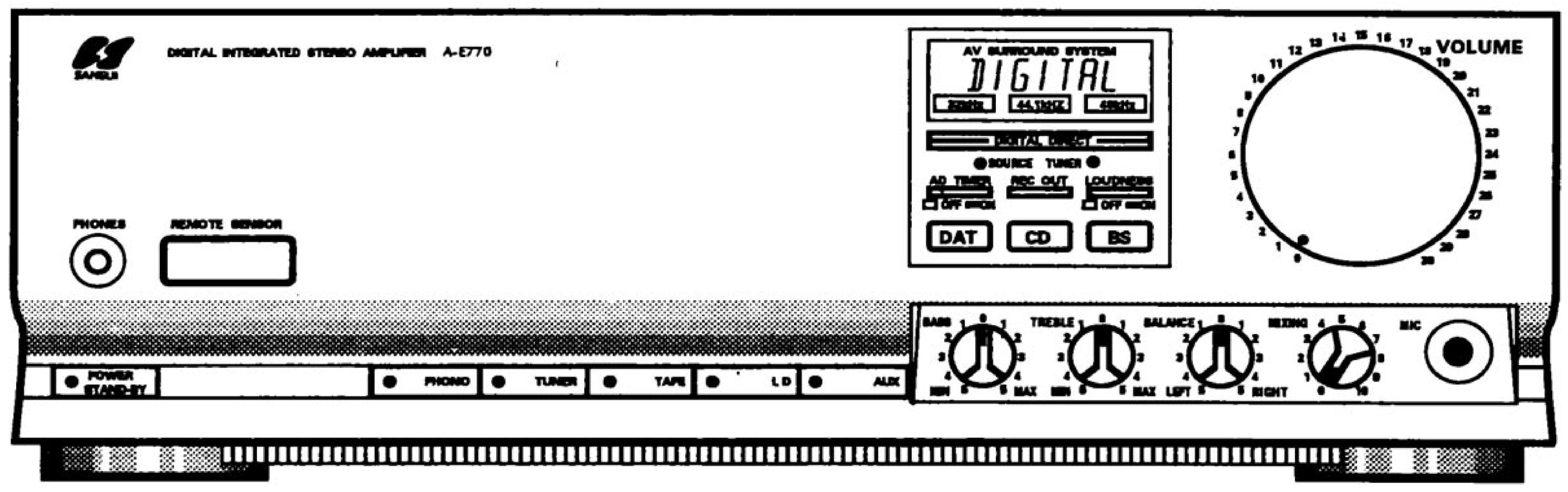
SANSUI

SERVICE MANUAL

A-E770
(Black & DMC Model)

A-E970
(DMC Model)

DIGITAL INTEGRATED STEREO AMPLIFIER



CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety.
   Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTE

1. The symbols, EU, SEV, SS and XX <EXPORT> on the parts list and the schematic diagram mean followings respectively.
   EU .... Manufactured for European market.
   SEV .... Manufactured for Swiss market.
   SS .... Manufactured for Saudi Arabia market.
   XX .... Standard Version.
   <EXPORT>
   NON MARK ... Common Parts.

2. Some printed circuit board are not supplied assembled.
   To separate these in this Parts list, the stock numbers are not indicated for these boards. However, stock numbers for indivisual parts are indicated.

3. Since some capacitors and resistors are omitted from parts lists in this Parts List, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.

4. Abbreviations in this Parts List are as follows.

•Abbreviations List

C.R.	: Carbon Resistor	E.B.L	: Low Leak Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor	Ta.C.	: Tantalum Capacitor
Ce.R.	: Cement Resistor	F.C.	: Film Capacitor
M.R.	: Metal Film Resistor	M.P.	: Metalized Paper Capacitor
F.R.	: Fusing Resistor	P.C.	: Polystyrene Capacitor
N.I.R.	: Non-Inflammable Resistor	M.M.C.	: Metalized Mylar Capacitor
A.R.	: Array Resistor	A.C.	: Array Capacitor
C.C.	: Ceramic Capacitor	V.R.	: Variable Resistor
C.T.	: Ceramic Capacitor, Temperature Compensation	S.V.R.	: Semi Variable Resistor
E.C.	: Elecrolytic Capacitor	SW.	: Switch
E.L.	: Low Leak Electrolytic Capacitor	Chip R.	: Chip Resistor
E.B.	: Bi-Polar Electrolytic Capacitor	Chip C.	: Chip Capacitor

•DMC Model : Dolphine Metallic Model

Specifications

Amplifier (A-E770)

Power output
Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.08% total harmonic distortion.
50 watts per channel into 8 ohms.

Load impedance..........................8 to 16 ohms
Total harmonic distortion...........less than 0.08% at or below rated min. RMS power output
Intermodulation distortion (60 Hz: 7 kHz = 4:1 SMPTE method) less than 0.08% at rated power output
Frequency response (at 1 watt) Overall (from CD)
.... 10 to 60,000 Hz, +1 dB,–2 dB
Input sensitivity and impedance (at 1 kHz)
PHONO (MM).........................3.5 mV/50 kohms
TUNER, TAPE, VIDEO/AUX.... 200mV/47 kohms
MIC..0.3 mV/10 kohms
Signal to noise ratio (short-circuit, A-network)
PHONO..................................72dB
TUNER, TAPE, VIDEO/AUX.....95dB
DA Converter
Signal to noise ratio................98dB
Dynamic range........................95dB
Power requirements
Power voltage........................120/220/240 V (50/60 Hz)
Power consumption.................. 260 watts Rated
400 watts Maximum
Dimensions................................ 360 mm (14-3/16") W
119 mm (4-11/16") H
325 mm (12-13/16") D
Weight...6.5 kg (14.3 lbs) net

Amplifier (A-E970)

Power output
Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.05% total harmonic distortion.
(Output power of the surround speaker is turned off)
75 watts per channel into 8 ohms.
DIN : 75 watts per channel into 8 ohms, 1,000 Hz

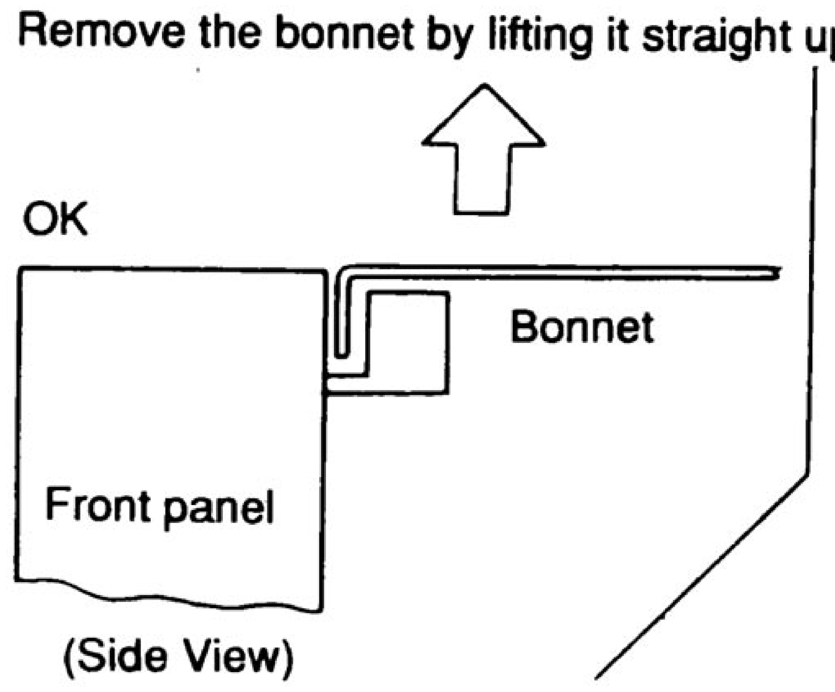
Load impedance..........................8 to 16 ohms
Total harmonic distortion...........less than 0.05% at or below rated min. RMS power output
Intermodulation distortion (60 Hz: 7 kHz = 4:1 SMPTE method) less than 0.05% at rated power output
Frequency response (at 1 watt) Overall (from CD)
....10 to 60,000 Hz, +1 dB, –2 dB
Input sensitivity and impedance (at 1 kHz)
PHONO (MM).........................3.5 mV/50 kohms
TUNER, TAPE, VIDEO/AUX.... 200mV/47 kohms
MIC..0.3 mV/10 kohms
Signal to noise ratio (short-circuit, A-network)
PHONO..................................72dB
TUNER, TAPE, VIDEO/AUX.....95dB
DA Converter
Signal to noise ratio................98dB
Dynamic range........................95dB
Power requirements
Power voltage........................120/220/240 V (50/60 Hz)
Power consumption.................. 380 watts Rated
600 watts Maximum
Dimensions................................ 360 mm (14-3/16") W
119 mm (4-11/16") H
325 mm (12-13/16") D
Weight...7.9 kg (17.4 lbs) net

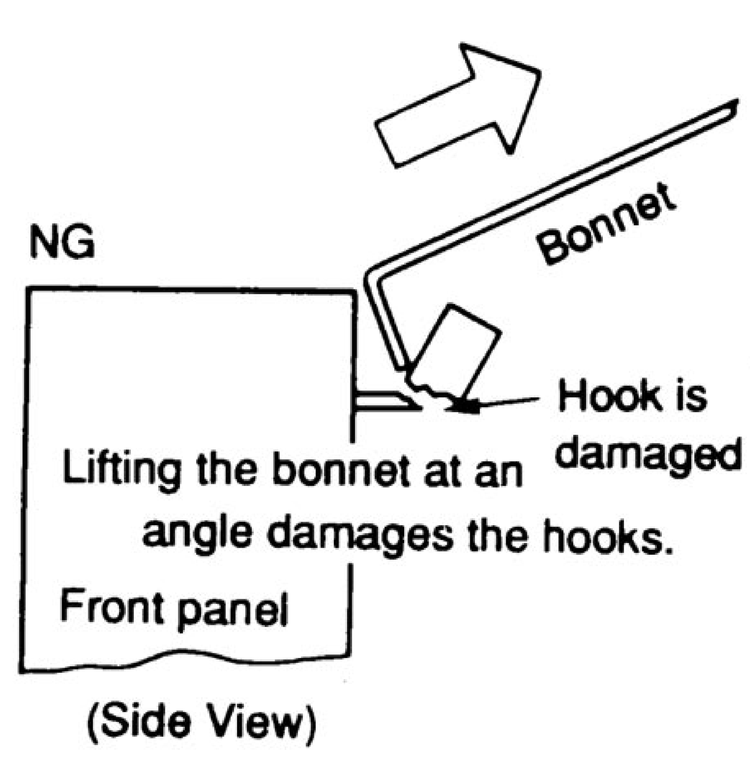
* Design and specifications subject to changes without noitice for improvements.
* Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.

1. Removing the Bonnet and Parallel Cord

1-1. How to Remove the Bonnet

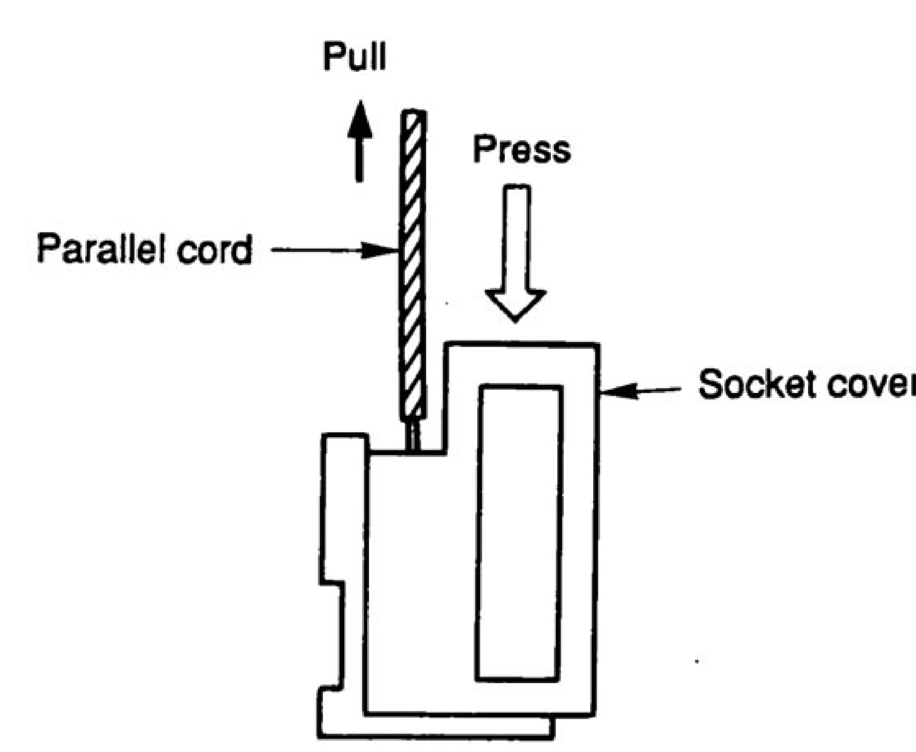
Remove the bonnet by lifting it straight up.





1. Remove the six mounting screws of bonnet.
2. Lift the bonnet straight up.
   Note that forcing the bonnet up at an angle or raising it toward the rear may result in damage to the front panel hooks.

1-2. Removing the Parallel Cord from the PCB

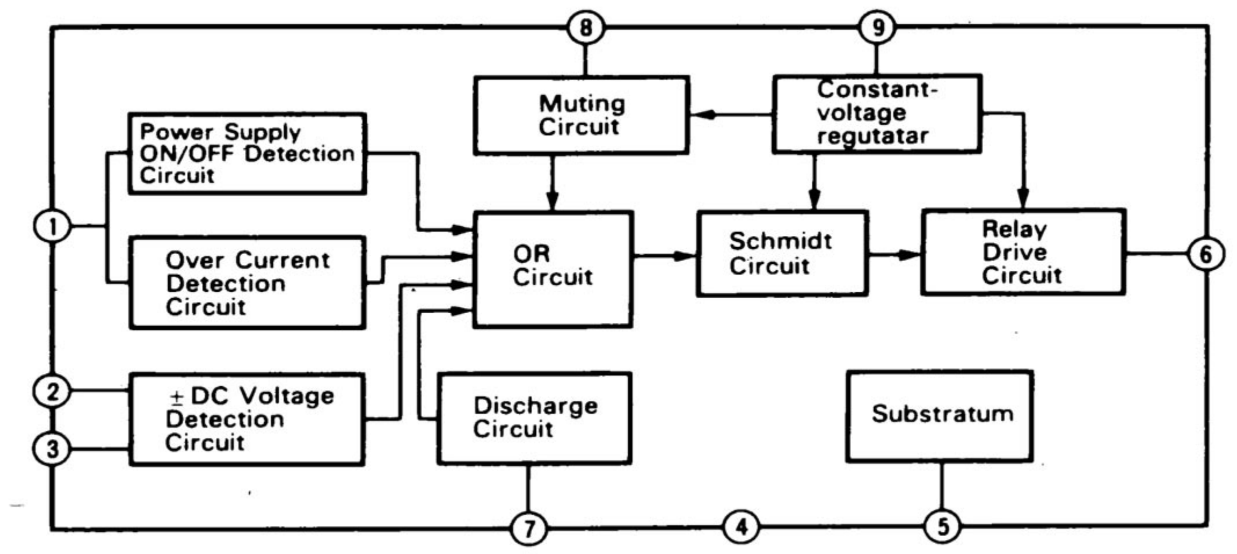


The parallel cord can be readily removed from the PCB by pulling it while pressing down on the socket cover.
To re-connect, press down on the socket cover and insert the cord.

