ERIC NELSON

The Harman Kardon Model hk 500

Tuner

Technical Manual

harman/kardon

ALIGNMENT PROCEDURES

IN-TUNE INDICATOR AND MUTING SENSITIVITY/BAND WIDTH ADJUSTMENT

INSTRUMENTS

1. FM Signal Generator modulated with 1000Hz at 100%.
2. Oscilloscope.
3. V. T. V. M.
4. Frequency Counter

NOTE

1. Set function selector switch to FM position.
2. Set FM muting control to ON position.
3. Connect signal source to FM antenna terminals.

STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	FREQUENCY	STRENGTH				
1	98 MHz	2 μV	V. T. V. M. and oscilloscope to fixed output jack	Near 98 MHz	Tuning control	Maximum output
2	Set FM muting control to minimum position.					
3	98 MHz	2 μV		Preset point	VR206	In-tune indicator lights
4	Set FM muting control to maximum position.					
5	98 MHz	125 μV		Preset point	VR205	In-tune indicator lights
6		1 mV	V. T. V. M. and oscilloscope to fixed output jack		FM signal generator	Turn frequency dial clockwise until signal disappears from oscilloscope and note the frequency of the signal on the frequency counter
7						Turn frequency dial counter-clockwise until signal disappears from oscilloscope and note the frequency of the signal on the frequency counter
8					VR202	Repeat steps 3 and 4, and adjust until the difference of frequencies from step 3 and 4 becomes 125 kHz

ALIGNMENT PROCEDURES

AM ALIGNMENT PROCEDURES

INSTRUMENTS

1. AM Signal Generator modulated with 400Hz at 30%.
2. AM IF Sweep Generator.
3. Oscilloscope.
4. V. T. V. M.

NOTES

1. Set function selector switch to AM position.
2. Connect signal into standard loop so as to radiate signal into AM antenna loop stick (L251).

STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	GENERATOR	FREQUENCY				
1	AM IF sweep generator	455 kHz	V.T.V.M. and oscilloscope to R267 (4.7 k ohm)	Quiet point on band	T251	Maximum and undistorted pattern on oscilloscope
2					T252	
3	Repeat steps 1 and 2 for best sensitivity.					
4	AM signal generator	600 kHz	V.T.V.M. and oscilloscope to R267 (4.7 k ohm)	600 kHz	L252	Maximum output
5		1400 kHz		1400 kHz	TC202	
6	Repeat steps 4 and 5 for best dial accuracy.					
7	AM signal generator	600 kHz	V.T.V.M. and oscilloscope to R267 (4.7 k ohm)	600 kHz	L251	Maximum output
8		1400 kHz		1400 kHz	TC201	
9	Repeat steps 7 and 8 for best sensitivity.					

TUNING METER ADJUSTMENT

INSTRUMENTS

1. FM Signal Generator modulated with 1000Hz at 100%.
2. Oscilloscope.
3. V. T. V. M.

NOTE

1. Set function selector switch to FM position.
2. Connect signal source to FM antenna terminals.

STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	FREQUENCY	STRENGTH				
1	98 MHz	2 μV	V. T. V. M. and oscilloscope to fixed output jack	Near 98 MHz	Tuning control	Maximum output
2		1 mV		Preset point	VR201	Indicating 9 on tuning meter

FM ALIGNMENT PROCEDURE

INSTRUMENTS

1. FM Signal Generator modulated with 1000Hz at 100%.
2. Oscilloscope.
3. Distortion Meter.
4. Center Zero Meter.
5. V. T. V. M.

NOTE

1. Set function selector switch to FM position.
2. Set FM muting control (w/ON-OFF switch) to OFF position.
3. Connect signal source to FM antenna terminals.

STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	FREQUENCY	STRENGTH				
1			Oscilloscope to R217 (10 k ohm)	Quiet point on band	T101	Maximum noise
2			Center zero meter to R214 (47 k ohm) and LP114		T201	Indicating zero on center zero meter
3	98 MHz	1 mV	Center zero meter and oscilloscope to fixed output jack	Near 98 MHz	Tuning control	
4			Distortion meter to fixed output jack	Preset point	T202	Minimum reading on distortion meter
5	Repeat steps 2 through 4 until no further improvement is noticed.					
6	90 MHz	2 μV	V. T. V. M. and oscilloscope to fixed output jack	90 MHz	L105	Maximum output
7	106 MHz			106 MHz	TC103	
8	Repeat steps 6 and 7 until no further improvement is noticed.					
9	90 MHz	1 μV	V. T. V. M. and oscilloscope to fixed output jack	90 MHz	L102, L103	Maximum output
10	106 MHz			106 MHz	TC101, TC102	
11	Repeat steps 9 and 10 until no further improvement is noticed.					

ALIGNMENT PROCEDURES

SEPARATION ADJUSTMENT

INSTRUMENT

1. FM Stereo Signal Generator.
2. Oscilloscope.
3. V. T. V. M.

NOTE

1. Set function selector switch to STEREO FM position.
2. Connect signal source to FM antenna terminals.

STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	FREQUENCY	STRENGTH				
1	Set main signal OFF and pilot signal (10%) ON of FM stereo signal generator.					
2	98 MHz	2 μV	V. T. V. M. and oscilloscope to fixed output jack	Near 98 MHz	Tuning control	Maximum output
3		1 mV	V. T. V. M. to Rch fixed output jack	Preset point	VR302	Minimum output
4			V. T. V. M. to Lch fixed output jack		VR302	Best compromise between present and previous reading ±4dB
5	Set main signal ON and pilot signal (10%) ON of FM stereo signal generator.					
6	98 MHz (Right channel modulated)	1 mV	V. T. V. M. to Lch fixed output jack	Preset point	VR303	Minimum output
7	98 MHz (Left channel modulated)		V. T. V. M. to Rch fixed output jack		VR303	Best compromise between present and previous reading ±3dB

AM OUTPUT ADJUSTMENT

INSTRUMENT

1. AM Signal Generator modulated with 400Hz at 30%.
2. V. T. V. M.

NOTE

1. Set function selector switch to AM position.
2. Connect signal into standard loop so as to radiate signals into AM antenna loop stick (L251).

SIGNAL SOURCE	CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
1000 kHz 10mV/m	V. T. V. M. to fixed output jack	1000 kHz	VR251	600 mV

ALIGNMENT PROCEDURES

MPX OSCILLATOR/FREQUENCY ADJUSTMENT

INSTRUMENT

1. Frequency Counter.
2. FM Signal Generator.
3. Oscilloscope.
4. V. T. V. M.

NOTE

1. Set function selector switch to STEREO FM position.
2. Connect signal source to FM antenna terminals.

STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	FREQUENCY	STRENGTH				
1	98 MHz	2 μV	V. T. V. M. and oscilloscope to fixed output jack	Near 98 MHz	Tuning control	Maximum output
2	98 MHz (No modulation)	1 mV	Frequency Counter to LP116	Preset point	VR301	76 kHz ± 200 Hz

FM STEREO INDICATOR ADJUSTMENT

INSTRUMENT

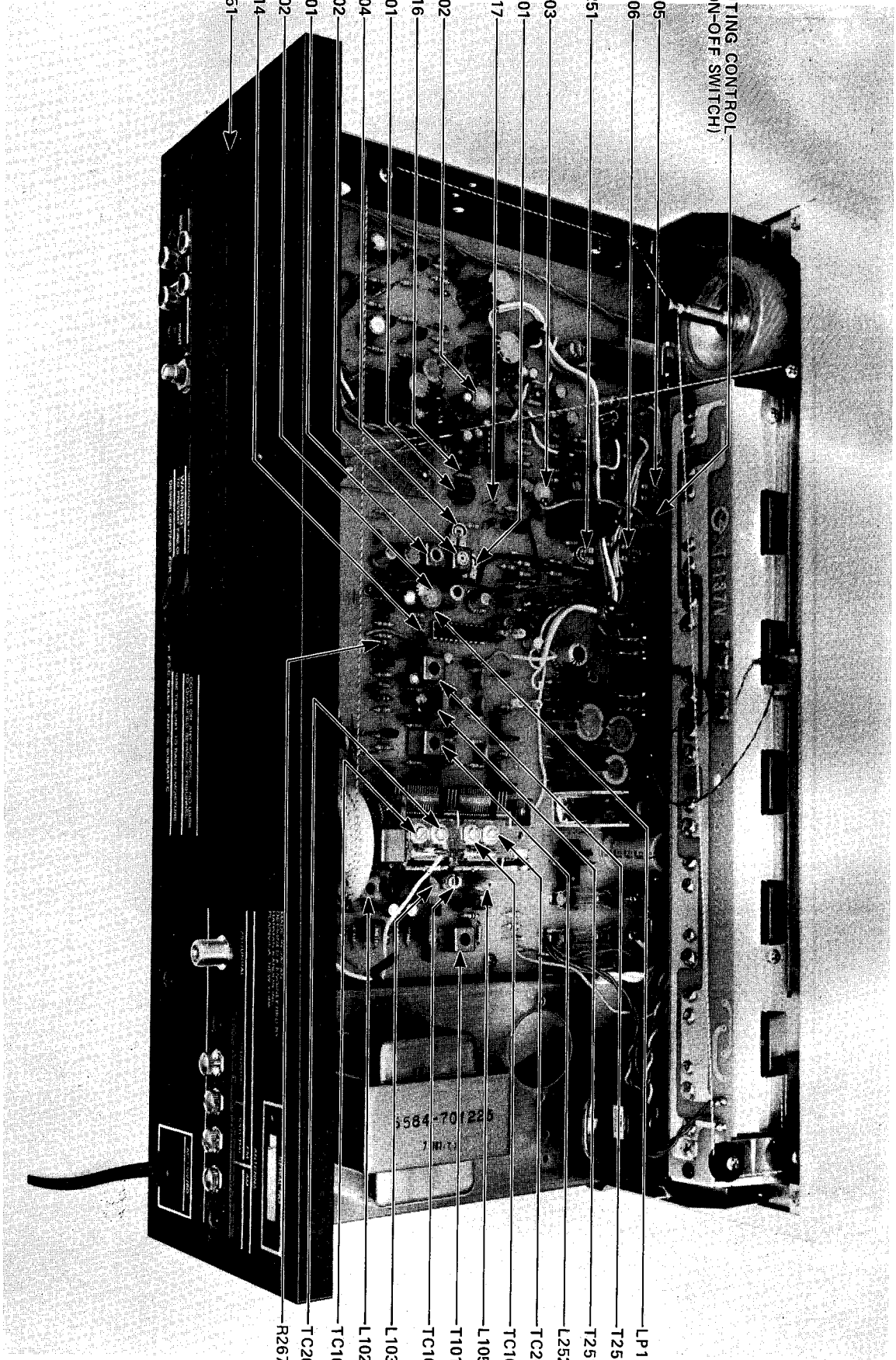
1. FM Stereo Signal Generator.
2. Oscilloscope.
3. V. T. V. M.

NOTE

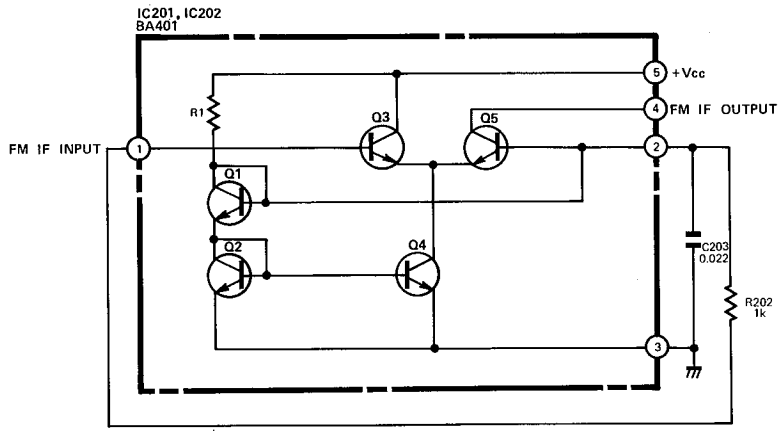
1. Set function selector switch to STEREO FM position.
2. Connect signal source to FM antenna terminals.
3. Set main signal OFF and Pilot signal (10%) ON of FM Stereo signal generator.

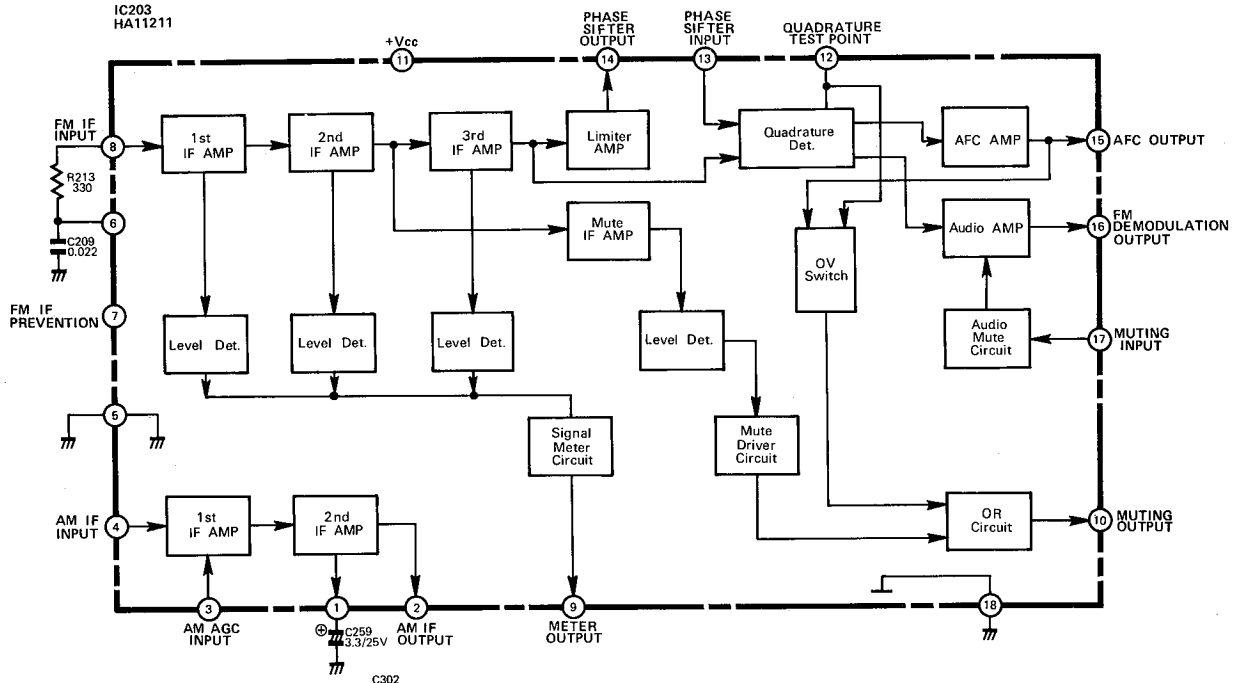
STEP	SIGNAL SOURCE		CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
	FREQUENCY	STRENGTH				
1	98 MHz	2 μV	V. T. V. M. and oscilloscope to fixed output jack	Near 98 MHz	Tuning control	Maximum output
2		25 μV		Preset point	VR204	FM stereo indicator lights

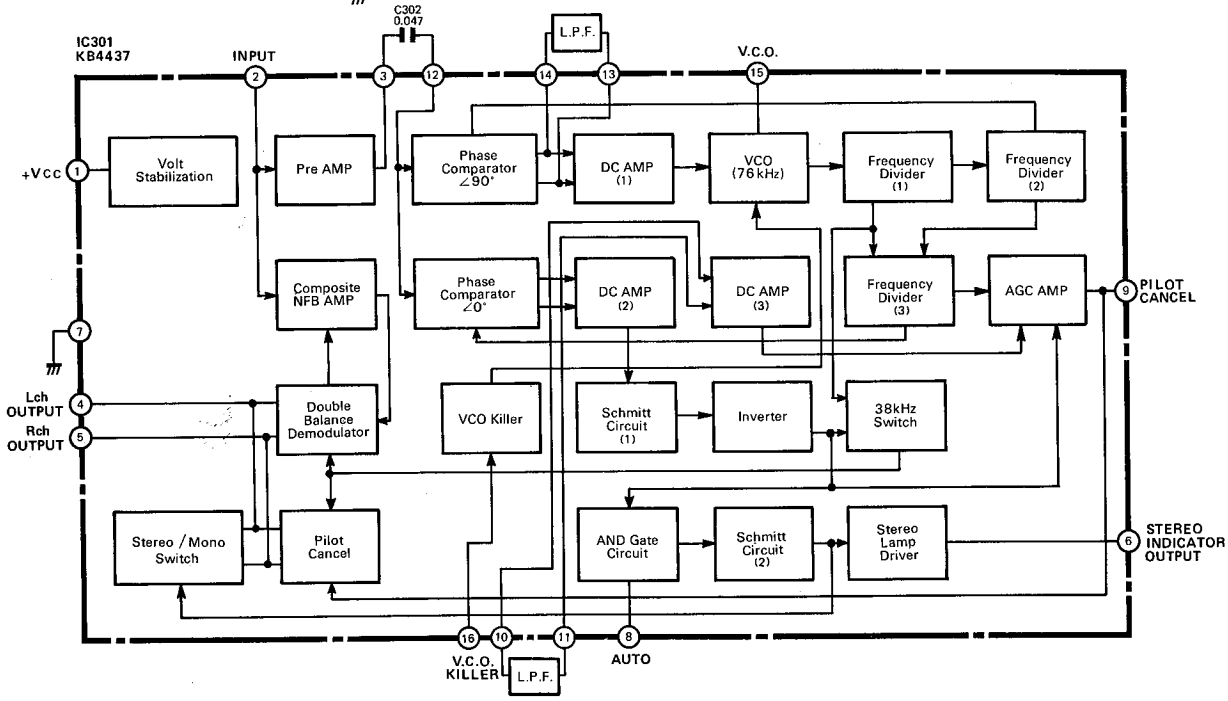
ALIGNMENT POINTS



BLOCK DIAGRAM







SCHEMATIC NOTES AND DIAGRAMS

NOTES: Unless otherwise noted.

