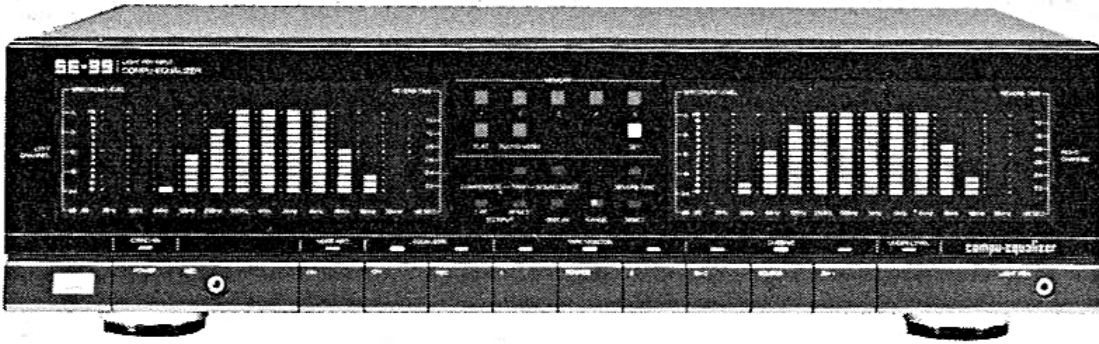


# SERVICE MANUAL

COMPU-EQUALIZER

## SANSUI SE-99



### CAUTION

1. Parts identified by the  $\Delta$  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.

### •SPECIFICATIONS

#### Input sensitivity and impedance (1 kHz)

INPUT, TAPE PLAY-1,2  
..... 150mV/47 kohms

#### Output level and impedance (1 kHz)

TAPE REC-1,2 ..... 150mV/1.5 kohms

OUTPUT ..... 150mV/1.5 kohms

(Maximum output level: 5V into 47 kohms at 0.5% total harmonic distortion)

#### Total harmonic distortion (at 2V, 20 Hz to 20 kHz)

INPUT, TAPE PLAY-1,2  
..... 0.003%

#### Frequency response (at 0.5V, Equalizer curve flat)

INPUT, TAPE PLAY-1,2  
..... 10 Hz to 100 kHz,  
+1.0 dB, -2.0 dB

#### Signal to noise ratio (Short-circuit, A-network)

INPUT, TAPE PLAY-1,2  
..... 120 dB

#### Equalizer frequency

..... 16 Hz, 32 Hz, 64 Hz,  
125 Hz, 250 Hz, 500 Hz,  
1 kHz, 2 kHz, 4 kHz, 8 kHz,  
16 kHz, 32 kHz

#### Level variation range

.....  $\pm 12$  dB or  $\pm 6$  dB

#### Others

Power voltage ..... 120V, 220V, 240V  
(50/60 Hz)

For U.S.A. and Canada

..... 120V (60 Hz)

Power consumption ..... 25 watts

Dimensions ..... 430 mm (16-15/16") (W)

119 mm (4-11/16") (H)

304 mm (11-15/16") (D)

Weight ..... 5.3 kg (11.7 lbs) net

6.6 kg (14.6 lbs) packed

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

\* Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.

*Sansui*

SANSUI ELECTRIC CO., LTD.

# CAUTION

1. The symbols, UL, CSA, SA, BS, UK, EU, AS and XX (EXPORT) on the parts list and the schematic diagram mean followings respectively.

UL..... Manufactured for U.S.A market.  
(Underwriters Laboratories approved model.)  
CSA ..... Manufactured for Canadian market.  
SA..... Manufactured for South African market.  
BS, UK ..... Manufactured for United Kingdom market.  
EU ..... Manufactured for European market.  
AS..... Manufactured for Australian market.  
XX (EXPORT) ..... Standard Version.  
NON MARK ..... Common Parts.

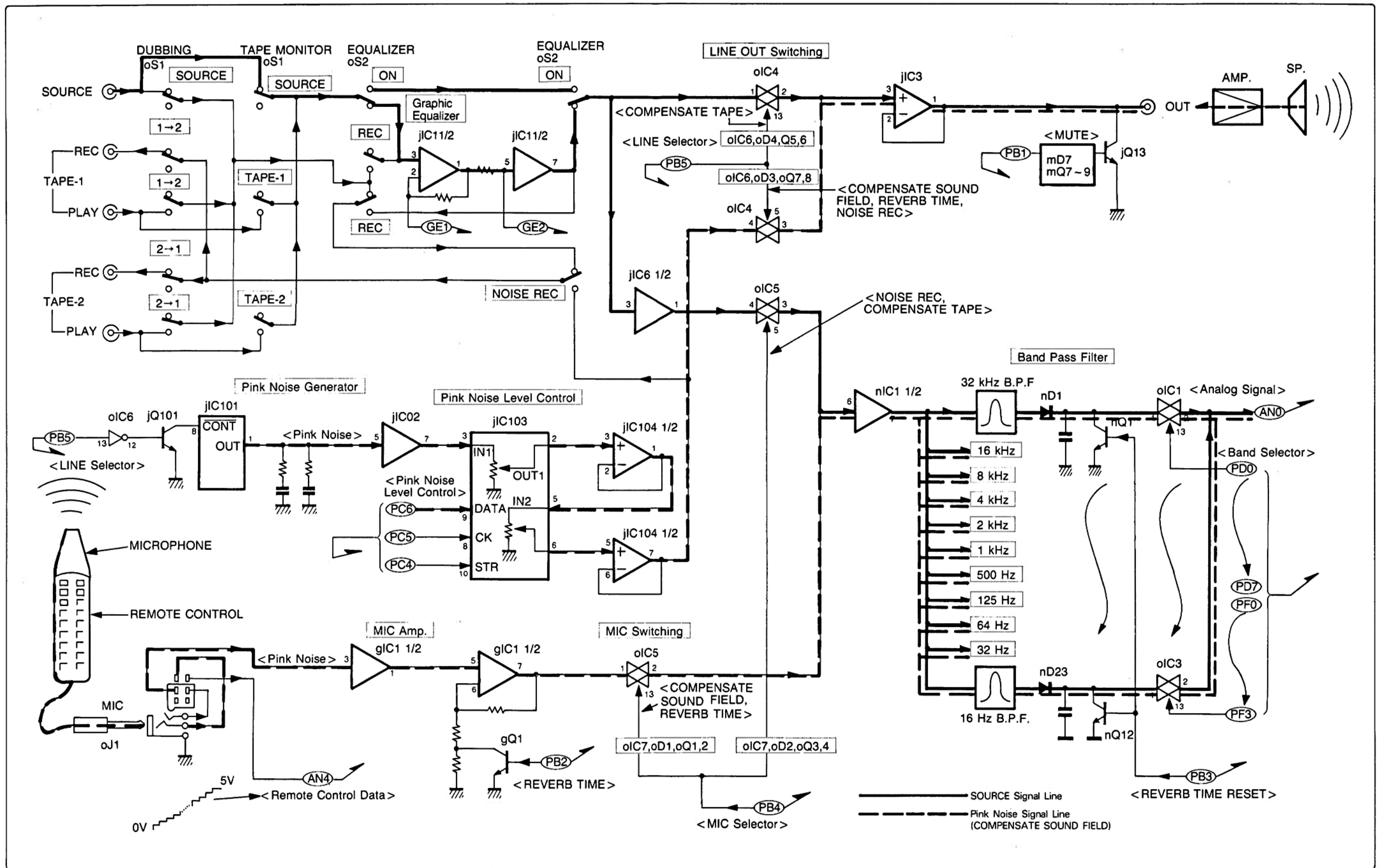
2. Some printed circuit boards are not supplied as the assembled. To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.
3. Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.
4. Abbreviations in this service manual are as follows.

## •Abbreviations List

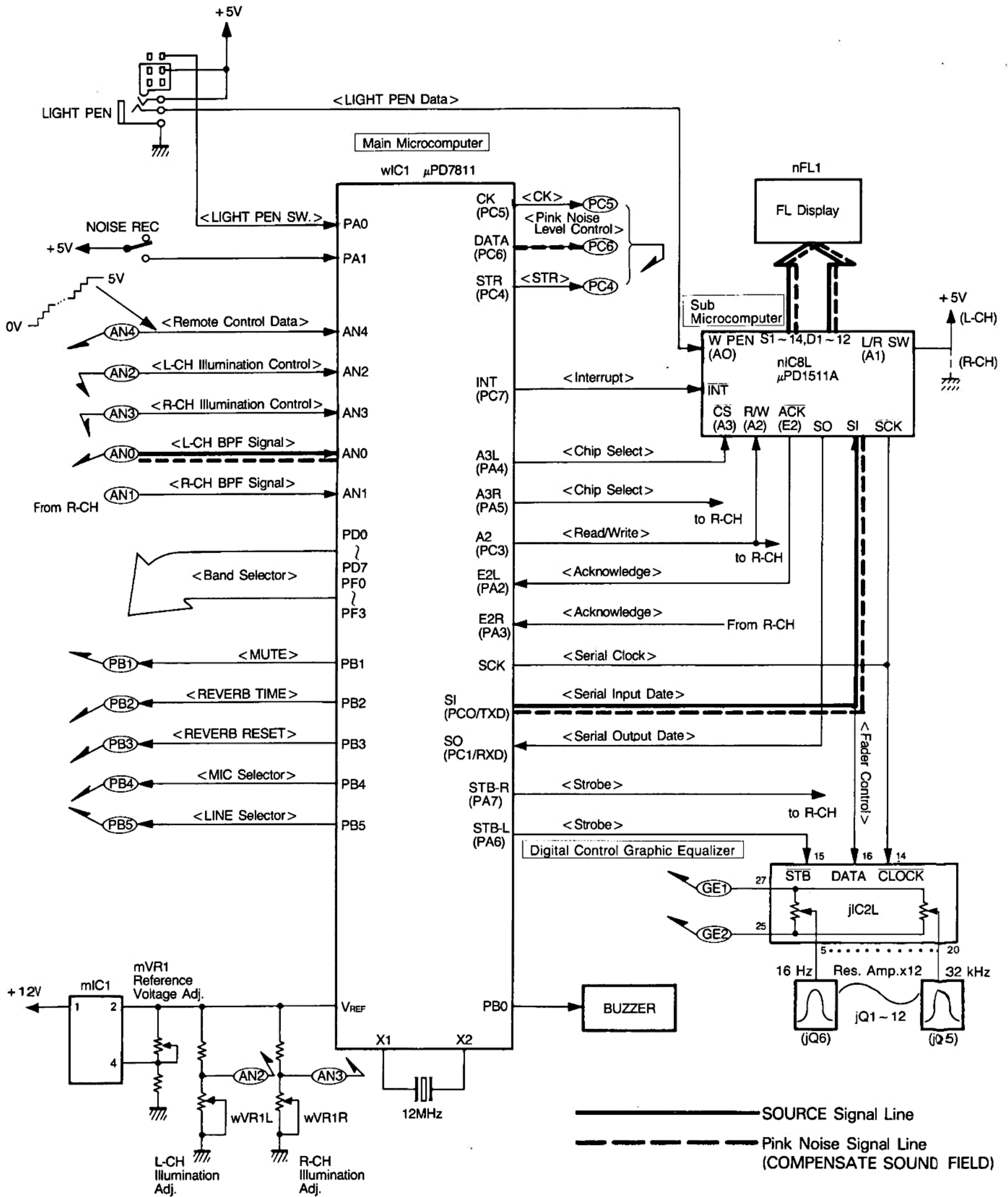
C.R.	: Carbon Resistor	E.B.L.	: Low Leak Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor	Ta.C.	: Tantalum Capacitor
Ce.R.	: Cement Resistor	F.C.	: Film Capacitor
M.R.	: Metal Film Resistor	M.P.	: Metalized Paper Capacitor
F.R.	: Fusing Resistor	P.C.	: Polystyrene Capacitor
N.I.R.	: Non-Inflammable Resistor	G.C.	: Gimmic 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.	: Electrolytic Capacitor	SW.	: Switch
E.L.	: Low Leak Electrolytic Capacitor	Chip R.	: Chip Resistor
E.B.	: Bi-Polar Electrolytic Capacitor	Chip C.	: Chip Capacitor

# 1. BLOCK DIAGRAM

## 1-1. Input Source Switching Section



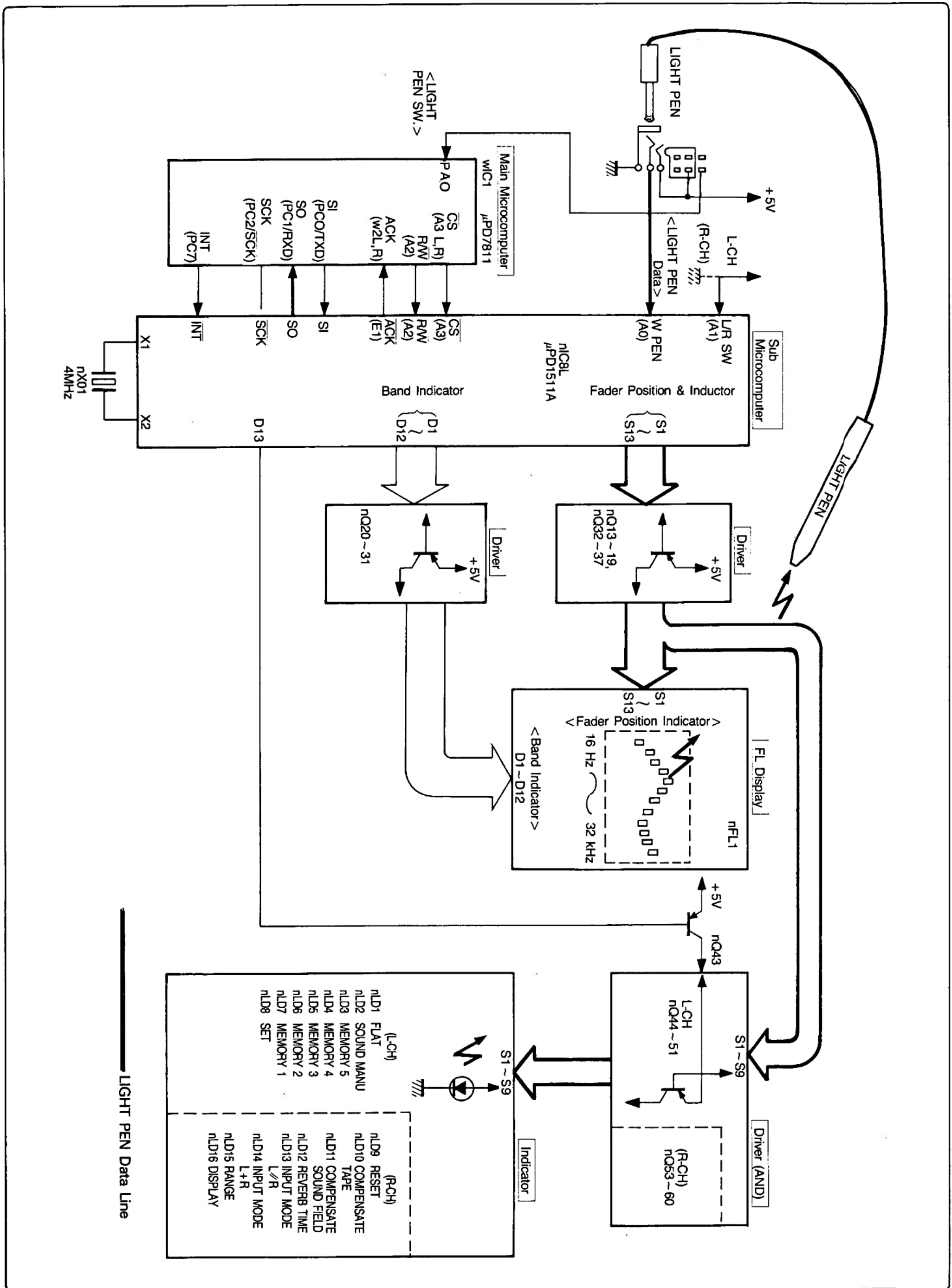
# 1-2. Microcomputer Section



### < Explanation of Various Signals >

- R/W (Read/Write):** indicate that CPU can read data from external devices (e.g. storage device) or can write data in the external devices.
- INT (Interrupt):** indicates that the current program control is interrupted and shifted temporarily to another program execution in such a state as to be able to execute the current procedure again.
- STB (Strobe):** indicates that a selection signal is outputted when data is correctly transferred to a bus.
- CS (Chip Select):** indicates that a chip is selected.
- ACK (Acknowledge):** indicates that information has already been received, being called a response signal.