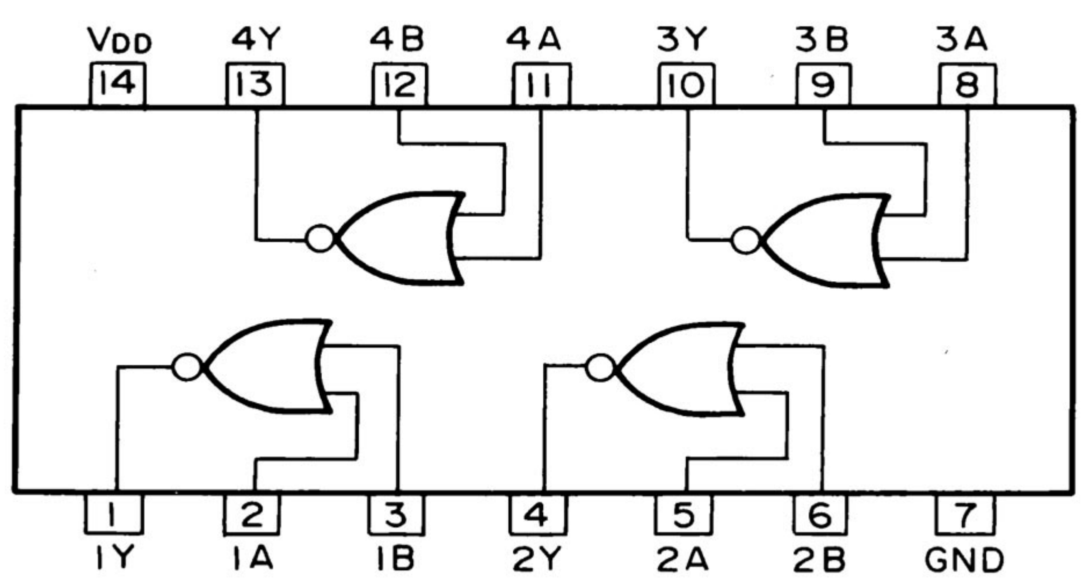
2. BLOCK DIAGRAM

3. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC

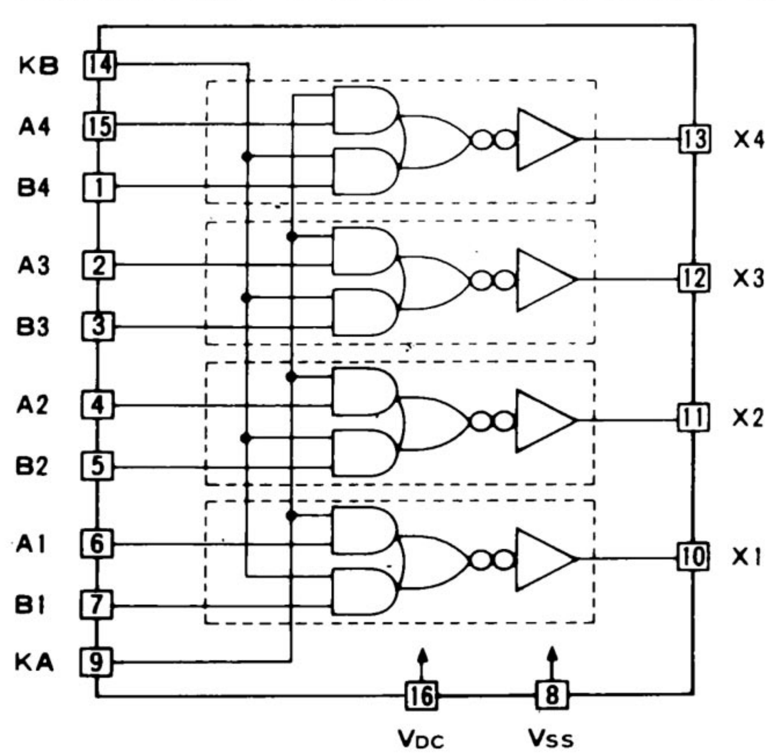
• TA7317P <Protector>



• TC74HC02AP <NOR1~4>



• LC4019B <AND-OR Select Gate>

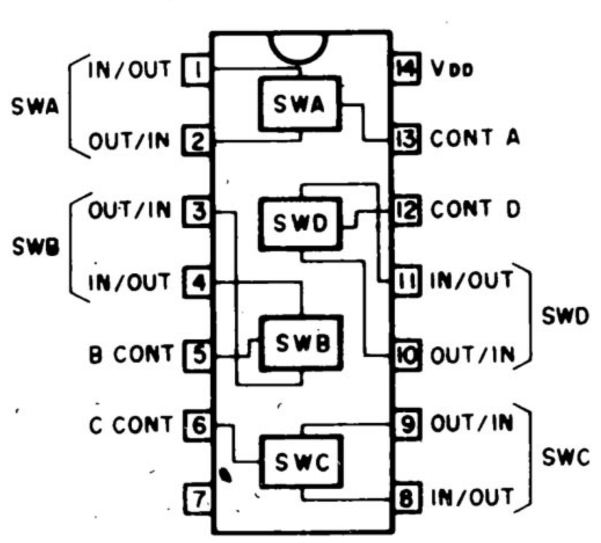


•Truth Table

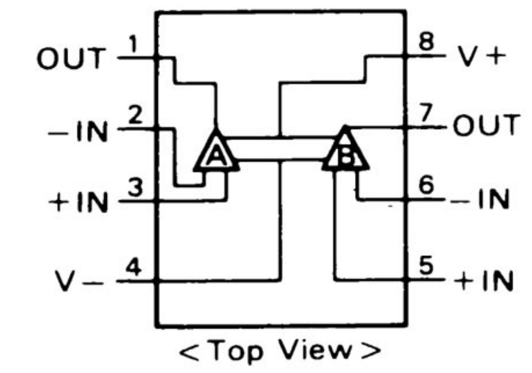
An	Bn	KA	KB	Xn
0	0	1	0	0
1	0	1	0	1
0	1	1	0	0
1	1	1	0	1
0	0	0	1	0
1	0	0	1	0
0	1	0	1	1
1	1	0	1	1
0	0	1	1	0
1	0	1	1	1
0	1	1	1	1
1	1	1	1	1
•	•	0	0	0

1 : "Hi"
0 : "Lo"
• : don't care
n = 1 ~ 4

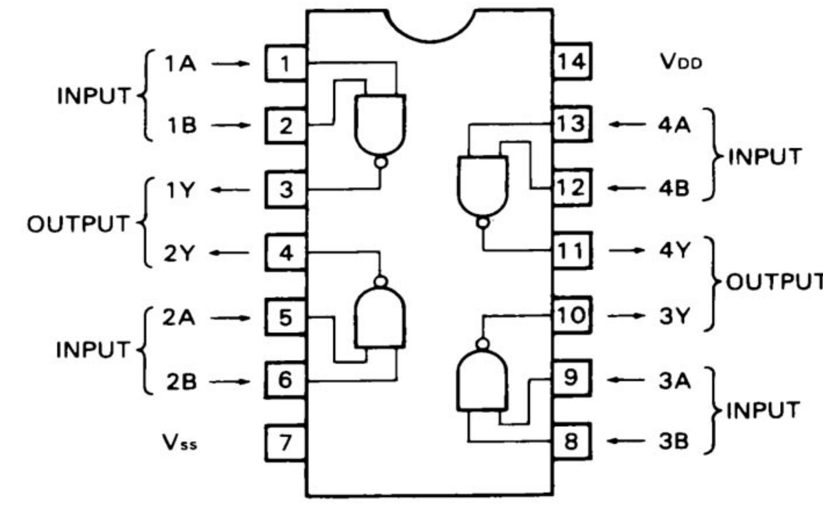
• LC4966/LC4066BH/TC74H4066P <Analog Switch>



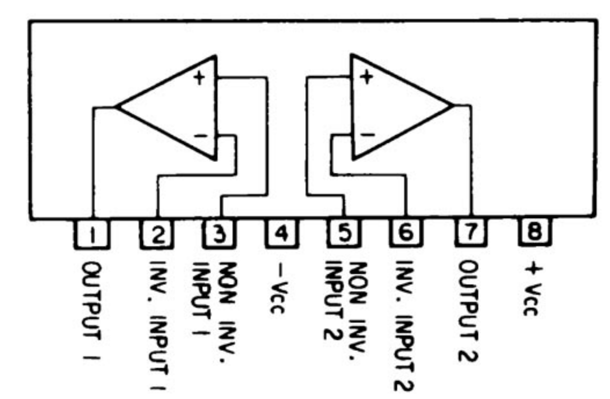
• M5218P <OP AMP>



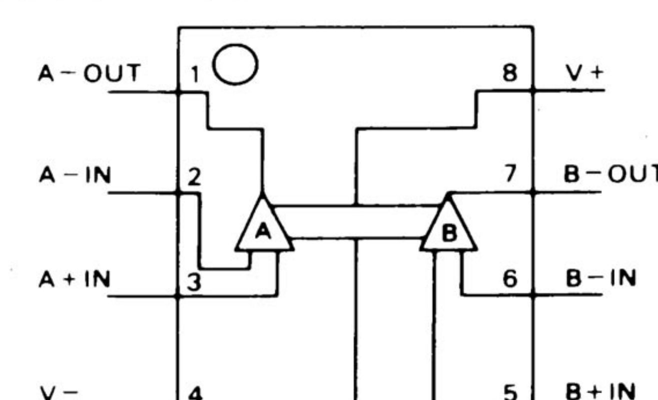
• TC4011P <NAND Gate>



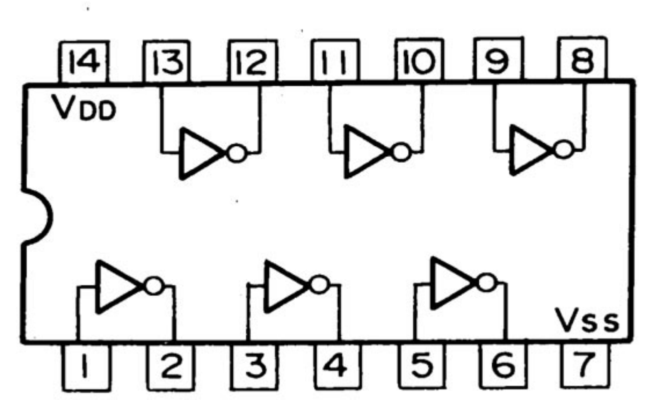
• M5218L/M5238L <OP AMP >



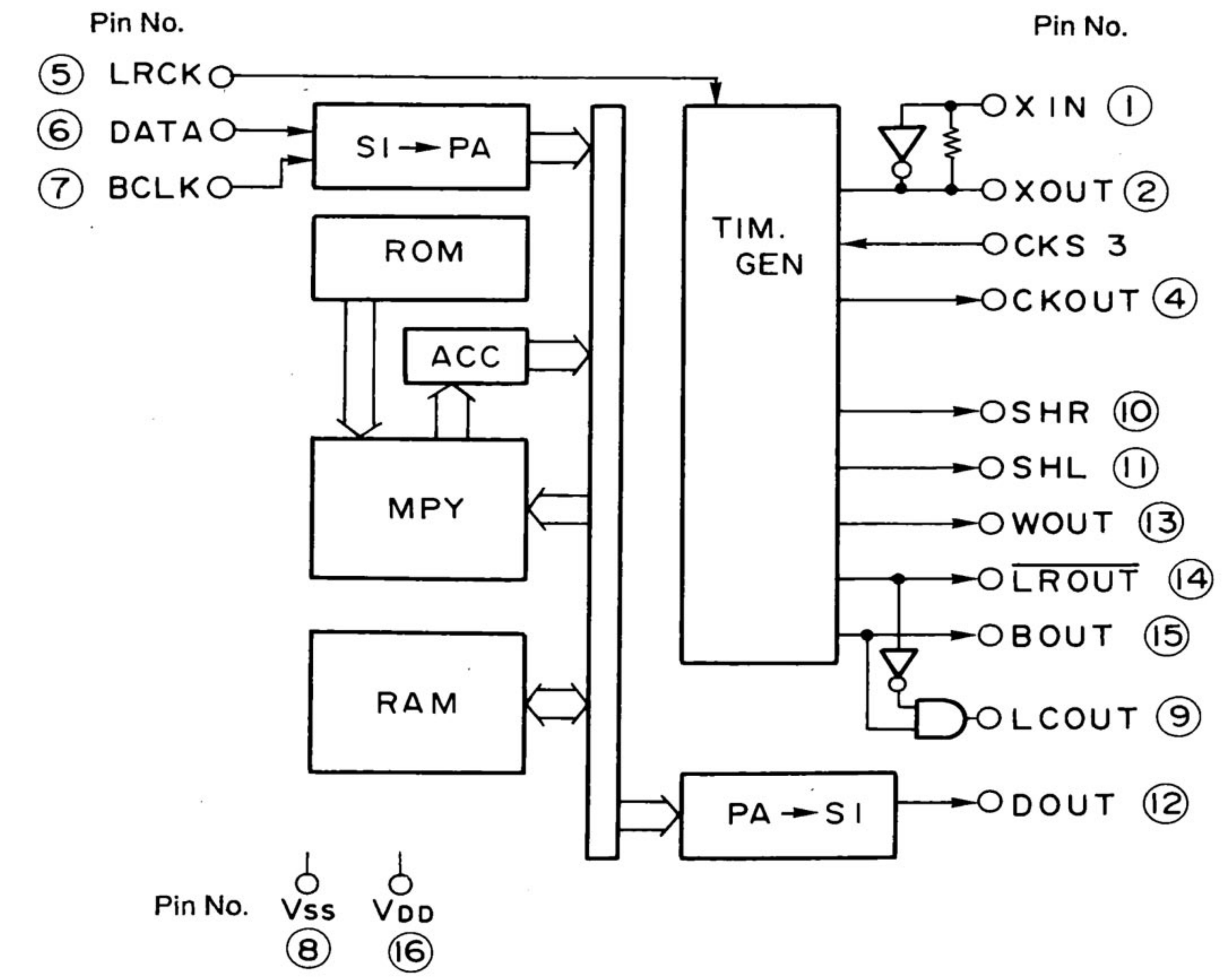
• NJM4558D <OP AMP>



• TC4096UBP <Inverter>



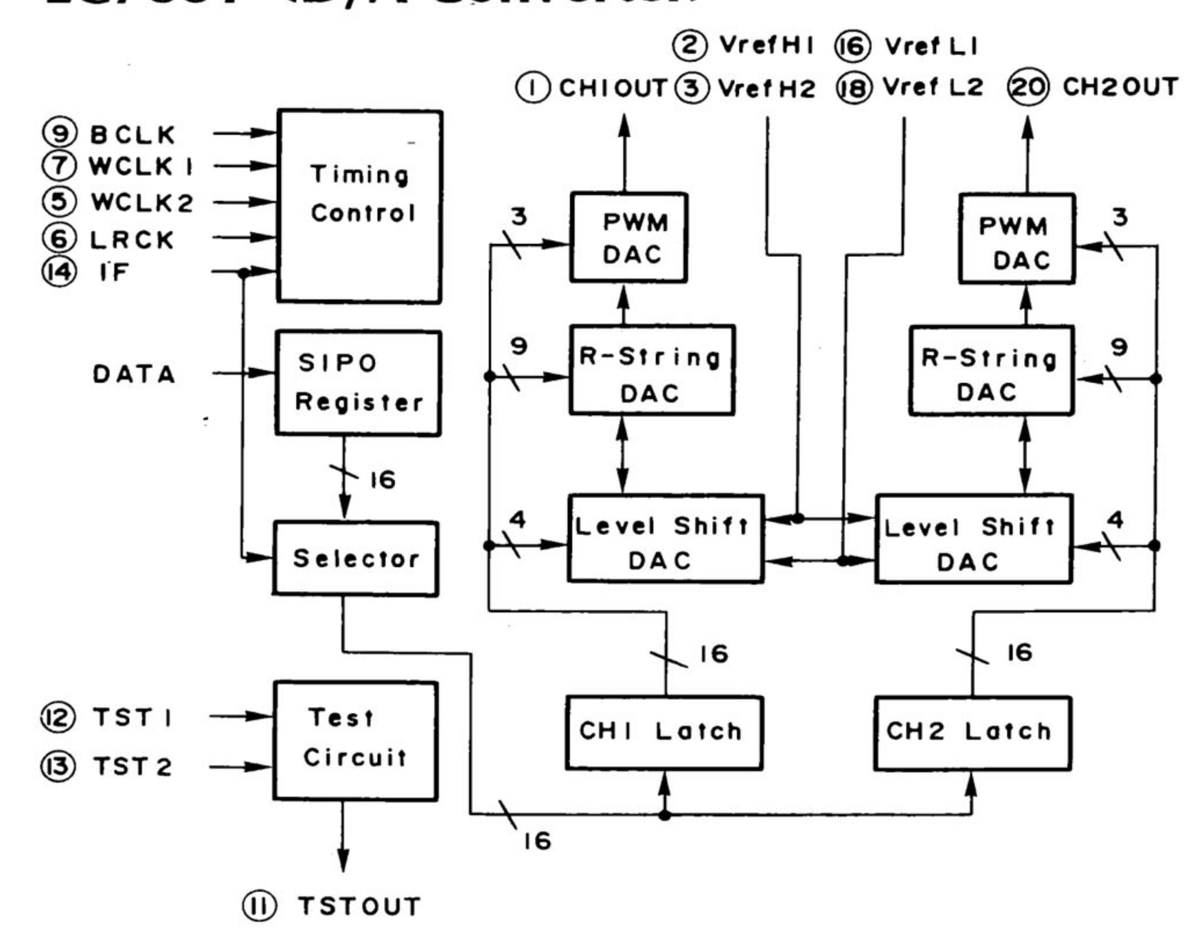
• PD0029 <Over Sampling Digital Filter>



• Function <PD0029>

Pin No.	Pin Name	I/O	Function
1	XIN	I	Quartz oscillator circuit input or external input
2	XOUT	O	Quartz oscillator circuit output
3	CKS	I	When H: 16.9344 MHz When L: 8.4672 MHz
4	CKOUT	O	When CKS=H: 16.9344 MHz clock output When CKS=L: 8.4672 MHz clock output
5	LRCK	I	LR clock input
6	DATA	I	Serial data input (Twos complement, MSB first)
7	BCLK	I	Bit clock input for input data
8	VSS		Ground terminal
9	LCOUT	O	Clock output for Lch DAC when using 2DAC
10	SHR	O	Sample hold pulse output for Rch
11	SHL	O	Sample hold pulse output for Lch
12	DOUT	O	Serial data output (Twos complement, MSB first)
13	WOUT	O	Word clock output
14	LROUT	O	LR-select clock output
15	BOUT	O	Bit clock output for DOUT
16	VDD	O	+5V power terminal

