

SERVICE MANUAL



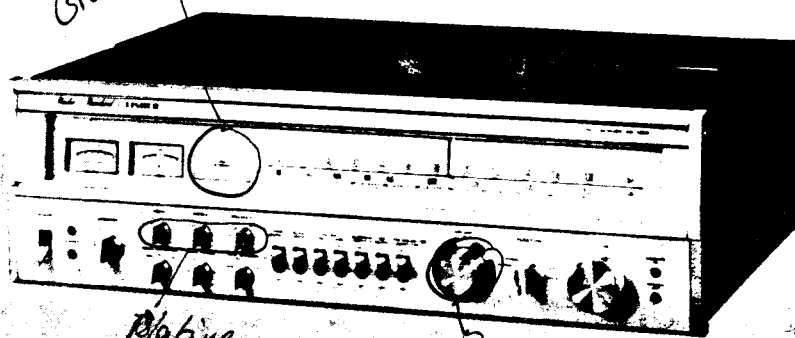
FISHER

RS-1060

RS-1080

Stereo Receivers

"Globe Borne" → FM Stereo
(EUROPE)



RS-1060



RS-1080

THE FIRST NAME IN HIGH FIDELITY

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Nominal Specifications For Information Only.

RECEIVERS		RS-1060	RS-1080
POWER AMPLIFIER SECTION Continuous RMS sine wave power per channel within stated bandwidth at no more than stated distortion and with an 8 ohm load.		125 W	170 W
Power Bandwidth		20 Hz/20 kHz	20 Hz/20 kHz
Total Harmonic Distortion		0.1 %	0.1 %
PREAMPLIFIER SECTION Input Sensitivity and Impedance At rated output, 8-ohms at 1 kHz Phono (1 and 2)		2 mV/50k ohm	2 mV/50k ohm
Phono (max input capability)		300 mV	300 mV
Auxiliary		150 mV/100k ohm	150 mV/100k ohm
Tape Monitor (1 and 2)		150 mV/100k ohm	150 mV/100k ohm
Hum & Noise (below rated output) Phono (1 and 2)		70 dB	70 dB
Auxiliary		82 dB	82 dB
Tape Monitor (1 and 2)		80 dB	80 dB
Frequency Response Phono (30 Hz — 15 kHz)		± 0.5 dB	± 0.5 dB
Auxiliary input 20 Hz — 20 kHz		± 0.5 dB	± 0.5 dB
Tape Monitor input 20 Hz — 20 kHz		± 0.5 dB	± 0.5 dB
Bass Control Range (at 100 Hz)		± 12 dB	± 12 dB
Treble Control Range (at 10 kHz)		± 12 dB	± 12 dB
Bass Selector (Bass Range: Max.)		45 Hz/OFF/80 Hz	45 Hz/OFF/80 Hz
Loudness Contour (at 30 dB volume attenuation)		+8 dB at 100 Hz	+8 dB at 100 Hz
		+3.5 dB at 10 kHz	+3.5 dB at 10 kHz
High Filter		-6 dB (5 kHz)	-6 dB (5 kHz)
Low Filter		-6 dB (30 Hz)	-6 dB (30 Hz)
Separation (Stereo from AUX)		50 dB	50 dB
POWER SECTION INPUT		150 mV/100k ohm	150 mV/100k ohm
FM TUNER SECTION Usable Sensitivity	Mono	1.7 μ V/9.8 dBf	1.7 μ V/9.8 dBf
	Stereo	4.3 μ V/17.9 dBf	4.3 μ V/17.9 dBf
50 dB Quieting Sensitivity	Mono	2.5 μ V/13.2 dBf	2.5 μ V/13.2 dBf
	Stereo	34 μ V/35.8 dBf	34 μ V/35.8 dBf
Capture Ratio		0.8 dB	0.8 dB
Alt. Channel Selectivity		75 dB	75 dB
Image Response Ratio		100 dB	100 dB
Spurious Response Ratio		100 dB	100 dB
AM Suppression Ratio		65 dB	65 dB
Signal-to-Noise Ratio (Mono & Stereo)		80/75 dB	80/75 dB
Total Harm. Distortion (Mono & Stereo)		0.1/0.15 %	0.1/0.15 %
50 dB Quieting Sensitivity THD	Mono	0.3 %	0.3 %
	Stereo	0.4 %	0.4 %
Stereo Separation (1 kHz/10 kHz)		50/36 dB	50/36 dB
Sub-Carrier Product Ratio		70 dB	70 dB
AM TUNER SECTION Sensitivity		280 μ V/m	280 μ V/m
Selectivity (±10 kHz)		45 dB	45 dB
Signal-to-Noise Ratio		55 dB	55 dB
Image Response Ratio		70 dB	70 dB
IF Response Ratio		80 dB	80 dB
GENERAL Power Requirements (50 Hz)		AC 110/220V	AC 110/220V
Power Consumption		800 W/920 VA	1000 W/1200 VA
Dimensions H x W x D (inches)		1-3/8" x 23-3/4" x 16-15/16"	1-3/8" x 23-3/4" x 18-9/16"
Weight (lbs.)		54	65

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RECOMMENDED TEST EQUIPMENT

The following test equipment is recommended to completely test and align the Receiver.

- 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)
- Low-Distortion AM-FM Signal Generator
- 10.7 MHz Sweep Generator
- Multiplex Generator
- 455 kHz Sweep Generator

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 terminals.

CONTROL SETTINGS:

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

TONE controls and BALANCE controls to center positions
POWER switch to OFF
SPEAKERS switch to PHONES
FUNCTION switch to AUX
HIGH & LOW, FILTER, MONO MODE, LOUDNESS CONTOUR and TAPE MONITOR switch to OFF and 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 MAIN 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 MAIN. Turn VOLUME control to MAX.
- 4) Increase generator output for
RS-1060 125W RMS (31.6V across the 8-ohm load)
RS-1080 170W RMS (36.8V across the 8-ohm load)
Harmonic Distortion Analyzer should measure approximately 0.1% distortion.
- 5) Repeat steps 1 through 4 for RIGHT CHANNEL.

BOTH CHANNELS DRIVEN

Connect 8-ohm load resistors across LEFT and RIGHT MAIN SPEAKERS terminals. Push down "MONO" switch. Adjust generator output and "BALANCE" control for RS-1060: 125W/RS-1080: 170W at Left and Right Channels (RS-1060: 31.6V /RS-1080: 36.8V) across the 8-ohm loads. Harmonic Distortion Analyzer should measure approximately 0.1% distortion at each channel.

DISASSEMBLY INSTRUCTIONS

Removal of Chassis from Cabinet

1. Remove 6 screws from left and right sides of cabinet.
2. Separate cabinet from chassis.
3. Remove 18 screws from bottom of cabinet.
4. Remove 4 screws from Leg.
5. Separate bottom of cabinet from chassis.

Removal of Front Panel Assembly

1. With Allen wrench remove Tuning and Volume Knobs.
2. Remove all Knobs and Lever switches from panel.
3. Remove 2 screws from top of panel.
4. Remove 2 screws from bottom of panel.
5. Remove nut from "Function" and "Speaker" switches located on Front Panel Assembly.
6. Separate Front Panel Assembly from chassis.

Removal of Slide Rail Pointer

1. Remove Metal Slide Pointer from Slide Rail Pointer.
2. Remove 3 screws from top of Slide Rail Pointer.
3. Remove 2 screws from left and right sides of Slide Rail Pointer.

Removal of Meter

1. Remove One screw and Meter Cover.
2. Unsolder leads from meter terminals.
3. Grasp Meter firmly and pull back separating Meter from panel.

Removal of AM-FM Stereo Function Indicator Lamps

1. Grasp base of lamp with long-nosed Pliers and Carefully extract from grommet holder.
2. Unsolder AM-FM Indicator Lamp from P.C. Board.

Removal and Replacement of Dial Lamps

1. Remove 4 plastic screws from top of Dial P.C. Board.
2. Grasp Dial Lamp and extract from lamp grommet holder.

Removal of Front End from Chassis

1. Unsolder leads from Front End terminal.
2. Unscrew 2 screws from Drum. (Do Not Remove Dial String From Drum.)
3. Remove 4 screws from insides of Front End. (Do Not Remove 4 screws From Outsides Of Front End Case.)

Testing and troubleshooting any of the P.C. boards does not require removal since all component parts are top board mounted. For underneath board inspection purposes or when a defective component is to be unsoldered and replaced, the P.C. board can be sufficiently turned over by only removing the hold down hardware. Where it necessitates complete removal of any individual board then proceed as follows.

Removal of AM-FM RF/IF/MPX Amp P.C. Board

1. Unsolder wire wraps from terminals.
2. Remove 4 screws from P.C. Board.
3. Slide P.C. Board from plastic clip.

Removal of Multi Path and Dolby P.C. Board (RS-1080 Only)

1. Unsolder wire wraps from terminals.
2. Remove 4 hold down screws.

Removal of EQ-Amp P.C. Board

1. Unsolder wire wraps from terminals.
2. Remove 4 Hold down screws.
3. Grasp P.C. Board and extract from Shield Case. (Do Not Remove Shield Case From Chassis.)

Removal of Protector P.C. Board

1. Unsolder wire wraps from terminals.
2. Remove 4 hold down screws.

Removal of Volume Ind and Volume P.C. Board

1. With Allen wrench remove Volume Ind P.C. Board from Volume Shaft.
2. Remove One nut holding Volume P.C. Board.
3. Unsolder wire wraps from terminals.

Removal of Pre Amp P.C. Board

1. Remove 14 screws from 7 Lever Switches.
2. Unplug 2 connectors.
3. Unsolder wire wraps from terminals.

Removal of Tone Control Amp P.C. Board

1. Remove 3 hold down nuts from Tone Control P.C. Board.
2. Unplug 2 connectors.

Removal of Low Range P.C. Board

1. Remove 2 hold down nuts from Low Range P.C. Board.
2. Unplug One connector.

Removal of Power Supply P.C. Board.

1. Remove 2 screws releasing clip holding P.C. Board.
2. Grasp P.C. Board firmly and extract from plug. (Do Not Remove Plug From Chassis.)

Removal of Power Amp P.C. Board

- * Please refer to Exploded View on Page 8.

PARTS LIST

Ref.No. Part Number Description

ACCESSORIES PARTS LIST

RS-1060	4 2349 20600	Fuse 5A Slow (Replacement Fuse)
	4 2349 29997	Fuse 10AT (Replacement Fuse)
RS-1080	4 2349 29996	Fuse 8AT (Replacement Fuse)
	4 2349 29998	Fuse 15AT (Replacement Fuse)
	4 2449 20230	Antenna FM
RS-1060	1316 4119 51205	Explanatory Booklet (English)
	1316 4119 51225	Explanatory Booklet (German)
RS-1080	1316 4119 51206	Explanatory Booklet (English)
	1316 4119 51226	Explanatory Booklet (German)
	1316 4159 26600	Notes (AC VOLT) (RS-1060)
	1316 4159 26601	Notes (AC VOLT) (RS-1080)

CABINET PARTS LIST

1	1310 1101 09000	Cabinet Assy (RS-1060)
1	1310 1101 09100	Cabinet Assy (RS-1080)
2 *	1312 1105 18200	Plate Bottom (RS-1060)
2 *	1312 1105 18300	Plate Bottom (RS-1080)
3	1312 1801 13800	Leg

APPEARANCE PARTS LIST

	1310 1001 35500	Knob, Function
5	1312 1601 41700	Knob, Tuning
6	1312 1601 41800	Knob, Volume
7	1310 1001 38000	Knob, Controls
8	1310 1001 36100	Knob, Lever Switch
9	1310 1016 23500	Dress Panel Assy (RS-1060)
9	1310 1016 23600	Dress Panel Assy (RS-1080)
10	1310 3011 16800	Dial Pointer Assy
*	1312 6308 16400	Filter
11	1312 1201 29000	Dial Plate (RS-1060)
11	1312 1201 29100	Dial Plate (RS-1080)

CHASSIS PARTS LIST

12	1310 3002 11100	Drum Assy, Tuning Gang
13	1310 3003 19600	Tuning Shaft Assy
14	1310 3008 11700	Support, Antenna Assy
15 *	1310 3020 05800	Pulley Assy Panel Rear
16 *	1310 3020 07800	Pulley Assy Right Front
17 *	1310 3020 07900	Pulley Assy Left Front
18 *	1312 3301 22200	Chassis
19 *	1312 3305 20900	Front Panel (RS-1060)
19 *	1312 3305 20901	Front Panel (RS-1080)
20 *	1312 3306 23002	Rear Panel (RS-1060)
20 *	1312 3306 23302	Rear Panel (RS-1080)
21	1312 3621 00400	Clamp, 75 ohm Coax.
22	1312 3621 00500	Base, Coax, Clamp
23	1312 4111 00400	Tension Spring
24 *	1312 4112 10200	Dial Cord
25 *	1312 4120 11500	Slide Rail Dial Pointer
26	1312 4121 00100	Coupling (Nylon)
27 *	1312 4201 12701	Screw, Panel Rear (FM ANT)
28 *	1312 6110 26100	Housing, Meter Lamp (RS-1060)
28 *	1312 6110 26600	Housing, Meter Lamp (RS-1080)
29 *	1312 6110 26200	Housing, Meter
30 *	1312 6110 26500	Housing, Dial Lamp P.C.B.
31 *	1312 6111 12100	Housing, Stereo Beacon Lamp
32 *	1312 6111 20200	Housing, IND Lamp (RS-1060)
32 *	1312 6111 20300	Housing, IND Lamp (RS-1080)
33 *	1312 6111 14801	Bushing, Line Cord
34 *	1312 6111 14200	Bushing, AM Antenna Lead