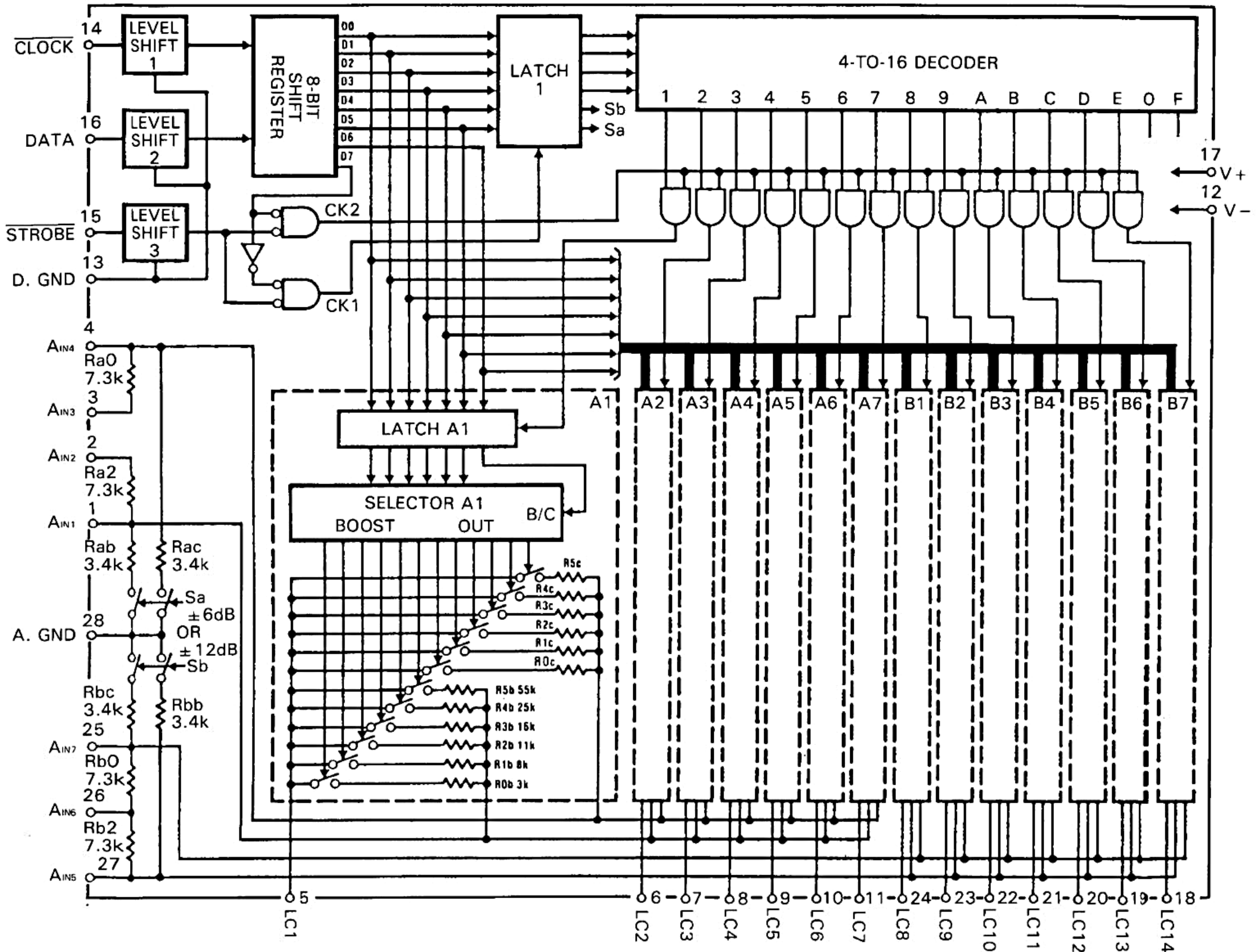
# 1-3. LIGHT PEN Operation



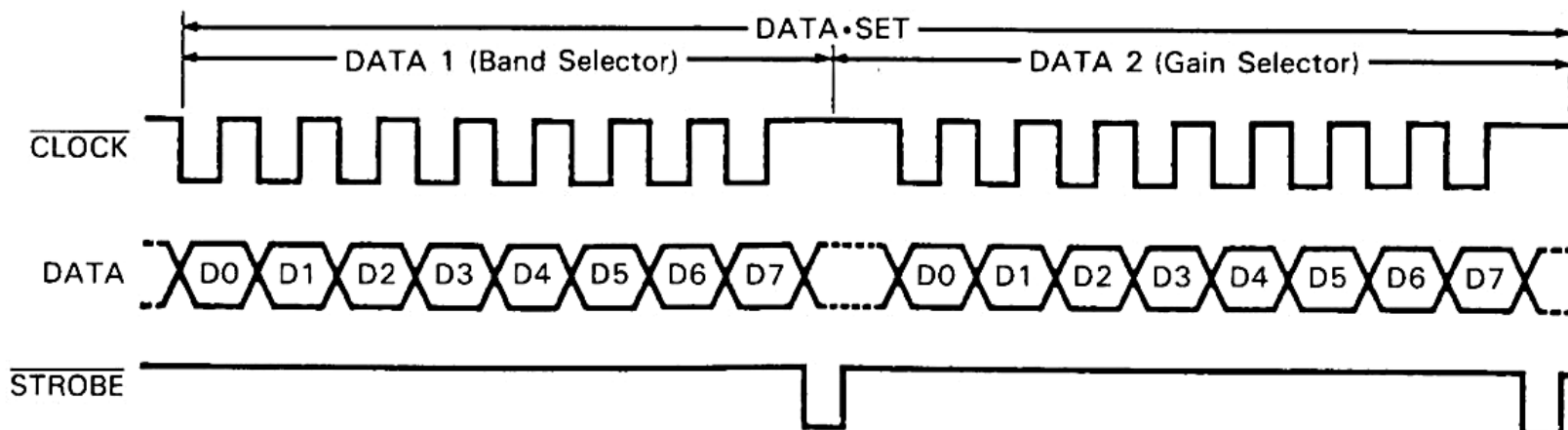
# 2. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC

## •LMC835 (Digital Control Graphic Equalizer)

### <Block Diagram>

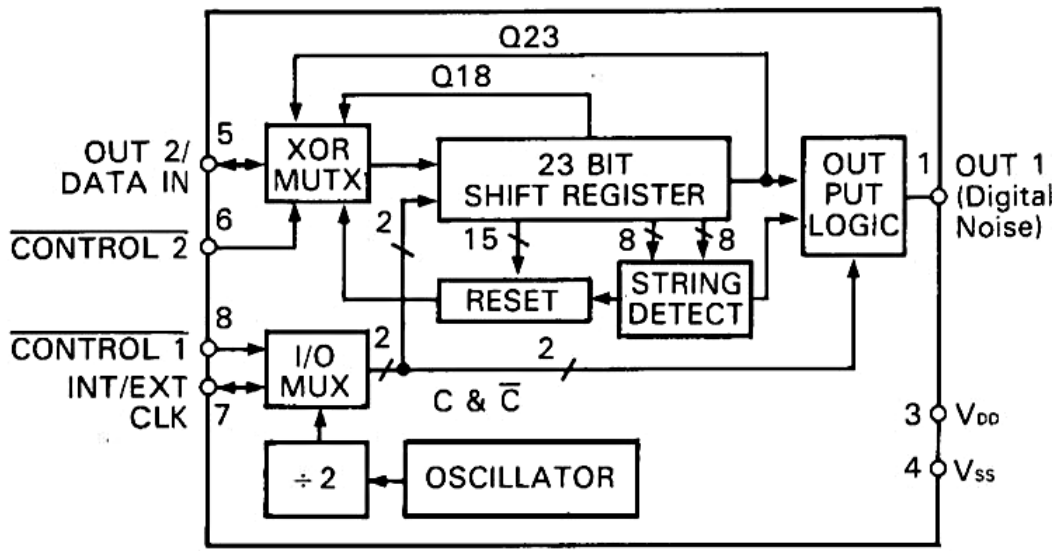


### <Timing Chart>



\* When the gain of the currently selected band is required to change, it is unnecessary to send DATA 1 (band selection).

•MM5437 (Digital Noise Source) <Block Diagram>

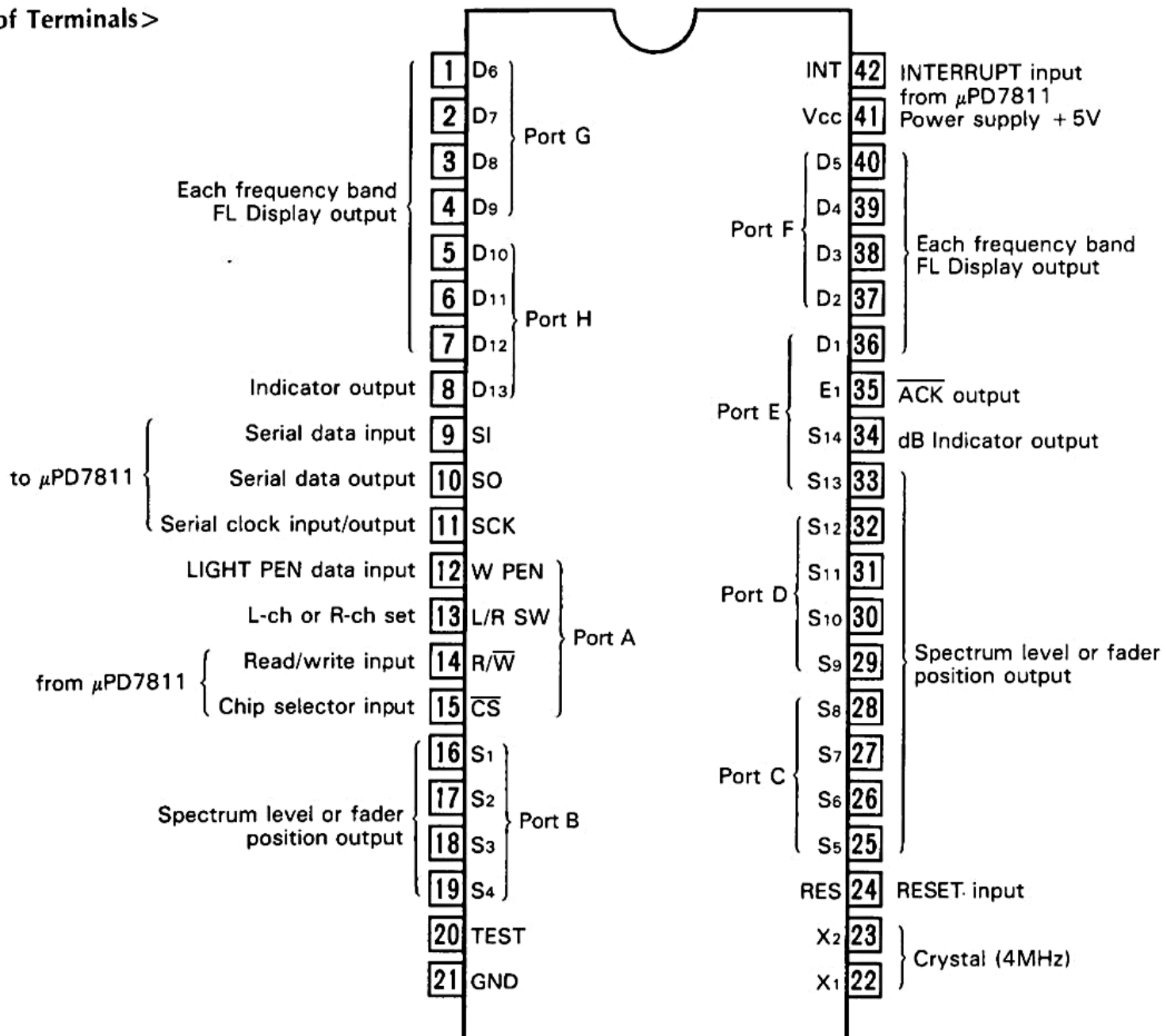


•TC9176P (Electronic Attenuator)

Pin No.	Symbols	Description	Remarks
2 15	L-OUT <sub>1</sub> R-OUT <sub>1</sub>	Output terminals of 10 dB-step attenuator. A signal applied to input terminal (3 or 14) is attenuated by 10dB per step from 0 to 70 dB up to 8 steps.	(L/R) 2/15 (OUT) 3/14 (IN)
3 14	L-IN <sub>1</sub> R-IN <sub>1</sub>	Input terminals of 10 dB-step attenuator	4/13 (GND)
4 13	A-GND	AC ground terminal	
5 12	L-IN <sub>2</sub> R-IN <sub>2</sub>	Input terminals of 2 dB-step attenuator	5/12 (IN) 6/11 (OUT)
6 11	L-OUT <sub>2</sub> R-OUT <sub>2</sub>	Output terminals of 2 dB-step attenuator. A signal applied to input terminal (5 or 12) is attenuated by 2 dB per step from 0 to 8 dB up to 5 steps.	
9	DATA	Input terminal of DATA signal for selecting attenuation step and channel (L or R). DATA signal is composed of 20 bits and inputted in response to CLOCK signal.	*Low threshold input inverter
8	CK	Input terminal of CLOCK to read data through DATA terminal.	Ditto
10	ST	Input terminal of STROBE signal DATA signals for selecting attenuation step and channel received through DATA terminal in response to CLOCK are latched when this terminal is set to "H". If not at "H" level, the preceding data are kept as they are.	Ditto
16 7 1	VDD GND VSS	Positive supply voltage terminal Ground terminal Negative supply voltage terminal	

