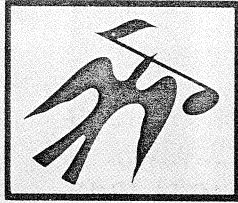


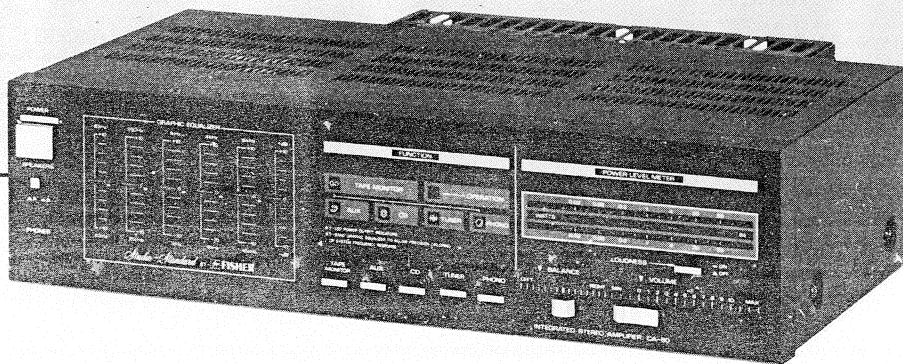
SERVICE MANUAL



FISHER

CA-60

**Integrated
Stereo Amplifier
(EUROPE)**



132 282 44

CONTENTS

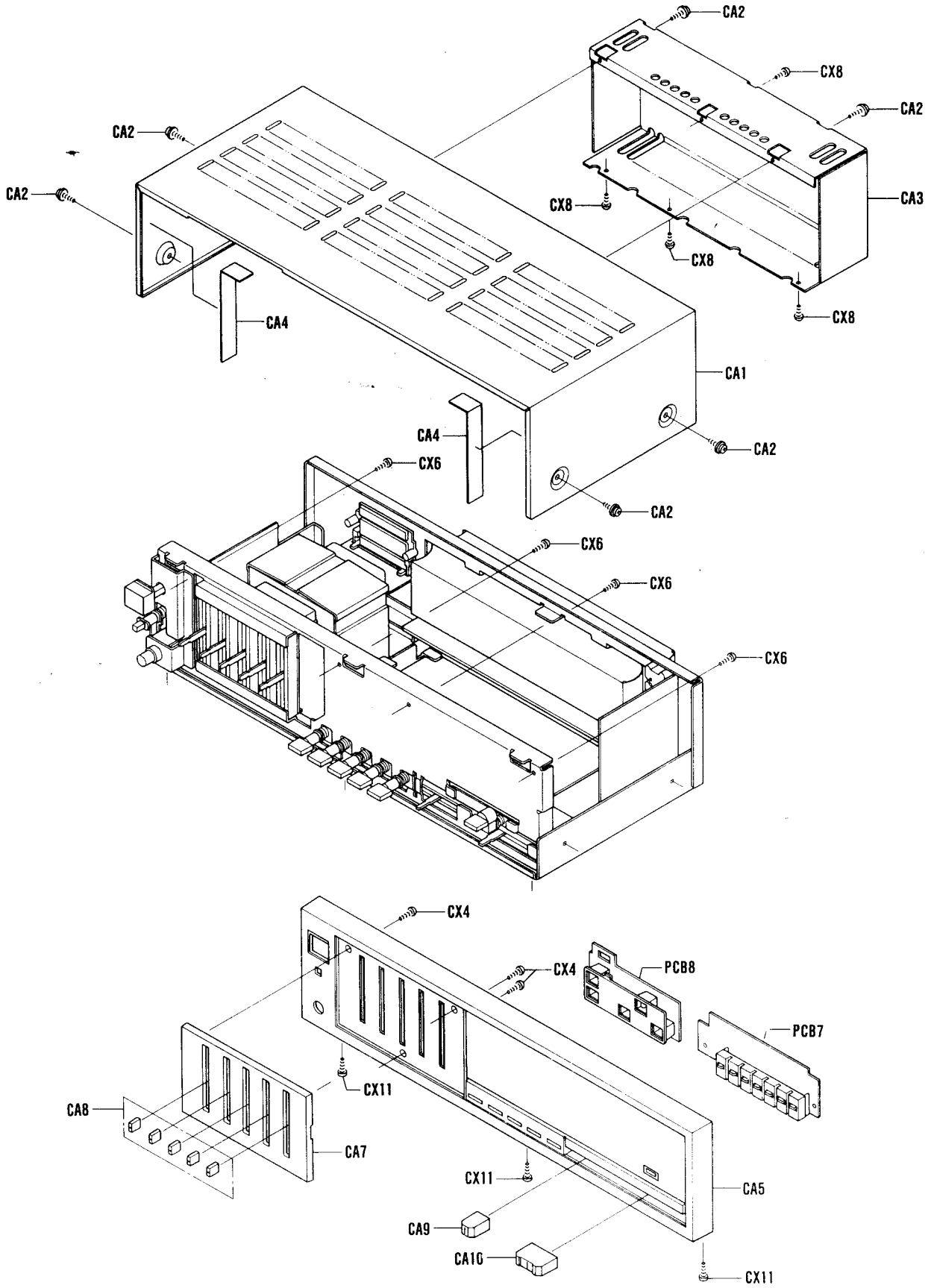
Specifications	3
Cabinet & Chassis Exploded View (1)	4
Cabinet & Chassis Exploded View (2)	5
Cabinet & Chassis Exploded View (3)	6
Parts List	7
Recommended Test Equipments	8
Harmonic Distortion Test	8
Power Amplifier Adjustment	9
Important Note	9
Functional Block Diagram	9
Printed Circuit Board Parts List	10,11,12,13
IC Equivalent Circuit & Block Diagram	14
Phono Equalizer Amp IC NJM072D	
Graphic Equalizer Amp IC LA6458S	
Meter Drive Amp IC IR2E29	
Phono P.C.Board (Bottom View)	15
Graphic Equalizer P.C.Board (Bottom View)	15
Volume P.C.Board (Bottom View)	16
Power Switch P.C.Board (Bottom View)	16
Speaker Terminal P.C.Board (Bottom View)	17
Power Meter P.C.Board (Bottom View)	17
LED Indicator P.C.Board (Bottom View)	17
Main Amplifier P.C.Board (Bottom View)	18
Point To Point Wiring Diagram	19,20
Schematic Diagram	21,22
Semiconductor Lead Identification	23