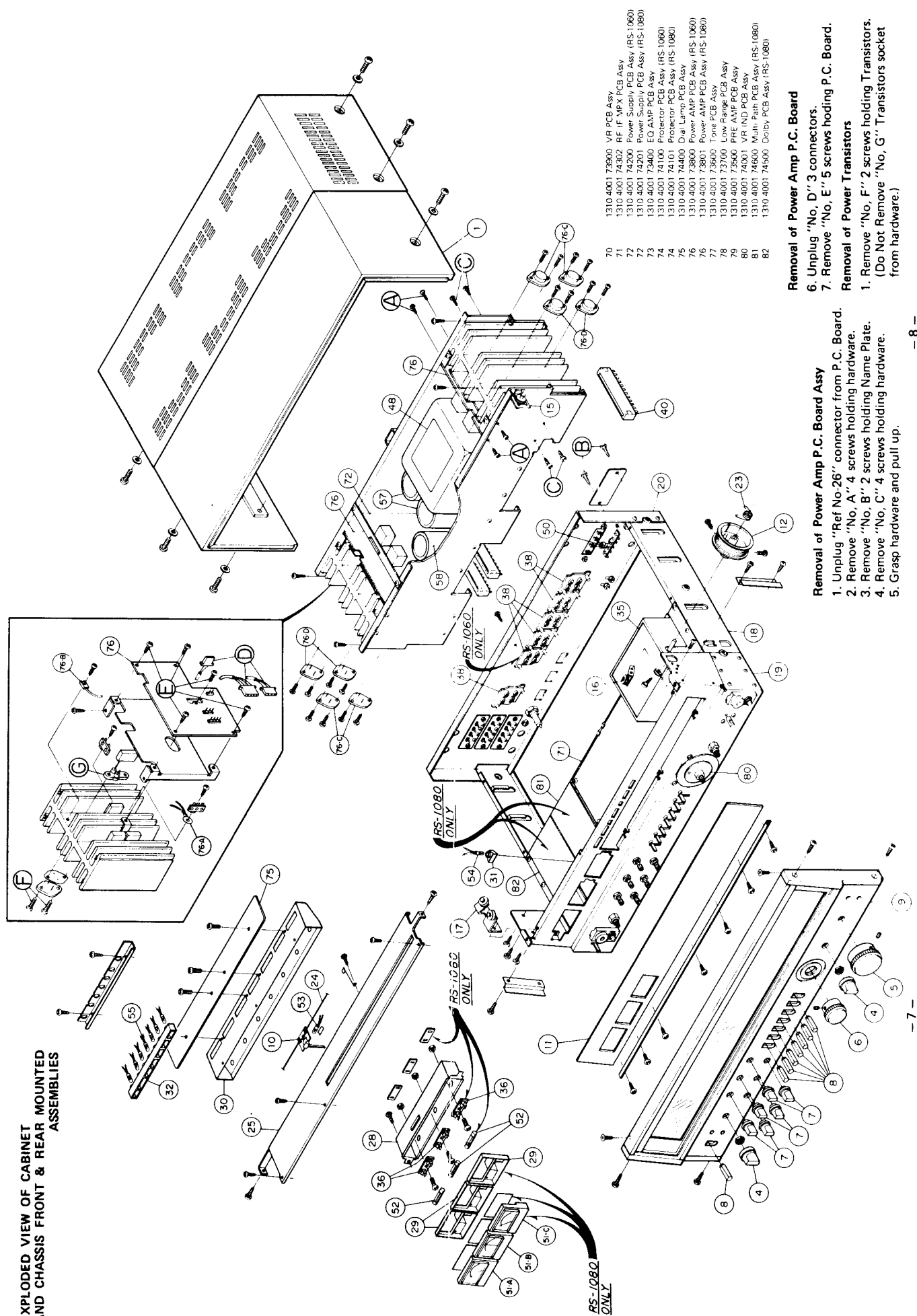
Ref.No. Part Number Description

ELECTRICAL PARTS LIST

35	4 1259 20400	Front End (Component parts used in Front End are not serviceable and available.)
36	4 2359 20160	Holder Lamp
37	4 2312 00030	Switch, Voltage Selector
38	4 2359 22710	Rear Accessory Jack
39	4 2359 22730	Jack, Phones/Record Out
40	4 2359 23010	Connector 22P
41	4 2359 21820	Fuse Holder (Mini Type)
42	4 2359 23050	Fuse Holder 6P
43	4 2369 20561	Plug 1P
44	4 2369 21220	Short Plug
45	4 2379 21460	Terminal, Antenna Connector
46	4 2379 21400	Terminal, Speakers Connector
47 *	4 2439 20740	Line Cord
48	4 2519 23852	Power Trans (RS-1060)
48	4 2519 23892	Power Trans (RS-1080)
49	4 2579 25040	AM Antenna
50	4 2599 20300	Balun
51-A	4 5119 20670	Meter, Signal Strength
51-B	4 5119 20680	Meter, Center of Channel
51-C	4 5119 20710	Meter, FM Multipath (RS-1080)
52	4 6129 20280	Pilot Lamp 6.3V 250mA
53	4 6129 20592	Small Lamp Indicator 5V 60mA
54	4 6129 20740	Small Lamp Stereo Indicator
55	4 6129 20750	Small Lamp Dolby IND 6.3V 80mA
56	C2JNRM103C	Capacitor, Polypropylene 0.01 μ F 630V $\pm$ 20 %
(C01)	4 2239 21050	Capacitor, Electrolytic 15000 μ F 75V (RS-1060)
(C02,03)	4 2239 21080	Capacitor, Electrolytic 22000 μ F 80V (RS-1080)
57	4 2239 21060	Capacitor, Electrolytic 22000 μ Fx2 100V
(C04)	C1HYDZ473A	Capacitor, Ceramic 0.047 μ F 50V +80, -20 %
C05,06	C2HYDP103A	Capacitor, Ceramic 0.01 μ F 500V +100, -0 %
07,08		
09		
59	C1HYDZ473A	Capacitor, Ceramic 0.047 μ F 50 V +80, -20 %
(C10,11	C1CUEX225A	Alsicon 2.2 μ F 16V +40, -20%
12,13)	60 (D01) DDD-S25VB40	Diode S25VB40
C14,15	61 (F01,02, 4 2349 21340	Fuse 10 A Slow Blow
C16	03,04,)	
60 (D01)	62 (F05,06)	4 2349 21240 Fuse 2.5A Slow Blow 125V
61 (F01,02,	63(F07)	4 2349 20600 Fuse 5A (220V) (RS-1060)
03,04,)		4 2349 29997 Fuse 10AT (110V) (RS-1060)
62 (F05,06)		4 2349 29996 Fuse 8AT (220V) (RS-1080)
63(F07)		4 2349 29998 Fuse 15AT (110V) (RS-1080)
64		4 2319 34230 Switch Rotary Function
65		4 2319 34250 Switch Rotary Tape Monitor
66		4 2319 34330 Switch Rotary SP Selector
67		4 2319 34160 Switch Lever AC

NOTE: * Asterisk indicates not a service part.

EXPLODED VIEW OF CABINET AND CHASSIS FRONT & REAR MOUNTED ASSEMBLIES



- 1310 4001 73900 VR PCB Assy
- 1310 4001 74200 RF IF NFX PCB Assy
- 1310 4001 74200 Power Supply PCB Assy (RS 1060)
- 1310 4001 74201 Power Supply PCB Assy (RS 1080)
- 1310 4001 74201 Power Supply PCB Assy (RS 1080)
- 1310 4001 74200 EIO AMP PCB Assy (RS 1060)
- 1310 4001 74100 Protector PCB Assy (RS 1060)
- 1310 4001 74101 Protector PCB Assy (RS 1080)
- 1310 4001 74400 Dial Lamp PCB Assy
- 1310 4001 73800 Power AMP PCB Assy (RS 1060)
- 1310 4001 73801 Power AMP PCB Assy (RS 1080)
- 1310 4001 73600 Tone PCB Assy
- 1310 4001 73700 Low Range PCB Assy
- 1310 4001 73500 PRE AMP PCB Assy
- 1310 4001 74001 VR IND PCB Assy
- 1310 4001 74600 Multi Path PCB Assy (RS 1080)
- 1310 4001 74500 Dolby PCB Assy (RS 1080)

Removal of Power Amp P.C. Board

6. Unplug "No. D" 3 connectors.
7. Remove "No. E" 5 screws holding P.C. Board.

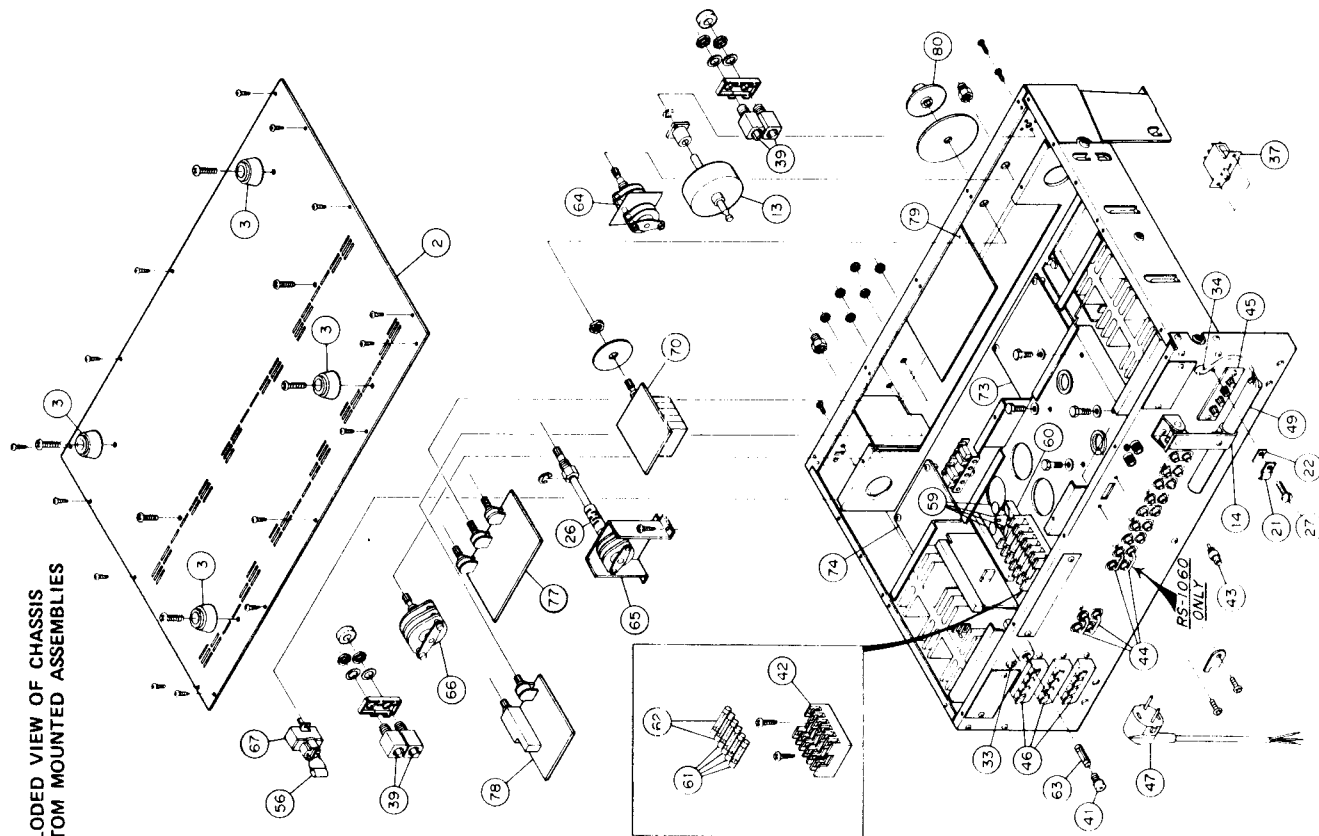
Removal of Power Transistors

1. Remove "No. F" 2 screws holding Transistors. (Do Not Remove "No. G" Transistors socket from hardware.)

Removal of Power Amp P.C. Board Assy

1. Unplug "Ref No.26" connector from P.C. Board.
2. Remove "No. A" 4 screws holding hardware.
3. Remove "No. B" 2 screws holding Name Plate.
4. Remove "No. C" 4 screws holding hardware.
5. Grasp hardware and pull up.

EXPLODED VIEW OF CHASSIS BOTTOM MOUNTED ASSEMBLIES



AM-FM MULTIPLEX ALIGNMENT

AM ALIGNMENT

Step	Adjusting circuit	Connection	SG frequency	Position of tuning dial	Adjustment	V.T.V.M. oscilloscope
1	IF	Input: Connect sweep generator to test point TP 7 through 0.01 μ F capacitor. Output: Connect oscilloscope to test point TP 41.	455 KHz	Near max. capacity of VC at position with no signal.	AM 1st 9-21310	455 KHz
2	RF	Input: Connect standard loop antenna to output terminal of Signal Generator. Output: Connect oscilloscope and V.T.V.M. to Records Output.	600 KHz (400 Hz, 30% modulation)	600 KHz	AM ANT 9-25040 AM OSC 9-20880 AM RF 9-20440	Max.
3			1400 KHz (400 Hz, 30% modulation)	1400 KHz	TC01 TC02 TC03	Max
4	Repeat adjustments.					

- Variable capacitor completely closed.
- Set the dial pointer to very left line dial scale.
- Connect sweep generator, SG, V.T.V.M. and oscilloscope.
- Function switch to "AM".
- Use a screwdriver with plastic grip for all adjustments.

FM ALIGNMENT

Step	Adjusting circuit	Connection	SSG frequency	Position of tuning dial	Adjustment	V.T.V.M. oscilloscope
1	IF	Input: Connect FM Signal Generator to FM ANT terminals. Output: Connect AC V.T.V.M. Distortion Analyzer and Oscilloscope to Records Output.	98 MHz	Near max. capacity of VC at position with no signal.	IFT1 in FRONT END	Max.
2	Quadrature Detector	Input: Connect DC V.T.V.M. to test point TP13 (+) and TP15 (-). Output: Connect DC V.T.V.M. to Records Output.	98 MHz (400 Hz, 30% modulation)		FM QUADRATURE COIL 9-21320	DC V.T.V.M. Center Meter
3	RF	Input: Connect FM Signal Generator to FM ANT terminals. Output: Connect V.T.V.M. to Records Output.	88 MHz (400 Hz, 30% modulation)	88 MHz	LO LA, IFT1 LR1, LR2, LR3	
4			108 MHz (400 Hz, 30% modulation)	108 MHz	TC1, TC2, TC3, TC4	Max.
5	Repeat adjustments.					

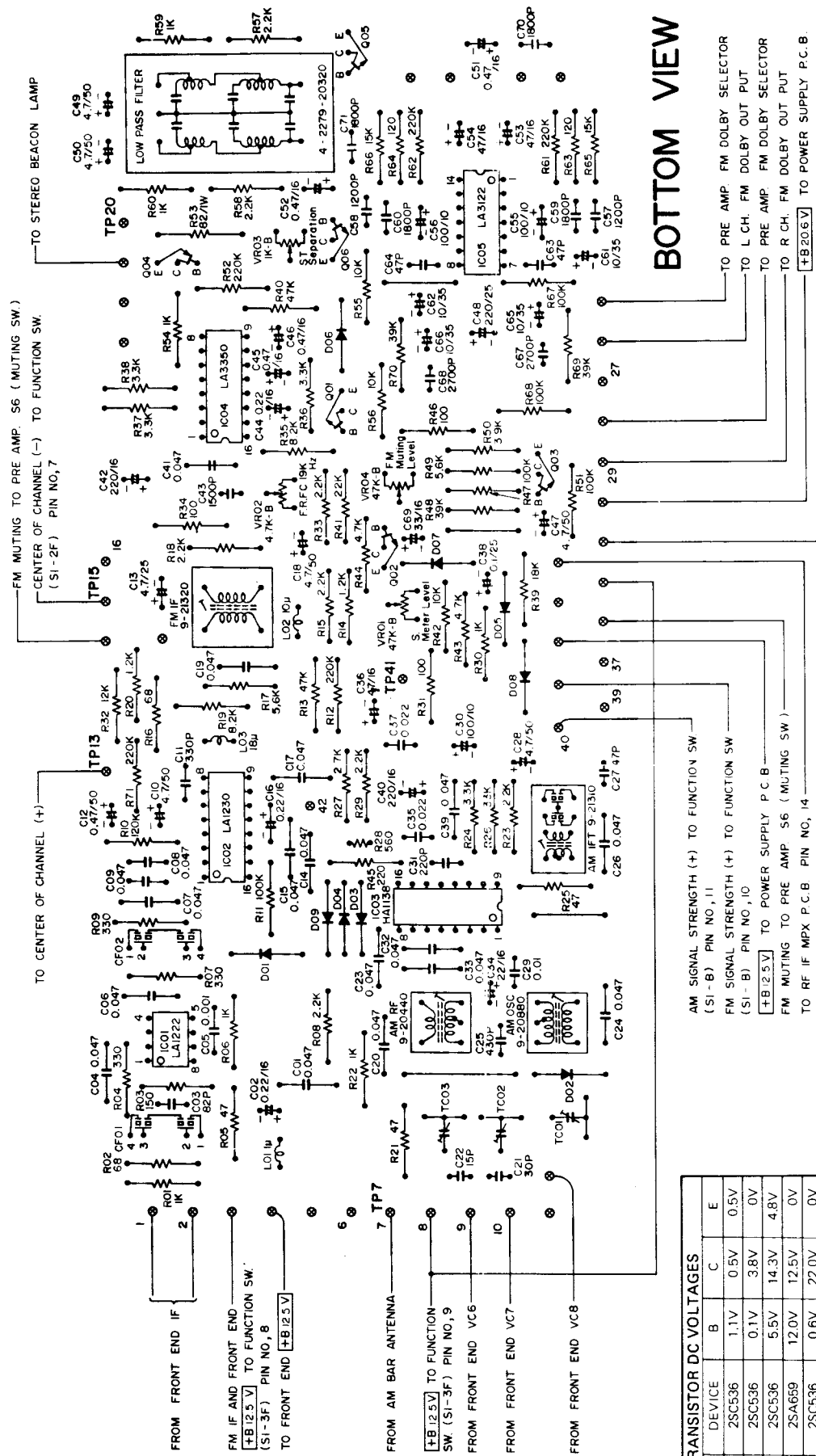
- Variable capacitor completely closed.
- Set the dial pointer to zero on logging scale.
- Connect FM Signal Generator, V.T.V.M. and oscilloscope.
- Function switch to "FM".
- Use a screwdriver with plastic grip for all adjustments.