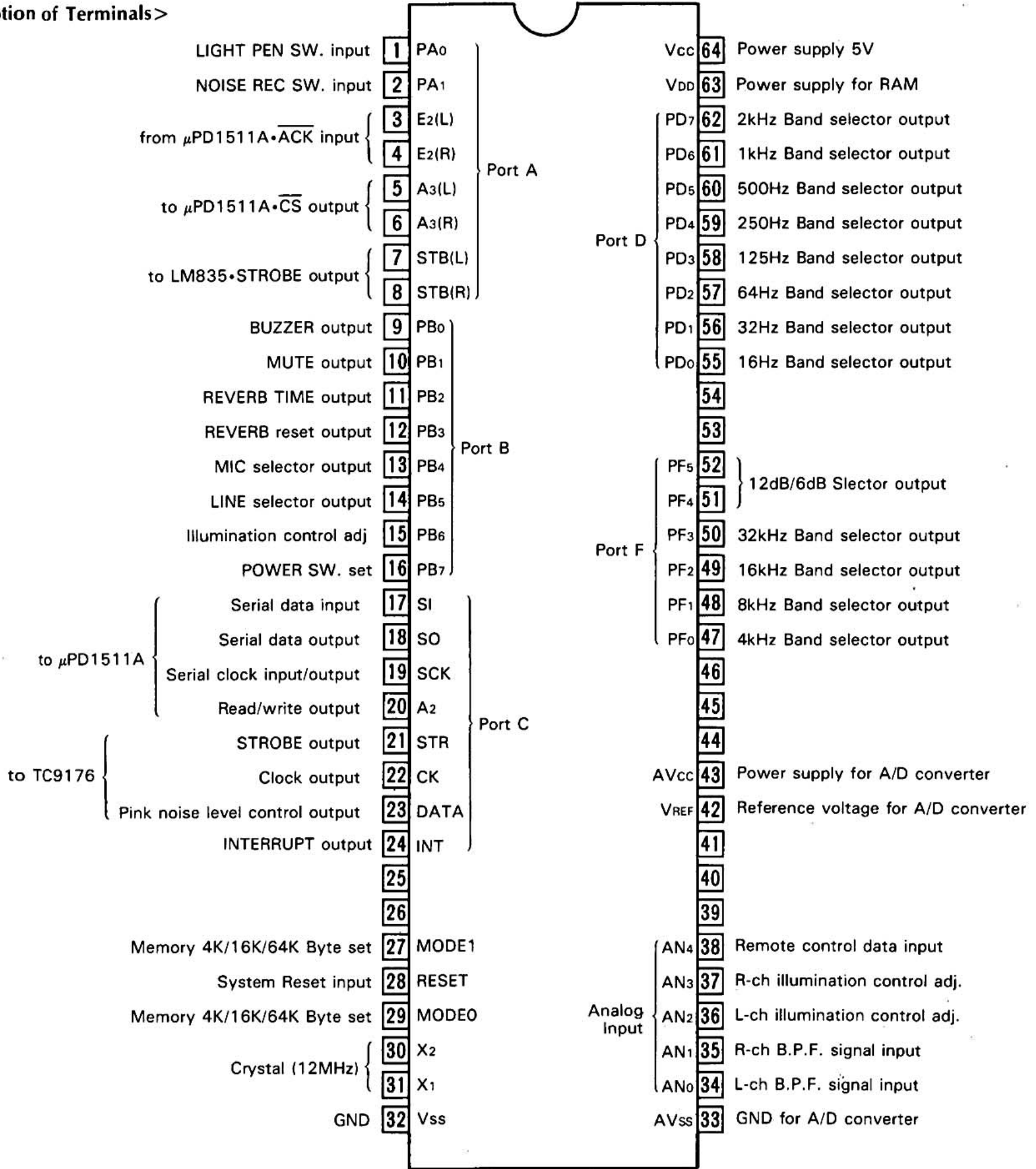
•μPD1511A (Sub Microcomputer)

<Description of Terminals>

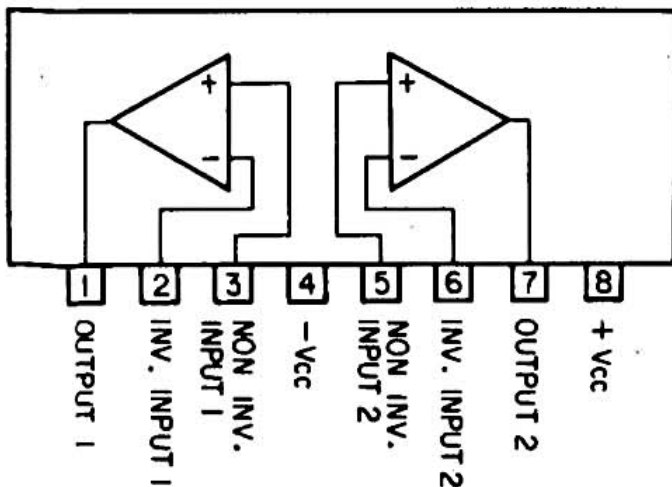


• $\mu$ PD7811 (Main Microcomputer)

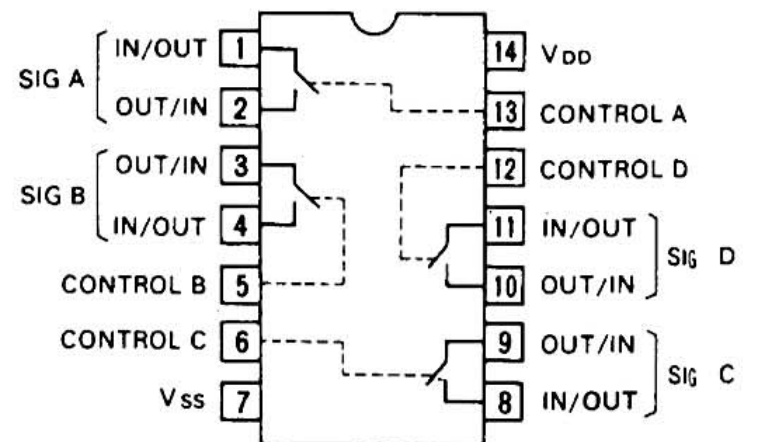
<Description of Terminals>



•M5218L, M5220L (Pre Amp.)

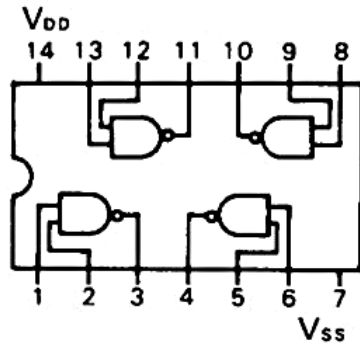


•LC4066BH,  $\mu$ PD4066BC (Quad Bi-lateral SW.)

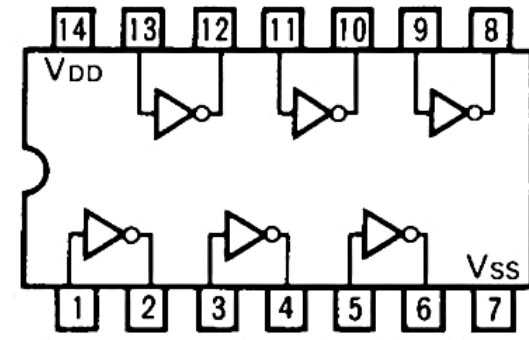




• $\mu$ PD4011BC (Quad NAND)



•BU4069UB,  $\mu$ PD4069UBC, TC4069UBC (Hexad Inverter)



### 3. ADJUSTMENT

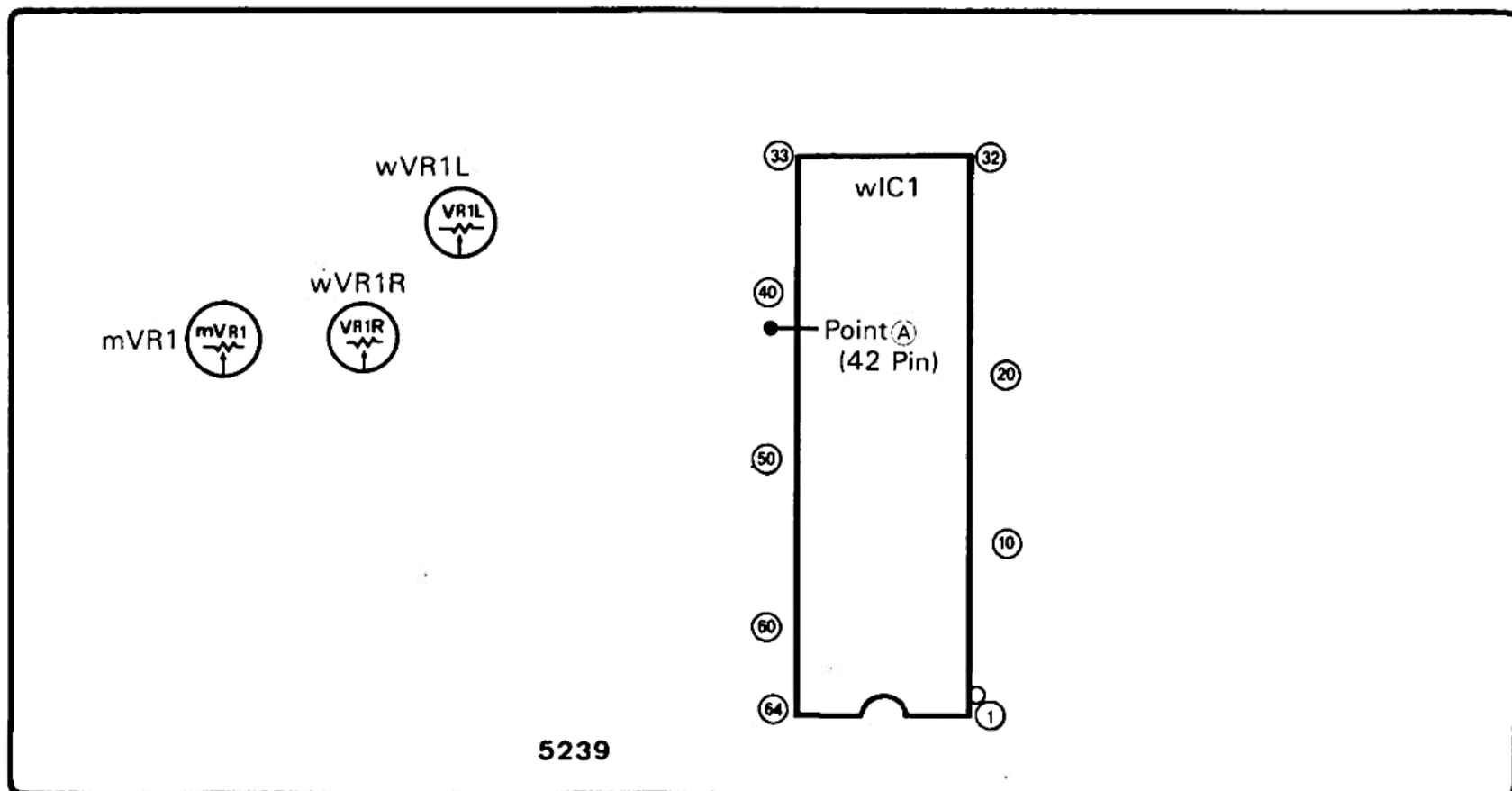
#### 3-1. Reference Voltage Adjustment (See Fig. 3-1)

1. Connect a DC voltmeter between point (A) (Pin 42 of wIC) and GND.
2. Adjust the voltage to  $5V \pm 0.1V$  by turning mVR1 on board F-5239.

#### 3-2. Luminance Adjustment of FL Display Tubes (See Fig. 3-1)

1. Set the fader position to DISPLAY.
2. Rotate wVR1L and wVR1R on board F-5239 clockwise to their extreme ends.
3. When the left-hand FL display tube is dim, adjust the wVR1L; when the right-hand FL display tube is dim, adjust the wVR1R. Further adjust these display tubes so that both the tubes balance with each other in luminance.

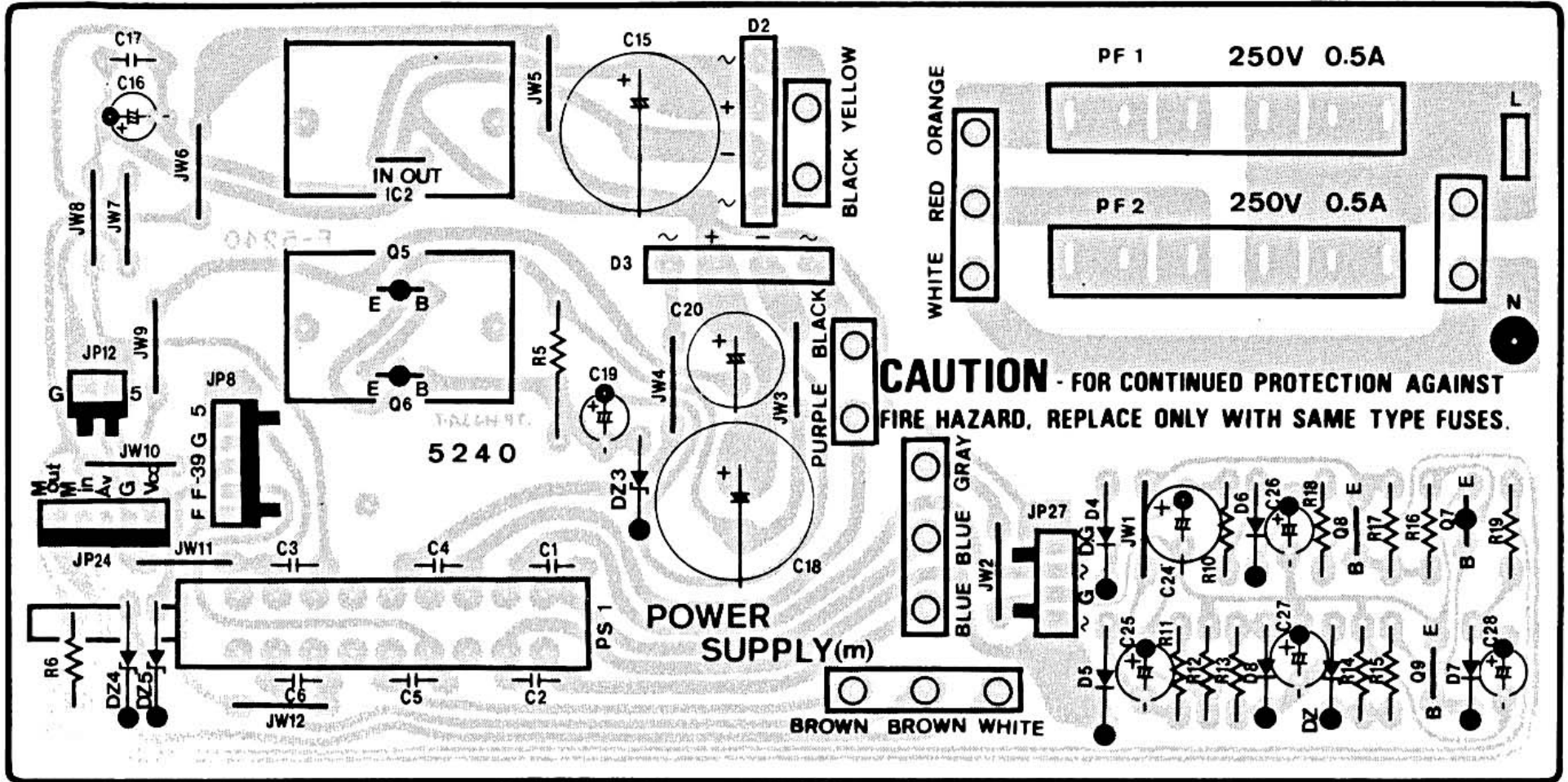
Fig. 3-1 F-5239 Main Microcomputer Board



# 4. PARTS LOCATION & PARTS LIST

## 4-1. F-5240 Power Supply Board (Stock No. 00951401)

Component Side



### Parts List

Parts No.	Stock No.	Description
• Transistor		
△mQ5	48150701	2SB834
△mQ6	46367001	2SA1115
△	or 46367201	2SA1048
△	or 48058601	2SA933S
mQ7	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
mQ8	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
mQ9	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
• IC		
△mIC2	46720300	μPC7805H
△	or 48053500	NJM7805A
• Diode		
△mD2	03117000	RB152-LFF
△mD4	03117700	10E-2

