1638

SERVICE MANUAL

FISHER

RS-1022

Stereo Receivers

FIRST NAME IN HIGH FIDELITY

TABLE OF CONTENTS

Nominal Specifications for Information only.

RECEIVER		RS-1022
POWER MAPLIFIER SECTION Continuous minimum RMS sine wave power per channel within stated bandwidth at no more than stated distortion and with an 8 ohms load.		22 W
Power Bandwidth		20 Hz–20 kHz
Total Harmonic Distortion		0.5 %
PREAMPLIFIER SECTION Input Sensitivity and Impedance (At rated output, 8 ohms at 1 kHz) Phono		2 mV/50 k ohm
Phono (max. input capability 1 kHz)		110 mV
Tape Monitor		150 mV/100 k ohm
Auxiliary		150 mV/100 k ohm
Hum & Noise, below rated output Phono		75 dB
Auxiliary, Tape Play		90 dB
Tone Control Bass (100 Hz)		±10 dB
Treble (10 kHz)		±10 dB
High Filter		–6 dB/5 kHz
Loudness Contour (100 Hz/10 kHz)		8 dB/4 dB
FM TUNER SECTION Usable Sensitivity	Mono	1.9 μV/10.8 dBf
	Stereo	4.6 μV/18.5 dBf
50 dB Quieting Sensitivity	Mono	2.8 μV/14.2 dBf
	Stereo	38 μV/36.8 dBf
Signal-to-Noise Ratio (Mono/Stereo) at 65 dBf		70 dB/66 dB
Distortion Mono/Stereo (at 65 dBf)	100 Hz	0.15 %/0.2 %
	1 kHz	0.15 %/0.2 %
	6 kHz	0.2 %/0.4 %
Capture Ratio		1.0 dB
Alt. Channel Selectivity		68 dB
Image Response Ratio		56 dB
Spurious Response Ratio		85 dB
AM Suppression Ratio		58 dB
Stereo Separation (1 kHz/10 kHz)		40 dB/30 dB
Sub-Carrier Product Ratio (19 kHz/38 kHz)		60 dB/70 dB
AM TUNER SECTION Sensitivity		300 μV/m
Selectivity (±10 kHz)		40 dB
Signal-to-Noise Ratio		55 dB
Image Response Ratio		50 dB
IF Response Ratio		45 dB
GENERAL Power Requirements: (50/60 Hz)		120 V AC ±10 % 160 W/192 VA
AC Outlets		2
Dimensions H x W x D	inches	5-5/16 x 17-1/4 x 10-5/8
Weight	lbs.	17

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.

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:

BASS, TREBLE, and BALANCE controls to center positions

POWER Switch OFF

FUNCTION Switch to AUX

HIGH FILTER, TAPE MONITOR and LOUDNESS CONTOUR out (not depressed)

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 22 Watts RMS (13.27V across the 8-ohm load). Harmonic Distortion Analyzer should measure 0.5 % distortion or less.
5) Repeat steps 1 through 4 for RIGHT CHANNEL.

BOTH CHANNELS DRIVEN

Connect 8-ohm load resistors across LEFT and RIGHT MAIN SPEAKERS terminals. Depress "MONO" pushbutton. Adjust generator output and "BALANCE" control for 22 Watts at Left and Right Channels (13.27 Volts across the 8-ohm loads). Harmonic Distortion Analyzer should measure 0.5 % distortion or less at each channel.

DISASSEMBLY INSTRUCTIONS

Removal of Chassis from Cabinet
1. Remove 4 screws from left and right sides of cabinet.
2. Separate cabinet from chassis.
3. Remove 11 screws from bottom of cabinet. (Do Not Remove Leg from Bottom of Cabinet).
4. Separate bottom of cabinet from chassis.

Removal of Front Panel Assembly
1. Remove all Knobs with the exception of push buttons.
2. Remove 4 screws from top of panel.
3. Remove 2 screws from bottom of Panel.
4. Separate Front Panel Assembly from chassis.

Removal of Meters
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 Slide Rail Pointer
1. Remove Metal Slide Pointer from Slide Rail Pointer.
2. Remove 2 screws from top of Slide Rail Pointer.

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

Removal and Replacement of Dial Lamps
1. Remove Dial P.C. Board from Shelter Light with two flaps straight.
2. Grasp Dial Lamp and extract from Lamp grommet holder.

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. Unscrew 2 screws from Drum. (Do Not Remove Dial String from Drum).
2. Remove 6 screws from P.C. Board.
3. Unsolder connections and remove P.C. Board.

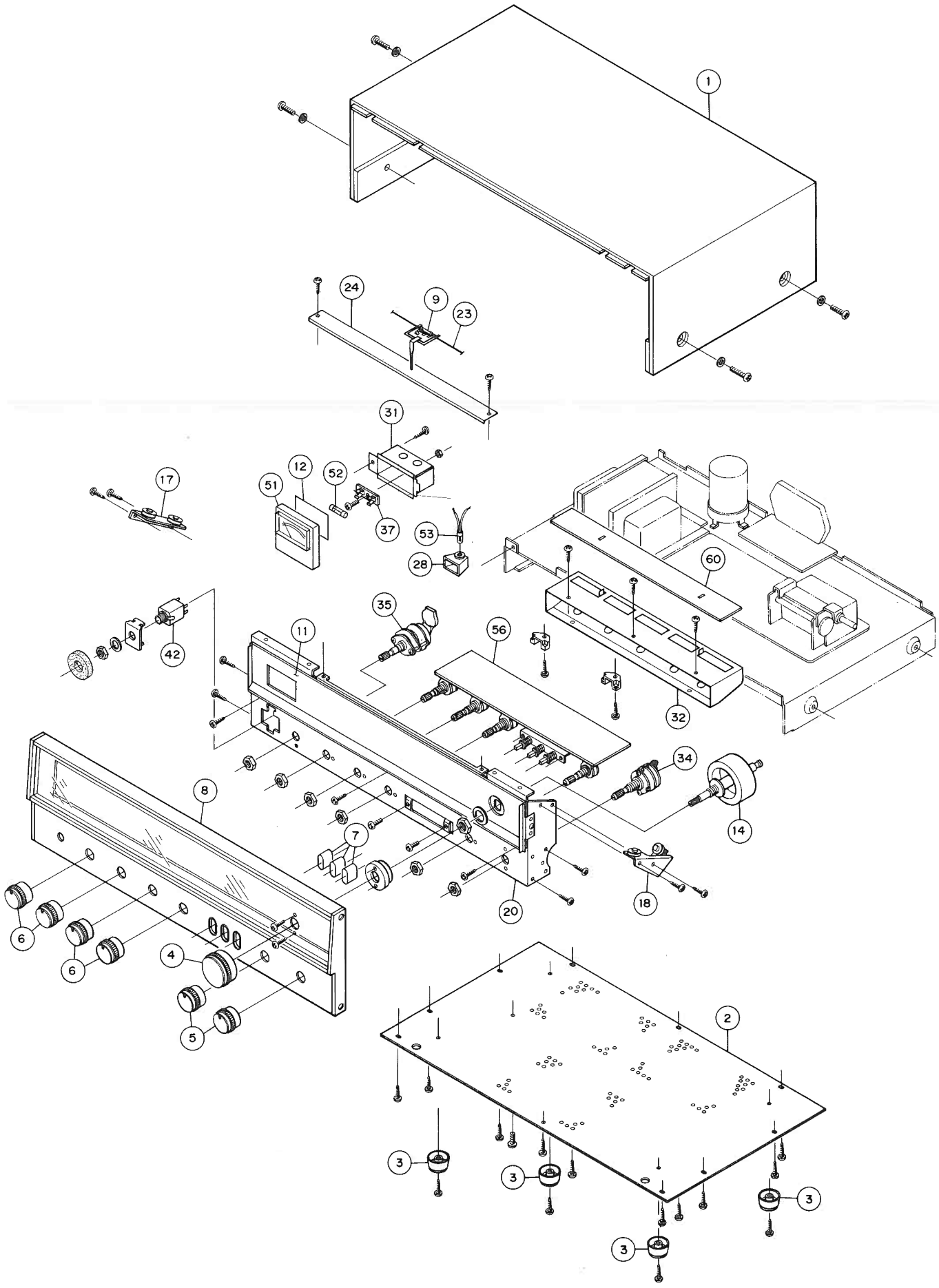
Removal of Muting P.C. Board
1. Unsolder wire wraps from terminals.
2. Remove 4 hold down screws.

Removal of Power Supply P.C. Board
1. Unsolder wire wraps from terminals.
2. Remove 4 hold down screw.

