

**The Harman/Kardon  
Model 430**

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**AM/FM/Stereo FM  
Solid State Receiver**

**Technical Manual**

**harman/kardon**

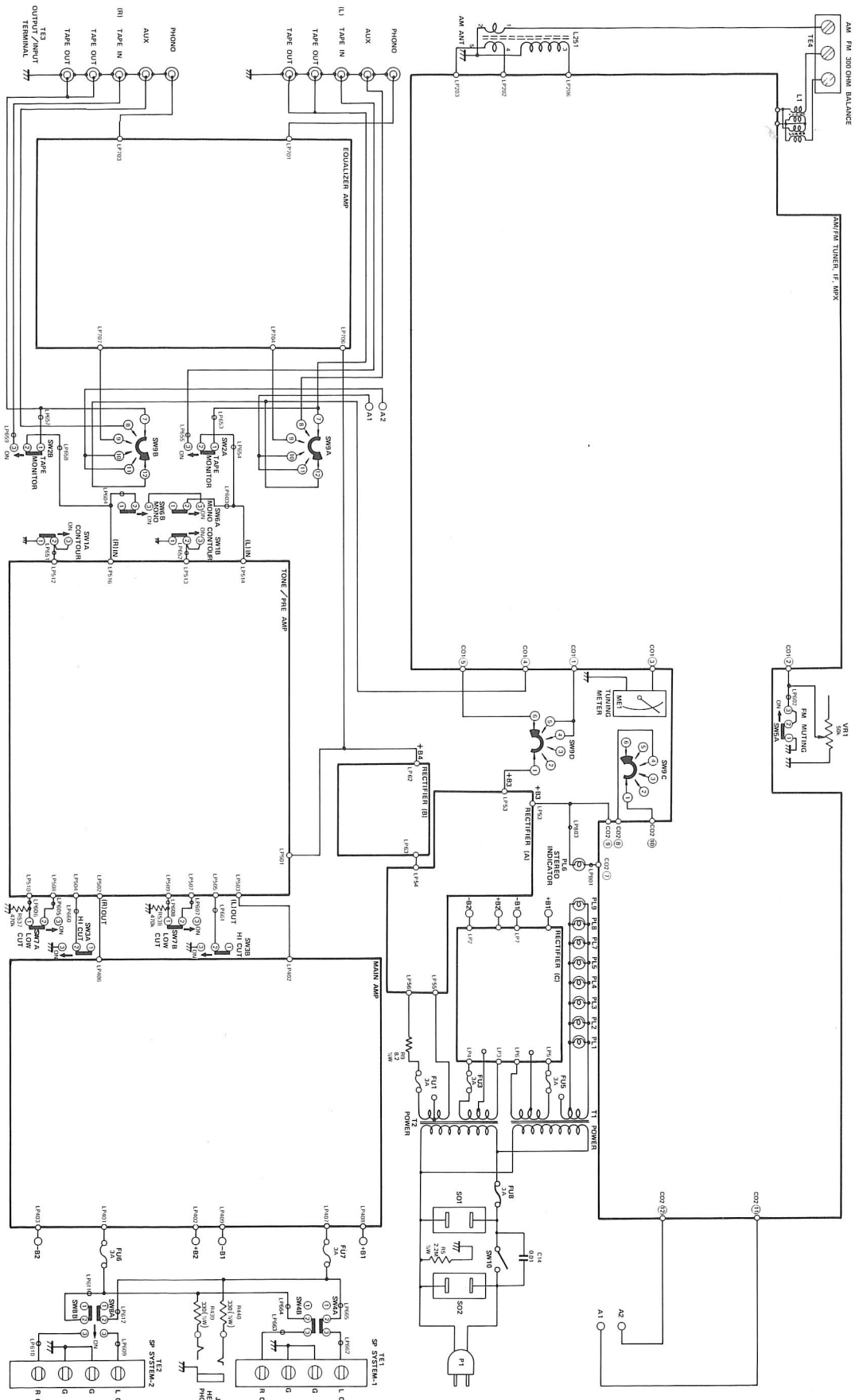
## PRECAUTIONS

1. Always disconnect the chassis from power line when soldering. Turning the power switch OFF is not enough. Power line leakage passing through the heating element may destroy the transistors.
2. Never attempt to do any work on the transistor amplifiers without first disconnecting the AC line cord and waiting until the power supply filter capacitors have discharged.
3. Replacement for output and driver transistors, if necessary, must be made from the same beta group as the original type.
4. If one output transistor burns out (open or short) always remove all the output transistors in that channel and check the bias adjustment, the control and other parts in the network with an ohmmeter before inserting a new transistor. All transistors in one channel will be destroyed if the base biasing circuit is open on the emitter end.
5. When mounting a replacement power transistor, be sure that the bottom of the flange, the mica insulators and the surface of the heat sink are free of foreign matter, for they may cause transistor failure.
6. Silicon grease must be applied between the transistor and the mica insulator, and between the mica insulator and the heat sink for better heat conduction.
7. Fuses must be replaced with size and type indicated. Use of other types can expose components to destructive current levels.

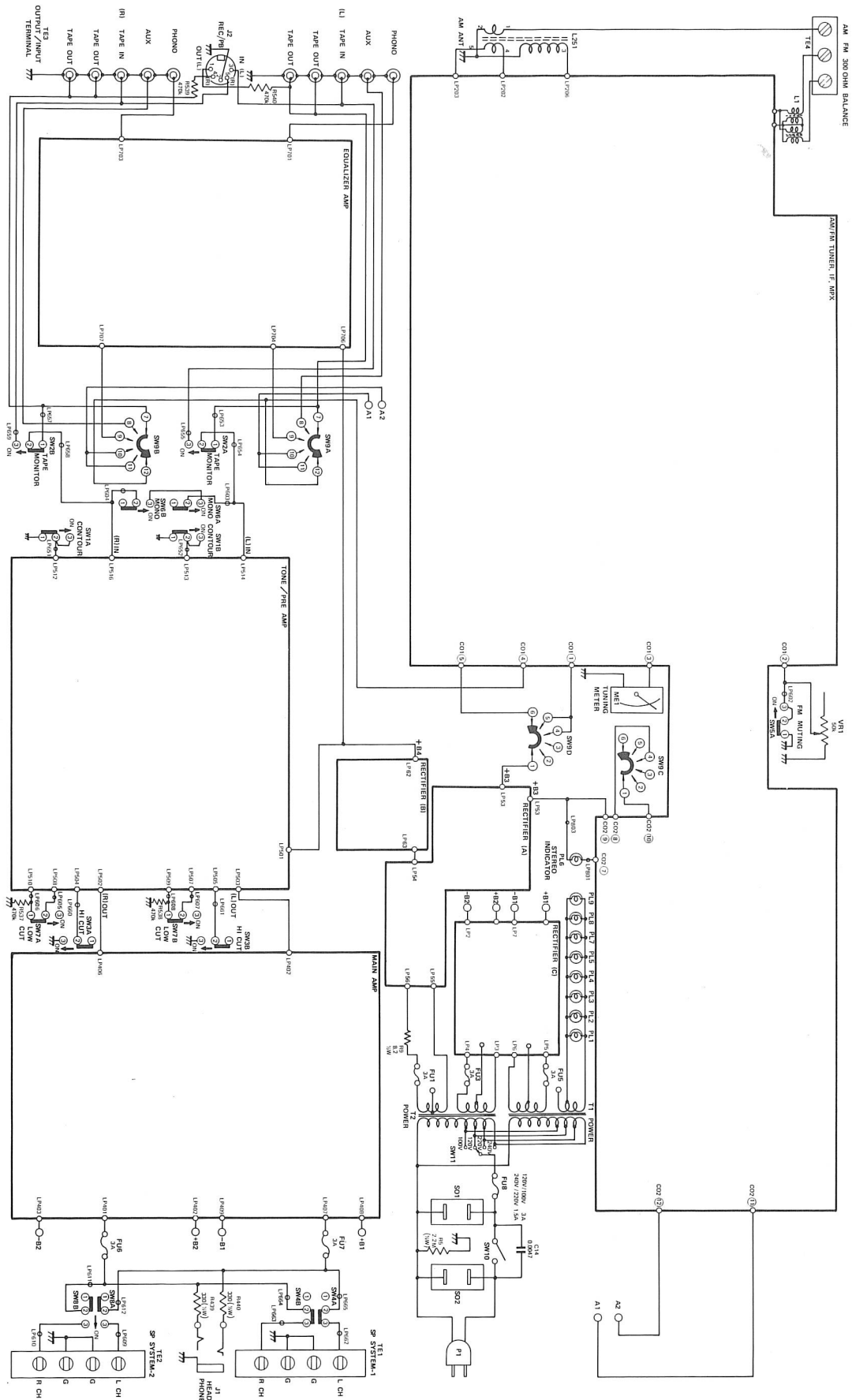
### REPLACEMENT PARTS LIST ORDER NOTE:

To speed handling of your order be sure to include both the model and serial numbers which appear at the back of the chassis, in addition to the quantity, part number and part description of the items ordered. Orders from independent dealers, independent servicemen, and retail customers will be shipped on a cash in advance basis. Harman-Kardon reserves the right to substitute equivalent parts for those originally installed in this chassis. All parts should be ordered from Harman-Kardon, 55 Ames Court, Plainview, L.I., N.Y. 11803, Att: Parts Department.