• LC7881 <D/A Converter>



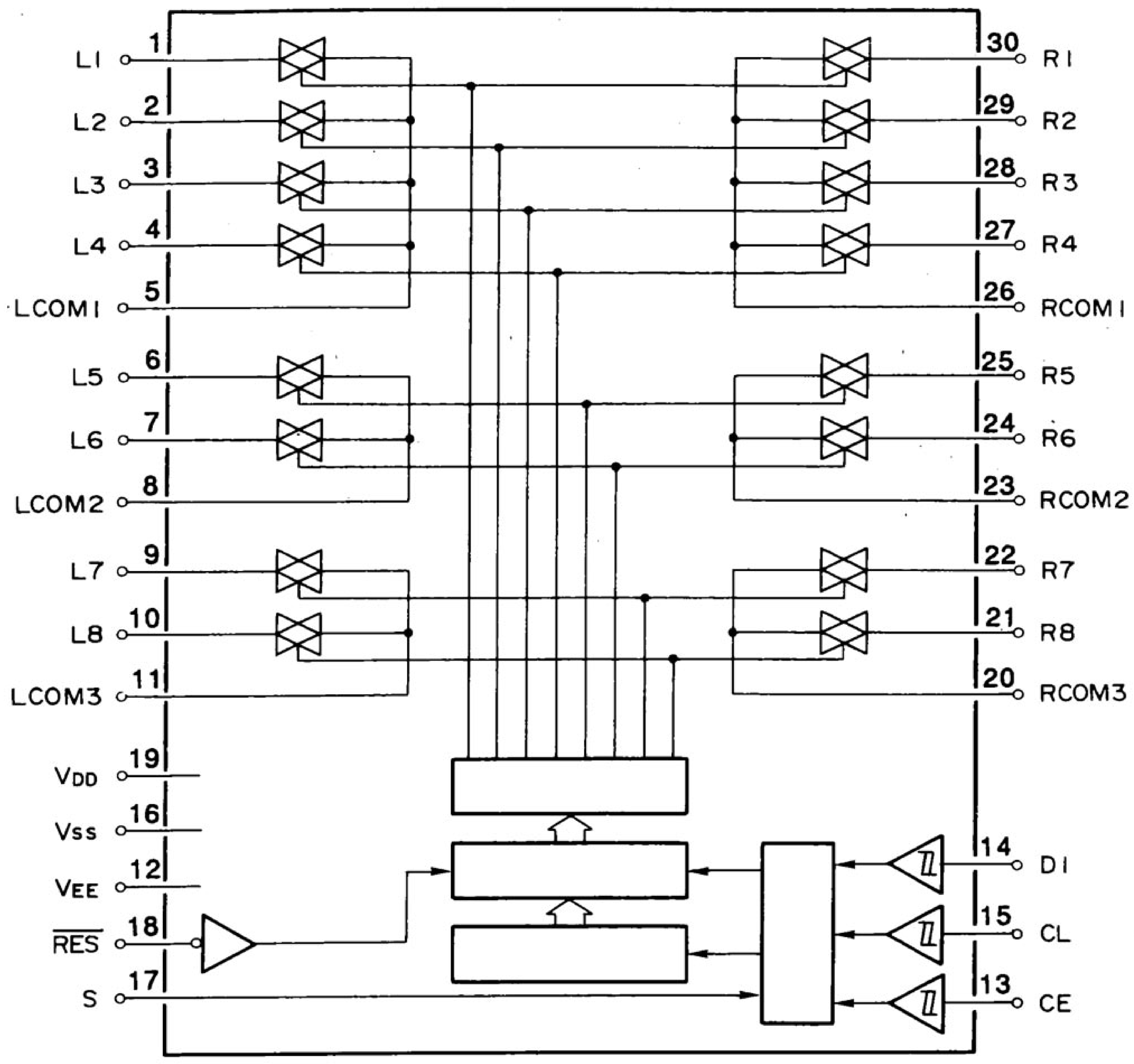
<Function>

Pin No.	Pin Name	Function
1	CH1OUT	Channel 1 output terminal
2	VrefH1	HIGH reference voltage input terminal 1
3	VrefH2	HIGH reference voltage input terminal 2
4	VDD	+5V power supply
5	WCLK2	Word clock 2 input terminal When IF=HIGH, the level of WCLK2 must be set LOW. When IF=LOW, the falling edge of WCLK2 is used to create internal latch signals for channel 1 of the digital audio data.
6	LRCK	LR clock input terminal Indicates whether CH1 or CH2 is being used for inputting digital audio data, as follows. LRCK=HIGH: CH1 LRCK=LOW: CH2

• Function <LC7881>

Pin No.	Pin Name	Function
7	WCLK1	Word clock input terminal When IF=HIGH, the falling edge of WCLK1 is used to create internal latch signals for the data of both channels 1 and 2. When IF=LOW, the falling edge of WCLK1 is used to create internal latch signals for channel 2 of the digital audio data.
8	DATA	Digital audio data input terminal When IF=HIGH, bit serial data is input from the MSB. When IF=LOW, bit serial data is input from the LSB.
9	BCLK	Bit clock terminal The clock is used for bit-serial reading of digital audio data into the LSI. It is also used for PWM DAC.
10	VDD	+5V power terminal
11	TSTOUT	Test output terminal Normally open.
12	TST1	Test input terminals
13	TST2	Normally grounded
14	IF	Interface switching terminal Digital audio data is input in the following formats: MSB first when IF=HIGH LSB first when IF=LOW
15	GND	Ground terminal
16	VrefL1	LOW reference voltage input terminal 1
17	GND	Ground terminal
18	VrefL2	LOW reference voltage input terminal 2
19	NC	Not connected
20	CH2OUT	Channel 2 output terminal

• LC7821 <Analog Electric Switch>



<Function>

Pin Name	I/O	Internal Equivalence Circuit	Function
VDD, VSS, VEE			• Power terminal
L1~L8, R1~R8, LCOM1~LCOM3, RCOM1~RCOM3		See block diagram	• Analog switch IO terminals
CL, DI, CE	I		• Serial data input terminals (Schmitt buffers) CL: Clock input DI: Data input CE: Chip-enable μ terminal
S	I		• Select terminal when using two The address changes as follows according to whether the S terminal is LOW or HIGH: S Terminal / Address A0 A1 A2 A3 L: 0 1 0 1 H: 1 1 0 1
RES	I		• Reset terminal The state of the analog switches is indeterminate when the power is turned ON. However, setting this terminal to LOW allows all analog switches to be set OFF.

1) Data Input

The prescribed serial data is input to terminals CL, DI and CE to control the LC7821.
The data has a 12-bit structure made up of four address bits and 8 data bits.

1 st bit … last bit

A0	A1	A2	A3	SW 1	2	3	4	5	6	7	8
Address				Switch setting							

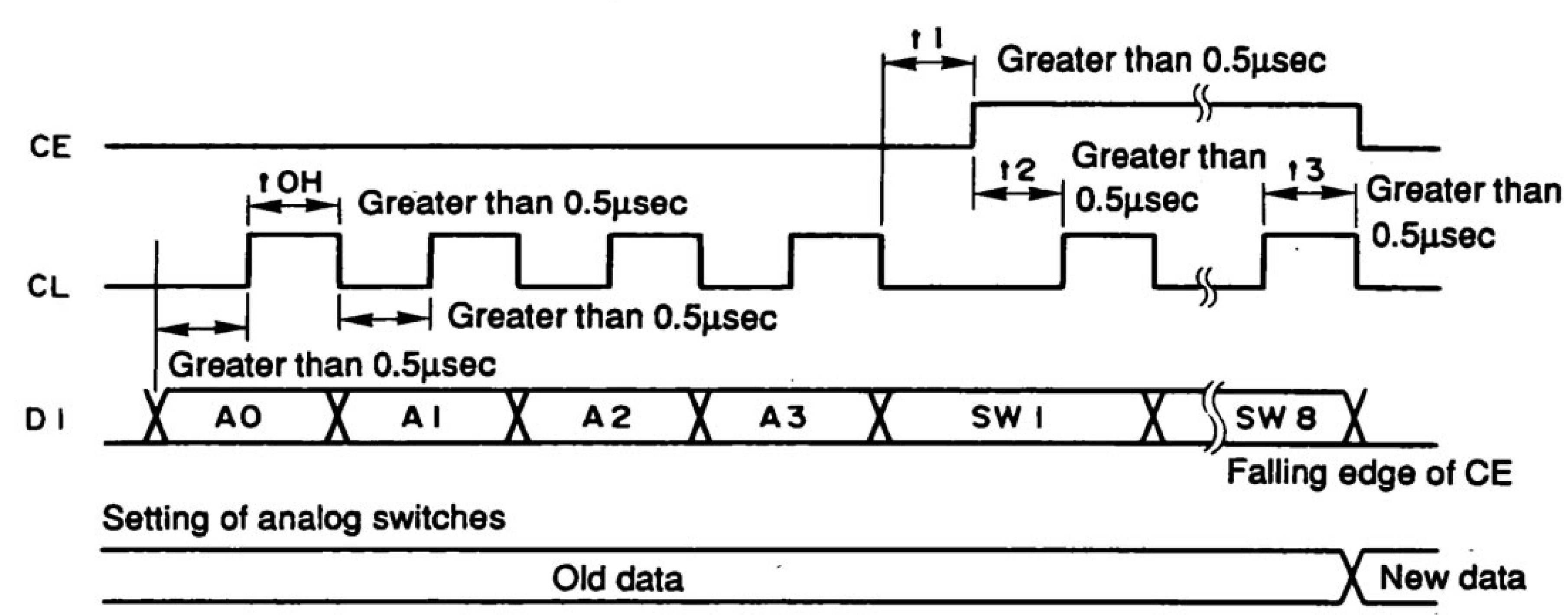
These correspond to the switch numbers and analog switches L1to L8 and R1 to R8. Set to 1 those bits corresponding to the switches to be set ON.

0 .... OFF
1 .... ON

The address is used for chip selection when connected to common balance. The output data varies according to the state of the S terminal, as follows:

S Terminal	Address A0	A1	A2	A3
L	0	1	0	1
H	1	1	0	1

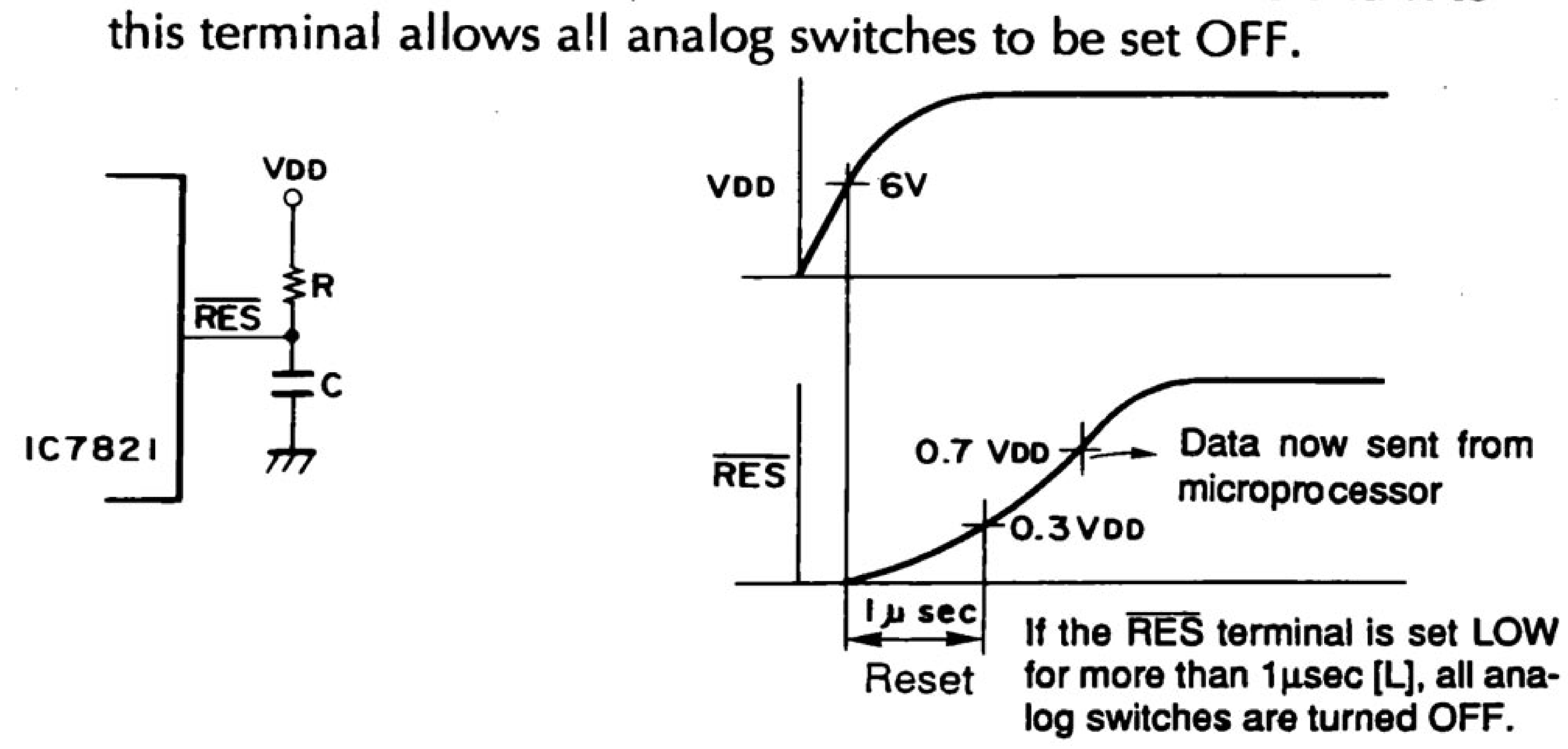
2) DI, CL and CE Timing



Data is read in at the rising edge of CL and latched at the falling edge of CE.

3) The Reset Terminal

The state of the analog switches is indeterminate when the power is turned ON. However, the external connection of C and R to this terminal allows all analog switches to be set OFF.



• MB88505H <AMP Controller>

<Function>

Pin No.	I/O	Function	ACTIVE H	ACTIVE L
37	I	1 SSB input terminal		○
38	O	SSB output terminal		○
39	O	Beep buzzer drive output. 50ms output at SSB and tact SW input.		
40	I/O	Start/Stop. Player IO terminal.		○
1	I	T/T. Input determining if Start/Stop output is output.	Stop	Play
2	I	Rec Selector Source } Input determining if		○
3	I	Rec Selector Phono } stop signal is output		○
4	I	Rec Selector CD } on selector setting.		○
5	I	Power Mode SW. OFF when power HIGH at reset start, ON when LOW.	Off	On
6	I	Power output ON/OFF		○
7	I	DAC Direct SW ON/OFF. When ON, only digital input enabled.		○
8	I	Tuner Rec Output ON/OFF		○
9	I	CD Digital/Analog	Digi.	Ana.
10	O	Decoder microprocessor reset.		○
11	O	4019 A/B switch	A	B
12	I	Takt SW input A4 PHONO / B4 DAT		○
13	I	3 Tuner / 3 DIGITAL		○
14	I	2 Tape / 3 AUX		○
15	I	1 CD / 1 LD		○
33	O	Mute. 500ms output switched ON/OFF by SSB at input switching.	On	Off
34	O	Mute LED. Blinks during muting by SSB.	○	
35	O	Power relay output	○	
36	O	CARS Mode Out. Output HIGH during CARS mode.	On	Off
25	O	Selector Out DAT }		○
26	O	Selector Out DIGITAL } Output for selector switching		○
27	O	Selector Out CD }		○
28	O	Analog SW CE. Serial data output for analog switch control.		

