

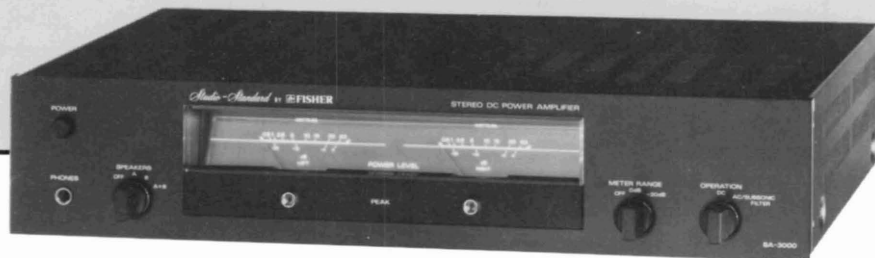
SERVICE MANUAL



# FISHER

# BA-3000

Power Amplifier



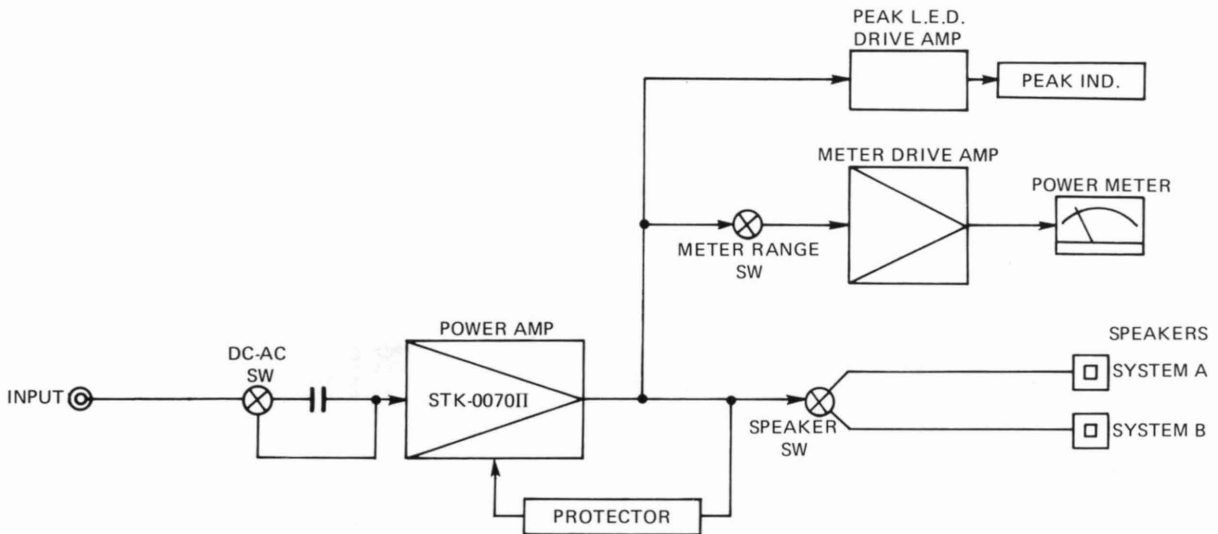
*The first name in high fidelity*

U.S.

# CONTENTS

Functional Block Diagram .....	2
Specification .....	3
Cabinet & Chassis Exploded View .....	4
Parts List .....	5
Input Switch P.C.Board .....	6
L.E.D. P.C.Board .....	6
SP Select P.C.Board .....	6
Parts List .....	6
Power Supply P.C. Board .....	7
Meter P.C.Board .....	7
Parts List .....	7
Power Amp P.C. Board .....	8
Parts List .....	9
Adjustment of the Power Amp P.C. Board .....	10
Explanation of Protective Circuits .....	10
Point to Point Wiring Diagram .....	11,12
Schematic Diagram .....	13,14
Semiconductor Lead Identification .....	15
Power Amp IC STK0070II Equivalent Circuit .....	15