1. All resistors are 1/4 watt, ±5%. Values are in ohms. K = 1000 M = 1000K.
2. All capacitance values are in MF. PF = MMF.
3. Function selector switch (SW2) is in AM position.

VOLTAGE CHART

AC120V
No Signal
Chassis Ground

Volume Control at Minimum
Tone Controls at Mechanical Center

+B1 . . . . . +15.83V
-B1 . . . . . -10.58V
+B2 . . . . . +14.00V
-B2 . . . . . -8.72V

FM POSITION

	BASE	EMITTER	COLLECTOR
Q1	+16.42V	+15.83V	+24.70V
Q2	+5.75V	+5.19V	+17.01V
Q3	-11.25V	-10.58V	-17.45V
Q4	-5.74V	-5.12V	-11.25V
Q5	+17.01V	+16.42V	+24.70V
Q102	+2.10V	+1.54V	+13.84V
Q103	+4.55V	+3.89V	+7.75V
Q201	+0.32V	0V	+6.77V
Q202	+0.69V	0V	+0.03V
Q203	+0.03V	0V	+14.23V
Q204	+0.12V	0V	+8.28V
Q205	+0.69V	0V	+0.02V
Q303, 304	+12.87V	+13.49V	-8.94V
Q305, 306	-8.94V	-9.57V	+3.35V
Q307, 308	-2.43V	0V	+0.06V
	+0.72V	0V	+0.06V (FM Muting ON)
Q309	0V	-0.61V	+15.85V
	+14.46V	+13.83V	+15.85V (FM Muting ON)
Q310	+13.90V	+14.10V	-2.45V
	+13.90V	+14.10V	+2.30V (FM Muting ON)
Q311	0V	0V	+2.73V
Q401, 402	-3.96V	-4.54V	+13.34V
Q403, 404	+13.34V	+14.00V	+6.70V
Q501	-8.40V	-9.14V	-7.72V

	DRAIN	SOURCE	GATE 1	GATE 2
Q6	+24.70V	+17.80V	+17.01V	
Q101	+12.54V	+1.81V	+1.31V	+4.47V

AM POSITION

	BASE	EMITTER	COLLECTOR
Q251	+1.27V	+0.75V	+14.21V
Q252	+1.85V	+1.26V	+5.63V
Q253	+13.35V	+14.09V	+8.11V
Q254	+0.16V	0V	0V

IC201

	FM
1.	+1.40V
2.	+1.40V
3.	0V
4.	+11.14V
5.	+11.77V

IC202

	FM
1.	+1.40
2.	+1.40V
3.	0V
4.	+11.12V
5.	+11.75V

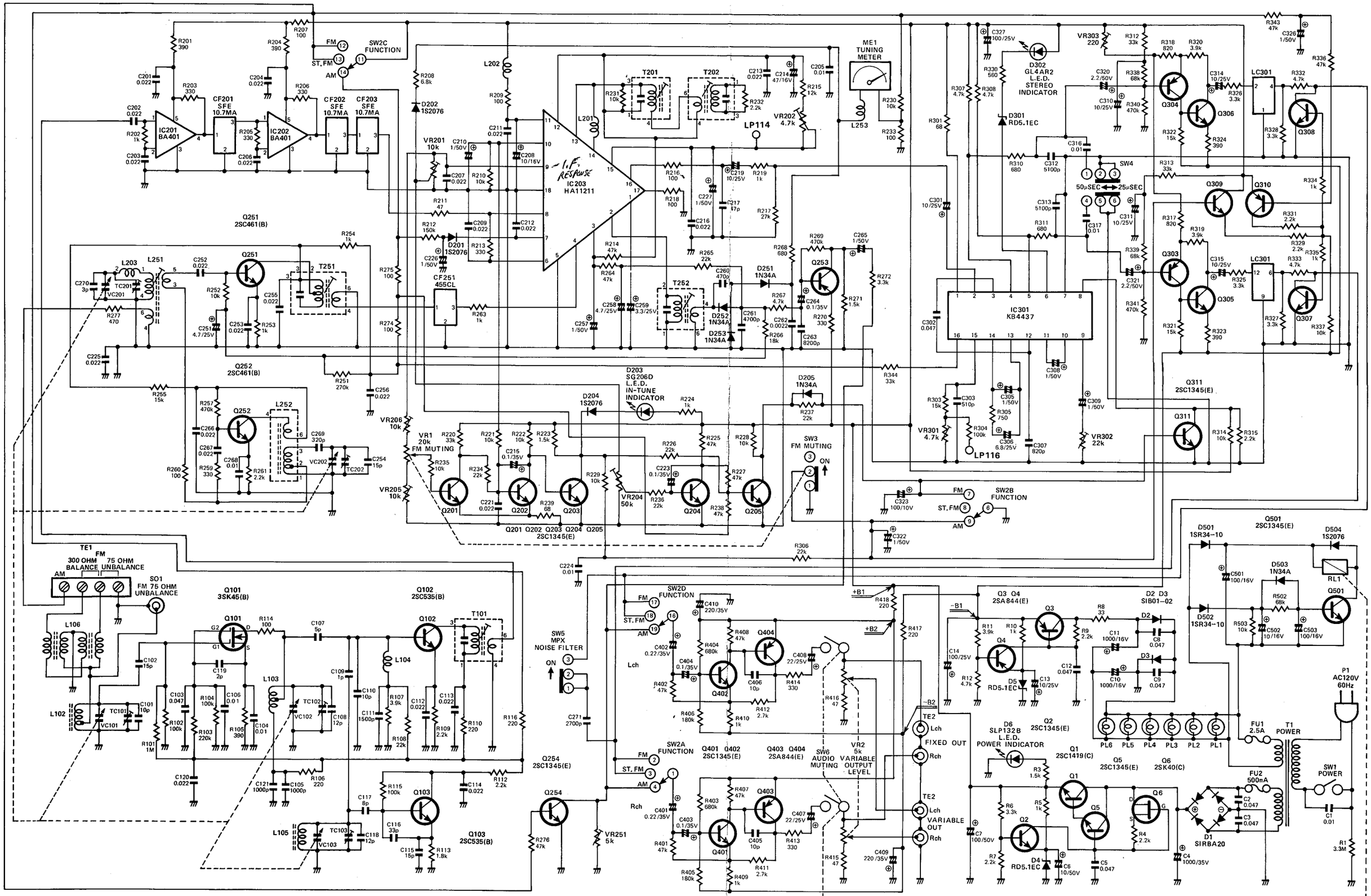
IC203

	AM	FM
1.	+2.63V	+2.62V
2.	0V	0V
3.	+3.44V	+3.43V
4.	+0.68V	+0.68V
5.	0V	0V
6.	+2.72V	+2.09V
7.	+3.48V	+2.09V
8.	+2.72V	+2.09V
9.	0V	+0.41V
10.	+5.19V	+4.30V
11.	+12.82V	+12.78V
12.	+5.71V	+5.71V
13.	+5.71V	+5.71V
14.	+5.71V	+5.71V
15.	+6.76V	+5.91V
16.	+6.55V	+5.99V
17.	0V	0V
18.	0V	0V

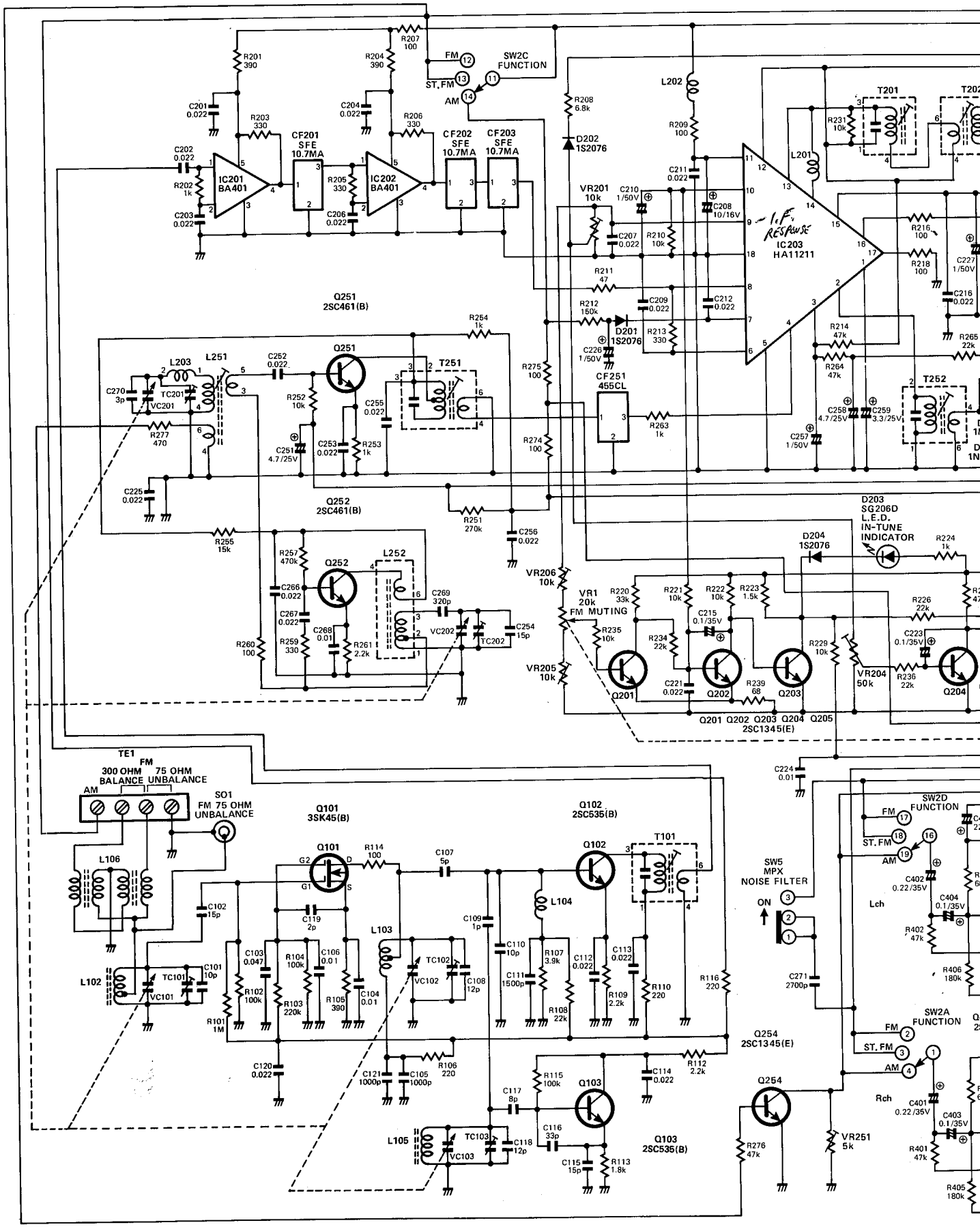
IC301

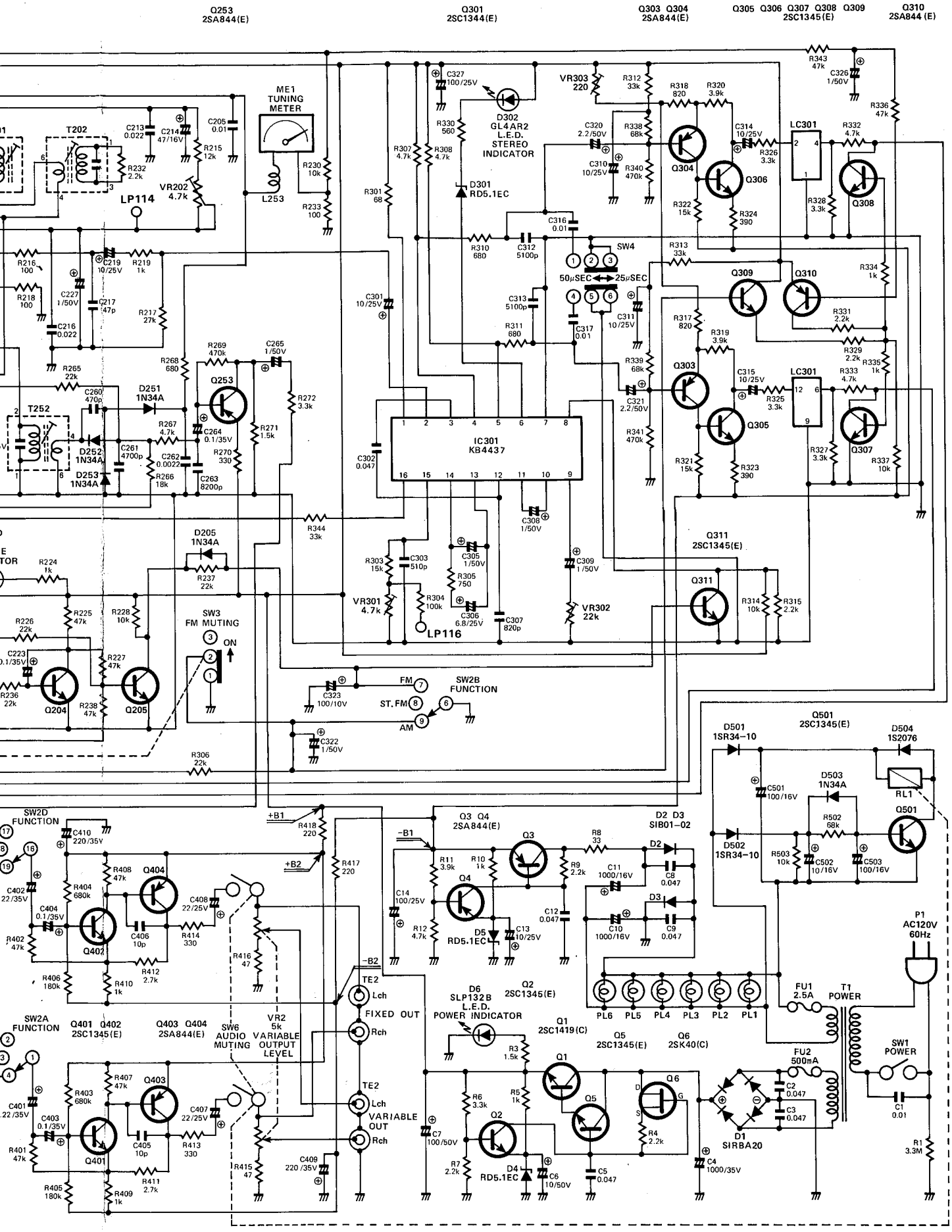
	FM
1.	+14.20V
2.	+3.08V
3.	+5.48V
4.	+11.17V
5.	+11.17V
6.	+11.40V
7.	0V
8.	+2.73V
9.	+0.81V
10.	+2.45V
11.	+2.45V
12.	+2.51V
13.	+2.51V
14.	+2.52V
15.	+3.60V
16.	+0.18V

