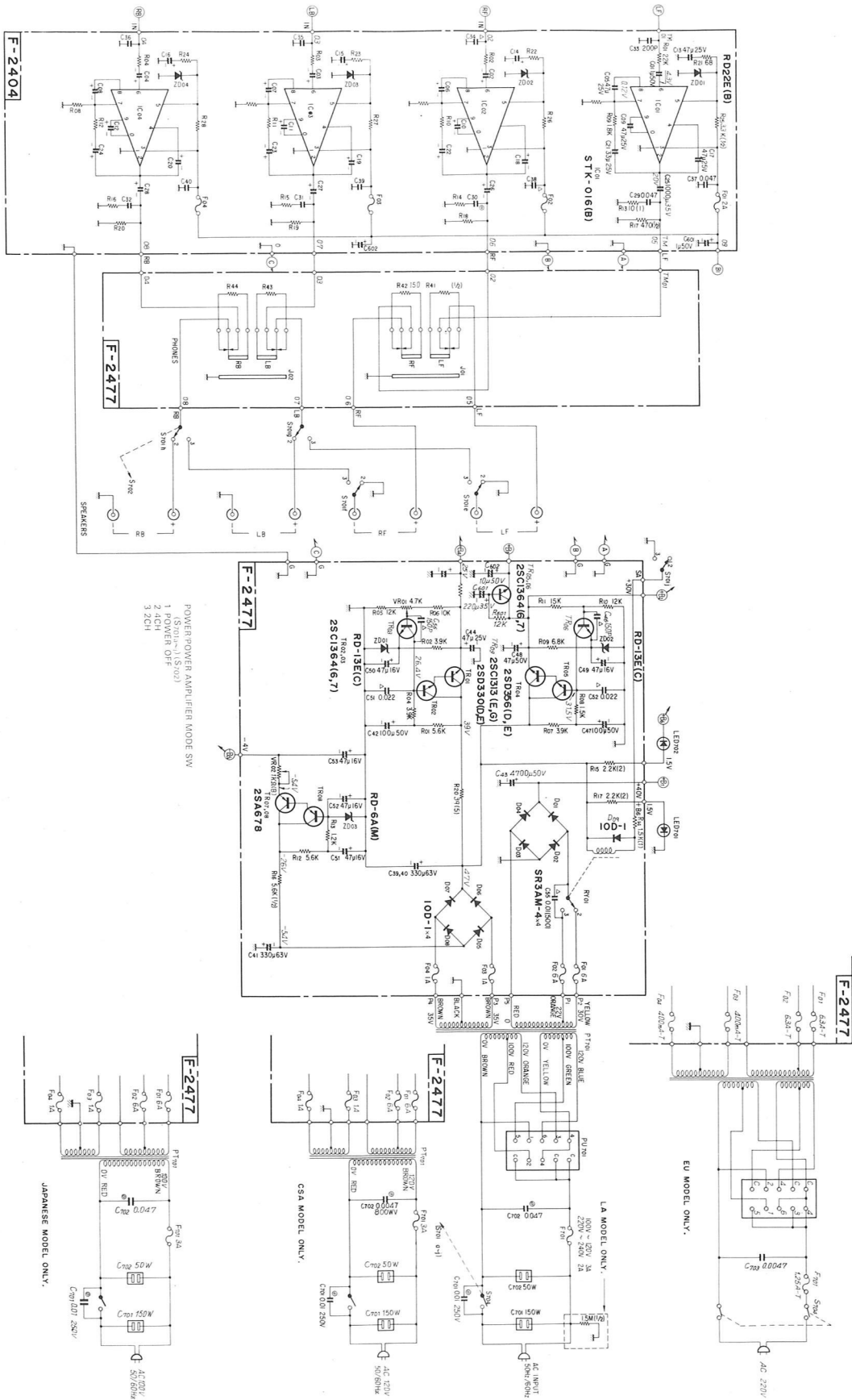
Other Parts List

Parts No.	Stock No.	Description
1	5318041	S-5 Type Knob, rotary switch
2	5326460	E-1 Type Knob, lever switch
3	5317990	WI-5 Type Knob, tone control volume
4	5318020	WO-5 Type Knob, tone control volume
5	5318030	Knob, CD-4 ADJUSTMENT volume
6	5318080	U-5 Type Knob, VOLUME
7	5318001	WO-3 Type Knob, VOLUME
8	5326500	Push Button
9	7726100	Light Emitted Diode Ass'y (C)
10	7726080	Light Emitted Diode Ass'y (A)
11	5336431	Badge, QS mark
12	5396190	Knob Ring
13	5109222	Binding Head Tapping Screw, M3×8
14	5309510	Front Panel
15	5122540	Toothed Lock Washer (External) 3φ
16	5006370	Sub Bonnet
17	5006380	Bonnet
18	5101161	Binding Head Screw, M4×6
19	5269810	Side Panel (Left)
20	5269821	Side Panel (Right)
21	5109122	Binding Head Screw, M3×8
22	5269880	Stopper (Front Panel)

Parts No.	Stock No.	Description
23	1102620, 1	Rotary Switch SRE-2-9-2
24	5047470	Masking (Lever Switch)
25	1170330	Lever Switch, POWER
26	5040190	Masking, headphone jack
27	2430170	Headphone Jack
28	1060430, 1	100kΩ(B)×4 BASS Volume
29	1060430, 1	100kΩ(B)×4 TREBLE Volume
30	1170370	Lever Switch
31	1060350, 1	250kΩ(MN)×4 BALANCE Volume
32	1015100, 1	10kΩ(B)×2 CARRIER LEVEL Volume
33	1005150, 1	50kΩ(C) SEPARATION Volume
34	1060420, 1	250kΩ(B)×4 VOLUME
35	1106140, 1	Rotary Switch SRE-6-22-5 (DECODER MODE)
36	1102610, 1	Rotary Switch SRE-2-5-3 (SELECTOR)
37	1131030	Push Switch (2 Stage)
38	1170370	Lever Switch SX-15-8
39	1170350	Lever Switch SX-15-6
40	5166520	Washer Head Tapping Screw, M3×12
41	5516940	Foot
42	5058310	Bottom Plate

