SERVICE MANUAL

FISHER

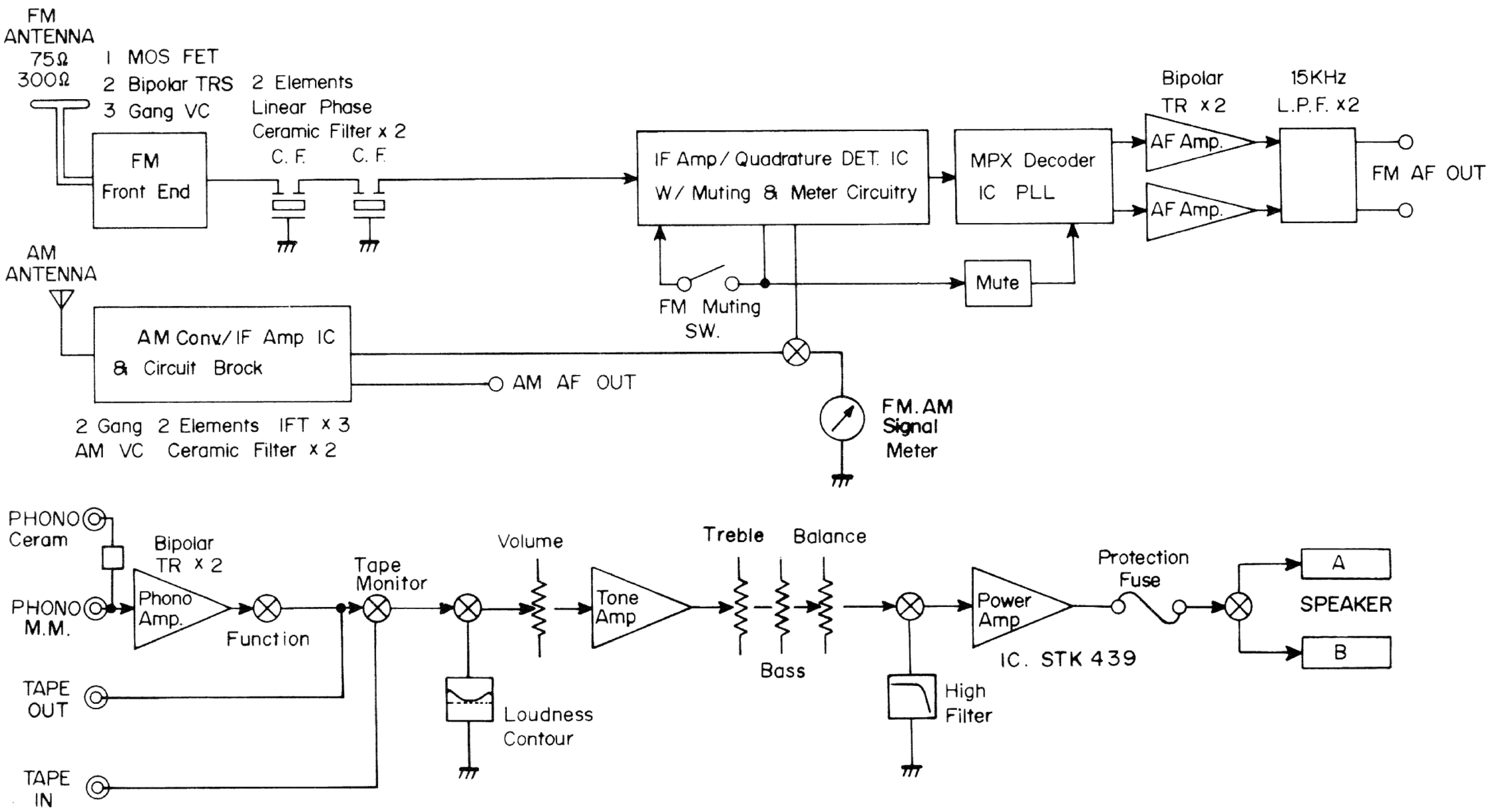
MC-2100

Stereo Receiver