SCHEMATIC DIAGRAM

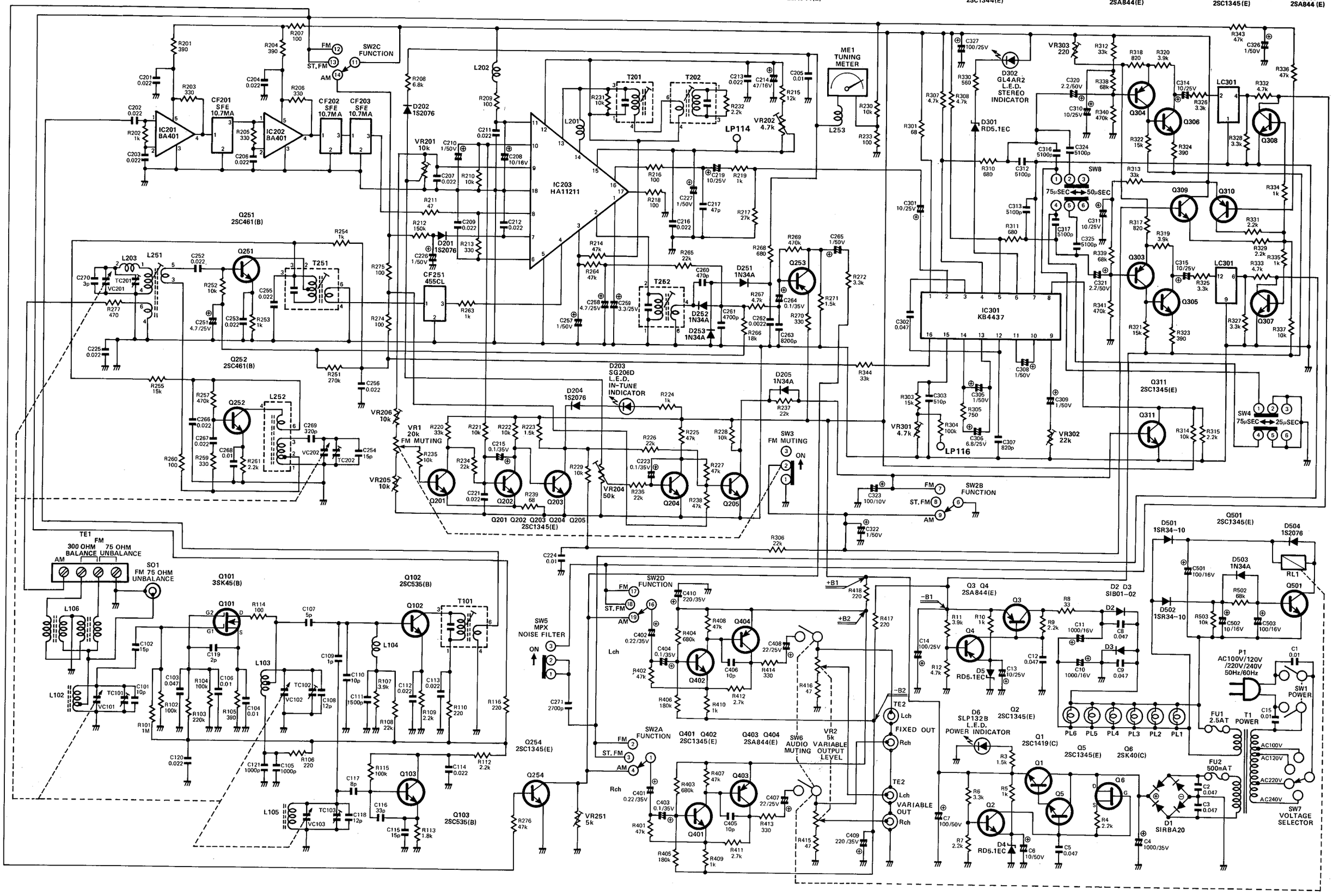


SCHEMATIC DIAGRAM

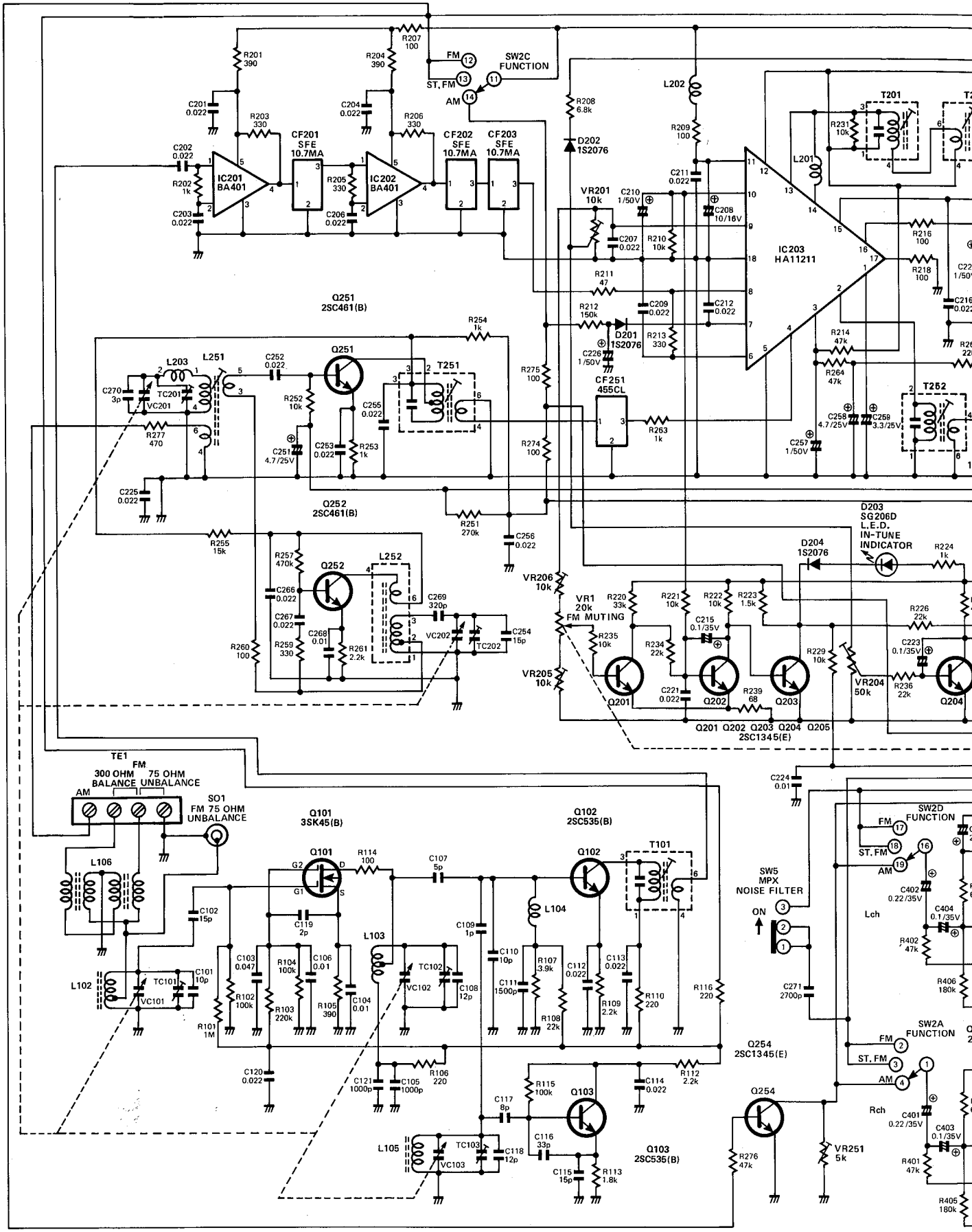


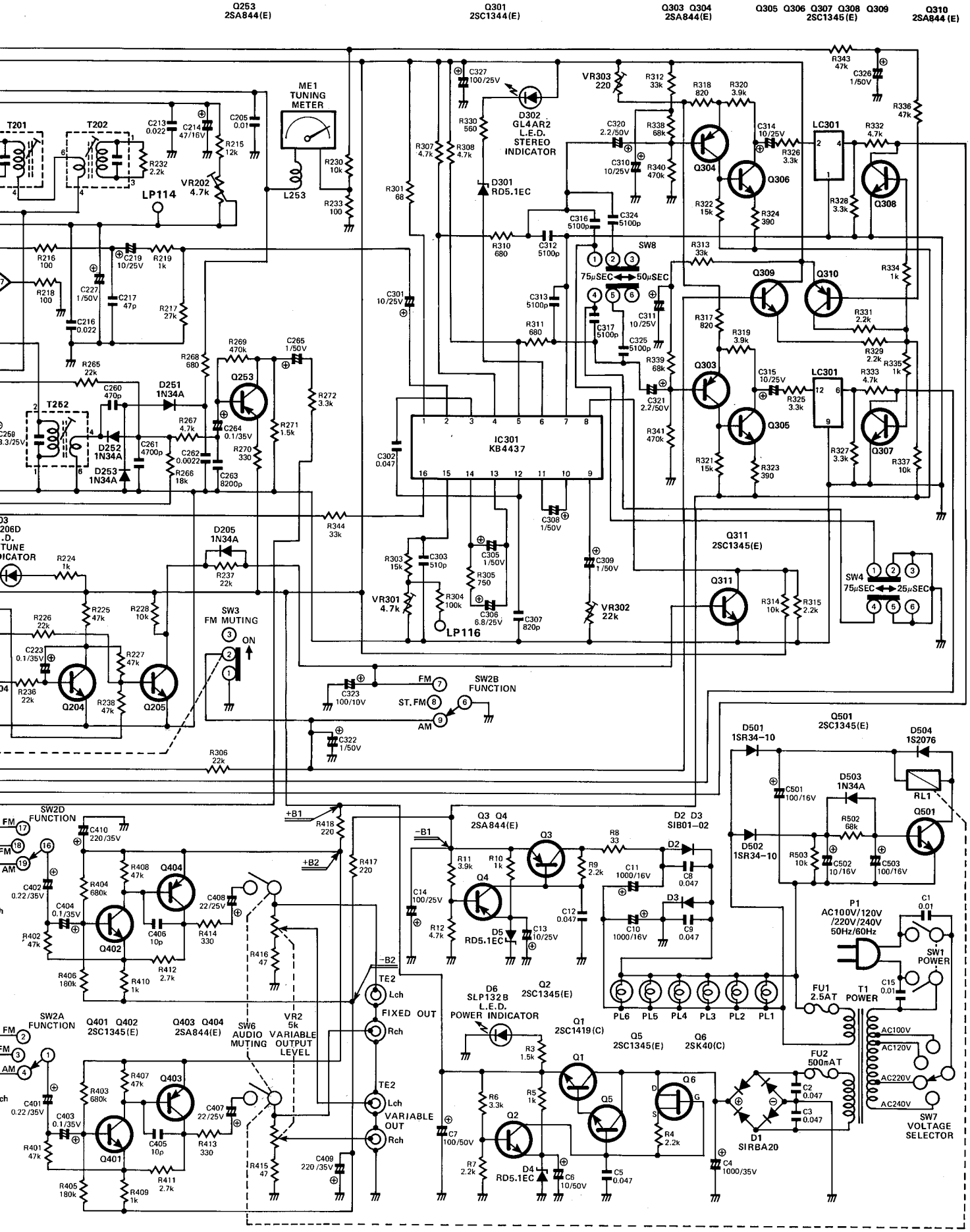

Q253 2SA844(E)
Q301 2SC1344(E)
Q303 Q304 2SA844(E)
Q305 Q306 Q307 Q308 Q309 2SC1345(E)
Q310 2SA844(E)
ME1 TUNING METER
T202
LP114
VR202 4.7k
L253
D302 GL4AR2 L.E.D. STEREO INDICATOR
D301 RD5.1EC
VR303 220
LC301
SW4 50μSEC ↔ 25μSEC
IC301 KB4437
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q310
Q311 2SC1345(E)
T252
D251 1N34A
D252 1N34A
D253 1N34A
D205 1N34A
VR301 4.7k
VR302 22k
LP116
SW3 FM MUTING
ON
SW2B FUNCTION
FM
ST.FM
AM
Q204
Q205
SW2D FUNCTION
+B1
+B2
-B1
-B2
Q3 Q4 2SA844(E)
D2 D3 SIB01-02
Q404
Q402
Q401
Q403
SW2A FUNCTION
Q401 Q402 2SC1345(E)
Q403 Q404 2SA844(E)
SW6 AUDIO MUTING
VR2 5k VARIABLE OUTPUT LEVEL
TE2
Lch
Rch
FIXED OUT
VARIABLE OUT
D6 SLP132B L.E.D. POWER INDICATOR
Q2 2SC1345(E)
Q1 2SC1419(C)
Q5 2SC1345(E)
Q6 2SK40(C)
D501 1SR34-10
D502 1SR34-10
D503 1N34A
D504 1S2076
Q501 2SC1345(E)
RL1
PL6 PL5 PL4 PL3 PL2 PL1
FU1 2.5A
FU2 500mA
T1 POWER
SW1 POWER
P1 AC120V 60Hz
D1 SIRBA20
D4 RD5.1EC