SPECIFICATIONS

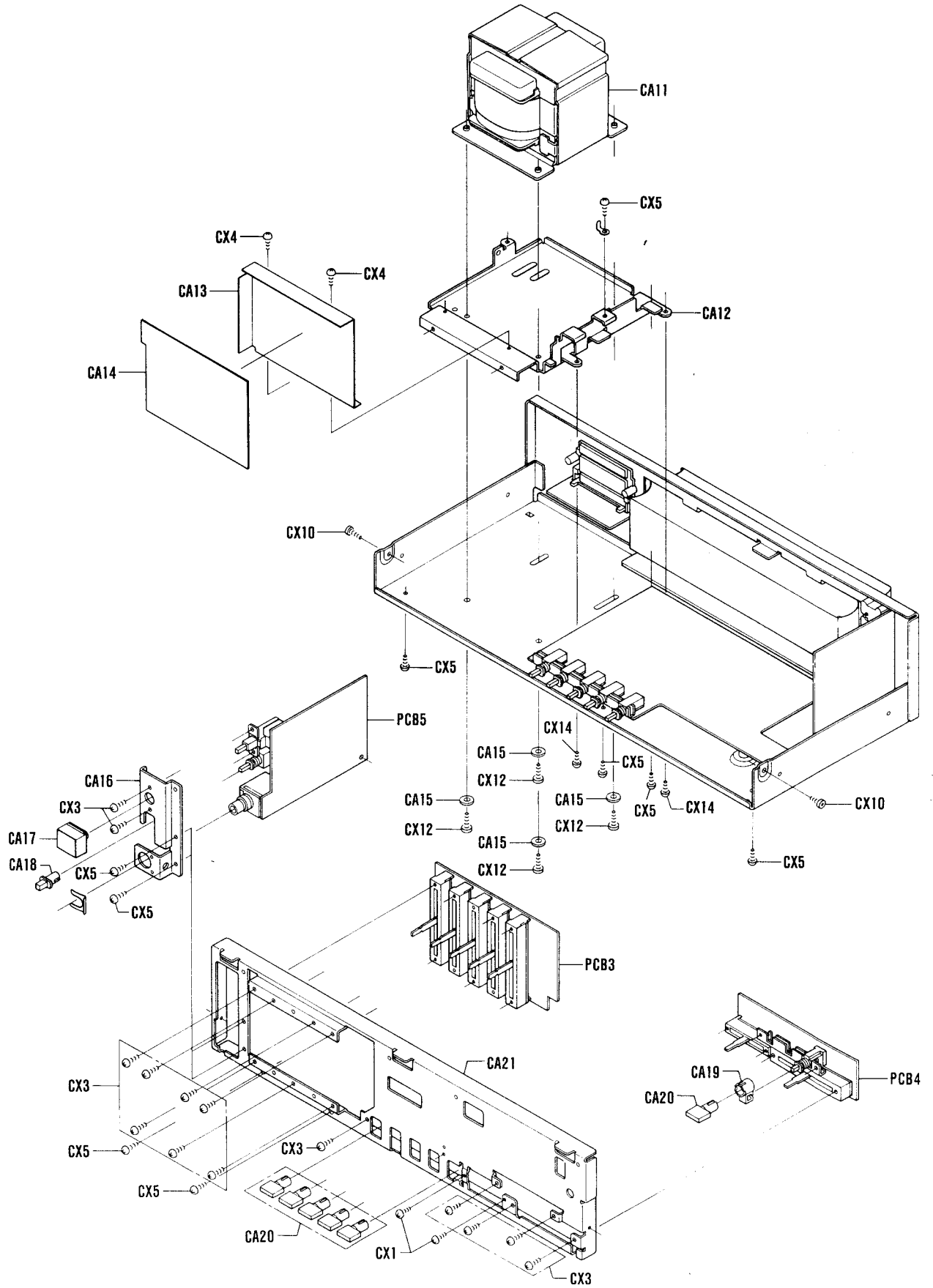
AMPLIFIER	CA-60
POWER AMPLIFIER SECTION Minimum RMS sine wave power per channel no more than stated distortion and with 8-ohm load at 1 kHz (DIN)	50 Watts
Total Harmonic Distortion	0.2 %
I.M. Distortion	0.2 %
Speaker Damping	> 20
PREAMPLIFIER SECTION Frequency Response	
Phono MM (RIAA)	±0.5 dB
Aux (20 Hz – 20 kHz)	±0.5 dB
Input Sensitivity and Impedance	
Phono MM	2.5 mV/50 kΩ
Tape Monitor	150 mV/50 kΩ
Tuner	150 mV/50 kΩ
Auxiliary/CD	150 mV/50 kΩ
Phono Max. Input Capability	150 mV
Graphic Equalizer	
63 Hz	±10 dB
250 Hz	±10 dB
1 kHz	±10 dB
4 kHz	±10 dB
16 kHz	±10 dB
Hum & Noise (IHF Short Circuit, A Network)	
Phono MM	65 dB
Tape Monitor	85 dB
Tuner	85 dB
Auxiliary/CD	85 dB
GENERAL	
Power Requirements (50 Hz)	110/220 V AC
Power Consumption	260 Watts
Power Supply Socket	1 (FM-60 only)
Dimensions (W x H x D)	400 x 105 x 243 mm
Weight (approx.)	5.4 kg

Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify product designs and specifications without notice and without incurring any obligation.

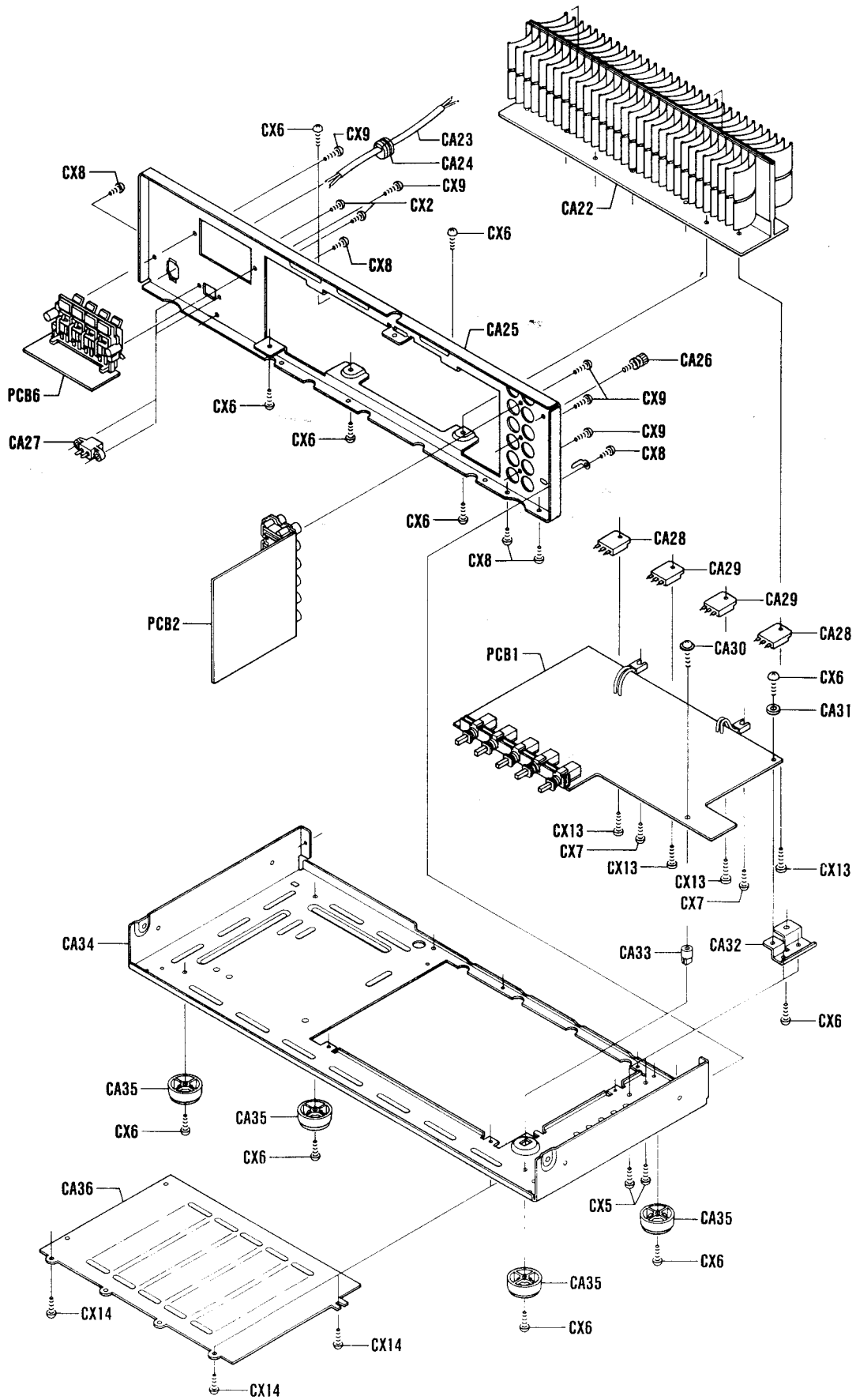
CABINET & CHASSIS EXPLODED VIEW (1)