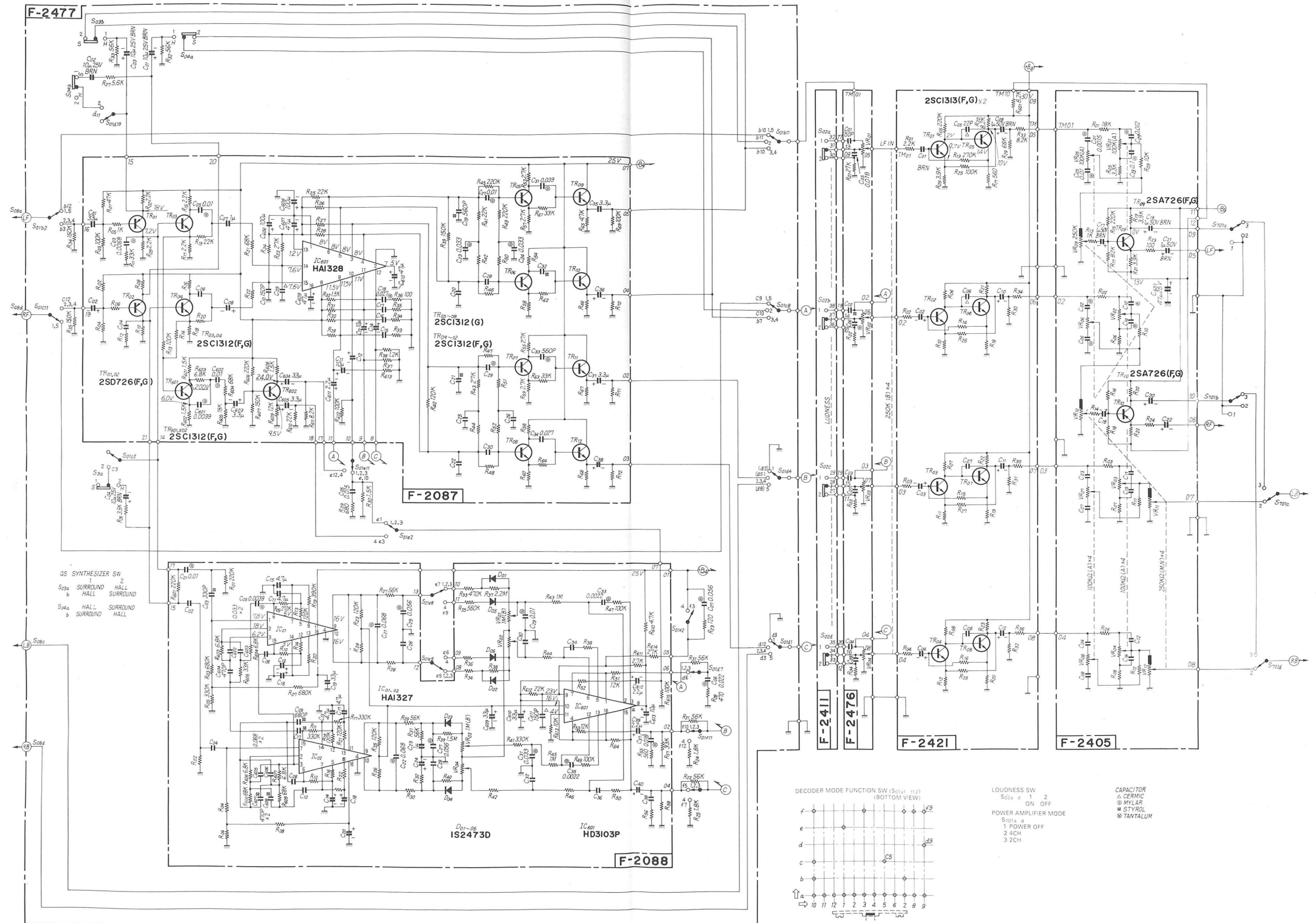
5. SCHEMATIC DIAGRAM

5-1. <QA-5000 Main & Power Supply Section>

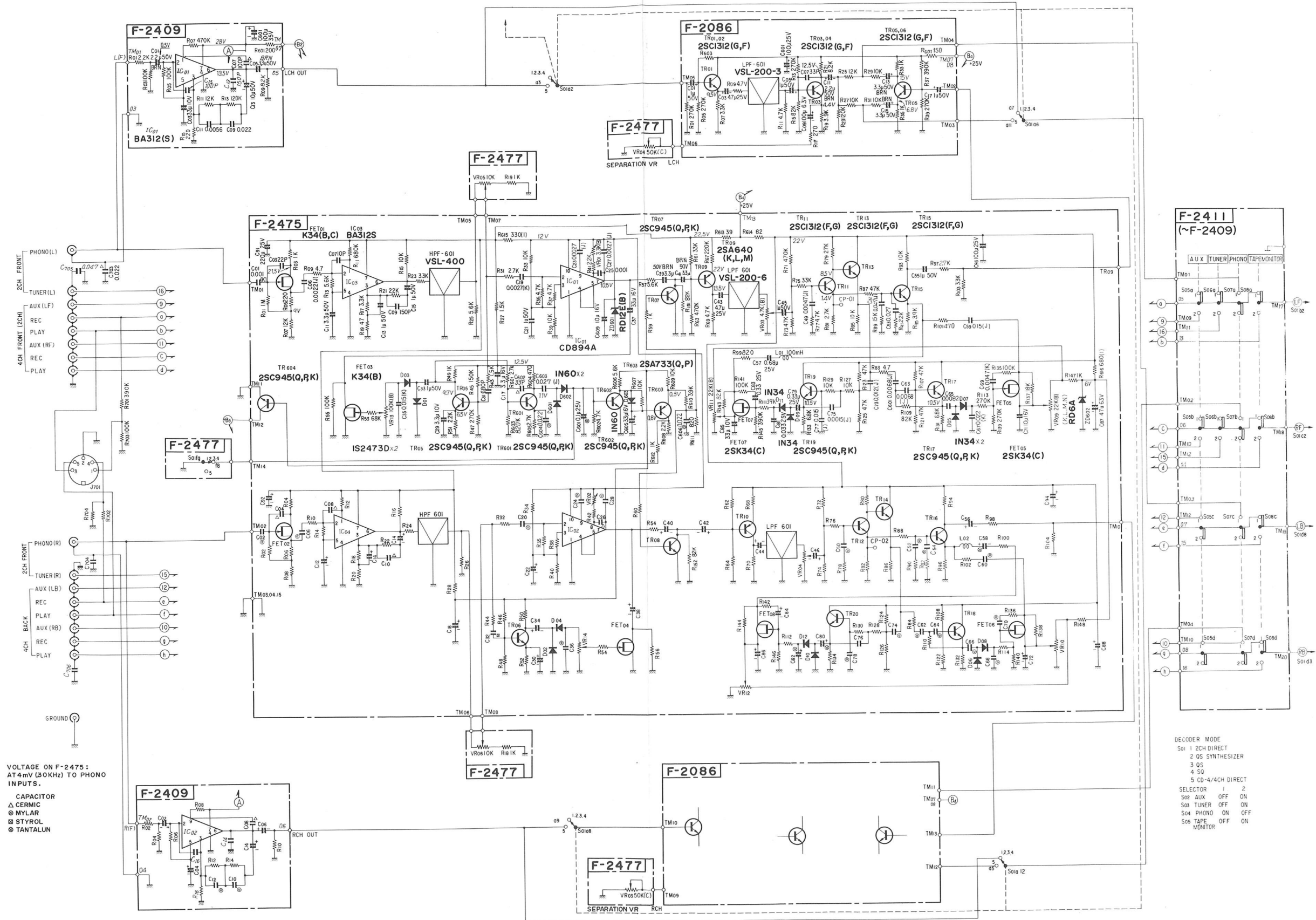


<QA-5000 Vario-matrix & Tone Control Section>

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

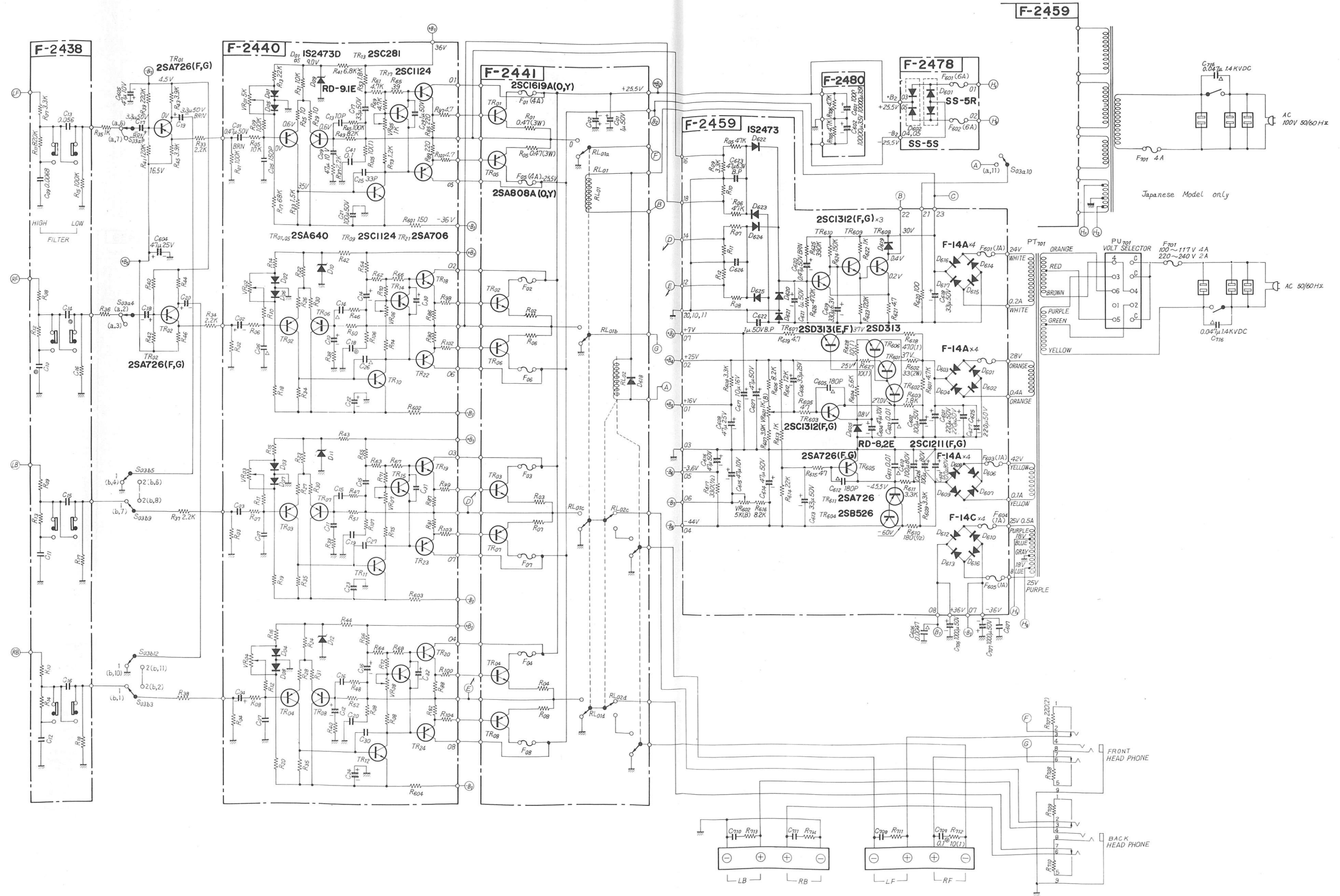


<QA-5000 CD-4 Section>

