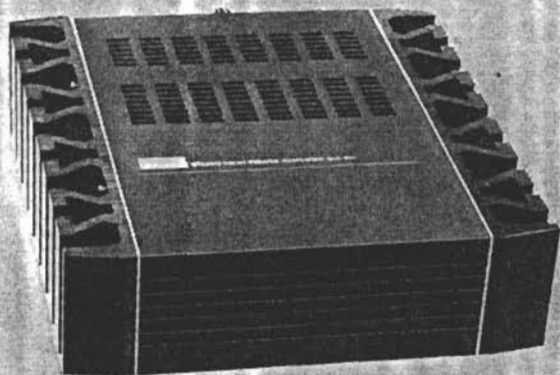




# SERVICE MANUAL

4CHANNEL HIGH POWER AMPLIFIER

## SANSUI SM-150



### •SPECIFICATIONS

<b>Power output</b> (1% total harmonic distortion)	
Front amp .....	13 watts per channel into 4 ohms (30 to 20,000 Hz)
Rear amp .....	32 watts per channel into 4 ohms (20 to 20,000 Hz)
<b>Maximum power output</b> (1% total harmonic distortion)	
Front amp .....	15 watts per channel into 4 ohms (1 kHz)
Rear amp .....	45 watts per channel into 4 ohms (1 kHz)
<b>Load impedance</b> ..... 4 ohms	
<b>Total harmonic distortion</b> (1 kHz)	
Front amp .....	less than 0.05% at 5 watts
Rear amp .....	less than 0.008% at 30 watts
<b>Frequency response</b>	
Front amp .....	30 to 40,000 Hz $+0_{-3}$ dB
Rear amp .....	20 to 50,000 Hz $+0_{-3}$ dB
<b>Input sensitivity and impedance</b> (1 kHz)	
LINE INPUT.....	100 mV/10 kohm
BOOSTER INPUT.....	1V/10 ohm
<b>Signal to noise ratio</b> (A network, IHF-A-200)	
Front amp .....	85 dB
Rear amp .....	90 dB
<b>Controls</b> (Rear amp)	
BASS DRIVE .....	+9 dB at 100 Hz
HIGH CUT FILTER.....	-5 dB at 1 kHz
<b>Power requirements</b> ..... DC 12.0V	
	(Usable: 10.8~15.6V)
	Rated: 14.4V
	negative ground
<b>Current consumption</b> ..... 19A Maximum	
<b>Dimensions</b> ..... 200 mm (7-7/8") W	
	72 mm (2-7/8") H
	217 mm (8-9/16") D
<b>Weight</b> ..... 3.2 kg (7.1 lbs) net	

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

*Sansui*

SANSUI ELECTRIC CO., LTD.