CABINET & CHASSIS EXPLODED VIEW (2)



CABINET & CHASSIS EXPLODED VIEW (3)



PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
PACKING PARTS LIST				CA26	131-2-4201-17800	Screw Ground	1
	3-9415-10300	Bag Polyethylene	1	CA27	△ 4-2359-74032	2P Socket With/Nut	1
	131-6-1169-15412	Box Corrugate-Exp.	1	CA28	4-2039-71820	Transistor, 2SC 3181 [Q113, Q213]	2
	131-6-2119-02130	Bag Polyethylene-Exp.	1	CA29	4-2039-71830	Transistor, 2SA 1264 [Q114, Q214]	2
	131-6-3009-35400	Pad (Right)	1	CA30	131-2-4201-25204	Screw, Brazier Hd. Tapping-B, +M3.0x12 Sems	1
	131-6-3009-35410	Pad (Left)	1	CA31	131-2-4203-83201	Washer, 3.2x10x0.5 Z	1
	131-6-3069-16350	Patching Sheet	1	CA32	131-2-3101-98100	Metal Mount (Main Amp P.C.B.)	1
	131-6-4559-10900	Manufacturing No.	2	CA33	131-2-3614-22900	Mount P.C.B.	1
ACCESSORIES PARTS LIST				CA34	131-2-3301-31100	Chassis	1
	131-6-2719-10801	Bag Fan	1	CA35	131-2-1801-14100	Leg	4
	131-6-4519-15700	Guarantee Certificate	1	CA36	131-2-1410-32000	Cover (Bottom)	1
	131-6-4559-10900	Manufacturing No.	1	P.C.B. ASSY PARTS LIST			
	142-6-4119-32505	Explanatory Booklet	1	PCB1	141-0-1939-04758	Main Amp. P.C.B. Assy	1
CABINET & CHASSIS PARTS LIST				PCB2	141-0-1939-04760	Phono P.C.B. Assy	1
	4-2379-21520	Terminal Lug	2	PCB3	141-0-1939-04770	Graphic Equalizer P.C.B. Assy	1
CA1	131-2-1410-32201	Cover	1	PCB4	141-0-1939-04781	Volume P.C.B. Assy	1
CA2	141-2-4219-33101	Screw, Brazier Hd. Tapping-B, +M3.0x8 Sems	6	PCB5	141-0-1939-04791	Power Switch P.C.B. Assy	1
CA3	131-2-1410-32117	Cover (Heat Sink)	1	PCB6	141-0-1939-04801	Speaker Terminal P.C.B. Assy	1
CA4	131-2-3202-13400	Metal Reinf	2	PCB7	141-0-1939-04814	Power Meter P.C.B. Assy	1
CA5	131-0-1016-44305	Panel Decorate Assy	1	PCB8	141-0-1939-04824	LED Ind. P.C.B. Assy	1
	131-2-1203-62703	Panel Control	1	SCREW PARTS LIST			
	131-2-1203-62805	Panel Control	1	CX1	101-3-1302-00411	Screw, Pan Hd., +M2.0x4	1
	141-2-1539-16801	Decorate (Power)	1	CX2	101-3-1302-60618	Screw, Pan Hd., +M2.6x6	2
CA7	131-2-1203-62601	Panel Control	1	CX3	101-3-1303-00611	Screw, Pan Hd., +M3.0x6	4
CA8	131-2-1601-71001	Knob (Equalizer)	5	CX4	143-3-1902-60611	Screw, Brazier Hd. Tapping-B, +M2.6x6	5
CA9	131-2-1601-90200	Knob Slide (Balance)	1	CX5	143-3-1903-00611	Screw, Brazier Hd. Tapping-B, +M3.0x6	11
CA10	131-2-1601-90100	Knob Slide (Master Volume)	1	CX6	143-3-1903-00811	Screw, Brazier Hd. Tapping-B, +M3.0x8	5
CA11	△ 4-2512-23222	Power Trans	1	CX7	143-3-1903-01211	Screw, Brazier Hd. Tapping-B, +M3.0x12	2
CA12	131-2-3101-98000	Metal Mount (Trans)	1	CX8	143-3-1903-00618	Screw, Brazier Hd. Tapping-B, +M3.0x6	9
CA13	141-2-3229-48500	Cover Shield	1	CX9	143-3-1903-00818	Screw, Brazier Hd. Tapping-B, +M3.0x8	5
CA14	141-2-4359-37200	Plate Sever	1	CX10	143-3-1703-00611	Screw, Bind Hd. Tapping-B, +M3.0x6	2
CA15	131-2-4203-84200	Washer, 4.2x12x1.0 Z	4	CX11	143-3-1703-00818	Screw, Bind Hd. Tapping-B, +M3.0x8	3
CA16	131-2-3101-98200	Metal Mount (Power Switch P.C.B.)	1	CX12	143-3-1704-00811	Screw, Bind Hd. Tapping-B, +M4.0x8	4
CA17	131-2-1601-86200	Knob (Power Switch)	1	CX13	143-3-1703-01211	Screw, Bind Hd. Tapping-B, +M3.0x12	4
CA18	131-2-1601-69600	Knob (Speaker Selector)	1	CX14	143-3-1903-00511	Screw, Brazier Hd. Tapping-B, +M3.0x5	5
CA19	131-2-4219-19000	Shaft (Loudness)	1	NOTE:			
CA20	131-2-1601-70100	Knob (Function)	6	1. Parts order must contain Model Number, Part Number and Description.			
CA21	131-2-3305-36000	Panel Front	1	2. Ordering quantity of screws and resistors must be multiplied by 10 pcs.			
CA22	141-2-3689-12400	Plate Heat Sink	1				
CA23	△ 4-2432-00140	Line Cord	1				
CA24	131-2-6111-14200	Bushing	1				
CA25	131-2-3306-39704	Panel Rear	1				

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol \triangle in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with \triangle , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

RECOMMENDED TEST EQUIPMENTS

The following test equipments are recommended to completely test and align the Amplifier:

- Line Voltage Isolation Transformer
- AC DC Multimeter
- Accurately Calibrated AC Voltmeter
- Oscilloscope (Flat to 100 kHz Minimum)
- Low-Distortion Audio Sine-Wave Generator
- Harmonic Distortion Analyzer
- Two (2) Load Resistors 8-ohms, 250 Watts (Minimum Rating)

HARMONIC DISTORTION TEST

CAUTION: Limit the following tests to no more than ten minutes each. Use 8-ohm resistors, with a minimum power rating of 250 watts when connecting a load across the SPEAKERS terminal.

CONTROL SETTINGS:

Unplug the AC power cord and set the front panel controls as follows:

• GRAPHIC EQUALIZER to center positions.

• POWER switch to OFF

• SPEAKERS switch to SYSTEM-B

FUNCTION switch to AUX

TAPE MONITOR switch to SOURCE

VOLUME control to MINIMUM position

LEFT CHANNEL DRIVEN

ONE CHANNEL DRIVEN:

1) Connect a low distortion audio generator to LEFT AUX IN jack. Set generator frequency to 1 kHz and output to minimum.

2) Connect an 8-ohm load resistor between SPEAKERS SYSTEM-A LEFT and COM terminals. Connect a Harmonic Distortion Analyzer and an AC VTVM in parallel across the 8-ohm load.

3) Connect the AC power cord and set SPEAKERS switch to SYSTEM-A. Turn VOLUME control to MAX.

4) Increase generator output for 50 Watts RMS (20.0 volts across the 8-ohm load). Harmonic Distortion Analyzer should measure 0.2 % distortion or less.

5) Repeat steps 1 through 4 for RIGHT CHANNEL.