• Function <MB88505H>

Pin No.	I/O	Function	ACTIVE H	ACTIVE L
29	O	Output for switching Tuner Rec		○
30	O	Output during CARS setting mode	○	
31	O	INH. RX microprocessor input-disable output		○
32	O	DAC. Direct terminal switching output		○
20	I	A/R Mode	Amp	Receiver
22	SC	Analog switch clock. Serial data output for analog switch control.		
23				
24	O	Analog switch data. Serial data output for analog switch control.		
19	I	Protector. Disables all input and outputs Mute and Beep, and turns power OFF.		○

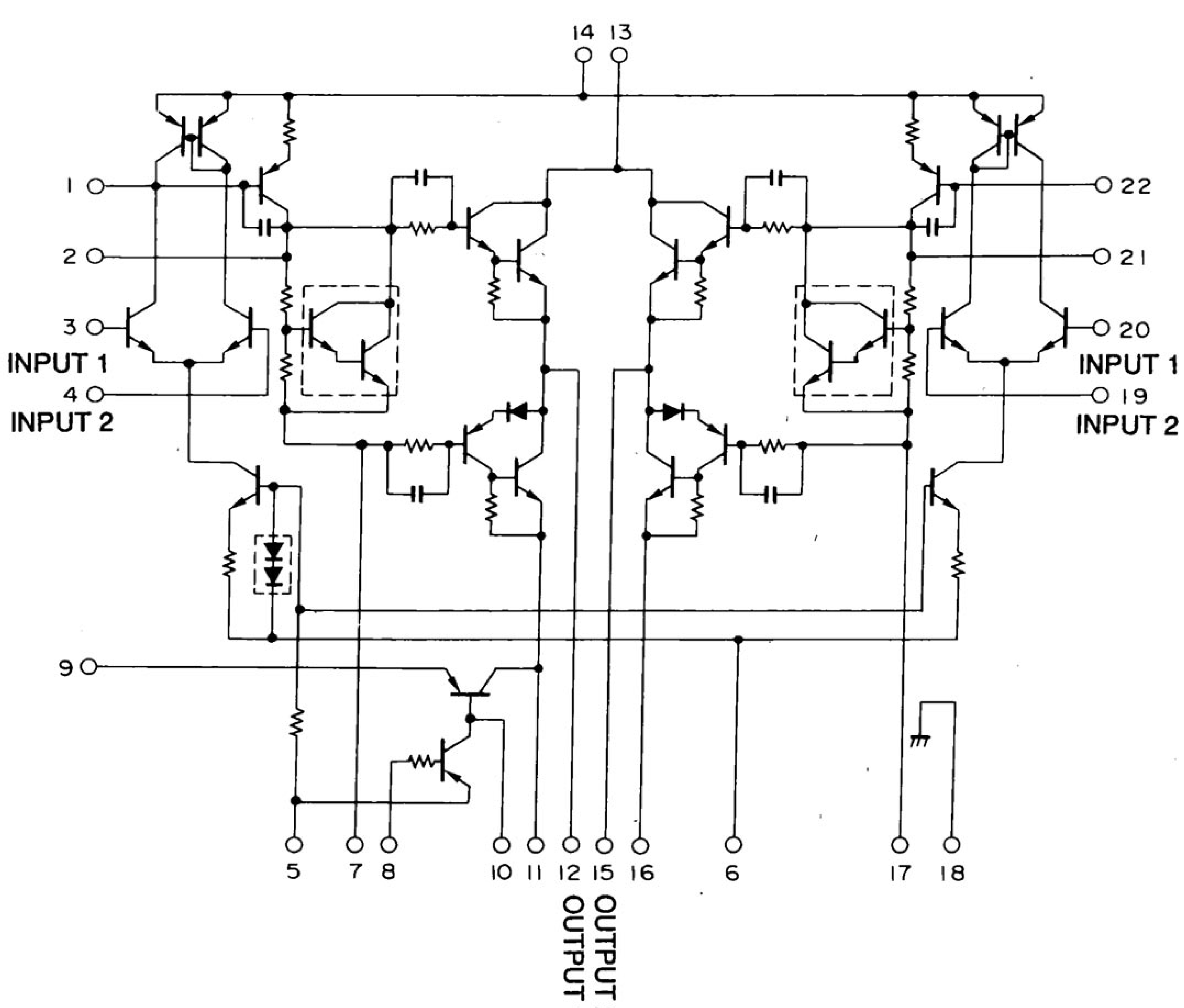
SSB: SANSUI SERIAL DATA BUS fosc=3.0 MHz

• LC6543C Remote Control Optical Receiver & Motor Driver

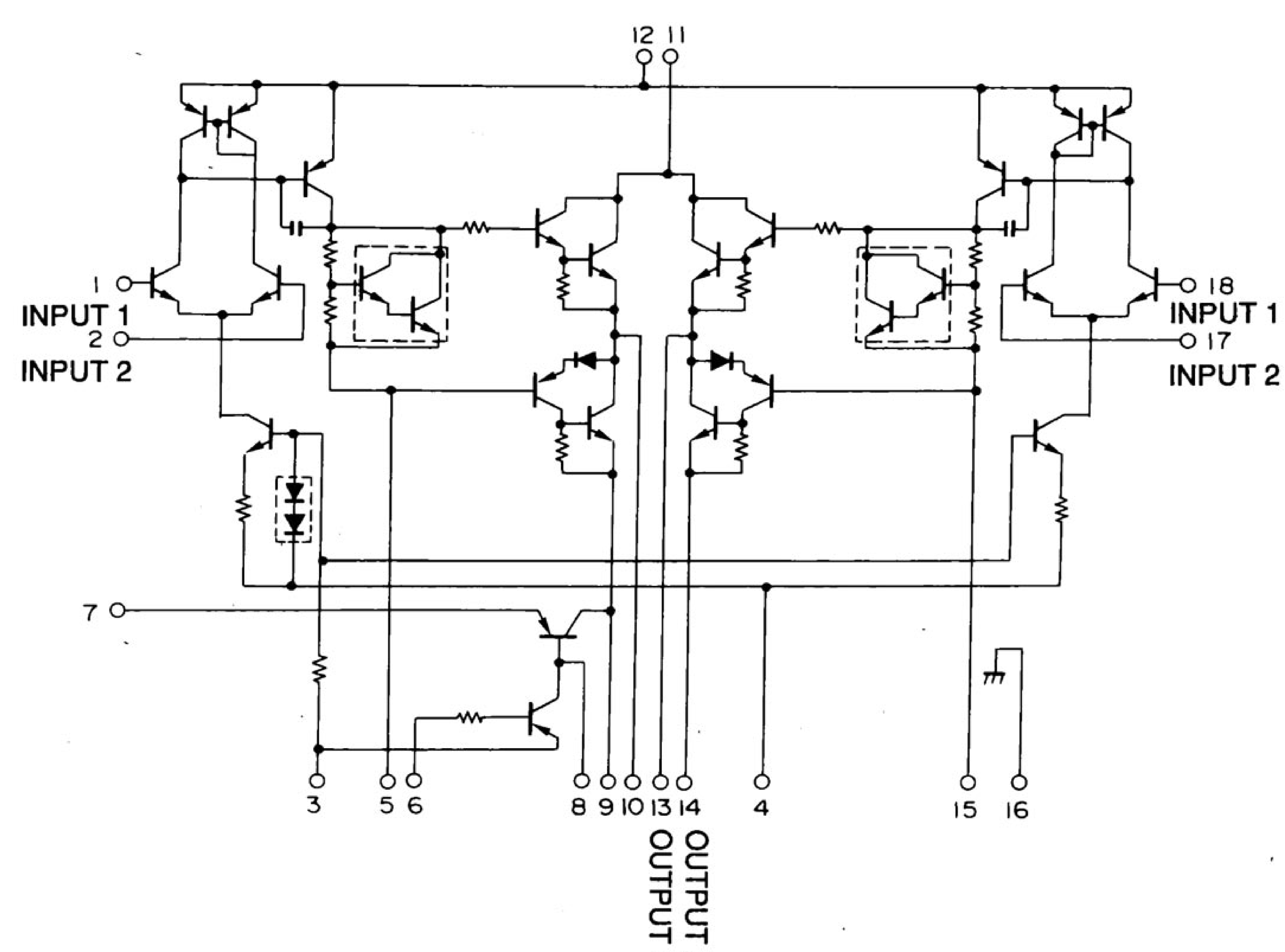
<Function>

Pin No.	Function	ACTIVE H	ACTIVE L
11	Remote controller input		○
12	SSB (Sansui serial bus data) input		○
13	INHIBIT:L remote control not accepted		○
14	Power input: ON/OFF identifier input	on	off
20	Motor VR output		○
21	Motor VR output		○
22	Motor VR initial speed	○	
24	SSB output		○
25	Buzzer output: 50ms output on reception of commands from remote controller	○	
28	Protector input	on	off
7	VR LED output: 50ms blink on VR drive		○
8	Power SW output: 100ms output on reception of power.		○
9	Receive output: output on reception of commands from remote controller.		○

• STK4211, STK4221 <Power AMP>



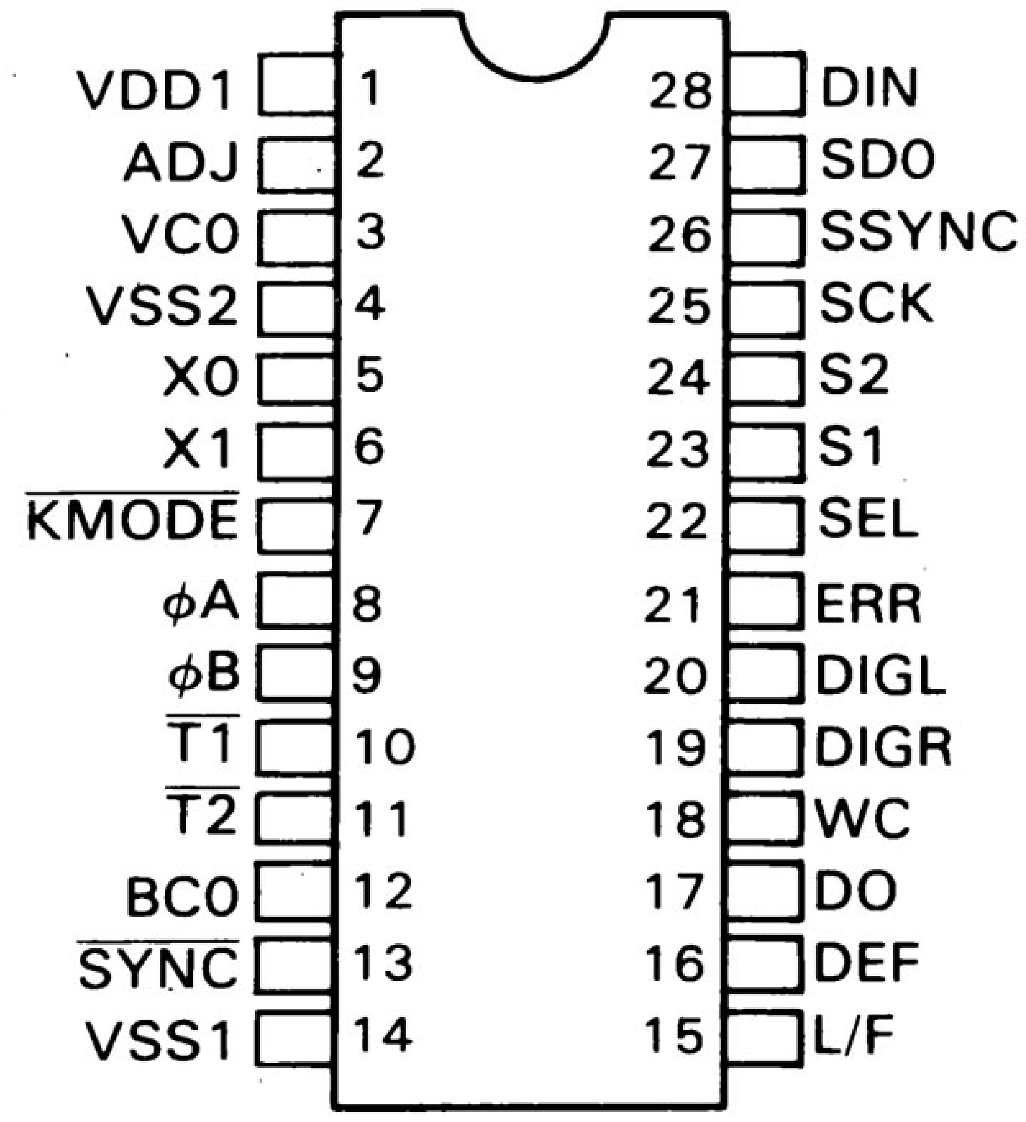
• STK4191V <Power AMP>



• YM3623B (Reception and playback of digital audio interface format signals)

<Functional Outline>

1) The YM3623B is equipped with internal PLL circuit, which syncs with digital audio format signals from an external source. As a result, it automatically adjusts to the sampling frequency.
2) Audio signals are output MSB first. The timing clock for D/A output sample holding and the L and R channel identifier symbols are output in sync with these audio signals.
3) The YM3623B is equipped with a terminal for outputting sub codes, thereby enabling the extraction of sub codes.
4) Sampling frequency, copy-enable, emphasis-existence, and the existence of errors in the transmitted audio signals can be output.
5) If an error is detected in the digital audio interface format signals, the preceding audio data is output again.



Pin No.	Pin Name	I/O	Function
1	VDD1	—	System power supply (+5V)
2	ADJ	I	VCO oscillation frequency adjusting terminal (not connected)
3	VCO	I/O	External capacitor terminal for VCO circuit.
4	VSS2		GND for VCO circuit. Connect in common with VSS1 (this connection is not made in the LSI).
5	XO	O	Quartz oscillator terminal (16.9344 MHz)
6	XI	I	Quarts oscillator terminal
7	$\overline{\text{KMODE}}$	I(PU)	H: PLL circuit functions on input to DIN terminal. If there is no input, quartz oscillator is used. L: Quartz oscillator is used regardless of DIN terminal.
8	øA	O	16.9344MHz when quartz oscillator used; Varies according to speed of data input to DIN terminal when PLL circuit used. (fs=44.1kHz, about 16.9344MHz)
9	øB	O	øA divided by 3 when quartz oscillator used. Varies according to speed of data input to DIN terminal when PLL circuit used. (fs=44.1kHz, about 5.6448MHz)
10	$\overline{\text{T1}}$	I(PU)	Internal circuit check terminal
11	$\overline{\text{T2}}$	I(PU)	Internal circuit check terminal
12	BCO	O	Timing for signal output from DO terminal
13	$\overline{\text{SYNC}}$	O	Sync signal
14	VSS1	O	System GND (+0V)
15	L/R	O	Indicates that data from L channel (when H) or R channel (when L) is output from DO terminal
16	DEF	O	H: indicates that emphasis is applied to input data L: indicates that emphasis is not applied to input data
17	DO	O	16-bit data output
18	WC	O	Indicates that data is output to DO terminal.
19	DIGR	O	Signal for deglitching R channel.

• Function <YM3623B>

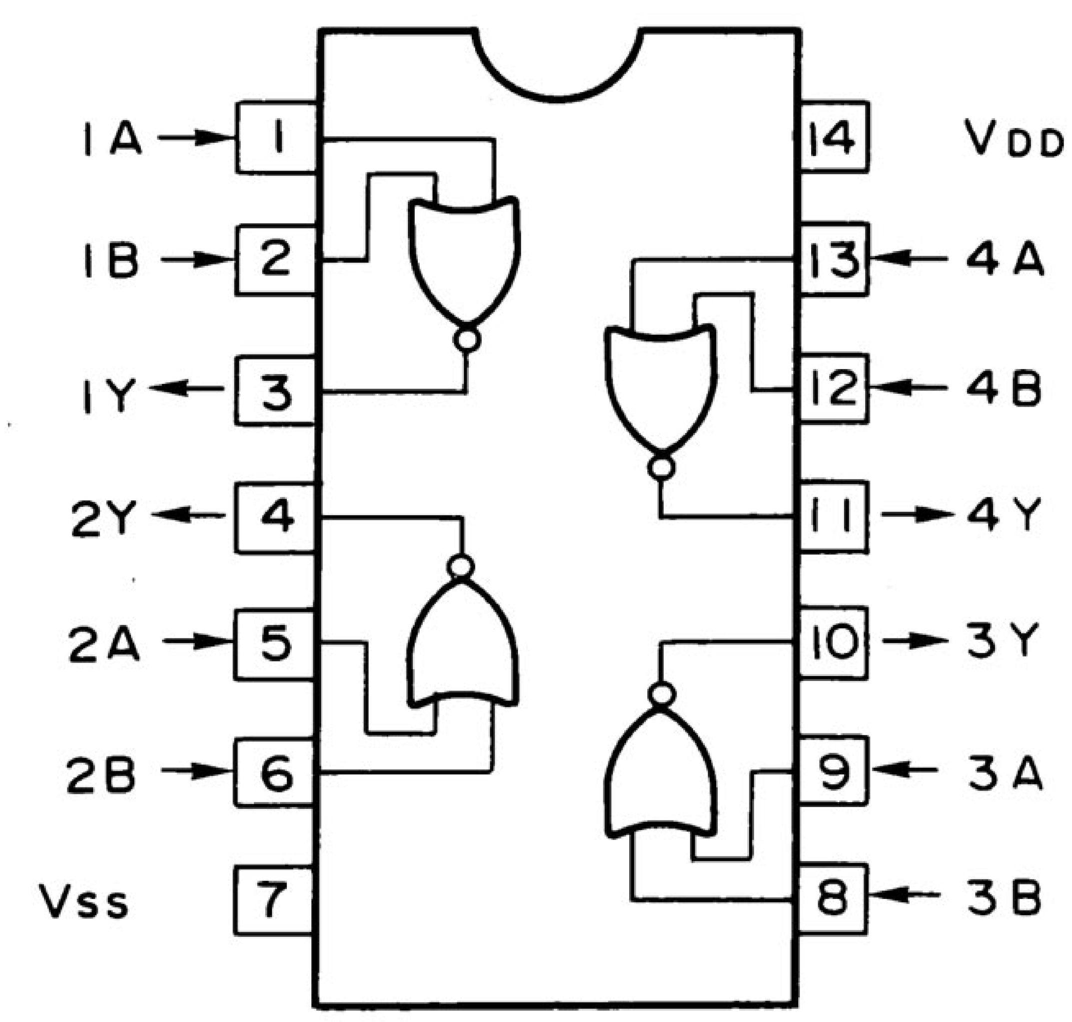
Pin No.	Pin Name	I/O	Function
20	DIGL	O	Signal for deglitching L channel.
21	ERR	O	H: Parity error or operating using quartz oscillator L: No error
22	SEL	I (PU)	*See separate note
23	S1	O	*See separate note
24	S2	O	*See separate note
25	SCK	O	Sub-code output clock
26	SSYNC	O	Signal for sub-code input
27	SDO	O	Terminal for outputting sub-code data
28	DIN	I (PU)	Data input terminal.

*Output functions of terminals S1 and S2 are multiplexed.
*S1/S2 terminal output can be switched by switching SEL terminal input.