## FUNCTIONAL BLOCK DIAGRAM



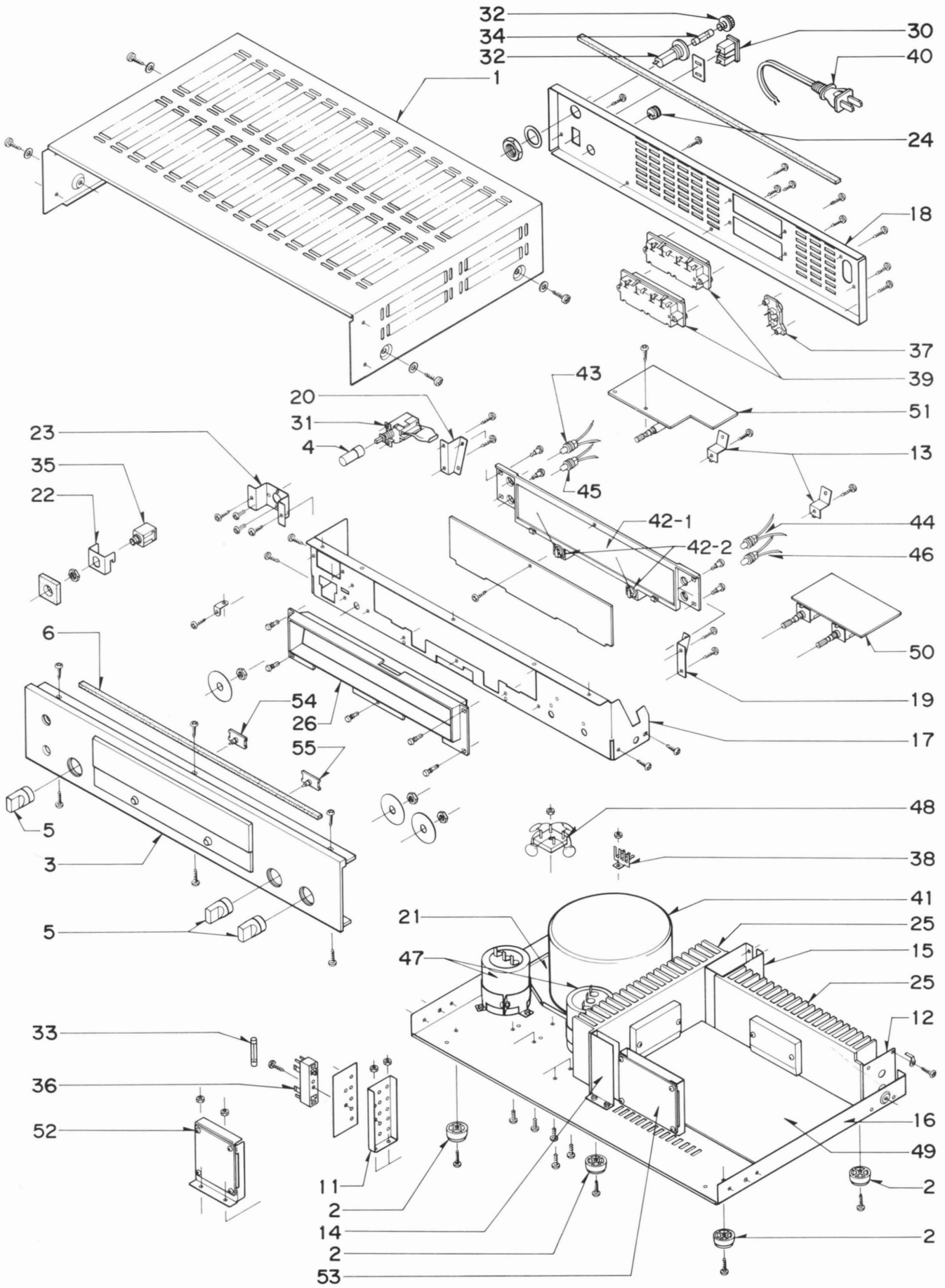
# SPECIFICATIONS

AMPLIFIER	BA-3000
Minimum RMS sine wave power per channel within stated bandwidth at no more than stated distortion and with 8 ohm load.	60 Watts
Power Bandwidth	20 Hz – 20 kHz
Total Harmonic Distortion	0.01 %
IM Distortion	0.01 %
Speaker Damping	>50
Frequency Response	DC to 75 kHz, $\pm 1$ dB
Input Sensitivity and Impedance	1000 mV/50 k $\Omega$
Headphones Output	5V/100 $\Omega$
Level Meters	VU Meter
Meter Range Switch	0 dB/–20 dB
Subsonic Filter below 5 Hz	12 dB/Oct.
Signal/Noise Ratio (Short Circuit A Network)	110 dB
Power Requirements	120 V AC $\pm 10\%$ 60 Hz, 350 W
Dimensions (W x D x H)	17-1/3" x 12-1/2" x 3-1/2" 440 x 320 x 89 mm
Weight (approx.)	21 lbs./9.5 kg

*Because Fisher products are subject to continuous improvement, Fisher reserves the right to modify, change, or alter any design or specifications without notice and without incurring any obligation. Fisher reserves the right to make changes and improvements upon its products without any obligation to install such changes upon any of its products previously manufactured.*

**NOTE:** The photograph on the cover shows the BA-3000 with a "BLACK" front panel. The "SILVER" model is identical in all respects.

# CABINET & CHASSIS EXPLODED VIEW



# PARTS LIST

## PACKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1139 72436	Box Corrugate-EXP
	131 6 2119 02091	Bag Polyethylene-EXP
	131 6 3009 26910	Pad (Right, Left)

## ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	4 2349 20912	Fuse 5.0 A
	131 2 1801 13900	Leg
	131 6 2719 10801	Bag Fan
	131 6 2719 11300	Bag Fan
	131 6 2719 11400	Bag Fan (Fuse)
	131 6 4119 79501	Explanatory Booklet
	131 6 4519 14400	Guarantee Card
	131 6 4319 10802	Service Station List
	131 6 4939 00200	Information Card

## CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	131 2 1410 22700	Cover
2	131 2 1801 12900	Leg

## APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
3	131 0 1016 34102	Panel Decorate Assy (Silver)
	131 0 1016 34103	Panel Decorate Assy (Black)
4	131 0 1001 52600	Power Switch Knob (Silver)
	131 0 1001 52601	Power Switch Knob (Black)
5	131 0 1001 53700	Function Knob (Silver)
	131 0 1001 53701	Function Knob (Black)
6	131 2 5205 15300	Cushion