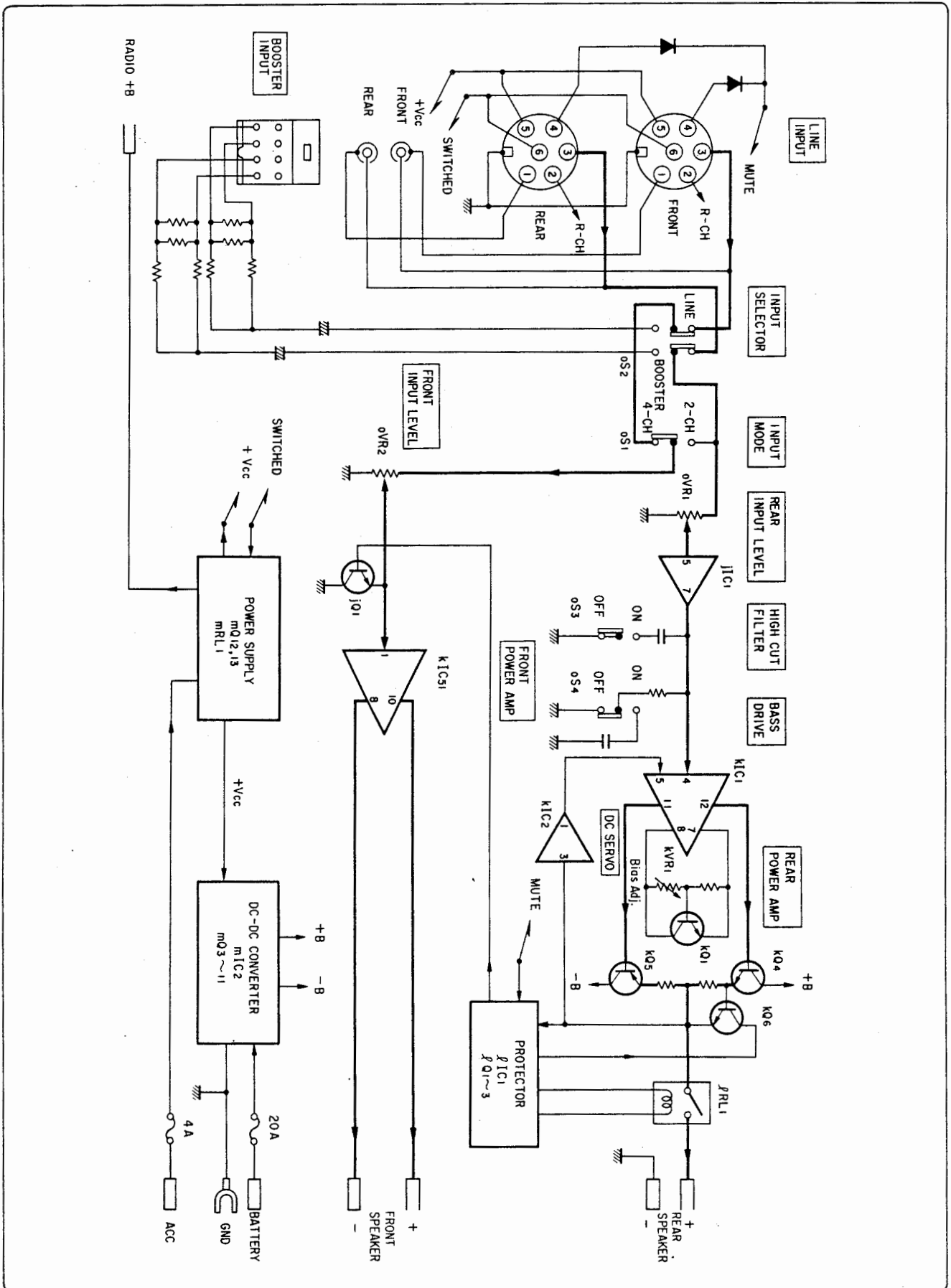
## CAUTION

1. 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.
2. 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.
3. Abbreviations in this service manual are as follows.

### •Abbreviations List

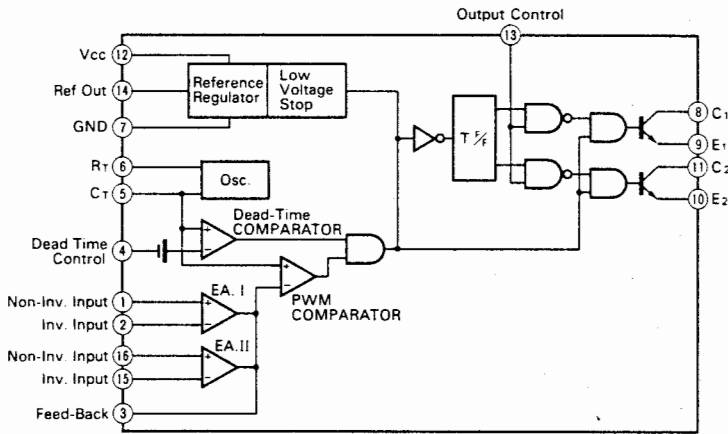
C.R.	: Carbon Resistor	E.B.L.	: Low Leak Bi-Polar
S.R.	: Solid Resistor		Electrolytic Capacitor
Ce.R.	: Cement Resistor	Ta.C.	: Tantalum Capacitor
M.R.	: Metal Film Resistor	F.C.	: Film Capacitor
F.R.	: Fusing Resistor	M.P.	: Metalized Paper Capacitor
N.I.R.	: Non-Inflammable Resistor	P.C.	: Polystyrene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

# 1. BLOCK DIAGRAM

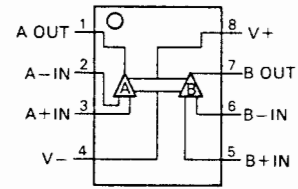


## 2. INTERIOR BLOCK DIAGRAM OF IC

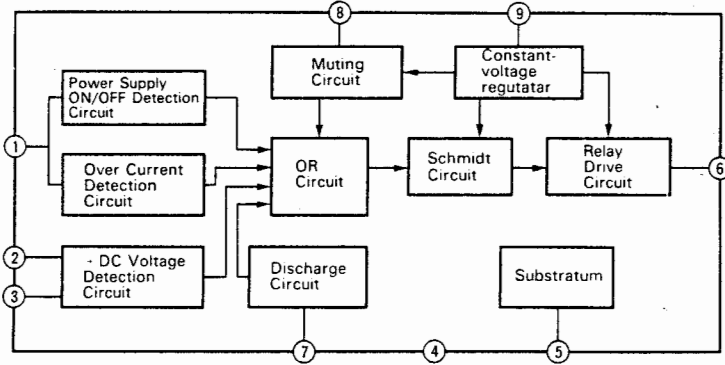
• $\mu$ PC494C (Switching Regulator Control IC)



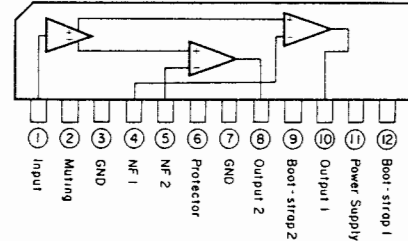
•NJM4558D (OP Amp IC)



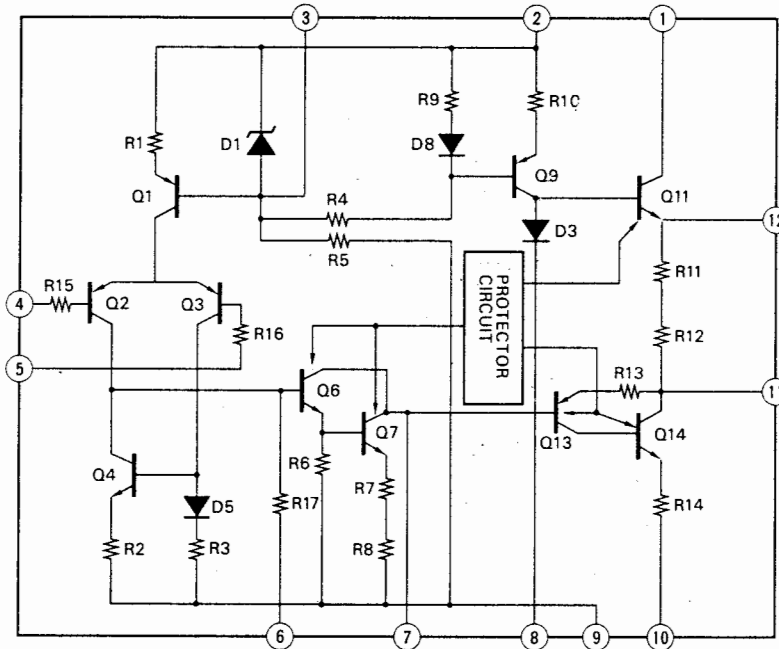
•TA7317P (Protector IC)