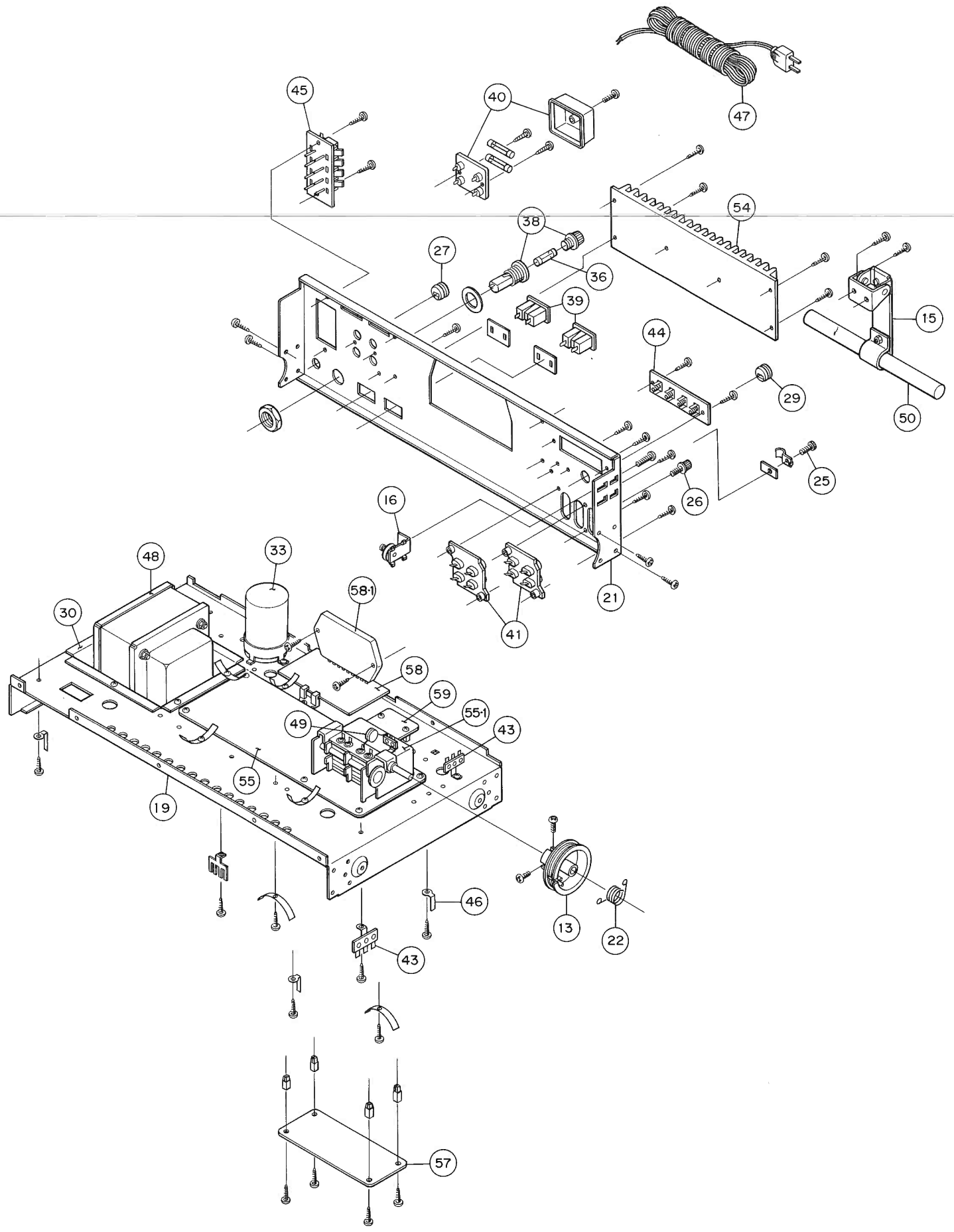
Removeal of Power Amp P.C. Board
1. Unsolder wire wraps from terminals.
2. Remove 2 screws holding Power IC (STK043).
3. Unscrew and remove plastic clip from P.C. Board.

Removeal of EQ and Tone Control Amp P.C. Board
1. Unsolder wire wraps from terminals.
2. Remove 2 screws from left and right sides of 4 push button switch.
3. Remove 4 nuts from variable resistors.
4. Unscrew and remove 2 plastic clips from P.C. Board.

EXPLODED VIEW OF CABINET AND CHASSIS FRONT MOUNTED ASSEMBLIES



EXPLODED VIEW OF CHASSIS AND REAR MOUNTED ASSEMBLIES



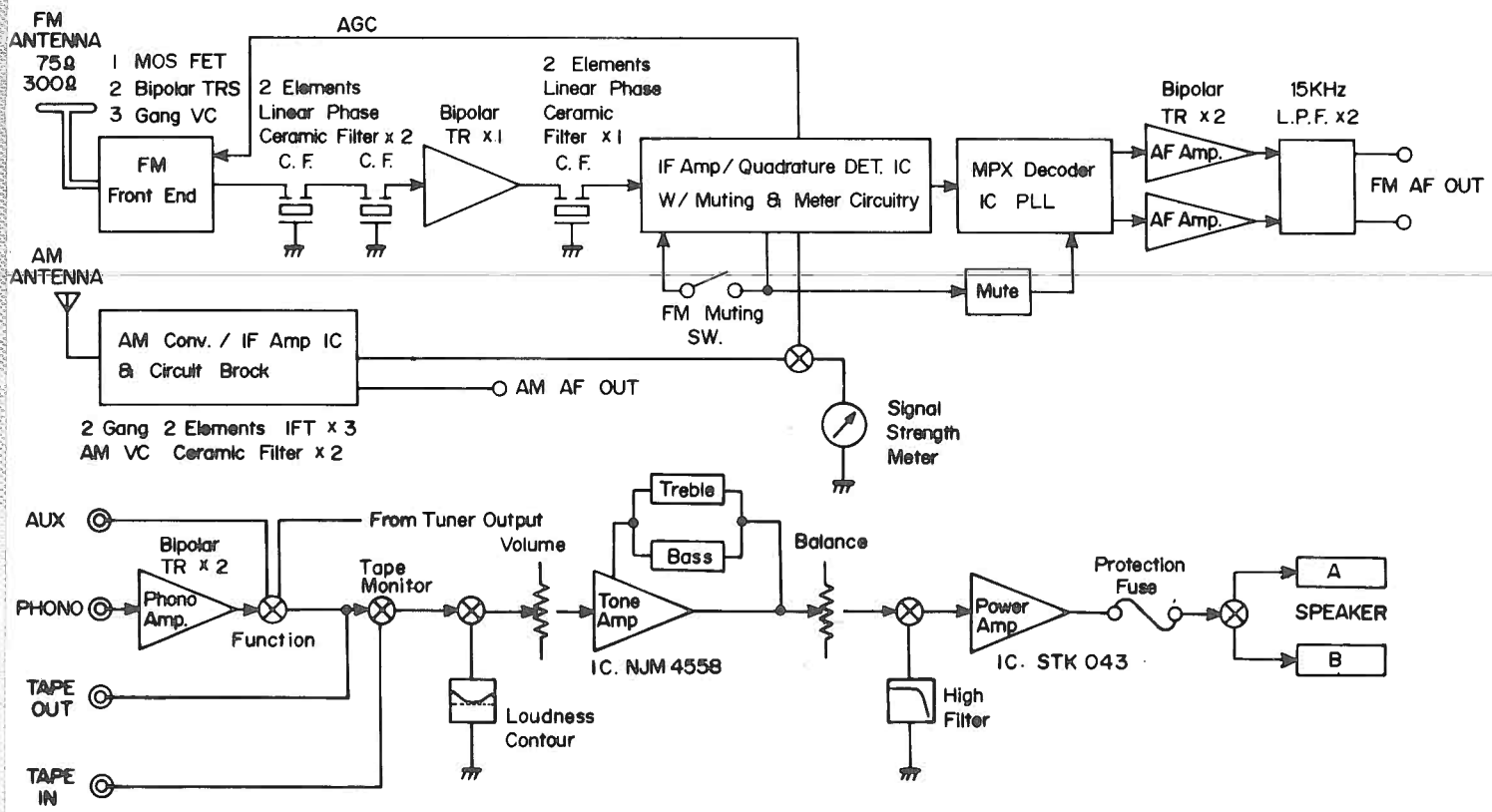
PARTS LIST

Ref. No.		Part Number	Description
PACKING PARTS LIST			
		1316 1139 63700	Box Corrugate-EXP
		1316 2119 01470	Bag Polyethylene-EXP
		1316 3009 23560	Pad (Right)
		1316 3009 23570	Pad (Left)
ACCESSORIES PARTS LIST			
		4 2449 20230	Antenna FM
		4 2349 20191	Fuse 2.0A
		1316 4119 59000	Explanatory Booklet
		1316 4319 10802	Service Station List
		1316 4519 14400	Guarantee Card
		1316 2719 10700	Bag Fan (Fuse)
		1316 2719 10801	Bag Fan (Booklet)
CABINET PARTS LIST			
1		1312 1101 35200	Cabinet Assy
2		1312 1105 20200	Plate Bottom
3		1312 1801 13200	Leg
APPEARANCE PARTS LIST			
4		1310 1001 41700	Knob Assy (Tuning)
5		1310 1001 41800	Knob Assy (Volume, Function)
6		1310 1001 41900	Knob Assy (Balance/Treble/ BASS/SPEAKER)
7		1312 1601 45300	Knob (High/Tape/Loudness)
8		1310 1016 25400	Dress Panel Assy
9		1310 3011 17500	Pointer Assy
11		1312 1201 30100	Dial Plate
12	*	1312 1406 12300	Plate Color
CHASSIS PARTS LIST			
13		1310 3002 11300	Drum Assy
14		1310 3003 20200	Tuning Shaft Assy
15		1310 3008 11702	Support Antenna Assy
16	*	1310 3020 05800	Pulley Assy (Panel Rear)
17	*	1310 3020 06900	Pulley Assy (Panel Front Left)
18	*	1310 3020 09200	Pulley Assy (Panel Front Right)
19	*	1312 3301 22900	Chassis
20	*	1312 3305 22400	Panel Front
21	*	1312 3306 24700	Panel Rear
22		1312 4111 00400	Tension Spring
23		1312 4112 10200	Dial Cord
24	*	1312 4120 11800	Slide Rail Dial Pointer
25		1312 4201 12701	Screw, Coax Clamp
26		1312 4201 17800	Screw, Ground
27		1312 6111 11300	Bushing (Line Cord)
28		1312 6111 12100	Housing (Stereo Beacon Lamp)
29		1312 6111 14200	Bushing (AM Antenna Lead)
30	*	1312 3617 16300	Metal Mount Trans
31		1312 6110 25700	Housing (Meter Lamp)
32		1312 6110 26900	Housing (Dial Lamp P.C.B.)