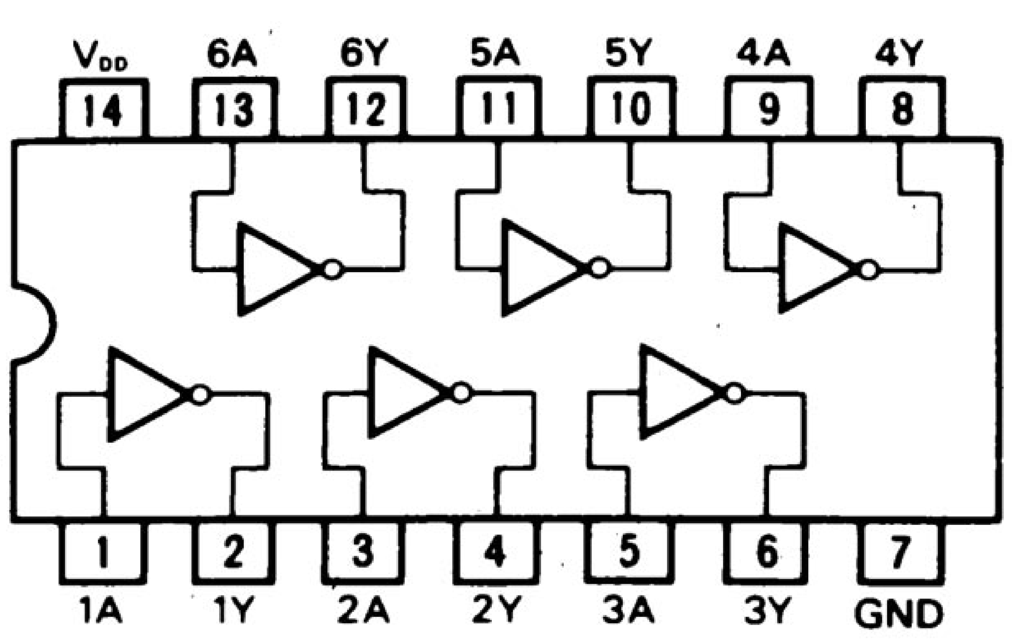
Input	Output		Output	
SEL	S1	Function	S2	Function
L	L	Copy-disable	L	CD (excluding DAT)
	H	Copy-enable	H	DAT
H	L	—	L	Sampling frequency of DIN input terminal: 44.1 kHz
	L	—	H	48 kHz
	H	—	H	32 kHz
	H	—	L	—

The required data is extracted from the digital audio interface format signals input as above and output to S1 and S2.