The first name in high fidelity

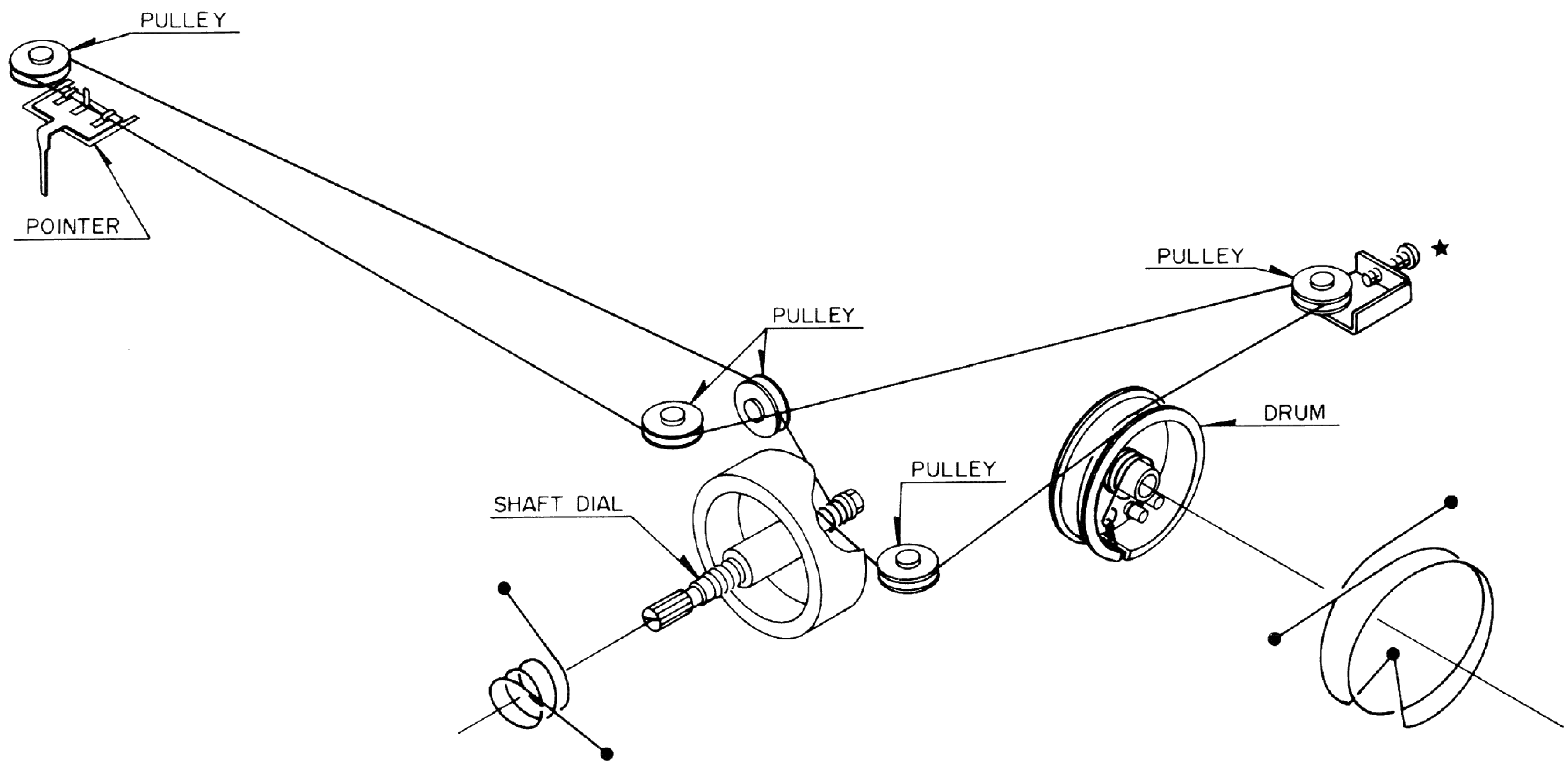
U.S.