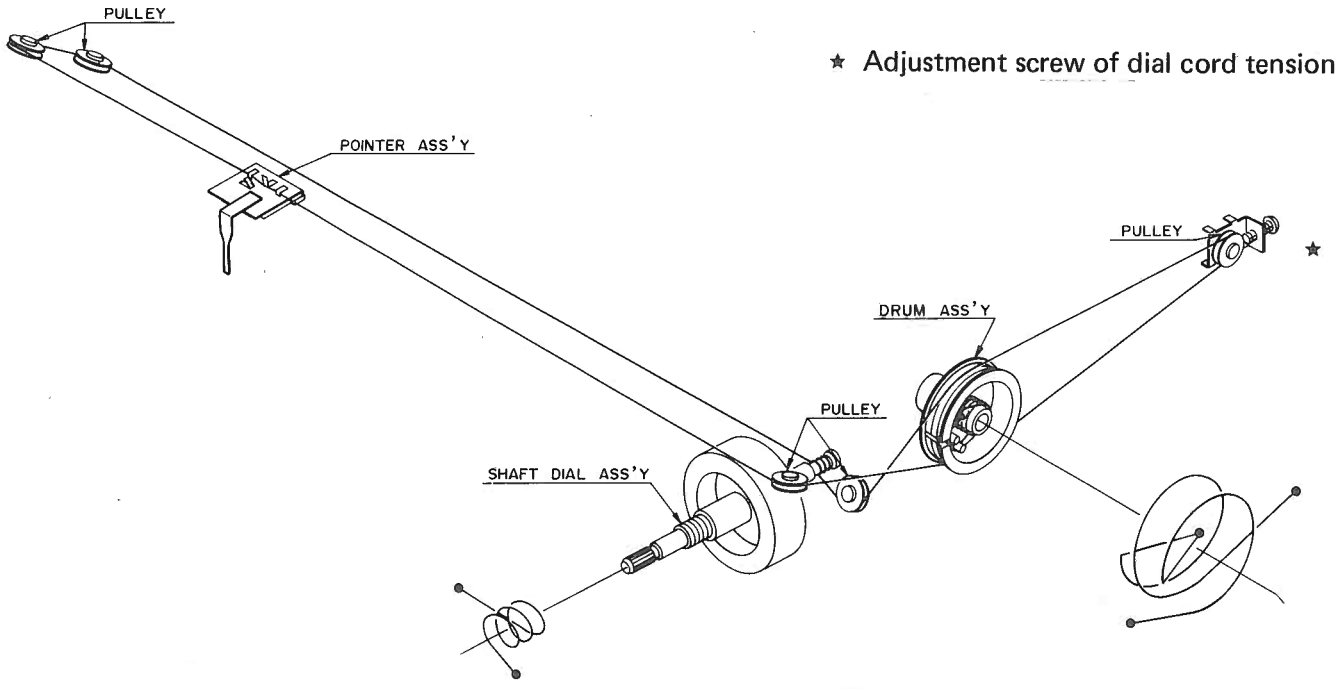
Ref. No.		Part Number	Description
ELECTRICAL PARTS LIST			
33 (C03)		4 2239 20970	Capacitor Electrolytic 4700 μF x 2 35V
34		4 2312 00100	SW-Rotary (Function)
35		4 2312 00110	SW-Rotary (power and Speaker)
36		4 2349 20191	Fuse 2A (Power/Protector)
37		4 2359 20160	Fuse Holder (Signal Strength)
38		4 2359 21110	Fuse Holder
39		4 2359 21960	Socket (Power)
40		4 2359 22030	Fuse Holder 2P
41		4 2359 22710	Socket 4P (Accessory Jack)
42		4 2359 22730	Socket 1P (Jack Head Phones)
43		4 2379 20140	Terminal Lug 2P
44		4 2379 21460	Terminal 4P (Antenna Connector)
45		4 2379 21560	Terminal 8P (Speaker Connector)
46		4 2379 21840	Terminal
47		4 2439 20720	Line Cord
48		4 2519 23665	Power Transformer
49		4 2539 20170	Choke Coil 1 μH
50		4 2579 25050	AM Antenna
51		4 5119 20590	Signal Strength
52		4 6129 20282	Pilot Lamp, 6.3V 0.25A
53		4 6129 20726	Pilot Lamp, 6V 30mA
54		1312 6201 24100	Plate Heat Sink
C04		C2HYDP103A	Capacitor Ceramic 0.01 μF 500V +100, –0 %
C01,02		C1HYDZ473A	Capacitor ceramic 0.047 μF 50V +80, –20 %
R01		R2HDPJ332A	Resistor Carbon 3.3k 1/2W ±5 %
R02		R2EDPJ102A	Resistor Carbon 1k 1/4W ±5 %
R03,04		R2HCPK185A	Resistor Solid 1.8M 1/4W ±5 %
L05		4 2539 20170	Choke Coil
55	*	1310 4001 81600	RF IF MPX P.C.B Assy
55-1	*	4 1259 20370	Front End (Component parts used in Front End are not serviceable and available.)
56	*	1310 4001 81700	EQ and Tone Control P.C.B. Assy
57	*	1310 4001 81800	Power Supply P.C.B. Assy
58	*	1310 4001 81900	Power AMP P.C.B. Assy
58-1		2065 6900 04310	IC STK043
59	*	1310 4001 82000	Muting P.C.B. Assy
60	*	1310 4001 82100	Dial Lamp P.C.B. Assy

NOTE:
* Asterisk indicates not a service part.

FUNCTIONAL BLOCK DIAGRAM



DIAL CORD STRINGING

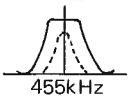


★ Adjustment screw of dial cord tension.

AM-FM MULTIPLEX ALIGNMENT

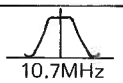
AM ALIGNMENT

For alignment: Maintain generator output as low as possible for suitable indication.

Step	Adjusting circuit	Connection		Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output			
1	IF	Connect 455kHz sweep generator to VC4.	Connect oscilloscope to test point TP19	Near max. capacity of VC at position of on interference.	AM 1st 9-21310 AM DET 9-21291	 455kHz
2	RF	Connect AM generator to EXT AM ANT and GND terminals. Set to 600kHz. Modulate with 30%, 1kHz.	Connect V.T.V.M. to TP19	600kHz	AM ANT 9-25050 AM OSC 9-20851	Max.
3		Change frequency to 1400kHz.	Connect V.T.V.M. to TP19	1400kHz	TC4 TC5	Max.
4	Repeat adjustment.					

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

FM ALIGNMENT

Step	Adjusting circuit	Connection		Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output			
1	IF	Connect sweep 10.7MHz generator to test point TP. VC2 through 0.01 μF.	Connect oscilloscope to test point TP7	Near max. capacity of VC. at position of on interference.	1st IFT in FRONT END	 10.7MHz
2	Quadrature Detector		Connect oscilloscope to test point TP6		FM QUADRATURE COIL 9-21320	
3	RF	Connect FM RF generator through two 120-ohm resistors to FM ANT screw terminals. Set generator to 90MHz, modulate with 400Hz to provide ±75kHz deviation. Set generator output attenuator as low as possible.	Connect V.T.V.M. to tuner Output.	90MHz	LA LR	Max.
4		Change generator setting to 106MHz.	Connect V.T.V.M. to Tuner output.	106MHz	TCA TCR	Max.
5	Repeat adjustment.					

1. Variable capacitor completely closed.
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, FM SG, V.T.V.M. and oscilloscope. FM ANT input impedance is 300 ohm.
4. Function switch to "FM".
5. Use a screwdriver with plastic grip for all adjustments.

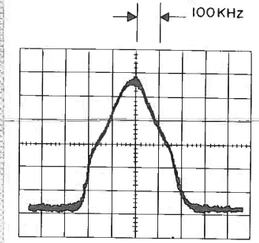
FM MPX ALIGNMENT

Step	Adjusting circuit	Connection		Position of tuning dial	Adjustment	
		Input	Output			
1	PLL IC FO (19kHz) Adjustment	None	Connect Frequency counter or synchroscope to TP8	Near max. capacity of VC. at position of on interference.	Adjust VR01 (5k-B) so that frequency counter or synchroscope indicate 19kHz.	
2	FMSTEREO Signal Separation	As above Steps 3,4 except modulation. Modulate LEFT channel 67.5kHz – 400Hz audio and ±7.5kHz – 19kHz pilot carrier.	Connect V.T.V.M. to output terminal (R channel).		VR02 (1k-B)	V.T.V.M. Min.
			Connect V.T.V.M. to output terminal (L channel).			
3	Repeat steps 1,2, Set at position with max. channel separation.					

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

ALIGNMENT WAVE FORMS

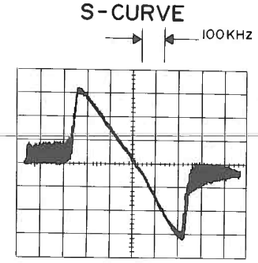
FM IF CURVE



Vertical Sensitivity: 0.5V/cm.
Horizontal Sweep: 100 usec./cm.

→ IF FREQ.
FM IF ALIGNMENT

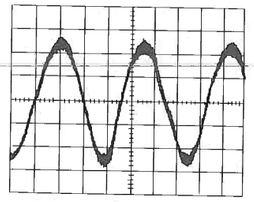
S-CURVE



Vertical Sensitivity: 0.5V/cm.
Horizontal Sweep: 100 usec./cm.

FM DETECTOR ALIGNMENT

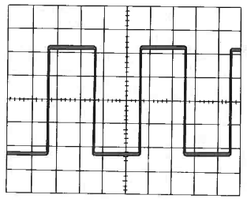
SINE WAVE



Vertical Sensitivity: 0.5V/cm.
Horizontal Sweep: 500 usec./cm.

SYMMETRICAL TUNING

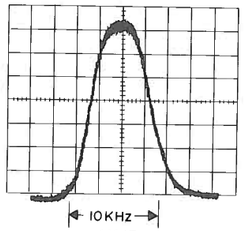
SQUARE WAVE



Vertical Sensitivity: 0.5V/cm.
Horizontal Sensitivity: 0.5V/cm.