## CHASSIS PARTS LIST

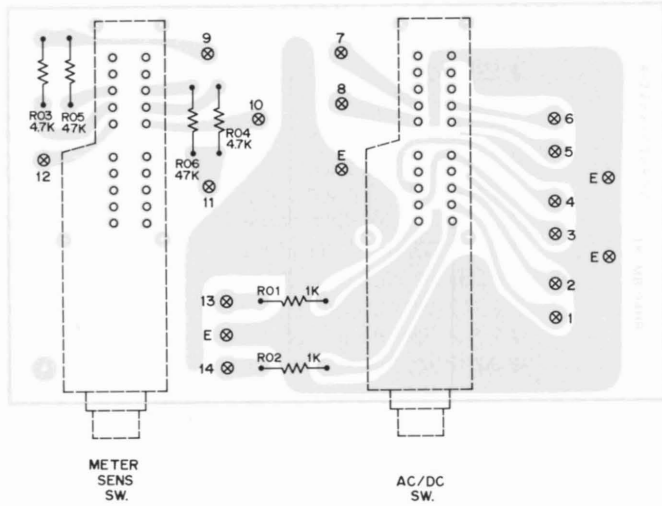
Ref. No.	Parts Number	Description
11	131 2 3101 67000	Metal Mount (Fuse)
12	131 2 3101 67100	Metal Mount (Heat Sink R Side)
13	131 2 3101 67200	Metal Mount (Plate Dial Rear)
14	131 2 3101 67500	Metal Mount (Heat Sink Center)
15	131 2 3101 67600	Metal Mount (Heat Sink)
16	* 131 2 3301 26000	Chassis
17	* 131 2 3305 27200	Panel Front
18	* 131 2 3306 30401	Panel Rear
19	131 2 3310 16100	Metal Support (Plate Dial Rear)
20	131 2 3310 16200	Metal Support (Plate Dial Rear)
21	131 2 3617 17900	Metal Mount Transformer
22	131 2 3624 13100	Mount Headphone Jack
23	131 2 3701 24900	Mount Electric Part (Power Switch)
24	131 2 6111 11300	Bushing (AC Cord)
25	131 2 6201 27500	Plate Heat Sink
26	131 2 6113 35400	Shelter

## ELECTRICAL PARTS LIST

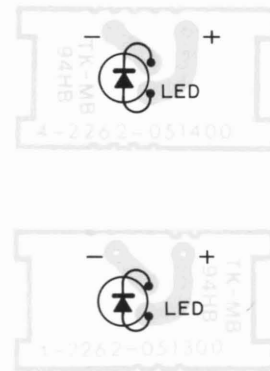
Ref. No.	Parts Number	Description
30	4 2352 00400	AC Outlet
31	4 2312 00880	Switch Power
32	4 2359 21110	Fuse Holder
33	4 2342 00010	Fuse 1 A
34	4 2349 20912	Fuse 5 A
35	4 2352 00030	Jack Headphone
36	4 2352 00340	Fuse Holder
37	4 2359 23070	RCA 2P Jack
38	4 2372 00140	Terminal GND
39	4 2372 00680	SP Terminal
40	4 2439 20526	Power Cord
41	4 2512 10220	Power Transformer
42	4 5112 00460	Meter VU Assy
42-1	131 0 1018 00900	Housing Assy
42-2	131 0 9905 00600	Movement
43	4 6122 00600	Pilot Lamp (8V 200mA)
44	4 6122 00620	Pilot Lamp (8V 200mA)
45	4 6122 01120	Pilot Lamp (8V 200mA)
46	4 6122 01130	Pilot Lamp (8V 200mA, Yellow)
C01,02	C2HYDP103A	Ceramic 0.01 $\mu$ F 500V +100,-0%
	03,04	
	05	
47(C06,07)	4 2232 00270	Electrolytic 4700 $\mu$ Fx2 63V
C09	C1HYDZ473A	Ceramic 0.047 $\mu$ F 50V +80,-20%
48(D01)	DDD-S5VB20	Diode, S5VB20
49	131 0 4001 03680	Power Amp P.C.B. Assy
50	* 131 0 4001 03691	Input Switch P.C.B. Assy
51	* 131 0 4001 03701	SP Select P.C.B. Assy
52	* 131 0 4001 03711	Power Supply P.C.B. Assy
53	* 131 0 4001 03721	Meter P.C.B. Assy
54	* 131 0 4001 03731	L.E.D. P.C.B. Assy
55	* 131 0 4001 03741	L.E.D. P.C.B. Assy

\*—Not a Service Part.

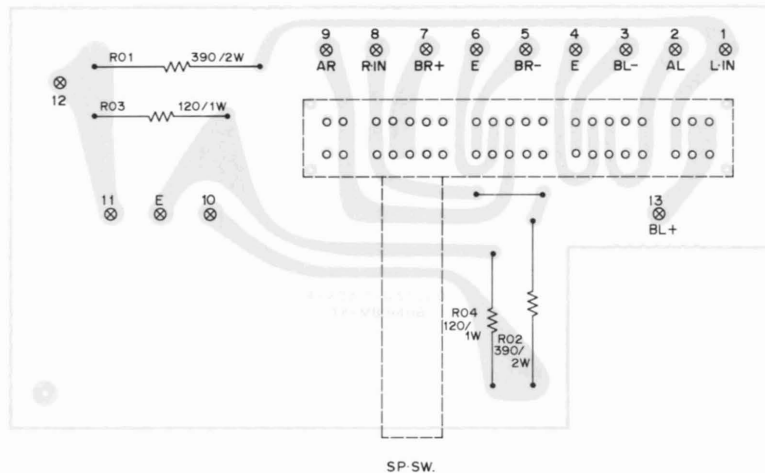
# INPUT SWITCH P.C.BOARD (BOTTOM VIEW)