# SYSTEM INTERCONNECTION DIAGRAM



# MULTIVOLTAGE SYSTEM INTERCONNECTION DIAGRAM





## ALIGNMENT PROCEDURES

### AM ALIGNMENT PROCEDURE

**INSTRUMENTS:** AM Signal Generator modulated with 400Hz at 30%, V.T.V.M. and Oscilloscope.

**NOTE:** Set FUNCTION selector to AM.  
Connect signal source to a loop placed to radiate signals into AM ANT LOOP STICK.

Step	SIGNAL SOURCE OUTPUT	CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
1	455kHz of sweep generator AM Sig. Gen.	V.T.V.M. & oscilloscope to Tape Out	Quiet point near 600kHz	T251	Maximum and undistorted pattern on SCOPE
2				T252	
3				T253	
4	Repeat step 1 through 3 for best sensitivity.				
5	530kHz of AM Sig. Gen.	V.T.V.M. to oscilloscope to Tape Out	Gang fully closed	L252	Maximum output
6	1600kHz of AM Sig. Gen.		1600kHz	AM oscillator trimmer TC55	
7	Repeat step 5 and 6 for best dial accuracy.				
8	600kHz of AM Sig. Gen.	Same as above	600kHz	AM ANT LOOP STICK L251	Same as above
9	1600kHz of AM Sig. Gen.		1600kHz	AM ANT trimmer TC54	
10	Repeat step 8 and 9 for best sensitivity.				

### FM ALIGNMENT PROCEDURE

**INSTRUMENTS:** FM Signal Generator, AC/DC V.T.V.M., Oscilloscope.

**NOTE:** Set Function Switch to FM, signal generator for 400 or 1000 cps 100% mod.

Step	FREQUENCY	SIG. STRENGTH	DIAL SETTING	ADJUST	FOR	AT
1	—	0	Quiet point on band	T52 top & bottom (on front end)	Max. noise	R226 ("OUT" term on IF Board)
2	—	0	Same as above	T202 top (on FM IF board)	Zero Volts D.C.	R226
3	Near 98 mc.	-1 db of Limiter saturation	Tune for Zero Volts D.C. at R226	T202 bottom T52 top and bottom	Max. symmetric output (on scope)	Tape Out
4	Repeat steps 2 and 3 until no further improvement is noticed.					
5	90 mc	approx. 10 $\mu$ v	90 mc	L52 (osc) (FM front end)	Zero Volts D.C.	R226
6	106 mc	Same as above	106 mc	TC53 (Osc) (FM front end)	Zero Volts D.C.	R226
7	Repeat steps 5 and 6 until no further improvement is noticed.					
8	90 mc	-3 db of Limiter saturation	Tune for Zero Volts D.C. at R226	L51 (RF) T51 (Ant)	Max. Output	Tape Out
9	106 mc	Same	Same	TC52 (RF) TC51 (Ant)	Max. Output	Tape Output
10	Repeat steps 9 and 10 until no further improvement is noticed.					

## MPX ALIGNMENT PROCEDURE

**INSTRUMENTS:** Frequency counter, Stereo signal generator

**NOTE:** Set Function Switch to FM Stereo

1	Set MUTING switch to ON.
2	Connect frequency counter to LP301.
3	Adjust VR301 for 19KC $\pm$ 50C.
4	Set MUTING switch to OFF.
5	At 25 $\mu$ v of signal adjust Stereo threshold VR302 for Stereo indicator on.
6	Check Pilot level that Stereo indication lights at 6% of pilot level and that the indicator does not light at 1%.
7	Return Pilot level to 9% and check Stereo separation at 1kHz, 100Hz, and 10kHz.

## TUNING INDICATOR ADJUSTMENT

**INSTRUMENT:** FM Signal Generator.

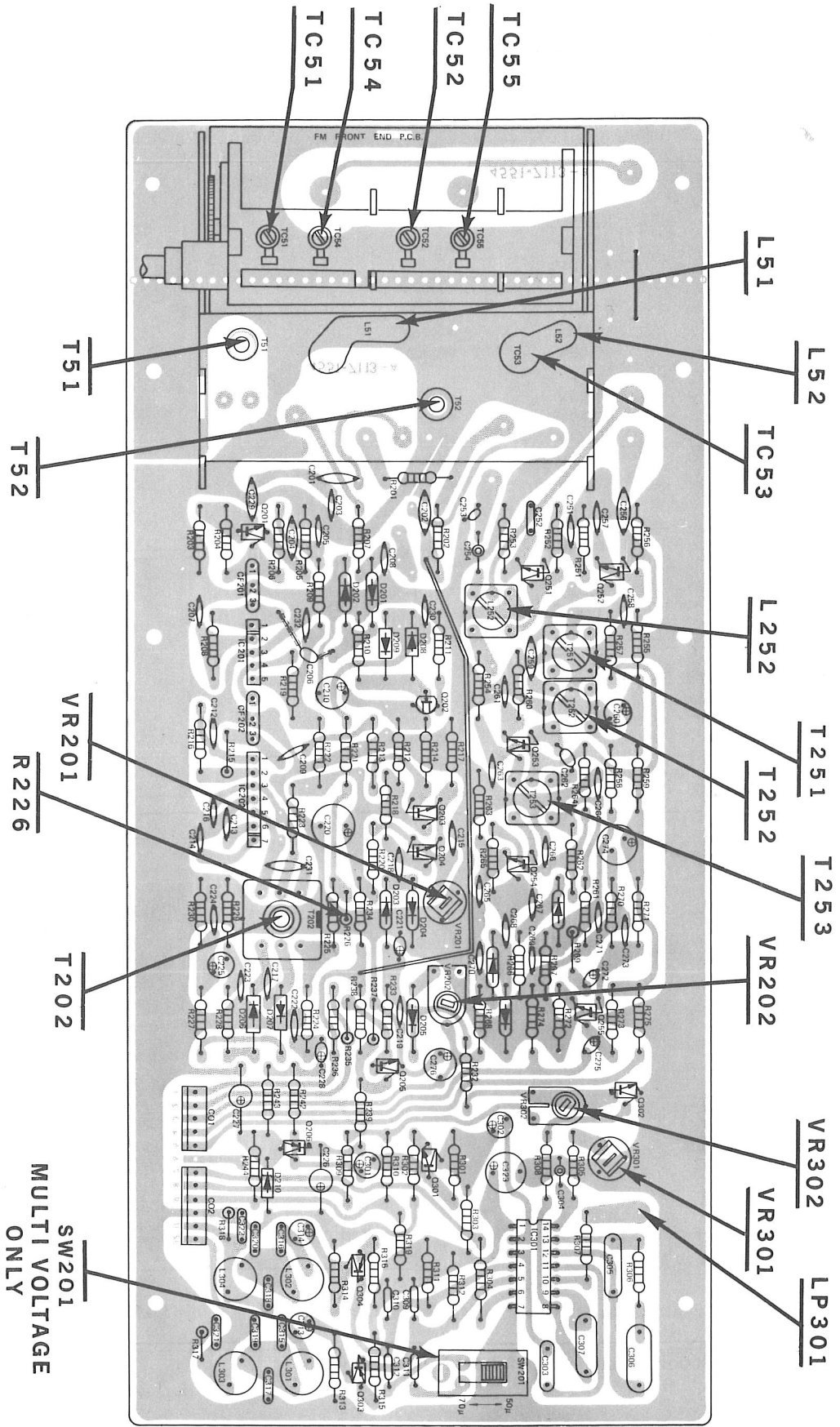
**NOTE:** Set FUNCTION switch to FM

Step	FM STEREO SIGNAL GENERATOR		ADJUST	ADJUST FOR
	CONNECTED TO	SIGNAL STRENGTH		
1	FM Antenna Terminal	1mV	Tuning Knob	Tune for Zero Volts D.C. at R226
2	Same as above	Same as above	VR201	Maximum needle deflection on tuning meter
3	Same as above	Same as above	VR202	To indicate 8 on Tuning Meter

## AM/FM TUNER, IF, MPX PC BOARD – PARTS LIST

REF. NO.	H/K PART NO.	DESCRIPTION	REF. NO.	H/K PART NO.	DESCRIPTION
<b>RESISTORS</b>			<b>TRANSISTORS (continued)</b>		
VR201	23531305	22k Ohm, Variable	Q251,253,254	43029472	2SC460(C) AM Osc, AM IF Amp
VR202	23530559	10k Ohm, Variable	Q252	43029471	2SC461(B) AM Mixer
VR301	23530554	4.7k Ohm, Variable	Q255	43030569	2SC1335(E) AM IF Amp
VR302	23530558	250k Ohm, Variable	Q301	43030569	2SC1335(E) MPX Amp
<b>CAPACITORS</b>			Q302	43030569	2SC1335(E) Mono-ST. Switching
C210,225, 260,302	31818905	4.7 $\mu$ F +50% -10%, 25V, Electrolytic	Q303,304	43031312	2SA844(E) MPX Output Amp
C220,274 323	32529490	220 $\mu$ F +50% -10%, 16V, Electrolytic	<b>I.C.'s</b>		
C221,228, 275	30731309	0.47 $\mu$ F $\pm$ 20%, 35V, Tantalum Electrolytic	1C201	43131313	BA401 FM IF Amp
C226,227	31819147	10 $\mu$ F +50% -10%, 16V, Electrolytic	1C202	43131314	BA402 FM IF Amp
C272	30731310	0.1 $\mu$ F $\pm$ 20%, 35V, Tantalum Electrolytic	1C301	43128071	BA1310 MPX
C276	31818932	100 $\mu$ F +50% -10%, 10V, Electrolytic	<b>DIODES</b>		
C301,313 314	31819157	1 $\mu$ F +50% -10%, 50V, Electrolytic	D201,202,203, 204,205	41029290	1N60P
CF201,202	12030549	Ceramic Filter	D206,207, 208,209	41030552	1S2076
<b>TRANSISTORS</b>			D210	42031315	HZ6C
Q201	43029472	2SC460(C) FM IF Amp	D251,252,253	41029290	1N60P
Q202	43031311	2SK34(C) FET	<b>COILS AND TRANSFORMERS</b>		
Q203,204	43029472	2SC460(C) Differential Amp	L252	12031316	AM Osc
Q205	43030569	2SC1335(E) DC Amp	L301,302, 303,304	12031317	
Q206	43031312	2SA844(E) Muting	T202	11031318	Discriminator
			T251,252	11030556	AM IF
			T253	11030557	AM IF
				00231404	FM Front End