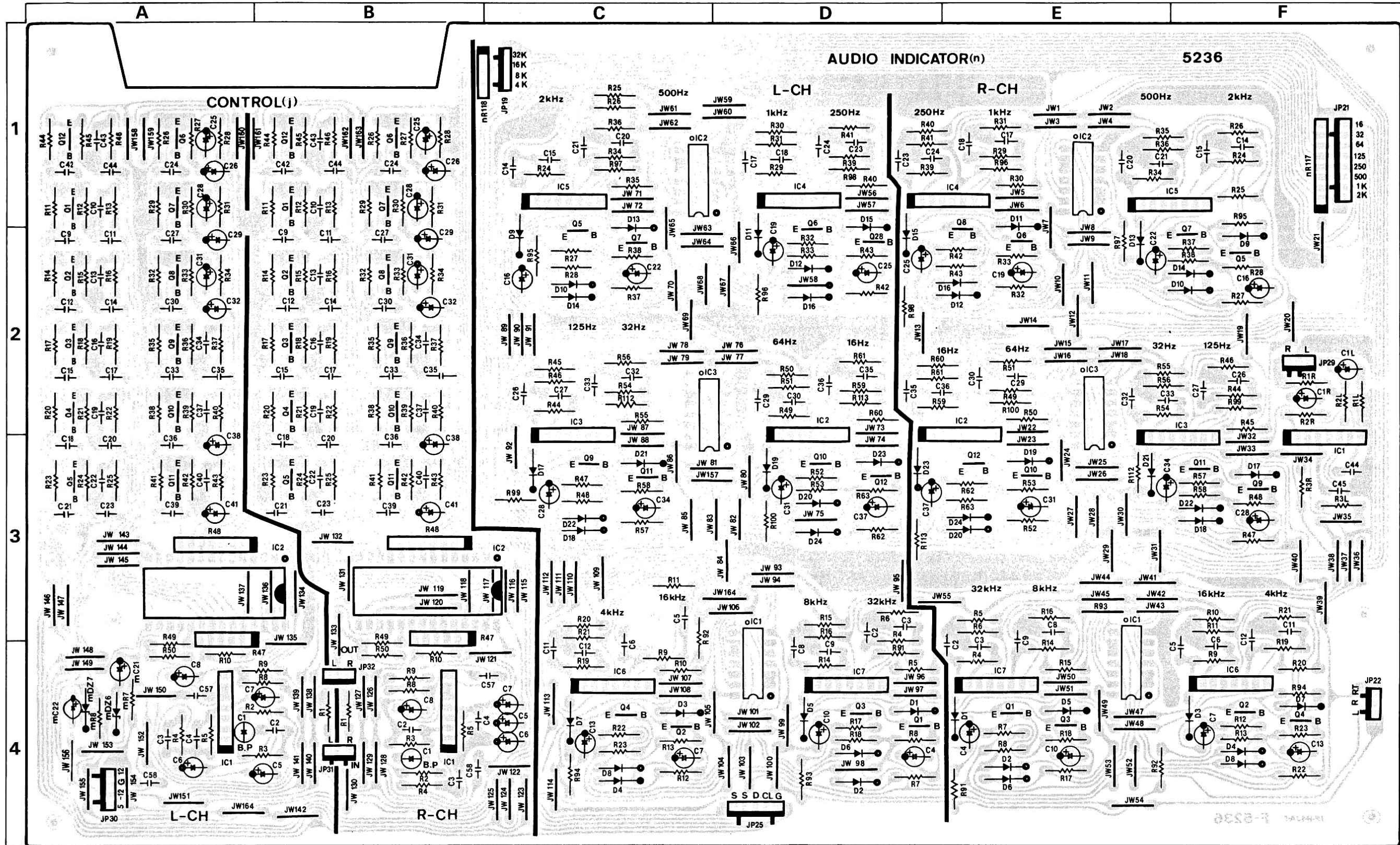
Parts No.	Stock No.	Description
△mD5	03117700	10E-2
mD6	03117600	1S2473T77
	or 46086000	1S1588TP-3
mD7	03117600	1S2473T77
	or 46086000	1S1588TP-3
• Zener Diode		
mDZ3	46117400	05Z39-X
	or 46117500	05Z39-Y
	or 46117600	05Z39-Z
mDZ4	03167300	RD3.0F-B
mDZ5	03167300	RD3.0F-B
mDZ9	46111800	05Z6.2-Y
△mR5	46251000	2.7kΩ 1W N.I.R.
△mR10	46229400	220Ω 1/2W N.I.R.
△pF1	48266400	AC Fuse 0.5A 250V (XX)
△	48266500	AC Fuse 0.8A 250V (UL,CSA)
△pF2	48266400	AC Fuse 0.5A 250V (XX)
△pS1	48349200	Push SW., POWER

## 4-2. F-5236 Graphic Equalizer Board (Stock No. 00951201)

### Parts List

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
<b>•Transistor</b>				or 46367301	2SC2458
jQ1	46367101	2SC2603	nQ2	or 48058801	2SC1740S
	or 46367301	2SC2458		46367101	2SC2603
	or 46577801	2SC2320L		or 46367301	2SC2458
	or 46581701	2SC1845	nQ3	or 48058801	2SC1740S
jQ2	46367101	2SC2603		46367101	2SC2603
	or 46367301	2SC2458		or 46367301	2SC2458
	or 46577801	2SC2320L	nQ4	or 48058801	2SC1740S
	or 46581701	2SC1845		46367101	2SC2603
jQ3	46367101	2SC2603		or 46367301	2SC2458
	or 46367301	2SC2458	nQ5	or 48058801	2SC1740S
	or 46577801	2SC2320L		46367101	2SC2603
	or 46581701	2SC1845		or 46367301	2SC2458
jQ4	46367101	2SC2603	nQ6	or 48058801	2SC1740S
	or 46367301	2SC2458		46367101	2SC2603
	or 46577801	2SC2320L		or 46367301	2SC2458
	or 46581701	2SC1845	nQ7	or 48058801	2SC1740S
jQ5	46367101	2SC2603		46367101	2SC2603
	or 46367301	2SC2458		or 46367301	2SC2458
	or 46577801	2SC2320L	nQ8	or 48058801	2SC1740S
	or 46581701	2SC1845		46367101	2SC2603
jQ6	46367101	2SC2603		or 46367301	2SC2458
	or 46367301	2SC2458	nQ9	or 48058801	2SC1740S
	or 46577801	2SC2320L		46367101	2SC2603
	or 46581701	2SC1845		or 46367301	2SC2458
jQ7	46367101	2SC2603	nQ10	or 48058801	2SC1740S
	or 46367301	2SC2458		46367101	2SC2603
	or 46577801	2SC2320L		or 46367301	2SC2458
	or 46581701	2SC1845	nQ11	or 48058801	2SC1740S
jQ8	46367101	2SC2603		46367101	2SC2603
	or 46367301	2SC2458		or 46367301	2SC2458
	or 46577801	2SC2320L	nQ12	or 48058801	2SC1740S
	or 46581701	2SC1845		46367101	2SC2603
jQ9	46367101	2SC2603		or 46367301	2SC2458
	or 46367301	2SC2458		or 48058801	2SC1740S
	or 46577801	2SC2320L			
	or 46581701	2SC1845	<b>•IC</b>		
jQ10	46367101	2SC2603	nIC1	46078900	M5218L
	or 46367301	2SC2458	nIC2	46078900	M5218L
	or 46577801	2SC2320L	nIC3	46078900	M5218L
	or 46581701	2SC1845	nIC4	46078900	M5218L
jQ11	46367101	2SC2603	nIC5	46078900	M5218L
	or 46367301	2SC2458	nIC6	46078900	M5218L
	or 46577801	2SC2320L	nIC7	46078900	M5218L
	or 46581701	2SC1845	<b>•Diode</b>		
jQ12	46367101	2SC2603	nD1	03117600	1S2473T77
	or 46367301	2SC2458		or 46086000	1S1588TP-3
	or 46577801	2SC2320L	nD2	03117600	1S2473T77
	or 46581701	2SC1845		or 46086000	1S1588TP-3
<b>•IC</b>			nD3	03117600	1S2473T77
jIC1	46078900	M5218L		or 46086000	1S1588TP-3
jIC2	48350600	LMC835N	nD4	03117600	1S2473T77
jR47	48350800	100k $\Omega$ x5 A.R.		or 46086000	1S1588TP-3
jR48	46392900	100k $\Omega$ x7 A.R.	nD5	03117600	1S2473T77
jC1	48103500	2.2 $\mu$ F 50V E.B.		or 46086000	1S1588TP-3
jC28	46698200	0.18 $\mu$ F 50V F.C.	nD6	03117600	1S2473T77
jC32	46937500	1.5 $\mu$ F 50V E.B.		or 46086000	1S1588TP-3
<b>•Diode</b>			nD7	03117600	1S2473T77
mD8	03117600	1S2473T77		or 46086000	1S1588TP-3
	or 46086000	1S1588TP-3	nD8	03117600	1S2473T77
<b>•Zener Diode</b>				or 46086000	1S1588TP-3
mDZ6	46112400	05Z7.5-Y	nD9	03117600	1S2473T77
mDZ7	46112400	05Z7.5-Y		or 46086000	1S1588TP-3
$\Delta$ mR7	46249200	82 $\Omega$ 1W N.I.R.	nD10	03117600	1S2473T77
$\Delta$ mR8	46249200	82 $\Omega$ 1W N.I.R.		or 46086000	1S1588TP-3
$\Delta$ mR30	46228600	47 $\Omega$ 1/2W N.I.R.	nD11	03117600	1S2473T77
$\Delta$ mR31	46228600	47 $\Omega$ 1/2W N.I.R.		or 46086000	1S1588TP-3
<b>•Transistor</b>			nD12	03117600	1S2473T77
nQ1	46367101	2SC2603		or 46086000	1S1588TP-3
			nD13	03117600	1S2473T77
				or 46086000	1S1588TP-3
			nD14	03117600	1S2473T77
				or 46086000	1S1588TP-3

Component Side



Parts List <F-5236>

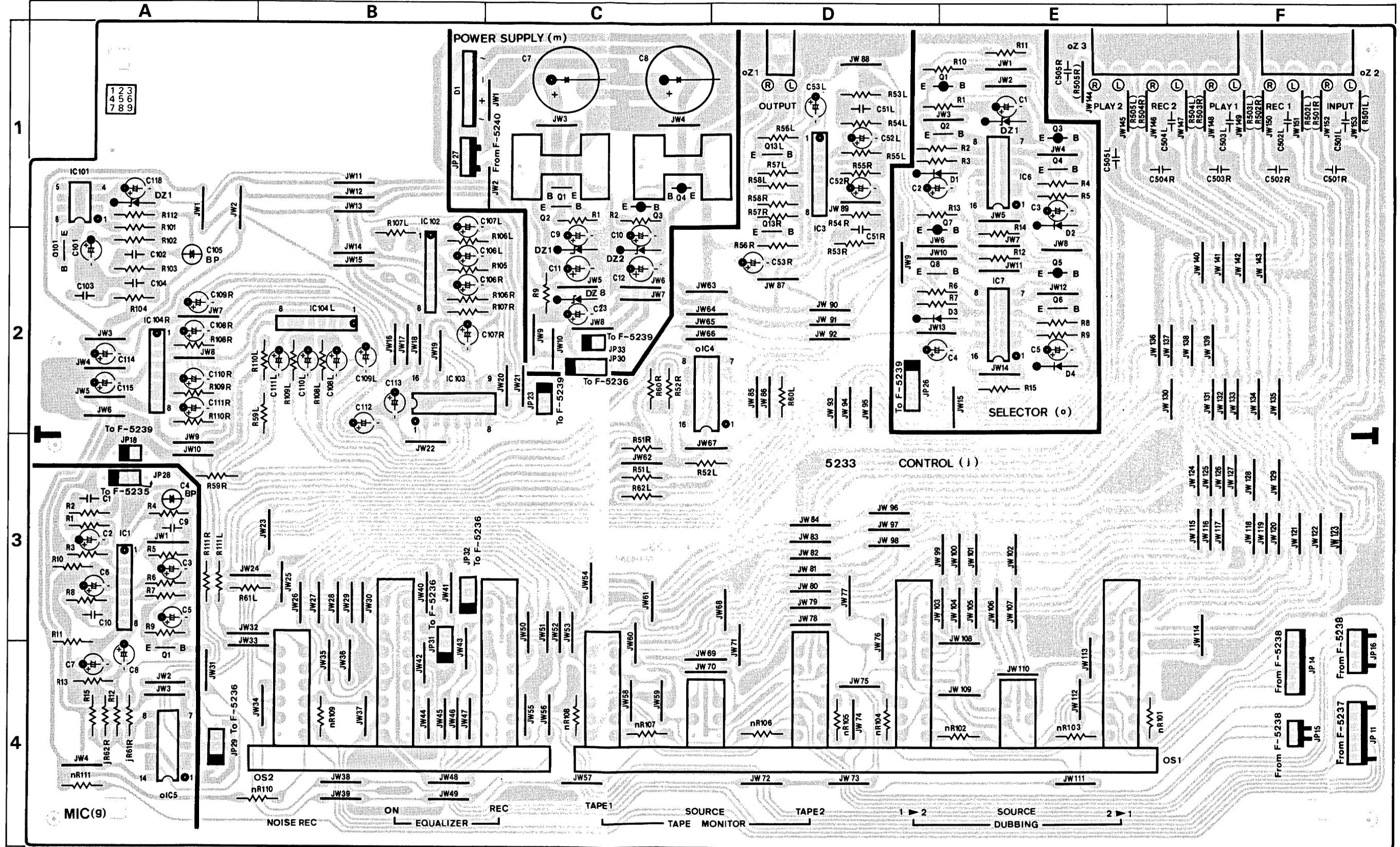
Parts No.	Stock No.	Description
nD15	03117600 or 46086000	1S2473T77 1S1588TP-3
nD16	03117600 or 46086000	1S2473T77 1S1588TP-3
nD17	03117600 or 46086000	1S2473T77 1S1588TP-3
nD18	03117600	1S2473T77

Parts No.	Stock No.	Description
nD19	or 46086000 03117600	1S1588TP-3 1S2473T77
nD20	or 46086000 03117600	1S1588TP-3 1S2473T77
nD21	or 46086000 03117600 or 46086000	1S1588TP-3 1S2473T77 1S1588TP-3

Parts No.	Stock No.	Description
nD22	03117600 or 46086000	1S2473T77 1S1588TP-3
nD23	03117600 or 46086000	1S2473T77 1S1588TP-3
nD24	03117600 or 46086000	1S2473T77 1S1588TP-3
nD26	03117600	1S2473

Parts No.	Stock No.	Description
nR117	46350500	100kΩX8 1/8W A.R.
nR118	46343100	100kΩX4 1/8W A.R.
•IC		
oIC1	46255000	LC4066BH
oIC2	46255000	LC4066BH
oIC3	46255000	LC4066BH