FUNCTIONAL BLOCK DIAGRAM



DIAL CORD STRINGING

★ Adjustment screw of dial cord tension.



Nominal Specifications for Information Only.

RECEIVER		MC-2100
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.		12 W x 2
Power Bandwidth		60 Hz/20 kHz
Total Harmonic Distortion		1 %
PREAMPLIFIER SECTION Input Sensitivity and Indedance At rated output, 8-ohm at 1 kHz Phono Magnetic		2.5 mV/50k ohm
Phono Ceramic		300 mV/700k ohm
Tape Monitor		150 mV/100k ohm
Hum & Noise (below rated output) Phono (Volume Max.)		70 dB
Volume Minimum		90 dB
Tape Monitor (Volume Max.)		85 dB
Frequency Response Phono Magnetic (30 Hz - 15 kHz)		±2 dB
Phono Ceramic (30 Hz - 20 kHz)		±2 dB
Tape Monitor Input (20 Hz - 20 kHz)		±2 dB
Bass Control Range (at 100 Hz)		±10 dB
Treble Control Range (at 10 kHz)		±10 dB
Loudness Contour (at 30 dB volume attenuation)		+8 dB at 100 Hz +4 dB at 10 kHz
High Filter		–6 dB at 5 kHz
Sepatation (Stereo from Tape Monitor Input)		40 dB
FM TUNER SECTION Usable sensitivity	Mono	2.8 μV/14.1 dBf
	Stereo	5.5 μV/20.0 dBf
50 dB Quieting Sensitivity	Mono	5.0 μV/19.2 dBf
	Stereo	45 μV/38.26 dBf
Capture Ratio		1.0 dB
Alternate Channel Selectivity		50 dB
Image Response Ratio		56 dB
Spurious Response Ratio		80 dB
AM Suppression Ratio		55 dB
Signal-to-Noise Ratio (Mono)		65 dB
Total Harm. Destortion (Mono)		0.3 %
50 dB Quieting Sensitivity T.H.D. 1 kHz (Mono)		0.5 %
Stereo Separation (1 kHz/10 kHz)		40/30 dB
Sub-Carrier Product Ratio (19/38 kHz)		45/50 dB
AM TUNER SECTION Sensitivity		300 μV/m
Selectivity (±10 kHz)		40 dB
Singal-to-Noise Ratio		50 dB at 100 mV/m
Image Response Ratio		45 dB
IF Response Ratio		45 dB
GENERAL SECTION Power Requirements		120 V AC/60 Hz
Power Consumption		75 W
Dimensions H x W x D	(inches)	17-1/8" x 11" x 4-7/8"
Weight	(ibs.)	11.48

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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-ohm, 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 to OFF

FUNCTION switch to FM AUTO

LOUDNESS CONTOUR OFF (not depressed)

HIGH FILTER OFF (not depressed)

TAPE MONITOR SOURCE (Not depressed)

VOLUME control to MINIMUM position

LEFT CHANNEL DRIVEN

ONE CHANNEL DRIVEN:

1) Connect a low distortion audio generator to LEFT TAPE 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 turn VOLUME control to MAX.
4) Increase generator output for MC-2100 (12W RMS 9.8V across the 8-ohm load).

   Harmonic Distortion Analyzer should measure 1.0% 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. Adjust generator output and "BALANCE" control for MC-2100: 12W at Left and Right Channels (MC-2100: 9.8V) across the 8-ohm loads.
Harmonic Distortion Analyzer should measure MC-2100 1.0% 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.

Removal of Front Panel Assembly

1. Remove all Knobs with the exception of push buttons.
2. Remove 7 screws from top and bottom of panel.
3. Separate Front Panel Assembly from chassis.

Removal of Meters

1. Remove 2 screws 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.

Removal of FM Stereo Indicator Lamps

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

Removal and Replacement of Dial Lamps

1. Remove Dial P.C. Board from Lamp Cover with two flaps straight.
2. Grasp Dial Lamp and extract from lamp grommet holder.