AM/FM TUNER, IF, MPX PC BOARD COMPONENT SIDE



## VOLTAGE CHART\*

AC120V, Volume Control at Minimum, Tone Control at Mechanical Center, No Signal, Chassis Ground

+B1, +B2.....	+28.5V
-B1, -B2.....	-28.5V
+B3 .....	+12.5V
+B4 .....	+25.4V

	base	emitter	collector			
Q201	+0.83V	+0.12V	+6.72V	IC201 .....	1 .....	+1.42V
Q202	gate	drain	source		2 .....	+1.42V
	OV	+4.89V	+0.61V		3 .....	+1.07V
Q203	+4.89V	+4.19V	+11.2V		4 .....	+9.39V
Q204	+4.89V	+4.19V	+6.25V		5 .....	+10.08V
Q205	+0.07V	OV	+7.97V			
Muting ON	+0.63V	OV	+0.08V	IC202 .....	1 .....	+2.05V
Q206	+7.97V	+6.06V	+6.05V		2 .....	+2.04V
Muting ON	+5.36V	+6.05V	+6.05V		3 .....	+9.16V
					4 .....	OV
Q251	+1.98V	+1.48V	+11.5V		5 .....	+8.96V
Q252	+1.2V	+0.70V	+11.5V		6 .....	+2.06V
Q253	+1.29V	+0.63V	+11.6V		7 .....	+2.05V
Q254	+1.87V	+1.19V	+6.76V			
Q255	+2.68V	+2.04V	+7.19V	IC301 .....	1 .....	+11.6V
Q301	+1.75V	+1.11V	+4.03V		2 .....	+3.97V
Q303,304	+8.85V	+9.49V	+4.66V		3 .....	+5.90V
					4 .....	+8.85V
Q701,702	+0.58V	+0.39V	+1.66V		5 .....	+8.91V
Q703,704	+1.66V	+1.05V	+11.0V		6 .....	+12.44V
					7 .....	OV
					8 .....	+0.12V
					9 .....	+2.57V
					10 .....	+1.68V
					11 .....	+2.43V
					12 .....	+2.59V
					13 .....	+2.61V
					14 .....	+3.10V

### TONE/CONTROL, MAIN AMP Function Selector to AUX

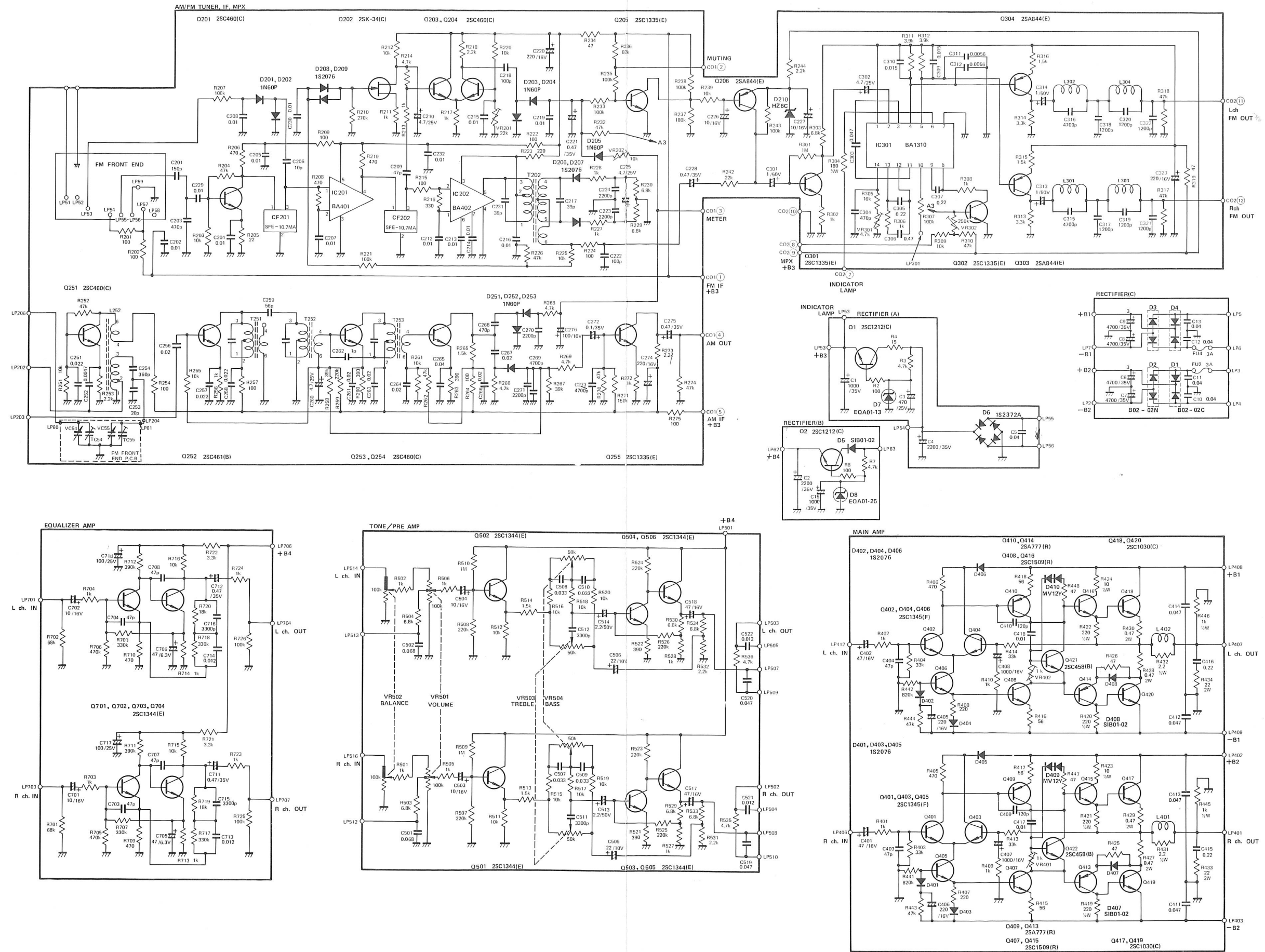
	base	emitter	collector
Q501,502	+4.43V	+3.83V	+25.4V
Q503,504	+0.6V	+0.035V	+5.63V
Q505,506	+5.63V	+5.06V	+25.4V
Q401,402	-0.046V	-0.64V	+27.6V
Q403,404	-0.04V	-0.64V	+28.0V
Q405,406	-26.8V	-27.5V	-0.64V
Q407,408	-27.5V	-28.0V	-0.75V
Q409,410	+27.6V	+28.4V	+1.18V
Q413,414	-0.75V	-0.16V	-28.3V
Q415,416	+1.18V	+0.60V	+28.4V
Q417,418	+0.60V	+0.027V	+28.5V
Q419,420	-28.3V	-28.5V	-0.02V
Q421,422	-0.048V	-0.75V	+1.18V