•M51104L (BTL Power Amp IC)



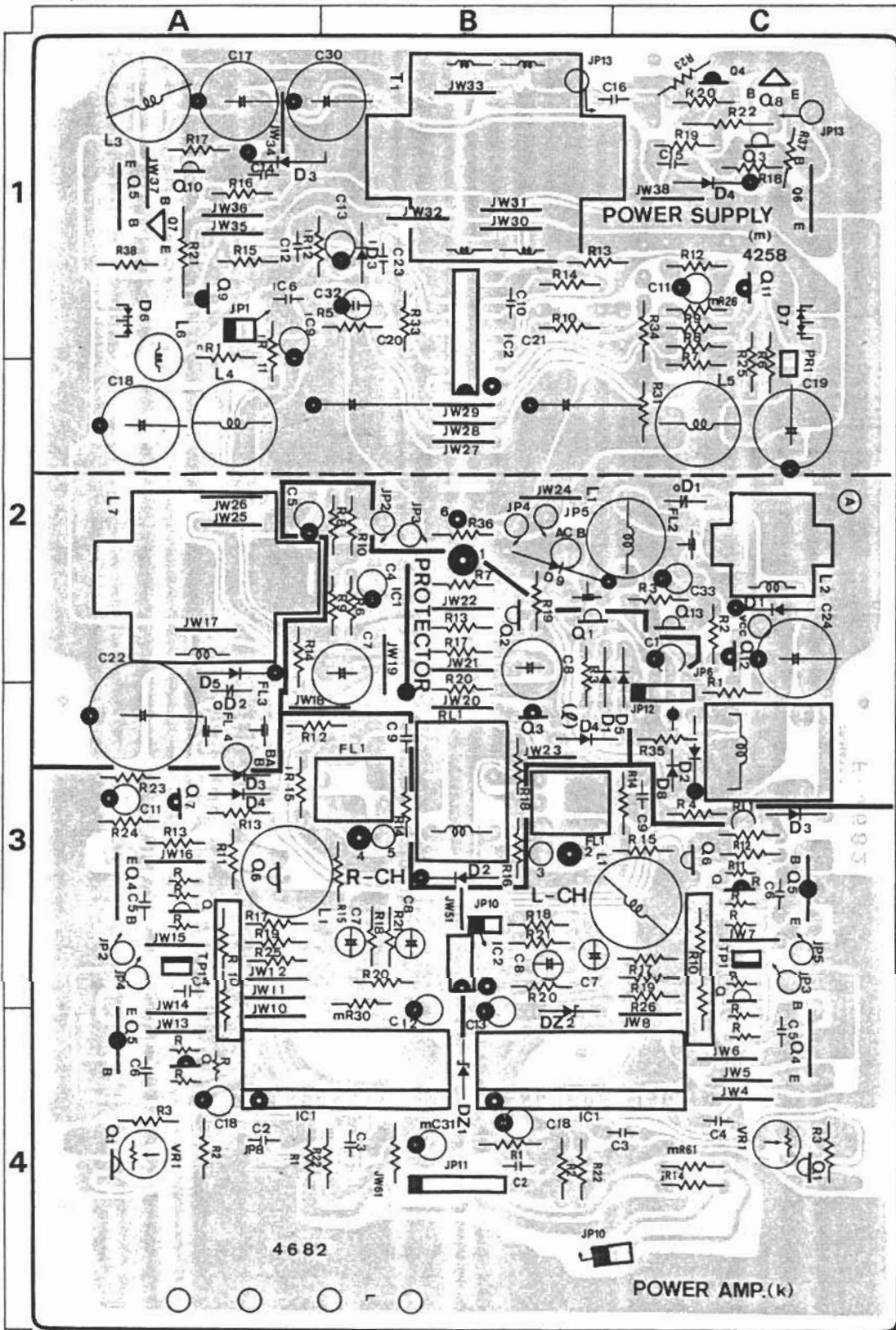
• $\mu$ PC1225H (Driver Amp IC)



### 3: PARTS LOCATION & PARTS LIST

3-1. F-4682 REAR Channel Power Amp. & Power Supply Circuit Board (Stock No. 00821001)