• TC4001P <NOR Gate>



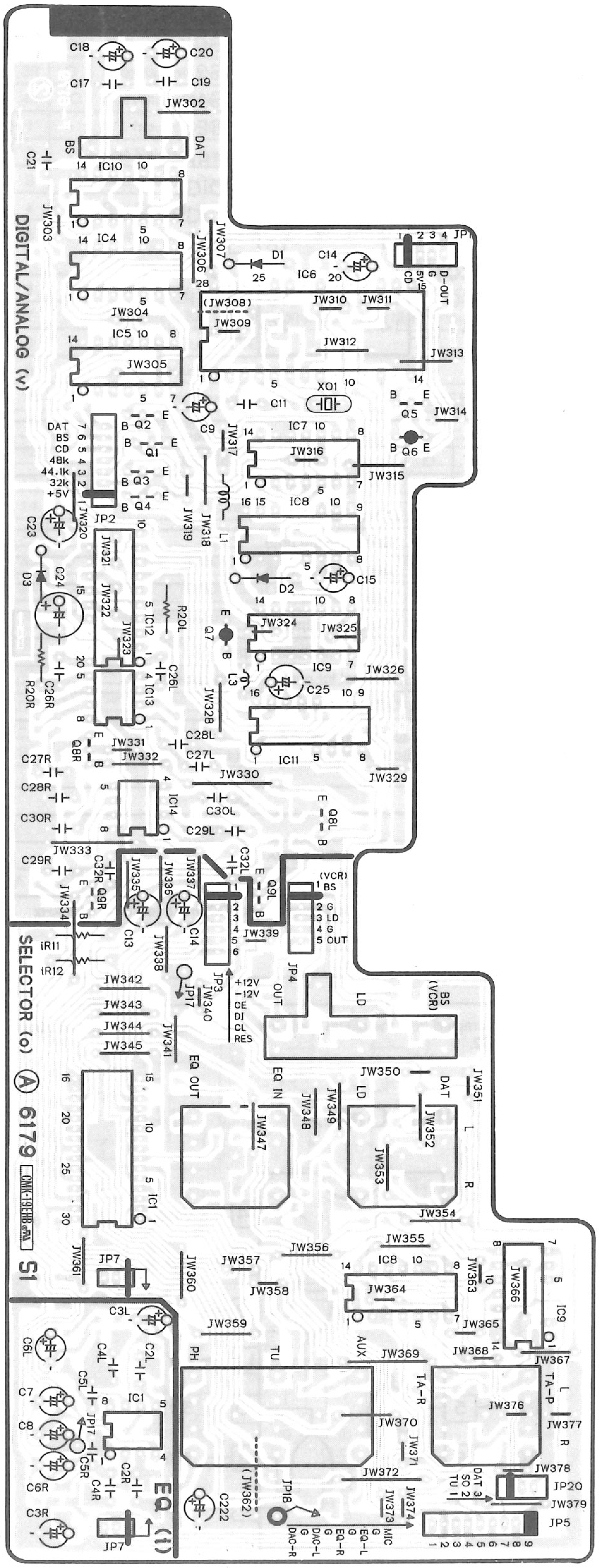
• TC74HC04 <Inverter>



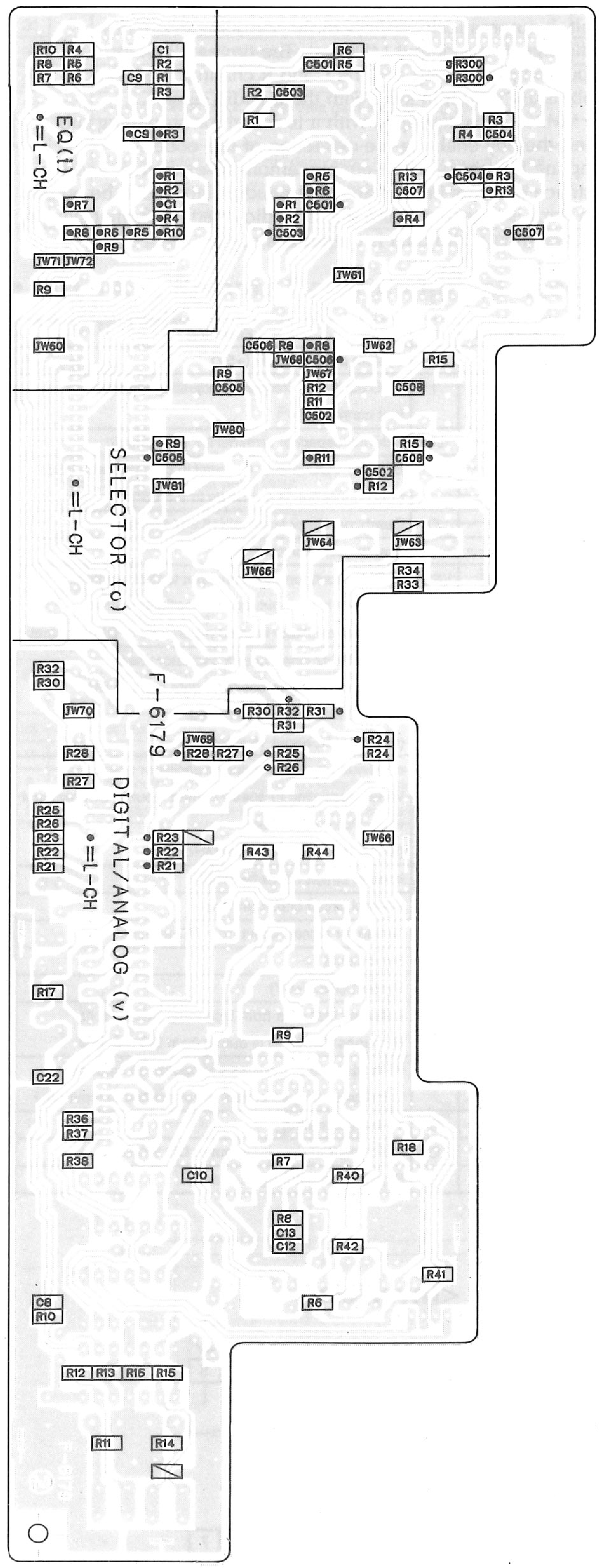
4. PATRS LOCATION ON BOARD

4-1. F-6179 D/A Converter board

Component Side

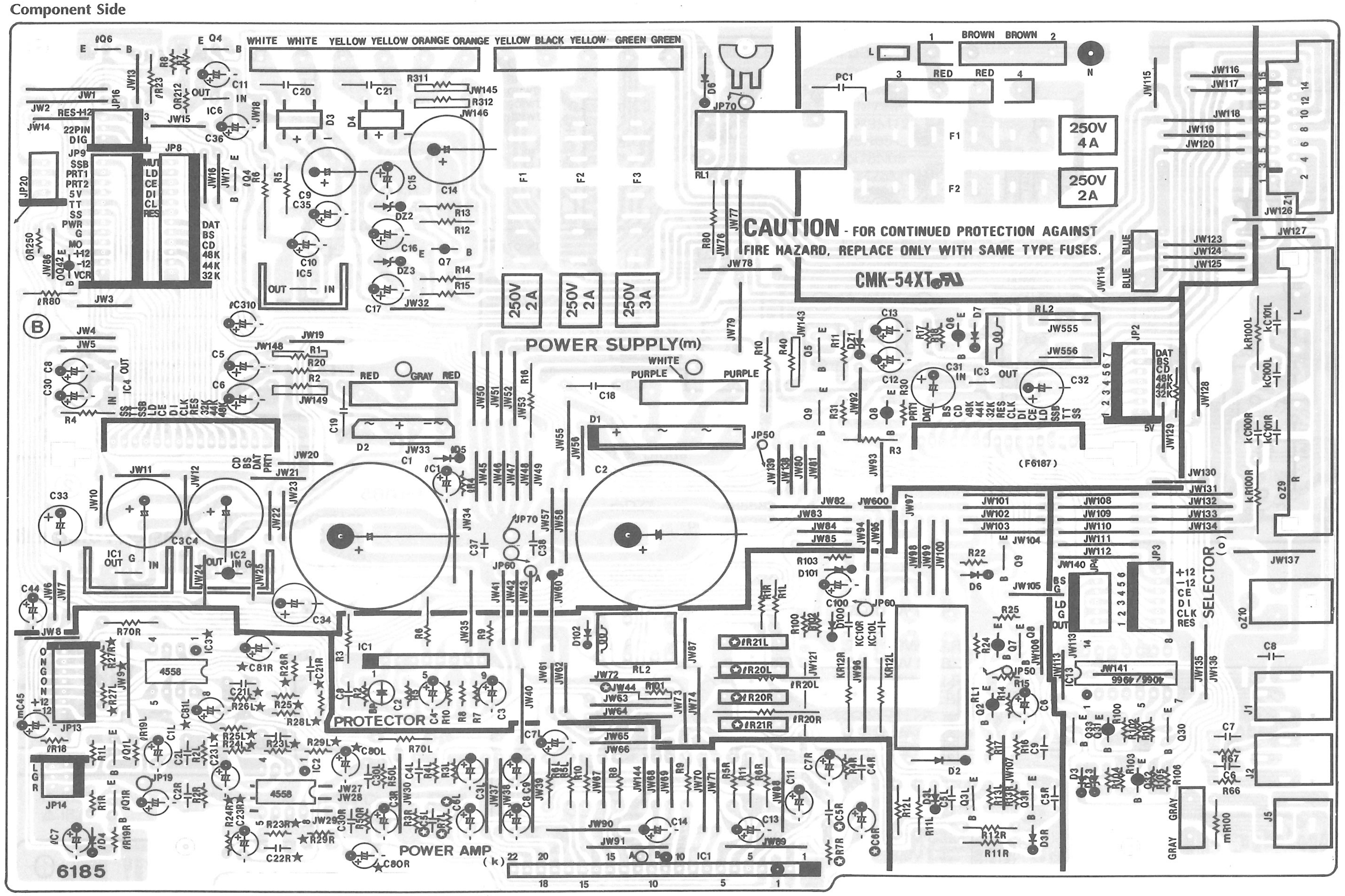


Pattern Side <Chip Parts>



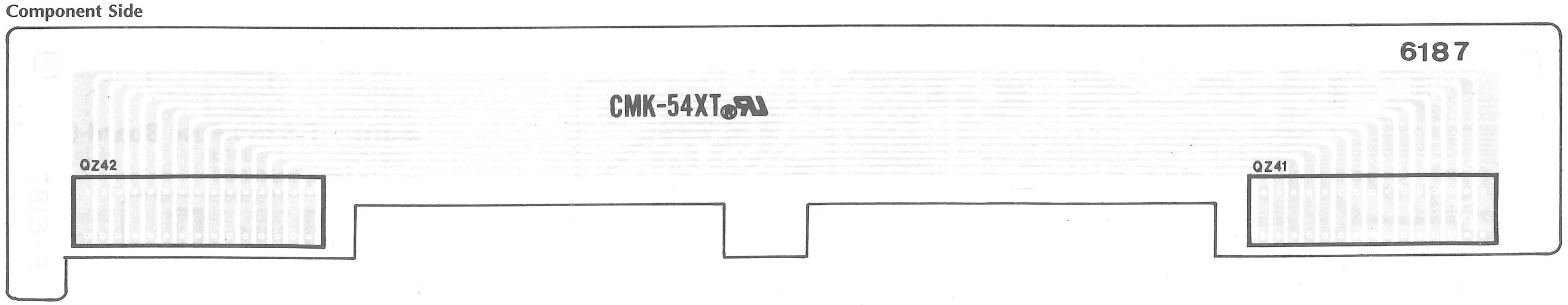
4-2. F-6185 Power AMP Board

Component Side



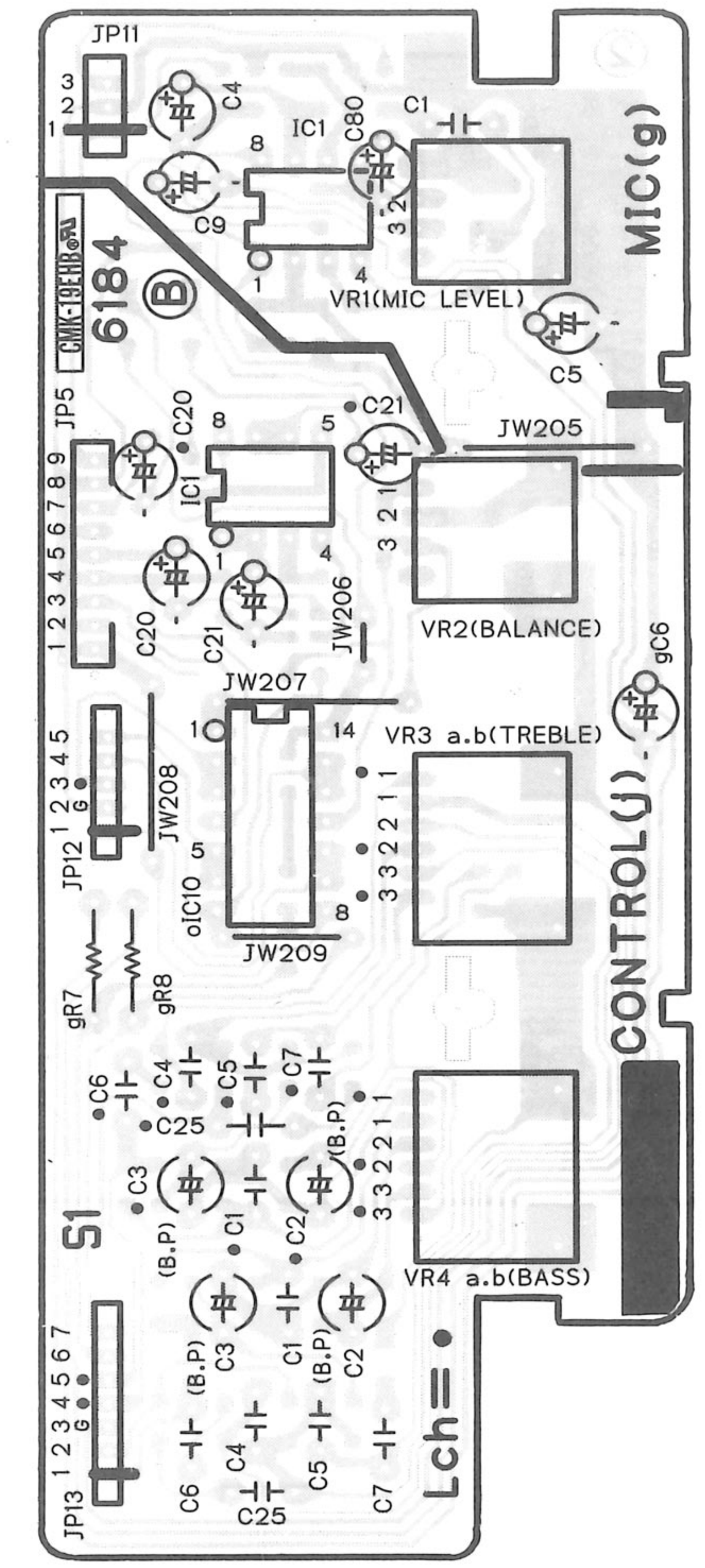
4-3. F-6187 Connection Board

Component Side

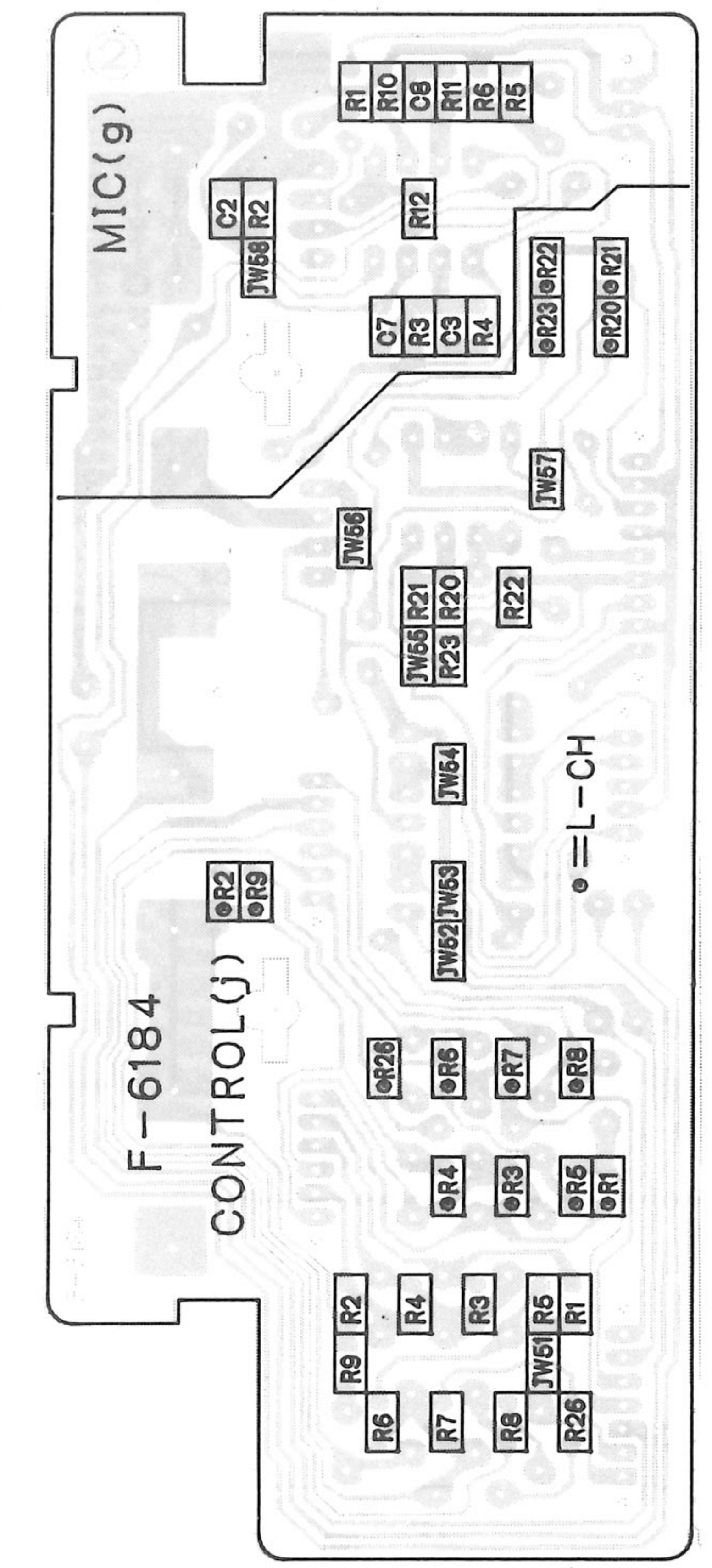


4-4. F-6184 Tone Control Board

Component Side

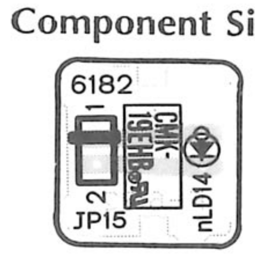


Pattern Side <Chip Parts>



4-5. F-6182 Volume Indicator Board

Component Side

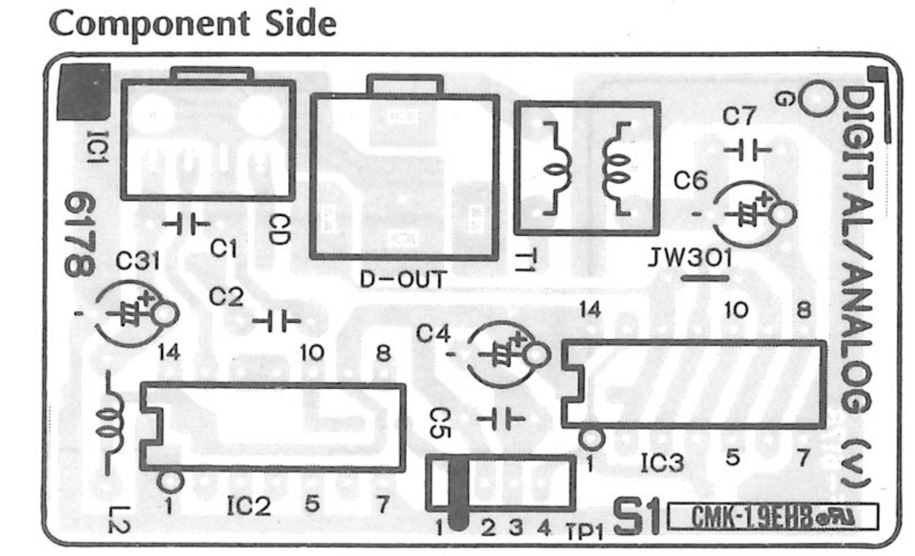


4-6. F-6207 Volume Connection Board

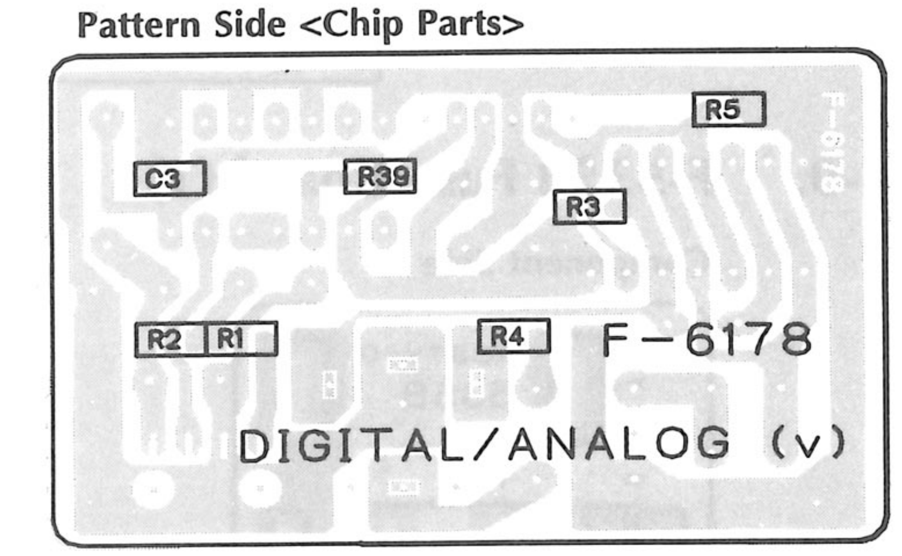
Component Side

4-7. F-6178 Optical Module Board

Component Side

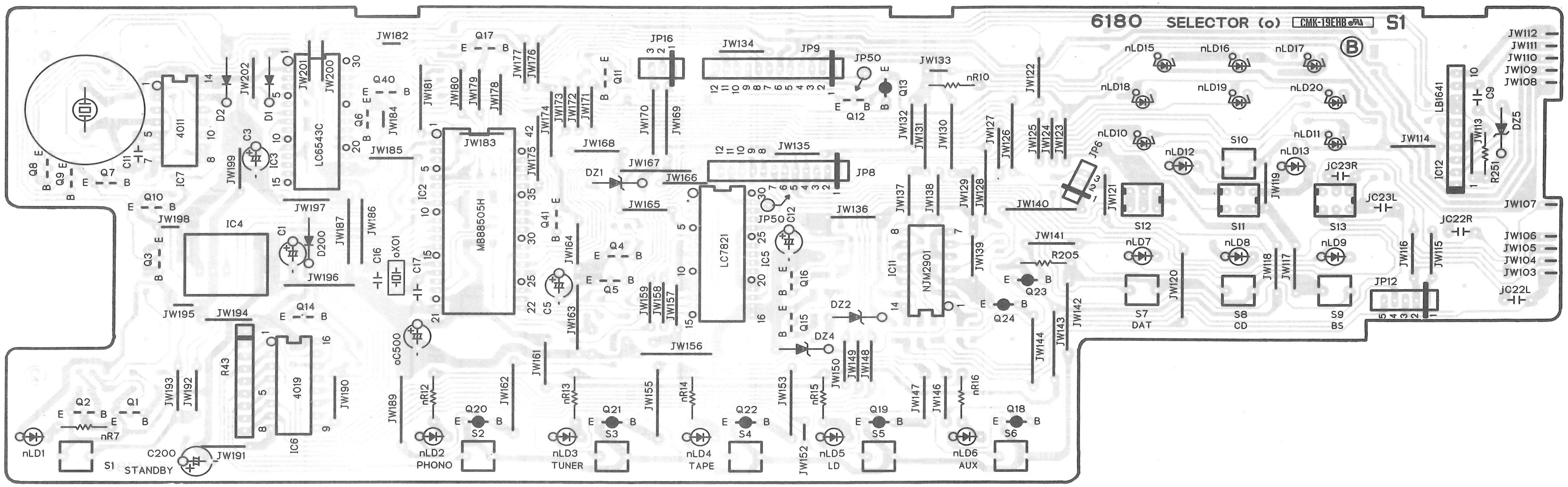


Pattern Side <Chip Parts>

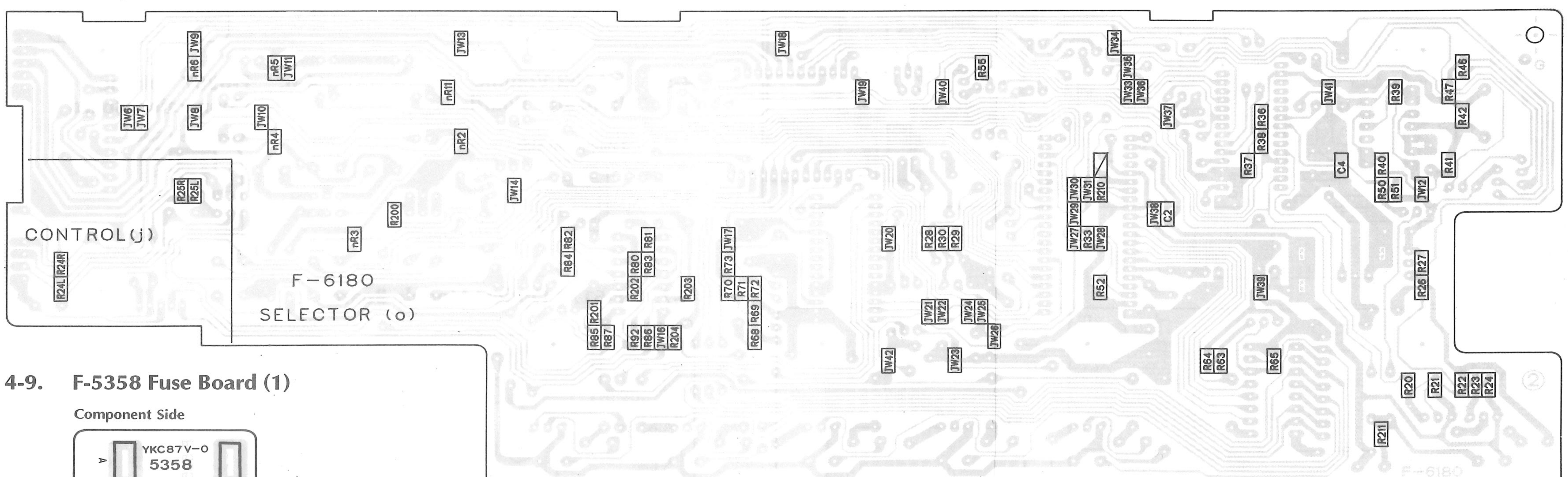


4-8. F-6180 Control Board

Component Side

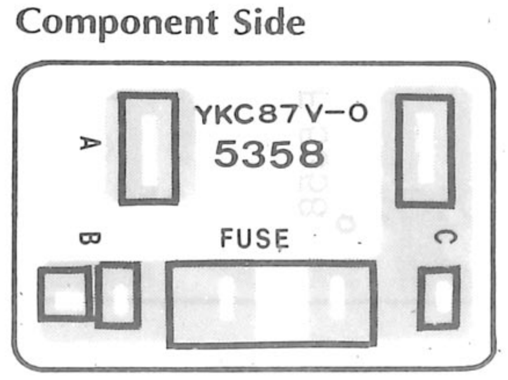


Pattern Side <Chip Parts>



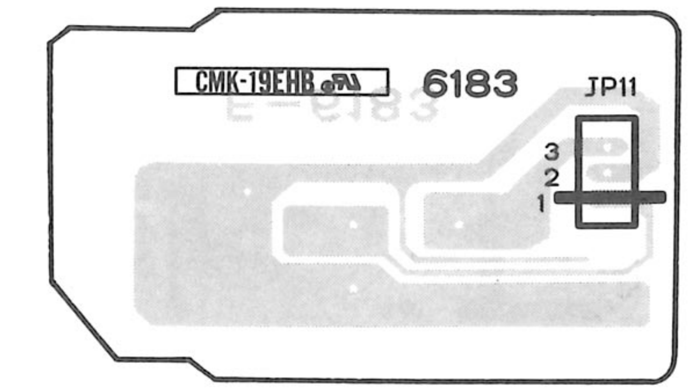
4-9. F-5358 Fuse Board (1)

Component Side



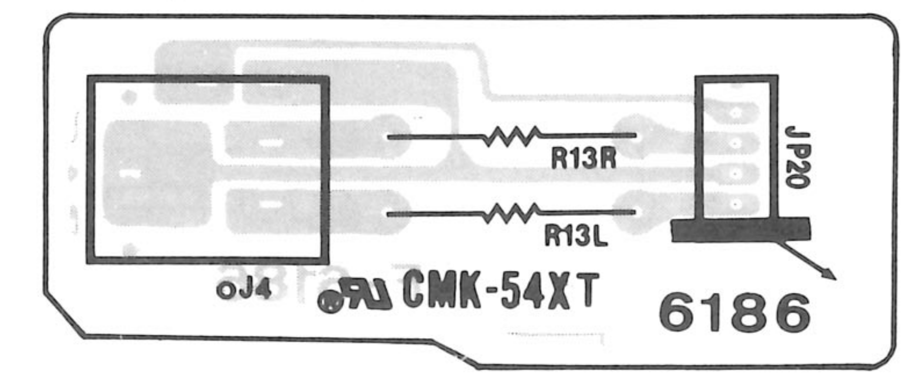
4-10. F-6183 MIC Jack Board

Component Side



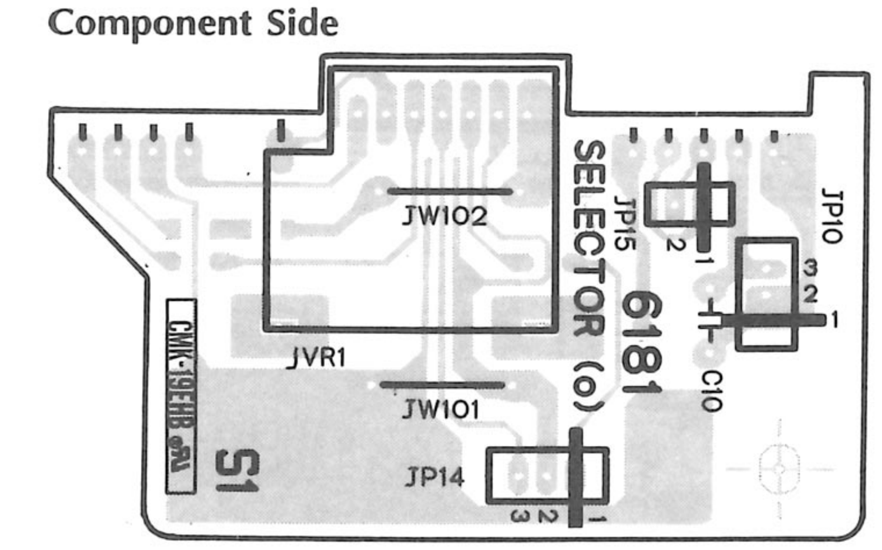
4-11. F-6186 Head Phone Board

Component Side

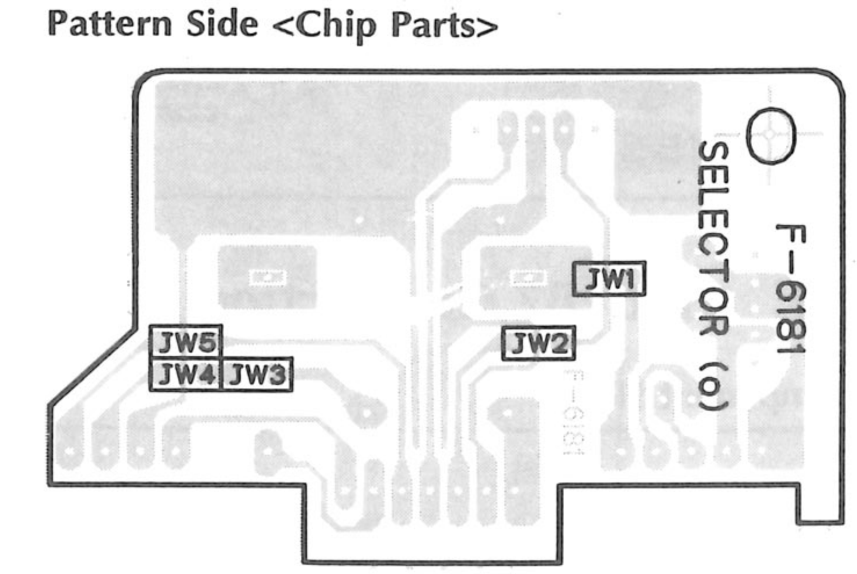


4-12. F-6181 Master Volume Board

Component Side

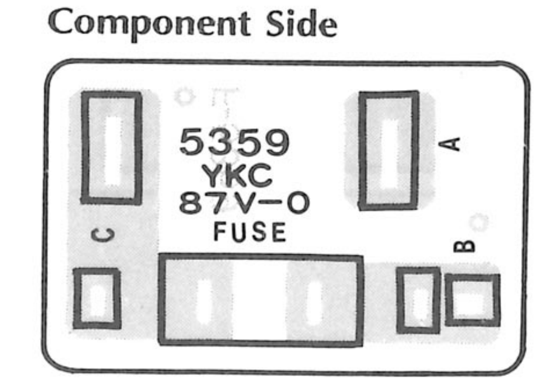


Pattern Side <Chip Parts>



4-13. F-5359 Fuse Board (2)