FM MPX ALIGNMENT

Step	Adjusting circuit	Connection	Position of tuning dial	Adjustment
1	PLL IC FO (19 KHz) Adjustment	Input: None Output: Connect Frequency counter or synchro scope to TP 20.		
2	FM STEREO Signal Separation	Input: Connect FM stereo SG to FM ANT terminals. 19 KHz signal ON. Main channel sub-channel signal ON. Add 1000 Hz signal from L Ch. Output: Connect V.T.V.M. to output terminal (R channel). Input: Connect FM stereo SG to FM ANT terminals. 19 KHz signal ON. Main channel sub-channel signal ON. Add 1000 Hz signal from R Ch. Output: Connect V.T.V.M. to output terminal (L channel).	Near max. capacity of VC at position with no signal.	Adjust VR02 (4.7k) so that 19 KHz may be indicated on the frequency counter or synchroscope.
3	Repeat steps 1, 2. Set at position with max. channel separation.			

- Variable capacitor completely closed.
- Connect FM stereo, SG and V.T.V.M.
- Function switch to "FM".
- Use a screwdriver with plastic grip for all adjustments.

AM-FM RF/IF MPX P.C. BOARD



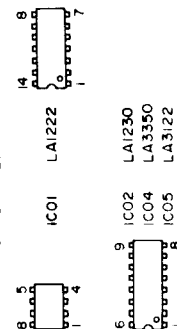
BOTTOM VIEW

TRANSISTOR DC VOLTAGES					
SYMBOL NO.	DEVICE	B	C	E	
Q01	2SC536	1.1V	0.5V	0.5V	
Q02	2SC536	0.1V	3.8V	0V	
Q03	2SC536	5.5V	14.3V	4.8V	
Q04	2SA659	12.0V	12.5V	0V	
Q05	2SC536	0.6V	22.0V	0V	
Q06	2SC536	0.6V	15.6V	0V	

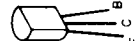
PIN NUMBERS VOLTAGES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC01 LA1222	1.3V	1.3V	0V	11.1V	11.9V	1.3V	9.5V	11.9V	1.3V	9.5V	11.9V	1.3V	9.5V	11.9V	1.3V	9.5V
IC02 LA1230	2.8V	2.8V	2.8V	0.1V	1.7V	5.7V	5.7V	5.7V	5.7V	5.7V	5.7V	5.7V	5.7V	5.7V	5.7V	5.7V
IC03 HA1138	10.0V	2.7V	11.7V	10.1V	4.8V	8.4V	1.9V	0.8V	0.9V	4.1V	10.5V	2.7V	2.5V	2.6V	0.1V	0.1V
IC04 LA3350	11.0V	2.7V	4.7V	8.4V	8.4V	12.0V	0.1V	0.4V	6.4V	0.5V	1.7V	2.4V	2.0V	2.0V	2.7V	2.7V
IC05 LA3122	10.4V	0.5V	32.2V	0.6V	8.2V	1.9V	0V	20.0V	1.9V	8.2V	0.6V	32.0V	0.5V	1.7V	4V	4V

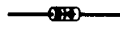
IC TOP VIEW



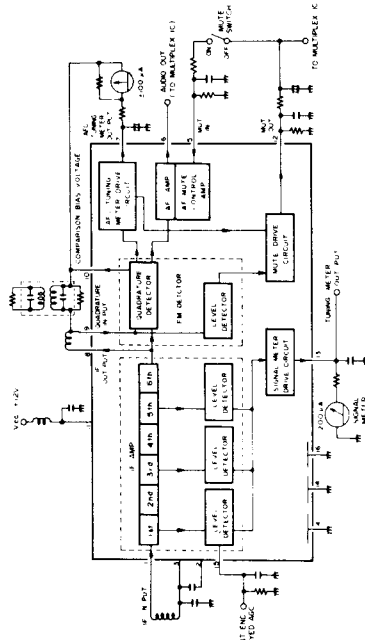
TRANSISTOR FRONT VIEW



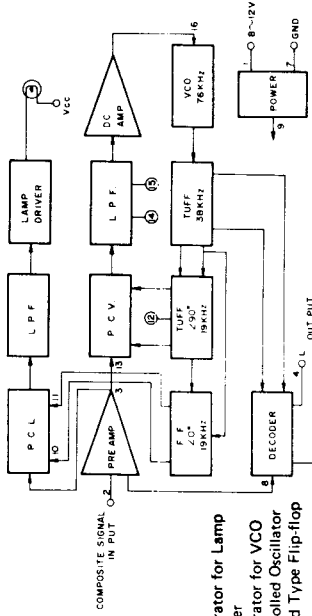
DIODE FRONT VIEW



FM IF IC LA1230 SIGNAL FLOW



FM MPX IC LA3350 SIGNAL FLOW



P.C.L. : Phase Comparator for Lamp
L.P.F. : Low Pass Filter
P.C.V. : Phase Comparator for VCO
V.C.O. : Voltage Controlled Oscillator
TUFF : Direct coupled Type Flip-flop

Here, only the demodulator circuit is essential as the FM stereo multiplex demodulator. The other components are the PLL as the 19 KHz selective circuit, and the stereo broadcast indicator circuit. The functions of these components are briefly described below.

The voltage controlled oscillator generates a saw-tooth wave of 76 KHz, and is frequency-controlled by the output from the DC amplifier. The frequency of the DC amplifier output is reduced to half, or 38 KHz, by means of a direct-coupled flip-flop circuit FF-1. This 38 KHz signal is applied to the demodulator circuit and demodulates the stereo composite signal. The FF-1 output is again reduced to 19 KHz by another direct-coupled flip-flop circuit FF-2.

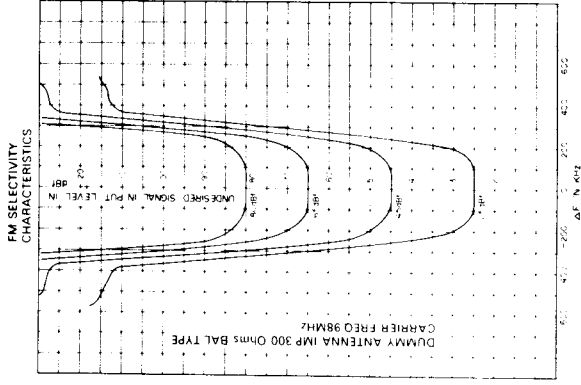
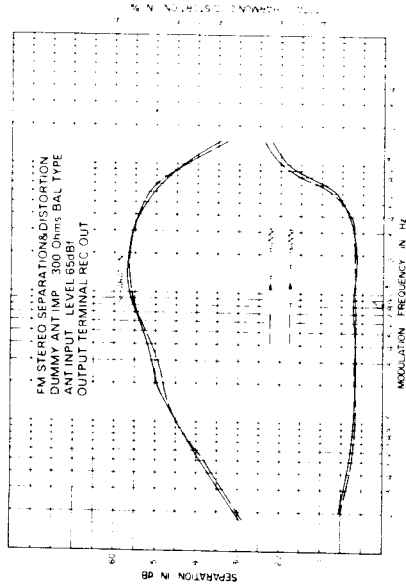
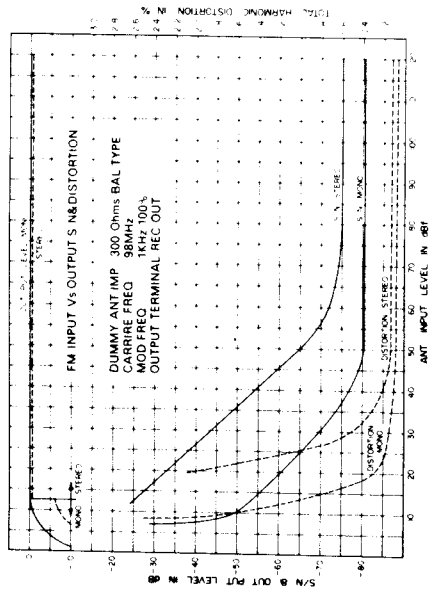
This FF-2 output is then applied to a phase comparator, PC-1, and its phase is compared with that of the pilot signal contained in the input signal. The output from the FF-3 is 19 KHz and 90 degrees lagging in phase behind that of the FF-2 output. It is then applied to another phase comparator, PC-2, where the 19 KHz component of the input signal is detected and fed to the stereo broadcast indicator circuit to activate the pilot lamp.

PARTS LIST

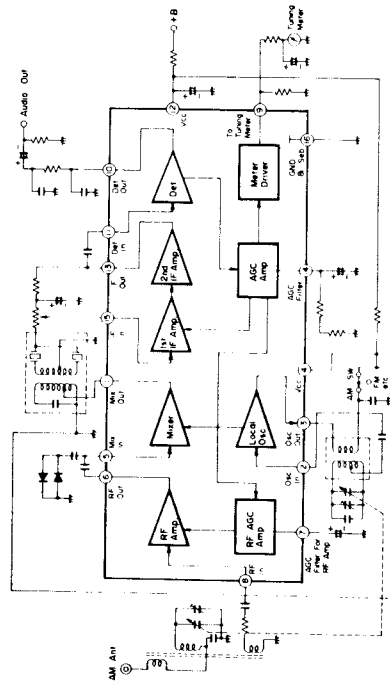
RF, IF, MPX P.C.B. ASSY

Ref.No.	Part Number	Description	Ref.No.	Part Number	Description
1310	4001	74302 RF, IF, MPX P.C.B. Assy	C57.58	C1HFRK122A	Mylar 1200 pF 50V ±10 %
4	2569	21310 IF Trans FM	C59.60	C1HFRK182A	Mylar 1800 pF 50V ±10 %
4	2569	21320 IF Trans FM	C61.62	C1VRE-106A	Electrolytic 10 μF 35V
4	2589	20880 OSC Coil AM	C63.64	C1HCSK470SL	Ceramic 47pF 50V ±10 %
4	2599	20440 RF Coil AM	C65.66	C1VRE-106A	Electrolytic 10 μF 35V
1C01.02.03	4	2249 20310 Variable Capacitor	C67.68	C1HSEJ272A	Syrol 2700 pF 50V ±10 %
L01	4	2536 20380 Choke Coil 1-H	C69	C1CRE 336A	Electrolytic 33 μF 16V
L02	4	2539 20370 Choke Coil 10-H	C70.71	C1HFRK182A	Mylar 1800pF 50V ±10 %
L03	4	2539 20380 Choke Coil 18-H			
VR01	4	2229 25100 VR 47k (S Meter Level)			
VR02	4	2229 23880 VR 4.7k (19KHz)			
VR03	4	2229 22910 VR 1k (Separation)			
VR04	4	2229 25100 VR 47k (FM Muting Level)			
CF01.02	4	2279 20320 Low Pass Filter			
	4	2279 20310 Ceramic Filter			
CAPACITORS					
C01	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	D01.02.	2065 9040 44210 Diode DS-442	
C02	C1CUEX224A	Alicon 0.22 μF 16V +40, -20 %	IC01	03.04.05.06.07.08.09	
C03	C1HCSK820SL	Ceramic 82pF 50V -10 %	IC01	2065 0131 22210 IC LA1222	
C04	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	IC02	2065 0151 23010 IC LA1230	
C05	C1HYSZ102A	Ceramic 0.001 μF 50V +80, -20 %	IC03	1KK-HA1138	IC HA1138
C06.07	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	IC04	2065 0743 35019 IC LA3350SS	
C08.09	C1HSDM473W	Semiconductor 0.047 μF 50V -20 %	IC05	2065 0763 12210 IC LA3122	
C10	C1HRE-475A	Electrolytic 4.7 μF 50V	001.02.	2035 5100 53640 TR 25C536 D	
C11	C1HCSK331SL	Ceramic 330pF 50V -10 %	03		
C12	C1HRE-474A	Electrolytic 0.47 μF 50V	004	2035 6800 65940 TR 25A659 D	
C13	C1UEM475A	Alicon 4.7 μF 25V +20 %	005.06	2035 5100 53640 TR 25C536 D	
C14.15	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	RESISTORS		
C16	C1CUEX224A	Alicon 0.22 μF 16V +40, -20 %	R01.06	R2EDSJ102A	Carbon 1k 1/4W ±5 %
C17	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	22.30.54	59.60	
C18	C1HRE-475A	Electrolytic 4.7 μF 50V	R02.16	R2EDSJ680A	Carbon 68 1/4W ±5 %
C19.20	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	R03	R2EDSJ151A	Carbon 150 1/4W ±5 %
C21	C1HCSK300K	Ceramic 30pF 50V -10 %	R04.07	R2EDSJ331A	Carbon 330 1/4W ±5 %
C22	C1HCSJ150WK	Ceramic 15pF 50V ±5 %	09		
C23.24	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	R05.21	R2EDSJ470A	Carbon 47 1/4W ±5 %
C25	C1HSEJ431A	Syrol 430pF 50V ±5 %	25		
C26	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	R08.15	R2EDSJ222A	Carbon 2.2k 1/4W ±5 %
C27	C1HCSK470SL	Ceramic 47pF 50V ±10 %	18.23.29	33.57.58	
C28	C1HRE-475A	Electrolytic 4.7 μF 50V	R10	R2EDSJ124A	Carbon 120k 1/4W ±5 %
C29	C1HRE-103A	Mylar 0.01 μF 50V -20 %	R11.47	R2EDSJ104A	Carbon 100k 1/4W ±5 %
C30	C1ARE-107A	Electrolytic 100 μF 10V	51.67.68		
C31	C1HCDK221SL	Ceramic 220pF 50V -10 %	61.62.71		
C32.33	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	R13.40	R2EDSJ473A	Carbon 47k 1/4W ±5 %
C34	C1CRE 226A	Electrolytic 22 μF 16V	R14.20	R2EDSJ122A	Carbon 12k 1/4W ±5 %
C35	C1HRE-223A	Mylar 0.022 μF 50V ±20 %	R17.49	R2EDSJ562A	Carbon 5.6k 1/4W ±5 %
C36	C1CRE-476A	Electrolytic 47 μF 16V	R19.35	R2EDSJ822A	Carbon 8.2k 1/4W ±5 %
C37	C1UEM223A	Mylar 0.022 μF 50V ±20 %	R24.36	R2EDSJ332A	Carbon 3.3k 1/4W ±5 %
C38	C1UEM104A	Alicon 0.1 μF 25V ±20 %	37.38		
C39	C1HYSZ473A	Ceramic 0.047 μF 50V +80, -20 %	R26	R2EDSJ333A	Carbon 33k 1/4W ±5 %
C40	C1CRE-227A	Electrolytic 22 μF 16V	R27	R2EDSJ272A	Carbon 2.7k 1/4W ±5 %
C41	C1HRE-473A	Electrolytic 47 μF 50V ±20 %	R28	R2EDSJ561A	Carbon 560 1/4W ±5 %
C42	C1CRE-227A	Electrolytic 22 μF 16V	R31.34	R2EDSJ101A	Carbon 100 1/4W ±5 %
C43	C1HSEJ152A	Syrol 1500pF 50V ±5 %	46		
C44	C1CUEX224A	Alicon 0.22 μF 16V +40, -20 %	R32	R2EDSJ123A	Carbon 12k 1/4W ±5 %
C45.46	C1CUEX474A	Alicon 0.47 μF 16V +40, -20 %	R39	R2EDSJ183A	Carbon 18k 1/4W ±5 %
C47	C1HRE-475A	Electrolytic 4.7 μF 50V	R41	R2EDSJ223A	Carbon 22k 1/4W ±5 %
C48	C1CRE-227A	Electrolytic 22 μF 16V	R42.55	R2EDSJ103A	Carbon 10k 1/4W ±5 %
C49.50	C1HRE-475A	Electrolytic 4.7 μF 50V	56		
C51.52	C1CUEX474A	Alicon 0.47 μF 16V +40, -20 %	R43.44	R2EDSJ472A	Carbon 4.7k 1/4W ±5 %
C53.4	C1CRE-476A	Electrolytic 47 μF 16V	R45	R2EDSJ221A	Carbon 220 1/4W ±5 %
C54	C1ARE 107A	Electrolytic 100 μF 10V	R48.69	R2EDSJ393A	Carbon 39k 1/4W ±5 %
			70		
			R50	R2EDSJ392A	Carbon 3.9k 1/4W ±5 %
			R53	R3AXPK820A	Oxide Metal Film 82 1W ±10 %
			R63.64	R2EDSJ121A	Carbon 120 1/4W ±5 %
			R65.66	R2EDSJ153A	Carbon 15k 1/4W ±5 %