Component Side



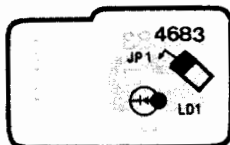
Parts List

Parts No.	Stock No.	Description
• Transistor		
kQ1	03059501	2SC945
	or 07194801	2SC1815
kQ4	03068701	2SC2577
kQ5	03011801	2SA1102
kQ6	46367301	2SC2458
	or 46391901	2SC2785
kQ7	46367201	2SA1048
	or 46392001	2SA1175
• IC		
kIC1	46446000	μPC1225H
kIC2	03607700	NJM4558D
• Diode		
kD3	03117600	1S2473T77
kD4	03117600	1S2473T77
• Zener Diode		
kDZ1	03179000	RD13E-B
kDZ2	03179000	RD13E-B
kR10	00091700	0.33Ω × 2 5W Ce.R.
kC7	08451400	4.7μF 25V E.B.
kC8	08451400	4.7μF 25V E.B.
kFL1	46612800	Choke Filter
kL1	46027200	1μH Inductor
kVR1	46634000	3.3kΩ (B) S.V.R., Bias Adj.
• Transistor		
IQ1	46367301	2SC2458
	or 46391901	2SC2785
IQ2	46367301	2SC2458
	or 46391901	2SC2785
IQ3	46367201	2SA1048
	or 46392001	2SA1175
• IC		
IC1	46207600	TA7317P
• Diode		
ID1	03117600	1S2473T77
ID2	03117700	10E-2
ID3	03117600	1S2473T77
ID4	03117600	1S2473T77
IC7	46534900	220μF 6.3V E.B.
IC8	46534900	220μF 6.3V E.B.
IRL1	46533600	Relay, Protector
• Transistor		
mQ3	46614101	2SC3243
mQ4	46614001	2SA1283

Parts No.	Stock No.	Description
mQ5	46535201	2SC2750
	or 46535301	2SC3300LCR
	or 46636201	2SC3300
mQ6	46535201	2SC2750
	or 46535301	2SC3300LCR
	or 46636201	2SC3300
mQ7	03069301	2SC2238
mQ8	03069301	2SC2238
mQ9	46614001	2SA1283
mQ10	46614101	2SC3243
mQ11	46581601	2SA992
mQ12	46614001	2SA1283
mQ13	46367301	2SC2458
	or 46391901	2SC2785
• IC		
mIC2	46534100	μPC494C
• Diode		
mD1	03117700	10E-2
mD2	03117700	10E-2
mD3	07112300	10DF2
mD4	07112300	10DF2
mD5	03117700	10E-2
mD6	46534000	CTU21S
mD7	46533900	CTU21R
mD8	03117700	10E-2
mD9	46096300	30DL2
mOD1	46271300	Varistor ENB220D
mOD2	46271300	Varistor ENB220D
mPR1	46535400	Posistor
mR21	46624300	100Ω 2W N.I.R.
mR22	46624300	100Ω 2W N.I.R.
mC17	46604700	1000μF 16V E.C.
mC18	46637500	220μF 35V E.C.
mC19	46637500	220μF 35V E.C.
mC20	46533800	3300μF 35V E.C.
mC21	46533800	3300μF 35V E.C.
mC30	46604700	1000μF 16V E.C.
mFL1	46271100	Straight Through Capacitor
mFL3	46271100	Straight Through Capacitor
mFL4	46271100	Straight Through Capacitor
mL1	46273800	50μH Filter Coil
mL2	48146000	Choke Coil
mL3	46534200	10μH Inductor
mL4	46534300	15μH Inductor
mL5	46534300	15μH Inductor
mL6	46090000	1mH Inductor
mL7	46636000	Choke Coil
mT1	46533400	Choke Coil
mRL1	46533700	Relay, Power Supply