Component Side



 A-E770/E970

5. PARTS LIST OF BOARD

5-1. F-6178 OPTICAL Module Board

<Stock No. 01180401=A-E770/01175001=A-E970>

Parts No.	Stock No.	Description
vIC1	49352700	OPTICAL Module (Receiver)
•IC		
vIC2	49371700	TC74HCT04AP
vIC3	49265300	TC74HC08AP
vC1	48748400	0.1μF 50V C.C.
vC2	48748400	0.1μF 50V C.C.
vC5	48748400	0.1μF 50V C.C.
vC7	48748400	0.1μF 50V C.C.
vL2	48070500	Inductor
vT1	49197000	Transformer
vJ2	49363500	1P Pin Terminal, DIGITAL OUTPUT

5-2. F-6179 D/A Converter Board

< Stock No. 01175101=A-E770/01180501=A-E970>

Parts No.	Stock No.	Description
•IC		
iIC1	07208900	NJM4558D-X
or	46673800	M5218P
⚠ iR11, 12	46403200	100Ω 1/2W N.I.R.
iC4	49201000	3300pF 50V F.C.
iC5	48086200	0.012μF 50V F.C.
•IC		
oIC1	49362700	LC7821
oIC8	46255000	LC4066BH
or	48056800	LC4966
oIC9	46255000	LC4066BH
or	48056800	LC4966
	49359800	4P Pin Terminal, TAPE
	49359900	6P Pin Terminal, INPUT
	49359800	4P Pin Terminal, LD
	49359800	4P Pin Terminal, DAT
	49371100	3P Terminal, VIDEO
•Transistor		
vQ1	48171600	DTC114YS
vQ2	48171600	DTC114YS
vQ3	48171600	DTC114YS
vQ4	48171600	DTC114YS
vQ5	48230200	DTC124XS
vQ6	46719800	DTA124ES
vQ7	46719800	DTA124ES
vQ8	46604301	2SC3327
vQ9	46604301	2SC3327
•IC		
vIC4	49193500	TC74HC4066P
vIC5	07107600	TC4069UBP
vIC6	49259300	YM3623B
vIC7	03610500	TC4001BP

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Parts No.	Stock No.	Description
vIC8	48424000	TC74HC123P
vIC9	48319700	TC74HC02P
or	49265100	TC74HC02AP
vIC10	49259500	TC74HCU04P
or	49318600	TC74HCU04AP
vIC11	48984910	SM5807EP
or	49379500	PD0029
vIC12	49322500	LC7881-C
or	49322501	LC7881-B
vIC13	48730300	M5238P
or	49258900	NJM2082D
vIC14	49258900	NJM2082D
vXO1	49258400	Quartz Element
•Diode		
vD1~vD3	03117600	1S2473T77
or	46086000	1S1588TP-3
vC17	48748400	0.1μF 50V C.C.
vC19	48748400	0.1μF 50V C.C.
vC21	48748400	0.1μF 50V C.C.
vC25	48748400	0.1μF 50V C.C.
vL1	48070700	Inductor, LALO3
vJ1	49371000	2P Pin Terminal, Digital Input

5-3. F-6180 Control Board

<Stock No. 01175201=A-E770/01180601=A-E970>

Parts No.	Stock No.	Description
•LED		
nLD1	49378800	SEL2210S, POWER
nLD2	49379000	SEL2910A, PHONO
nLD3	49379000	SEL2910A, TUNER
nLD5	49379000	SEL2910A, LD
nLD6	49379000	SEL2910A, AUX
nLD7	49379200	SEL2913K, DAT
nLD8	49379200	SEL2913K, CD
nLD9	49379200	SEL2913K, DIGITAL
nLD10	48841400	SEL3213C, Digital Direct
nLD11	48841400	SEL3213C, Digital Direct
nLD12	49379000	SEL2910A, SOURCE
nLD13	49379000	SEL2910A, TUNER
nLD15	48849300	SEL3913K, Digital Display
nLD16	48849300	SEL3913K, Digital Display
nLD17	48849300	SEL3913K, Digital Display
nLD18	48849300	SEL3913K, 32K
nLD19	48849300	SEL3913K, 44K
nLD20	48849300	SEL3913K, 49K
oIC4	49356200	Remote Receive Unit, GP1U521X
•Transistor		
oQ1	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ2	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ3	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458

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Parts No.	Stock No.	Description
oQ4	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ5	48217800	DTC114ES
or	49388100	RN1202
oQ6	48171600	DTC114YS
or	49388600	RN1207
oQ7	48217800	DTC114ES
or	49388100	RN1202
oQ8	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ9	48171600	DTC114YS
or	49388600	RN1207
oQ10	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ11	48171600	DTC114YS
or	49388600	RN1207
oQ12	48171600	DTC114YS
or	49388600	RN1207
oQ13	46719800	DTA124ES
or	49390400	RN2203
oQ14	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ15	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ16	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
oQ17~24	48171600	DTC114YS
or	49388600	RN1207
oQ40, 41	48217800	DTC114ES
or	49388100	RN1202
•IC		
oIC2	49363100	MB88505H-1032T
oIC3	49435100	LC6543C-4038
oIC5	49362700	LC7821
oIC6	48075200	LC4019B
oIC7	03604100	TC4011P
oIC11	07205300	NJM2901N
oIC12	48982600	LB1641
oXO1	48977800	Ceramic Resonator
•Diode		
oD1	03117600	1S2473
or	46086000	1S1588
oD2	03117600	1S2473
or	46086000	1S1588
oD200	03117600	1S2473
or	46086000	1S1588
•Zener Diode		
oDZ1	46826200	RD8.2E-B2
or	49304200	05AZ8.2-Y
oDZ2	46826200	RD8.2E-B2
or	49304200	05AZ8.2-Y
oDZ4	46823700	RD3.6E-B2
or	49301700	05AZ3.6-Z
oDZ5	49302900	05AZ5.6
or	49302800	05AZ5.1
oR43	46348900	4.7kΩ x8 1/8W A.R.
oBZ1	48178400	Buzzer
or	48268200	Buzzer KBS20DB

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Parts No.	Stock No.	Description
oS1	49326300	Push SW., POWER
oS2	49326300	Push SW., PHONO
oS3	49326300	Push SW., TUNER
oS4	49326300	Push SW., TAPE
oS5	49326300	Push SW., LD
oS6	49326300	Push SW., AUX
oS7	49326300	Push SW., DAT
oS8	49326300	Push SW., CD
oS9	49326300	Push SW., DIGITAL
oS10	49326300	Push SW., D.D.
oS11	46500000	Push SW., REC OUT
oS12	46500000	Push SW., AD TIMER
oS13	46500000	Push SW., LOUDNESS

5-4. F-6181 Master Volume Board

Parts No.	Stock No.	Description
jVR1	49373200	150kΩ V.R., VOLUME

5-5. F-6182 Volume Indicator Board

Parts No.	Stock No.	Description
nLD14	48841100	SEL3210S, VOLUME

5-6. F-6183 MIC Jack Board

Parts No.	Stock No.	Description
oJ3	48987100	Jack, MIC

5-7. F-6184 Tone Control Board

<Stock No. 01175601=A-E770/01181001=A-E970>

Parts No.	Stock No.	Description
•IC		
gIC1	07208900	NJM4558D-X
or	46673800	M5218P
gVR1	49363700	20kΩ (A) V.R., MIC LEVEL
•IC		
jIC1	49263900	NJM2068D
or	03607700	NJM4558D
jC2	48812600	0.22μF 50V E.B.
jC3	48811700	3.3μF 25V E.B.
gR7,8	46403200	100Ω 1/2W N.I.R.
jVR2	49363900	250kΩ (W) V.R., BALANCE
jVR3	49363800	50kΩ (C) x 2 V.R., TREBLE
jVR4	49363800	50kΩ (C) x 2 V.R., BASS
oIC10	46255000	LC4066BH
or	48056800	LC4966

5-8. F-6185 Power AMP Board

<Stock No. 01175601=A-E770/01181301=A-E970>

Parts No.	Stock No.	Description
⚠ kIC1	49375600	STK4191-5 (A-E770)
⚠ kIC1	49375800	STK4221-5 (A-E970)
kIC2	49263900	NJM2068D (A-E970)
kIC3	46580100	M5218P (A-E970)
or	03607700	NJM4558D (A-E970)
⚠ KR5, 6	46405000	3.3KΩ 1/2W N.I.R. (A-E770)
⚠ KR5, 6	46405200	4.7KΩ 1/2W N.I.R. (A-E970)
⚠ KR8	46403200	100Ω 1/2W N.I.R.
⚠ KR9, 10	46404400	1KΩ 1/2W N.I.R.
⚠ KR11	46403200	100Ω 1/2W N.I.R.
⚠ kR12	46623100	10Ω 2W N.I.R. (A-E970)
⚠ kR12	46241200	10Ω 1W N.I.R. (A-E770)
•Transistor		
IQ1	46367101	2SC2603
or	46367301	2SC2458
or	46391901	2SC2785
IQ2	46581601	2SA 992
or	46614001	2SA1283
or	46947301	2SA1049
IQ3	46367101	2SC2603
or	46367301	2SC2458
or	46391901	2SC2785
IQ4	48217800	DTC114ES
IQ6	46719900	DTC124ES
IQ7	48229600	DTA114ES
IQ8, 9	46719900	DTC124ES
•IC		
IIC1	46207600	TA7317P
•Diode		
ID2	48123600	11E2
ID3	46464100	1SS133
ID4	46464100	1SS133
ID5	46464100	1SS133
ID6	46464100	1SS133
ID101	46464100	1SS133 (A-E770)
ID102	46464100	1SS133 (A-E970)
⚠ IR20	46905800	0.22Ω 3W Ce.R. (A-E770)
⚠ IR20, 21	49284300	0.47Ω 5W Ce.R. (A-E970)
IC2	48101500	100µF 6.3V E.B.
IC10	48100700	22µF 50V E.B.
IRL1	48183100	Relay
or	48183200	Relay
•Transistor		
mQ4	46188701	2SC1815
or	46367101	2SC2603
or	46367301	2SC2458
⚠ mQ5	48508801	2SC3851
⚠ or	48509301	2SD1666
⚠ or	48509401	2SD1761
⚠ mQ7	48063301	2SB 507
⚠ mQ8	46188601	2SA1015
⚠ or	46367001	2SA1115
⚠ or	46367201	2SA1048
mQ9	48217800	DTC114ES
mQ10	48509401	2SD1761 <XX>

<F-6185>

Parts No.	Stock No.	Description
•IC		
⚠ mIC1	46144600	NJM78M12A
⚠ or	48470100	µPC78M12H
⚠ or	48566000	AN78M12
⚠ mIC2	46581200	NJM79M12A
⚠ or	48561600	AN79M12
⚠ mIC3	46359400	L78N05
⚠ or	48599500	AN78N05
⚠ mIC4	46144600	NJM78M12A
⚠ or	48470100	µPC78M12H
⚠ or	48566000	AN78M12
⚠ mIC5	46144600	NJM78M12A
⚠ or	48470100	µPC78M12H
⚠ or	48566000	AN78M12
⚠ mIC6	46359400	L78N05
⚠ or	48599500	AN78N05
•Diode		
⚠ mD1	49383700	RBV-602
⚠ mD2	03117000	RB152-LFF
⚠ mD3	46273600	DBB10B
⚠ mD4	46273600	DBB10B
mD6	48123600	11E2
•Zener Diode		
mDZ1	48557400	MTZ24D
or	48637500	RD24B4
mDZ2	48558200	MTZ30D
or	48638500	RD30B4
mDZ3	48552400	MTZ5.6
or	48631200	RD5.6B
mDZ10	49305700	05AZ13-X
⚠ mR4~6	46401600	4.7Ω 1/2W N.I.R.
⚠ mR10	46625000	390Ω 2W N.I.R.
⚠ mR11	46401300	2.7KΩ 1/2W N.I.R.
⚠ mR12	46401600	4.7Ω 1/2W N.I.R.
⚠ mR13	46405000	3.3KΩ 1/2W N.I.R.
⚠ mR14, 15	46403200	100Ω 1/2W N.I.R.
⚠ mR16	46623100	10Ω 2W N.I.R.
⚠ mR20	46401600	4.7Ω 1/2W N.I.R.
⚠ mR100	46400400	0.47Ω 1/2W N.I.R.
mC1, 2	48270800	3900µF 50V E.C. (A-E770)
mC1, 2	49417500	6800µF 63V E.C. (A-E970)
mC18	08680400	0.01µF 500V C.C.
mC19	08680400	0.01µF 500V C.C.
mC20	08680400	0.01µF 500V C.C.
mC21	08680400	0.01µF 500V C.C.
mC37, 38	46876500	0.047µF 100V F.C. (A-E970)
⚠ mF1, 2	48721300	Fuse 2A <XX>
⚠	07185000	Fuse 2A <EU, SEV>
⚠ mF3	48721500	Fuse 3A <XX>
⚠	07185200	Fuse 3.15A <EU, SEV>
⚠ mRL1	48340300	Relay
or	48982000	Relay
•Transistor		
oQ30	46719900	DTC124ES
or	49388200	RN1203
oQ31,32	46719800	DTA124ES
or	49390400	RN2203
oQ33	46719900	DTC124ES
or	49388200	RN2103
oQ42	46719800	DTA124ES
or	49390400	RN2203

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Parts No.	Stock No.	Description
•IC		
oIC13	46255000	LC4066BH
or	48056800	LC4966
oJ1	48985400	Mini Jack , SYSTEM
oJ2	48985400	Mini Jack , SYSTEM
oJ5	46200310	DC Jack , T.T.
	49417300	FG Socket CFG1115-0101
	48528400	2P Terminal, SURROUND
	46549200	4P Terminal, SPEAKER
⚠ pC1	46425800	0.01µF 400V C.C.
⚠ or	46943200	0.01µF 400V C.C.
⚠ or	48186700	0.01µF 400V C.C.
⚠ pF1	48721300	Fuse 2A <XX, SS> (A-E770)
⚠	07185000	Fuse 2A <EU, SEV> (A-E770)
⚠ pF1	48721400	Fuse 2.5A <XX, SS> (A-E970)
⚠	07185000	Fuse 2A <EU, SEV> (A-E970)
⚠ pF2	48721300	Fuse 2A <XX, SS> (A-E770)
⚠ pF2	48721400	Fuse 2.5A <XX, SS> (A-E970)

5-9. F-6186 Head Phone Board

Parts No.	Stock No.	Description
⚠ kR13	46624700	220Ω 2W N.I.R. (A-E770)
⚠ kR13	46909400	220Ω 3W N.I.R. (A-E970)
oJ4	49363600	Mini Jack, PHONES

5-10. F-5358 Fuse Board (1)

Parts No.	Stock No.	Description
pF3	07184400	Fuse 0.5A <SEV>

5-11. F-5359 Fuse Board (2)