Testing and troubleshooting any of the P.C. Boards do 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 EQ & Terminal P.C. Board

1. Remove 2 screws from Cover Shield.
2. Remove 6 screws from accessory Jacks and antenna connector of P.C. Board.
3. Unsolder wire wraps from terminals.

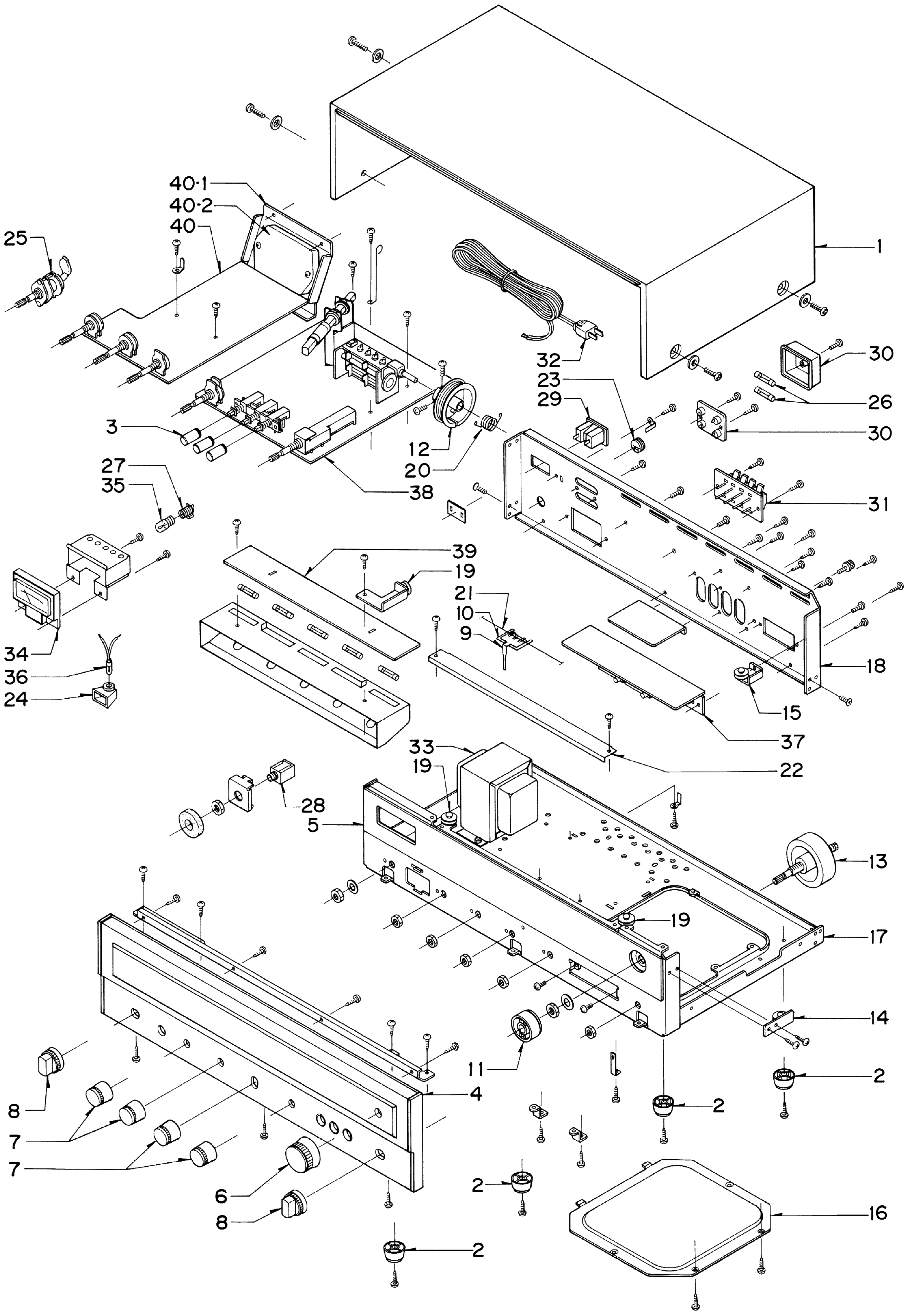
Removal of RF-IF/MPX & Switch P.C. Board