# L.E.D. P.C.BOARD (BOTTOM VIEW)



# SP SELECT P.C.BOARD (BOTTOM VIEW)



## PARTS LIST

### INPUT SWITCH P.C.B. Assy 131 0 4001 03691

Ref. No.	Parts Number	Description
	4 2312 03630	Switch Rotary 2-3
	4 2312 03640	Switch Rotary 4-2

#### RESISTORS

Ref. No.	Parts Number	Description
R01,02	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R03,04	R2EDZJ472APA	Carbon 4.7k 1/4W ±5%
R05,06	R2EDZJ473APA	Carbon 47k 1/4W ±5%

### L.E.D. P.C.B. Assy 131 0 4001 03731

Ref. No.	Parts Number	Description
		<b>SEMICONDUCTORS</b>
D01	DOO-SLP-132B	Diode, SLP-132B

### SP SELECT P.C.B. Assy 131 0 4001 03701

Ref. No.	Parts Number	Description
	4 2312 03660	Switch Rotary 8-4

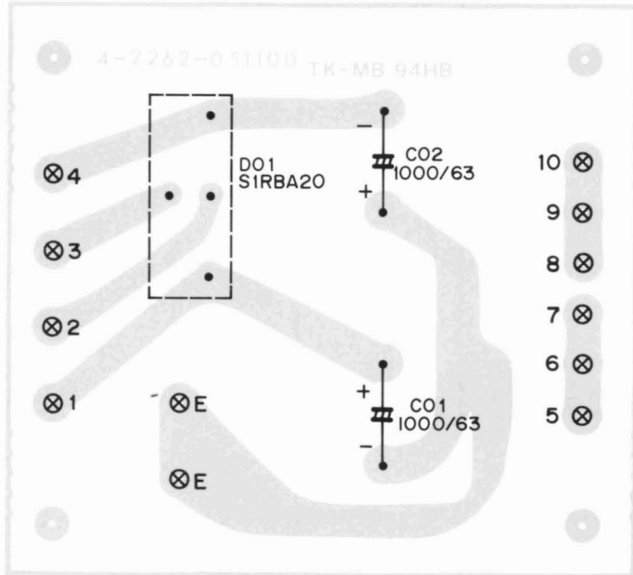
#### RESISTORS

Ref. No.	Parts Number	Description
R01,02	R3DXBJ391A	Oxide Metal Film 390 2W ±5%
R03,04	R3AXBK121A	Oxide Metal Film 120 1W ±5%

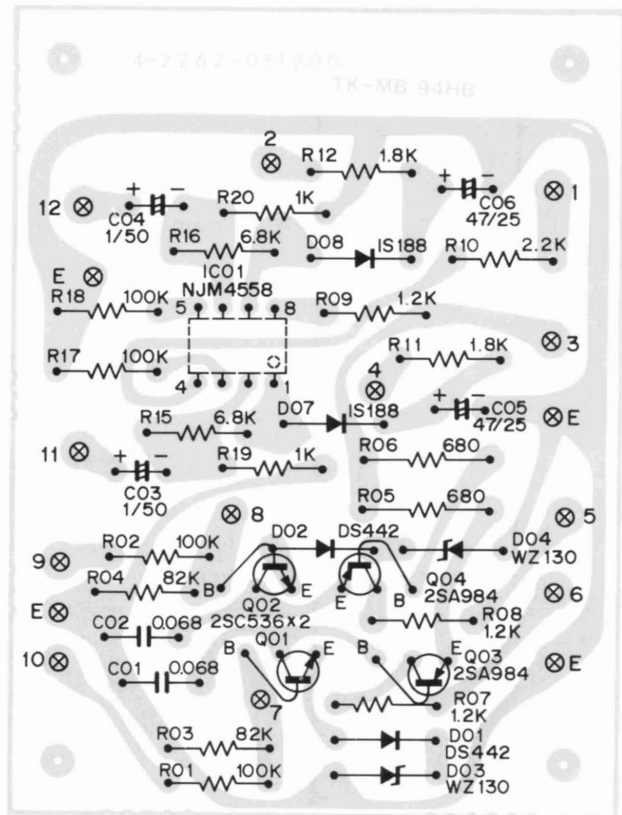
### L.E.D. P.C.B. Assy 131 0 4001 03741

Ref. No.	Parts Number	Description
		<b>SEMICONDUCTORS</b>
D01	DOO-SLP-132B	Diode, SLP-132B

# POWER SUPPLY P.C.BOARD (BOTTOM VIEW)



# METER P.C.BOARD (BOTTOM VIEW)



IC PIN NUMBERS VOLTAGE					
SYMBOL No.	DEVICE	1	2	3	4
IC01	NJM4558	0V	0V	0V	-19.0V
		5	6	7	8
		0V	0V	0V	22.0V

## PARTS LIST

### POWER SUPPLY P.C.B. Assy 131 0 4001 03711

Ref. No. Parts Number Description

#### CAPACITORS

C01,02 4 2232 00320 Electrolytic 1000  $\mu$ F 63V

#### SEMICONDUCTORS

D01 DDD-S1RBA20 Diode, Bridge S1RBA20

### METER P.C.B. Assy 131 0 4001 03721

Ref. No. Parts Number Description

#### CAPACITORS

C01,02 C1HFAJ683A Mylar 0.068  $\mu$ F 50V  $\pm$ 5%  
 C03,04 C1HRY-105APA Electrolytic 1  $\mu$ F 50V  
 C05,06 C1ERY-476APA Electrolytic 47  $\mu$ F 25V