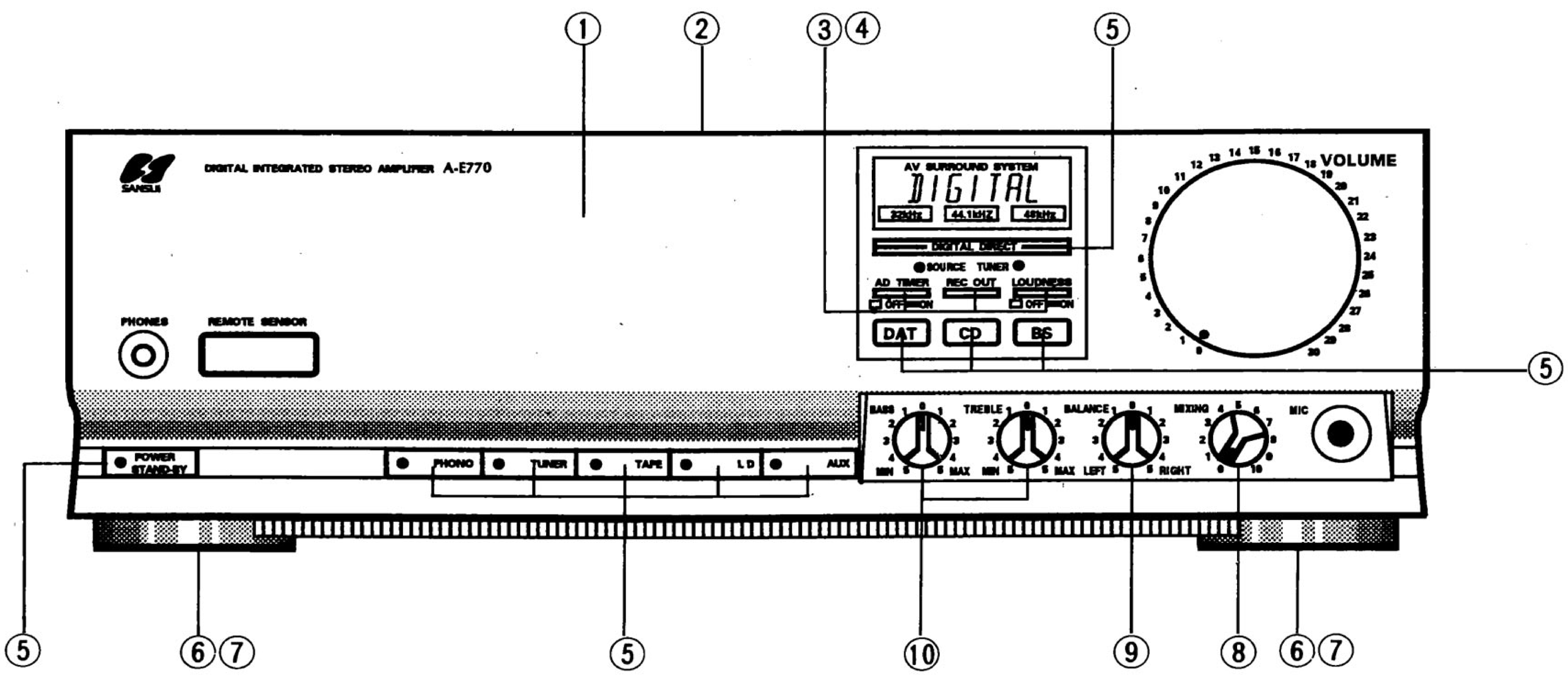
Parts No.	Stock No.	Description
⚠ pF4	07184400	Fuse 0.5A <SEV>

6. OTHER PARTS

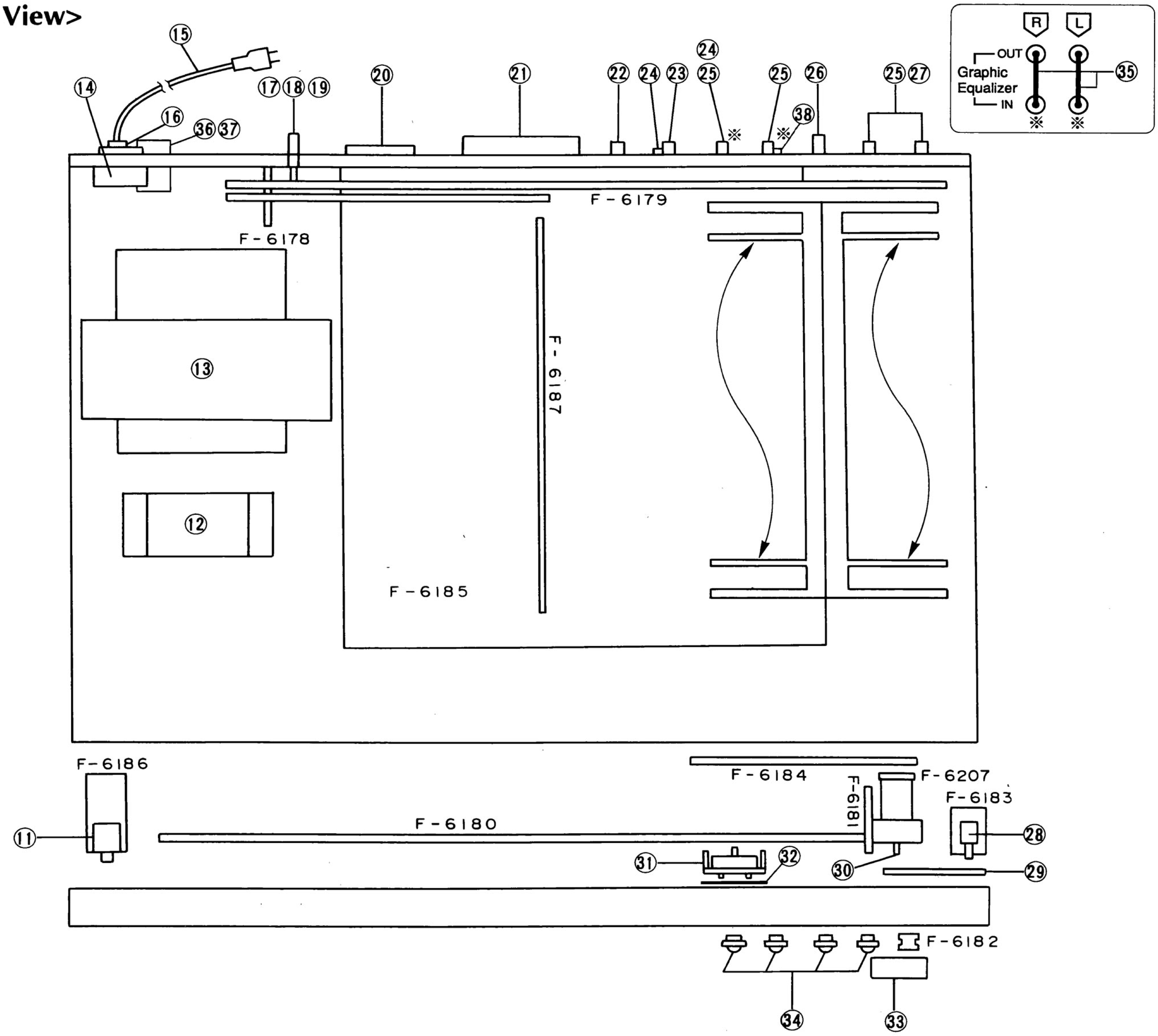
Parts List <Front View & Top View>

Parts No.	Stock No.	Description
1	27718400	Front Panel Ass'y <DMC Model> (A-E770)
	27788000	Front Panel Ass'y <Black Model> (A-E770)
	27788100	Front Panel Ass'y <DMC Model> (A-E970)
2	27722300	Bonnet <DMC Model> (A-E770/E970)
	27722400	Bonnet <Black Model> (A-E770)
3	46500000	Push SW., AD TIMER etc.
4	27707600	Knob, AD TIMER, etc.
5	49326300	Tact SW
6	84606000	Foot Ass'y, front side
7	84606100	Foot Ass'y, rear side
8	49363700	20kΩ(A) VR., MIC LEVEL
9	49363900	250kΩ(W), BALANCE
10	49363800	50kΩx2 VR., TONE VOLUME
11	49363600	PHONE Jack
⚠ 12	15035901	Power Transformer, mPT2 <XX, SS>
⚠	15035905	Power Transformer, mPT2 <EU, SEV>
⚠ 13	15035809	Power Transformer, mPT1 <XX, SS> (A-E770)
⚠	15035805	Power Transformer, mPT1 <EU, SEV> (A-E770)
⚠	15036209	Power Transformer, mPT1 <XX, SS> (A-E970)
⚠	15036205	Power Transformer, mPT1 <EU, SEV> (A-E970)
⚠ 14	49420100	AC Outlet <XX, SS>
⚠	46161000	AC Outlet <EU, SEV>
⚠ 15	46407700	Power Supply Cord <XX>
⚠	49438100	Power Supply Cord <EU>
⚠	48837700	Power Supply Cord <SS>
16	49374300	Strain Relief
17	49371000	2P Digital Input Terminal
18	49352700	Optical Modul
19	49363500	1P Digital Output Terminal
20	49399910	11P FG System Control Socket
21	46549200	4P Speaker Terminal
22	48528400	2P Surround Terminal
23	49371100	3P Terminal, VIDEO
24	48985400	Mini Jack, SYSTEM
25	49359800	4P Terminal, REC/PLAY
26	22301510	Ground Terminal
27	49359900	6P Terminal, PHONO/TUNER/AUX
28	48987100	MIC Jack
29	27769700	Volume Shield Plate
30	49373200	150kΩ V.R., VOLUME
31	84605000	Reflector (A)
32	27718800	Display Plate (A-E770)
	27727700	Display Plate (A-E970)
33	27707700	Knob, VOLUME (A-E770: Black Model)
	27707800	Knob, VOLUME (A-E770: DMC Model) (A-E970)
34	27698400	Knob, TONE, BALANCE/MIC (A-E770: DMC Model) (A-E970)
	27698500	Knob, TONE, BALANCE/MIC (A-E770: Black Model)
35	46413400	PM Connector
36	48175200	Voltage Selector <XX, SS>
37	49478100	Slide Switch, SURROUND <EU, SEV> (A-E970)
38	46200310	DC Jack, T.T

<Front View>



<Top View>

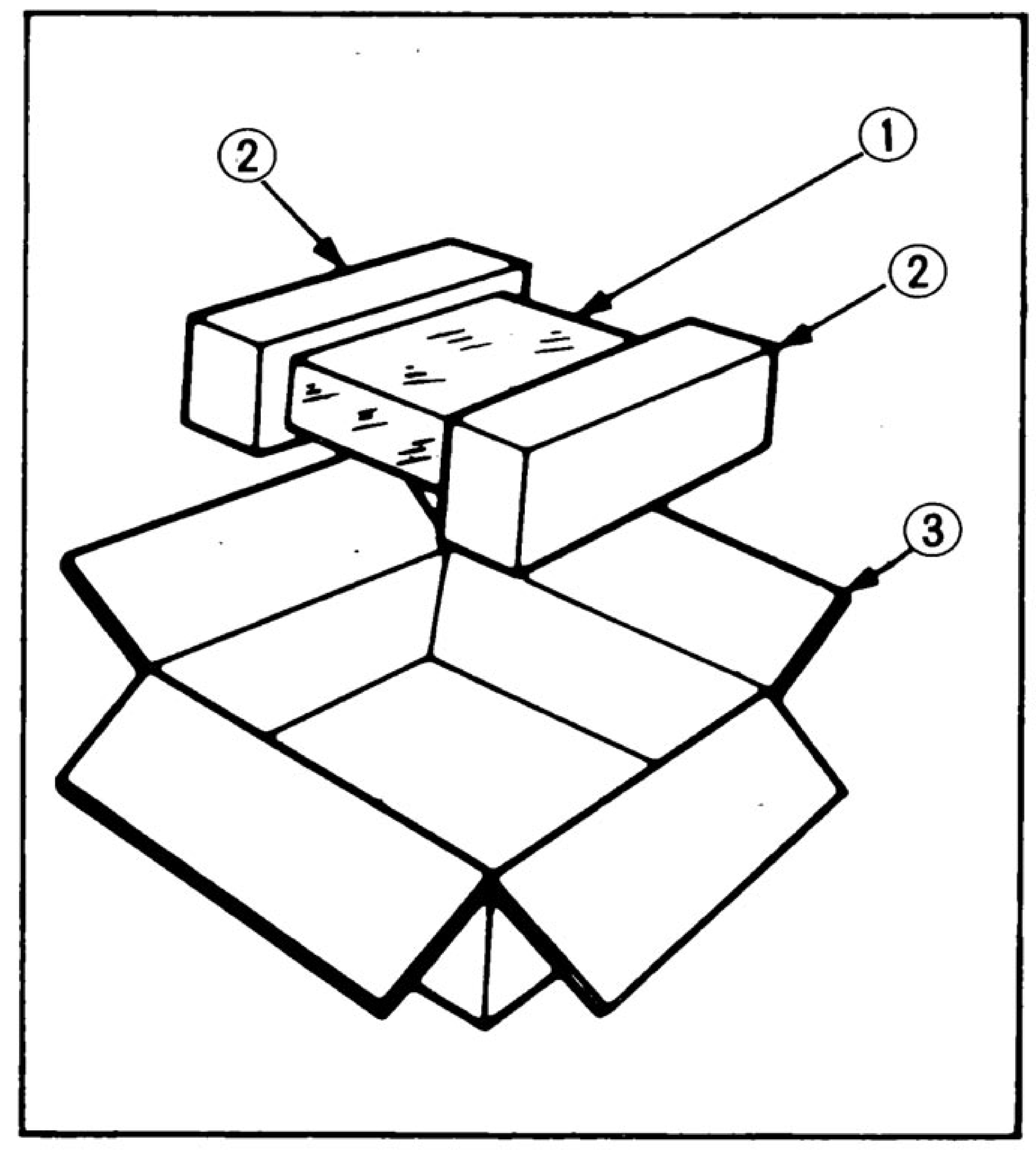


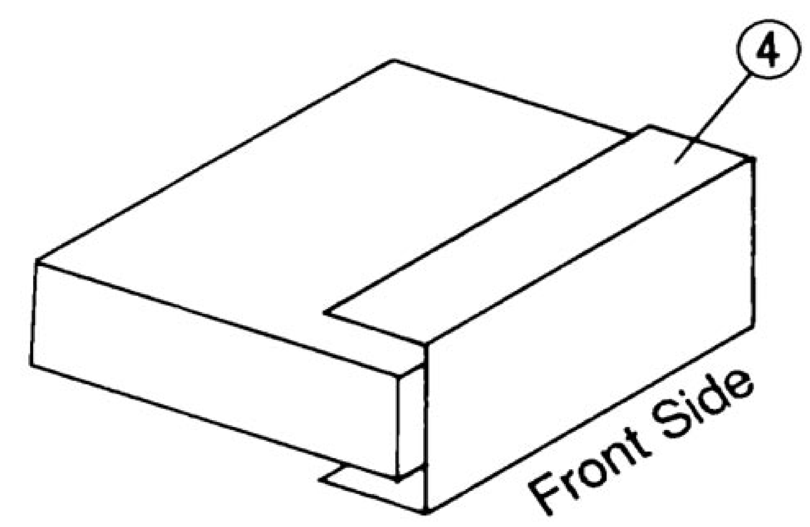
7. ACCESSORY PARTS LIST

Stock No.	Description
————	Remote Control Unit, RS-E770 (A-E770)
————	Remote Control Unit, RS-E980 (A-E970)
————	Dry Battery, SUM-3K
48835500	AM Loop Antenna
49399910	11P FG System Control Unit
38103200	Pin Plug Cord, 58cm
48802200	Pin Plug Cord, 50cm
46051700	FM Antenna Wire
19055510	Operating Instruction (E·F·S)
19055600	Operating Instruction (G·I·SW·D)
19055700	Operating Sheet (E·F·S)
19058600	Operating Sheet (G·I·SW·D)
48181300	Mini Pin Plug Cord
84606600	Antenna Holder Ass'y

***NOTE:**
E·F·S: English, French and Spanish Version
G·I·SW·D: German, Italian, Dutch and Swedish Version

8. PACKING LIST





Parts No.	Stock No.	Description
1	27343900	Vinyl Bag
2	27743510	Styrofoam Packing
3	27766400	Carton Case (DMC Model) <A-E770>
	27787500	Carton Case (Black Model) <A-E770>
	27787600	Carton Case <A-E970>
4	27772710	Panel Cover Sheet (DMC Model)

•Organization of System Component

System Name	CD Player	Cassette Deck	Tuner	Amplifier	Speakers
MIDI 770	CD-E770 (B)	D-E770 (B)	T-E770/L (B)	A-E770 (B)	S-U770
BAR 770	CD-E770 (DMC)	D-E870 (DMC)	T-E770/L (DMC)	A-E770 (DMC)	S-U770
BAR 970	CD-E770 (DMC)	D-E970 (DMC)	T-E770/L (DMC)	A-E970 (DMC)	S-U970

(B): Black Color Model (DMC): Dolphine Metallic Color Model

9. SCHEMATIC DIAGRAM

9-1. Main Section

* Design and specifications subject to changes without noitice for improvements.

9-2. D/A Converter & Power AMP Section

* Design and specifications subject to changes without noitice for improvements.

SYMBOL OF FUNCTION

- (g) MIC
- (i) EQ
- (j) CONTROL
- (k) POWER AMP
- (ℓ) PROTECTOR
- (m) POWER SUPPLY
- (n) INDICATOR
- (o) SELECTOR
- (p) FIXED PARTS
- (v) DIGITAL/ANALOG

SYMBOL

- △ Ceramic Capacitor
- B.P Bi-Polar Electrolytic Capacitor
- Mylar Capacitor
- Non-Inflammable Resistor
- Cement Resistor
- Chip Component(Cylindrical Type)

F6178 ~ F6181 , F6184
Chip Component

⚠ Is Safety Part.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6 Watts, ±5% Tolerance Unless Otherwise Noted. k:kΩ, M:MΩ
CHIP RESISTORS:Are 1/8 Watts

CAPACITORS
Are in μF, Unless Otherwise Noted. P:pF

Each D.C Voltage shows the nominal value in volts at no input signal.

Electrolytic Capacitor:Capacitance (μF)/Volt(V)

SANSUI

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