\*All values  $\pm 15\%$  Typ

## SCHEMATIC DIAGRAM NOTES

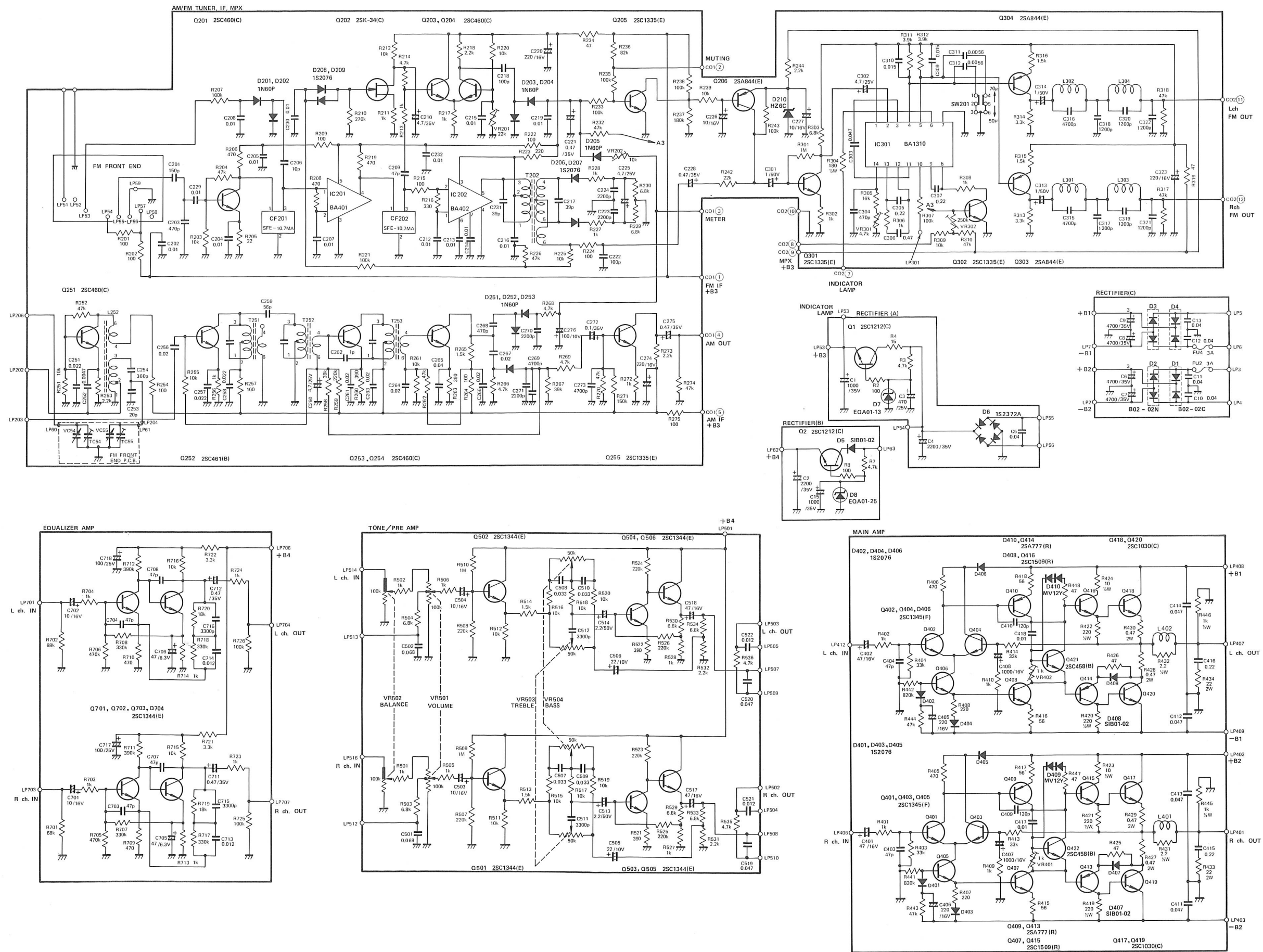
1. All resistors are 1/4 watt,  $\pm 5\%$ , unless noted otherwise.  
Values are in ohms. K = 1000 M = 1000K
2. All capacitance values are in MF unless noted otherwise. PF = MMF
3. Function selector switch (SW9) is in AM position.

**SCHEMATIC DIAGRAM — MODEL 430**

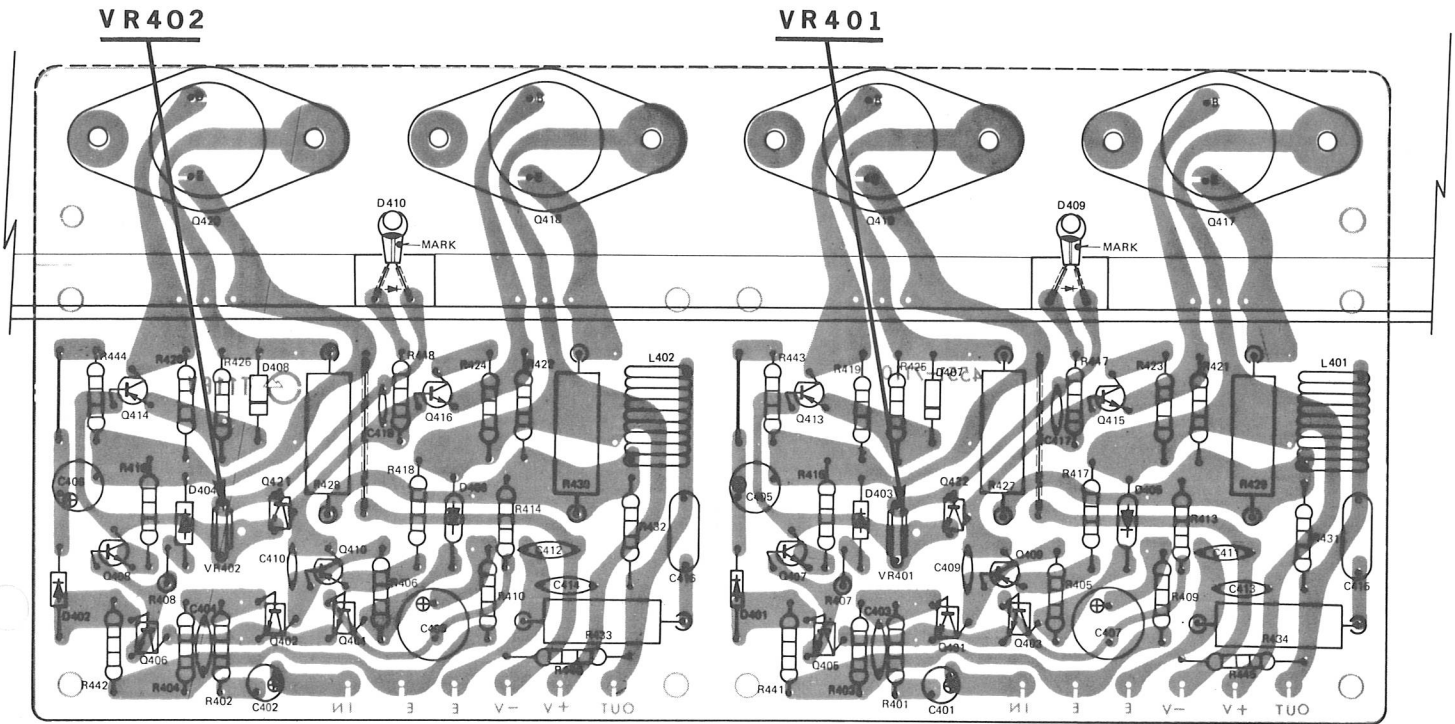




MULTIVOLTAGE SCHEMATIC DIAGRAM — MODEL 430



# MAIN AMP PC BOARD COMPONENT SIDE



## MAIN AMP. ALIGNMENT

- NOTES:**
- Set up HK430 as follows:  
 FUNCTION — — — AUX  
 TONE & BALANCE — — — MID  
 STEREO/MONO SWITCH — — — STEREO  
 SPEAKER SWITCH — — — ON
  - Connect 8 Ohm (50W) Resistor across Left and Right Speaker Terminals

## IDLING ADJUSTMENT

**INSTRUMENT:** DC Voltmeter

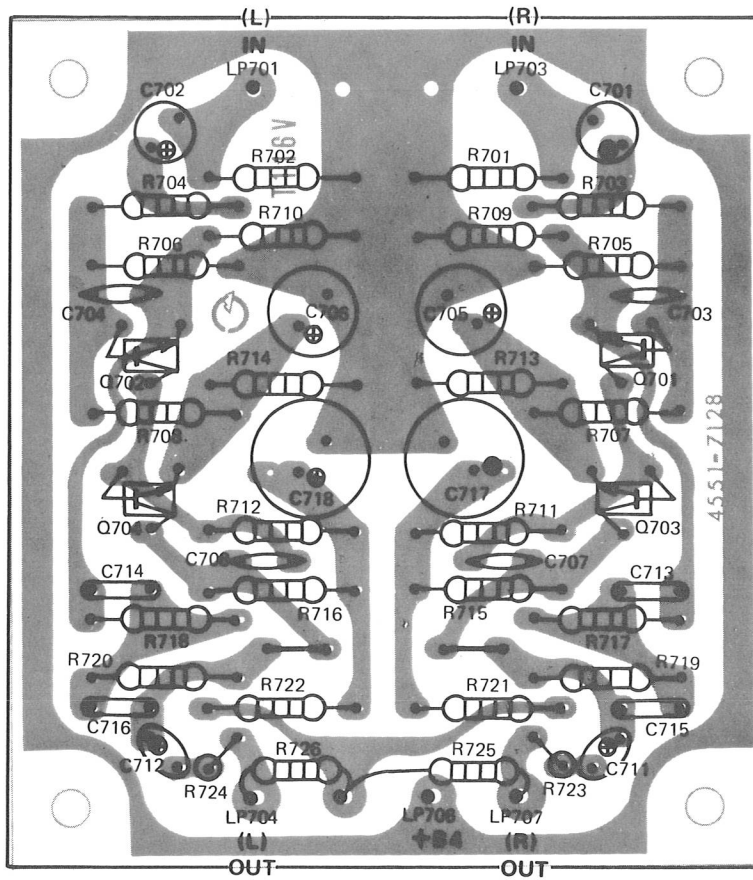
**NOTE:** Set VOLUME Control to Minimum Output

Step	DC VOLTMETER CONNECTION	ADJUST	ADJUST FOR
1	Across R428 Resistor	VR402	25 mV DC
2	Across R427 Resistor	VR401	25 mV DC