FM TUNER SECTION CHARACTERISTIC CURVE



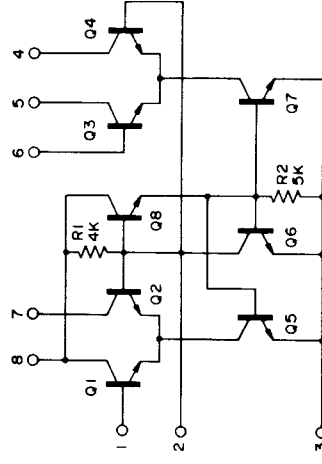
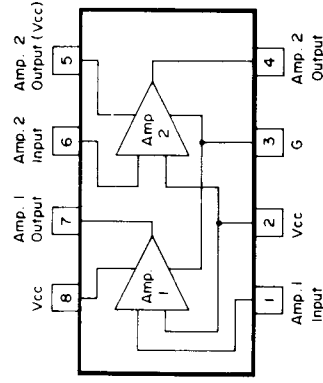
AM RF IF IC HA1138 SIGNAL FLOW



Signal enters R.F. AMP of I.C. where it is amplified. The converter section consists of a mixer and a local oscillator. The output of the mixer stage contains two frequency components.

The 455 KHz component signal is then fed to the I.F. amplifier. The tuned frequency of the I.F. filter is 455 KHz. When the I.F. signal appears at the low pass filter, the 455-KHz carrier component is then locked, allowing only its audio component to pass.

FM IF IC LA1222 SIGNAL FLOW AND EQUIVALENT DIAGRAM

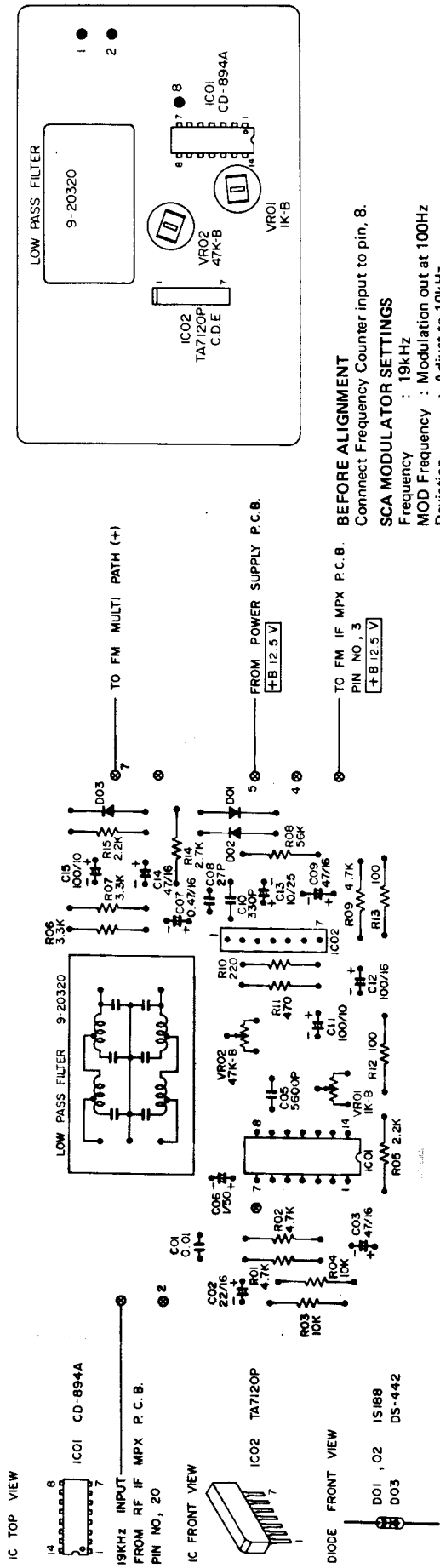


The circuit contains two steps of an independent differential amplification circuit, although the LA1222 is rated to operate on 12-volt power, it can also be used at low voltage, it also permits desired current limitation through insertion of a resistor between pins (2) and (8).

The limiting action by this circuit has current-limiting type limiter characteristics. The advantages that the current-limiting type limiter are. It improves capture ratio against input variation, it does not deviate center frequency, etc...

RS-1080 ADJUSTMENT OF FM MULTIPATH P.C.B.OARD

FM MULTIPATH P.C.B.OARD



BOTTOM VIEW

PIN NUMBERS VOLTAGES										
	1	2	3	4	5	6	7	8	9	10
IC01 CD894A	0V	5.7V	5.7V	7.6V	7.6V	10.3V	10.3V	10.4V	5.1V	11.6V
IC02 TA7120P	2.0V	0.6V		0V	0.6V	4.4V	12.2V			

PARTS LIST

MULTI PATH PCB ASSY			MULTI PATH PCB ASSY		
Ref.No.	Part Number	Description	Ref.No.	Part Number	Description
81	1310 4001 74600	Multi Path PCB Assy	D01.02	2025 9110 18820	Diode IS 1888T M1
VR01	4 2279 20320	Low Pass Filter	D03	2055 9040 44210	Diode DS-442
VR02	4 2229 22910	VR B-1kx1	IC01	ISS-CD-894A	IC CD894A
	4 2229 25100	Semi-Fixed VR 47k-B	IC02	ITT-TA7120P-C	IC TA7120P
CAPACITORS			RESISTORS		
C01	C1HFRM103A	Mylar 0.01 μ F 50V $\pm 20\%$	R01.02	R2EDSJ472A	Carbon 4.7k 1/4W $\pm 5\%$
C02	C1CRE-226A	Electrolytic 22 μ F 16V	R03.04	R2EDSJ103A	Carbon 10k 1/4W $\pm 5\%$
C03	C1CRE-476A	Electrolytic 47 μ F 16V	R05	R2EDSJ222A	Carbon 2.2k 1/4W $\pm 5\%$
C05	C1HSEJ562A	Styro 5600pF 50V 5%	R06.07	R2EDSJ332A	Carbon 3.3k 1/4W $\pm 5\%$
C06	C1HRE-105A	Electrolytic 1 μ F 50V	R08	R2EDSJ563A	Carbon 56k 1/4W $\pm 5\%$
C07	C1CUEX474A	Aliscon 0.47 μ F 16V $\pm 40\%$	R09	R2EDSJ472A	Carbon 4.7k 1/4W $\pm 5\%$
C08	C1HCKK2705L	Ceramic 27pF 50V $\pm 10\%$	R10	R2EDSJ221A	Carbon 220 1/4W $\pm 5\%$
C09	C1CRE-476A	Electrolytic 47 μ F 16V	R11	R2EDSJ471A	Carbon 470 1/4W $\pm 5\%$
C10	C1HCKK331SL	Ceramic 330pF 50V $\pm 10\%$	R12.13	R2EDSJ101A	Carbon 100 1/4W $\pm 5\%$
C11	C1ARE-107A	Electrolytic 100 μ F 10V	R14	R2EDSJ272A	Carbon 2.7k 1/4W $\pm 5\%$
C12	C1CRE-107A	Electrolytic 100 μ F 16V	R15	R2EDSJ222A	Carbon 2.2k 1/4W $\pm 5\%$
C13	C1CRE-106A	Electrolytic 10 μ F 25V			
C14	C1CRE-476A	Electrolytic 47 μ F 16V			
C15	C1ARE-107A	Electrolytic 100 μ F 10V			

BEFORE ALIGNMENT
Connect Frequency Counter input to pin, 8.

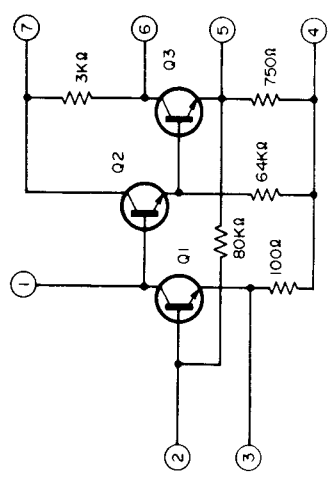
SCA MODULATOR SETTINGS
Frequency : 19kHz
MOD Frequency : Modulation out at 100Hz
Deviation : Adjust to 10kHz

SIGNAL GENERATOR SETTINGS
Modulation output 8%(6k Dev) from Signal of 100Hz, 0.1kHz deviation.
ANT input to 60dB at 1mV.

FM MULTIPATH FREQUENCY ADJUSTMENT
1. Connected jumper from pin, 3 to pin, 2 on Multipath P.C.Board.
2. Adjust of VR 01(1k) so that the Frequency Counter reads 19kHz(=100Hz) in the absence of input signal.
3. Remove jumper from P.C. Board.
4. Adjust of VR 02(4.7k) so that the Frequency Counter reads 19kHz(=100Hz) Then adjust of VR 02(4.7k) so that the Deflect of Multipath Meter reads (80%) in the absence of input signal.

FUNCTION SETTINGS
Set the FUNCTION selector to FM.
Set the FM DOLBY NR switch to OFF.

IC TA 7120P EQUIVALENT DIAGRAM



FROM POWER SUPPLY P.C.B. +8.25 V

IC TOP VIEW
16 9
1 8
IC01, 02 NE5458

DIODE FRONT VIEW
DO1, 02 1S188

IC01

IC02

IC03

IC04

IC05

IC06

IC07

IC08

IC09

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PIN NUMBERS VOLTAGES																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC01 02 NE545	5.5V	6.3V	6.2V	6.3V	6.0V	6.3V	6.0V	6.0V	6.8V	1.0V	6.9V	7.5V	0.6V	0.5V	0.5V	12.5V

B PACKAGE

Pin	Function
1	Input A
2	Input B
3	Input A
4	Input B
5	Input A
6	Input B
7	Input A
8	Input B
9	Input A
10	Input B
11	Input A
12	Input B
13	Input A
14	Input B
15	Input A
16	Input B
17	Input A
18	Input B
19	Input A
20	Input B
21	Input A
22	Input B
23	Input A
24	Input B
25	Input A
26	Input B
27	Input A
28	Input B
29	Input A
30	Input B
31	Input A
32	Input B

DOLBY PCB ASSY

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
VR01,02	CAPACITORS		SEMICONDUCTORS		
	1310,4001,74500	Dolby PCB Assy	D01,02	2025,9110,18820	Diode 1S 188FM1
	4,2529,20030	Low Pass Filter	IC01,02	ISS-NE545B	Dolby NR IC NE545B
	4,2229,25670	VR 22k-B		RESISTORS	
VR01,02	CAPACITORS		RESISTORS		
	C1AUEX105A	Alsicon 1 μ F 10V +40% -20%	R01,02	R2EDVJ332A	Carbon 3.3k
	C1HCDK2215L	Ceramic 220pF 50V -10%	R03,04	R2EDVJ102A	Carbon 1k
	C1HFRK273A	Mylar 0.027 μ F 50V -10%	05,06		
	C1HFRK472A	Mylar 0.047 μ F 50V -10%	R07,08	R2EDVJ473A	Carbon 47k
	C09,10		R09,10	R2EDVJ125A	Carbon 270k
	C1A8R,227A	Electrolytic 220 μ F 10V	R11,12	R2EDVJ154A	Carbon 150k
	C1A8R,106A	Electrolytic 10 μ F 16V	R13,14	R2EDVJ684A	Carbon 680k
	C1HFRK334A	Mylar 0.33 μ F 50V -10%	R15,16	R2EDVJ121A	Carbon 120
	C1HFRK104A	Mylar 0.1 μ F 50V -10%	R17,18	R2EDVJ181A	Carbon 180
	C1A8R,106A	Electrolytic 10 μ F 16V	R19,20	R2EDVJ104A	Carbon 100k
	C1C15,16			R2EDVJ182A	Carbon 18k
	19,20				
	21,22				
	C23,24				
	C1HSEJ562A	Styro 5600pF 50V -5%			
C1HFRK473A	Mylar 0.047 μ F 50V -10%				