3-2. F-4683 POWER Indicator Board

Component Side

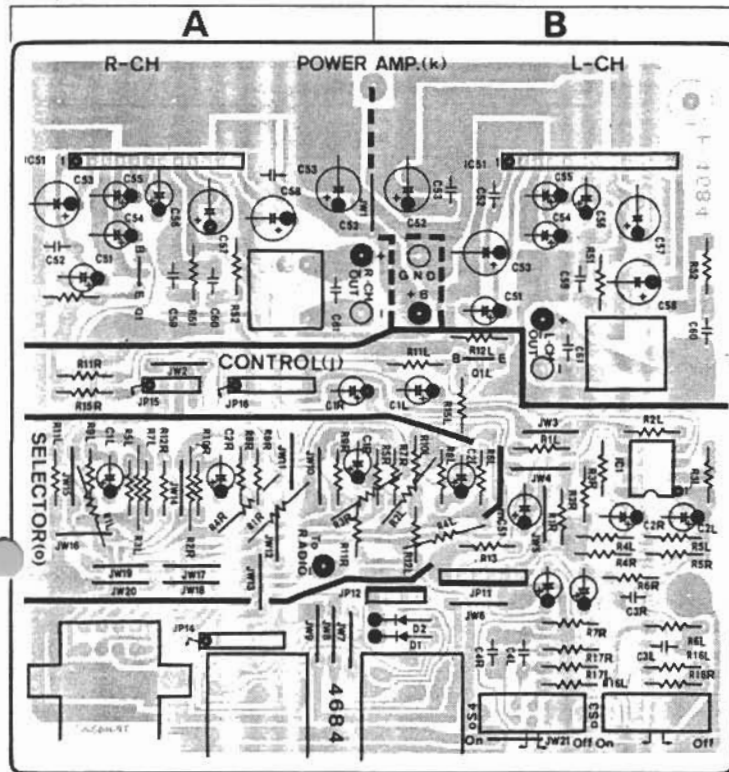


Parts List

Parts No.	Stock No.	Description
nLD1	46176900	LED TLS-123, POWER

### 3-3. F-4684 Input Terminal & FRONT Channel Power Amp. Circuit Board (Stock No. 00821301)

Component Side

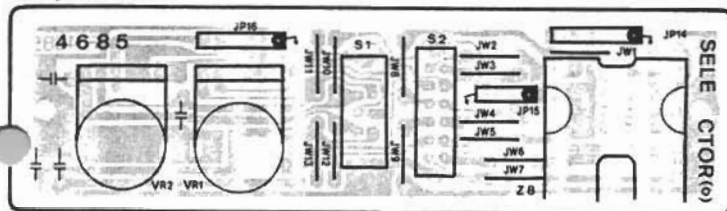


## Parts List

Parts No.	Stock No.	Description
• Transistor		
jQ1	46367101 or 46367301	2SC2603 2SC2458
• IC		
jIC1	03607700	NJM4558D
• Diode		
jD1	03117600	1S2473T77
jD2	03117600	1S2473T77
jC3	46698200	0.18 $\mu$ F 50V F.C.
jC4	46697600	0.1 $\mu$ F 50V F.C.
• IC		
kIC51	46837100	M51104L
kC59	46532000	0.15 $\mu$ F 50V F.C.
kC60	46532000	0.15 $\mu$ F 50V F.C.
kC61	46696800	0.047 $\mu$ F 50V F.C.
kFL51	46399800	Common Filter
kFL52	46399800	Common Filter
oR1	46623500	22 $\Omega$ 2W N.I.R.
oR2	46623500	22 $\Omega$ 2W N.I.R.
oR3	46623500	22 $\Omega$ 2W N.I.R.
oR4	46623500	22 $\Omega$ 2W N.I.R.
oS3	48117400	Slide SW., HIGH CUT FILTER
oS4	48117400	Slide SW., BASS DRIVE
qZ5	48117000	DIN Jack, LINE INPUT FRONT
qZ6	48117000	DIN Jack, LINE INPUT REAR
qZ7	48117500	Connector, BOOSTER INPUT

### 3-4. F-4685 Input Terminal & Control Circuit Board

Component Side



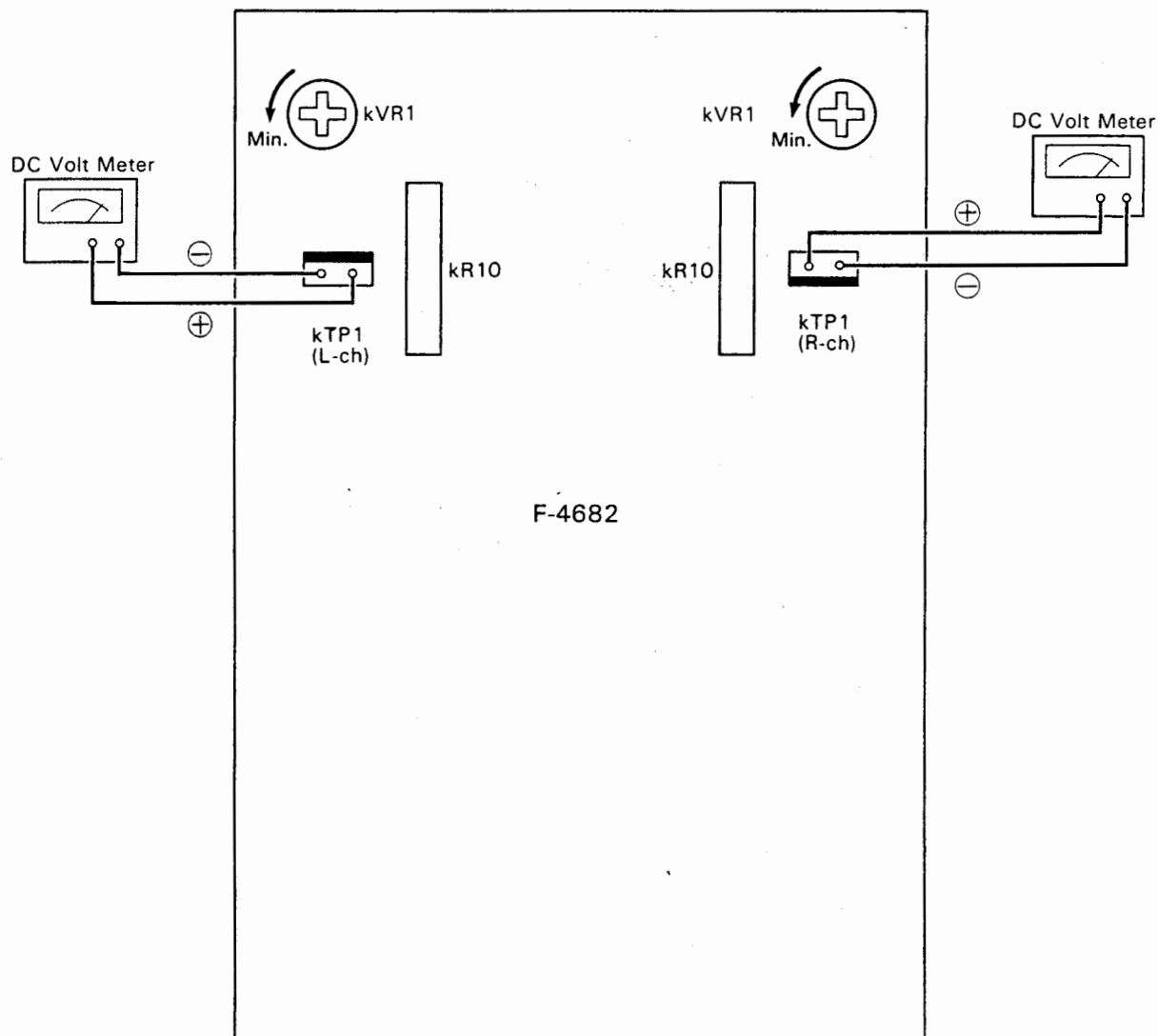
## Parts List

Parts No.	Stock No.	Description
oVR1	48117100	10k $\Omega$ (B) V.R., INPUT LEVEL FRONT
oVR2	48117100	10k $\Omega$ (B) V.R., INPUT LEVEL REAR
oS1	48117200	Slide SW., INPUT SELECTOR 2-CH/4-CH
oS2	48117300	Slide SW., INPUT SELECTOR BOOSTER/LINE
qZ8	48072600	4P Input Terminal, LINE INPUT FRONT/REAR