## MAIN AMP PC BOARD — PARTS LIST

REF. NO.	H/K PART NO.	DESCRIPTION	REF. NO.	H/K PART NO.	DESCRIPTION
<b>RESISTORS</b>			<b>TRANSISTORS (continued)</b>		
VR401,402	23531300	1K Ohm, Variable	Q405,406	43029483	2SC1345(F) Current Regulator
R427-430	33514781	0.47 Ohm 2W Resistor	Q407,408	43029484	2SC1509(R) Current Regulator
R433,34	33512201	22 Ohm 2W Resistor	Q409,410	43029485	2SA777(R) Driver
<b>CAPACITORS</b>			Q413,414	43029485	2SA777(R) Complement
C401,402	31831301	47uF +50% -10%, 16V, Electrolytic	Q415,416	43029484	2SC1509(R) Complement
C405,406	32529490	220uF +50% -10%, 16V, Electrolytic	Q417,418,		
C407,408	31828611	470uF +50% -10%, 16V, Electrolytic	419,420	43031303	2SC1030(C) Power Amp
<b>TRANSISTORS</b>			Q421,422	43027379	2SC458(B) Bias Stabilization
Q401,402,			<b>DIODES</b>		
403,404	43029483	2SC1345(F) Differential Amp	D401,402,		
			403,404,		
			405,406	41030552	IS2076
			D407,408	41631295	SIB 01-02
			D409,410	41631340	MV 12Y, Varistor

# EQUALIZER AMP PC BOARD

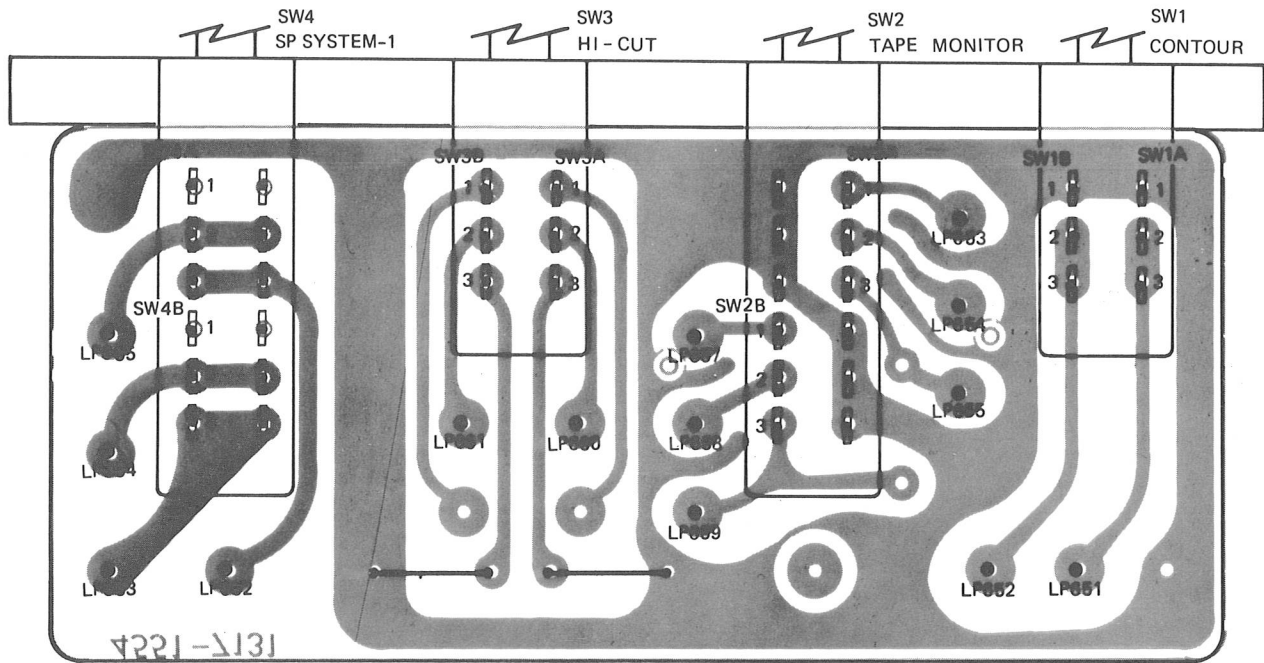


## EQUALIZER AMP PC BOARD – PARTS LIST

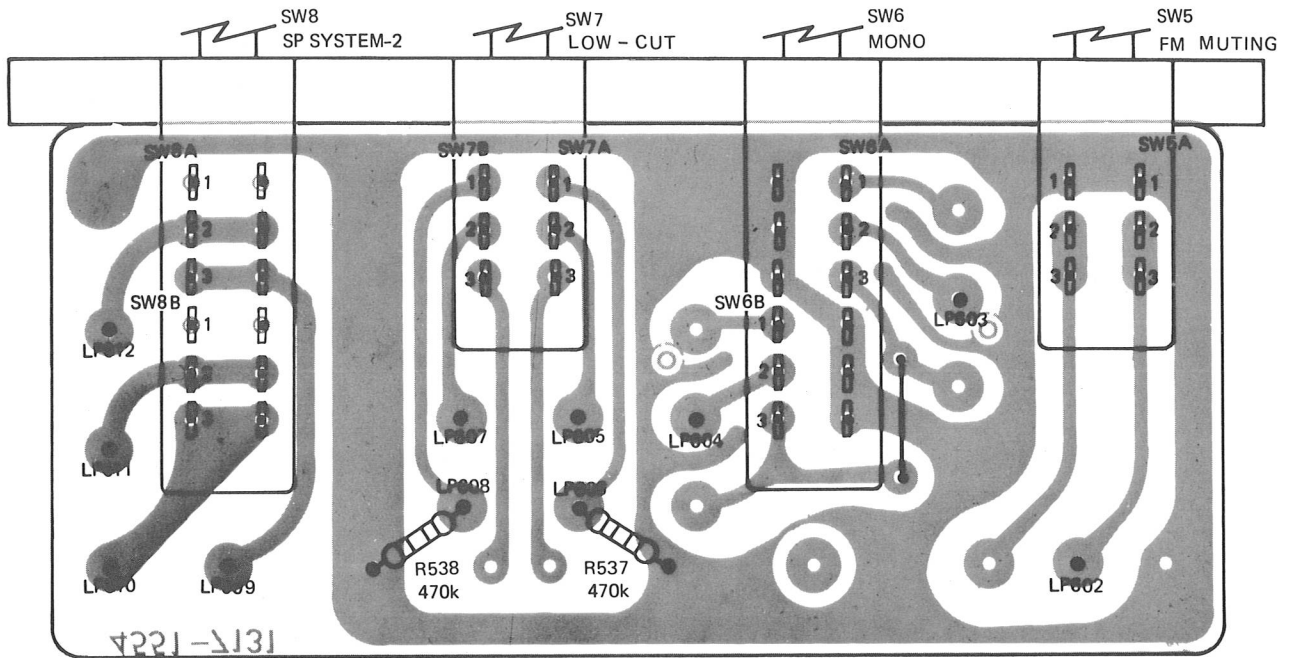
REF. NO.	H/K PART NO.	DESCRIPTION
<b>CAPACITORS</b>		
C701,702	31819147	10uF +50% -10%, 16V Electrolytic
C705,706	31819155	47uF +50% -10%, 10V Electrolytic
C711,712	30731309	0.47uF ±20%, 35V, Tantalum Electrolytic
C717,718	31831324	100uF +50% -10%, 25V Electrolytic
<b>TRANSISTORS</b>		
Q701,702,703,704	43028535	2SC1344(E) Equalizer Amp



### MODE/CONTROL SWITCH PC BOARD (A)



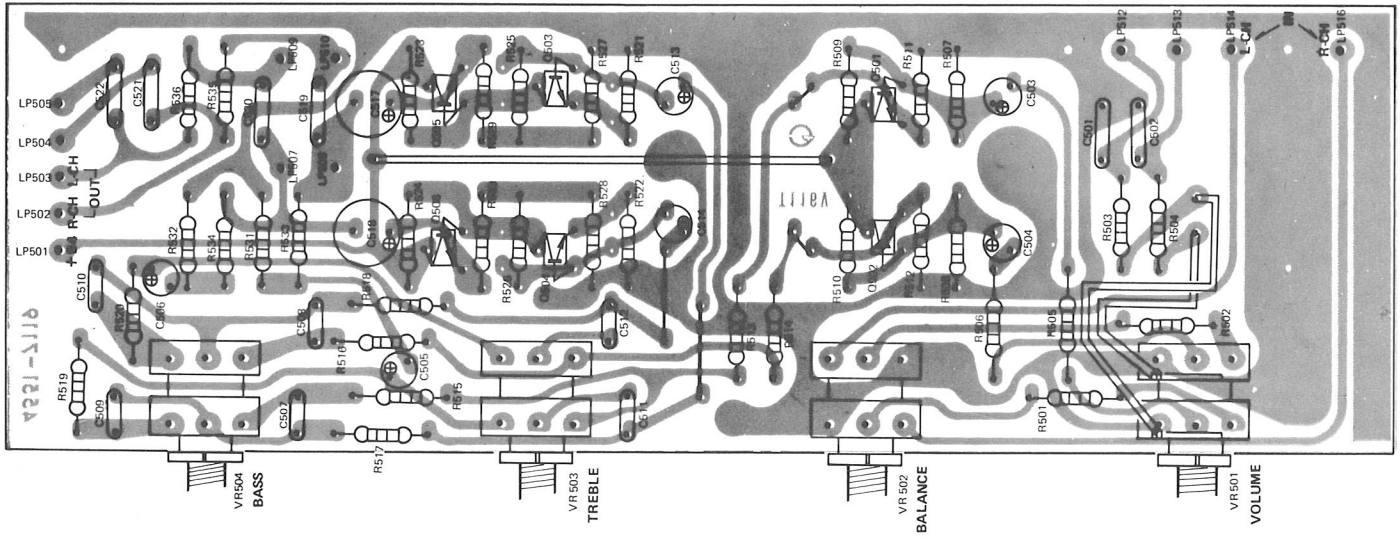
### MODE/CONTROL SWITCH PC BOARD (B)