BOTH CHANNELS DRIVEN

Connect 8-ohm load resistors across LEFT and RIGHT SPEAKERS SYSTEM-A terminals. Adjust generator output and "VOLUME" control for 50 watts at Left and Right Channels (20.0 volts across the 8-ohm loads). Harmonic Distortion Analyzer should measure 0.2 % distortion or less at each channel.

CAUTION: This precision high-fidelity instrument should be serviced only by qualified personnel, trained in the repair of transistor equipment and printed circuitry.

POWER AMPLIFIER ADJUSTMENT

BEFORE ADJUSTMENT

This adjustment is very sensitive to changes in ambient temperature. Allow set to operate for 10 minutes before attempting this adjustment.

IDLING CURRENT ADJUSTMENT

1. Set the SPEAKER switch to off position.
2. Turn VOLUME control to minimum.
3. Connect DC VTVM between R151 left leg and R152 right leg on the Power Amplifier P.C.Board.
4. Adjust VR101 for an indication of 15–25 mV on the DC VTVM.
5. Connect DC VTVM between R252 left leg and R251 right leg on the Power Amplifier P.C.Board.
6. Adjust VR201 for an indication of 15–25 mV on the DC VTVM.

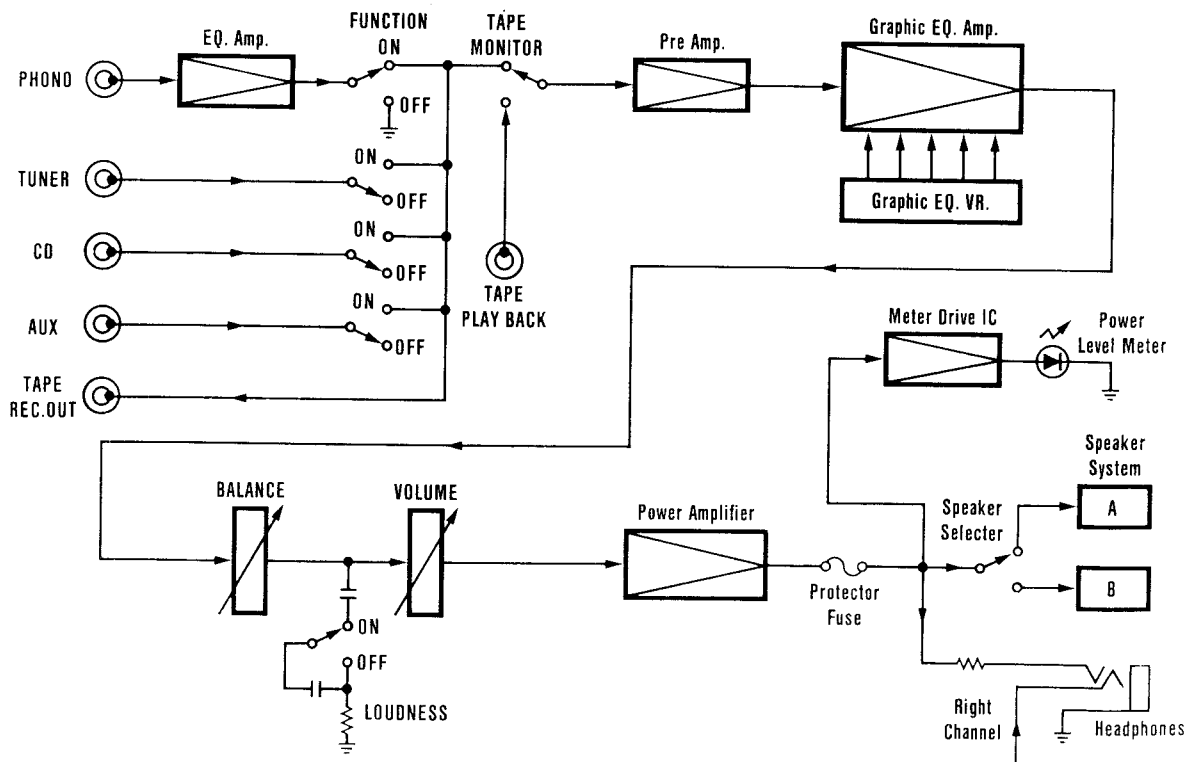
IMPORTANT NOTE

The amplifier has been Factory-adjusted for operation on 220V AC. The voltage can be changed for operation on 110V AC by making the following changes on the amplifier inside.

1. Remove the AC plug from the wall outlet.
2. Remove the screws securing the cover.
3. Disconnect Gray lead from Power switch P.C.Board Terminal No.T15, and then connect it to Power switch P.C.Board Terminal No.T13.
4. Disconnect Yellow lead from Power switch P.C.Board Terminal No.T15, and then connect it to Power switch P.C.Board Terminal No.T14.

The amplifier is now ready 110V operation. DO NOT attempt to operate the amplifier on 220V. Damage will result !

FUNCTIONAL BLOCK DIAGRAM



P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
C14	CD2-2-6250-0001V	Electrolytic 22 μ F 25V	1	R128	RD1-5-4161-JH000	Carbon 150k Ω 1/6W \pm 5%	1
C15	CM1-8-3500-K00SV	Mylar 0.018 μ F 50V \pm 10%	1	R129	RD1-0-4161-JH000	Carbon 100k Ω 1/6W \pm 5%	1
C16	CM8-2-2500-K00SV	Mylar 0.0082 μ F 50V \pm 10%	1	R130	RD3-9-3161-JH000	Carbon 39k Ω 1/6W \pm 5%	1
C17	CM4-7-2500-K00SV	Mylar 0.0047 μ F 50V \pm 10%	1	R131	RD3-3-3161-JH000	Carbon 33k Ω 1/6W \pm 5%	1
C18	CM1-5-2500-K00SV	Mylar 0.0015 μ F 50V \pm 10%	1	R132	RD2-2-3161-JH000	Carbon 22k Ω 1/6W \pm 5%	1
C19	CC6-8-1500-KE00C	Ceramic 680pF 50V \pm 10%	1	R209	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
C20	CD2-2-5500-0001V	Electrolytic 2.2 μ F 50V	1	R210	RD5-6-3161-JH000	Carbon 56k Ω 1/6W \pm 5%	1
C21	CD3-3-4500-0001V	Electrolytic 0.33 μ F 50V	1	R211	RD4-7-2161-JH000	Carbon 4.7k Ω 1/6W \pm 5%	1
C22	CM8-2-3500-J00TV	Mylar 0.082 μ F 50V \pm 5%	1	R212	RD5-6-2161-JH000	Carbon 5.6k Ω 1/6W \pm 5%	1
C23	CM2-2-3500-K00SV	Mylar 0.022 μ F 50V \pm 10%	1	R213	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
C24	CM4-7-2500-K00SV	Mylar 0.0047 μ F 50V \pm 10%	1	R214	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
C210	CD1-0-5500-0001V	Electrolytic 1 μ F 50V	1	R215	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
C211	CC1-0-1500-KD00C	Ceramic 100pF 50V \pm 10%	1	R216	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
C212	CC6-8-0500-KD00C	Ceramic 68pF 50V \pm 10%	1	R217	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
C213	CC1-0-0500-DD00C	Ceramic 10pF 50V \pm 0.5%	1	R218	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
C214	CD2-2-6250-0001V	Electrolytic 22 μ F 25V	1	R219	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
C215	CM1-8-3500-K00SV	Mylar 0.018 μ F 50V \pm 10%	1	R220	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
C216	CM8-2-2500-K00SV	Mylar 0.0082 μ F 50V \pm 10%	1	R221	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
C217	CM4-7-2500-K00SV	Mylar 0.0047 μ F 50V \pm 10%	1	R222	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
C218	CM1-5-2500-K00SV	Mylar 0.0015 μ F 50V \pm 10%	1	R223	RD1-2-2161-JH000	Carbon 1.2k Ω 1/6W \pm 5%	1
C219	CC6-8-1500-KE00C	Ceramic 680pF 50V \pm 10%	1	R224	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
C220	CD2-2-5500-0001V	Electrolytic 2.2 μ F 50V	1	R225	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
C221	CD3-3-4500-0001V	Electrolytic 0.33 μ F 50V	1	R226	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
C222	CM8-2-3500-J00TV	Mylar 0.082 μ F 50V \pm 5%	1	R227	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
C223	CM2-2-3500-K00SV	Mylar 0.022 μ F 50V \pm 10%	1	R228	RD1-5-4161-JH000	Carbon 150k Ω 1/6W \pm 5%	1
C224	CM4-7-2500-K00SV	Mylar 0.0047 μ F 50V \pm 10%	1	R229	RD1-0-4161-JH000	Carbon 100k Ω 1/6W \pm 5%	1
C312	CD4-7-6250-0001V	Electrolytic 47 μ F 25V	1	R230	RD3-9-3161-JH000	Carbon 39k Ω 1/6W \pm 5%	1
C313	CD4-7-6250-0001V	Electrolytic 47 μ F 25V	1	R231	RD3-3-3161-JH000	Carbon 33k Ω 1/6W \pm 5%	1
C314	CC4-7-3500-ZG00C	Ceramic 0.047 μ F 50V \pm 80,-20%	1	R232	RD2-2-3161-JH000	Carbon 22k Ω 1/6W \pm 5%	1
C315	CC4-7-3500-ZG00C	Ceramic 0.047 μ F 50V \pm 80,-20%	1				