## 4. ADJUSTMENT

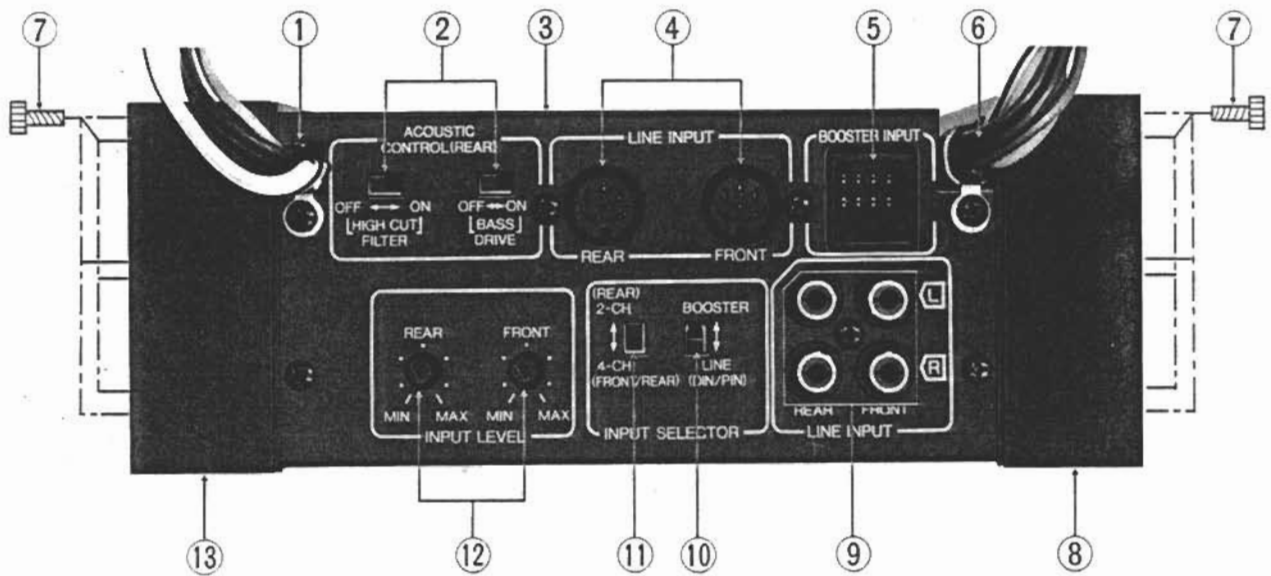
- Notes:** 1) Room Temperature ..... 18°C ~ 28°C  
 2) For adjustment, run the unit for more than 3 minutes after the power is switched on.  
 3) Before turning ON POWER switch, turn kVR1 on F-4682 fully counterclockwise.

STEP	SUBJECT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	L-CH Bias Current Adj.	kTP1, (L-CH) F-4682	kVR1, (L-CH) F-4682	DC 10mV ± 2mV	This bias current adjustment converts current value into voltage by ohms law.
2.	R-CH Bias Current Adj.	kTP1, (R-CH) F-4682	kVR1, (R-CH) F-4682	DC 10mV ± 2mV	





## 6. OTHER PARTS

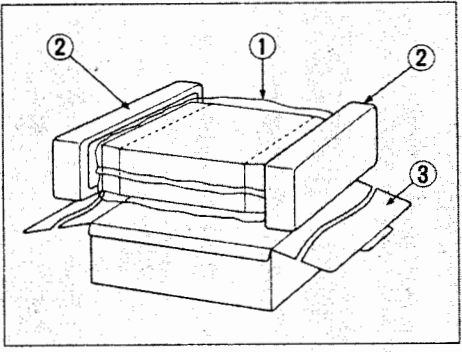


## Parts List

Parts No.	Stock No.	Description
1	48117900	Connection Cord, Front Speaker
2	48117400	Slide SW., HIGH CUT FILTER, BASS DRIVE
3	47647600	Bonnet
4	48117000	DIN Jack, LINE INPUT FRONT/REAR
5	48117500	Connector, BOOSTER INPUT
6	48126600	Connection Cord, Rear Speaker, Power Supply
7	46535000	M3 x 12 Hex Socket Machine Screw
8	47647100	Heat Sink (L)
9	48072600	4P Input Terminal, LINE INPUT FRONT/REAR
10	48117300	Slide SW., BOOSTER/LINE
11	48117200	Slide SW., 2-CH/4-CH
12	48117100	10k $\Omega$ (B) V.R., INPUT LEVEL FRONT/REAR
13	47647000	Heat Sink (R)

### 7. PACKING LIST

Parts No.	Stock No.	Description
1	47654700	Vinyl Bag
2	47652600	Styrofoam Packing
3	47652400	Carton Case



### 8. ACCESSORY LIST

Stock No.	Description
48117800	Booster Connection Cord
48126400	Front Left Speaker Cord
48126500	Front Right Speaker Cord
48149800	Ground Cord
46644100	Self Stripping Connector
47228800	Mounting Holder
47230810	Mounting Screw Ass'y
46960300	Operating Instruction