4-3. F-5233 Input Source Switching Board (Stock No. 00950601)  
Component Side



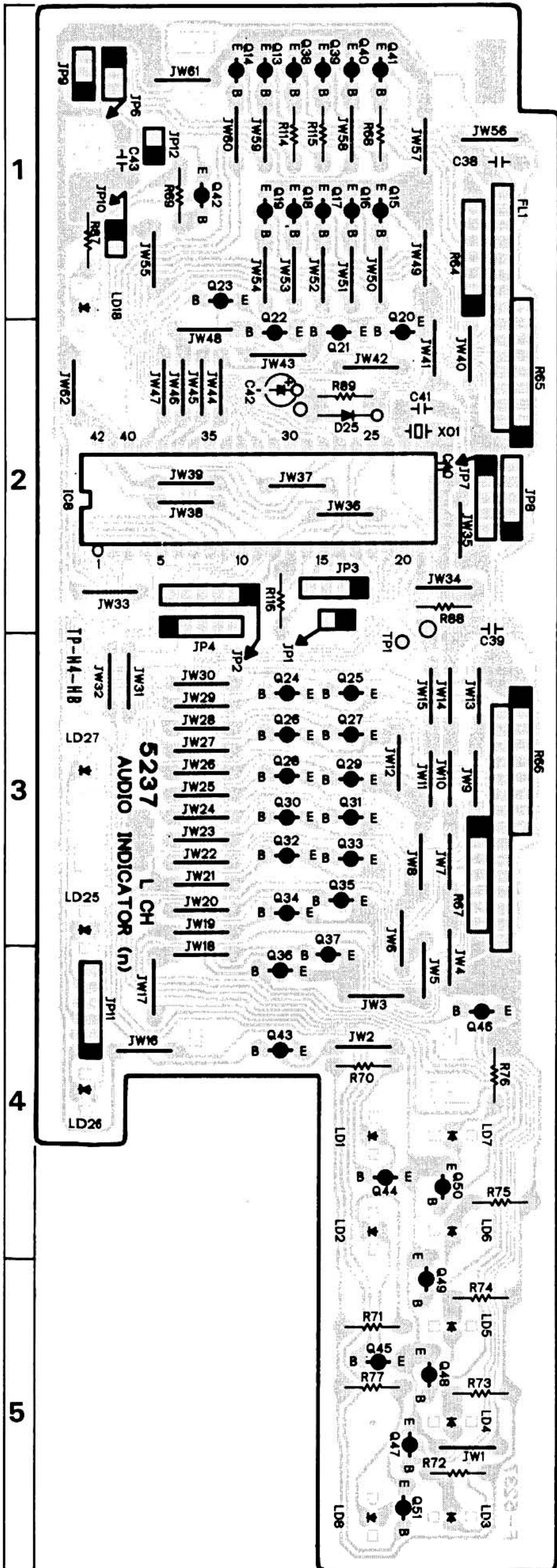
Parts List <F-5233>

Parts No.	Stock No.	Description
•Transistor gQ1	48223100	DTC114TS
•IC glC1	46288800	M5220L
△gR10	46228600	47Ω 1/2W N.I.R.
△gR11	46228600	47Ω 1/2W N.I.R.
gC4	48103400	1μF 50V E.B.
•Transistor jQ13 jQ101	46604301 48223100	2SC3327 DTC114TS
•IC jIC3 jIC101 jIC102 jIC103 jIC104	46078900 48350700 46078900 48348000 46078900	M5218L MM5437N M5218L TC9176P M5218L
•Zener Diode jDZ1	46111100 or 46111200 or 46111300	05Z5.1-X 05Z5.1-Y 05Z5.1-Z
jC102 jC103 jC104 jC105	46893400 46697400 46696800 48103400	0.27μF 100V F.C. 0.082μF 50V F.C. 0.047μF 50V F.C. 1μF 50V E.B.
•Transistor △mQ1 △ △mQ2 △ △mQ3 △ △ △mQ4	03083901 or 48369801 46367101 or 46367301 or 48058801 46367001 or 46367201 or 48058601 48150701	2SD313AL 2SC1826 2SC2603 2SC2458 2SC1740S 2SA1115 2SA1048 2SA933S 2SB834
•Diode △mD1	03117000	RB152-LFF
•Zener Diode mDZ1 mDZ2 mDZ8	46113000 or 46113100 46113000 or 46113100 46111500	05Z9.1-Y 05Z9.1-Z 05Z9.1-Y 05Z9.1-Z 05Z5.6-Y
△mR1 △mR2 △mR9	46230100 46230100 46249200	820Ω 1/2W N.I.R. 820Ω 1/2W N.I.R. 82Ω 1W N.I.R.
•Transistor oQ1 oQ2 oQ3 oQ4 oQ5 oQ6 oQ7 oQ8	48230000 48223100 48230000 48223100 48230000 48223100 48230000 48223100	DTA143XS DTC114TS DTA143XS DTC114TS DTA143XS DTC114TS DTA143XS DTC114TS
•IC oIC4 oIC5 oIC6 or or	46421000 46421000 07107600 46427000 48063900	μPD4066BC μPD4066BC TC4069UBP μPD4069UBC BU4069UB

Parts No.	Stock No.	Description
oIC7	07107600 or 46427000 or 48063900	TC4069UBP μPD4069UBC BU4069UB
•Diode oD1 oD2 oD3 oD4	03117600 or 46086000 03117600 or 46086000 03117600 or 46086000 03117600 or 46086000	1S2473T77 1S1588TP-3 1S2473T77 1S1588TP-3 1S2473T77 1S1588TP-3 1S2473T77 1S1588TP-3
•Zener Diode oDZ1	46111100 or 46111200 or 46111300	05Z5.1-X 05Z5.1-Y 05Z5.1-Z
oS1 oS2	48346100 48346300	Push SW., TAPE MONITOR Push SW., EQUALIZER
oZ1 oZ2 oZ3	46438100 46363800 46363900	2P Terminal, OUTPUT 4P Terminal, INPUT, TAPE-1 REC 6P Pin Terminal, TAPE-1 PLAY, TAPE-2

# 4-4. F-5237 FL. Display (L-CH) Board (Stock No. 00951001)

Component Side



## Parts List

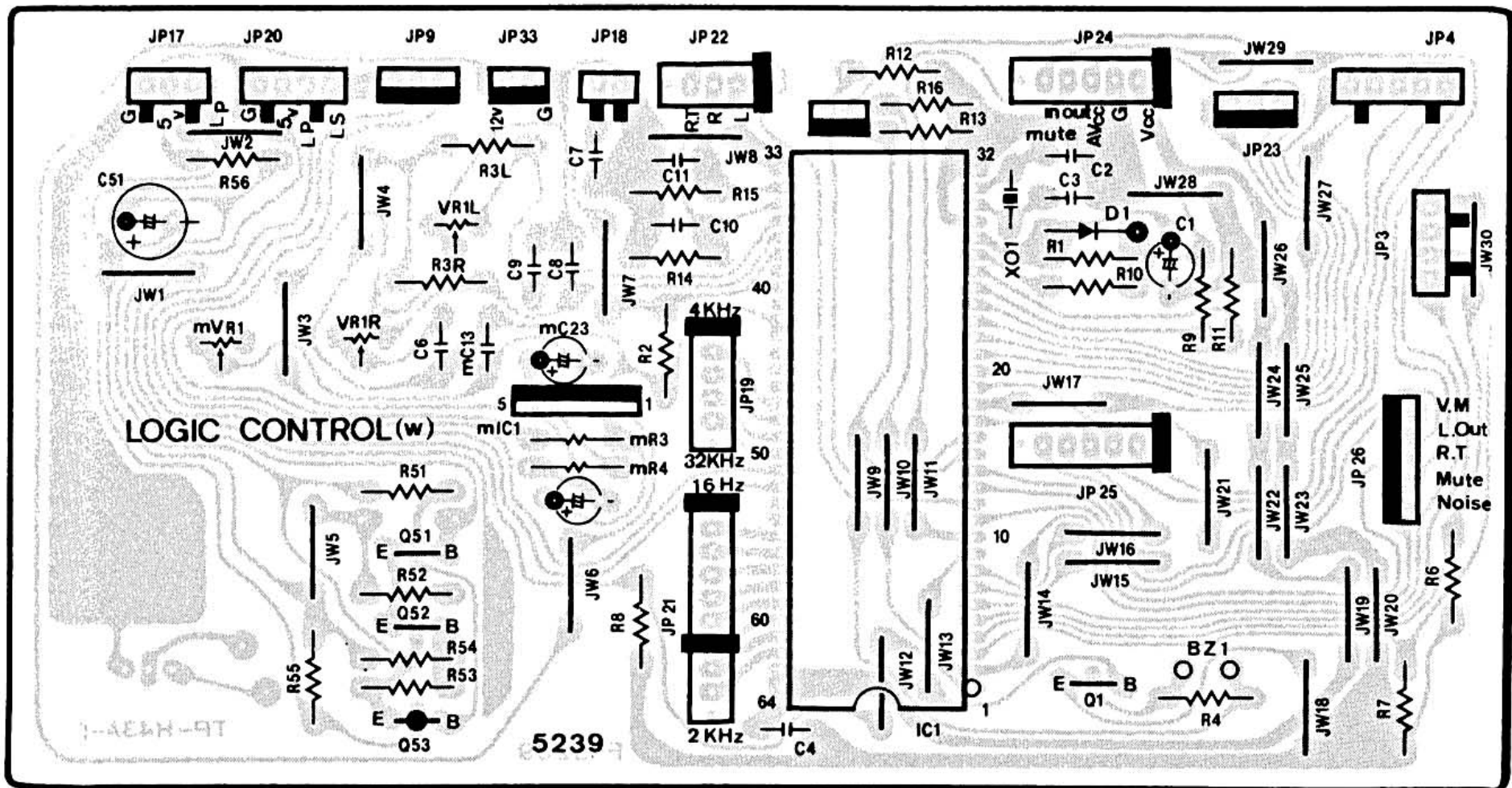
Parts No.	Stock No.	Description
• Transistor		
nQ13	48389600	DTA143XS
	or 48390100	BN1A4M
nQ14	48389600	DTA143XS
	or 48390100	BN1A4M
nQ15	48389600	DTA143XS
	or 48390100	BN1A4M
nQ16	48389600	DTA143XS
	or 48390100	BN1A4M
nQ17	48389600	DTA143XS
	or 48390100	BN1A4M
nQ18	48389600	DTA143XS
	or 48390100	BN1A4M
nQ19	48389600	DTA143XS
	or 48390100	BN1A4M
nQ20	48230000	DTA143XS
nQ21	48230000	DTA143XS
nQ22	48230000	DTA143XS
nQ23	48230000	DTA143XS
nQ24	48230000	DTA143XS
nQ25	48230000	DTA143XS
nQ26	48230000	DTA143XS
nQ27	48230000	DTA143XS
nQ28	48230000	DTA143XS
nQ29	48230000	DTA143XS
nQ30	48230000	DTA143XS
nQ31	48230000	DTA143XS
nQ32	48389600	DTA143XS
	or 48390100	BN1A4M
nQ33	48389600	DTA143XS
	or 48390100	BN1A4M
nQ34	48389600	DTA143XS
	or 48390100	BN1A4M
nQ35	48389600	DTA143XS
	or 48390100	BN1A4M
nQ36	48389600	DTA143XS
	or 48390100	BN1A4M
nQ37	48389600	DTA143XS
	or 48390100	BN1A4M
nQ38	48389600	DTA143XS
	or 48390100	BN1A4M
nQ39	48389600	DTA143XS
	or 48390100	BN1A4M
nQ40	48389600	DTA143XS
	or 48390100	BN1A4M
nQ41	48389600	DTA143XS
	or 48390100	BN1A4M
nQ42	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
nQ43	48230000	DTA143XS
nQ44	48229400	DTA114TS
nQ45	48229400	DTA114TS
nQ46	48229400	DTA114TS
nQ47	48229400	DTA114TS
nQ48	48229400	DTA114TS
nQ49	48229400	DTA114TS
nQ50	48229400	DTA114TS
nQ51	48229400	DTA114TS
• IC		
nIC8	48348100	μPD1511AC-088
nOX1	48241600	Ceramic OSC Element KBR 4.0MS
• Diode		
nD25	03117600	1S2473T77
	or 46086000	1S1588TP-3
• Zener Diode		
nDZ1	46115500	05Z20-Z
nDZ2	46115500	05Z20-Z
nDZ3	46115500	05Z20-Z

Parts List <F-5237>

Parts No.	Stock No.	Description
nDZ4	46115500	05Z20-Z
nDZ5	46115500	05Z20-Z
nDZ6	46115500	05Z20-Z
nDZ7	46115500	05Z20-Z
nDZ8	46115500	05Z20-Z
nDZ9	46115500	05Z20-Z
nDZ10	46115500	05Z20-Z
nDZ11	46115500	05Z20-Z
nDZ12	46105300	05Z20-Z
nDZ13	46115500	05Z20-Z
nDZ14	46115500	05Z20-Z
nDZ15	46115500	05Z20-Z
nDZ16	46115500	05Z20-Z
nDZ17	46115500	05Z20-Z
nFL1	48351700	FL. Display CP1062
•LED		
nLD1	48385400	TLUY163, FLAT

Parts No.	Stock No.	Description
nLD2	48385400	TLUY163, SOUND MANU
nLD3	48385400	TLUY163, MEMORY 5
nLD4	48385400	TLUY163, MEMORY 4
nLD5	48385400	TLUY163, MEMORY 3
nLD6	48385400	TLUY163, MEMORY 2
nLD7	48385400	TLUY163, MEMORY 1
nLD8	46176900	TLS-123, SET
nLD18	46176900	TLS-123, STAND BY
nLD25	46176900	TLS-123, EQUALIZER (ON)
nLD26	46176900	TLS-123, EQUALIZER (REC)
nLD27	46176900	TLS-123, NOISE REC
nR64	46346800	100kΩX6 1/8W A.R.
nR65	46350500	100kΩX8 1/8W A.R.
nR66	46350500	100kΩX8 1/8W A.R.
nR67	46346800	100kΩX6 1/8W A.R.
nC42	46713300	1μF 50V E.C.

4-5. F-5239 Main Microcomputer Board (Stock No. 00951301)  
Component Side



Parts List

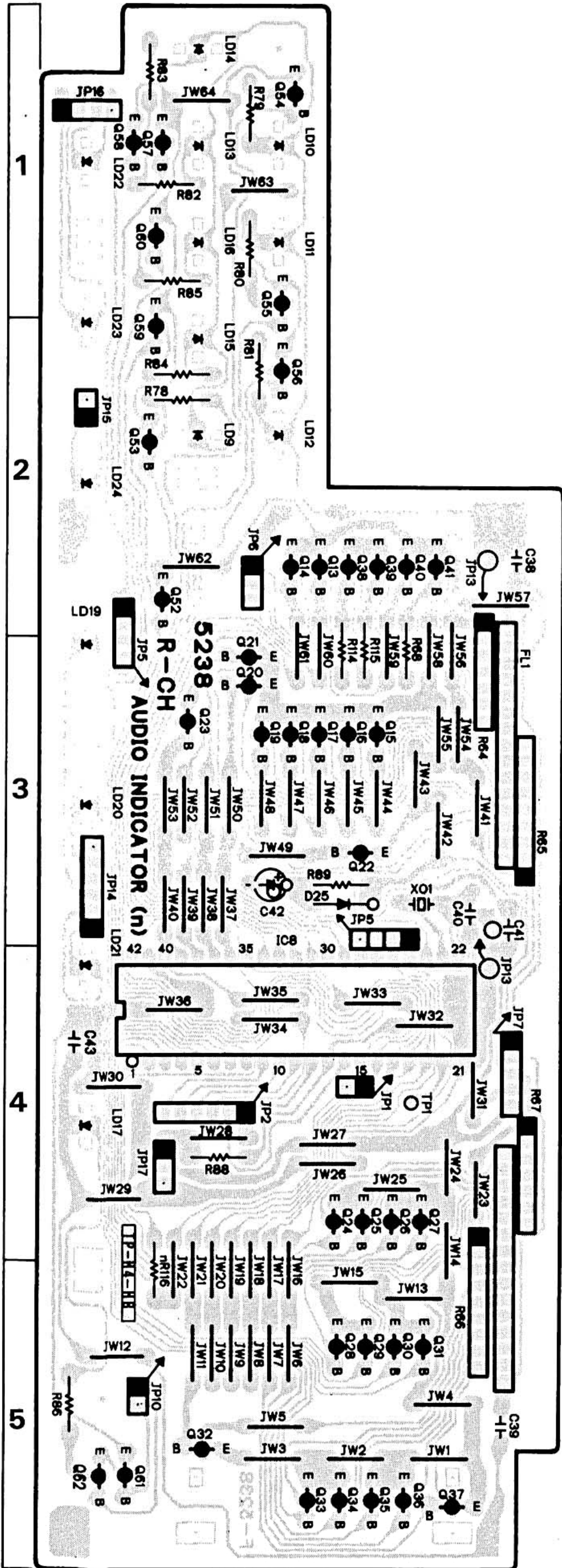
Parts No.	Stock No.	Description
•IC		
ΔmIC1	48347300	M5231L
mVR1	48079000	4.7kΩ S.V.R., Reference Voltage Adj.
•Transistor		
wQ1	48223100	DTC114TS
•IC		
wIC1	48348200	μPD7811CW-621
wOX1	48347400	Quartz Element KBR12.0M

Parts No.	Stock No.	Description
•Diode		
wD1	03117600	1S2473T77
wD2	or 46086000	1S1588TP-3
	03111600	1S2473
wBZ1	07244900	Buzzer PKM12-4A2
wVR1L	48079000	4.7kΩ S.V.R., L-ch Illumination Adj.
wVR1R	48079000	4.7kΩ S.V.R., R-ch Illumination Adj.