1. Set the signal generator output to 60dB.

2. Set position of noninterference.
3. Connect AC voltmeter input to Lch pin, 3 and Rch pin, 4 to ground pin.

FM DOLBY GAIN ADJUSTMENT

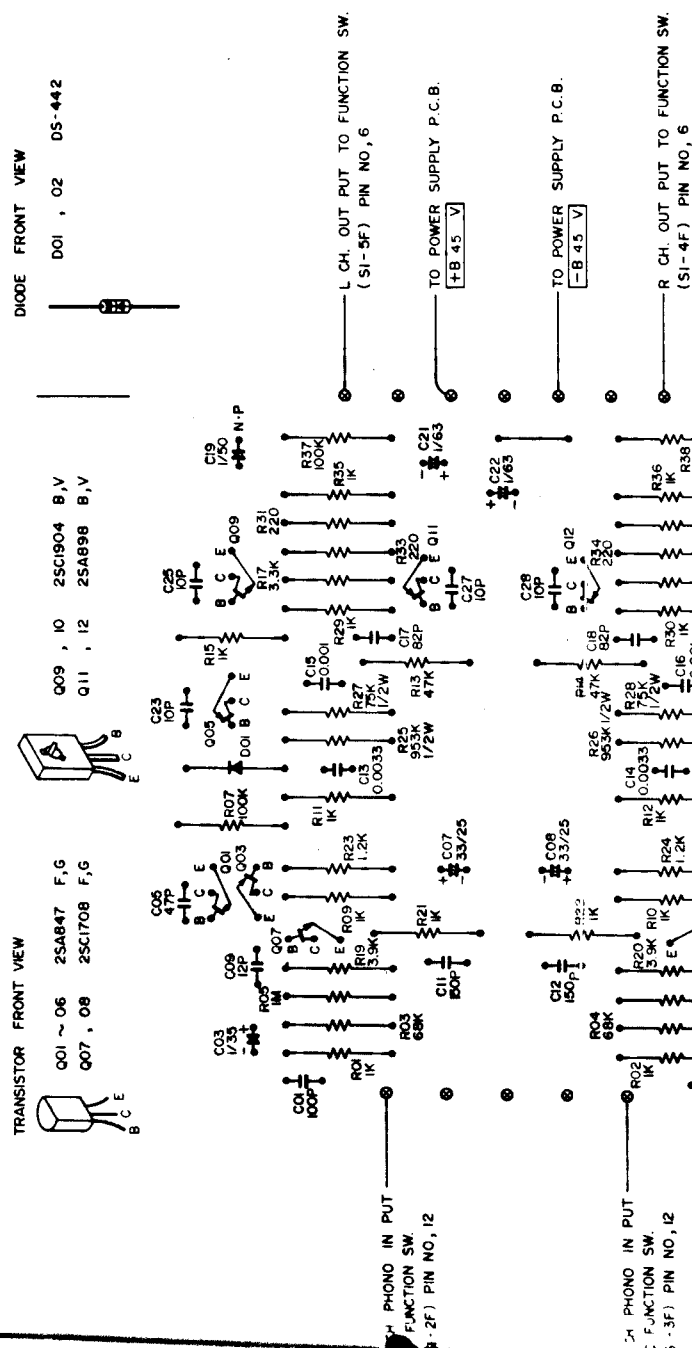
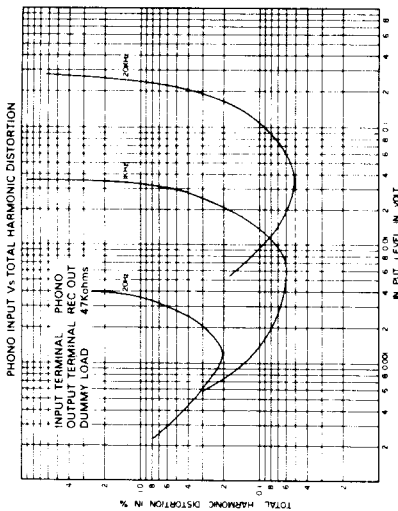
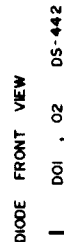
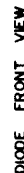
Adjust each of VR 01, VR 02(22k) so that the AC VTVM reads 580mV in pin 3&4 of output terminals.

FUNCTION SETTINGS

FUNCTION SETTINGS
Set the function selector to FM.

Set the FM DOLBY NR switch to OFF.

CHARACTERISTIC CURVE



PARTS LIST

[illegible]

Ref. No.	Part Number	Description
773	1310.4001	73400 EQ. PCB Assy
CAPACITORS		
C01.02	C1HC0K101SL	Ceramic 100pF 50V $\pm 10\%$
C03.04	C1VTRM105A	Tantalum 1 μ F 35V $\pm 20\%$
C05.06	C1HC0K470SL	Ceramic 47pF 50V $\pm 10\%$
C07.08	C1ERE 336AL	Electrolytic 33 μ F 25V
C09.10	C1HC0J120SL	Ceramic 12pF 50V
C11.12	C1HC0K151SL	Ceramic 150pF 50V $\pm 10\%$
C13.14	4.2239.21030	Mylar 0.0033 μ F 100V $\pm 2\%$
C15.16	4.2239.21031	Mylar 0.001 μ F 100V $\pm 2\%$
C17.18	C1HC0K920SL	Ceramic 82pF 50V $\pm 10\%$
C19.20	C1HAEN105A	Electrolytic 1 μ F 50V $\pm 30\%$
C21.22	C1URE 105A	Electrolytic 1 μ F 63V
C23.24	C1HCDC100SL	Ceramic 10pF 50V $\pm 0.25\%$
25.26		
27.28		

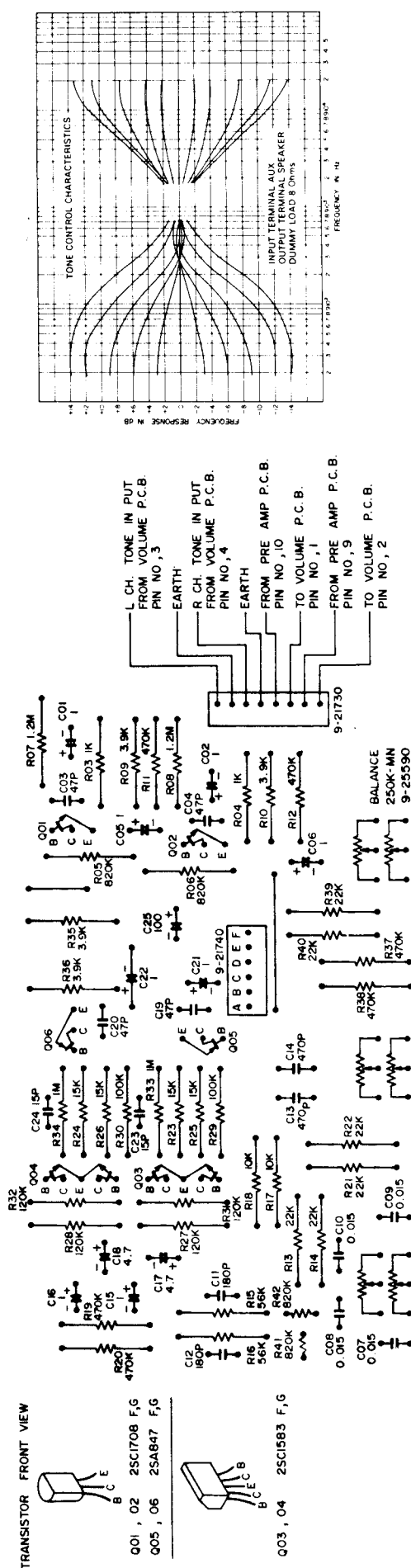
SEMICONDUCTORS

BOTTOM VIEW

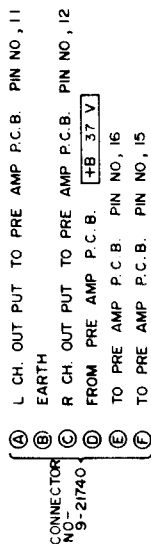
TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q01, 02	2SA847	0.2V	-43.0V	0.8V
Q03, 04	2SA847	0.2V	-43.0V	0.8V
Q05, 06	2SA847	43.4V	1.1V	44.0V
Q07, 08	2SC1708	-43.0V	-1.8V	-43.9V
Q09, 10	2SC1904	1.1V	45.0V	-45.0V
Q11, 12	2SA898	-43.9V	-1.2V	-45.0V

TONE CONTROL P.C.B. BOARD

CHARACTERISTIC CURVE



BOTTOM VIEW



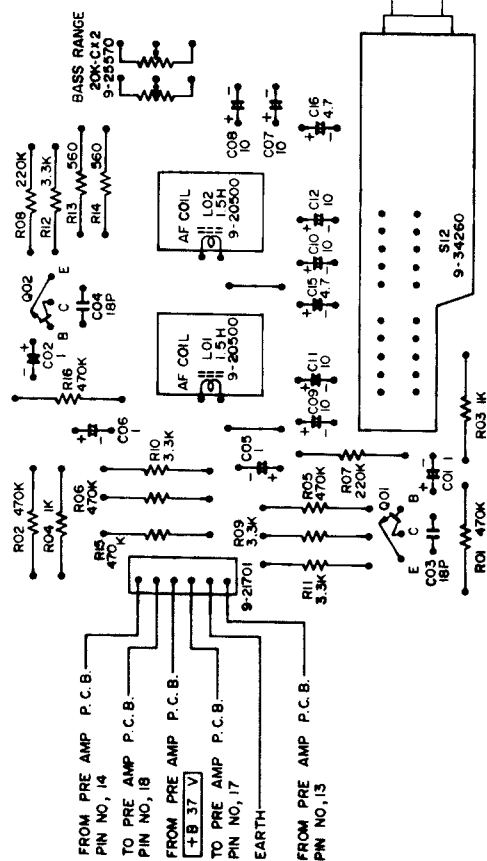
PARTS LIST

TONE P.C.B. Assy

Ref. No.	Part Number	Description
77	1310 4001 73600	Tone PCB Assy
	4 2229 25580	VR B-200K x2
	4 2229 25590	VR MN 250K x2
CAPACITORS		
C01,02	C1EUEM105A	Alcon 1.0F 25V -20%
C03,04	C1HCDK470SL	Ceramic 47pF 50V -10%
C05,06	C1VTRM105A	Tantalum 1.0F 35V -20%
C07,08	C1HFRK153A	Mylar 0.015F 50V -10%
C09,10		
C11,12	C1HCDK181SL	Ceramic 180pF 50V -10%
C13,14	C1HCDK471SL	Ceramic 470pF 50V -10%
C15,16	C1EUEM105A	Alcon 1.0F 25V -20%
C17,18	C1ERE-475A	Electrolytic 4.7F 25V
C19,20	C1HCDK470SL	Ceramic 47pF 50V -10%
C21,22	C1VTRM105A	Tantalum 1.0F 35V -20%
C23,24	C1HCDJ150SL	Ceramic 15pF 50V -5%
C25	C1HRB-107A	Electrolytic 100F 50V
SEMICONDUCTORS		
Q01,02	TMM-25C1708-F	TR 2SC1708
Q03,04	TMM-25C1583-F	TR 2SC1583 F
Q05,06	TMM-25A847-F	TR 2SA847
RESISTORS		
R03,04	R2EDVJ102A	Carbon 1k 1/4W -5%
R05,06	R2EDVJ824A	Carbon 820k 1/4W -5%
R07,08	R2EDVJ125A	Carbon 1.2M 1/4W -5%
R09,10	R2EDVJ392A	Carbon 39k 1/4W -5%
R11,12	R2EDVJ474A	Carbon 470k 1/4W -5%
R13,14	R2EDVJ223A	Carbon 22k 1/4W -5%
R15,16	R2EDVJ563A	Carbon 56k 1/4W -5%
R17,18	R2EDVJ103A	Carbon 10k 1/4W -5%
R19,20	R2EDVJ474A	Carbon 470k 1/4W -5%
R21,22	R2EDVJ223A	Carbon 22k 1/4W -5%
R23,24	R2EDVJ153A	Carbon 15k 1/4W -5%
25,26		
R27,28	R2EDVJ124A	Carbon 120k 1/4W -5%
R29,30	R2EDVJ104A	Carbon 100k 1/4W -5%
R31,32	R2EDVJ124A	Carbon 120k 1/4W -5%
R33,34	R2EDVJ105A	Carbon 1M 1/4W -5%
R35,36	R2EDVJ392A	Carbon 39k 1/4W -5%
R37,38	R2EDVJ474A	Carbon 470k 1/4W -5%
R39,40	R2EDVJ223A	Carbon 22k 1/4W -5%
R41,42	R2EDVJ824A	Carbon 820k 1/4W -5%

TRANSISTOR DC VOLTAGES					
SYMBOL No.	DEVICE	B	C	E	B
Q01, 02	2SC1708	17.6V	38.0V	17.7V	B
Q03, 04	2SC1583	20.6V	36.5V	20.2V	20.6V
Q05, 06	2SA847	37.3V	38.0V	21.0V	

LOW RANGE P.C. BOARD



BOTTOM VIEW

TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q01, 02	2SC1708	10.6V	26.9V	10.1V

PARTS LIST

LOW RANGE P.C.B. ASSY

Ref. No.	Part Number	Description
79	1310 4001	73700 Low Range, PCB Assy
	4 2229 25570	VR C-20kx2
	4 2319 34280	Switch Slide
L01.02	4 2559 20500	AF Coil Trans
CAPACITOR		
C01.02	CIVTRM105A	Tantalum 1 .F 35V ± 20 %
C03.04	CIHCOK180SL	Ceramic 18pF 50V ± 10 %
C05.06	CIVTRM105A	Tantalum 1 .F 35V ± 20 %
C07.08	CIVTRM106A	Tantalum 10 .F 25V ± 20 %
C09.10	CIETRK106A	Tantalum 10 .F 25V ± 10 %
C11.12		
C15.16	CIETRK475A	Tantalum 4.7 .F 25V ± 10 %

VR P.C.B. ASSY

Ref.No.	Part Number	Description
77	1310-4001 73900	VR P C B Assy
	4 2220 25560	250K x 2 + 40K x 2

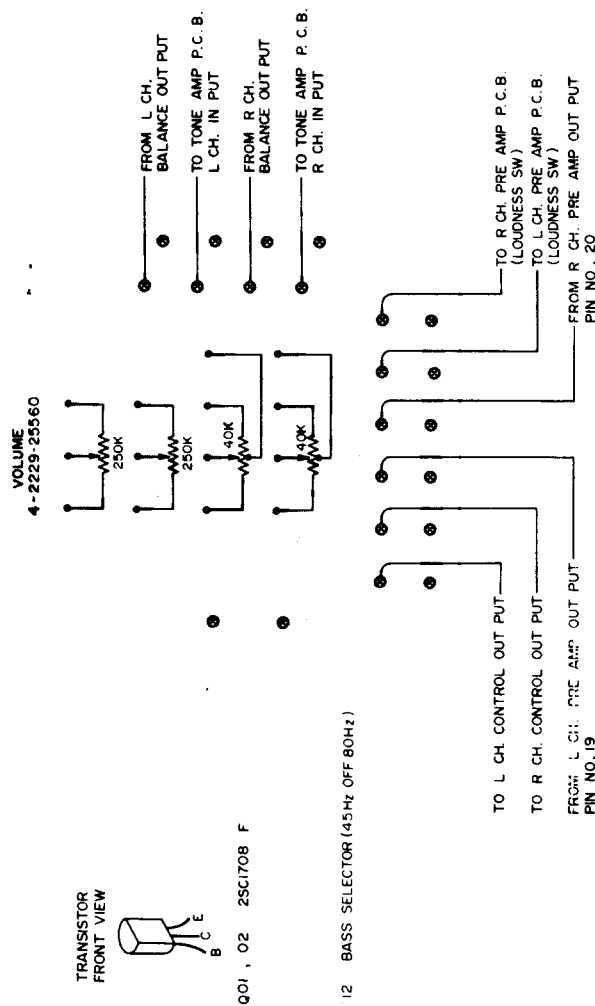
VR IND P.C.B. ASSY

Description	Ref.No.	Part Number	De
VR P.C.B. Assy 250K x 2 x 40K x 2	80	1310 4001 74001	