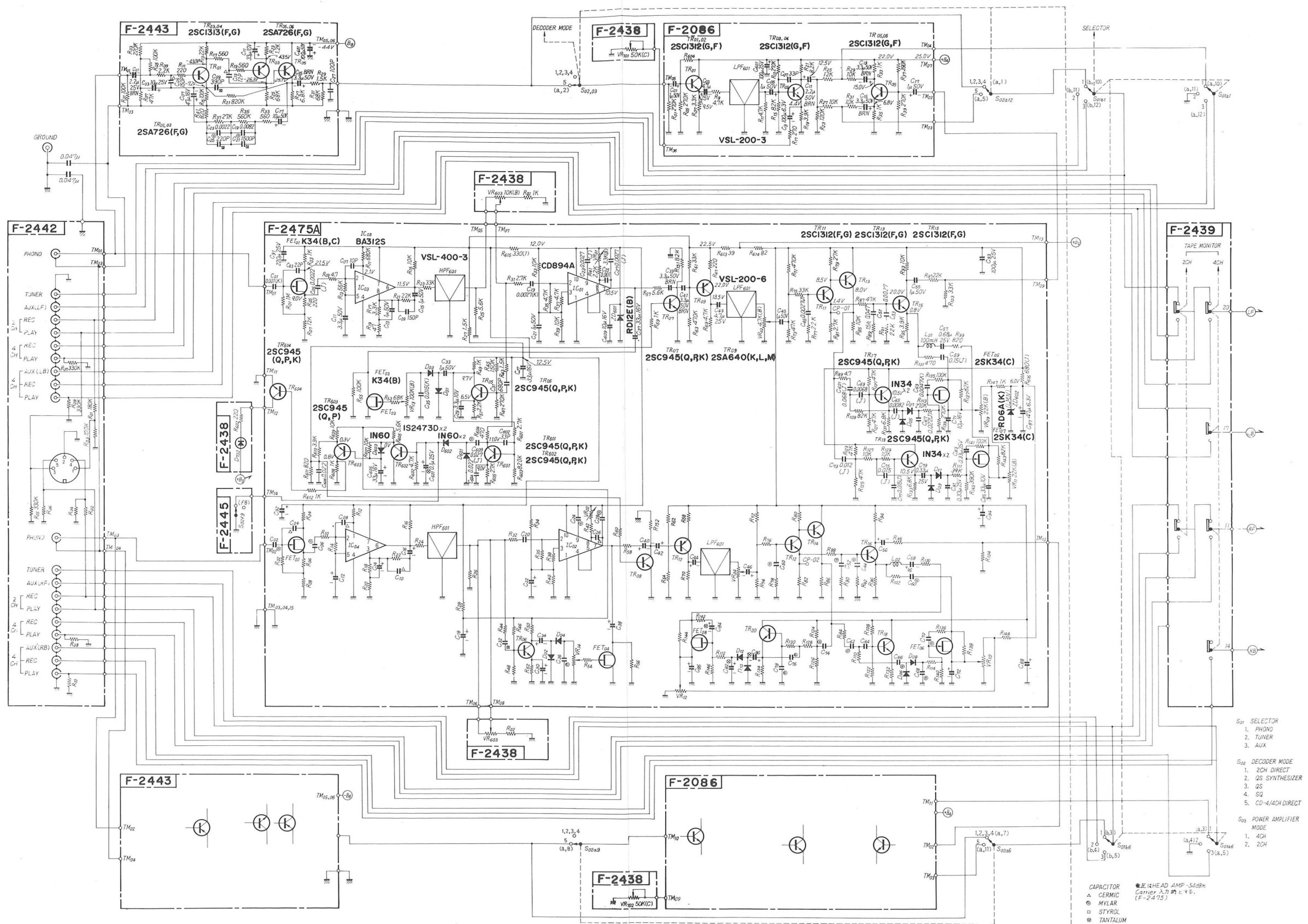


5-2. QA-6000 Main & Power Supply Section

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



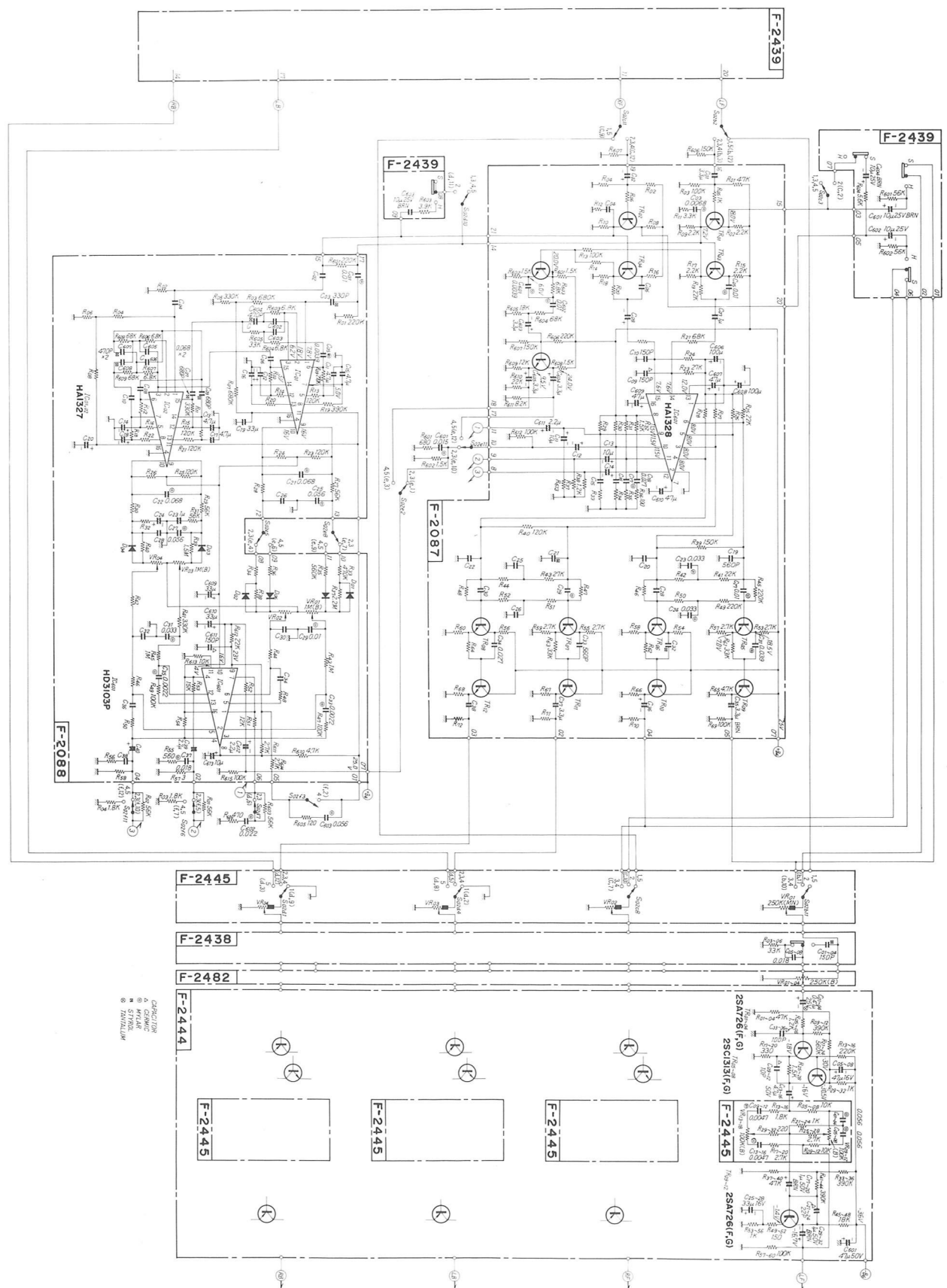
<QA-6000 CD-4 Section>



- S₀₂ SELECTOR
 1. PHONO
 2. TUNER
 3. AUX
- S₀₃ DECODER MODE
 1. 2CH DIRECT
 2. QS SYNTHESIZER
 3. QS
 4. SQ
 5. CD-4/4CH DIRECT
- S₀₄ POWER AMPLIFIER MODE