### MODE/CONTROL SWITCH PC BOARD – PARTS LIST

REF. NO.	H/K PART NO.	DESCRIPTION
<b>SWITCHES</b>		
SW1,2,3,4	25031325	Contour, Tape Monitor, Hi-Cut, Speakers 1
SW5,6,7,8	25031325	FM Muting, Mono, Lo-Cut, Speakers 2

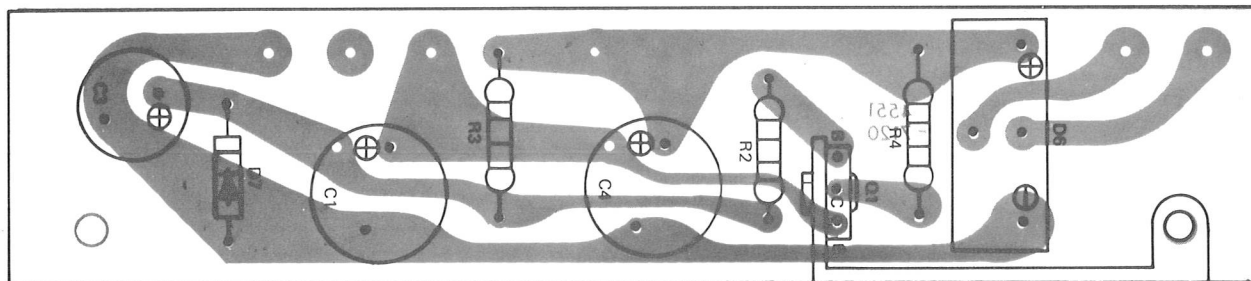
# TONE/PREAMP PC BOARD



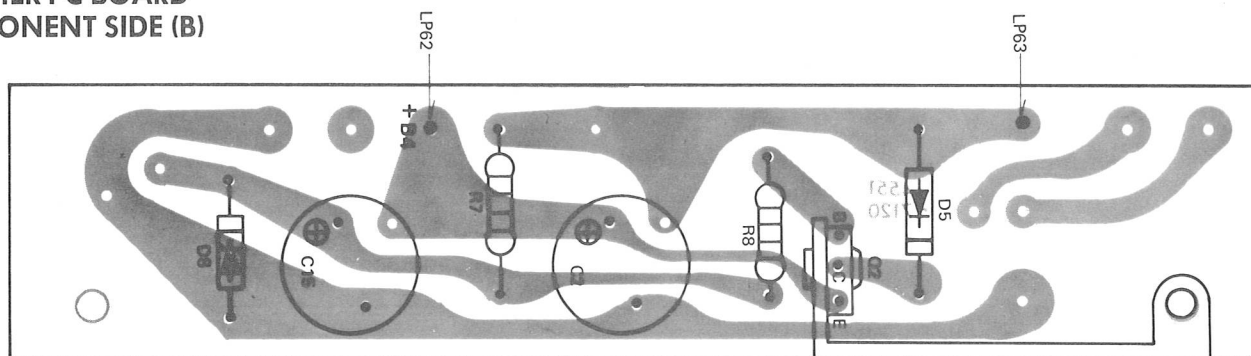
## TONE PREAMP PC BOARD – PARTS LIST

REF. NO.	H/K PART NO.	DESCRIPTION
<b>RESISTORS</b>		
VR501	22031319	Variable, 100k Ohms, Volume Control
VR502	22031320	Variable, 100k Ohms, Balance Control
VR503	22031321	Variable, 50k Ohms, Treble Control
VR504	22031321	Variable, 50k Ohms, Bass Control
<b>CAPACITORS</b>		
C503,504	31819147	10uF +50% -10%, 16V Electrolytic
C505,506	31831322	22uF +50% -10%, 10V Electrolytic
C513,514	31831323	2.2uF +50% -10%, 50V Electrolytic
C517,518	31831301	47uF +50% -10%, 16V Electrolytic
<b>TRANSISTORS</b>		
Q501,502,503,504, 505,506	43028535	2SC1344(E) Preamp

**RECTIFIER PC BOARD  
COMPONENT SIDE (A)**



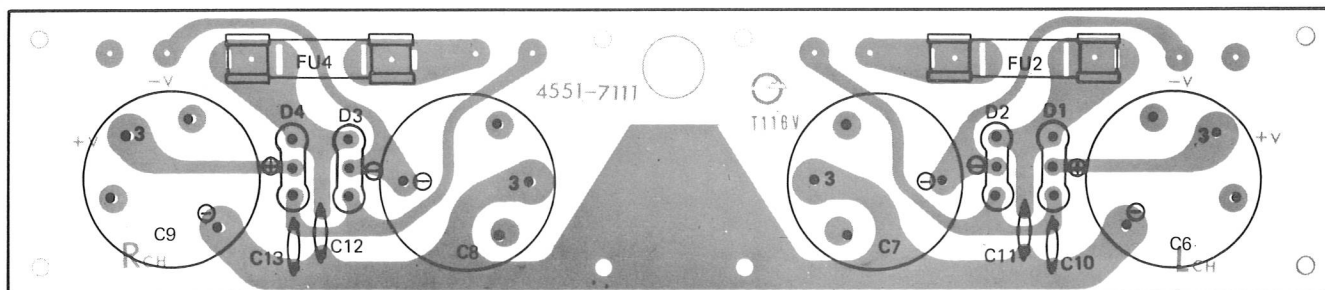
**RECTIFIER PC BOARD  
COMPONENT SIDE (B)**



**RECTIFIER PC BOARD (A) AND (B) – PARTS LIST**

REF. NO.	H/K PART NO.	DESCRIPTION
<b>CAPACITORS</b>		
C1,15	32529491	1000uF +100% -10%, 35V, Electrolytic
C2,4	31819227	2200uF +100% -10%, 35V, Electrolytic
C3	31819152	470uF +100% -10%, 25V, Electrolytic
<b>TRANSISTORS</b>		
Q1,2	43025972	2SC1212, Rectifier, Voltage
<b>DIODES</b>		
D5	41631295	SIB 01-02, Rectifier
D6	42131296	IS 2372A, Bridge Rectifier
D7	42029566	EQA 01-13, Zener
D8	42031297	EQA 01-25, Zener

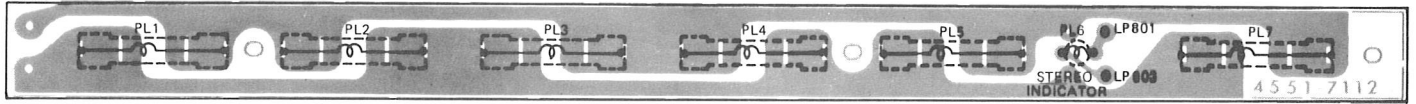
**RECTIFIER PC BOARD COMPONENT SIDE (C)**



**RECTIFIER PC BOARD (C) – PARTS LIST**

<b>CAPACITORS</b>		
C6,7,8,9	31831302	4700uF +50% -10%, 35V, Electrolytic
<b>DIODES</b>		
D1,4	41631298	B02-02C, Rectifier
D2,3	41631299	B02-02N, Rectifier

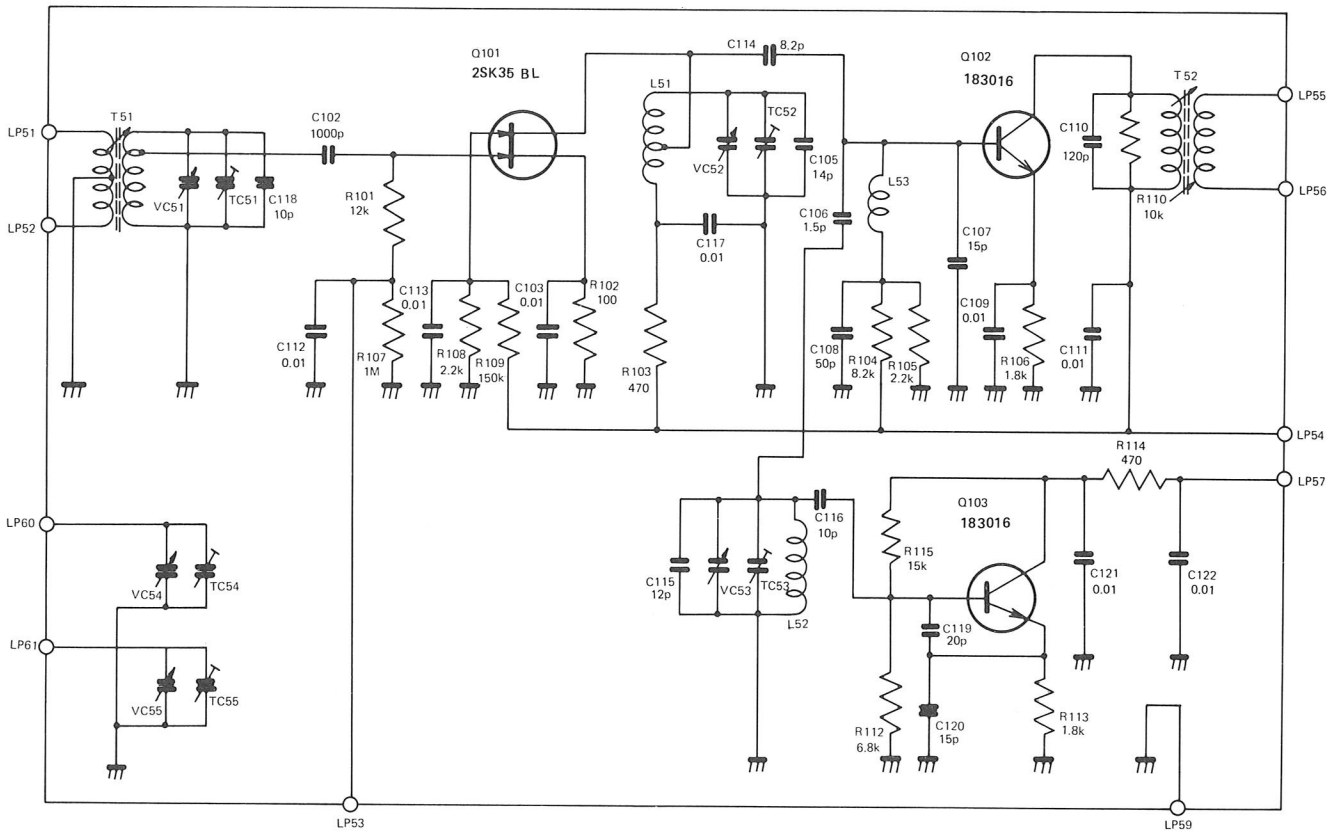
# INDICATOR LAMP HOLDER PC BOARD WIRING SIDE