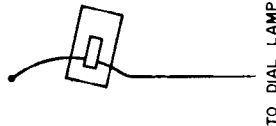
SEMICONDUCTORS

000SLP:1148 SL

VR P.C. BOARD



BOTTOM VIEW



TO DIAL LAMP P.C. 8

VR IND P.C. BOARD

PROTECTOR P.C.BOARD

TRANSISTOR DC VOLTAGES					
SYMBOL No.	DEVICE	RS-1060			RS-1080
		B	C	E	
Q01	2SD438		1.8V		1.9V
Q02	2SB560		-11.1V		-12.0V
Q03	2SC1439	1.8V	1.4V	1.3V	1.5V
Q04	2SC2071	1.3V	1.4V	0.6V	1.5V
					0.6V

PARTS LIST

PROTECTOR P.C.B. ASSY

Ref.No.	Part Number	Description
74	1310 4001 74100	Protector, PCB Assy (RS-1060)
74	1310 4001 74101	Protector, PCB Assy (RS-1080)
	4 2329 20250	Relay

CAPACITORS

C01,02	CIVRE-227A	Electrolytic 220 μ F 35V
C03	4 2239 21020	Electrolytic 33 μ F 16V $\pm$ 20 %
C04	4 2239 21070	Electrolytic 220 μ F 100V

SEMICONDUCTORS

D01	DNIN-RD1SE	Diode RD-13E
D02,03	2055 9040 44210	Diode DS-442
D04,05	2025 2310 13020	Diode DS-130YD
D06,07	2055 9040 44210	Diode DS-442
Q01	2035 6920 43840	TR 2SD438
Q02	2035 6930 56040	TR 2SB560
Q03	THH-25C1439-B	TR 25C1439 B
Q04	THH-25C2071-B	TR 25C2071 B

RESISTORS

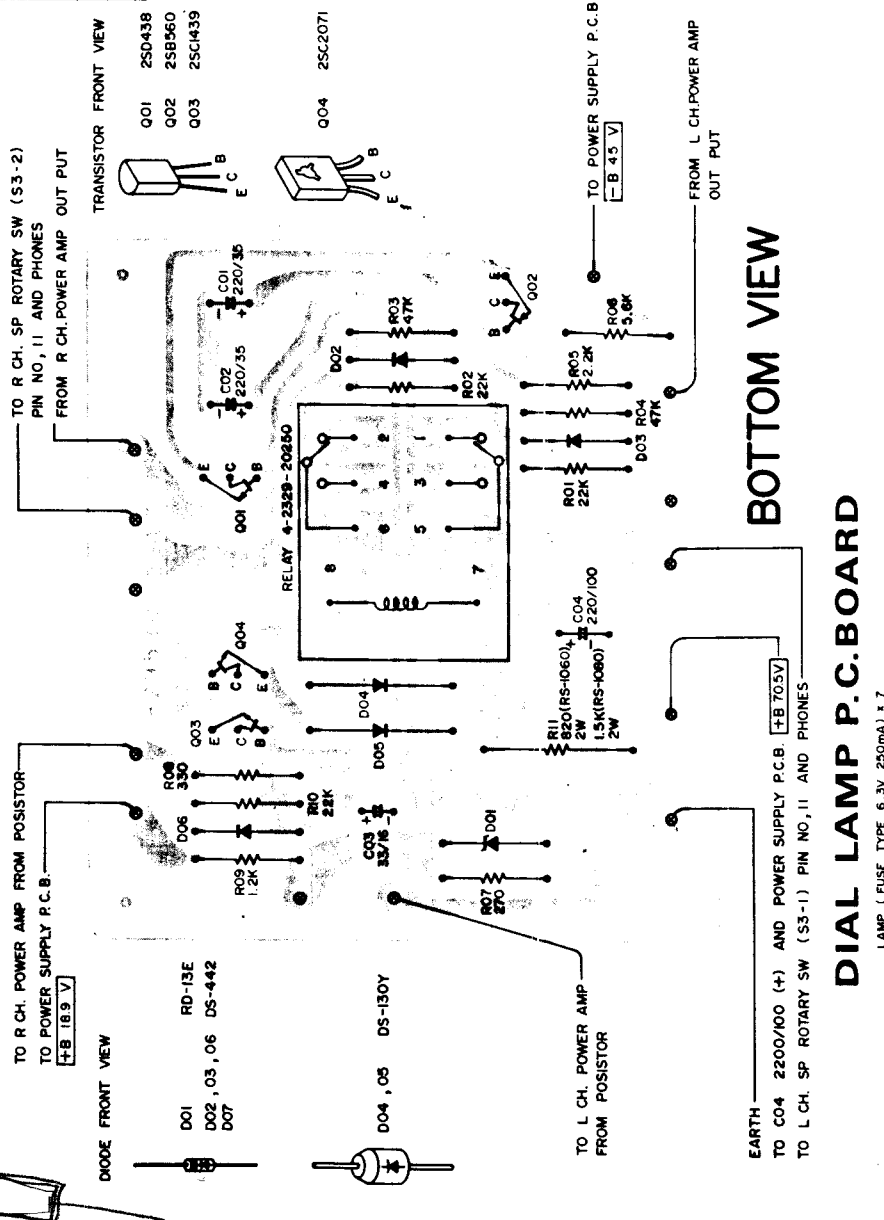
R01,02	R2EDVJ223A	Carbon 22k 1/4W $\pm$ 5 %
R03,04	R2EDVJ473A	Carbon 47k 1/4W $\pm$ 5 %
R05	R2EDVJ222A	Carbon 2.2k 1/4W $\pm$ 5 %
R06	R2EDVJ562A	Carbon 5.6k 1/4W $\pm$ 5 %
R07	R2EDVJ271A	Carbon 270 1/4W $\pm$ 5 %
R08	R2EDVJ331A	Carbon 330 1/4W $\pm$ 5 %
R09	R2EDVJ122A	Carbon 1.2k 1/4W $\pm$ 5 %
R10	R2EDVJ223A	Carbon 22k 1/4W $\pm$ 5 %
R11	R3DXPK821A	Oxide Metal Film 820 2W $\pm$ 10 % (RS-1060)
R11	R3DXPK152A	Oxide Metal Film 1.5k 2W $\pm$ 10 % (RS-1080)

DIAL LAMP P.C.B. ASSY

Ref.No.	Part Number	Description
75	1310 4001 74400	Dial Lamp, PCB Assy
	4 2349 21310	Fuse 4A
	4 2359 23000	Fuse Holder
	4 6129 20280	Pilot Lamp 6.3V 250mA
	4 6129 20730	Small Lamp 6.3V 80mA

RESISTORS

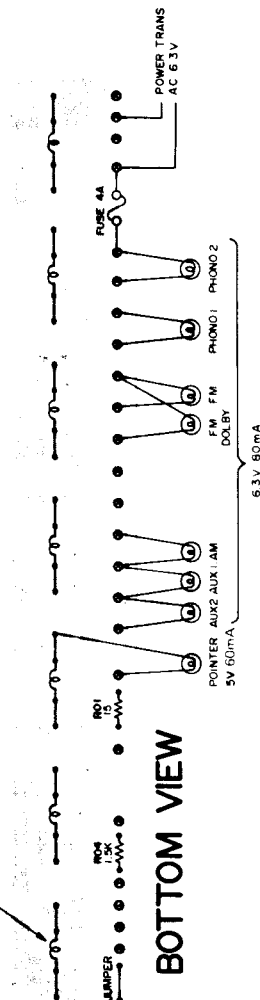
R01	R2EDSJ150A	Carbon 15 1/4W $\pm$ 5 %
R04	R2EDSJ152A	Carbon 1.5k 1/4W $\pm$ 5 %



BOTTOM VIEW

DIAL LAMP P.C.BOARD

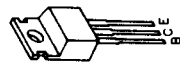
LAMP (FUSE TYPE 6.3V 250mA) x 7



BOTTOM VIEW

POWER SUPPLY P.C. BOARD

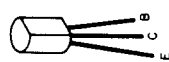
TRANSISTOR FRONT VIEW



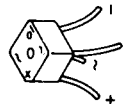
Q01 2SD330 D,E

Q03, Q04 2SD610
Q06, Q07 2SB630

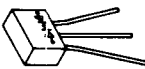
Q02 2SC536 E, F

Q05 2SD438 D, E
Q08 2SB560 D, E

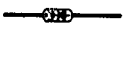
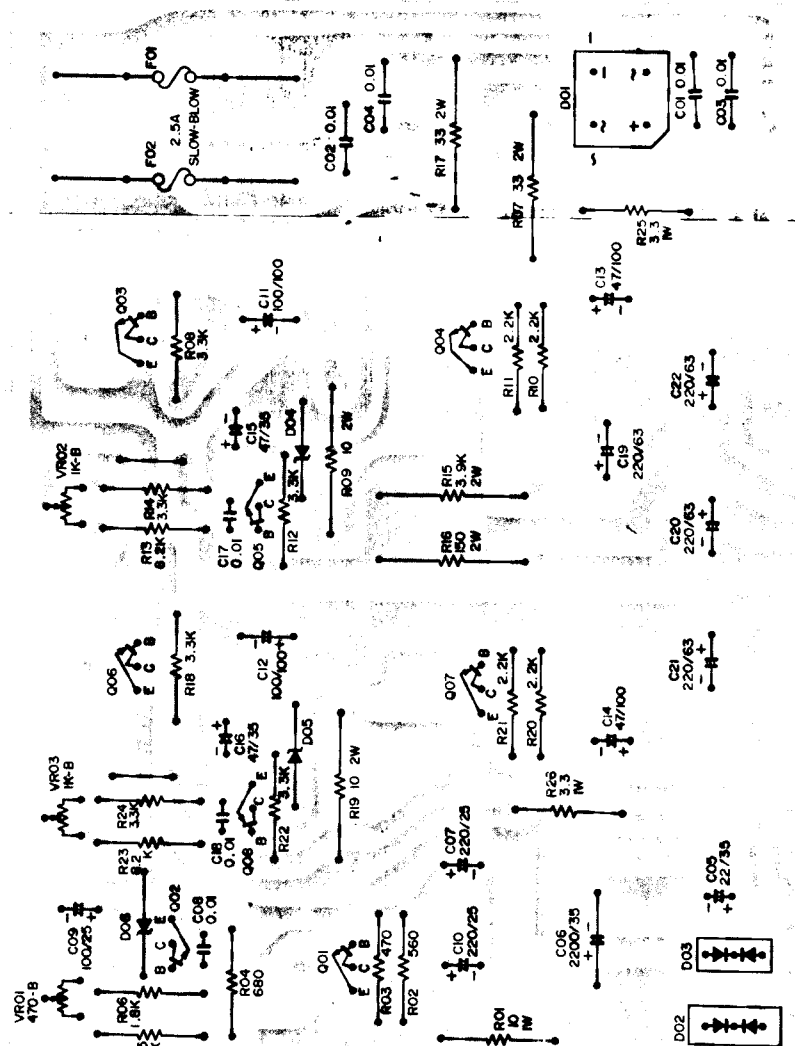
DIODE FRONT VIEW



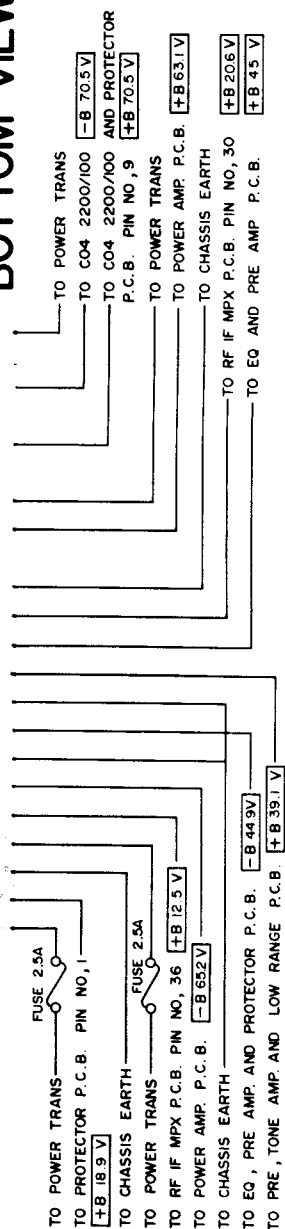
D01 2SVB40



D02, D03 DS131A

D04, D05 RD-13E
D06 RD-6.2E

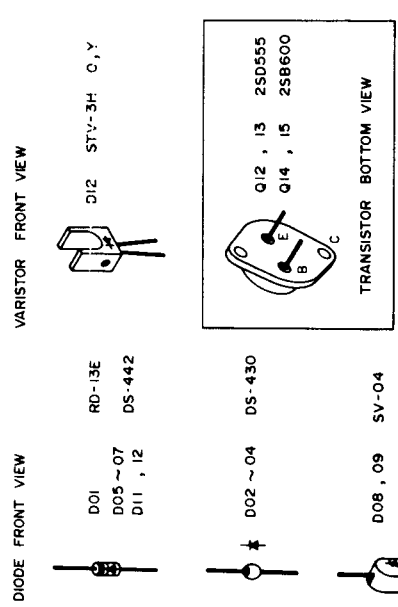
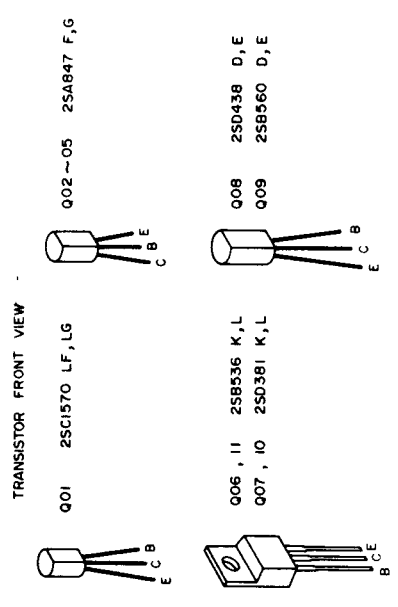
BOTTOM VIEW



TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q01	2SD330	13.1V	19.7V	12.5V
Q02	2SC536	6.7V	13.1V	6.1V
Q03	2SD610	64.5V	67.0V	63.9V
Q04	2SD610	45.2V	63.2V	44.0V
Q05	2SD438	12.7V	45.2V	12.0V
Q06	2SB630	-66.5V	-69.1V	-65.9V
Q07	2SB630	-45.2V	-65.5V	-44.2V
Q08	2SB560	-13.1V	-45.2V	-12.5V