1. Unscrew 2 screws from drum. (Do not remove dial string from Drum).
2. Remove 2 nuts from Volume and Function.
3. Remove 2 screws from 3 push button switch.
4. Remove 3 screws from P.C. Board.
5. Unsolder wire wraps from terminals.

Removal of Power Amp P.C. Board

1. Remove 2 screws from hardware.
2. Remove 2 screws holding Power IC (STK439).
3. Remove 3 nuts from variable resistors.
4. Remove 2 screws from P.C. Board.
5. Unsolder wire wraps from terminals.

CABINET AND CHASSIS EXPLODED VIEW



PARTS LIST

PACKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1139 67900	Box Corrugate-EXP
	131 6 2119 01441	Bag Polyethylene-EXP
	131 6 3009 25630	Pad (Right & Left)
	131 6 3069 16220	Patching Sheet

ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	4 2349 20191	Fuse 2A (Slow Blow)
	4 2449 20230	Antenna FM
	131 6 2719 10801	Bag Fan (Explanatory Book)
	131 6 2719 11206	Bag fan, (Fuse)
	131 6 4119 65000	Explanatory Booklet
	131 6 4159 23200	Notes (SP Connection)
	131 6 4159 23400	Notes (Line Cord Tag)
	131 6 4319 10802	Service Station List
	131 6 4519 14400	Guarantee Card

CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	131 2 1101 37300	Cabinet
2	131 2 1801 13200	Leg

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
3	131 0 1001 31601	Knob Assy (Push Switches)
4	131 0 1016 28100	Dress Panel Assy
5	131 2 1201 31300	Plate Dial
6	131 2 1601 35101	Knob (Tuning)
7	131 2 1601 41201	Knob (Volume, Tone, Balance)
8	131 2 1601 41401	Knob (Function, Power, Speaker)
9	131 2 4101 20000	Pointer
10	131 2 5205 12701	Cushion (Pointer)
11	131 2 6113 27801	Shelter (Shaft Dial Assy)

CHASSIS PARTS LIST

Ref. No.		Parts Number	Description
12		131 0 3002 11300	Drum Assy (Tuning Gang)
13		131 0 3003 20000	Tuning Shaft Assy
14		131 0 3020 10300	Pulley Assy (Panel Front- Right)
15		131 0 3020 10400	Pulley Assy (Panel Rear-Right)
16	*	131 2 1105 21200	Plate Bottom
17	*	131 2 3301 23700	Chassis
18	*	131 2 3306 26300	Panel Rear
19		131 2 4107 10300	Pulley (Large)
20		131 2 4111 00400	Tension Spring
21		131 2 4112 10200	Dial Cord
22	*	131 2 4120 11400	Slide Rail Pointer
23		131 2 6111 11300	Bushing (Line Cord)
24		131 2 6111 11500	Housing (Stereo Ind.)

ELECTRICAL PARTS LIST

Ref.No.		Parts Number	Description
25		4 2312 00840	Switch Rotary (Speaker & Power)
26		4 2349 20191	Fuse 2A (Slow Blow)
27		4 2352 00010	Pilot Socket
28		4 2352 00030	Jack Headphones
29		4 2359 21960	Socket (AC Outlet)
30		4 2359 22030	Fuse Holder 2P
31		4 2379 21560	Terminal 8P
32	*	4 2439 20720	Line Cord
33		4 2512 01900	Power Transformer
34		4 5112 00060	Meter Signal
35		4 6129 20650	Pilot Lamp (6.3V 0.25A)
36		4 6129 20726	Pilot Lamp (6V 30mA)
37	*	131 0 4001 91900	EQ & Terminal P.C.B. Assy
38	*	131 0 4001 91800	RF-IF/MPX & Switch P.C.B. Assy
39	*	131 0 4001 82100	Dial Lamp P.C.B. Assy
40	*	131 2 4001 92200	Pre & Power Amp P.C.B. Assy
40-1	*	131 2 6201 24900	Plate Heat Sink
40-2		206 5 6750 43910	IC STK-439
C01		C2HYSP103A	Ceramic 0.01 μF 500V +100,–0%
R01,02		R2HCPK185A	Solid 1.8M 1/2W ±10%