Ref. No. Parts Number Description

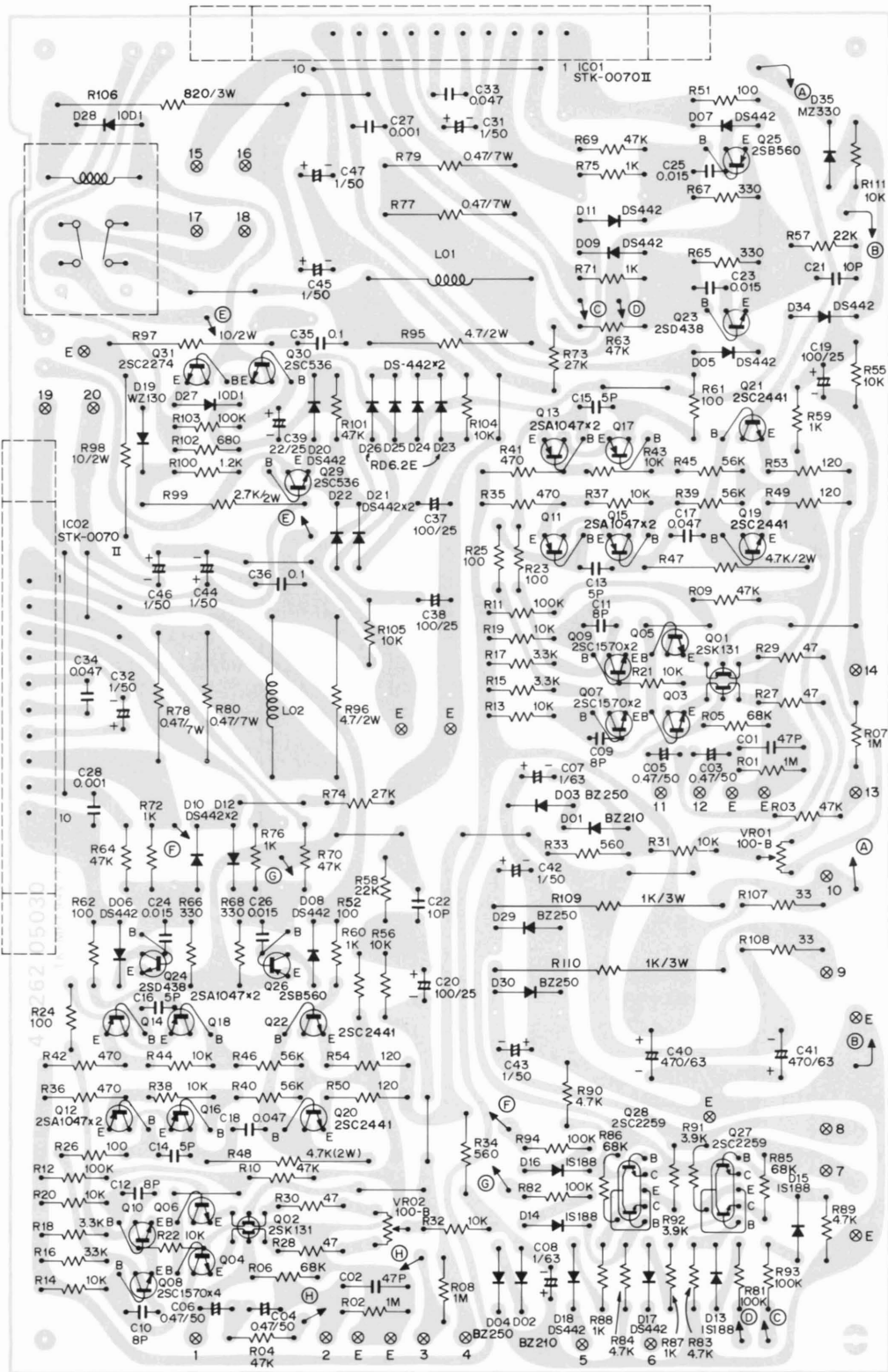
#### SEMICONDUCTORS

D01,02 205 5 9040 44210 Diode, DS442  
 D03,04 DJJ-WZ-130 Diode, WZ-130  
 D07,08 202 5 9110 18820 Diode, 1S188FM1  
 IC01 IJJ-NJM4558DX IC, NJM4558D  
 Q01,02 203 5 5000 53660 TR 2SC536 F, G  
 Q03,04 203 5 6820 98450 TR 2SA984

#### RESISTORS

R01,02 R2EDZJ104APA Carbon 100k 1/4W  $\pm$ 5%  
 R03,04 R2EDZJ823APA Carbon 82k 1/4W  $\pm$ 5%  
 R05,06 R2HZPK681A Fuse 680 1/2W  $\pm$ 10%  
 R07,08 R2EDZJ122APA Carbon 1.2k 1/4W  $\pm$ 5%  
 09  
 R10 R2EDZJ222APA Carbon 2.2k 1/4W  $\pm$ 5%  
 R11,12 R2EDZJ182APA Carbon 1.8k 1/4W  $\pm$ 5%  
 R15,16 R2EDZJ682APA Carbon 6.8k 1/4W  $\pm$ 5%  
 R17,18 R2EDZJ104APA Carbon 100k 1/4W  $\pm$ 5%  
 - 7 - R19,20 R2EDZJ102APA Carbon 1k 1/4W  $\pm$ 5%