# 4-6. F-5238 FL. Display (R-CH) Board (Stock No. 00951101)

Component Side



## Parts List

Parts No.	Stock No.	Description
• Transistor		
nQ13	48389600	DTA143XS
	or 48390100	BN1A4M
nQ14	48389600	DTA143XS
	or 48390100	BN1A4M
nQ15	48389600	DTA143XS
	or 48390100	BN1A4M
nQ16	48389600	DTA143XS
	or 48390100	BN1A4M
nQ17	48389600	DTA143XS
	or 48390100	BN1A4M
nQ18	48389600	DTA143XS
	or 48390100	BN1A4M
nQ19	48389600	DTA143XS
	or 48390100	BN1A4M
nQ20	48230000	DTA143XS
nQ21	48230000	DTA143XS
nQ22	48230000	DTA143XS
nQ23	48230000	DTA143XS
nQ24	48230000	DTA143XS
nQ25	48230000	DTA143XS
nQ26	48230000	DTA143XS
nQ27	48230000	DTA143XS
nQ28	48230000	DTA143XS
nQ29	48230000	DTA143XS
nQ30	48230000	DTA143XS
nQ31	48230000	DTA143XS
nQ32	48389600	DTA143XS
	or 48390100	BN1A4M
nQ33	48389600	DTA143XS
	or 48390100	BN1A4M
nQ34	48389600	DTA143XS
	or 48390100	BN1A4M
nQ35	48389600	DTA143XS
	or 48390100	BN1A4M
nQ36	48389600	DTA143XS
	or 48390100	BN1A4M
nQ37	48389600	DTA143XS
	or 48390100	BN1A4M
nQ38	48389600	DTA143XS
	or 48390100	BN1A4M
nQ39	48389600	DTA143XS
	or 48390100	BN1A4M
nQ40	48389600	DTA143XS
	or 48390100	BN1A4M
nQ41	48389600	DTA143XS
	or 48390100	BN1A4M
nQ52	48230000	DTA143XS
nQ53	48229400	DTA114TS
nQ54	48229400	DTA114TS
nQ55	48229400	DTA114TS
nQ56	48229400	DTA114TS
nQ57	48229400	DTA114TS
nQ58	48229400	DTA114TS
nQ59	48229400	DTA114TS
nQ60	48229400	DTA114TS
nQ61	48230000	DTA143XS
nQ62	48229400	DTA114TS
nQ63	48229400	DTA114TS
• IC		
nIC8	48348100	μPD1511AC-088
nOX1	48241600	Ceramic OSC Element KBR 4.0MS
• Diode		
nD25	03117600	1S2473T77
	or 46086000	1S1588TP-3
• Zener Diode		
nDZ1	46115500	05Z20-Z
nDZ2	46115500	05Z20-Z
nDZ3	46115500	05Z20-Z
nDZ4	46115500	05Z20-Z
nDZ5	46115500	05Z20-Z
nDZ6	46115500	05Z20-Z
nDZ7	46115500	05Z20-Z

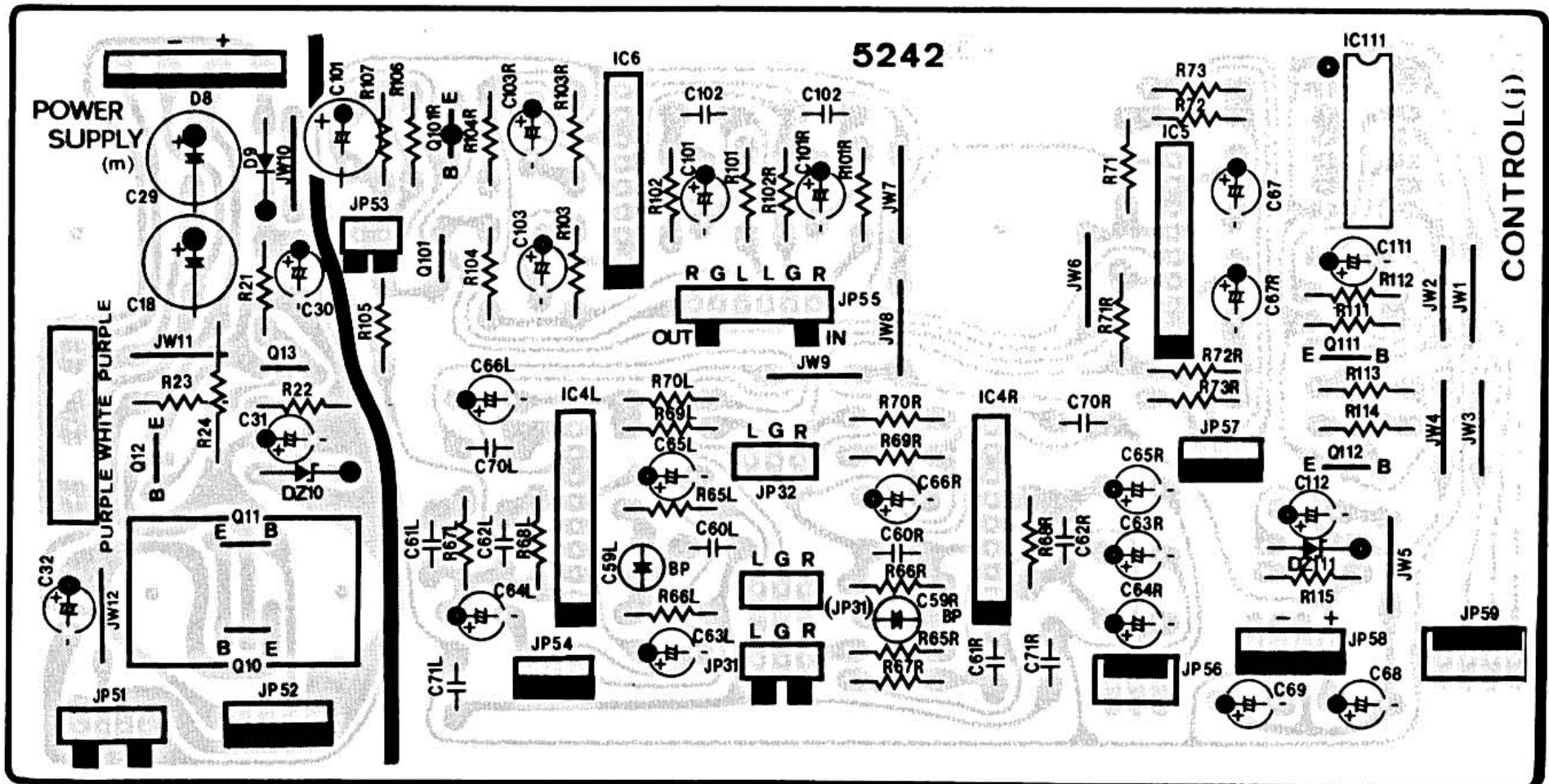
Parts List < F-5238 >

Parts No.	Stock No.	Description
nDZ8	46115500	05Z20-Z
nDZ9	46115500	05Z20-Z
nDZ10	46115500	05Z20-Z
nDZ11	46115500	05Z20-Z
nDZ12	46115500	05Z20-Z
nDZ13	46115500	05Z20-Z
nDZ14	46115500	05Z20-Z
nDZ15	46115500	05Z20-Z
nDZ16	46115500	05Z20-Z
nDZ17	46115500	05Z20-Z
nFL1	48351700	FL. Display CP1062
<b>•LED</b>		
nLD9	48385400	TLUY163, RESET
nLD10	48385400	TLUY163, COMPENSATE TAPE
nLD11	48385400	TLUY163, COMPENSATE SOUND FIELD

Parts No.	Stock No.	Description
nLD12	48385400	TLUY163, REVERB TIME
nLD13	48385400	TLUY163, INPUT MODE L/R
nLD14	48385400	TLUY163, INPUT MODE L + R
nLD15	48385400	TLUY163, RANGE
nLD16	48385400	TLUY163, DISPLAY
nLD17	46176900	TLS-123, UNDER LEVEL
nLD19	46176900	TLS-123, DUBBING (1 ▶ 2)
nLD20	46176900	TLS-123, DUBBING (SOURCE)
nLD21	46176900	TLS-123, DUBBING (2 ▶ 1)
nLD22	46176900	TLS-123, TAPE MONITOR 1
nLD23	46176900	TLS-123, TAPE MONITOR (SOURCE)
nLD24	46176900	TLS-123, TAPE MONITOR 2
nR64	46346800	100kΩX6 1/8W A.R.
nR65	46350500	100kΩX8 1/8W A.R.
nR66	46350500	100kΩX8 1/8W A.R.
nR67	46346800	100kΩX6 1/8W A.R.
nC42	46713300	1μF 50V E.C.

4-7. F-5242 Buffer Amp. Board (Stock No. 00937501)

Component Side



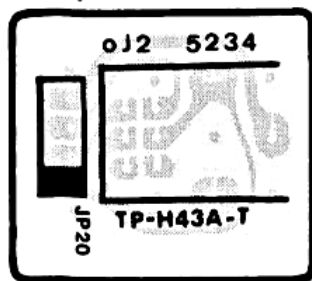
Parts List

Parts No.	Stock No.	Description
<b>•Transistor</b>		
jQ121	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
jQ151	48230000	DTA143XS
jQ152	46604301	2SC3327
<b>•IC</b>		
jIC4	46078900	M5218L
jIC106	46078900	M5218L
jIC151	46427200	μPD4011BC
<b>•Zener Diode</b>		
jDZ151	46111200	05Z5.1-Y
jC59	48103500	2.2μF 50V E.B.

Parts No.	Stock No.	Description
<b>•Transistor</b>		
ΔmQ10	03083901	2SD313AL
ΔmQ11	46581701	2SC1845
ΔmQ12	46581701	2SC1845
ΔmQ13	46581701	2SC1845
<b>•Diode</b>		
ΔmD3	03117000	RB152-LFF
mD9	03117600	1S2473T77
	or 46086000	1S1588TP-3
ΔmR24	46251300	4.7kΩ 1W N.I.R.
<b>•Zener Diode</b>		
mDZ10	46116100	05Z24-Z

## 4-8. F-5234 LIGHT PEN Jack Board

Component Side

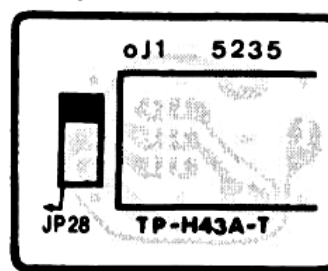


### Parts List

Parts No.	Stock No.	Description
oJ2	46271000	Jack, LIGHT PEN

## 4-9. F-5235 MIC Jack Board

Component Side

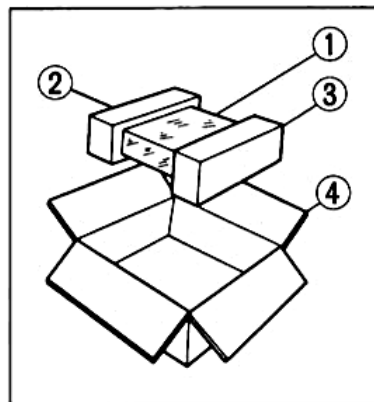


### Parts List

Parts No.	Stock No.	Description
oJ1	46271000	Jack, MIC

## 5. PACKING LIST

Parts No.	Stock No.	Description
1	47859100	Vinyl Bag
2	27047000	Styrofoam Packing (L)
3	27047100	Styrofoam Packing (R)
4	27091600	Carton Case (SE-99 with RE-99 remote control microphone)
	27111600	Carton Case (SE-99 with EM-99 condenser microphone)



## 6. ACCESSORY LIST

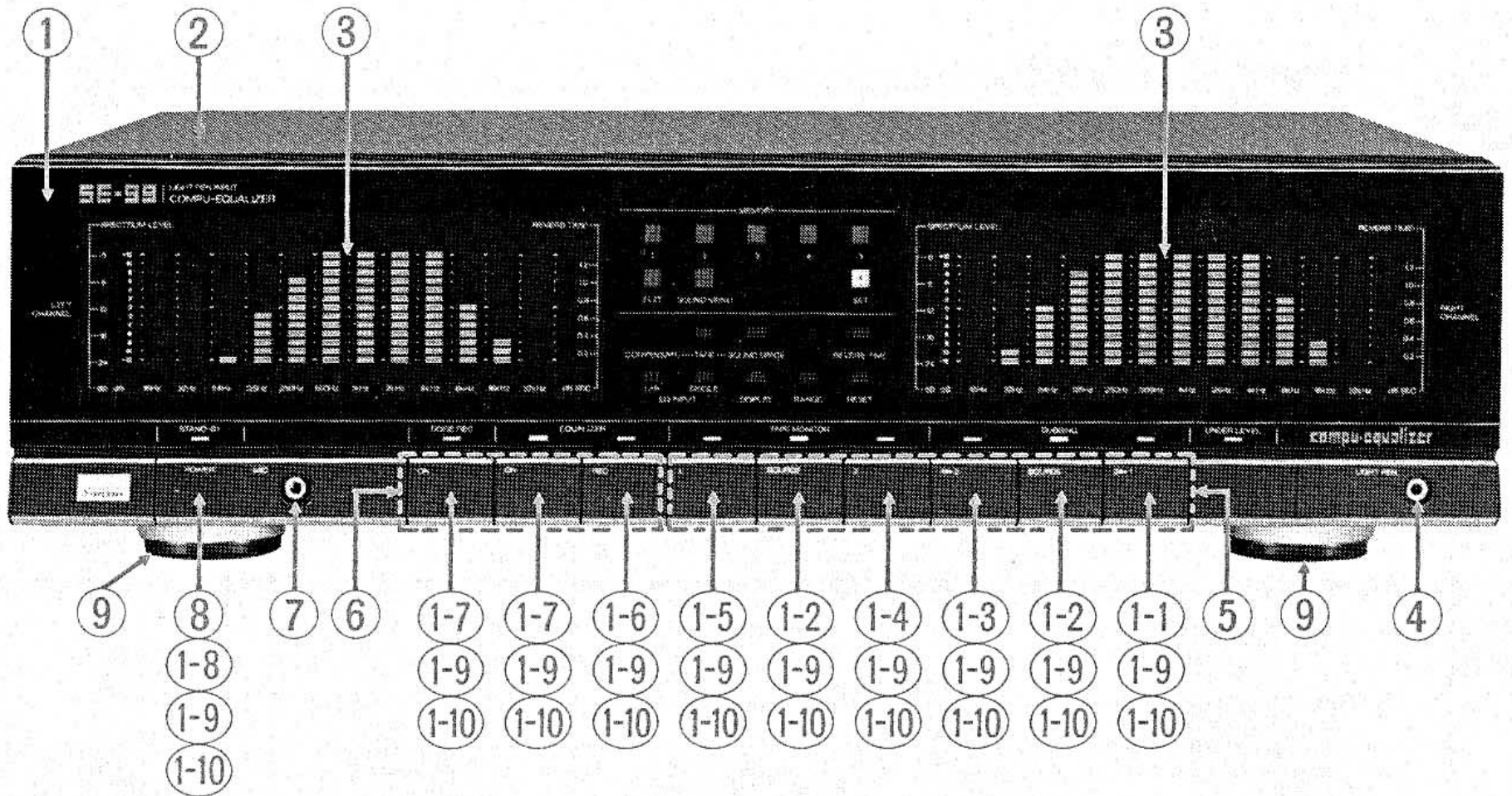
Stock No.	Description
07193400	PJP Cord
or 38103300	PJP Cord
46991600	Operating Instruction (*E•F•S)
46994400	Operating Instruction (*G•I•Sw)
16814000	COMPU-EQUALIZER LIGHT PEN LP-99
_____	REMOTE CONTROL MICROPHONE RE-99
or _____	MICROPHONE EM-99