SCHEMATIC DIAGRAM — MULTI VOLTAGE

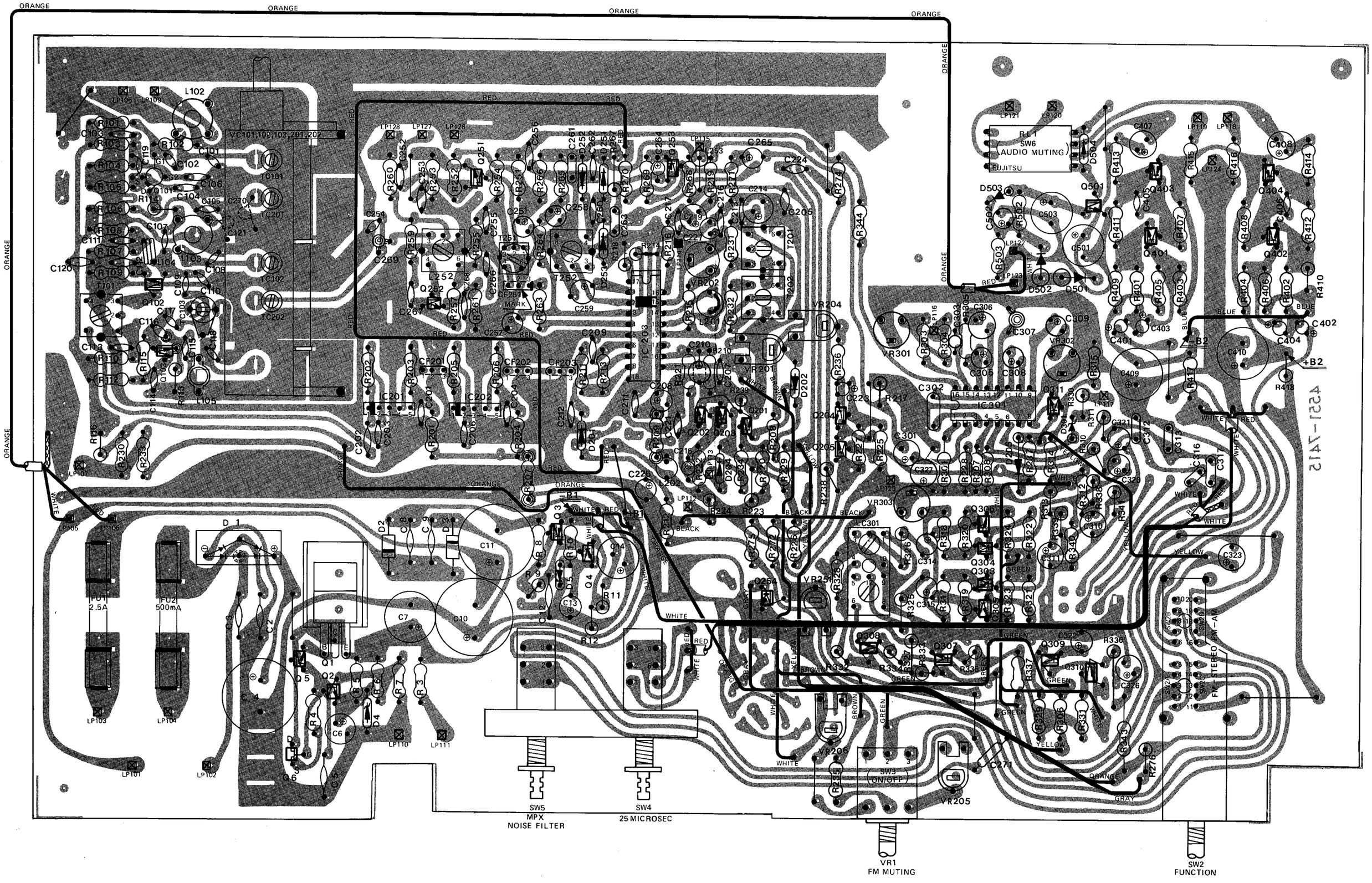


SCHEMATIC DIAGRAM – MULTI VOLTAGE

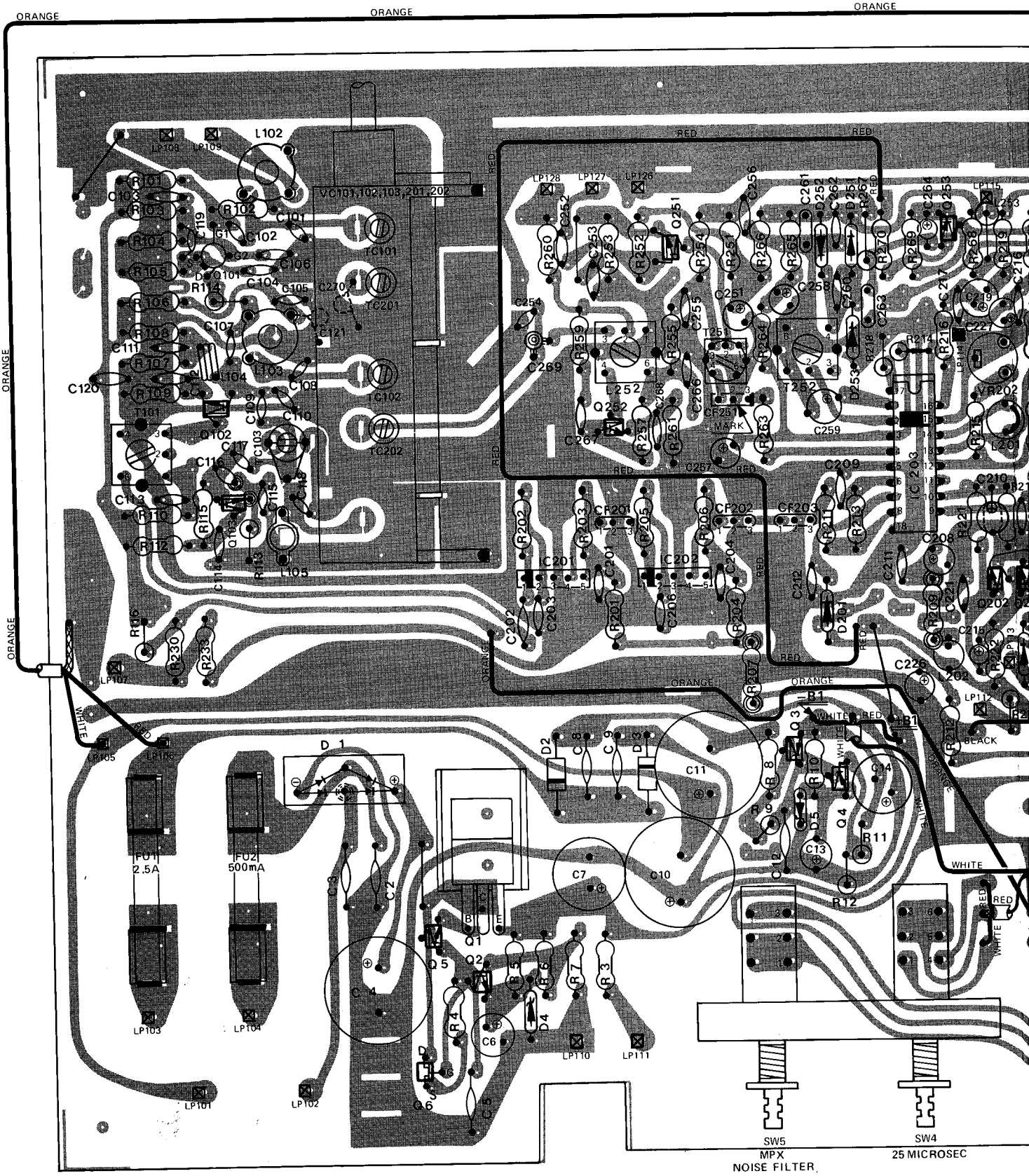


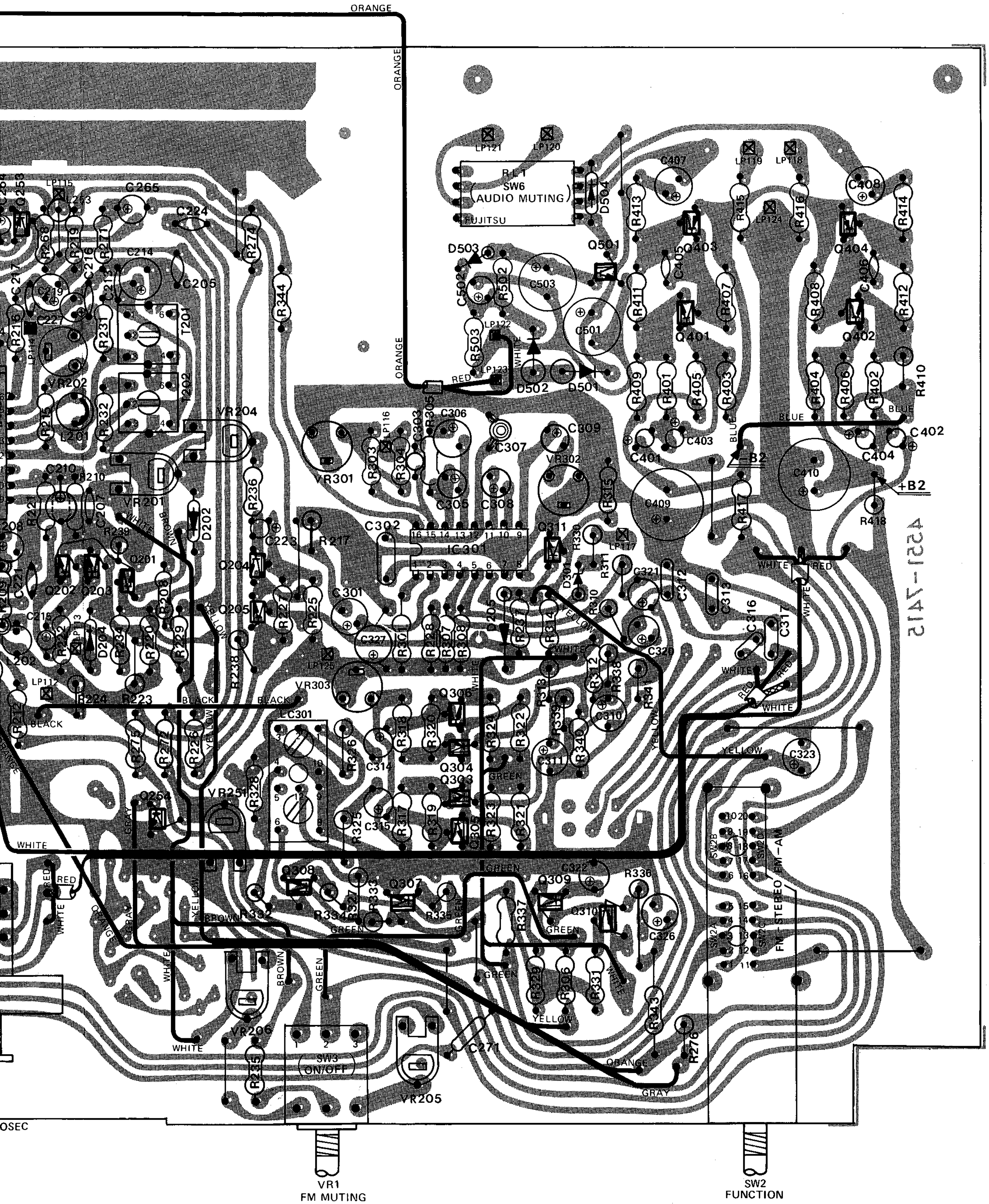

Q253 2SA844(E)
Q301 2SC1344(E)
Q303 Q304 2SA844(E)
Q305 Q306 Q307 Q308 Q309 2SC1345(E)
Q310 2SA844(E)
ME1 TUNING METER
L253
LP114
LP116
T201
T202
T252
VR202 4.7k
D302 GL4AR2 L.E.D. STEREO INDICATOR
D301 RD5.1EC
VR303 220
SW8 75μSEC ↔ 50μSEC
IC301 KB4437
LC301
Q304
Q306
Q308
Q309
Q310
Q303
Q305
Q307
Q311 2SC1345(E)
D251 1N34A
D252 1N34A
D253 1N34A
D205 1N34A
VR301 4.7k
VR302 22k
SW4 75μSEC ↔ 25μSEC
SW3 FM MUTING
ON
SW2B FUNCTION
FM
ST.FM
AM
Q204
Q205
SW2D FUNCTION
SW2A FUNCTION
Q401 Q402 2SC1345(E)
Q403 Q404 2SA844(E)
SW6 AUDIO MUTING
VR2 5k VARIABLE OUTPUT LEVEL
FIXED OUT
VARIABLE OUT
Lch
Rch
TE2
+B1
+B2
-B1
-B2
Q3 Q4 2SA844(E)
Q2 2SC1345(E)
Q1 2SC1419(C)
Q5 2SC1345(E)
Q6 2SK40(C)
D6 SLP132B L.E.D. POWER INDICATOR
D2 D3 SIB01-02
D501 1SR34-10
D502 1SR34-10
D503 1N34A
D504 1S2076
Q501 2SC1345(E)
RL1
P1 AC100V/120V /220V/240V 50Hz/60Hz
SW1 POWER
FU1 2.5AT
FU2 500mAT
T1 POWER
AC100V
AC120V
AC220V
AC240V
SW7 VOLTAGE SELECTOR
D1 SIRBA20
PL6 PL5 PL4 PL3 PL2 PL1

MAIN PC BOARD



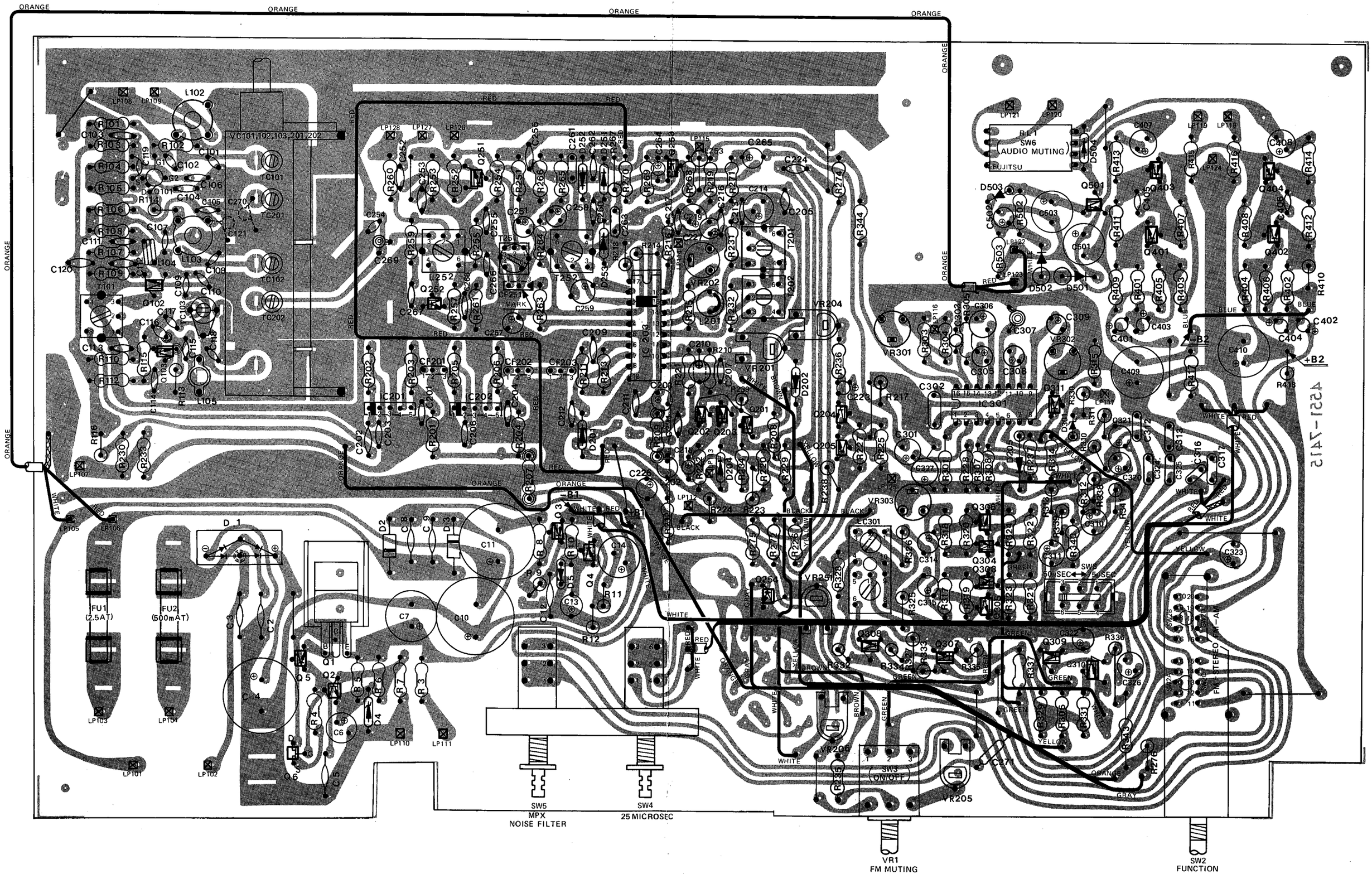
MAIN PC BOARD



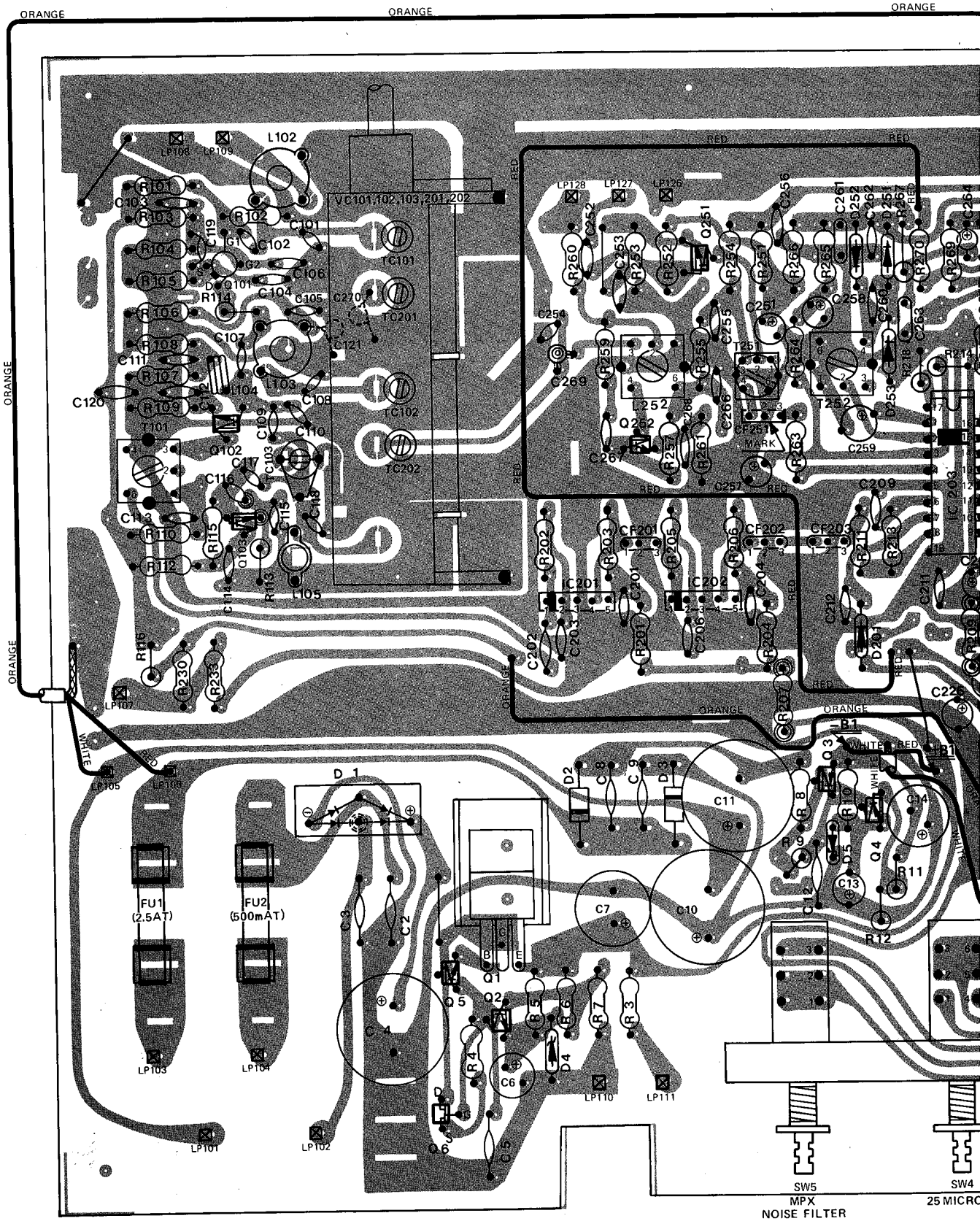


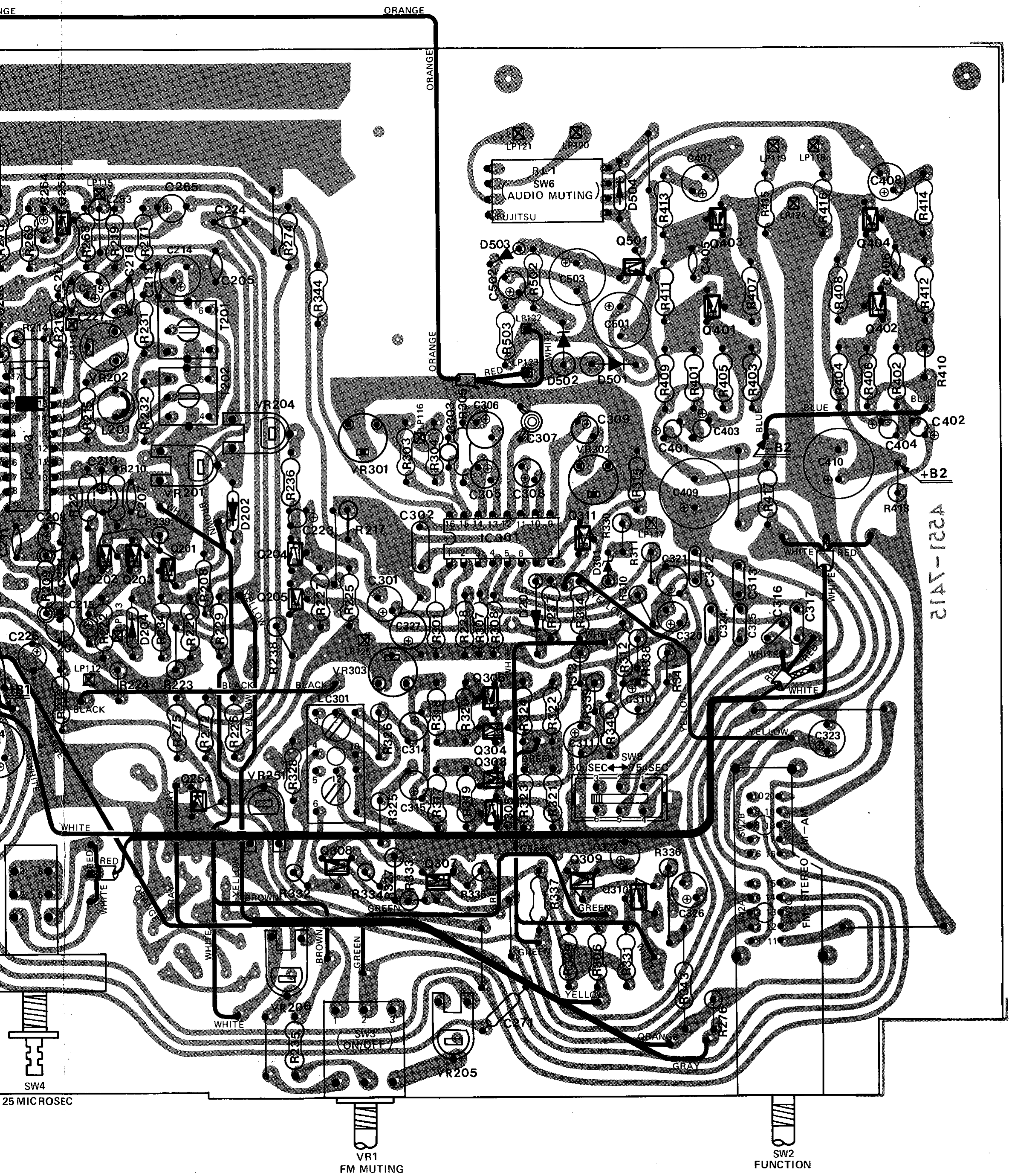
RL1
SW6
AUDIO MUTING
FUJITSU
ORANGE
BLUE
+B2
-B2
IC301
VR301
VR302
VR303
VR204
VR201
VR202
VR251
VR206
VR205
SW3
ON/OFF
SW2A
SW2B
FM-STEREO
FM-AM
VR1
FM MUTING
SW2
FUNCTION