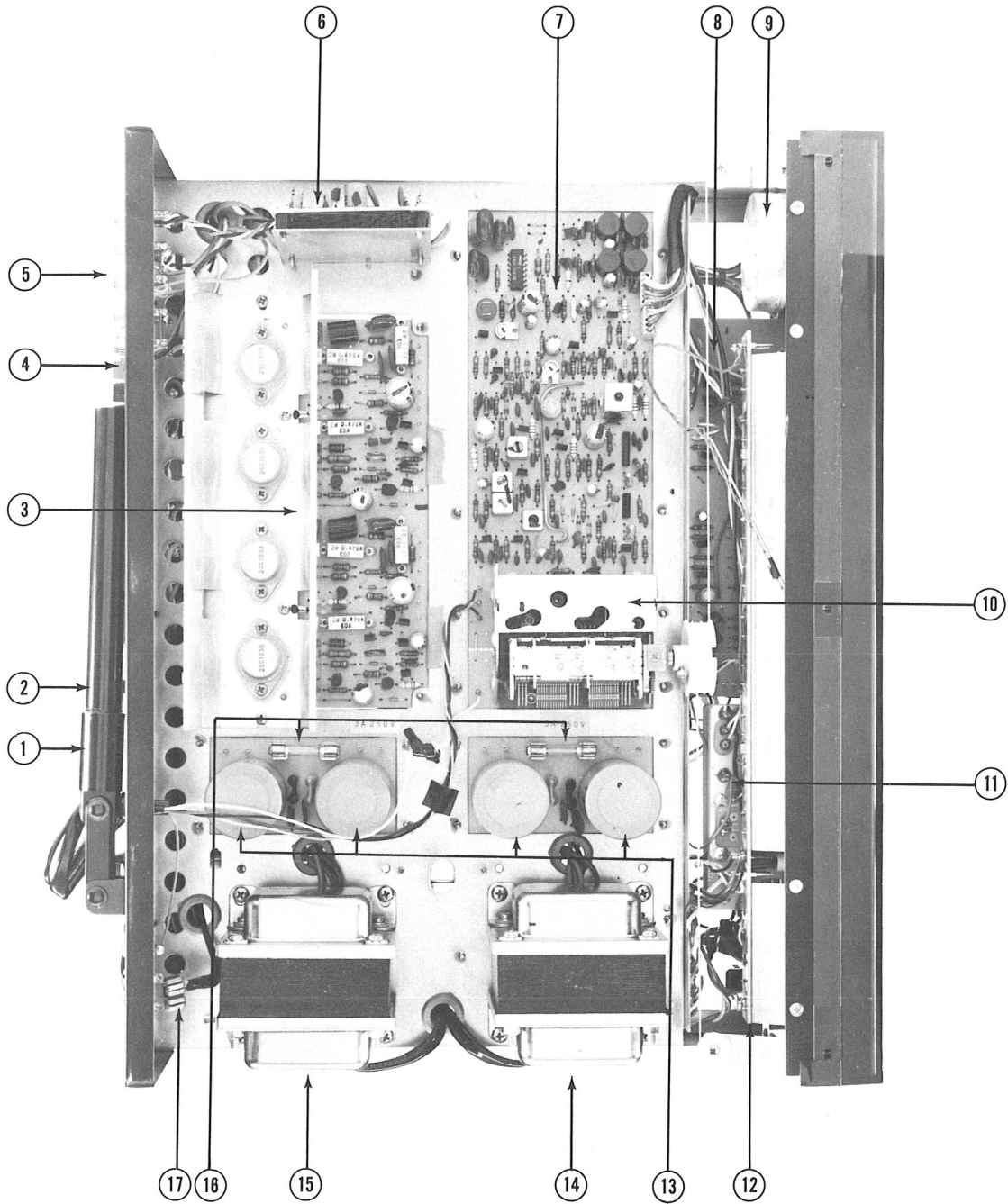
## INDICATOR LAMP HOLDER PC BOARD – PARTS LIST

REF. NO.	H/K PART NO.	DESCRIPTION
<b>LAMPS</b>		
PL1,2,3,4,5,7	46524956	6.3V 0.25A Dial Illuminator
PL6	46531326	6.3V 40mA Stereo Indicator

## FM FRONT END

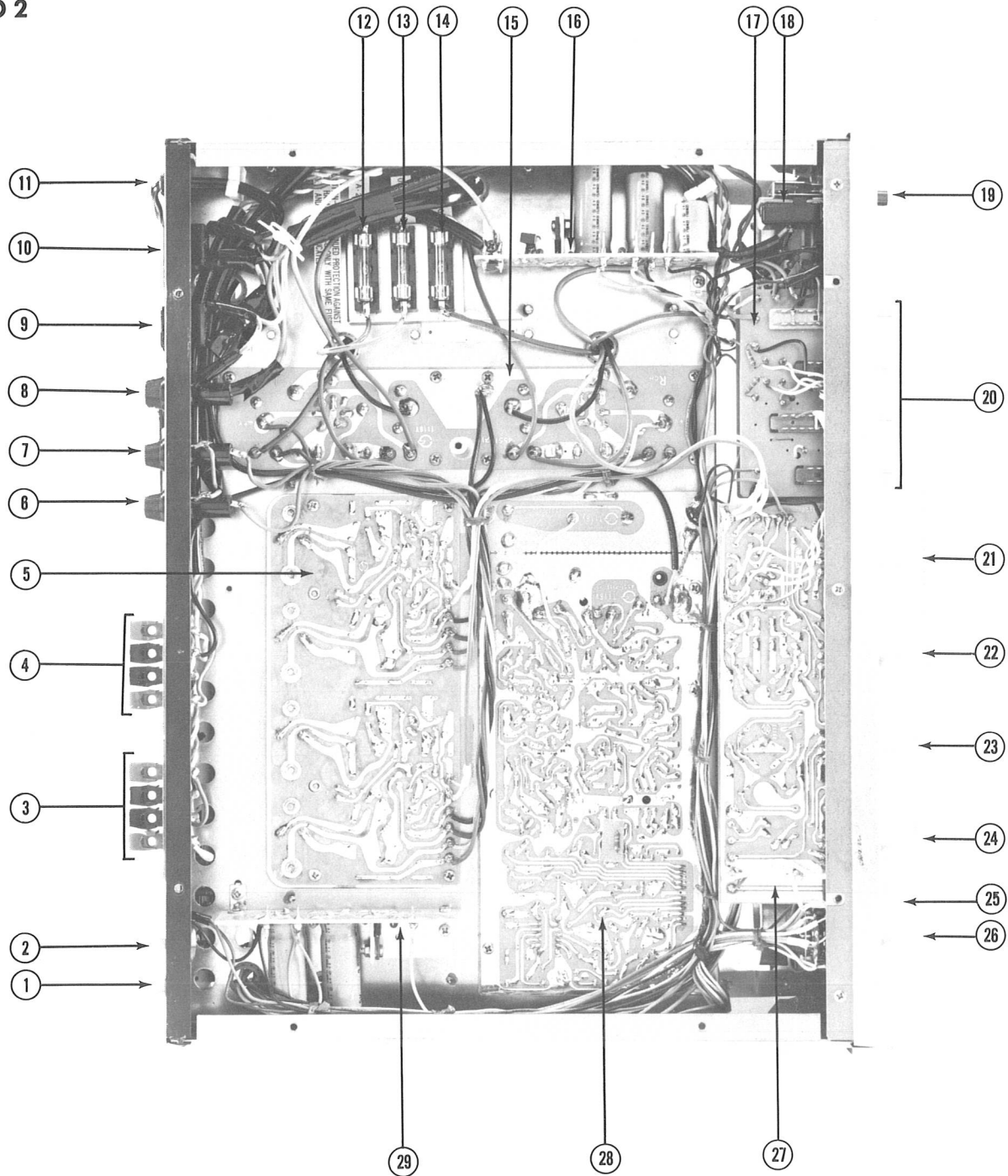


**BOTTOM VIEW  
PHOTO 1**



REF.	DESCRIPTION	PART NO.	REF.	DESCRIPTION	PART NO.
1	AM Antenna Holder	00228712	10	FM Front End	00231404
2	AM Antenna	20531334	11A	Top Mode Control PC Bd.	00131361
3	Main Amp. P.C. Bd.	00131357	11B	Bottom Mode Control PC Bd.	00131394
4	Speaker Terminal	65431366	12	Indicator Lamp Holder	00131360
5	Input Output Terminal	65429520	13	Electrolytic Cap. C-6,7,8,9	31831302
6	Equalizer Amp. PC Bd.	00131355	14	Transformer T1	10131328
7	AM/FM Tuner IF MPX PC Bd.	00131354	15	Transformer T2	10131328
8	Tone/Preamp. PC Bd.	00131356	16	Fuse 3A 250V FU2,4	45013291
9	Tuning Shaft Wheel	60431386	17	FM Antenna Coil L-1	12031333