SANSUI ELECTRIC CO., LTD.:  
 SANSUI ELECTRONICS CORPORATION:  
 SANSUI ELECTRONICS (U.K.) LTD.:  
 SANSUI ELECTRONICS G.M.B.H.:

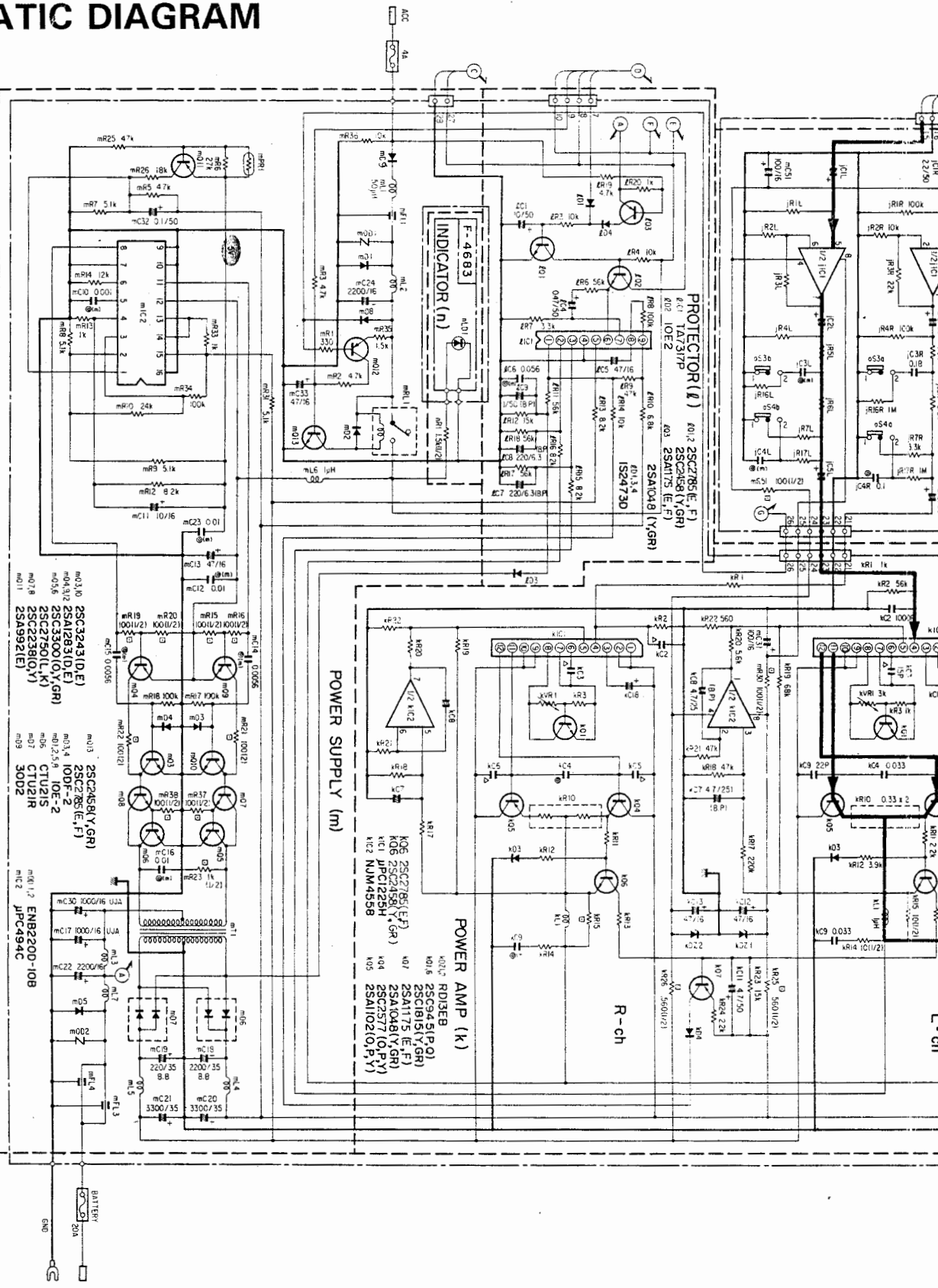
14-1, Izumi 2-chome, Suginami-ku, Tokyo 168 Japan  
 PHONE: (03) 324-8891/TELEX: 232-2076 (International Division)  
 1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.  
 17150 South Margay Ave. Carson, California 90746 U.S.A.  
 3036 Koapaka Street, Honolulu, Hawaii 96819 U.S.A.  
 Unit 10A, Lyon Industrial Estate, Rockware Avenue, Geenford, Middx UB6, OAA, England  
 Pau Ehrich Strasse 8, 6074 Rödermark 2, West Germany