MPX F.R.F.C. ADJUSTMENT

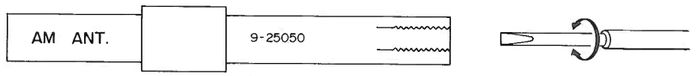
AM IF CURVE

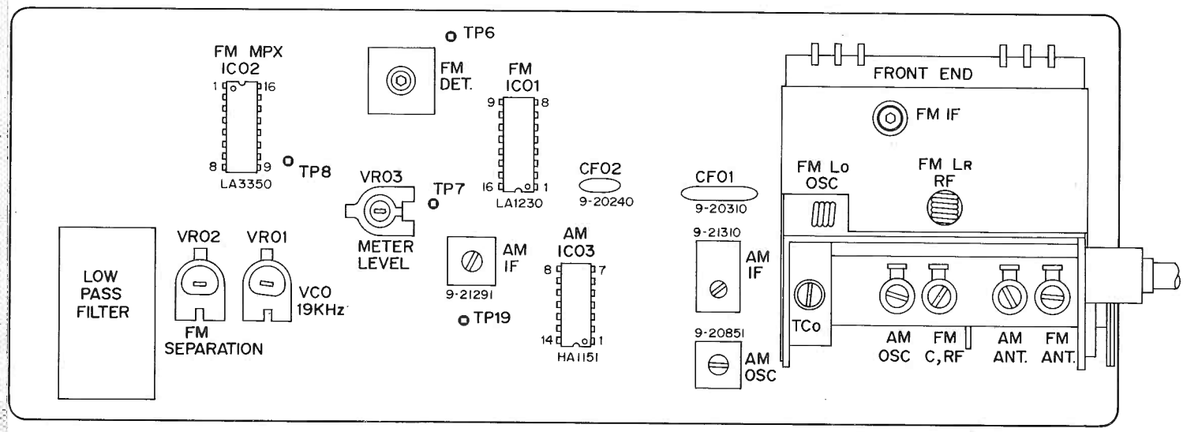


Vertical Sensitivity: 0.5V/cm.
Horizontal Sweep: 100 usec./cm.

AM IF ALIGNMENT

AM-FM RF/IF MPX BOARD LAYOUT





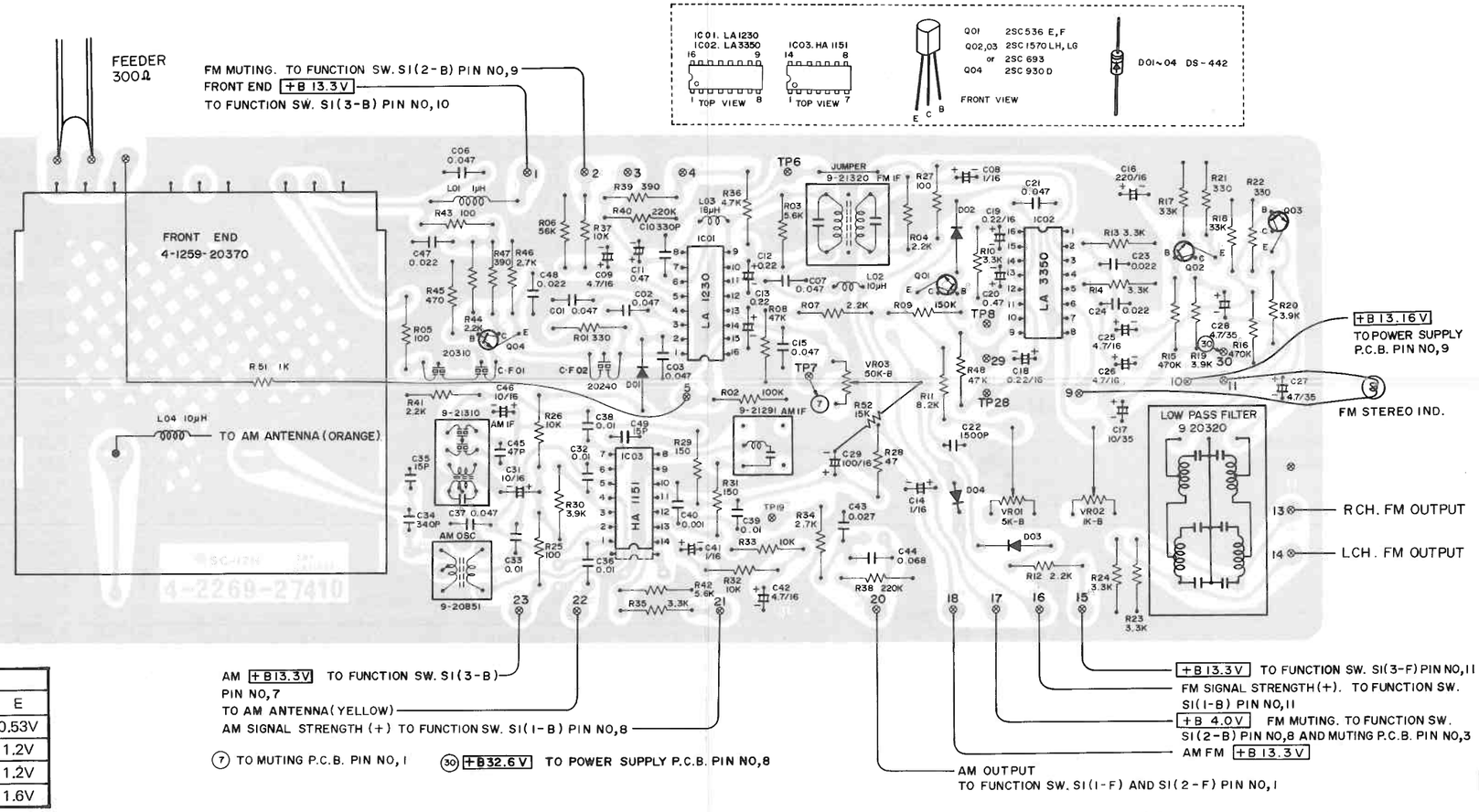
PARTS LIST

RF. IF. MPX. PCB ASSY
1310 4001 81600

Ref. No.	Part Number	Description
	4 1259 20370	Front End (Component parts used in Front End are not serviceable and available.)
VR01	4 2229 22842	VR 5kx1 (19kHz)
VR02	4 2229 24210	VR 1k (Separation)
VR03	4 2229 25400	VR 50kx1 (Meter Level)
CF02	4 2279 20240	Ceramic Filter
CF01	4 2279 20310	Ceramic Filter
	4 2279 20320	Low Pass Filter
	4 2359 22980	Socket 16P
	4 2379 21880	Terminal 1-1PL
L01	4 2539 20120	IF Trap 1 μH
L02	4 2539 20370	10 μH
L03	4 2539 20380	18 μH
L04	4 2539 20430	Peaking Coil 10 μH
	4 2569 21291	IF Trans AM
	4 2569 21310	IF Trans AM
	4 2569 21320	IF Trans FM
	4 2589 20851	OSC Coil AM
	CAPACITORS	
C01,02 03,06 07	C1HBDM473W	Semiconductor 0.047 μI50V ± 20 %
C08	C1CUEX105A	Alsicon 1 μF 16V +40,–20 %
C09	C1CRE-475A	Electrolytic 4.7 μF 16V
C10	C1HCSK331SL	Ceramic 330pF 50V ±10 %
C11	C1CUEX474A	Alsicon 0.47 μF 16V +40,–20 %
C12,13	C1CUEX224A	Alsicon 0.22 μF 16V +40,–20 %
C14	C1CRE-105A	Electrolytic 1 μF 16V
C15	C1HYSZ473A	Ceramic 0.047 μF 50V +80,–20 %
C16	C1CRE-227A	Electrolytic 220 μF 16V
C17	C1VRE-106A	Electrolytic 10 μF 35V
C18,19	C1CUEX224A	Alsicon 0.22 μF 16V +40,–20 %
C20	C1CUEX474A	Alsicon 0.47 μF 16V +40,–20 %
C21	C1HFRM473A	Mylar 0.047 μF 50V ±20 %
C22	C1HSEJ152A	Styrol 1500pF 50V ±5 %
C23,24	C1HFRK223A	Mylar 0.022 μF 50V ±10 %
C25,26	C1CUEX475A	Alsicon 4.7 μF 16V +40,–20 %
C27,28	C1VTRM475A	Tantalum 4.7 μF 35V ±20 %
C29	C1CRE-207A	Electrolytic 100 μF 16V
C31	C1CRE-106A	Electrolytic 10 μF 16V
C32,33	C1HFRM103A	Mylar 0.01 μF 50V ±20 %
C34	C1HSEJ341A	Styrol 340pF 50V ±5 %
C35	C1HCSJ150WK	Ceramic 15pF 50V ±5 %
C36	C1HFRM103A	Mylar 0.01 μF 50V ±20 %
C37	C1HYSZ473A	Ceramic 0.047 μF 50V +80,–20 %
C38,39	C1HFRM103A	Mylar 0.01 μF 50V ±20 %
C40	C1HFRM102A	Mylar 0.001 μF 50V ±20 %
C41	C1CUEX105A	Alsicon 1 μF 16V +40,–20 %
C42	C1CRE-475A	Electrolytic 4.7 μF 16V
C43	C1HFRM273A	Mylar 0.027 μF 50V ±20 %
C44	C1HFRM683A	Mylar 0.068 μF 50V ±20 %
C45	C1HCSK470SL	Ceramic 47pF 50V ±10 %
C46	C1CRE-106A	Electrolytic 10 μF 16V
C47,48	C1HYSZ223A	Ceramic 0.022 μF 50V +80,–20 %
C49	C1HCSJ150SL	Ceramic 15pF 50V ±5 %