NOTE:
* Asterisk indicates not a service part.

FM TUNER-MPX/AM TUNER ALIGNMENT

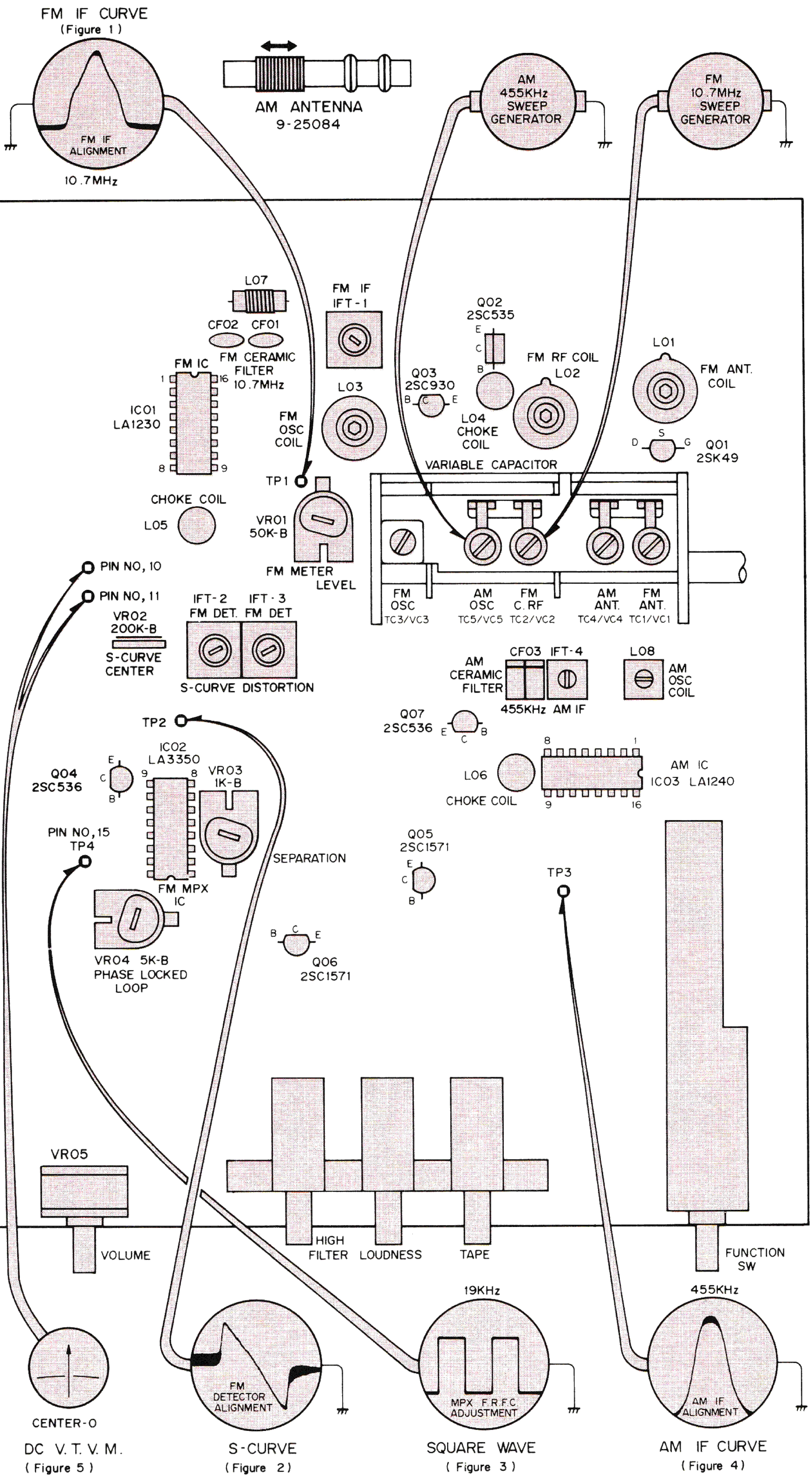
For alignment: Maintain generator output as low as possible for suitable indication.