# POWER AMP P.C.BOARD (BOTTOM VIEW)



IC PIN NUMBERS VOLTAGES											
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10
IC01,02	STK-0070II	-3.5V	-49.0V	0V	-1.8V	-0.6V	0.6V	1.8V	0V	49.0V	3.5V





# ADJUSTMENT OF THE POWER AMP P.C.BOARD

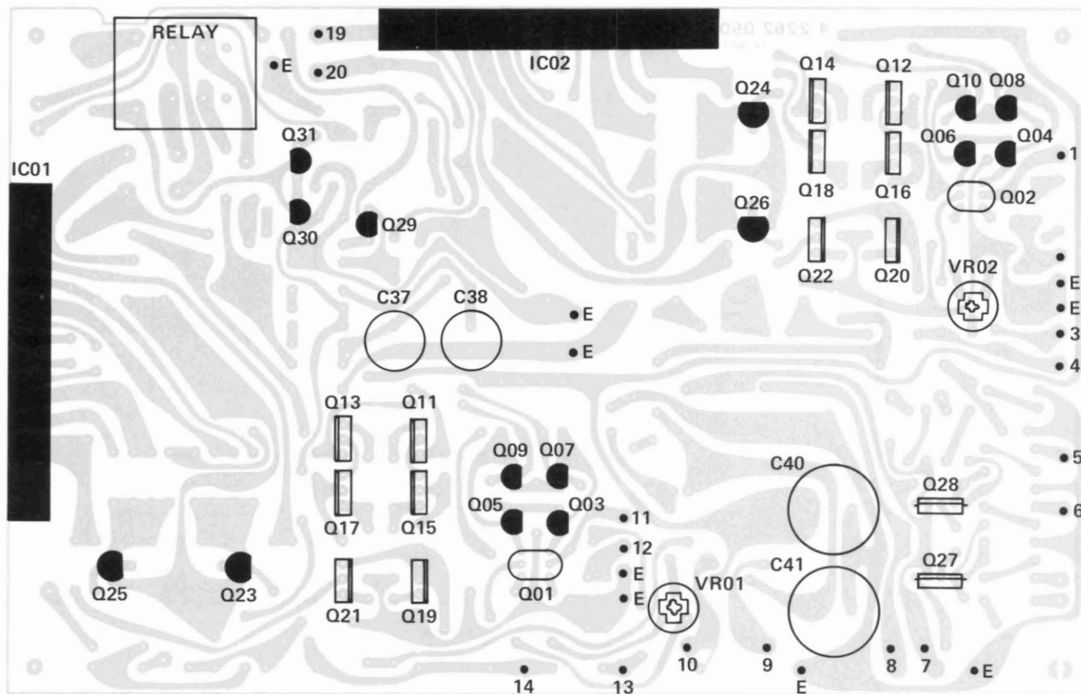
## BEFORE ADJUSTMENT

1. After the power switch is turned ON, allow a few minutes before making adjustment, to be sure of the most stable operation.
2. Connect dummy load resistors (8 ohms) to the SPEAKERS terminals.
3. Use a DC V.T.V.M. (input impedance: More than 50k ohms/V).

## ZERO BALANCE ADJUSTMENT

- Connect DC V.T.V.M. to the speaker output terminal. Turn VR01,02 until the output voltage becomes 0 V.