Ref. No.	Part Number	Description	
	SEMICONDUCTORS		
D01,02 03,04	2055 9040 44210	Diode DS-442	
IC01	2065 0151 23010	IC LA1230	
IC02	2065 0743 35012	IC LA3350	
IC03	IKK-HA1151	IC HA1151	
Q01	2035 5100 53660	TR 2SC536F	
Q02,03	2035 5151 57089	TR 2SC1570LH	
Q04	2035 5500 93040	TR 2SC930D	
	RESISTORS		
R01	R2EDZJ331APA	Carbon 330	1/4W ± 5 %
R02	R2EDZJ104APA	Carbon 100k	1/4W ± 5 %
R03	R2EDZJ562APA	Carbon 5.6k	1/4W ± 5 %
R04	R2EDZJ222APA	Carbon 2.2k	1/4W ± 5 %
R05	R2EDZJ101APA	Carbon 100	1/4W ± 5 %
R06	R2EDZJ563APA	Carbon 56k	1/4W ± 5 %
R07	R2EDZJ222APA	Carbon 2.2k	1/4W ± 5 %
R08	R2EDZJ473APA	Carbon 47k	1/4W ± 5 %
R09	R2EDZJ154APA	Carbon 150k	1/4W ± 5 %
R10	R2EDZJ332APA	Carbon 3.3k	1/4W ± 5 %
R11	R2EDZJ822APA	Carbon 8.2k	1/4W ± 5 %
R12	R2EDZJ222APA	Carbon 2.2k	1/4W ± 5 %
R13,14	R2EDZJ332APA	Carbon 3.3k	1/4W ± 5 %
R15,16	R2EDZJ474APA	Carbon 470k	1/4W ± 5 %
R17,18	R2EDZJ333APA	Carbon 33k	1/4W ± 5 %
R19,20	R2EDZJ392APA	Carbon 3.9k	1/4W ± 5 %
R21,22	R2EDZJ331APA	Carbon 330	1/4W ± 5 %
R23,24	R2EDZJ332APA	Carbon 3.3k	1/4W ± 5 %
R25	R2EDZJ101APA	Carbon 100	1/4W ± 5 %
R26	R2EDZJ103APA	Carbon 10k	1/4W ± 5 %
R27	R2EDZJ101APA	Carbon 100	1/4W ± 5 %
R28	R2EDZJ470APA	Carbon 47	1/4W ± 5 %
R29	R2EDZJ151APA	Carbon 150	1/4W ± 5 %
R30	R2EDZJ392APA	Carbon 3.9k	1/4W ± 5 %
R31	R2EDZJ151APA	Carbon 150	1/4W ± 5 %
R32,33	R2EDZJ103APA	Carbon 10k	1/4W ± 5 %
R34	R2EDZJ272APA	Carbon 2.7k	1/4W ± 5 %
R35	R2EDZJ332APA	Carbon 3.3k	1/4W ± 5 %
R36	R2EDZJ472APA	Carbon 4.7k	1/4W ± 5 %
R37	R2EDZJ103APA	Carbon 10k	1/4W ± 5 %
R38	R2EDZJ224APA	Carbon 220k	1/4W ± 5 %
R39	R2EDZJ391APA	Carbon 390	1/4W ± 5 %
R40	R2EDZIJ224APA	Carbon 220k	1/4W ± 5 %
R41	R2EDZJ222APA	Carbon 2.2k	1/4W ± 5 %
R42	R2EDZJ562APA	Carbon 5.6k	1/4W ± 5 %
R43	R2EDZJ101APA	Carbon 100	1/4W ± 5 %
R44	R2EDZJ222APA	Carbon 2.2k	1/4W ± 5 %
R45	R2EDZJ471APA	Carbon 470	1/4W ± 5 %
R46	R2EDZJ272APA	Carbon 2.7k	1/4W ± 5 %
R47	R2EDZJ391APA	Carbon 390	1/4W ± 5 %
R48	R2EDZJ473APA	Carbon 47k	1/4W ± 5 %
R51	R2EDPJ102A	Carbon 1k	1/4W ± 5 %
R52	R2EDSJ153A	Carbon 15k	1/4W ± 5 %

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



BOTTOM VIEW

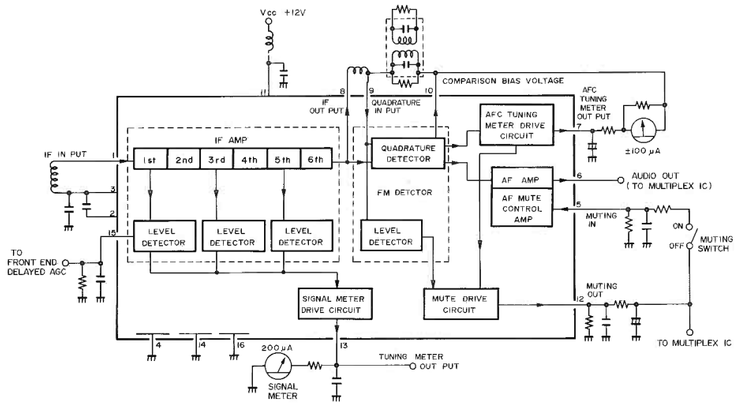
TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q01	2SC536E	1.13V	0.6V	0.53V
Q02	2SC1570LH	1.8V	18.13V	1.2V
Q03	2SC1570LH	1.8V	18.13V	1.2V
Q04	2SC930D	2.19V	12.26V	1.6V

IC01 LA1230 PIN NUMBERS VOLTAGES															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2.8V	2.8V	2.8V	0V	0V	5.7V	5.5V	5.7V	5.7V	5.7V	13.1V	3.3V	0.7V	0V	5.1V	0V

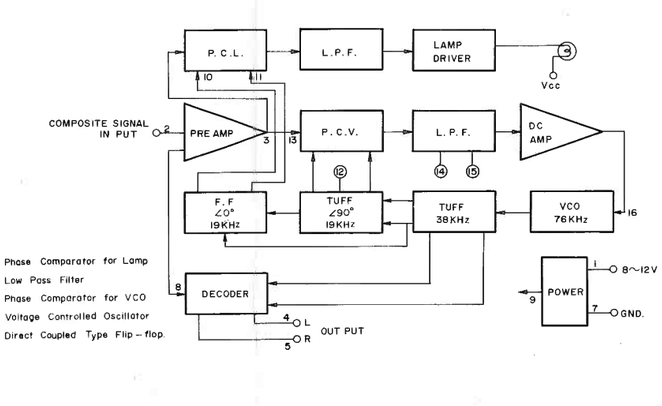
IC02 LA3350 PIN NUMBERS VOLTAGES															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
11.6V	2.9V	5.5V	8.45V	8.4V	13.2V	0V	0.37V	6.5V	0.6V	1.88V	2.26V	1.9V	2.0V	2.0V	3.9V

IC03 HA1151 PIN NUMBERS VOLTAGES													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.0V	11.8V	9.7V	11.8V	3.5V	1.2V	2.1V	7.8V	0V	12.4V	1.56V	0.7V	1.4V	0V

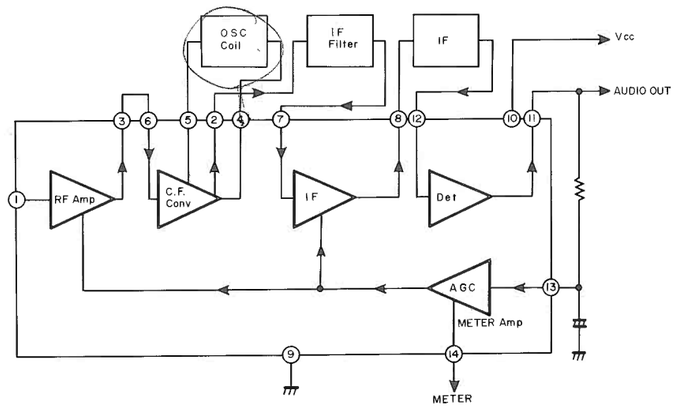
FM IF IC LA1230 SIGNAL FLOW



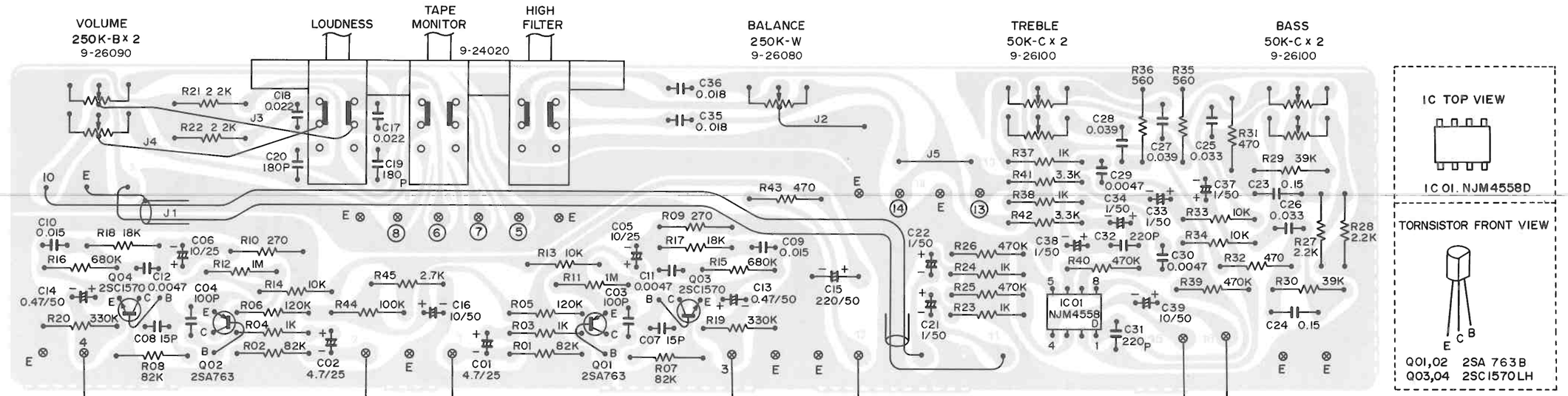
FM MPX IC LA3350 SIGNAL FLOW



AM RF IF IC HA1151 SIGNAL FLOW



EQ AND TONE CONTROL P.C.BOARD

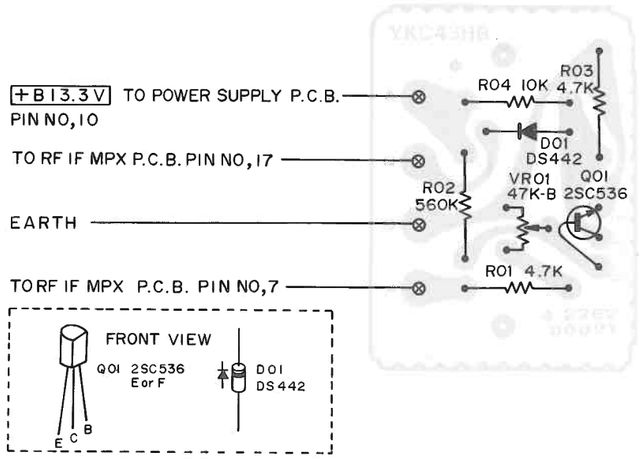


(5) LCH. TONE AMP INPUT . TO FUNCTION SW. SI(2-F) PIN NO,4
(6) RCH. TONE AMP INPUT . TO FUNCTION SW. SI(1-F) PIN NO,4
(7) LCH. TAPE INPUT
(8) RCH. TAPE INPUT
(13) LCH. PRE OUTPUT. TO POWER AMP P.C.B. PIN NO,1
(14) RCH. PRE OUTPUT. TO POWER AMP P.C.B. PIN NO,2