SEMICONDUCTORS

IC402	206-5-1696-45810	IC, LA 6458 S	1
Q101	203-5-5000-53660	Transistor, 2SC 536	1
Q102	203-5-5000-53660	Transistor, 2SC 536	1
Q103	203-5-5000-53660	Transistor, 2SC 536	1
Q104	203-5-5000-53660	Transistor, 2SC 536	1
Q105	203-5-5000-53660	Transistor, 2SC 536	1
Q201	203-5-5000-53660	Transistor, 2SC 536	1
Q202	203-5-5000-53660	Transistor, 2SC 536	1
Q203	203-5-5000-53660	Transistor, 2SC 536	1
Q204	203-5-5000-53660	Transistor, 2SC 536	1
Q205	203-5-5000-53660	Transistor, 2SC 536	1

RESISTORS

R109	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
R110	RD5-6-3161-JH000	Carbon 56k Ω 1/6W \pm 5%	1
R111	RD4-7-2161-JH000	Carbon 4.7k Ω 1/6W \pm 5%	1
R112	RD5-6-2161-JH000	Carbon 5.6k Ω 1/6W \pm 5%	1
R113	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
R114	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
R115	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
R116	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
R117	RD3-9-1161-JH000	Carbon 390 Ω 1/6W \pm 5%	1
R118	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
R119	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
R120	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
R121	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
R122	RD1-5-3161-JH000	Carbon 15k Ω 1/6W \pm 5%	1
R123	RD1-2-2161-JH000	Carbon 1.2k Ω 1/6W \pm 5%	1
R124	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
R125	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
R126	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1
R127	RD1-5-2161-JH000	Carbon 1.5k Ω 1/6W \pm 5%	1

VOLUME P.C.B. ASSY

PCB4	141-0-1939-04781	Volume P.C.B. Assy	1
	4-2262-19060	Volume P.C.B.	1
	4-2319-77170	Switch Push 1Key (Loudness)	1
VR401	4-2229-75150	Slide Volume 250k Ω -W (Balance)	1
VR402	4-2229-75160	Slide Volume 100k Ω -Ax2 (Volume)	1

CAPACITORS

C126	CM3-9-3500-K00SV	Mylar 0.039 μ F 50V \pm 10%	1
C127	CC2-7-1500-KE00R	Ceramic 270pF 50V \pm 10%	1
C226	CM3-9-3500-K00SV	Mylar 0.039 μ F 50V \pm 10%	1
C227	CC2-7-1500-KE00R	Ceramic 270pF 50V \pm 10%	1

RESISTORS

R133	RD4-7-2161-JH000	Carbon 4.7k Ω 1/6W \pm 5%	1
R134	RD6-8-2251-JM000	Carbon 6.8k Ω 1/4W \pm 5%	1
R233	RD4-7-2161-JH000	Carbon 4.7k Ω 1/6W \pm 5%	1
R234	RD6-8-2251-JM000	Carbon 6.8k Ω 1/4W \pm 5%	1

POWER SWITCH P.C.B. ASSY

PCB5	141-0-1939-04791	Power Switch P.C.B. Assy	1
	4-2262-19070	Power Switch P.C.B.	1
	Δ 4-2312-05710	Switch Push Power (Power)	1
	4-2319-77180	Switch Push 1Key (Speakers)	1
	Δ 4-2349-20570	Fuse T2.5A	2
	4-2352-00200	Fuse Holder	4
	4-2352-00920	Jack 7P (Headphones)	1
J08	4-2362-00440	Plug 3P	1
J10	4-2439-72191	Wire 4 Parallel	1
	4-2372-00830	EC Terminal 1P	2
	111-2-6220-11100	Wire Wrap Terminal	4
	131-2-6114-01400	Cover Safty	1
	141-2-1439-14200	Label (Fuse)	1

P.C.BOARD PARTS LIST(Continued)