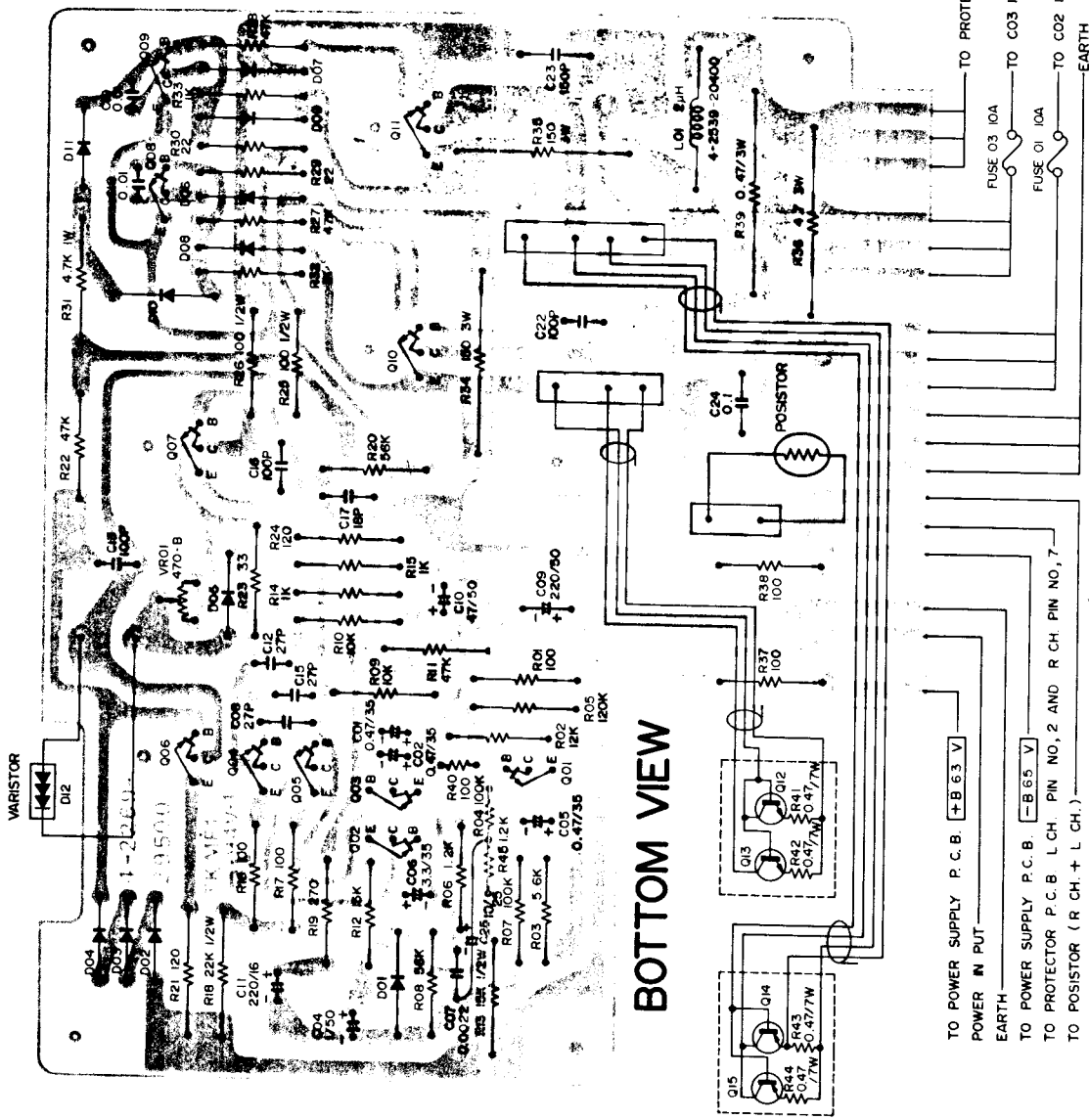
POWER AMP P.C. BOARD

RS-1060



TRANSISTOR DC VOLTAGES

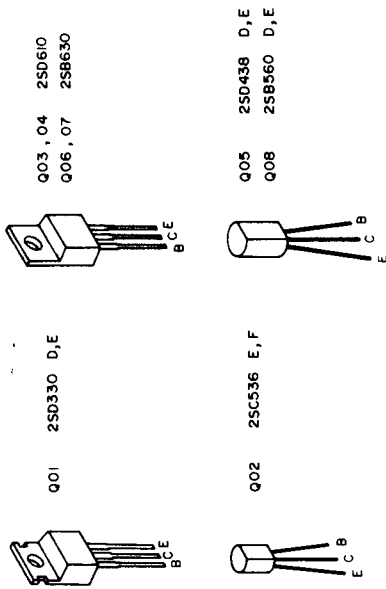
SYMBOL No.	DEVICE	B	C	E
Q01	25C1570	6.2V	11.7V	5.6V
Q02	25A847	44.6V	-25.0V	0.6V
Q03	25A847	50.7V	-25.0V	0.6V
Q04	25A847	25.0V	-62.0V	-25.2V
Q05	25A847	-25.6V	-62.0V	-25.0V
Q06	25B536	59.5V	1.0V	60.1V
Q07	25D381	62.0V	-1.1V	-62.5V
Q08	25D438	26.0V	1.0V	—
Q09	25B560	-76.0V	-1.0V	—
Q10	25D381	1.1V	58.0V	0.6V
Q11	25B536	-1.1V	-58.0V	-0.6V



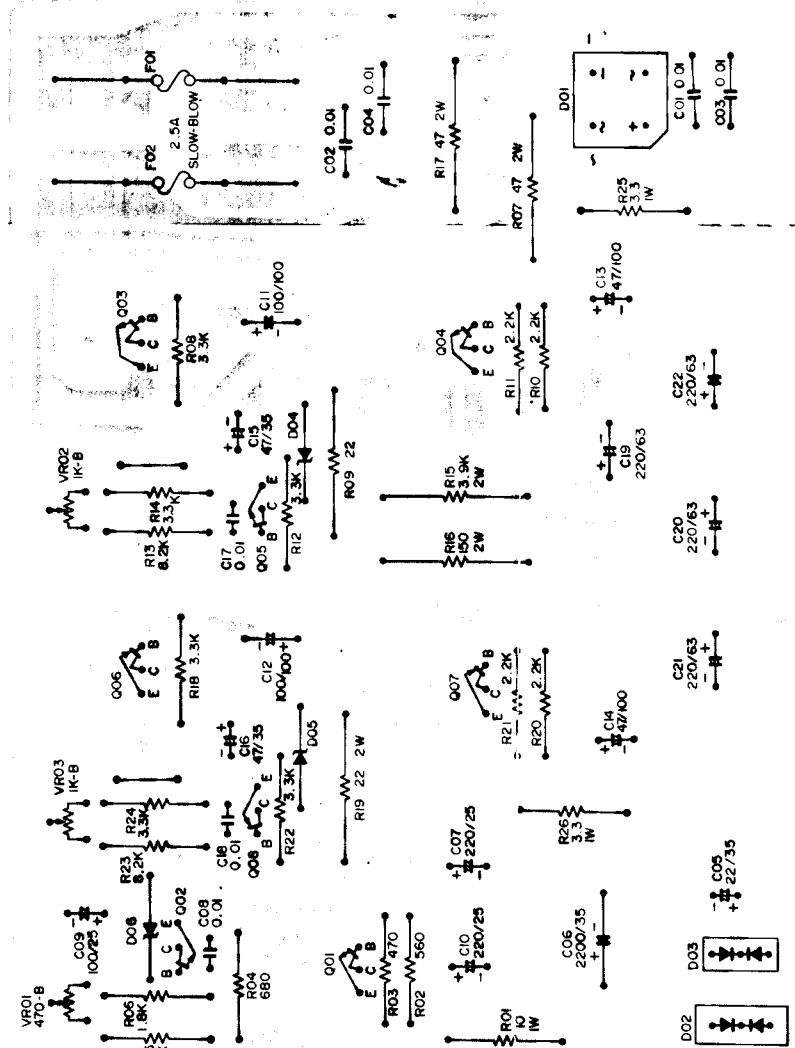
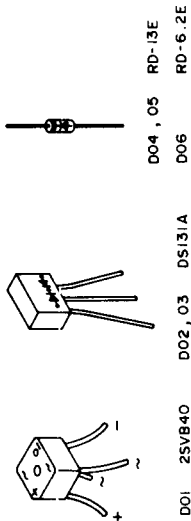
BOTTOM VIEW

POWER SUPPLY P.C. BOARD

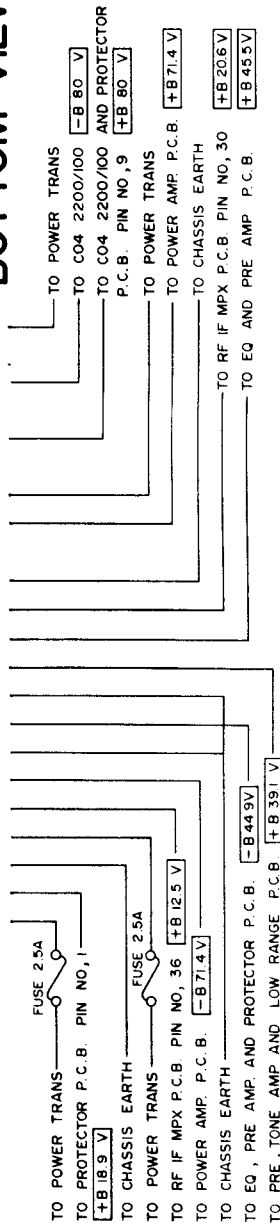
TRANSISTOR FRONT VIEW



DIODE FRONT VIEW

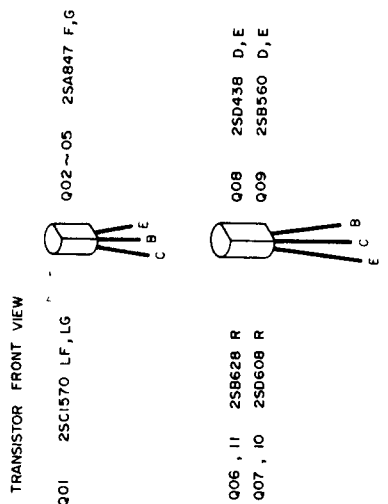


BOTTOM VIEW

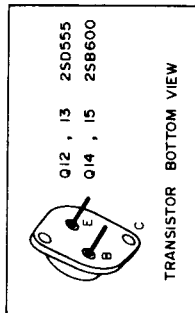
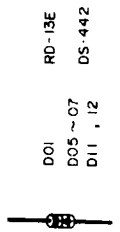


TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q01	2SD330	13.1V	18.2V	12.5V
Q02	2SC536	6.5V	13.1V	5.8V
Q03	2SD610	72.4V	74.7V	71.7V
Q04	2SD610	45.9V	69.8V	45.5V
Q05	2SD438	13.6V	45.9V	13.1V
Q06	2SB630	-74.8V	-77.5V	-74.3V
Q07	2SB630	-45.3V	-73.3V	-44.8V
Q08	2SB560	-13.6V	-45.3V	-13.0V

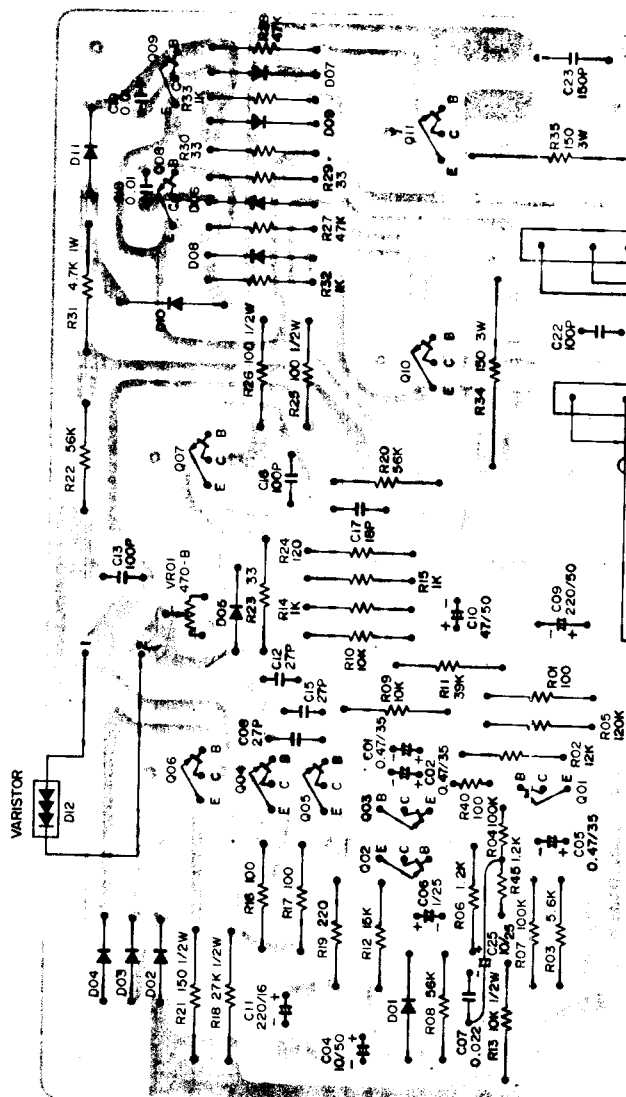
POWER AMP P.C. BOARD



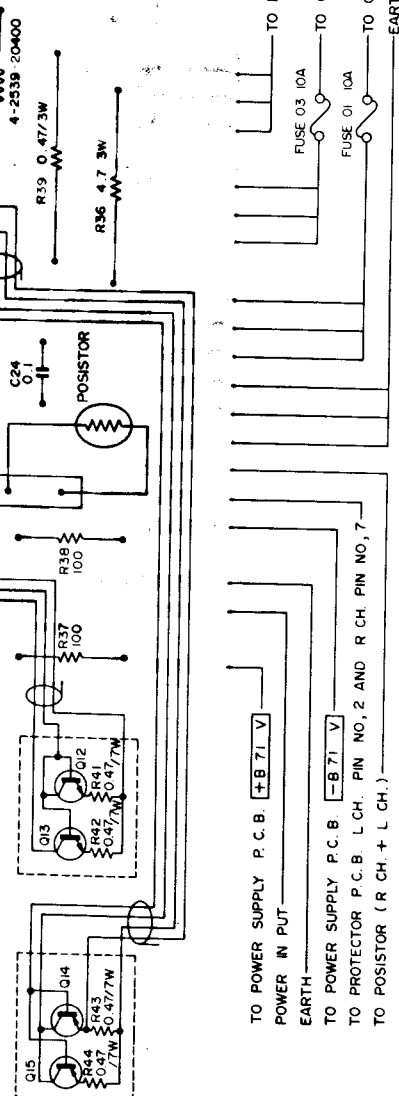
DIODE FRONT VIEW



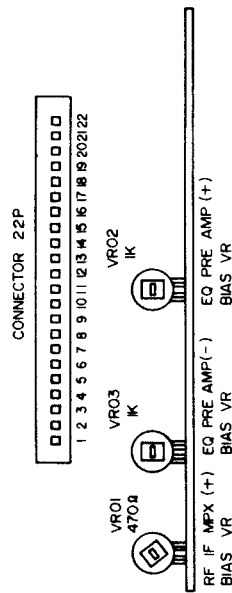
SYMBOL No.	DEVICE	B	C	E
Q01	25C1570	6.2V	11.6V	5.6V
Q02	25A847	32.0V	-34.8V	0.6V
Q03	25A847	32.5V	-34.7V	0.6V
Q04	25A847	-34.7V	-71.0V	-34.4V
Q05	25A847	-43.3V	-71.7V	-34.2V
Q06	25B628	68.3V	1.1V	69.1V
Q07	25D608	-71.6V	-1.2V	-72.0V
Q08	25D438	58.4V	1.0V	—
Q09	25B560	-52V	-1.0V	—
Q10	25D608	1.15V	68.0V	0.6V
Q11	25B628	-1.1V	-68.1V	-0.6V



BOTTOM VIEW



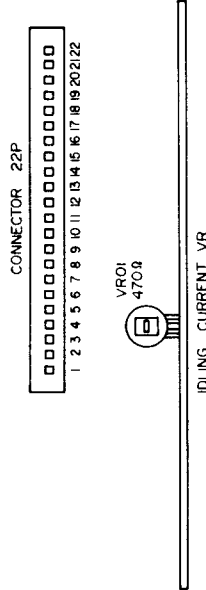
POWER SUPPLY P.C. BOARD LAYOUT



(A) ADJUSTMENT OF THE POWER SUPPLY P.C. BOARD

1. Adjust of VR 01 so that the DC V.T.V.M. reads 12.5V in pin No. 5 of connector.
2. Adjust of VR 02 so that the DC V.T.V.M. reads +45V in pin No. 11 of connector.
3. Adjust to VR 03 so that the DC V.T.V.M. reads -45V in pin No. 8 of connector.