TOP VIEW  
PHOTO 2



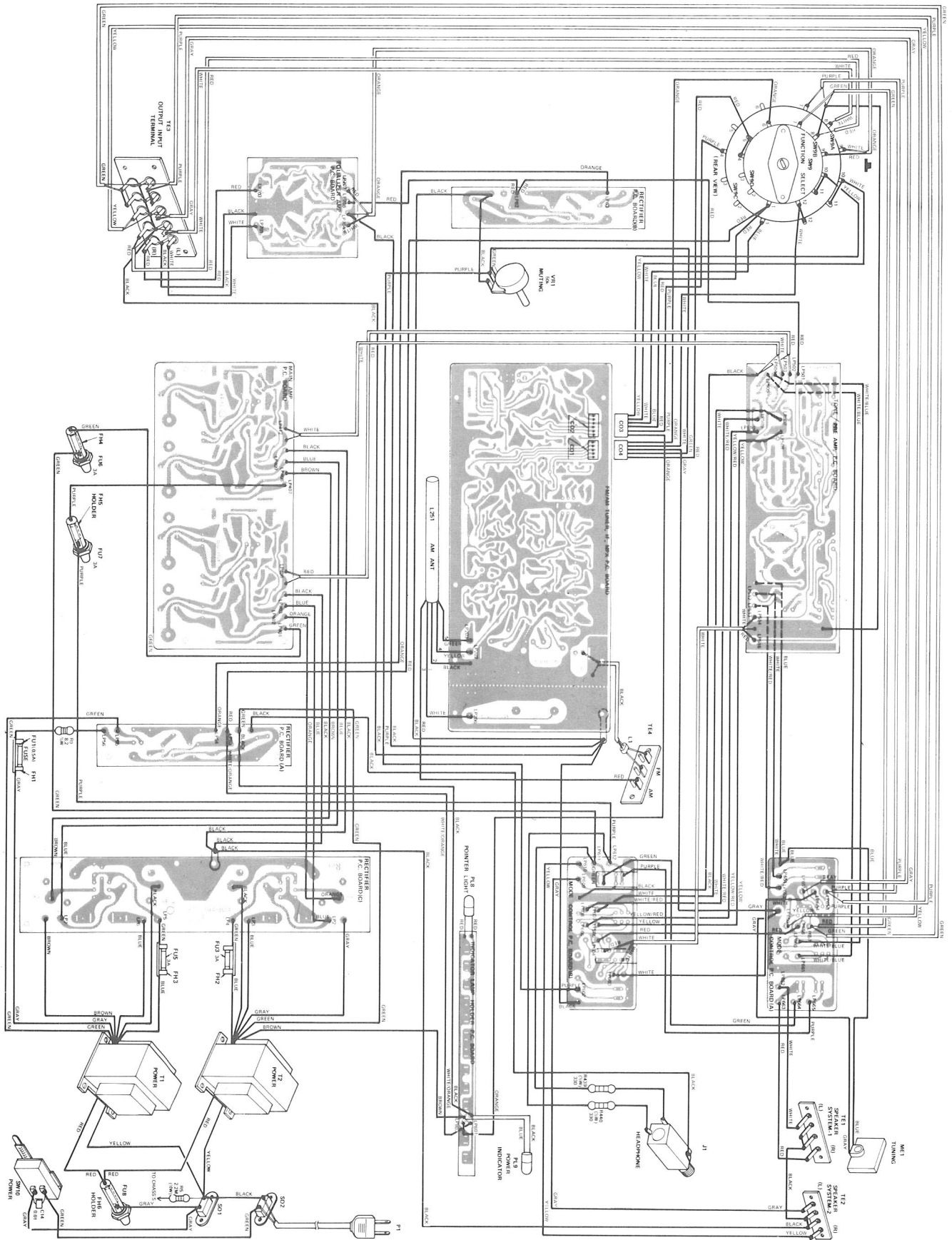
REF.	DESCRIPTION	PART NO.	REF.	DESCRIPTION	PART NO.
1	Ground Terminal Screw	79031382	16	Rectifier A P.C.B.	00131359
2	FM Muting Adjust VR-1 50K	21531367	17	Mode Control SW PCB Top	00131361
3	Speaker System 1 Terminals	65431366	17	Mode Control SW PCB Bottom	00131394
4	Speaker System 2 Terminals	65431366	18	Headphone Jack	65424917
5	Main Amp. P.C.B.	00131357	19	Push Button, Power	63231378
6	Left Spkr. Fuse FU7 3A 3AG	45013291	20	Push Button, Control/Mode	63231377
7	Right Spkr. Fuse FU6 3A 3AG	45013291	21	Bass Control Knob	63231376
8	Main Power Fuse FU8 3A 3AG	45013291	22	Treble Control Knob	63231376
9	Switched AC Outlet SO1	65424896	23	Balance Control Knob	63231376
10	Unswitched AC Outlet SO2	65424896	24	Volume Control Knob	63231376
11	AC Line Cord & Plug P1		25	Tuning Knob	63231375
12	Fuse FU-5 3A 3AG	45013291	26	Fuction Knob	63231376
13	Fuse FU-1 3A 3AG	45013291	27	Tone/Preamp P.C.B.	00131356
14	Fuse FU-3 3A 3AG	45013291	28	AM/FM Tuner/IF/MPX PCB	00131354
15	Rectifier C P.C.B.	00131358	29	Rectifier B PCB	00131362

## MISCELLANEOUS PARTS LIST

PHOTO REF.	CIRCUIT REF.	PART NO.	DESCRIPTION
<b>MULTI-VOLTAGE RECEIVER</b>			
	SW201	24531335	Slide Switch on AM/FM Tuner, IF, MPX, PC Board
	SW11	24031338	Rotary Switch, Power Source Voltage Selection
	FU8	(45031336)	3A Fuse 100/120V
		(45031337)	1.5A Fuse 220/240V
	T1,2	10131339	Power Transformer
<b>MISCELLANEOUS</b>			
2-19	SW10	25029514	Power Switch
2-6,7,8	FH4,5,6	65429516	Fuseholder for FU6,7,8
2-13	FU1	45031327	0.5A AGC-3 Fuse
	FU3,5,6,7,8	45013291	3A AGC-3 Fuse
1-14,15	T1,2	10131328	Power Transformer
1-5	TE3	65429520	Output/Input Terminal
	ME1	12531329	Tuning Meter
	TE4	65129518	FM/AM External Antenna Terminal
	PL8	46531330	6.3V 30mA Pointer Light
	PL9	46531331	6.3V 50mA Power Indicator Light
1-17	L1	12031333	FM Antenna Coil
1-2	L251	20531334	AM Ferrite Bar Antenna
1-7		00131354	FM/AM Tuner, IF and MPX P.C.B. Complete
1-6		00131355	Equalizer Amp. P.C.B. Complete
1-8		00131356	Tone/Pre. Amp. P.C.B. Complete
1-3		00131357	Main Amp. P.C.B. Complete
2-15		00131358	Rectifier P.C.B. (C) Complete
2-16		00131359	Rectifier P.C.B. (A) Complete
1-12		00131360	Indicator Lamp Holder P.C.B. Complete
1-11A		00131361	Mode/Control Switch P.C.B. (A) Complete
1-11B		00131394	Mode/Control Switch P.C.B. (B) Complete
2-29		00131362	Rectifier P.C.B. (B) Complete
2-26		24031363	Function Selector Switch
2-9,10		65431364	AC Socket
2-12,13,14		65431365	Fuse Holder for Fuse FU1,3,5
2-3,4		65431366	Speaker Output Terminal
2-2	VR-1	21531367	Variable Resistor, 50k Ohm, Muting Adjust
		60131368	Cabinet Top
		60131369	Cabinet Back
		60131370	Cabinet Bottom Cover
		00231371	Front Panel Assembly
		60131372	Front Side Panel
		62031373	Leg for Unit
		61031374	Dial Panel
2-25		63231375	Tuning Knob
2-21-24,26		63231376	Knob, Tone Control, Function Selector
2-20		63231377	Push Button, Control/Mode
2-19		63231378	Push Button, Power
		65431379	Bushing, AC Line Cord
1-1		61631380	AM Ferrite Bar Antenna Holder
		80131381	Nut for Unit Ground Terminal
		79031382	Special Screw for Unit Ground Terminal
		53031383	External AM Antenna Lead Wire
		00231384	Dial Pointer Assembly
		00231385	Tuning Shaft Assembly
		60431386	Wheel for Tuning Shaft
		60431387	Dial Drum for Variable Capacitor
		60431388	Pulley for Dial Cord
		60631389	Spring for Dial Cord
		60631390	Spring for Pointer Lamp Holder
		86531391	Spacer for Equalizer Amp. P.C. Board
		60131392	Reflector Pan for Dial Lamp
2-18		65424917	Headphone Jack



# WIRING DIAGRAM







# STRINGING DIAGRAM