TRANSISTOR DC VOLTAGES				
SYMOBL NO.	DEVICE	B	C	E
Q01,02	2SA763B	0.83V	0.62V	1.33V
Q03,04	2SC1570LH	0.62V	12.43V	0V

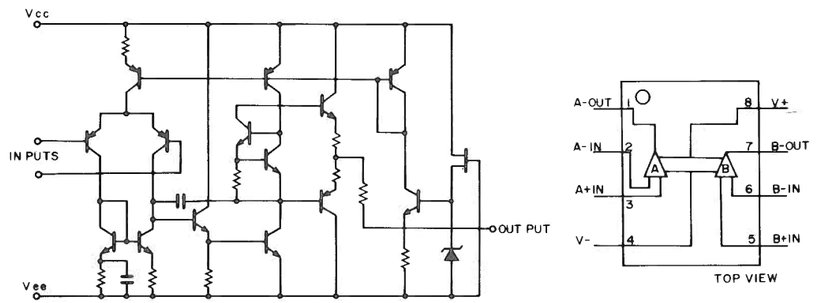
IC PIN NUMBERS VOLTAGES								
DEVICE \ PIN NO	1	2	3	4	5	6	7	8
IC01 NJM4558D				-15.6V				+15.6V

MUTING P.C.BOARD

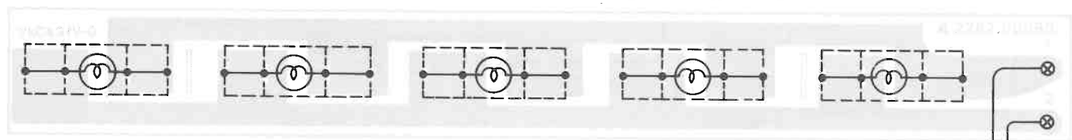


TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q01	2SC536E	0.5V	3.9V	0V

EQ AMP IC EQUIVALENT CIRCUIT

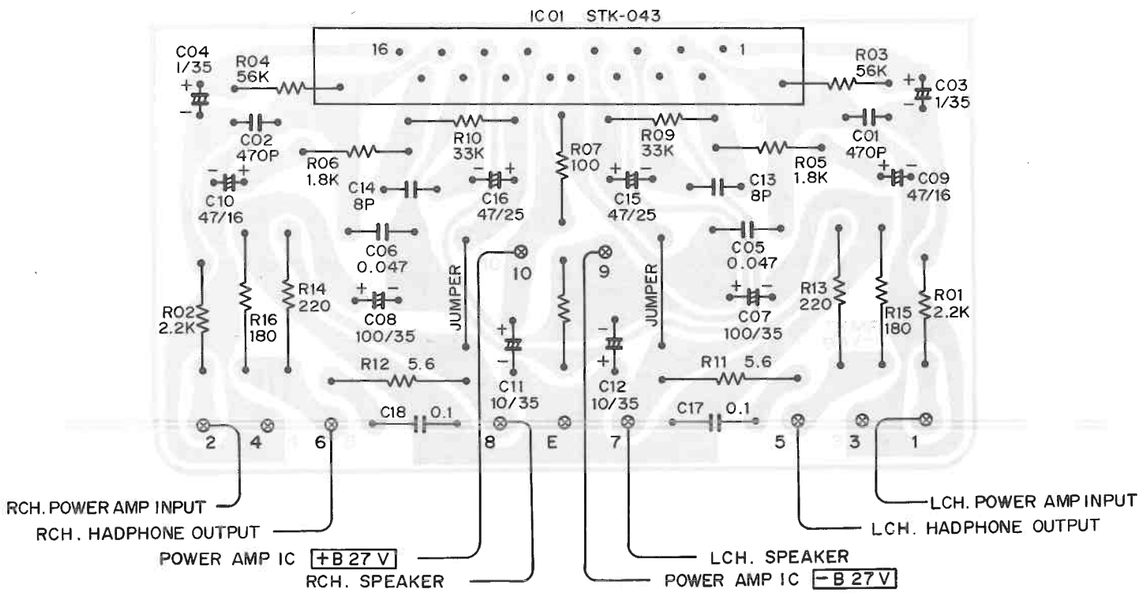


DIAL LAMP P.C.BOARD

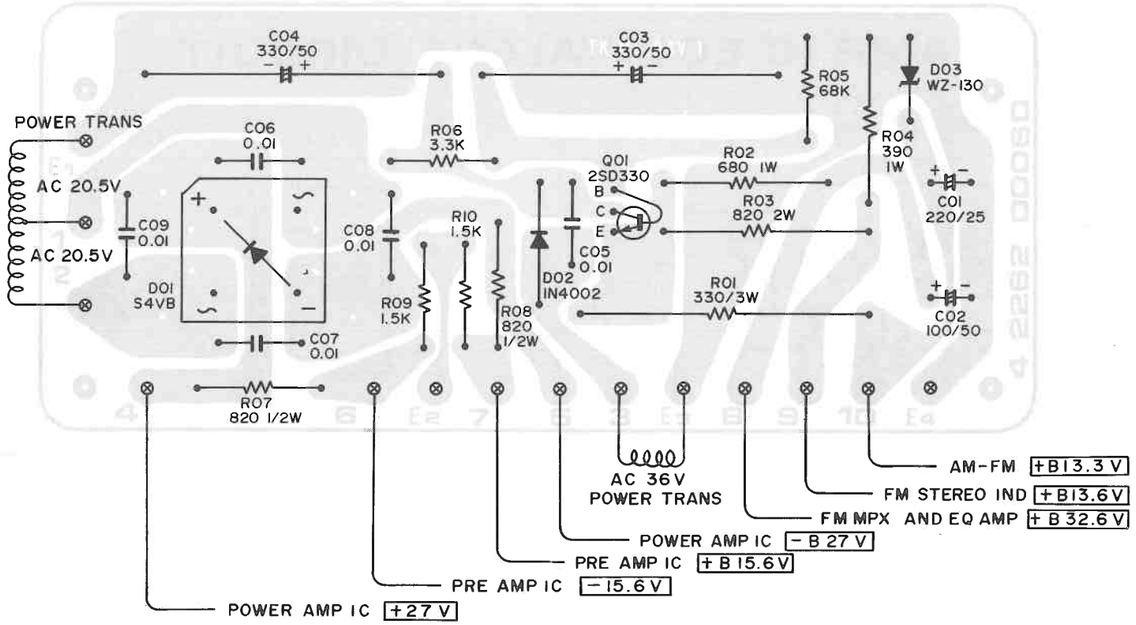


BOTTOM VIEW

POWER AMP P.C.BOARD

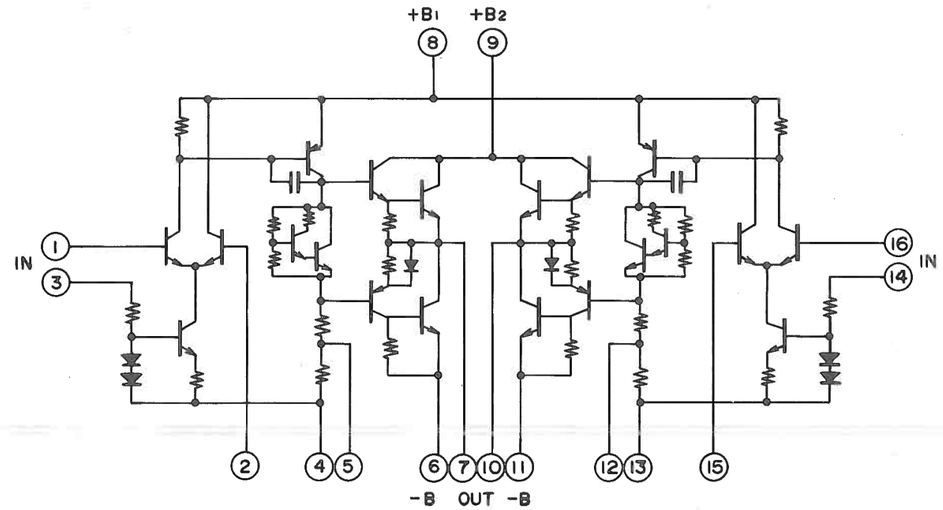


POWER SUPPLY P.C.BOARD

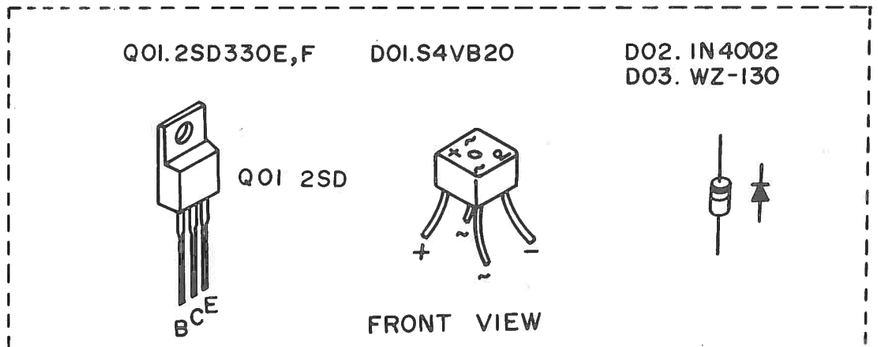


BOTTOM VIEW

POWER AMP IC EQUIVALENT CIRCUIT



IC PIN NUMBERS VOLTAGES																
DEVICE / PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC01 STK-043				–25.3V		–27.3V		+26.2V	+27V		–27.3V		–25.3V			



TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q01	2SD330F	44.8V	41.1V	40.6V