# 5. SCHEMATIC DIAGRAM

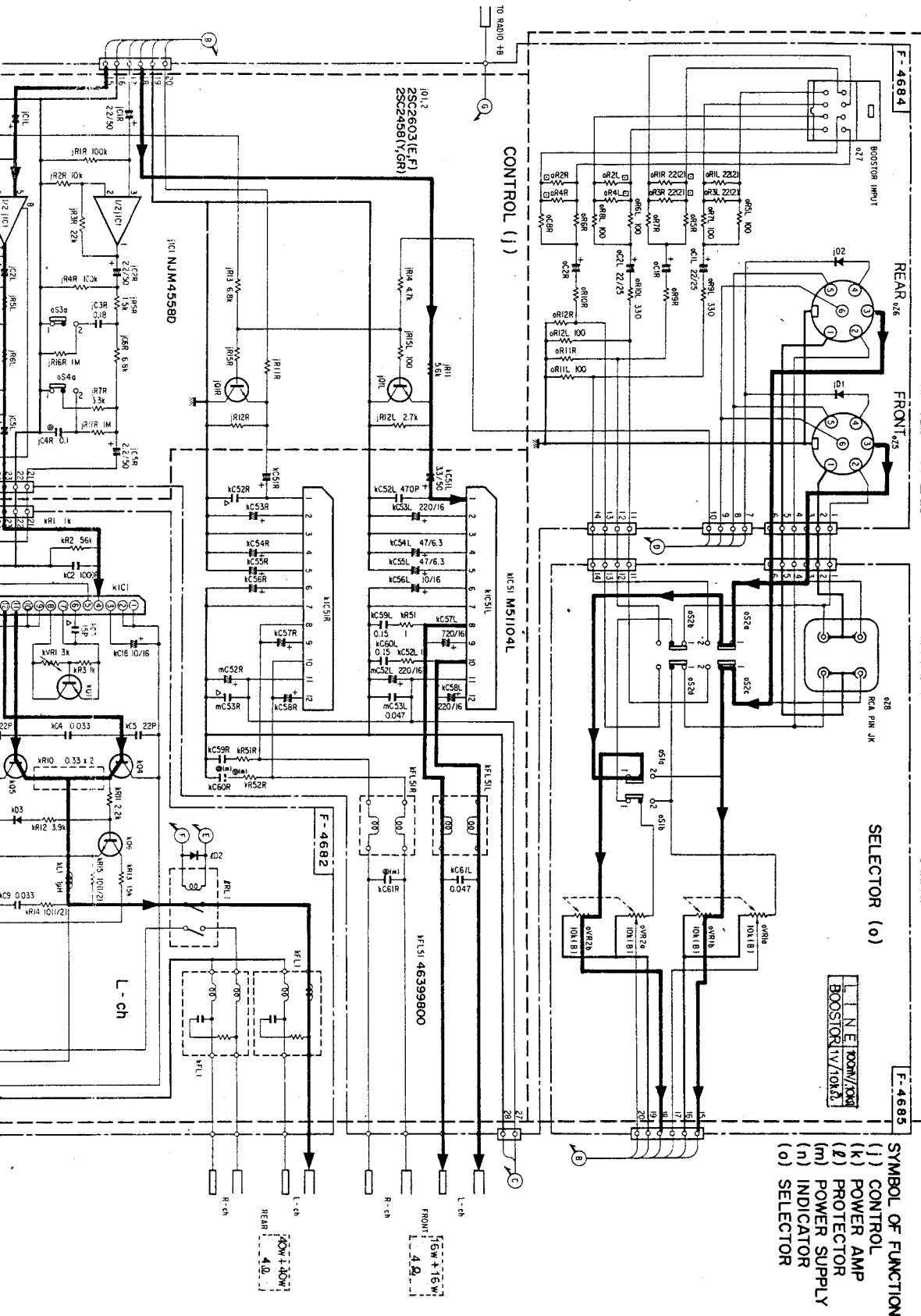
**RESISTORS**  
 All in ohms, 1/4 watt, ±5%, tolerance unless otherwise noted. K=10, M=100.  
**CAPACITORS**  
 All in μF, unless otherwise noted. P=pf.  
**TOLERANCE**  
 J: ±5%, G: ±2%, F: ±1%,  
 Each DC voltage across the nominal value in volts or no input signal.  
 Electrolytic Capacitor: Capacitance μF/Volts

**SYMBOLS**  
 A: Capacitor  
 B: Non-Inductively Resistor  
 C: Resistor  
 D: Diode  
 E: Electrolytic Capacitor  
 F: Fuse  
 G: Relay  
 H: Transformer  
 I: Inductor  
 J: Junction  
 K: Relay  
 L: Lamp  
 M: Motor  
 N: Relay  
 O: Relay  
 P: Relay  
 Q: Relay  
 R: Relay  
 S: Relay  
 T: Relay  
 U: Relay  
 V: Relay  
 W: Relay  
 X: Relay  
 Y: Relay  
 Z: Relay

INPUT MODE	1	2
INPUT SELECTOR	0514.a	4.4a
HIGH CUT FILTER	0514.b	2.1a
BASS UNKAVE	0514.c	1005/09a
	0514.d	01
	0514.e	01
	0514.f	01
	0514.g	01
	0514.h	01
	0514.i	01
	0514.j	01
	0514.k	01
	0514.l	01
	0514.m	01
	0514.n	01
	0514.o	01
	0514.p	01
	0514.q	01
	0514.r	01
	0514.s	01
	0514.t	01
	0514.u	01
	0514.v	01
	0514.w	01
	0514.x	01
	0514.y	01
	0514.z	01



• 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.



- 2SA992
- 2SA1048
- 2SA1283
- 2SC1815
- 2SC3243
- 2SA1102
- 2SC2577
- 2SC2750
- 2SC3300
- 2SC2458
- 2SC2603
- 2SA1175
- 2SA2785
- TA7317P
- µPC494C
- NJM4558B
- Del. de Slot or Line
- µPC1225H
- M51104L
- CTU21S
- CTU21R
- 10DF2
- 1S2473
- 10E2
- 30DL2
- RD13E-B
- TL-123

SYMBOL OF FUNCTION  
 (j) CONTROL  
 (k) POWER AMP  
 (l) PROTECTOR  
 (m) POWER SUPPLY  
 (n) INDICATOR  
 (o) SELECTOR

1  
2  
3  
4  
5