MAIN PC BOARD – MULTI VOLTAGE

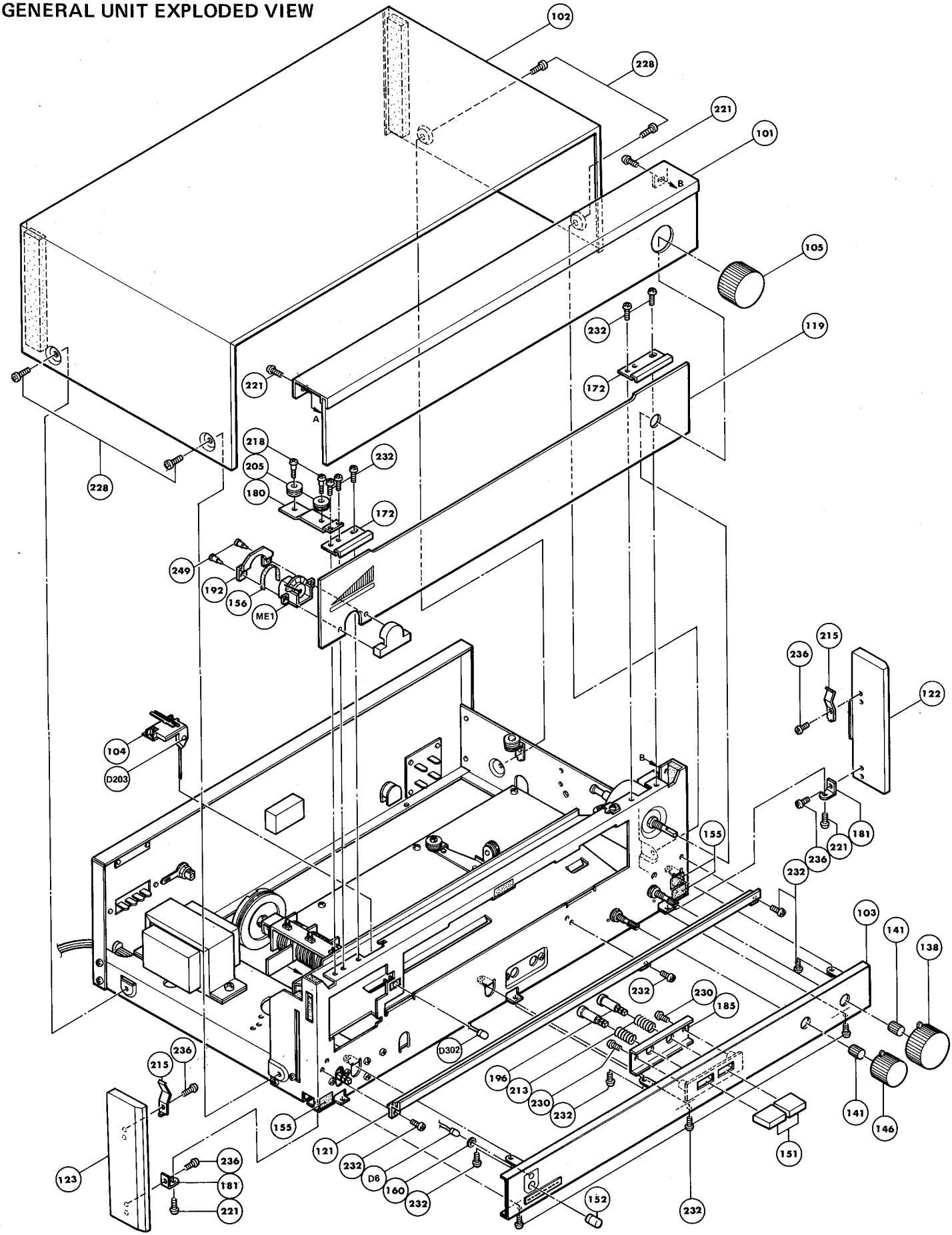


MAIN PC BOARD – MULTI VOLTAGE

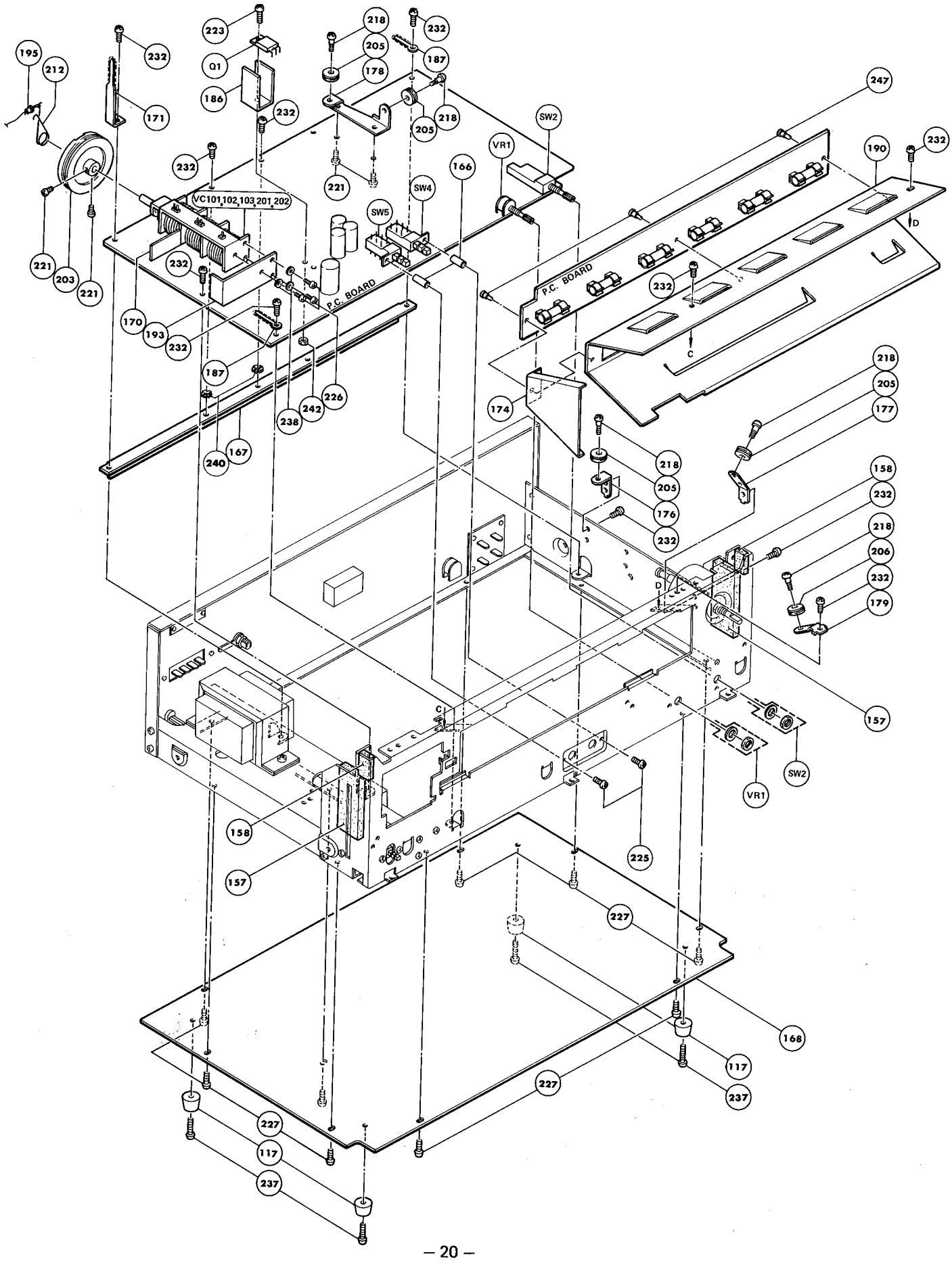



ORANGE
RL1
SW6
(AUDIO MUTING)
FUJITSU
WHITE
RED
BLUE
BLACK
YELLOW
GREEN
BROWN
GRAY
50μSEC←→75μSEC
SW8
IC301
IC203
LC301
SW3
ON/OFF
FM-AM
FM-STEREO
SW4
25 MICROSEC
VR1
FM MUTING
SW2
FUNCTION
4551-7415