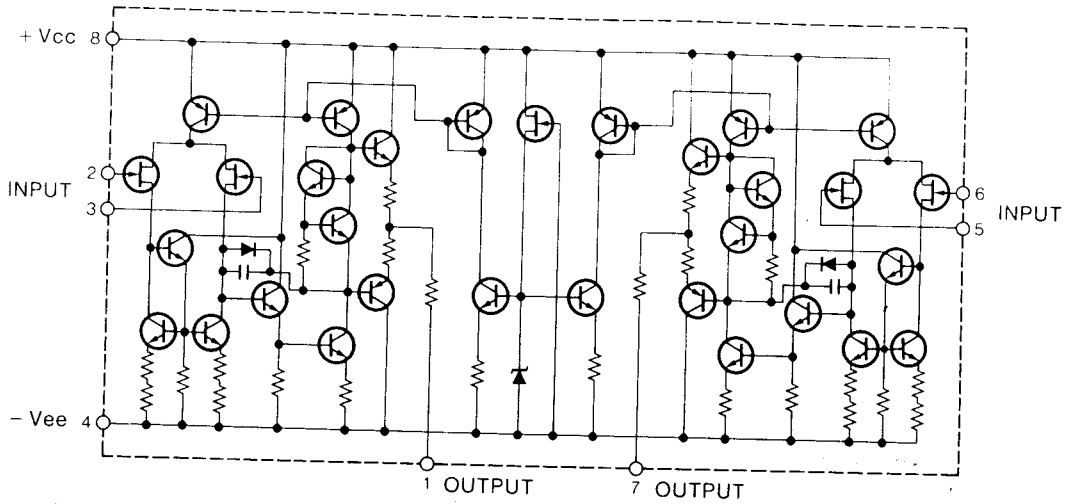
Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
CAPACITOR				SEMICONDUCTORS			
C301	Δ 4-2239-70970	Ceramic	0.01 μ F 400V	1	D501	D00---SLP--173B- L.E.D., SLP 173 B	1
RESISTORS				RESISTORS			
R158	RH3-9-1102-JZ000	Metal	390 Ω 1W \pm 5%	1	D502	D00---SLP--173B- L.E.D., SLP 173 B	1
R160	RD2-2-3251-JM000	Carbon	22k Ω 1/4W \pm 5%	1	D503	D00---SLP--173B- L.E.D., SLP 173 B	1
R258	RH3-9-1102-JZ000	Metal	390 Ω 1W \pm 5%	1	D504	D00---SLP--173B- L.E.D., SLP 173 B	1
R260	RD2-2-3251-JM000	Carbon	22k Ω 1/4W \pm 5%	1	D505	D00---SLP--173B- L.E.D., SLP 173 B	1
SPEAKER TERMINAL P.C.B. ASSY				RESISTORS			
PCB6	141-0-1939-04801	Speaker Terminal P.C.B. Assy		1	R161	RD1-0-1161-JH000 Carbon	100 Ω 1/6W \pm 5%
	4-2262-19080	Speaker Terminal P.C.B.		1	R162	RD1-0-3161-JH000 Carbon	10k Ω 1/6W \pm 5%
	4-2372-01160	Speaker 8P Terminal (Sperker Terminal)		1	LED IND. P.C.B. ASSY		
CAPACITORS				LED IND. P.C.B. ASSY			
C144	CC1-0-2500-MF00R	Ceramic	0.001 μ F 50V \pm 20%	1	PCB8	141-0-1939-04824 LED Ind. P.C.B. Assy	1
C145	CC1-0-2500-MF00R	Ceramic	0.001 μ F 50V \pm 20%	1		4-2262-19100 LED Ind. P.C.B.	1
C244	CC1-0-2500-MF00R	Ceramic	0.001 μ F 50V \pm 20%	1		131-2-4208-46000 Spacer (L.E.D.)	1
C245	CC1-0-2500-MF00R	Ceramic	0.001 μ F 50V \pm 20%	1	SEMICONDUCTOR		
POWER METER P.C.B. ASSY				SEMICONDUCTOR			
PCB7	141-0-1939-04814	Power Meter P.C.B. Assy		1	D307	DYY---SLR--55URC L.E.D., SLR 55 URC (Power)	1
	4-2262-19090	Power Meter P.C.B.		1	RESISTOR		
	131-2-4208-46100	Spacer (L.E.D.)		1	R501	RD6-8-1251-JM000 Carbon	680 Ω 1/4W \pm 5%
J08	131-0-4006-33609	Cord Assy		1	NOTE:		
CAPACITORS				1. Parts order must contain Model Number, Part Number and Description.			
C141	CD1-0-4500-0002V	Electrolytic	0.1 μ F 50V	1	2. Ordering quantity of screws and resistors must be multiple of 10 pcs.		
C142	CD4-7-5350-0002V	Electrolytic	4.7 μ F 35V	1			
C143	CD1-0-5500-0002V	Electrolytic	1 μ F 50V	1			
C320	CD1-0-6350-0002V	Electrolytic	10 μ F 35V	1			

PRODUCT SAFETY NOTICE

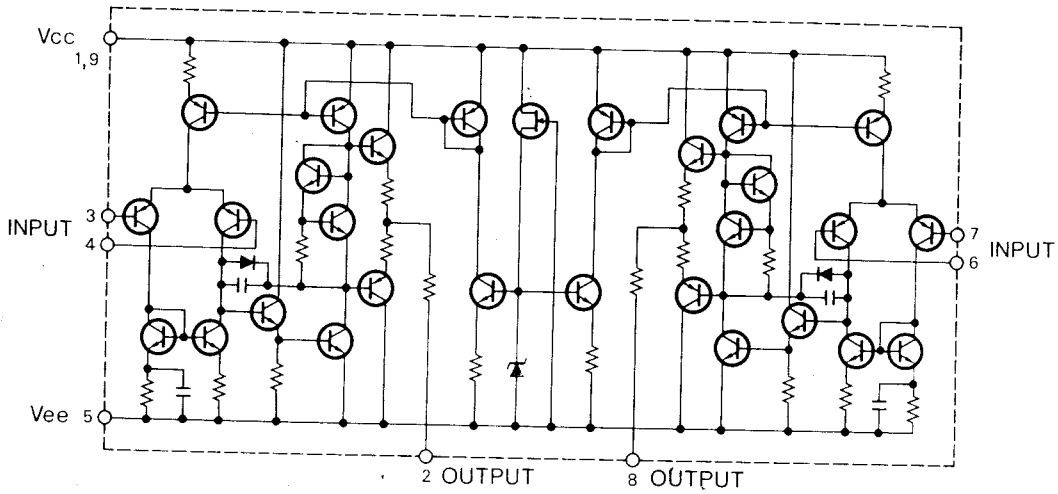
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol Δ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with Δ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