POWER AMP P.C. BOARD LAYOUT



(B) ADJUSTMENT OF THE POWER AMP P.C. BOARD

BEFORE ADJUSTMENT

1. Disconnect the PRE OUT/MAIN IN connector.
2. After the power switch is turned ON, allow a few minutes before making adjustment, to be sure of the most stable operation.
3. Connect dummy load resistors (8 ohms) the speaker terminals.
4. Use DC V.T.V.M. (Input impedance; More than 50k ohms/V)

IDLING CURRENT ADJUSTMENT

Adjust VR 01 for an idling current of 40mA. Measure the voltage at both sides of R14 resistor (0.47 ohms) and adjust VR 01 to indicate 0.038V $\pm$ 0.001V.

Note: Polarity of Emitter of Q12 is (+).

Mid-point is (-).

Repeat steps A and B for optimum results.

Note: a. Turn the clockwise variable resistor for increase on voltage.

b. Be careful of the polarity of each measurement point.

PARTS LIST

POWER SUPPLY PCB ASSY

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
72	1310 4001 74200	Power Supply PCB Assy (RS-1060)	R01	R3AXPK100A	Oxide Metal Film 10 1W $\pm$ 10 %
72	1310 4001 74201	Power Supply PCB Assy (RS-1080)	R02	R2EDVJ561A	Carbon 560 1/4W $\pm$ 5 %
F01.02	4 2349 21240	Fuse 2.5A Slow Blow	R03	R2EDVJ471A	Carbon 470 1/4W $\pm$ 5 %
	4 2359 23000	Fuse Holder	R04	R2EDVJ681A	Carbon 680 1/4W $\pm$ 5 %
	1312 6201 23300	Plate Heat Sink	R05	R2EDVJ152A	Carbon 1.5k 1/4W $\pm$ 5 %
VR01	4 2229 25850	VR 470-B	R06	R2EDVJ182A	Carbon 1.8k 1/4W $\pm$ 5 %
VR02.03	4 2229 22910	VR B-1k	R07	R3DXPK330A	Oxide Metal Film 33 2W $\pm$ 10 %
C01.02	C2HYDP103A	Ceramic 0.01 μ F 500V	R07	R3DXPK407A	Oxide Metal Film 47 2W $\pm$ 10 %
G3.04		+100, -0 %			
C05	C1VRE-226A	Electrolytic 22 μ F 35V	R08	R2EDVJ332A	Carbon 3.3k 1/4W $\pm$ 5 %
C06	C1VRE-228A	Electrolytic 2200 μ F 35V	R09	R3DXPK100A	Oxide Metal Film 10 2W $\pm$ 10 %
C07	C1ERE-227A	Electrolytic 220 μ F 25V			
C08	C1HFRM103A	Mylar 0.01 μ F 50V $\pm$ 20 %	R09	R3DXPK220A	Oxide Metal Film 22 2W $\pm$ 5 %
C09	C1ERE-107A	Electrolytic 100 μ F 25V			
C10	C1ERE-227A	Electrolytic 220 μ F 25V	R10.11	R2EDVJ222A	Carbon 2.2k 1/4W $\pm$ 5 %
C11.12	4 2239 21072	Electrolytic 100 μ F 100V	R12	R2EDVJ332A	Carbon 3.3k 1/4W $\pm$ 5 %
C13.14	4 2239 21071	Electrolytic 47 μ F 100V	R13	R2EDVJ822A	Carbon 8.2k 1/4W $\pm$ 5 %
C15.16	C1VRE-476A	Electrolytic 47 μ F 35V	R14	R2EDVJ332A	Carbon 3.3k 1/4W $\pm$ 5 %
C17.18	C1HFRM103A	Mylar 0.01 μ F 50V $\pm$ 20 %	R15	R3DXPK392A	Oxide Metal Film 3.9k 2W $\pm$ 10 %
C19.20	C1JRE-227A	Electrolytic 220 μ F 63V	R16	R3DXPK151A	Oxide Metal Film 150 2W $\pm$ 10 %
21.22			R17	R3DXPK330A	Oxide Metal Film 33 2W $\pm$ 10 %
			R17	R3DXPK470A	Oxide Metal Film 47 2W $\pm$ 10 %
			R18	R2EDVJ332A	Carbon 3.3k 1/4W $\pm$ 5 %
			R19	R3DXPK100A	Oxide Metal Film 10 2W $\pm$ 10 %
			R19	R3DXPK220A	Oxide Metal Film 22 2W $\pm$ 10 %
			R20.21	R2EDVJ222A	Carbon 2.2k 1/4W $\pm$ 5 %
			R22	R2EDVJ332A	Carbon 3.3k 1/4W $\pm$ 5 %
			R23	R2EDVJ822A	Carbon 8.2k 1/4W $\pm$ 5 %
			R24	R2EDVJ332A	Carbon 3.3k 1/4W $\pm$ 5 %
			R25.26	R3AXPK3R3A	Oxide Metal Film 3.3 1W $\pm$ 10 %

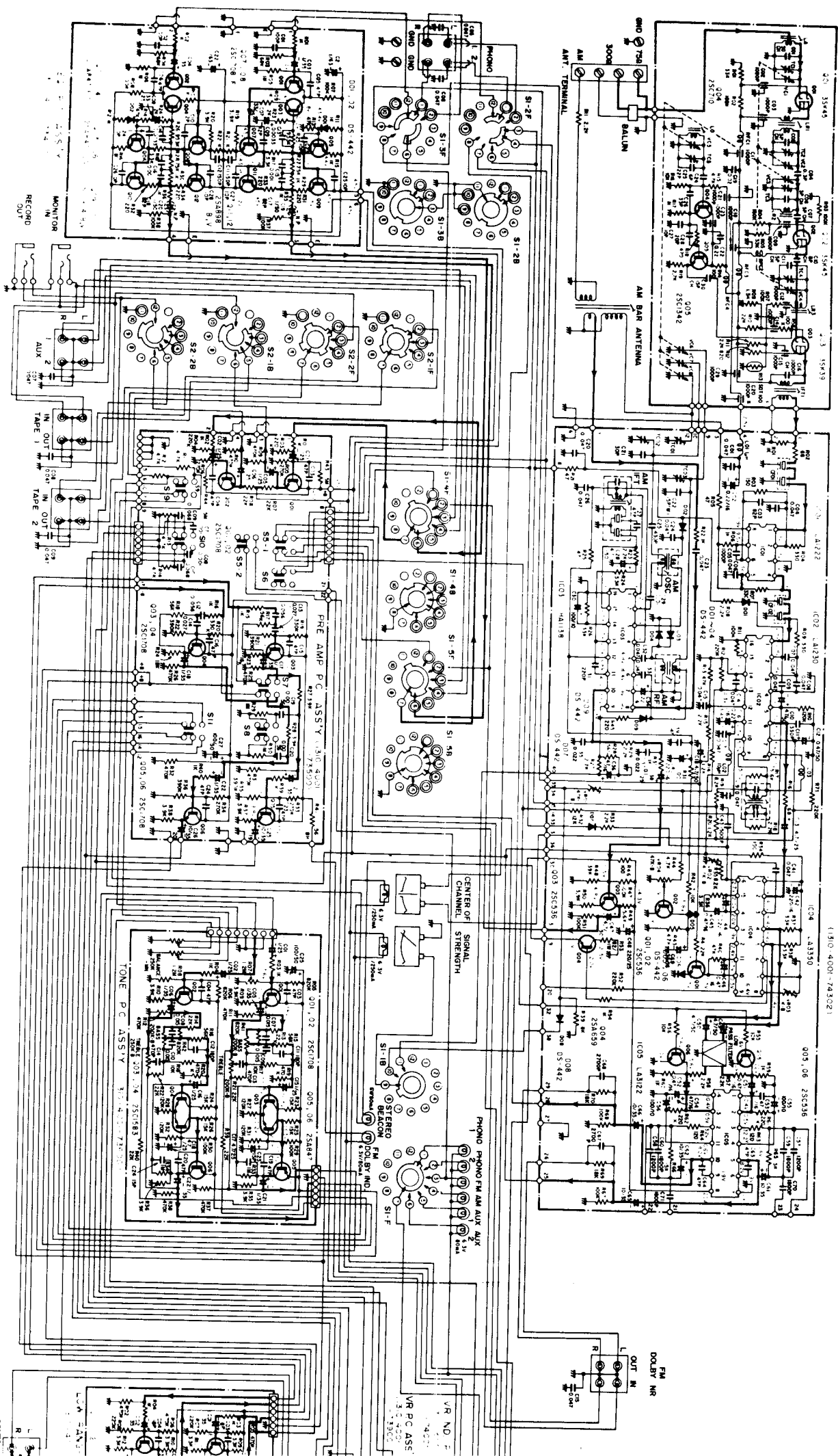
SEMICONDUCTORS

D01	DDO-S2VB40	Diode S2VB40
D02.03	2025 2320 13110	Diode D5131
D04.05	DNN-RD13E	Diode RD-13E
D06	DNN-RD6.2E	Diode RD-6.2E
D01	2035 8220 33040	TR 2SD330 D
D02	2035 5100 53650	TR 2SC536 E
D03	TNN-2SD610-Q	TR 2SD610 Q
D04	TNN-2SD610-Q	TR 2SD610 Q
D05	2035 6920 43840	TR 2SD438
D06.07	TNN-2SB630-Q	TR 2SB630 Q
D08	2035 6930 56040	TR 2SB560

FRONT END

RS-1060 SCHEMATIC DIAGRAM

IF MPX P.C. ASSY
(1910-4001-743021)



The diagram is a complex electronic schematic for a radio receiver, organized into several functional sub-assemblies:

- POWER SUPPLY P.C. ASSY (130-40N-74200):** Located at the top right, it shows the power transformer, rectifier, and filter components.
- DIAL LAMP P.C. ASSY (130-40C1-74400):** Below the power supply, it includes the dial lamp socket and associated wiring.
- FM DOLBY NR:** At the top left, it shows the FM detector and noise reduction circuitry.
- VR IND. P.C. ASSY (-74001) and VR PC ASSY (-73902):** These are variable resistor assemblies located in the middle left section.
- LOW RANGE P.C. ASSY:** Below the variable resistor assemblies, it contains the low-range amplifier and tuning circuit.
- POWER AMP P.C. ASSY:** This section contains the main audio amplifier stage.
- PROTECTOR P.C. ASSY:** Located at the bottom left, it includes the power switch and fuse.
- PHONES 1, 2 and SPEAKERS A, B, C:** At the bottom right, these sections show the output connections for headphones and the three speaker drivers.
- POWER TRANS.:** A power transformer located at the bottom right, providing different voltage taps for the circuit.

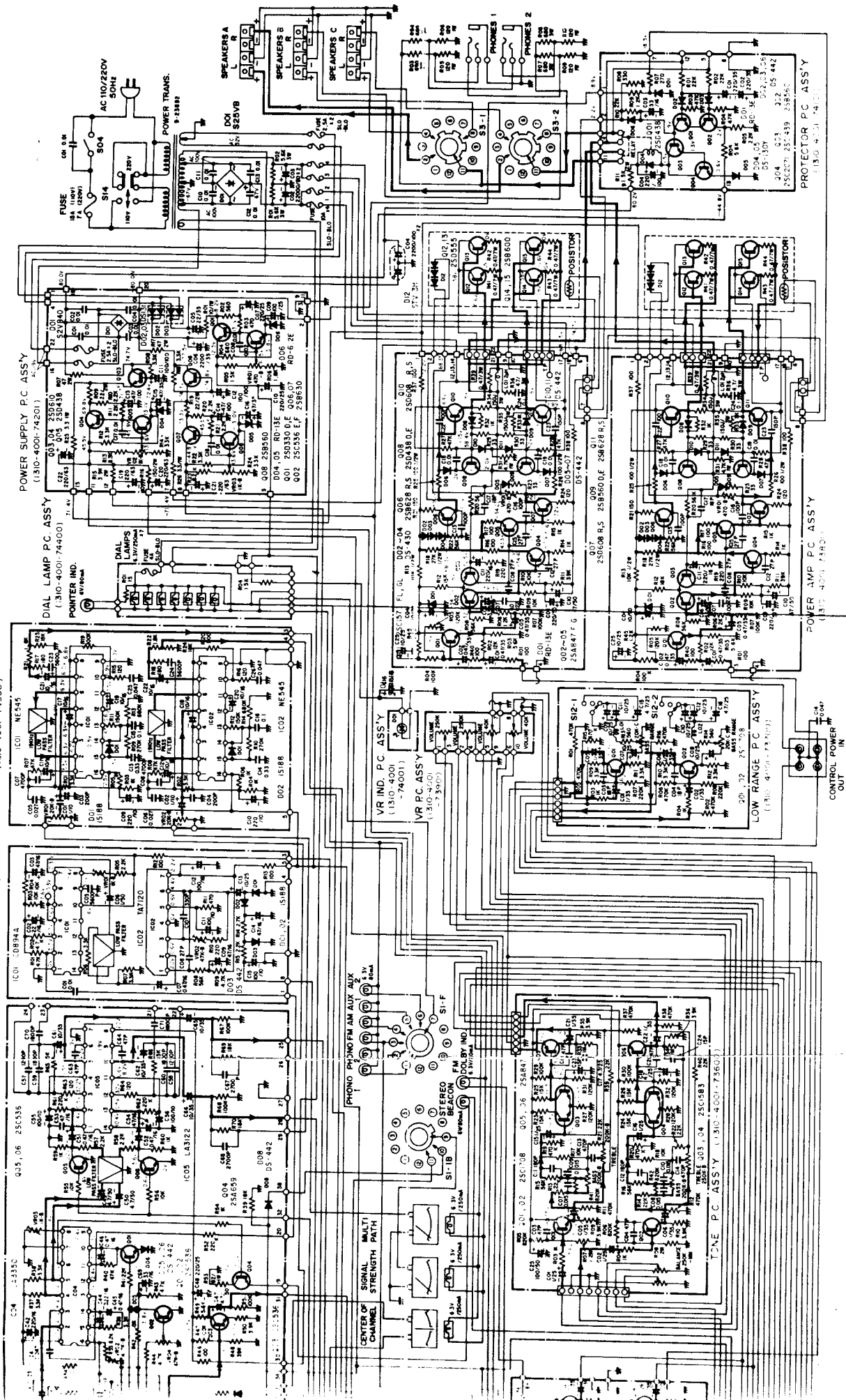
The schematic is densely packed with component values (resistors, capacitors, tubes) and interconnecting lines, representing the electrical connections between all parts of the device.

S-1080 SCHEMATIC DIAGRAM

IF MPX PC ASS'Y
(1310-4001-74302)

MULTI PATH PC ASS'Y
(1310-4001-74600)

DOLBY PC ASS'Y
(1310-4001-74500)



RS-1080 SCHEMATIC DIAG

IF MPX P.C. ASSY
(1310-4001-73302)

FRONT END
4-259-274-1