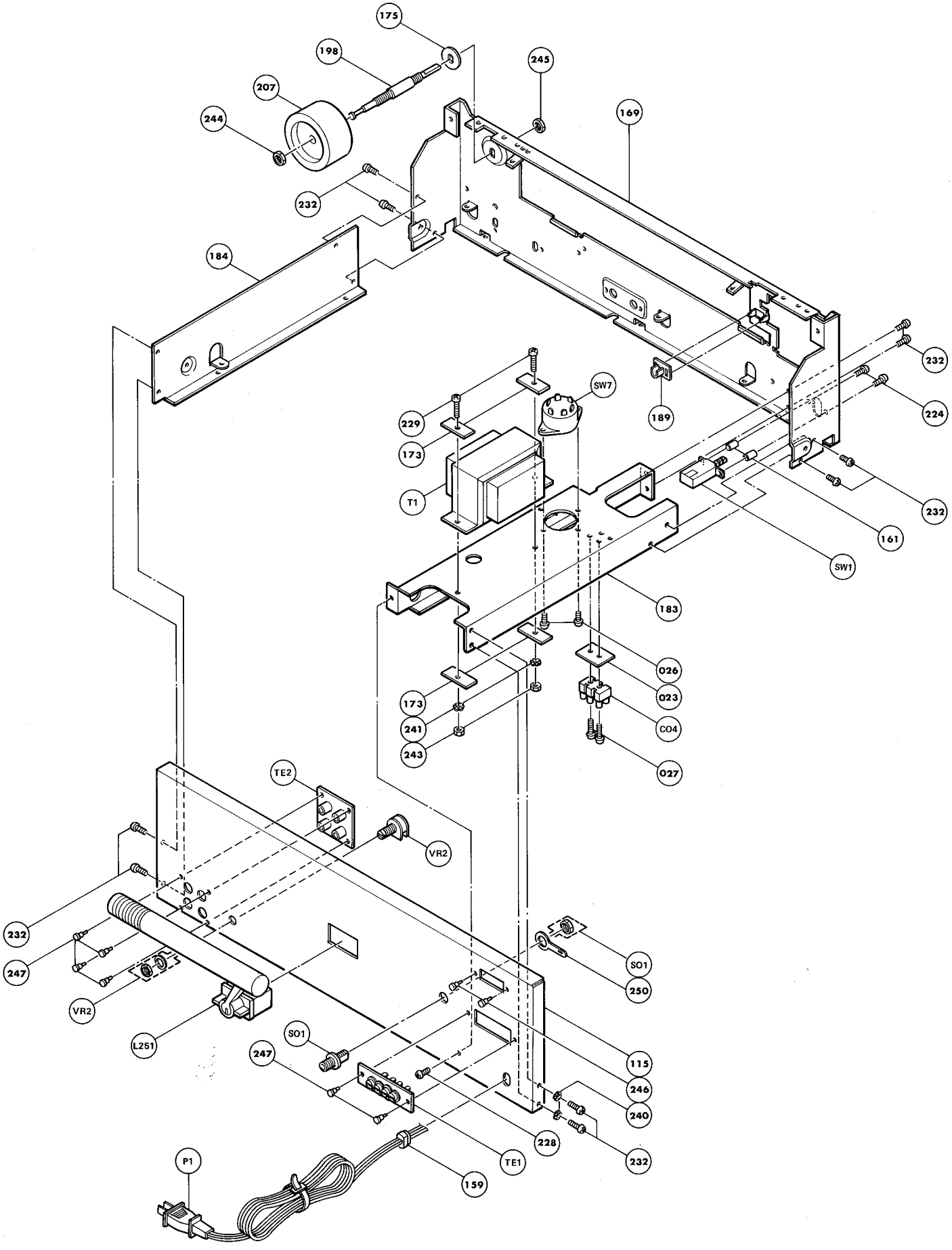
GENERAL UNIT EXPLODED VIEW



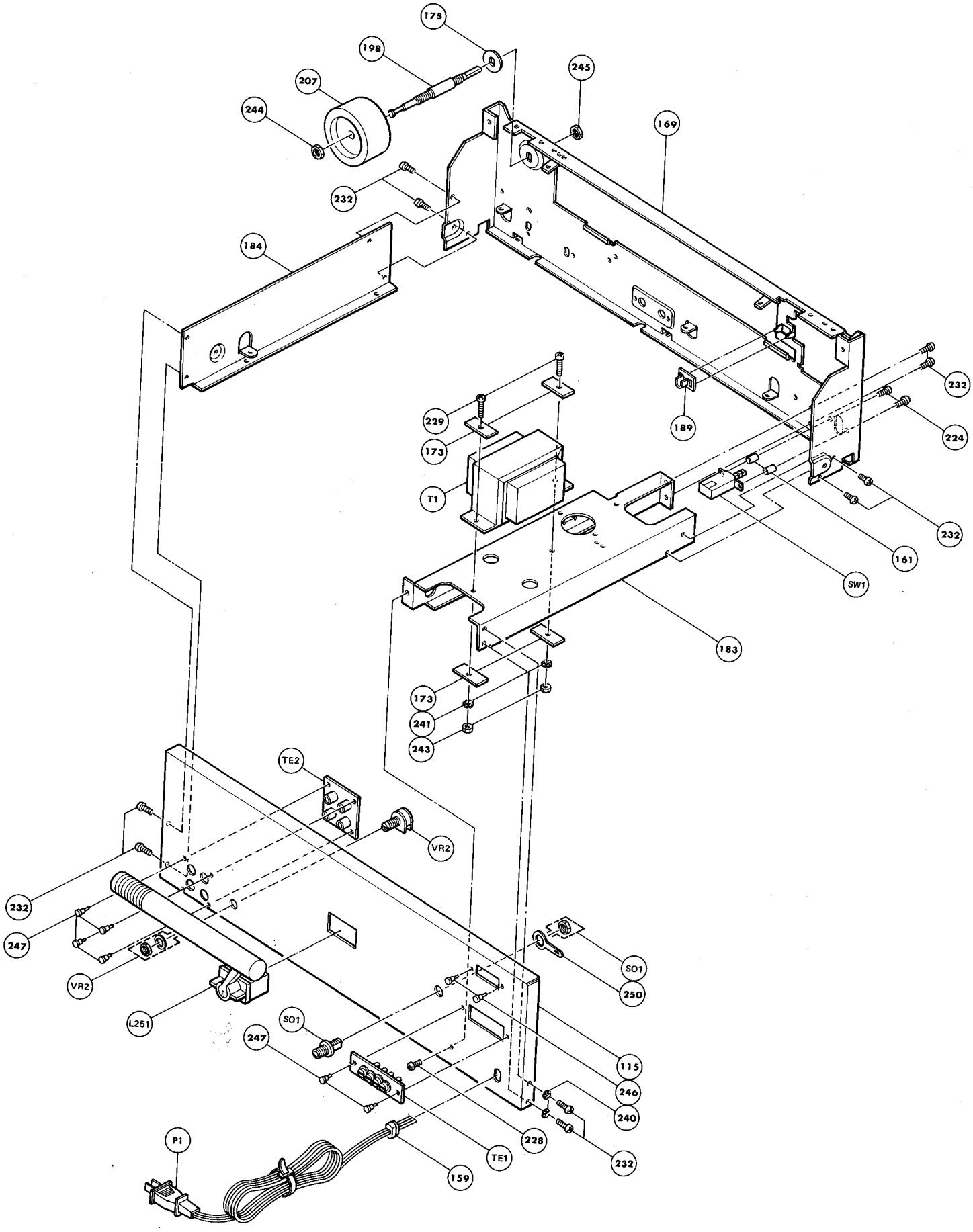
GENERAL UNIT EXPLODED VIEW



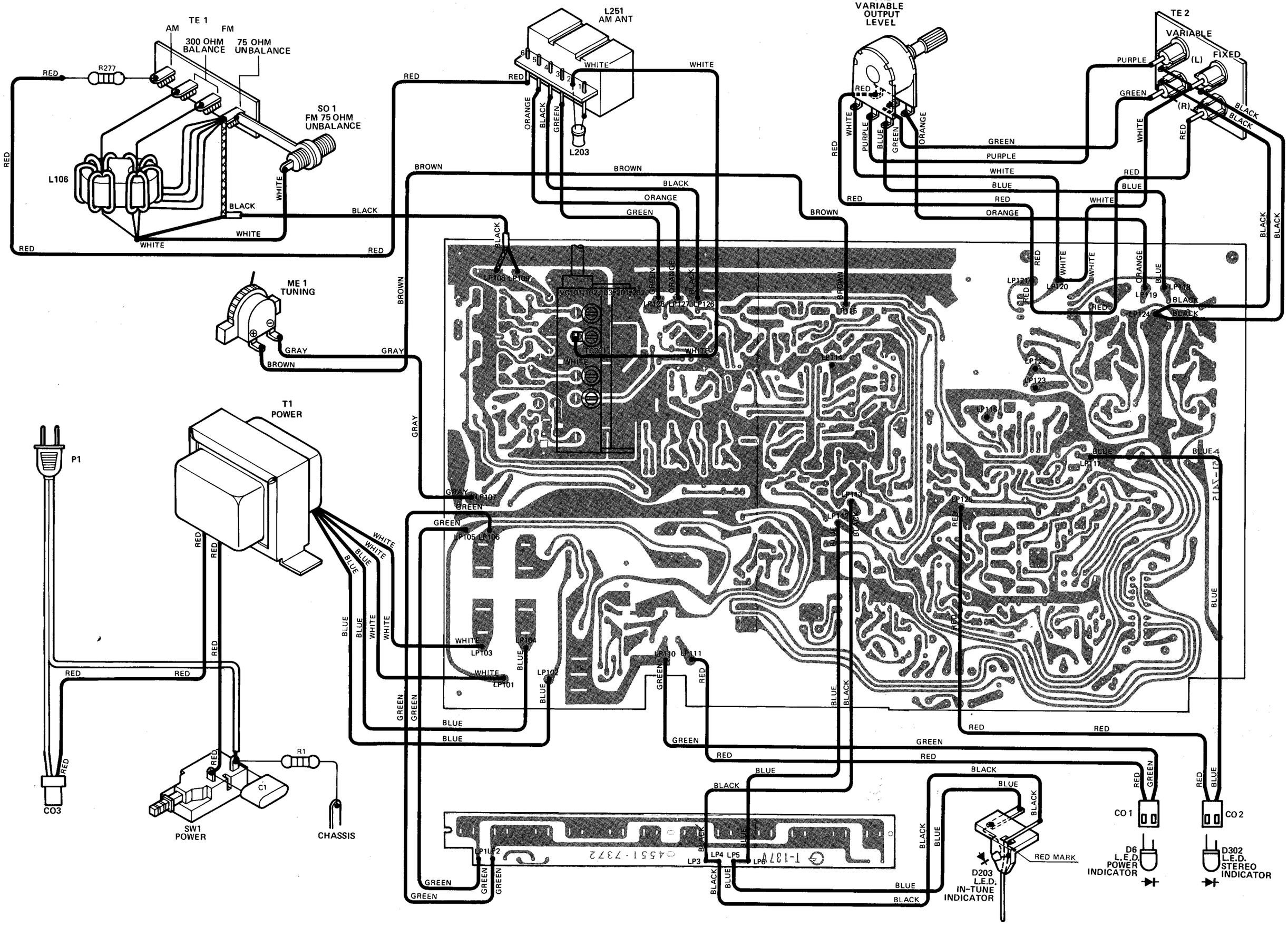
GENERAL UNIT EXPLODED VIEW



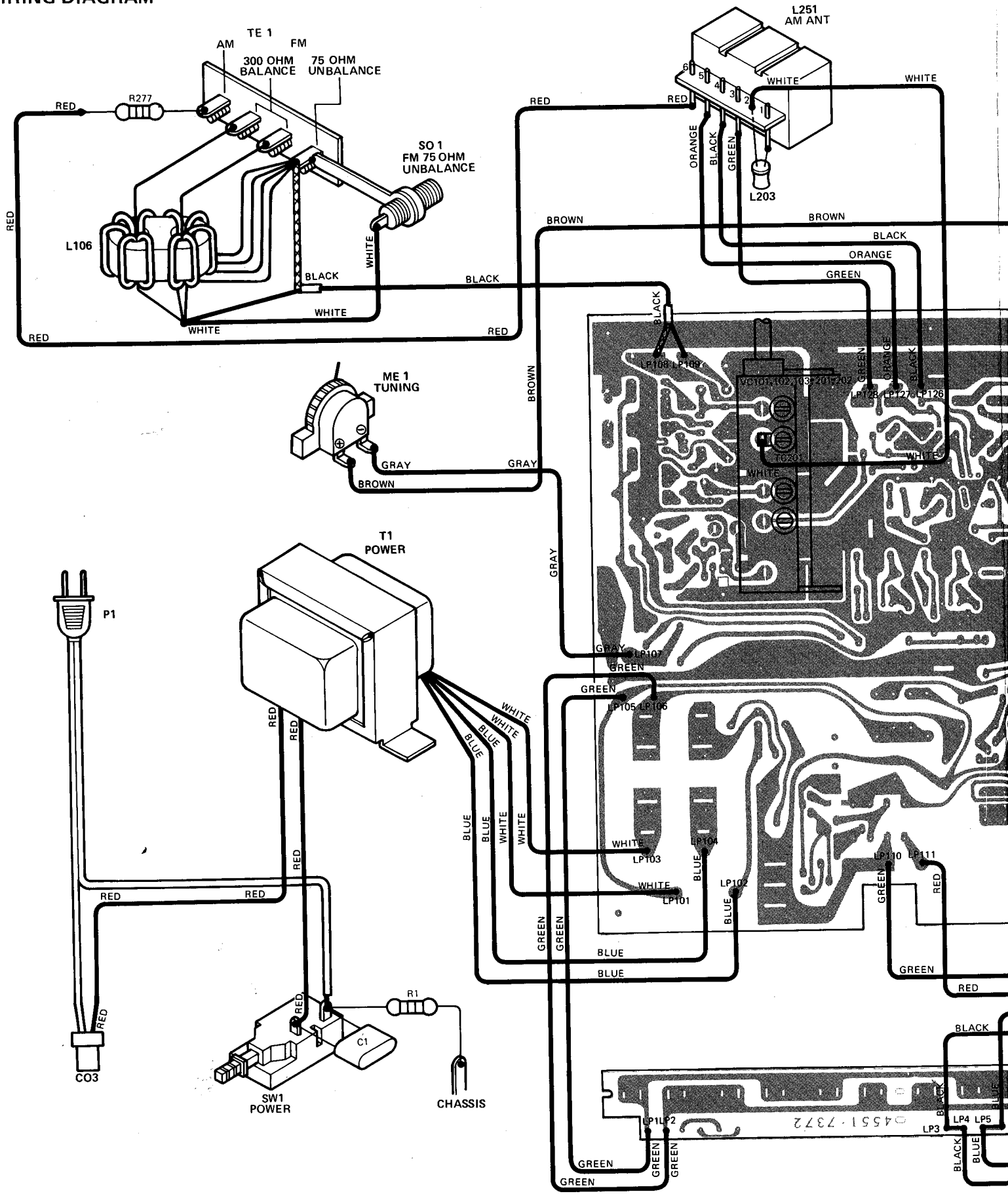
GENERAL UNIT EXPLODED VIEW
MULTI VOLTAGE