IC EQUIVALENT CIRCUIT & BLOCK DIAGRAM

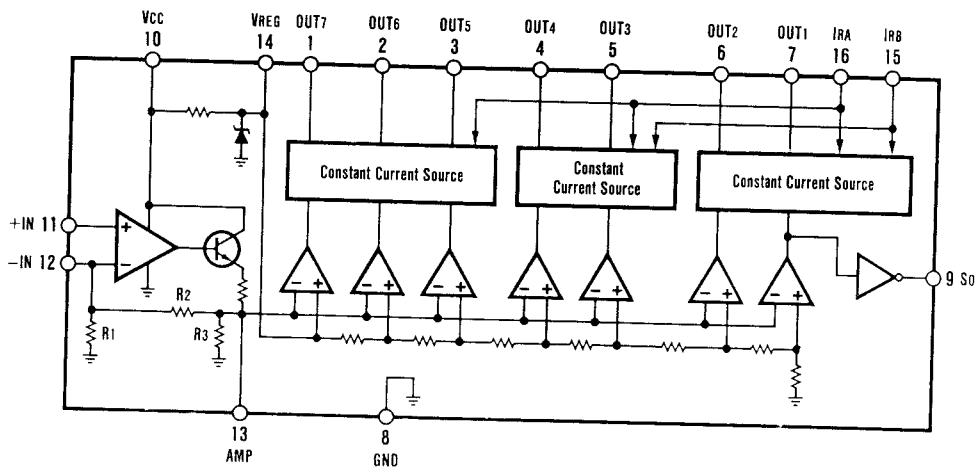
PHONO EQUALIZER AMP IC NJM072D



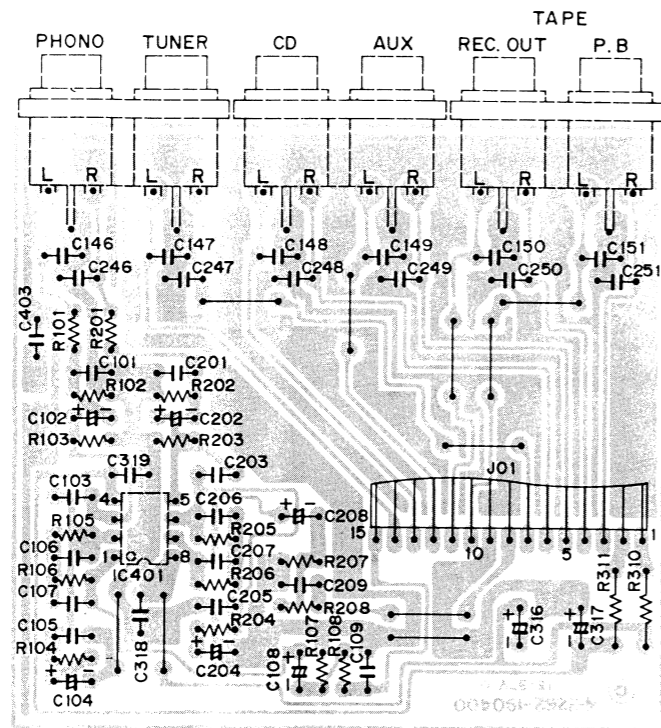
GRAPHIC EQUALIZER AMP IC LA6458S



METER DRIVE AMP IC IR2E29

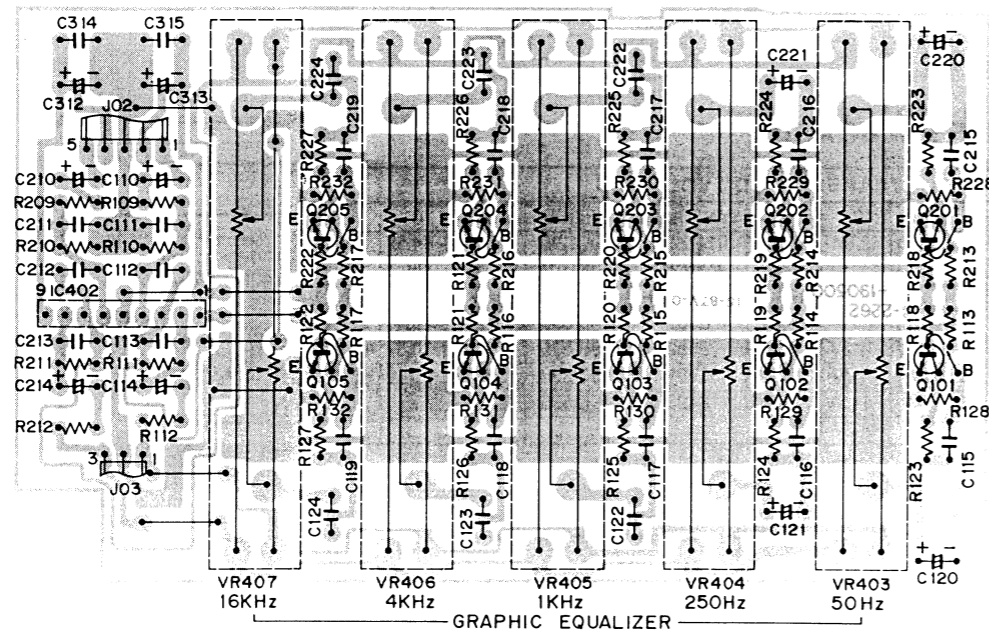


PHONO P.C.BOARD (BOTTOM VIEW)



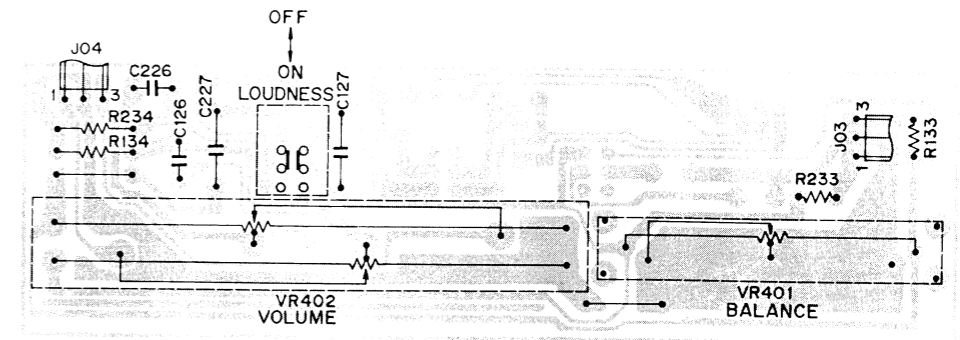
IC PIN NUMBERS DC VOLTAGES									
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8
IC401	NJM072	0V	0V	0.1V	-19.9V	0V	0V	0V	20.5V

GRAPHIC EQUALIZER P.C.BOARD (BOTTOM VIEW)

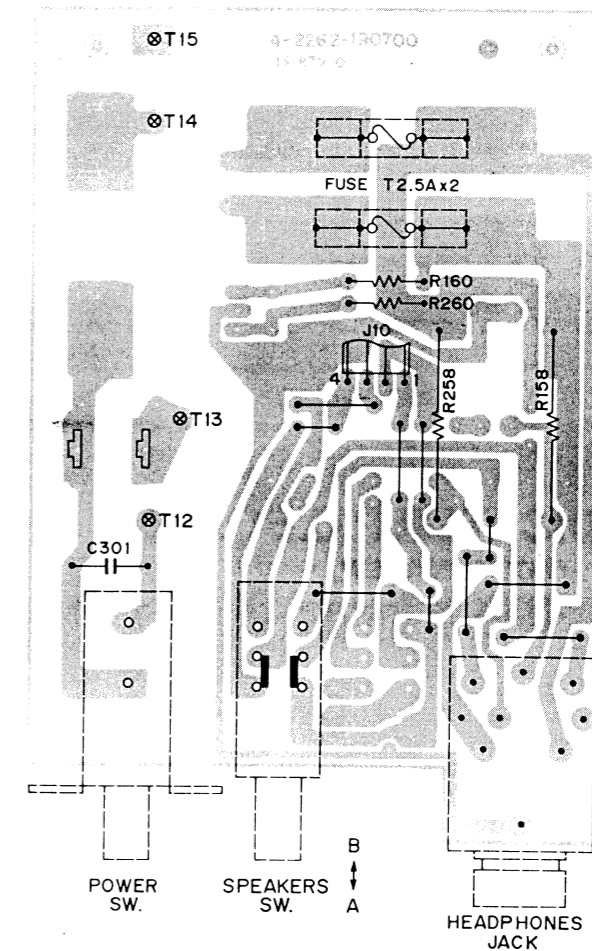


IC PIN NUMBERS DC VOLTAGES										
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9
IC402	LA 6458S	19.6V	0V	0V	0V	-19.0V	0V	0V	0V	19.6V

VOLUME P.C.BOARD (BOTTOM VIEW)