PARTS LIST

EQ AND TONE CONTROL PCB ASSY
1310 4001 81700

Ref. No.	Part Number	Description
	4 2229 26080	Balance VR-250k
	4 2229 26090	Mastor VR-250kx2
	4 2229 26100	Bass/Treble VR-50kx2
S4-1,S4-2	4 2319 24020	Push SW 3Key
S4-3		High Filter/Tape Monitor Loudness Contour
	CAPACITORS	
C01,02	C1ERE-475AL	Electrolytic 4.7 μF 25V
C03,04	C1HCSK101SL	Ceramic 100pF 50V ± 10 %
C05,06	C1ERB-106A	Electrolytic 10 μF 25V
C07,08	C1HCSJ150SL	Ceramic 15pF 50V ± 5 %
C09,10	C1HFAJ153A	Mylar 0.015 μF 50V ± 5 %
C11,12	C1HFAJ472A	Mylar 0.0047 μF 50V ± 5 %
C13,14	C1HRE-474AL	Electrolytic 0.47 μF 50V
C15	C1HRB-227A	Electrolytic 220 μF 50V
C16	C1HRE-106AL	Electrolytic 10 μF 50V
C17,18	C1HFAJ223A	Mylar 0.022 μF 50V ± 5 %
C19,20	C1HCSK181SL	Ceramic 180pF 50V ± 10 %
C21,22	C1HRE-105AL	Elect 1 μF 50V
C23,24	C1HFAJ154A	Mylar 0.15 μF 50V ± 5 %
C25,26	C1HFAJ333A	Mylar 0.033 μF 50V ± 5 %
C27,28	C1HFAJ393A	Mylar 0.039 μF 50V ± 5 %
C29,30	C1HFAJ472A	Mylar 0.0047 μF 50V ± 5 %
C31,32	C1HCSK221SL	Ceramic 220pF 50V ± 10 %
C33,34	C1HRE-105AL	Electrolytic 1 μF 50V
C35,36	C1HFAJ183A	Mylar 0.018 μF 50V ± 5 %
C37,38	C1HRE-105AL	Electrolytic 1 μF 50V
C39	C1HRE-106A	Electrolytic 10 μF 50V
	SEMICONDUCTORS	
IC01	IJJ-NJM4558D	IC NJM4558D-E
Q01,02	TJJ-2SA763--6	TR 2SA763B
or	TNN-2SA7501-E	TR 2SA750E
Q03,04	2035 5151 57089	TR 2SC1570LH
	RESISTORS	
R01,02	R2EDZJ823APA	Carbon 82k 1/4W ±5 %
R03,04	R2EDZJ102APA	Carbon 1k 1/4W ±5 %
R05,06	R2EDSJ124A	Carbon 120k 1/4W ±5 %
R07,08	R2EDZJ823APA	Carbon 82k 1/4W ±5 %
R09,10	R2EDSJ271A	Carbon 270 1/4W ±5 %
R11,12	R2EDZJ105APA	Carbon 1M 1/4W ±5 %
R13,14	R2EDZJ103APA	Carbon 10k 1/4W ±5 %
R15,16	R2EDZJ684APA	Carbon 680k 1/4W ±5 %
R17,18	R2EDZJ183APA	Carbon 18k 1/4W ±5 %
R19,20	R2EDZJ334APA	Carbon 330k 1/4W ±5 %
R21,22	R2EDZJ223APA	Carbon 22k 1/4W ±5 %
R23,24	R2EDZJ102APA	Carbon 1k 1/4W ±5 %
R25,26	R2EDZJ474APA	Carbon 470k 1/4W ±5 %
R27,28	R2EDZJ222APA	Carbon 2.2k 1/4W ±5 %
R29,30	R2EDZJ393APA	Carbon 39k 1/4W ±5 %
R31,32	R2EDZJ471APA	Carbon 470 1/4W ±5 %
R33,34	R2EDZJ103APA	Carbon 10k 1/4W ±5 %
R35,36	R2EDSJ561A	Carbon 560 1/4W ±5 %
R37,38	R2EDZJ102APA	Carbon 1k 1/4W ±5 %
R39,40	R2EDZJ474APA	Carbon 470k 1/4W ±5 %
R41,42	R2EDZJ332APA	Carbon 3.3k 1/4W ±5 %
R43	R2EDZJ471APA	Carbon 470 1/4W ±5 %
R44	R2EDZJ104APA	Carbon 100k 1/4W ±5 %
R45	R2EDZJ272APA	Carbon 2.7k 1/4W ±5 %

MUTING PCB ASSY
1310 4001 82000

Ref. No.	Part Number	Description
VR01	4 2229 25100	VR 47k
	SEMICONDUCTORS	
D01	2055 9040 44210	Diode DS-442
Q01	2035 5100 53650	TR 2SC536E
	RESISTORS	
R01	R2EDZJ472APA	Carbon 4.7k 1/4W ± 5 %
R02	R2EDSJ564A	Carbon 560k 1/4W ± 5 %
R03	R2EDZJ472APA	Carbon 4.7k 1/4W ± 5 %
R04	R2EDZJ103APA	Carbon 10k 1/4W ± 5 %

DIAL LAMP PCB ASSY
1310 4001 82100

Ref. No.	Part Number	Description
	4 2359 23000	Fuse Holder
	4 6129 20282	Pilot Lamp 6.3V 0.25A

PARTS LIST

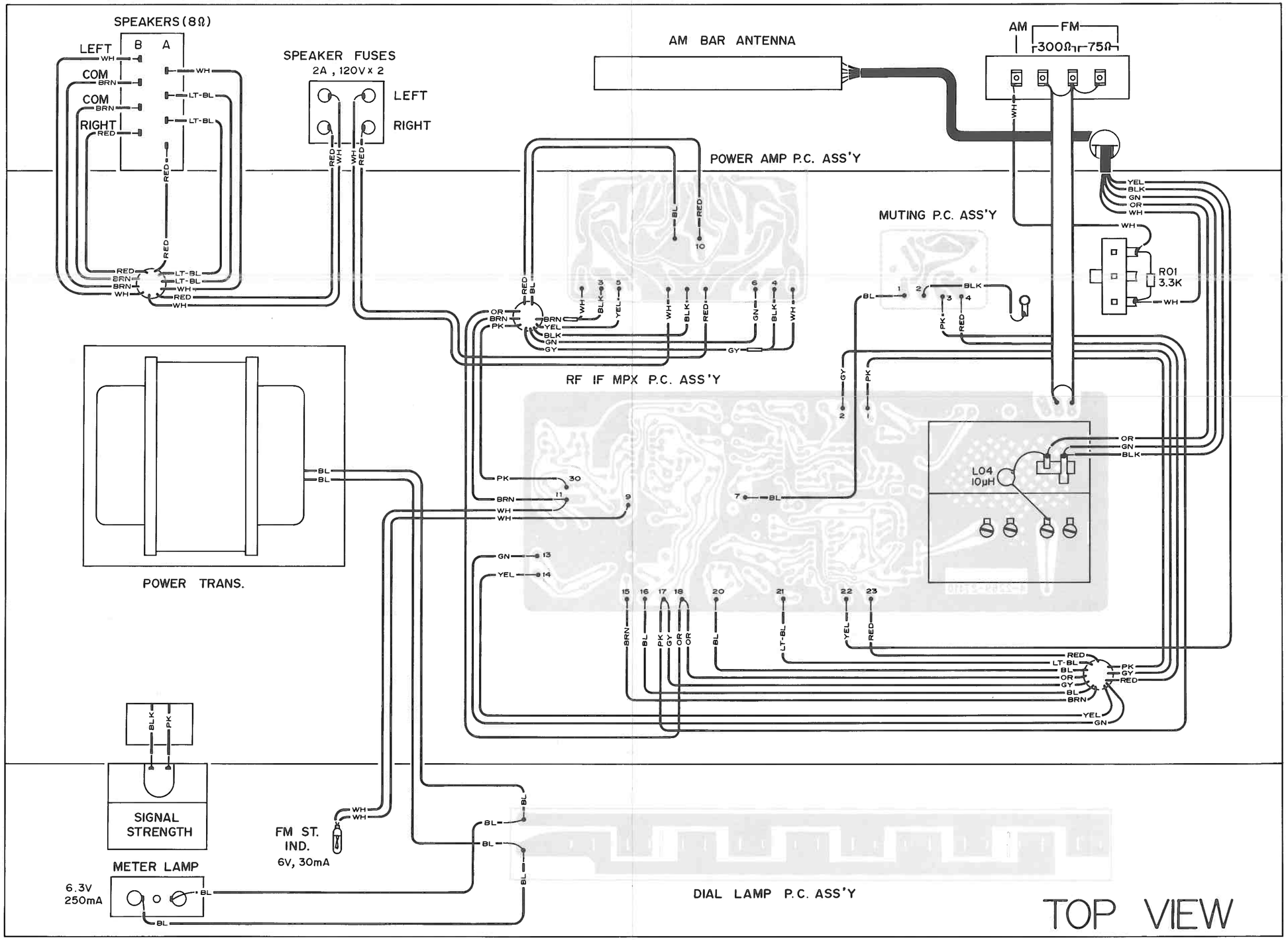
POWER AMP PCB ASSY
1310 4001 81900

Ref. No.	Part Number	Description
	SEMICONDUCTORS	
IC01	2065 6900 04310	IC STK043
	CAPACITORS	
C01,02	C1HCSK471SL	Ceramic 470pF 50V ± 10 %
C03,04	C1VTRM105A	Tantalum 1 μF 35V ± 20 %
C05,06	C1HYSZ473A	Ceramic 0.047 μF 50V +80,–20 %
C07,08	C1VRB-107A	Electrolytic 100 μF 35V
C09,10	C1CRB-476A	Electrolytic 47 μF 16V
C11,12	C1VRE-106A	Electrolytic 10 μF 35V
C13,14	C1HCSD080SL	Ceramic 8pF 50V ± 0.5 %
C15,16	C1ERB-476A	Electrolytic 47 μF 25V
C17,18	C1HFAK104A	Mylar 0.1 μF 50V ± 10 %
	RESISTORS	
R01,02	R2EDSJ222A	Carbon 2.2k 1/4W ± 5 %
R03,04	R2EDSJ563A	Carbon 56k 1/4W ± 5 %
R05,06	R2EDSJ182A	Carbon 1.8k 1/4W ± 5 %
R07,08	R2HZPK101A	Fuse 100 1/2W ± 10 %
R09,10	R2EDSJ333A	Carbon 33k 1/4W ± 5 %
R11,12	R2HCPK5R6A	Solid 5.6 1/4W ± 10 %
R13,14	R2AXBJ221A	Oxide Metal Film 220 1W ± 5 %
R15,16	R2HCPK181A	Solid 180 1/2W ± 10 %