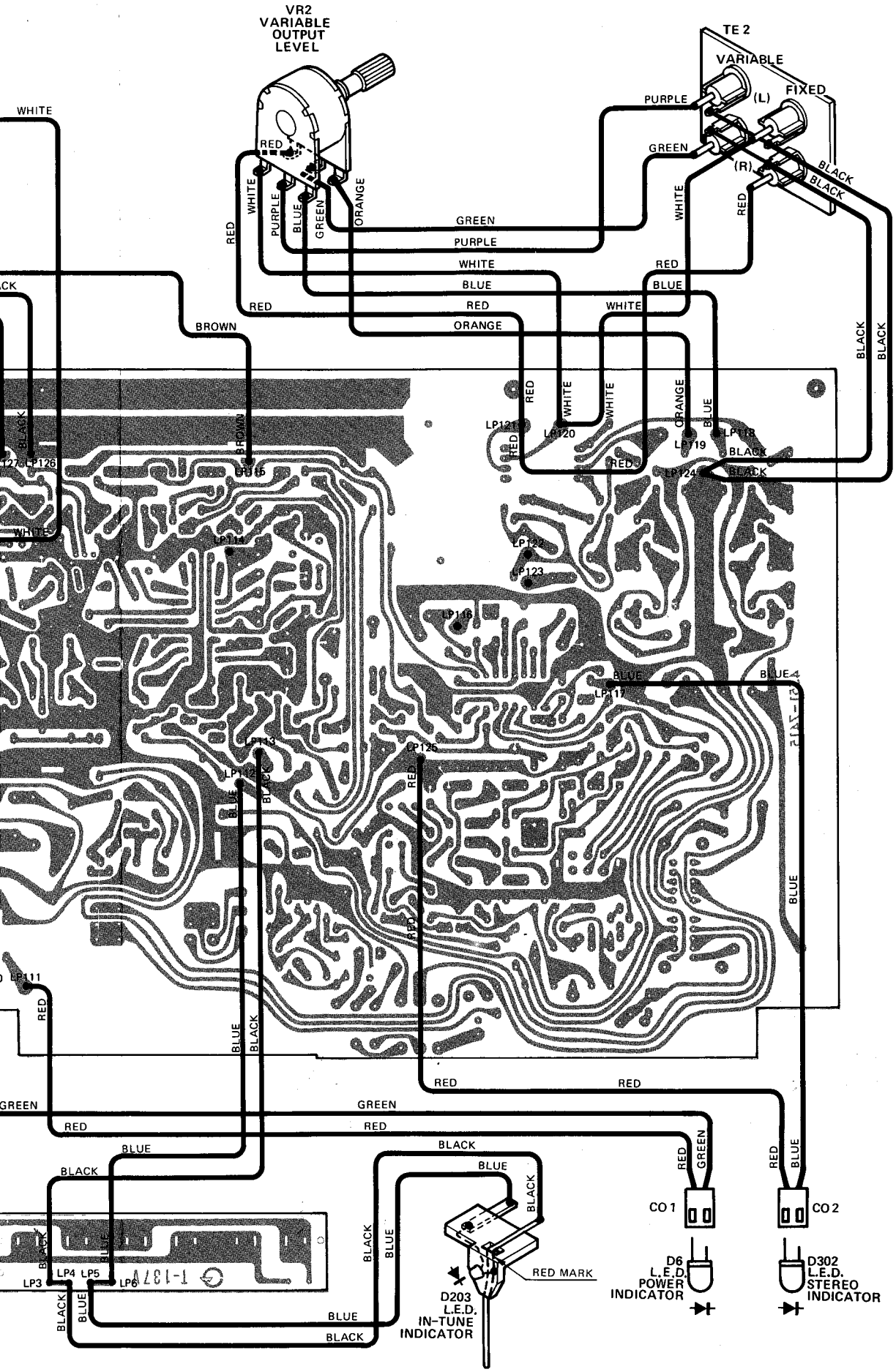


WIRING DIAGRAM

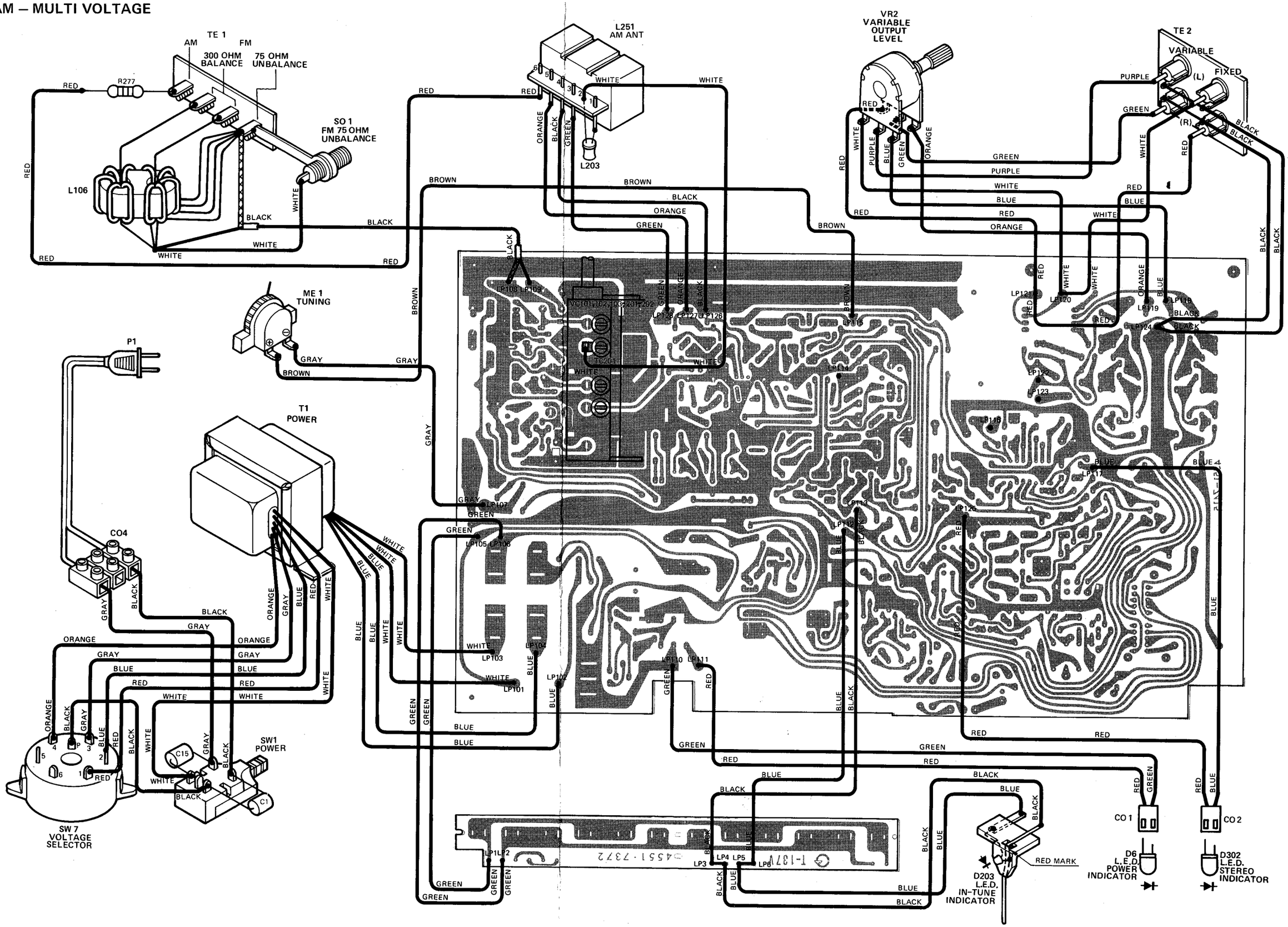


WIRING DIAGRAM

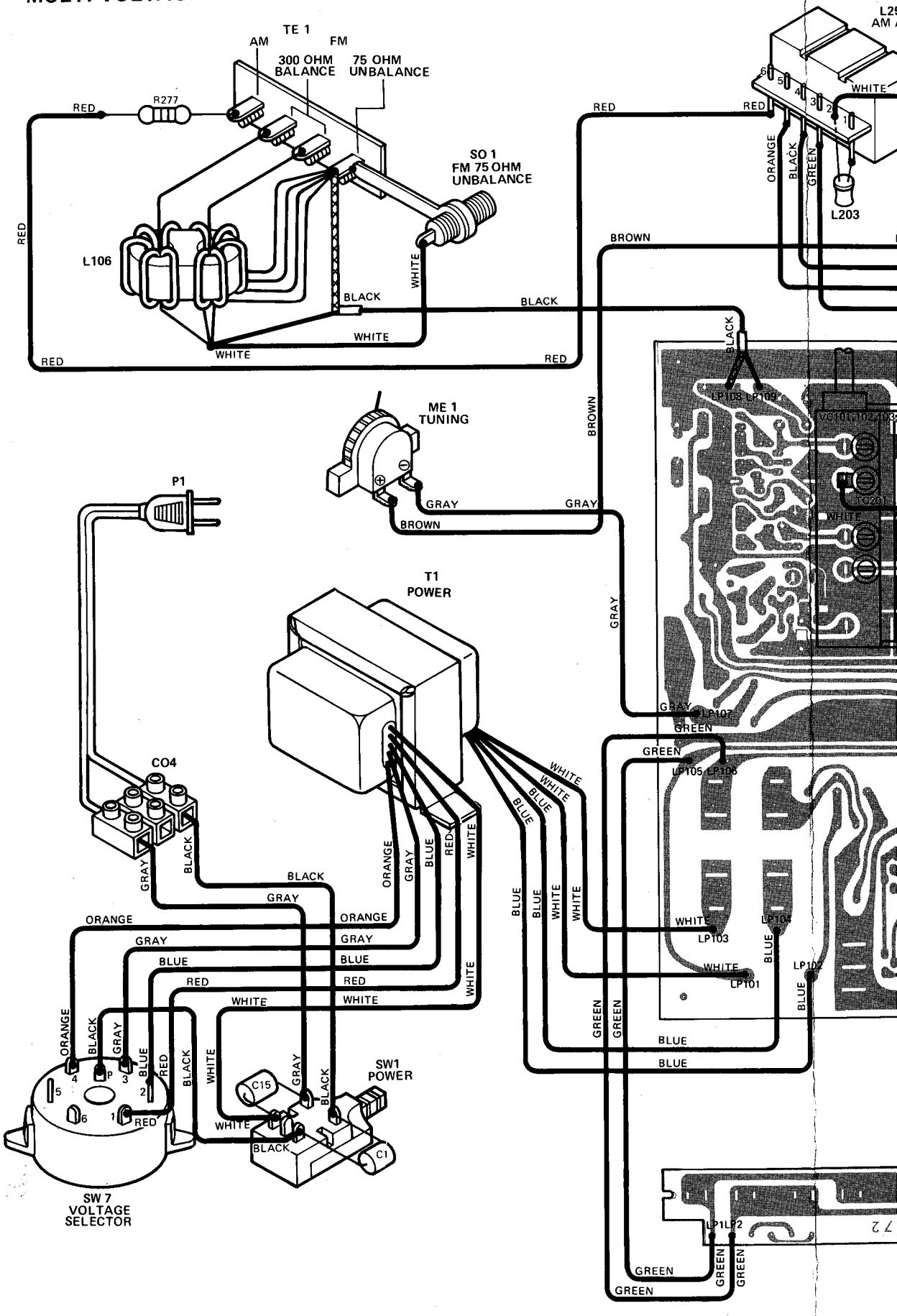


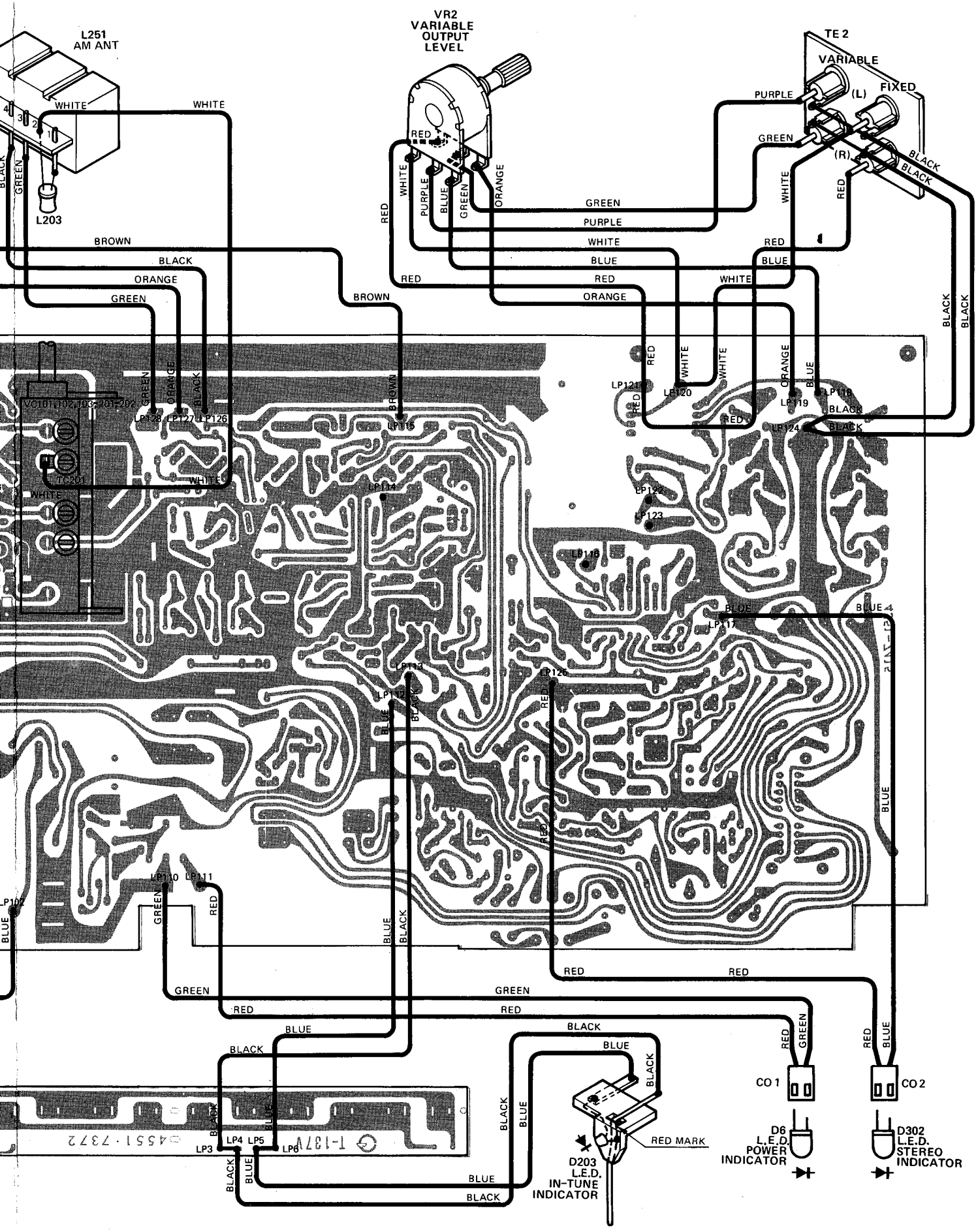

VR2
VARIABLE
OUTPUT
LEVEL
TE 2
VARIABLE
FIXED
(L)
(R)
PURPLE
GREEN
WHITE
RED
BLACK
BLUE
ORANGE
BROWN
LP111
LP112
LP113
LP114
LP115
LP116
LP117
LP118
LP119
LP120
LP121
LP122
LP123
LP124
LP125
LP126
LP127
LP1
LP2
LP3
LP4
LP5
LP6
CO1
CO2
D6
L.E.D.
POWER
INDICATOR
D203
L.E.D.
IN-TUNE
INDICATOR
D302
L.E.D.
STEREO
INDICATOR
RED MARK

WIRING DIAGRAM – MULTI VOLTAGE



WIRING DIAGRAM – MULTI VOLTAGE




L251
AM ANT
L203
VR2
VARIABLE
OUTPUT
LEVEL
TE 2
VARIABLE
FIXED
(L)
(R)
WHITE
BLACK
GREEN
RED
BLUE
PURPLE
ORANGE
BROWN
LP102
LP103
LP104
LP105
LP106
LP107
LP108
LP109
LP110
LP111
LP112
LP113
LP114
LP115
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LP118
LP119
LP120
LP121
LP122
LP123
LP124
LP125
LP126
LP127
LP128
LP1
LP2
LP3
LP4
LP5
LP6
TC201
CO 1
CO 2
D6
L.E.D.
POWER
INDICATOR
D203
L.E.D.
IN-TUNE
INDICATOR
RED MARK
D302
L.E.D.
STEREO
INDICATOR

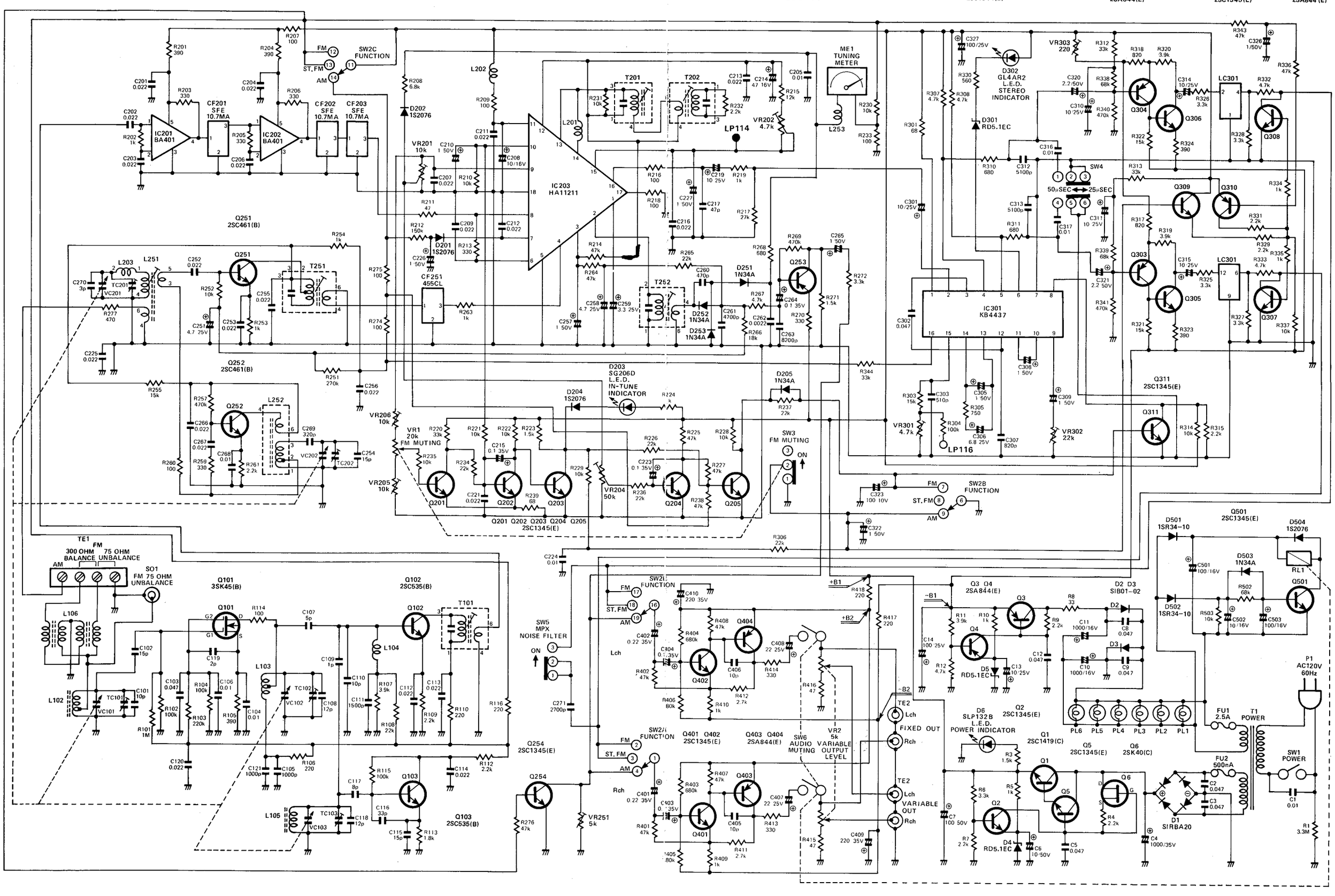
CHASSIS PARTS LIST

CIRCUIT REF.	H/K PART NO.	DESCRIPTION
GENERAL		
101	00235967	Clear Panel Assembly
102	00235968	Cabinet Top Assembly
103	00235969	Front Panel Assembly
104	00235751	Dial Pointer Assembly (includes: In-Tune Indicator (D203))
105	00235752	Knob Assembly, Tuning
115	00235753	Cabinet Back
117	62035544	Feet, Cabinet Bottom (X4)
119	60135754	Dial Panel
121	60135755	Bracket, Clear Panel Receiver
122	60135756	Bracket, Front Panel Right
123	60135757	Bracket, Front Panel Left
138	63235758	Knob, Function
141	63235759	Knob Base, Function/FM Muting (X2)
146	63235760	Knob, FM Muting
151	63235761	Push Button, 25 Microsec/MPX Noise Filter (X2)
152	63233663	Push Button, Power
198	60435762	Tuning Shaft
ELECTRICAL		
RESISTORS (All resistors 1/4 W, ±5% Carbon unless otherwise noted)		
VR1	23535763	Variable Resistor, 20 k ohm, FM Muting (w/SW3)
VR2	23535764	Variable Resistor, 5 k ohm, Variable Output Level
VR201, 205, 206	23535766	Variable Resistor, 10 k ohm
VR202	23535567	Variable Resistor, 4.7 k ohm
VR204	23535568	Variable Resistor, 50 k ohm
VR251	23535765	Variable Resistor, 5 k ohm
VR301	23530554	Variable Resistor, 4.7 k ohm
VR302	23531305	Variable Resistor, 22 k ohm
VR303	23532130	Variable Resistor, 220 ohm
CAPACITORS, ELECTROLYTIC		
C4	31835766	1000MF +50% −10% 35V
C6	31835767	10MF +50% −10% 50V
C7	31835768	100MF +50% −10% 50V
C10, 11	31835618	1000MF +50% −10% 16V
C13	31835769	10MF +50% −10% 25V
C14	31835770	100MF +50% −10% 25V
C208	31835573	10MF +50% −10% 16V
C210, 227	31835574	1MF +75% −10% 50V
C214	31835582	47MF +50% −10% 16V
C215, 223	30731310	0.1MF ±20% 35V Tantalum
C219	31835771	10MF +50% −10% 25V
C226	31835574	1MF +75% −10% 50V
C251, 258	31835576	47MF +50% −10% 25V
C257, 265	31835574	1MF +75% −10% 50V
C259	31835578	3.3MF +75% −10% 50V
C264	30731310	0.1MF ±20% 35V Tantalum
C301, 310, 311	31835771	10MF +50% −10% 25V
C305, 308, 309	31832149	1MF ± 20% 50V

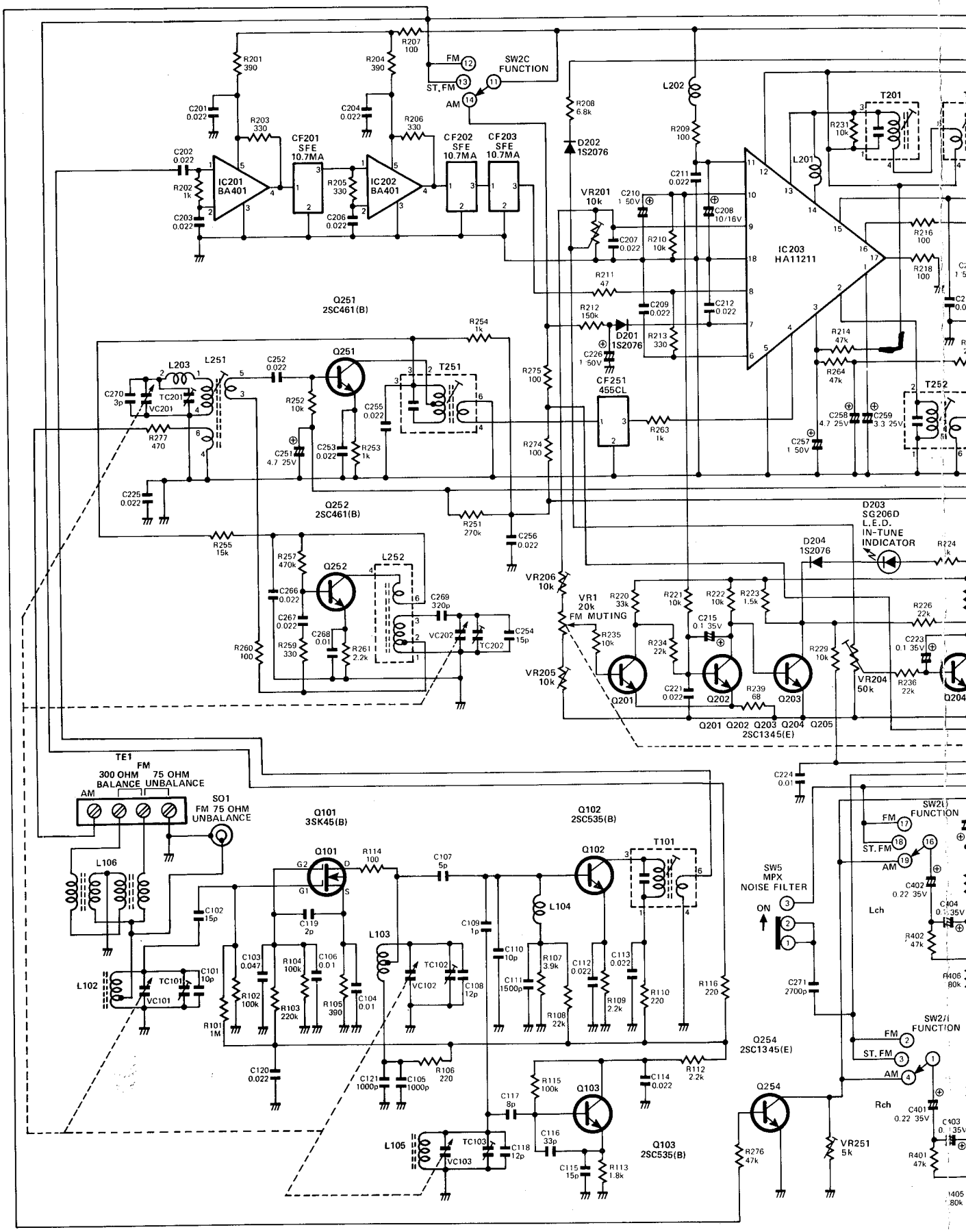
CHASSIS PARTS LIST (CONTINUED)