## POWER AMP P.C.BOARD LAYOUT (TOP VIEW)

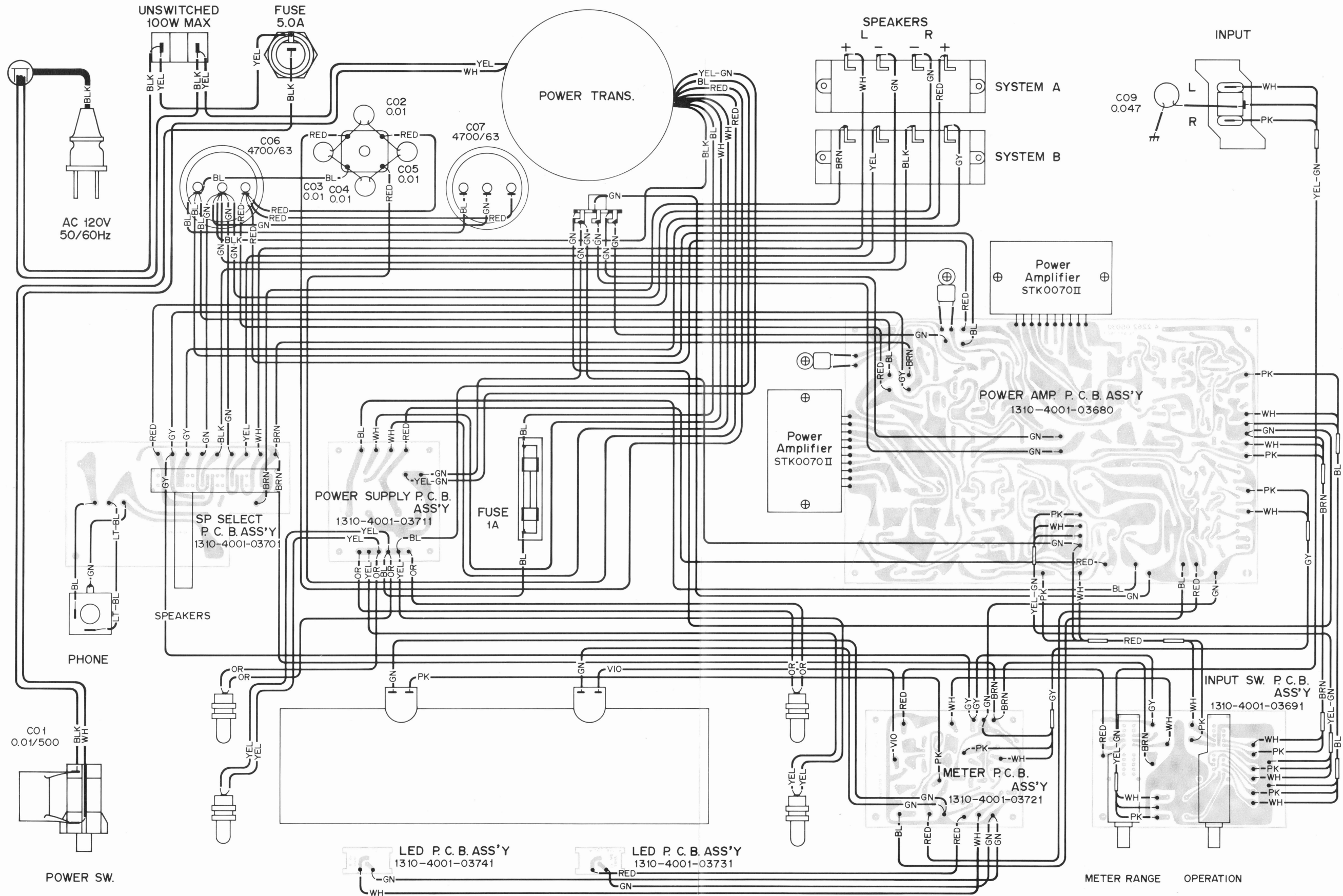


## EXPLANATION OF PROTECTIVE CIRCUITS

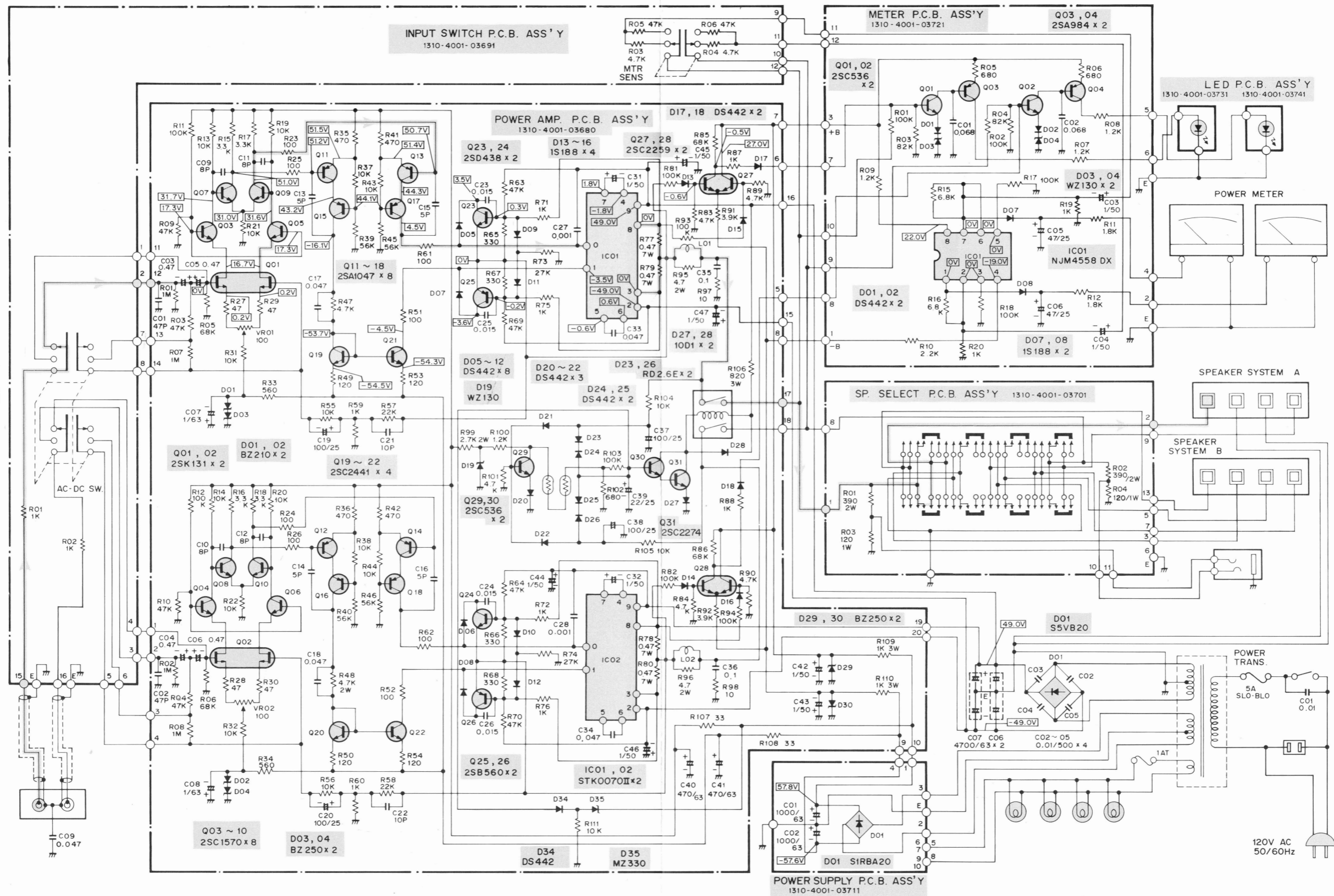
\*For about two seconds after the power switch is turned on, the speakers remain silent because the power muting circuit operates during this time.