### \*Note:

**E•F•S:** English•French and Spanish Version  
**G•I•Sw:** German•Italian and Swedish Version

# 7. OTHER PARTS

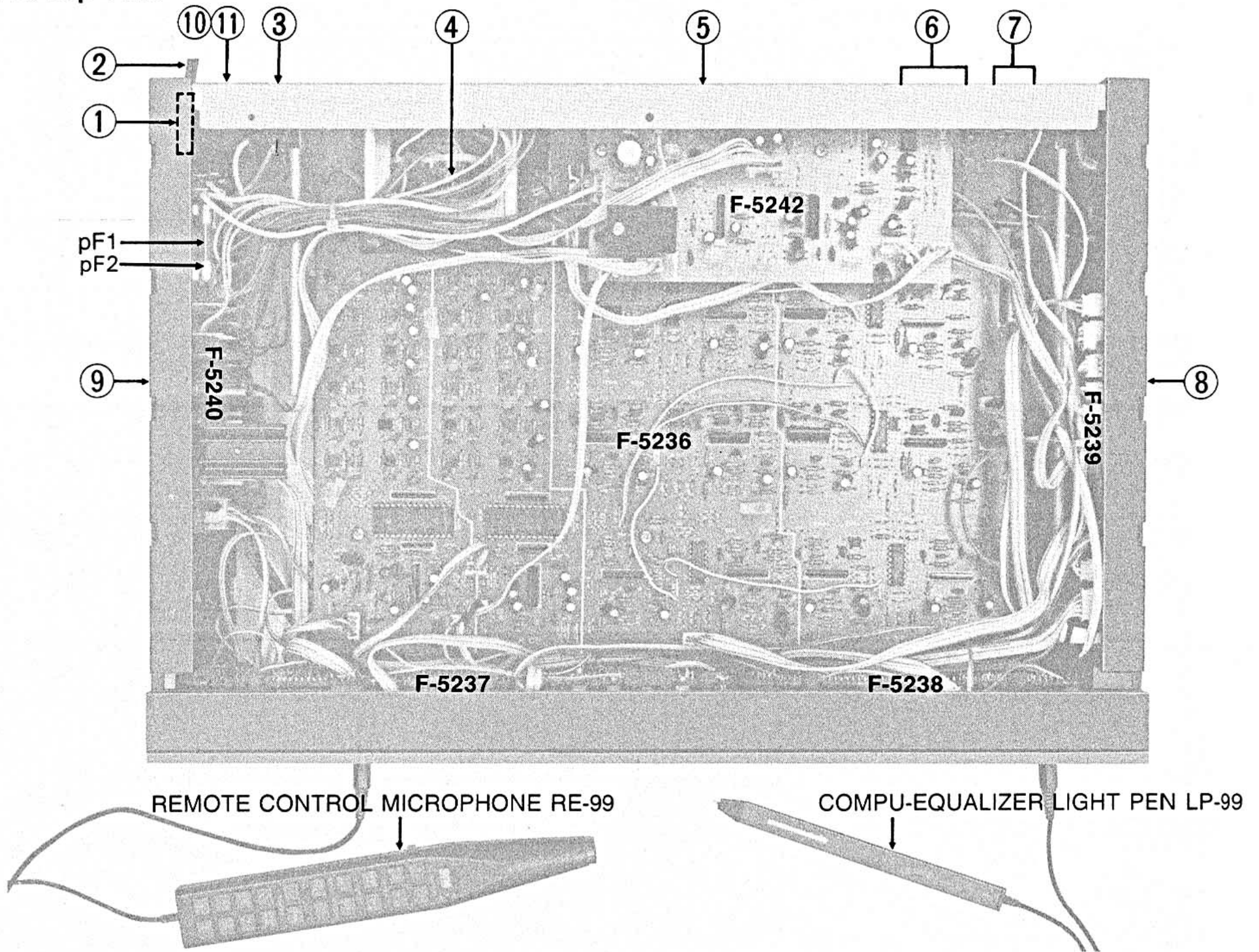
## 7-1. Front View



### Parts List

Parts No.	Stock No.	Description
1	27093710	Front Panel Ass'y
1-1	27091200	Knob Cap, 2 ▶ 1
1-2	27090900	Knob Cap, SOURCE
1-3	27091100	Knob Cap, 1 ▶ 2
1-4	27091000	Knob Cap, 2
1-5	27090800	Knob Cap, 1
1-6	27090700	Knob Cap, REC
1-7	27090600	Knob Cap, ON
1-8	27090500	Knob Cap, POWER
1-9	27076800	Push Knob
1-10	27091400	Spring
2	47301000	Bonnet
3	48351700	FL Display
4	46271000	Jack, LIGHT PEN
5	48346100	Push SW., TAPE MONITOR, DUBBING
6	48346300	Push SW., EQUALIZER, NOISE REC
7	46271000	Jack, MIC
⚠ 8	48349200	Push SW., POWER
9	47716600	Leg Ass'y

## 7-2. Top View

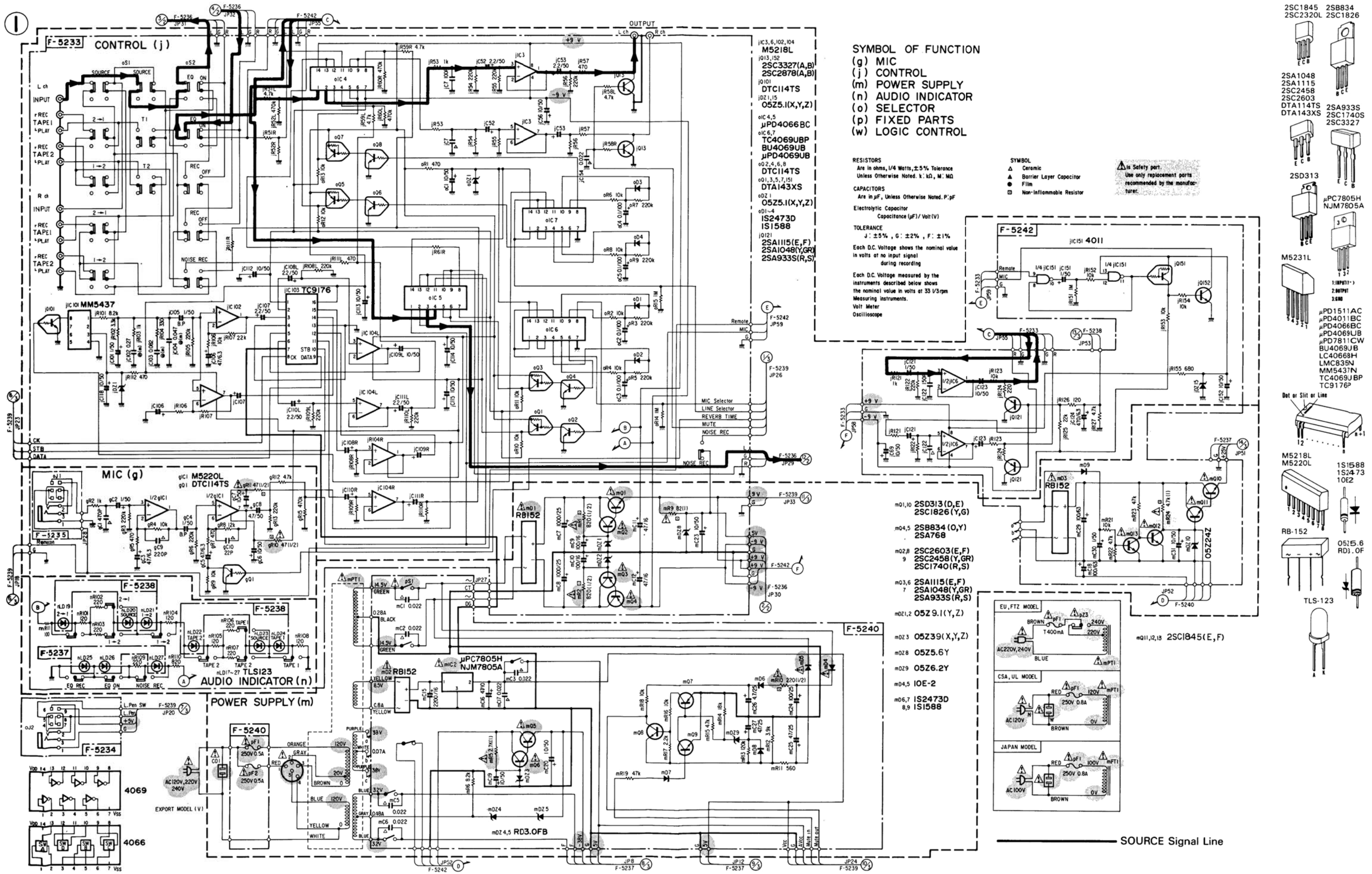


### Parts List

Parts No.	Stock No.	Description
1	47157300	AC Cord Cover
⚠ 2	38004700	Power Supply Cord (XX,UL)
⚠	48187800	Power Supply Cord (CSA)
⚠	38004500	Power Supply Cord (EU)
⚠ 3	46364900	AC OUTLET (XX,UL)
⚠	48184000	AC OUTLET (CSA)
⚠ 4	15023402	Power Transformer (UL,CSA)
⚠	15023409	Power Transformer (XX)
⚠	15023405	Power Transformer (EU)
5	46438100	2P Terminal, OUTPUT
6	46363900	6P Terminal, TAPE-1 PLAY, TAPE-2
7	46363800	4P Terminal, INPUT, TAPE-1 REC
8	47661900	Side Panel (R)
9	47661200	Side Panel (L)
⚠ 10	07204700	Slide Switch, VOLTAGE SELECTOR (EU)
⚠ 11	48175200	Plug, VOLTAGE SELECTOR (XX)
⚠ pF1	48266500	AC Fuse 0.8A 250V (UL,CSA)
⚠	48266400	AC Fuse 0.5A 250V (XX)
⚠ pF2	48266400	AC Fuse 0.5A 250V (XX)

# 8. SCHEMATIC DIAGRAM 8-1. Input Source Switching Section

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



**SYMBOL OF FUNCTION**  
 (g) MIC  
 (j) CONTROL  
 (m) POWER SUPPLY  
 (n) AUDIO INDICATOR  
 (o) SELECTOR  
 (p) FIXED PARTS  
 (w) LOGIC CONTROL

**RESISTORS**  
 Are in ohms, 1/4 Watts, ±5% Tolerance  
 Unless Otherwise Noted: k: kΩ, M: MΩ

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

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

**TOLERANCE**  
 J: ±5%, G: ±2%, F: ±1%

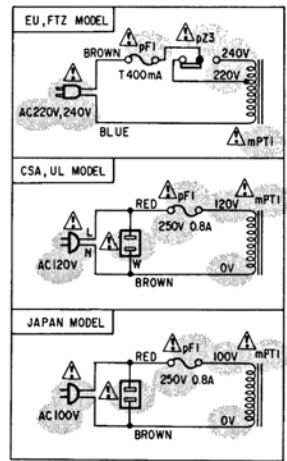
Each D.C. Voltage shows the nominal value in volts of no input signal during recording

Each D.C. Voltage measured by the instruments described below shows the nominal value in volts at 33 1/3rpm Measuring Instruments:  
 Volt Meter  
 Oscilloscope

**SYMBOL**  
 Δ Ceramic  
 ▴ Barrier Layer Capacitor  
 ● Film  
 □ Non-Inflammable Resistor

**⚠ Safety part.**  
 Use only replacement parts recommended by the manufacturer.

- m01,10 2SD313 (D,E)
- 2SC1826 (Y,G)
- m04,5 2SB834 (O,Y)
- 2SA768
- m02,8 2SC2603 (E,F)
- 2SC2458 (Y,GR)
- 2SC1740 (R,S)
- m03,6 2SA1115 (E,F)
- 2SA1048 (Y,GR)
- 2SA933S (R,S)
- m02,1 05Z9.1 (Y,Z)
- m02,3 05Z39 (X,Y,Z)
- m02,8 05Z5.6 Y
- m02,9 05Z6.2 Y
- m04,5 10E-2
- m06,7 IS2473D
- 8,9 IS1588



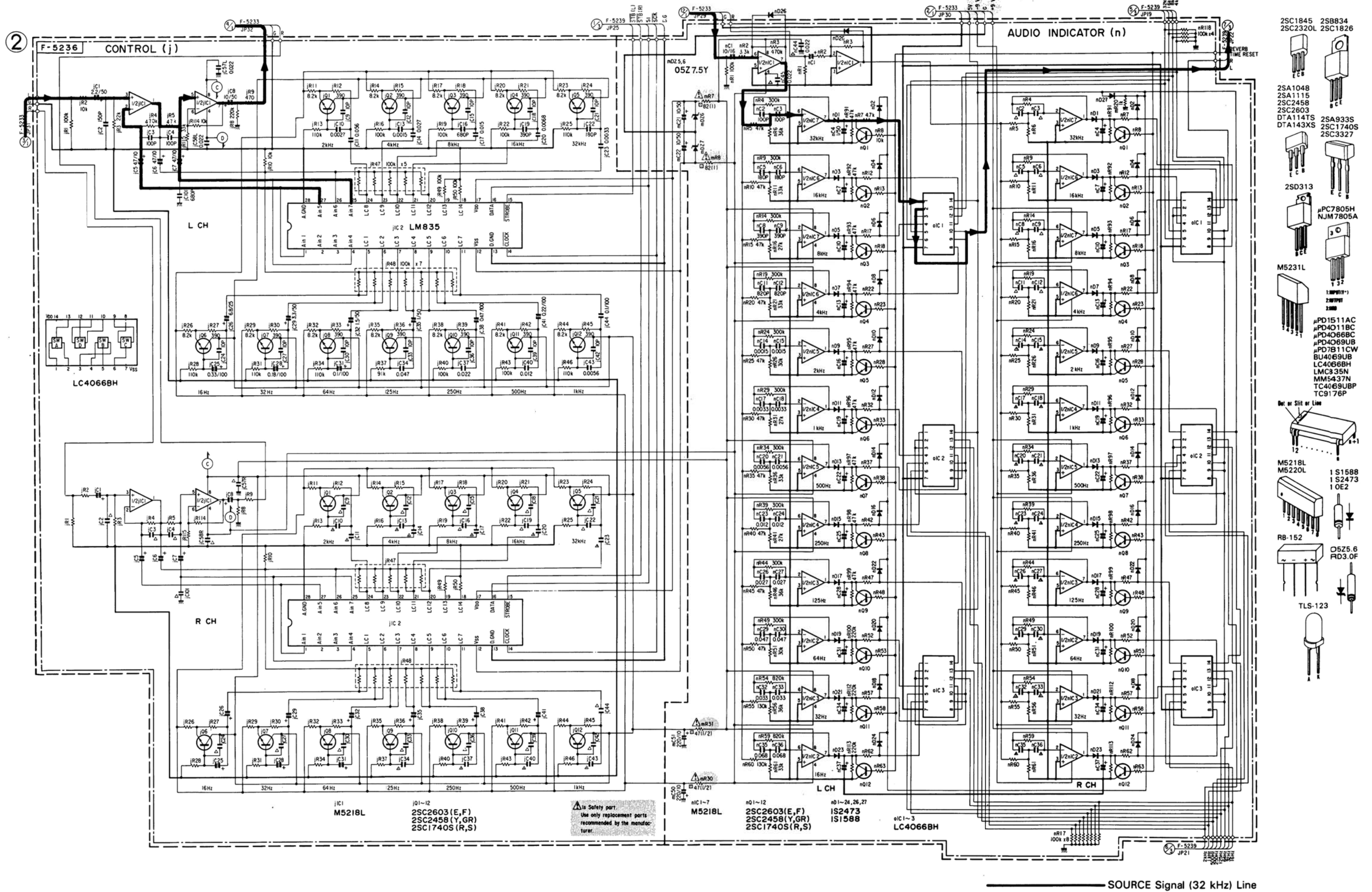
m011,12,13 2SC1845 (E, F)