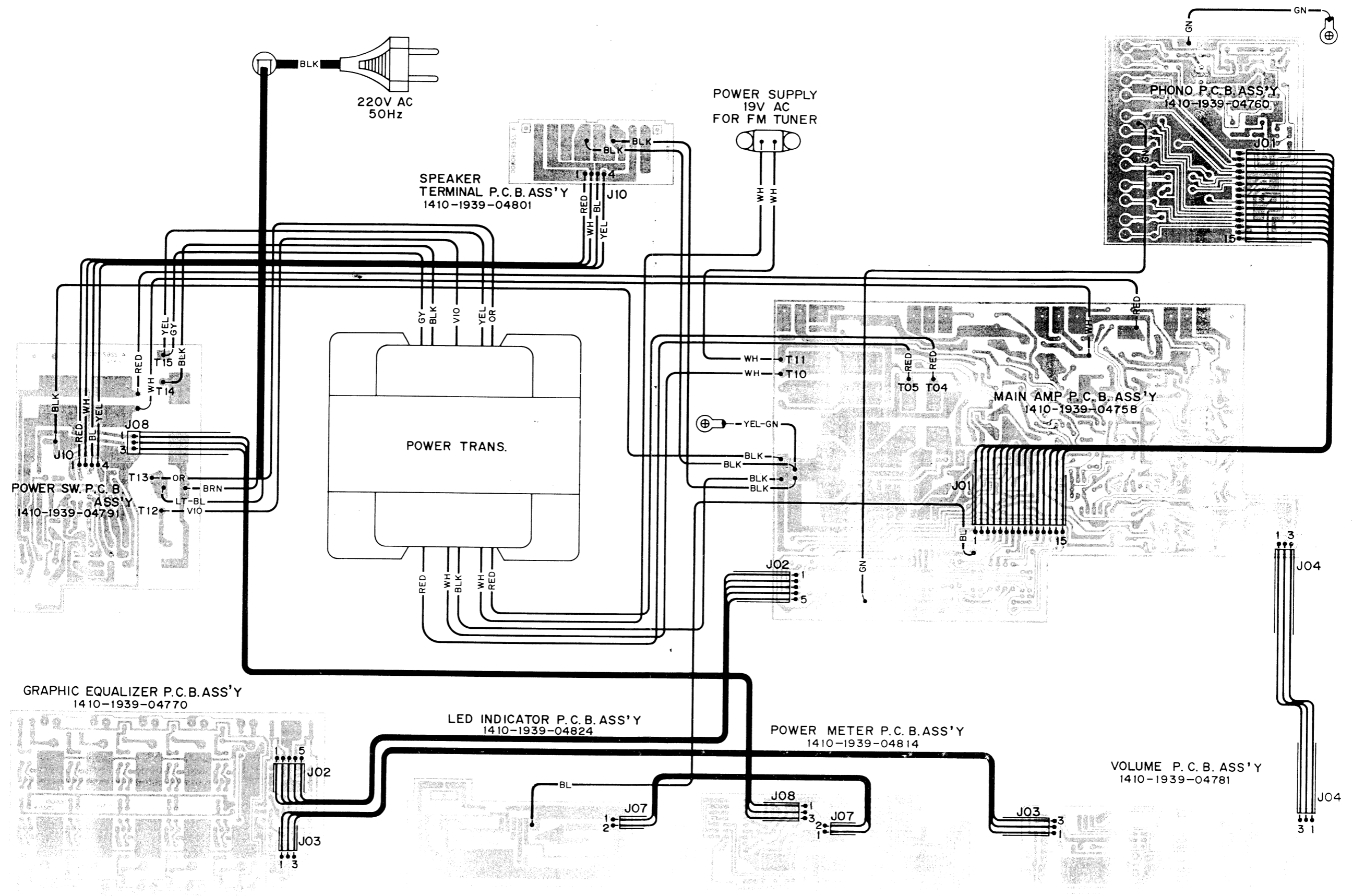


POWER SWITCH P.C.BOARD (BOTTOM VIEW)

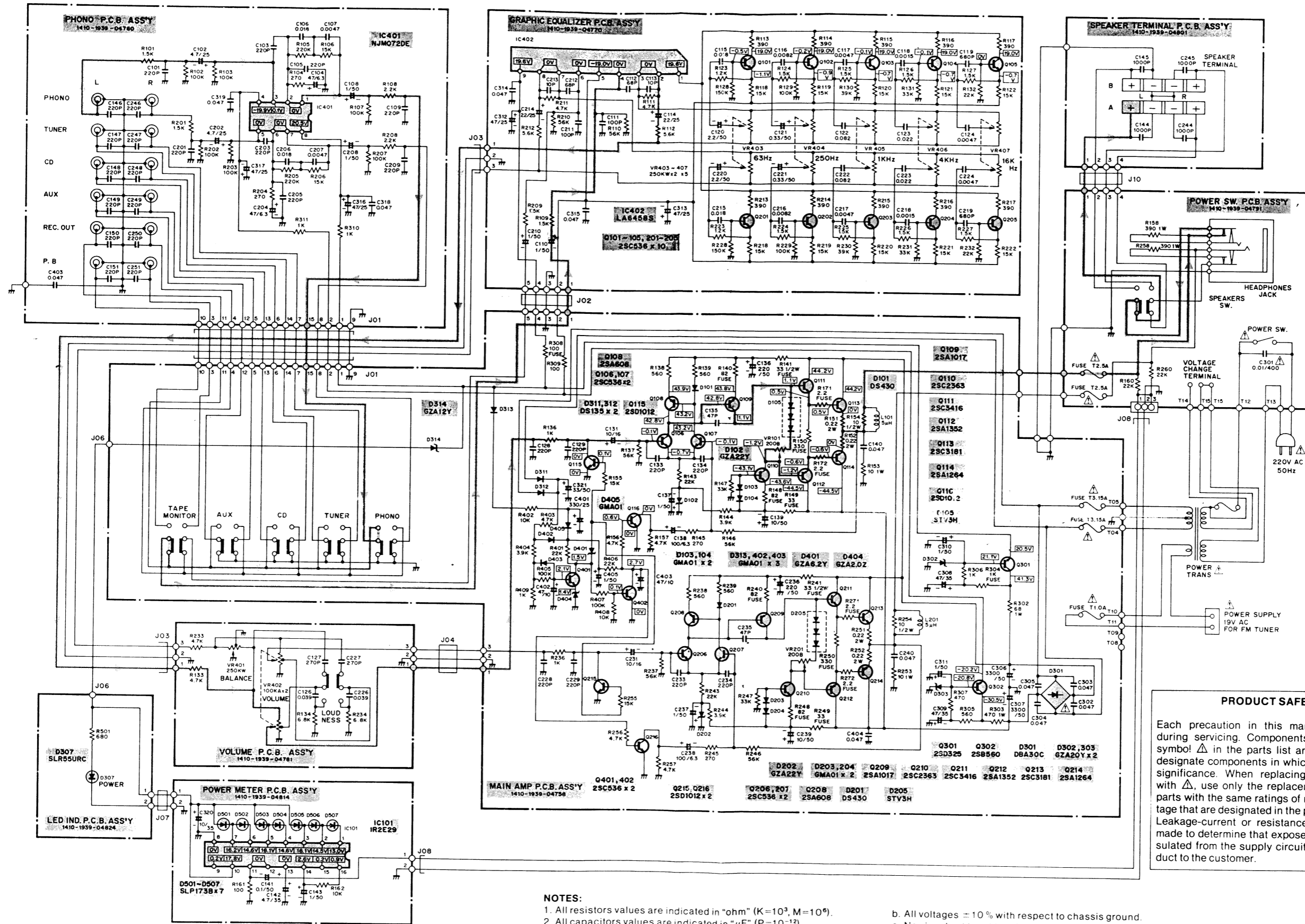


TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q101,201	2SC 536	-0.5V	19.0V	-1.1V
Q102,202	2SC 536	-0.2V	19.0V	-0.9V
Q103,203	2SC 536	-0.1V	19.0V	-0.7V
Q104,204	2SC 536	-0.1V	19.0V	-0.7V
Q105,205	2SC 536	0V	19.0V	-0.7V

POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM

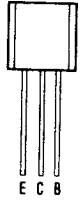
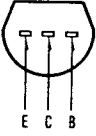
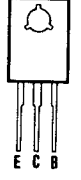

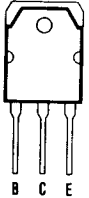

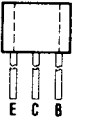

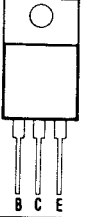



NOTES:

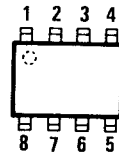
1. All resistors values are indicated in "ohm" (K=10³, M=10⁶).
2. All capacitors values are indicated in "μF" (P=10⁻¹²).
3. All voltages indicated on the schematics are measured under the following conditions.
 - a. Use a V.T.V.M.
 - b. All voltages ± 10% with respect to chassis ground.
 - c. No signals at input terminals.
 - d. AC input at 220 volts 50 Hz.
4. This is a basic schematic diagram.

Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

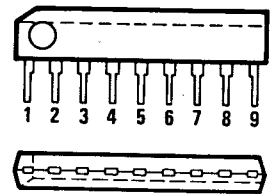
SEMICONDUCTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA608 2SA1017 2SB560 2SC536 2SC2363		
2SA1352 2SC3416		
2SA1264 2SC3181		
2SD1012		
2SD325		
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

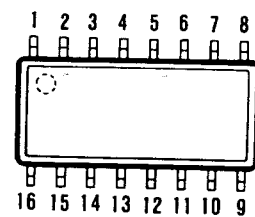
NJM072DE BOTTOM VIEW



LA6458S FRONT/BOTTOM VIEWS



IR2E29 BOTTOM VIEW





FISHER Hi-Fi Europa Vertriebs GmbH