\*If the speaker terminals are short-circuited or the ventilation holes at the cabinet top are blocked during long periods of operation, the internal temperature may rise abnormally. At about 90°C, the thermal sensor (temperature detection) circuit becomes activated and will interrupt the signal. If the cause is removed and the internal temperature is back to normal, the unit automatically resets itself to restore normal operation.

# POINT TO POINT WIRING DIAGRAM



# SCHEMATIC DIAGRAM

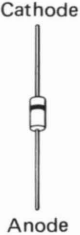
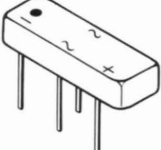
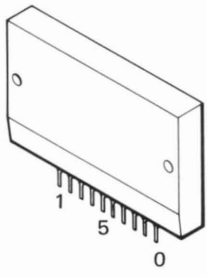
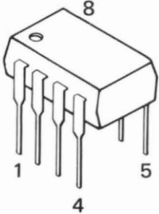

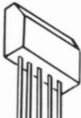
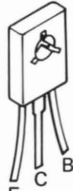

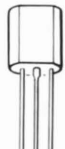


**NOTES:**

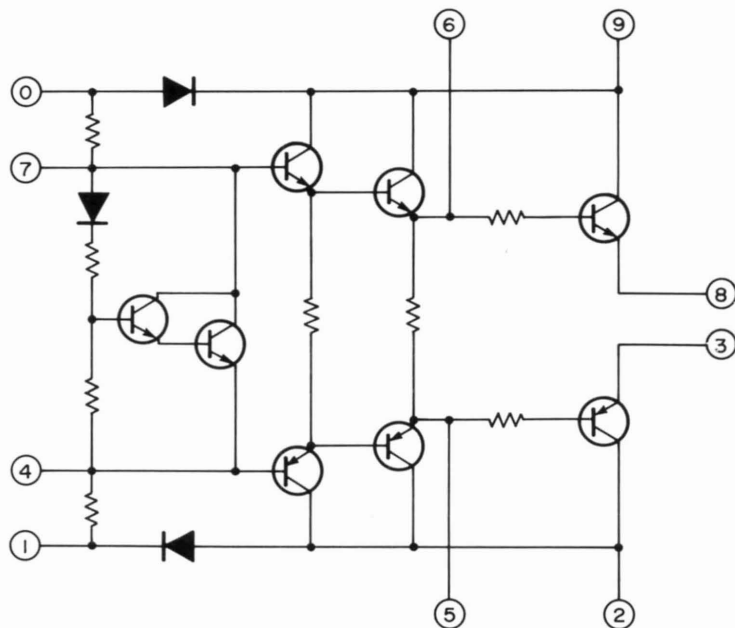
1. All resistors values are indicated in "ohm" (K=10<sup>3</sup>, M=10<sup>6</sup>).
2. All capacitors values are indicated in "μF" (P=10<sup>-12</sup>).
3. All voltages indicated on the schematics are measured under the following conditions.
  - a. Use a V.T.V.M.
4. This is a basic schematic diagram.

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

# SEMICONDUCTOR LEAD IDENTIFICATION

DIODES	INTEGRATED CIRCUIT
 <ul style="list-style-type: none"> <li>• DS442</li> <li>• WZ130</li> <li>• 1S188</li> <li>• BZ-210</li> <li>• BZ-250</li> <li>• RD-6.2E</li> <li>• 10D1</li> <li>• MZ330A</li> </ul>  <ul style="list-style-type: none"> <li>• S1RBA20</li> </ul>	 <ul style="list-style-type: none"> <li>• STK0070II</li> </ul>  <ul style="list-style-type: none"> <li>• NJM4558</li> </ul>
TRANSISTORS	
 <p>S<sub>G</sub>D S<sub>G</sub>D</p> <ul style="list-style-type: none"> <li>• 2SK131</li> </ul>  <p>BCECB</p> <ul style="list-style-type: none"> <li>• 2SC2259</li> </ul>	
 <p>E C B</p> <ul style="list-style-type: none"> <li>• 2SA1047</li> <li>• 2SC2441</li> </ul>	 <p>ECB</p> <ul style="list-style-type: none"> <li>• 2SC536</li> <li>• 2SC1570</li> <li>• 2SC2274</li> </ul>  <p>ECB</p> <ul style="list-style-type: none"> <li>• 2SD438</li> <li>• 2SB560</li> </ul>

## POWER AMP IC STK0070II EQUIVALENT CIRCUIT





**FISHER**

*THE FIRST NAME IN HIGH FIDELITY*

*Studio-Standard*

FISHER CORPORATION, 21314 LASSEN STREET • CHATSWORTH • CALIFORNIA 91311

PRINTED IN JAPAN 80/Jun. **WM-5095**