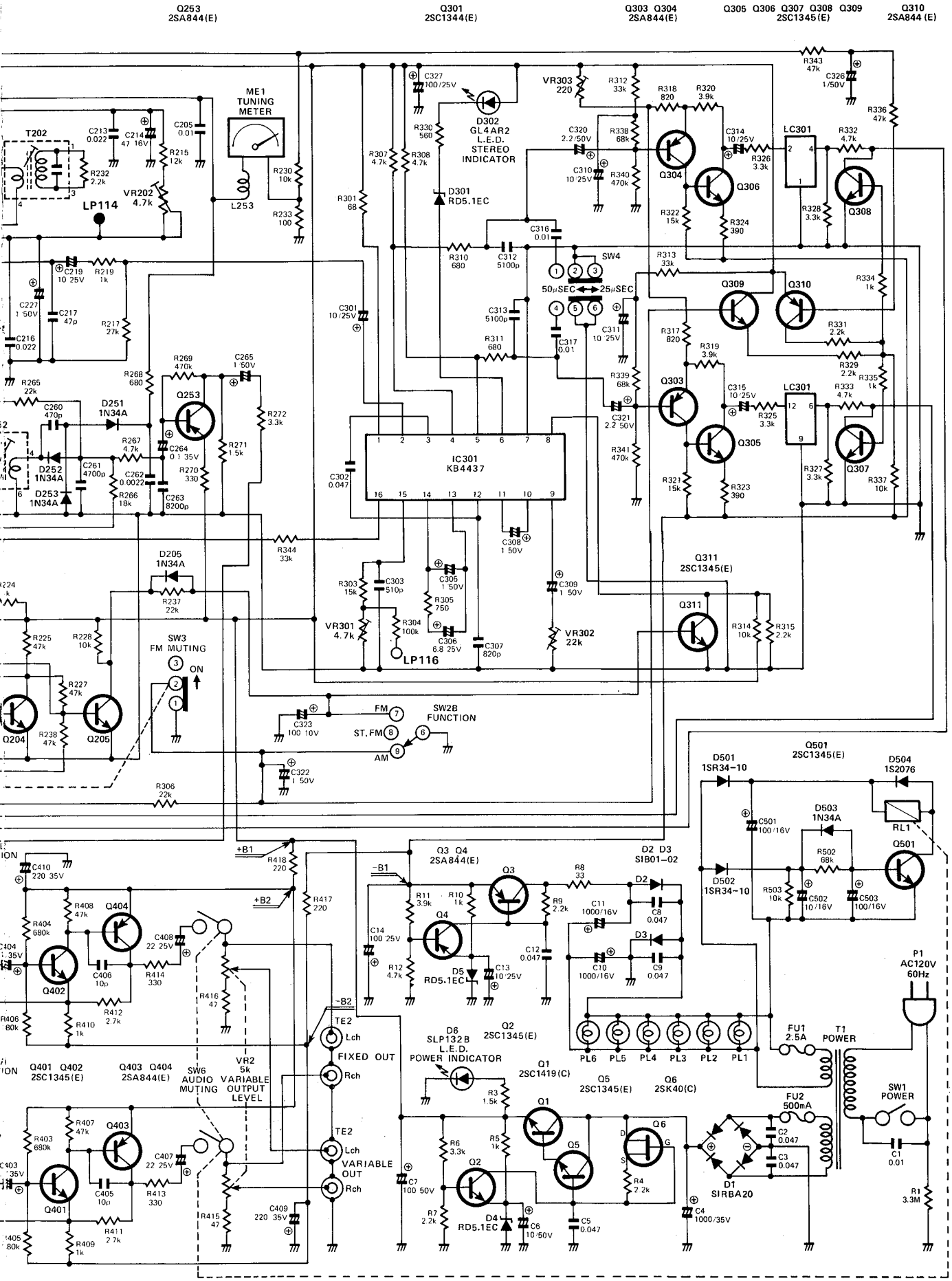
CIRCUIT REF.	H/K PART NO.	DESCRIPTION
CAPACITORS, ELECTROLYTIC		
C306	31835772	6.8MF ±20% 25V
C314, 315	31835773	10MF ±20% 25V
C320, 321	31835657	2.2 MF ±20% 25V
C322	31835574	1MF +75% –10% 50V
C323	31835619	100MF +50% –10% 10V
C326	31835574	1MF +75% –10% 50V
C401, 402	31835774	0.22MF ±20% 35V Tantalum
C403, 404	30731310	0.1MF ±20% 35V Tantalum
C407, 408	31835656	22MF +50% –10% 25V
C409, 410	31835775	220MF +50% –10% 35V
C501, 503	31835718	100MF +50% –10% 16V
C502	31835573	10MF +50% –10% 16V
VC101, 102, 103 201, 202	00335589	Variable Capacitor (w/Trimmers TC101, 102, 201, 202)
TRANSISTORS		
Q1	43035776	2SC1419(C) Voltage Regulator
Q2, 5	43029483	2SC1345(E) Voltage Control, Voltage Regulator
Q3, 4	43031312	2SA844(E) Voltage Regulator, Voltage Control
Q6	43035777	F. E. T., 2SK40(C) Constant Current
Q101	43035590	F. E. T., 3SK45(B) FM RF Amp.
Q201, 202, 203 204, 205	43029483	2SC1345(E) In-Tune Indicator Driver, Stereo Indicator Driver
Q251, 252	43035591	2SC461(B) AM Mixer, AM Osc.
Q253	43031312	2SA844(E) AM Output Amp.
Q254	43029483	2SC1345(E) Switch Muting
Q303, 304, 310	43031312	2SA844(E) MPX Output Amp., Switch Muting Driver
Q305, 306, 307 308, 309, 311	43029483	2SC1345(E) MPX Output Amp., FM Muting Switching, Tuning Muting Driver, Mono/Stereo Switching
Q401, 402	43029483	2SC1345(E) Output Amp.
Q403, 404	43031312	2SA844(E) Output Amp.
Q501	43029483	2SC1345(E) Relay Control
IC201, 202	43131313	Integrated Circuit, BA401 FM IF Amp.
IC203	43135593	Integrated Circuit, HA11211 FM IF Amp./ FM Det./AM IF Amp.
IC301	43135778	Integrated Circuit, KB4437 FM Multiplex
D1	42131296	Bridge Silicon Diode, SIRBA20
D2, 3	41631295	Diode, SIB01-02
D4, 5	42035779	Zener Diode, RD5R1EC 5.4 V ± 0.3 V
D6	46735566	Light Emitting Diode, SLP132B Power Indicator
D201, 202, 204	41030552	Diode, 1S2076
D203	46735650	Light Emitting Diode, SG206D In-Tune Indicator
D205	41528591	Diode, 1N34A
D251, 252, 253	41528591	Diode, 1N34A
D301	42035779	Zener Diode, RD4R1EC 5.4V ± 0.3V
D302	46735561	Light Emitting Diode, GL4AR2 Stereo Indicator
D501, 502	41035705	Diode, 1SR34-10
D503	41528591	Diode, 1N34A
D504	41028593	Diode, 1S2076

SCHEMATIC DIAGRAM — MODEL hk 500



SCHEMATIC DIAGRAM — MODEL hk 500

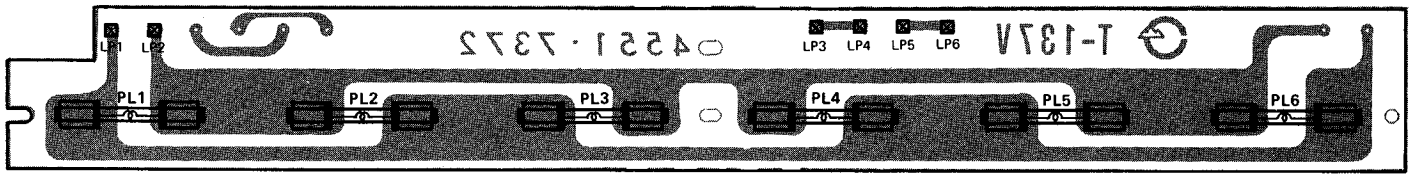



Q253 2SA844(E)
Q301 2SC1344(E)
Q303 Q304 2SA844(E)
Q305 Q306 Q307 Q308 Q309 2SC1345(E)
Q310 2SA844(E)
ME1 TUNING METER
T202
LP114
VR202 4.7k
L253
D302 GL4AR2 L.E.D. STEREO INDICATOR
D301 RD5.1EC
VR303 220
SW4
50μSEC ↔ 25μSEC
LC301
IC301 KB4437
D251 1N34A
D252 1N34A
D253 1N34A
D205 1N34A
Q253
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q310
Q311 2SC1345(E)
VR301 4.7k
VR302 22k
LP116
SW3 FM MUTING
ON
SW2B FUNCTION
FM
ST, FM
AM
Q204
Q205
Q311
+B1
+B2
-B1
-B2
Q3 Q4 2SA844(E)
D2 D3 SIB01-02
Q401 Q402 2SC1345(E)
Q403 Q404 2SA844(E)
SW6 AUDIO MUTING
VR2 5k VARIABLE OUTPUT LEVEL
TE2
Lch
FIXED OUT
Rch
VARIABLE OUT
D6 SLP132B L.E.D. POWER INDICATOR
Q1 2SC1419(C)
Q2 2SC1345(E)
Q5 2SC1345(E)
Q6 2SK40(C)
D4 RD5.1EC
D5 RD5.1EC
D1 SIRBA20
Q501 2SC1345(E)
D501 1SR34-10
D502 1SR34-10
D503 1N34A
D504 1S2076
RL1
P1 AC120V 60Hz
FU1 2.5A
FU2 500mA
T1 POWER
SW1 POWER
PL1
PL2
PL3
PL4
PL5
PL6

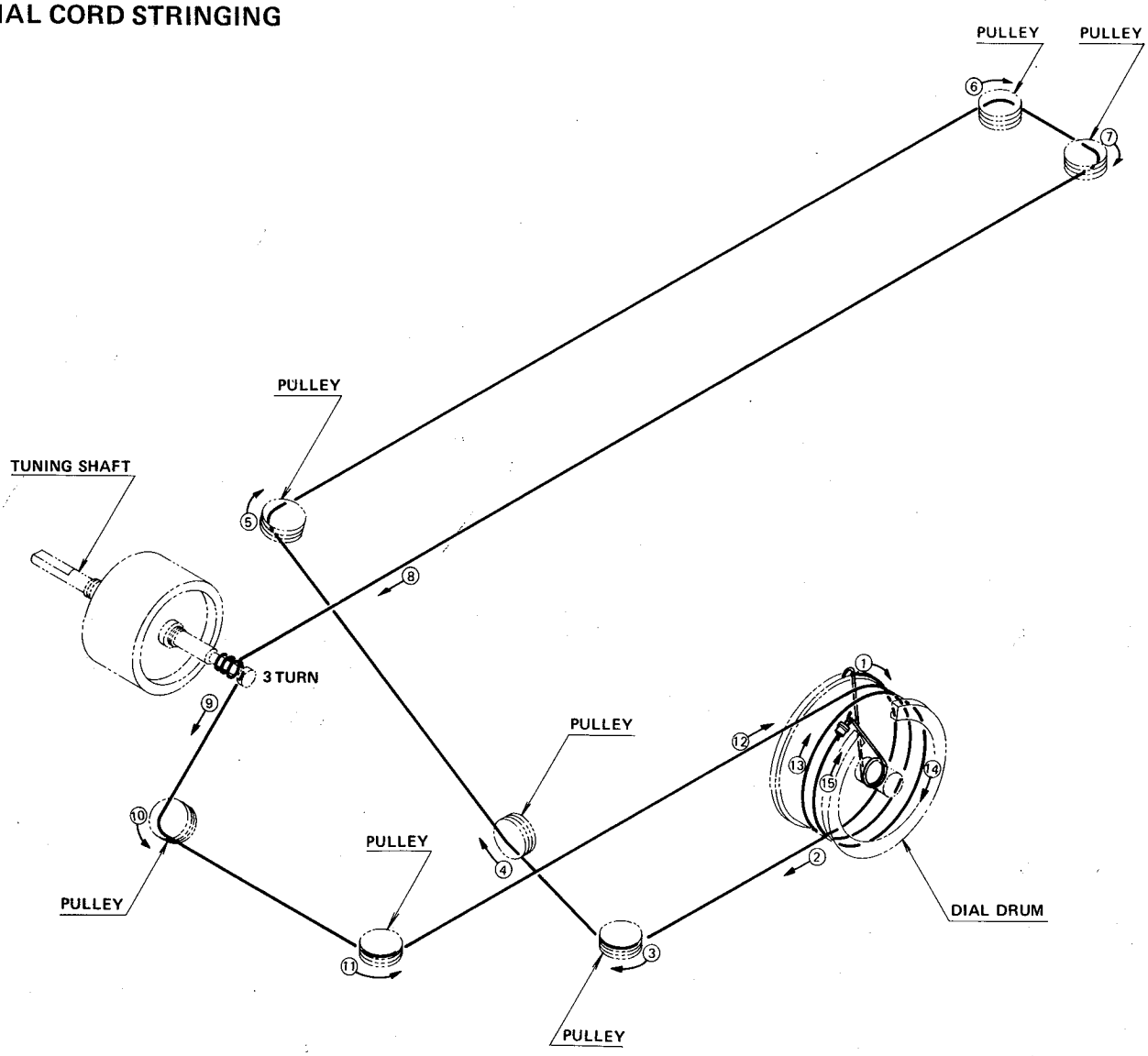
CHASSIS PARTS LIST (CONTINUED)

CIRCUIT REF.	H/K PART NO.	DESCRIPTION
COILS		
L102	12035597	FM RF
L103	12035598	FM RF
L104	12034838A	FM IF Trap
L105	12033599	FM Osc.
L106	12031333	FM RF Balun
L201	12035600	Phase Shifter
L202, 203	12035596	Bypass Filter, RF Choke
L251	20535562	AM Ferrite Bar Antenna
L252	12035602	AM Osc.
L253	12035603	RF Choke
TRANSFORMERS		
T1	10135848	Power
T101	11035604	FM IF
T201	11035605	Quadrature Det.
T202	11035606	Quadrature Det.
T251	11035607	AM IF
T252	11035608	AM IF
MISCELLANEOUS		
CF201, 202, 203	12035609	Ceramic Filter, FM IF
CF251	12035610	Ceramic Filter, AM IF
LC301	12035611	L. C. Component, Low Pass Filter
RL1	13035849	Relay (w/SW6)
SW1	25035554	Push Switch, Power
SW2	24035850	Rotary Slide Switch, Function Selector
SW4, 5	25035851	Push Switch, 25 Microsec/MPX Noise Filter
ME1	12535555	Meter, Tuning
SO1	65433248	Socket, FM 75 ohm External Antenna
TE1	65129519	Terminal, FM/AM External Antenna
TE2	65435670	4-Pin Jack, Fixed Output/Variable Output
FU1	45035852	Fuse, 2.5A 125V
FU2	45035853	Fuse, 500mA 125V
PL1, 2, 3, 4, 5, 6	45632169	Lamp, Dial Illuminator 8V 300mA
	66035035	Fuse Holder, Fuse (X4) Lamp (X12)
MULTI VOLTAGE RECEIVER		
T1	10135854	Power Transformer
SW1	25035635	Push Switch, Power
FU1	45035638	Fuse, 2.5AT 250V
FU2	45035855	Fuse, 500mAT 250V
	25035926	Fuse Holder for FU1, 2, (X4)
SW7	24031338	Rotary Switch, Power Source Voltage Selector
SW8	24531335	Slide Switch, Emphasis

DIAL ILLUMINATOR PC BOARD



DIAL CORD STRINGING



Start stringing with variable capacitor in closed position.