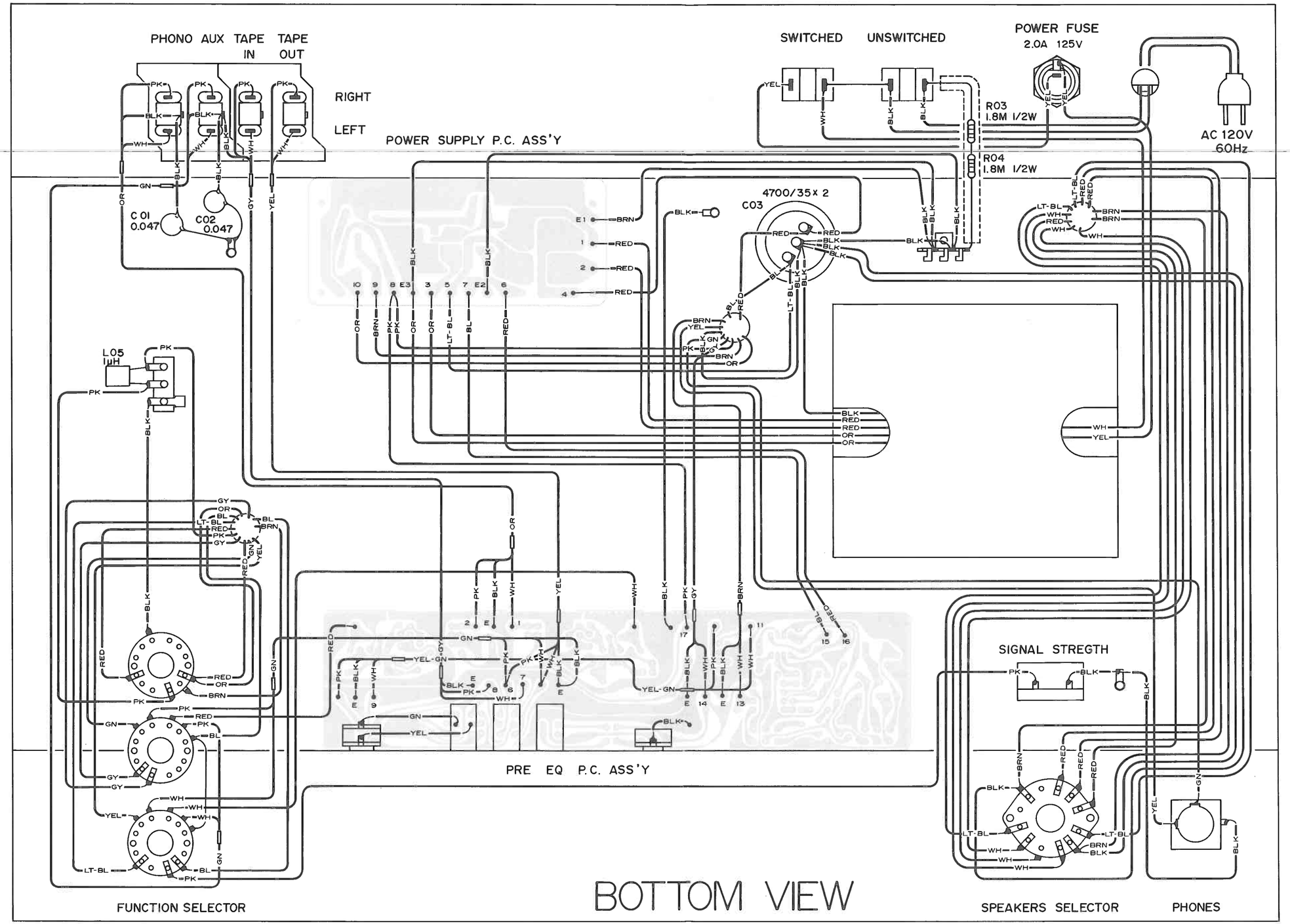
POWER SUPPLY PCB ASSY
1310 4001 81800

Ref. No.	Part Number	Description
	CAPACITORS	
C01	C1ERB-227A	Electrolytic 220 μF 25V
C02	C1HRB-107A	Electrolytic 100 μF 50V
C03,04	C1HRT-337A	Electrolytic 330 μF 50V
C05,06	C2HYDP103A	Ceramic 0.01 μF 500V +100,–0 %
07,08		
09		
	SEMICONDUCTORS	
D01	DDD-S4VB20A	Bridge Diode S4VB
D02	DGG-1N4002	Diode 1N4002
D03	DJJ-WZ-130	Diode W2-130
Q01	2035 8220 33060	TR 2SD330F
	RESISTORS	
R01	R3WXBJ331A	Oxide Metal Film 330
R02	R3AXBJ681A	Oxide Metal Film 680
R03	R3DXBJ821A	Oxide Metal Film 820 2W ±5 %
R04	R3AXBJ391A	Oxide Metal Film 390 1W ±5 %
R05	R2EDSJ683A	Carbon 68k 1/4W ± 5 %
R06	R2EDSJ332A	Carbon 3.3k 1/4W ± 5 %
R07,08	R2HXBJ821A	Oxide Metal Film 820 1/2W±5 %
R09,10	R2EDSJ152A	Carbon 1.5k 1/4W ± 5 %

POINT TO POINT WIRING DIAGRAM

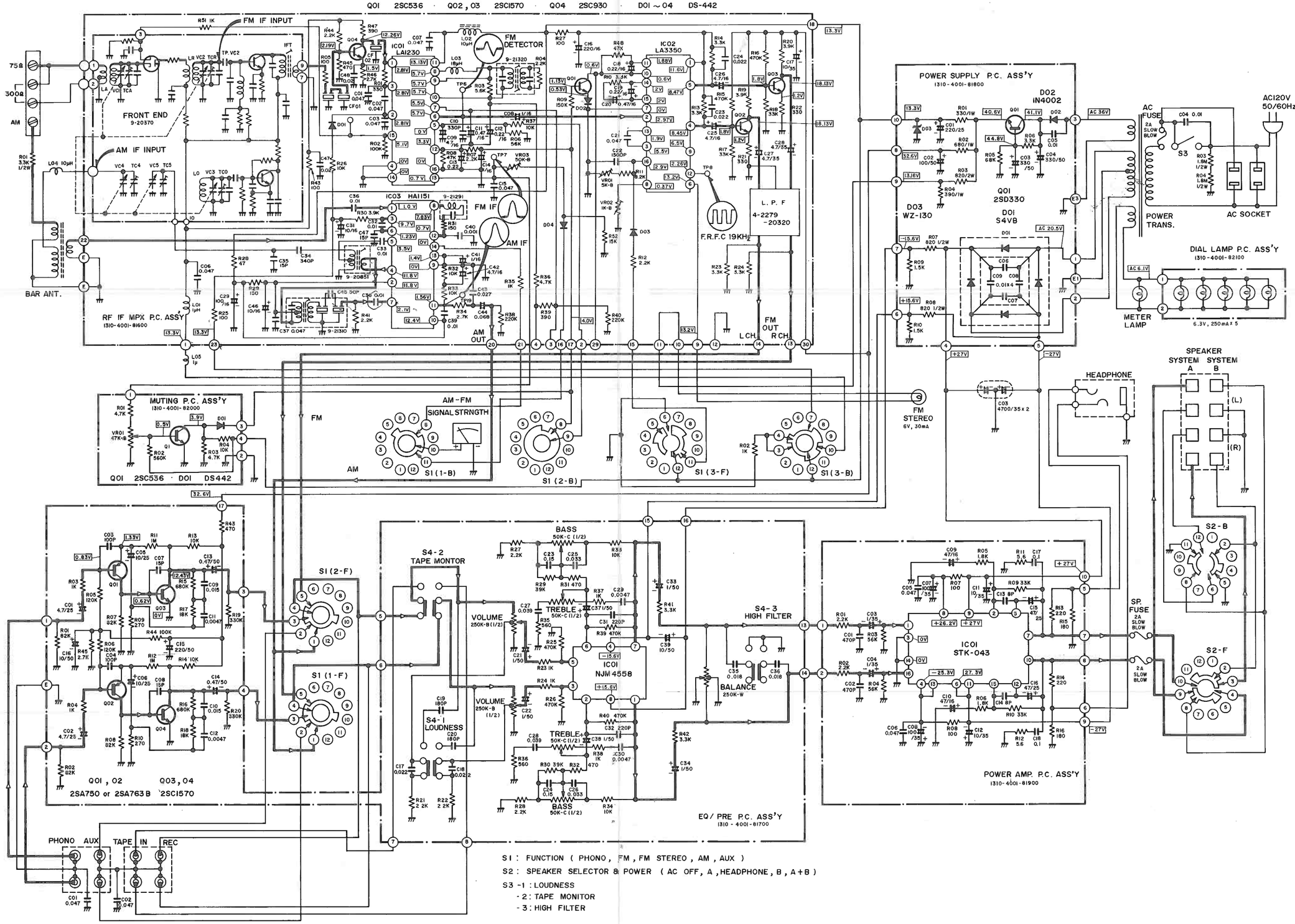


POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM

Q01 2SC536 · Q02, 03 2SC1570 · Q04 2SC930 · D01 ~ 04 DS-442



S1 : FUNCTION (PHONO, FM, FM STEREO, AM, AUX)

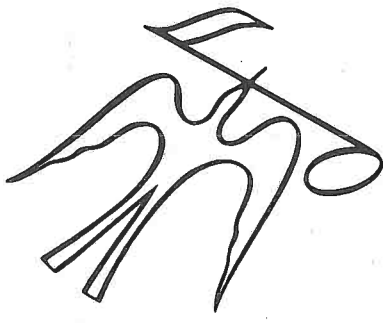
S2 : SPEAKER SELECTOR & POWER (AC OFF, A, HEADPHONE, B, A+B)

S3 -1 : LOUDNESS

-2 : TAPE MONITOR

-3 : HIGH FILTER

NOTES



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