 1. 4CH
 2. 2CH
- IN HEAD AMP - 50dBm Carrier 入力の ±1% (F-2475)
- CAPACITOR
 △ CERMIC
 ○ MYLAR
 □ STYROL
 ⊗ TANTALUM

<QA-6000 Vario-matrix & Tone Control Section>

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



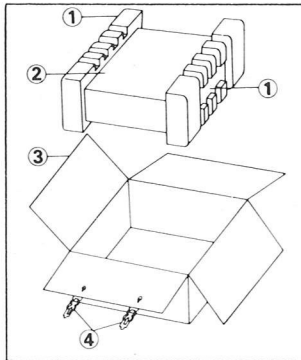
6. PACKING LIST

6-1. QA-5000

Parts No.	Stock No.	Description
1	9027820	Stylofoam Packing
2	9116153	Vinyl Cover
3	9008140	Carton Case
4	5996080	Curl Stopper

6-2. QA-6000

Parts No.	Stock No.	Description
1	9027860	Stylofoam Packing
2	9116143	Vinyl Cover
3	9008220	Carton Case
4	5996080	Curl Stopper



7. ACCESSORY PARTS LIST

7-1. QA-5000

Stock No.	Description
0433610	Quick Acting Fuse
9208500	Operating Instructions
9228500	Operating Instructions Sheet
9416010	CD-4 Adjustment Record

7-2. QA-6000

Stock No.	Description
0433630	4A 250V Quick Acting Fuse
5066250	Pin Jack Cover
9208480	Operating Instructions
9228480	Operating Instruction Sheet
9416010	CD-4 Adjustment Record



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