SOURCE Signal Line

- 2SC1845
- 2SB834
- 2SC2320L
- 2SC1826
- 2SA1048
- 2SA1115
- 2SC2458
- 2SC2603
- DTA114TS
- DTA143XS
- 2SA933S
- 2SC1740S
- 2SC3327
- 2SD313
- μPC7805H
- NJM7805A
- M5231L
- 1.8MPT11
- 2.8MPT1
- 3.8MPT
- μPD1511AC
- μPD4011BC
- μPD4066BC
- μPD4069UB
- μPD7811CV
- BU4069JB
- LC40668H
- LMC835N
- MM5437N
- TC4069JP
- TC9176P
- Dot or Slot or Line
- M5218L
- M5220L
- 1S1588
- 1S2473
- 10E2
- RB-152
- 05Z5.6
- RD3.OF
- TLS-123

# 8-2. Graphic Equalizer Section

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



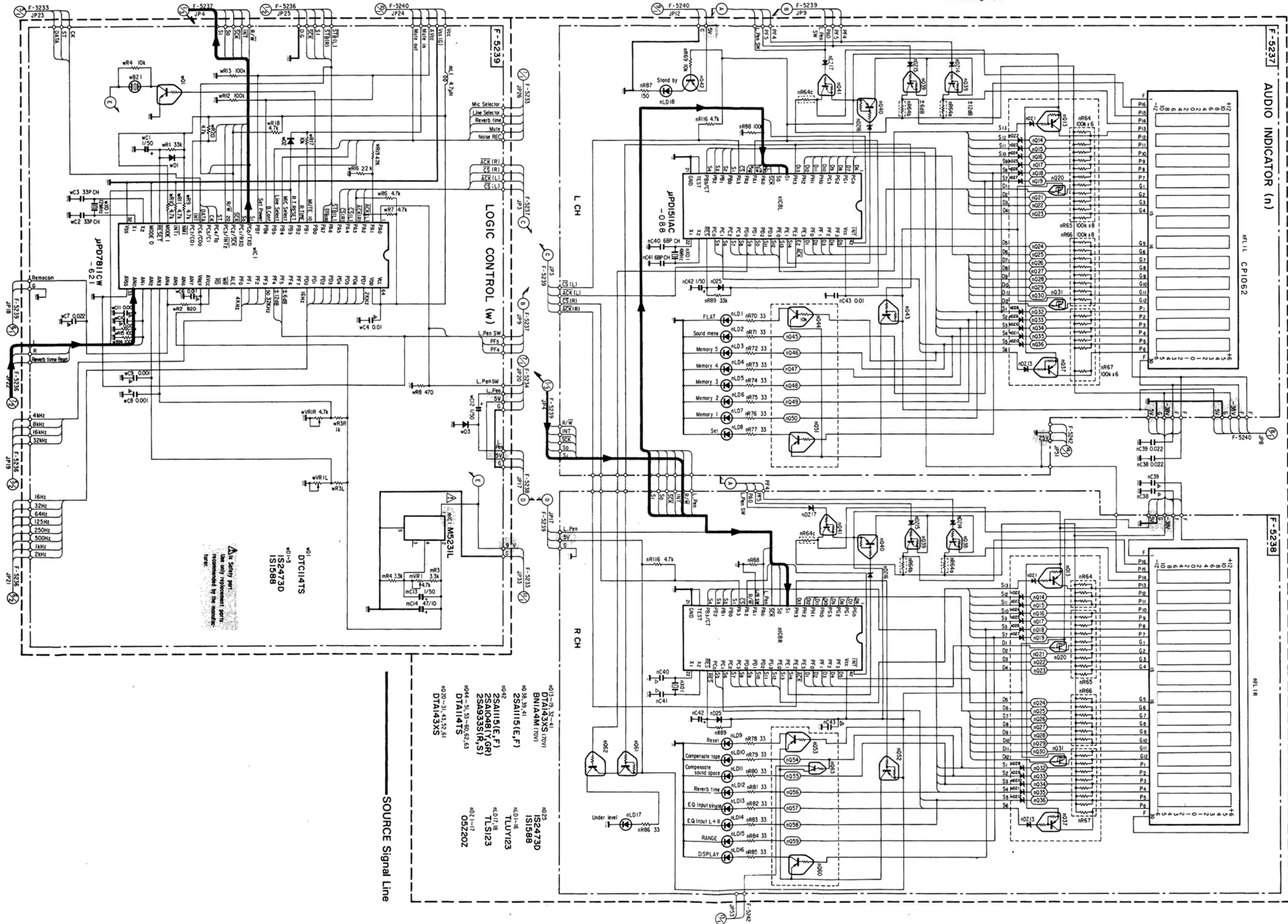
- 2SC1845
- 2SC2320L
- 2SA1048
- 2SA1115
- 2SC2458
- 2SC2603
- DTA114TS
- DTA143XS
- 2SD313
- PC7805H
- NJM7805A
- M5231L
- PD1511AC
- PD40118C
- PD4066C
- PD4069UB
- PD7B11CW
- BU4069UB
- LC4066BH
- LMC335N
- MM5437N
- TC4069UBP
- TC9176P
- Det. or Silt or Line
- M5218L
- M5220L
- IS1588
- IS2473
- 1OE2
- RB-152
- O5Z5.6
- RD3.0F
- TLS-123

⚠ is safety part.  
 Use only replacement parts recommended by the manufacturer.

SOURCE Signal (32 kHz) Line

### 8-3. Microcomputer Section

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



- 2SC1845
- 2SC2320L
- 2SB834
- 2SC1826

- 2SA1048
- 2SA1115
- 2SC2458
- 2SC2603
- DTA114TS
- DTA143XS
- 2SA933S
- 2SC1740S
- 2SC3327

- 2SD313

- PC7805H
- NJM7805A

- M5231L

- PD1511 AC
- PD4011 BC
- PD4066 BC
- PD4069 UB
- PD7811 CW
- BU4069 UB
- LC4066 BH
- LMC835 N
- MM5437 N
- TC4069 UB
- TC9176 P

- Dot or Slot or Line

- M5218L
- M5220L
- 1S1588
- 1S2473
- 10E2

- RB-152

- 05Z 5.6
- RD3.0P

- TLS-123

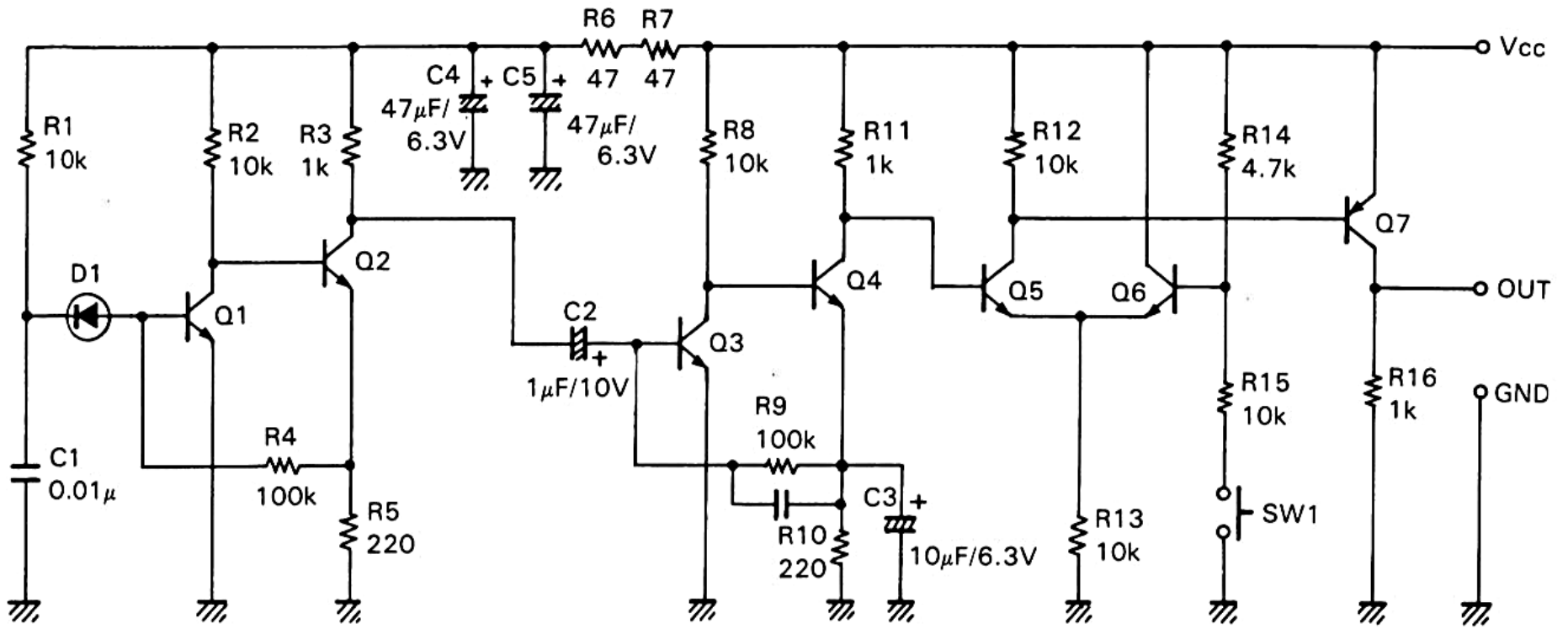
SOURCE Signal Line

nD13-15, 32-41	nD25
DTA143XS (TVI)	IS2473D
BNA44M (TVI)	IS1588
nD38, 39, 41	TLUY123
2SA1115(E,F)	nD17-18
2SA1151(E,F)	TL5123
2SA1048(F,G)	nD1-17
2SA933S(R,S)	OSZ220Z
nD44-51, 53-60, 62, 63	
DTA114TS	
nD20-31, 43, 52, 61	
DTA143XS	

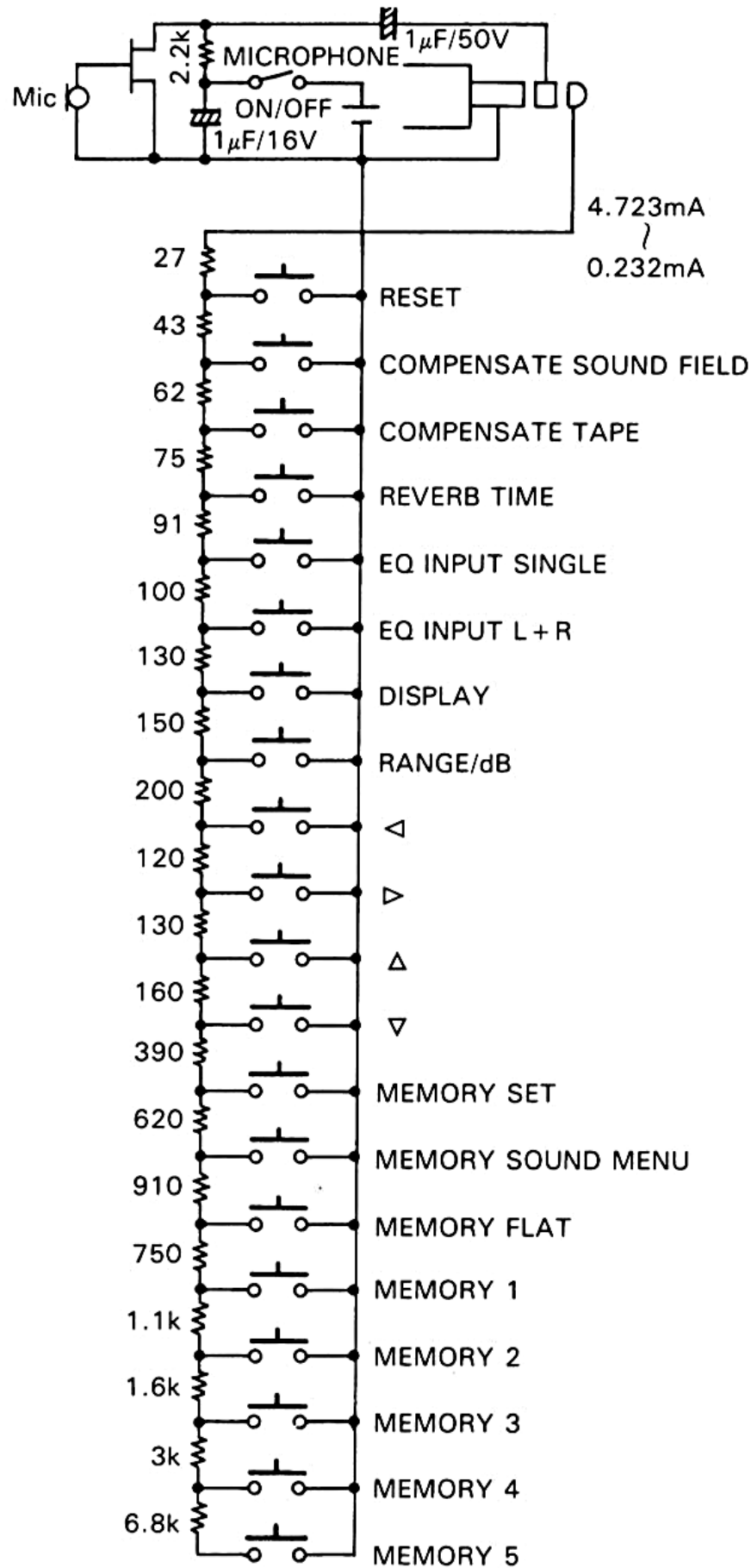
⚠ Safety note:  
 Use only replacement parts recommended by the manufacturer.



### 8-4. COMPU-EQUALIZER LIGHT PEN LP-99



### 8-5. REMOTE CONTROL MICROPHONE RE-99





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