FM ALIGNMENT	**SELECTOR to FM AUTO, VOLUME MINIMUM.**			
ITEM	**GENERATOR**	**DIAL SETTING**	**INDICATOR**	**PROCEDURE**
1. IF ALIGNMENT	Connect 10.7MHz sweep generator to VC2. Connect ground lead to chassis. Markers are not required.	Position of non-interference.	Scope vertical input to TP1. Connect ground lead to chassis.	Adjust in the following order: IFT-1 for maximum gain and symmetrical shape of curve as shown in FIGURE 1.
2. PRELIMINARY DETECTOR ALIGNMENT	As above	As above	Scope vertical input to TP2. Connect ground lead to chassis.	Adjust IFT-2 for maximum gain and best linearity. Adjust IFT-3 for minimum distortion. See FIGURE 2. NOTE: Harmonic Distortion test must be performed as part of detector alignment.
3. FINAL DETECTOR ALIGNMENT	As above	As above	DC-VTVM input to pin No.-10 and -11.	Adjust VR02 (220k) for center 0 (zero). See FIGURE 5.
4. FRONT END ALIGNMENT		Tuning knob fully counterclockwise		Center dial pointer on starting point. Cement it in place.
5. FRONT END ALIGNMENT (90 MHz)	Connect FM RF generator through two 120-ohm resistors to FM ANT screw terminals. Set generator to 90 MHz, modulate with 400 Hz to provide ±75 kHz deviation. Set generator output attenuator as low as possible.	Center of 90 MHz calibration mark on dial.	Scope vertical input and AC-VTVM to TAPE output jack.	Adjust L01, L02 and L03 (OSC) for maximum gain. Repeat this step as required.
6. FRONT END ALIGNMENT (106 MHz)	Change generator setting to 106 MHz.	Center of 106 MHz calibration mark on dial.	As above	Adjust TC1, TC2 and TC3 (OSC) for maximum gain. Repeat this step as required.
FM MPX ALIGNMENT	**SELECTOR to FM AUTO**			
1. MPX ALIGNMENT PLL IC FO (19 kHz)	None	Position of non-interference.	Connect Frequency counter or synchroscope to pin No. -15.	Adjust VR04 (5k) so that 19 kHz may be indicated on the frequency counter or synchroscope. See FIGURE 3.
2. STEREO SEPARATION	As above Step 6 except modulation. Modulate LEFT channel ±67.5 kHz — 400 Hz audio and ±7.5 kHz — 19 kHz pilot carrier.	As above Step 6.	Scope and AC-VTVM to RIGHT TAPE output jack.	Adjust VR03 (1k) at IC LA3350 for minimum output.
3. STEREO SEPARATION	As above except modulate RIGHT Channel.	As above	Scope and AC-VTVM to LEFT TAPE output jack.	
AM ALIGNMENT	**SELECTOR to AM, VOLUME MINIMUM.**			
1. AM IF	Connect 455 kHz sweep generator to VC5. NOTE: After each adjustment reduce generator output as required.	Position of non-interference.	Scope vertical input to TP3.	Adjust AM 1st IFT-4 for maximum gain and symmetry. See FIGURE 4.
2. AM FRONT END (600 kHz)	Connect standard loop antenna to output terminal of Signal Generator. Place receiver 2 feet from loop antenna. Set to 600 kHz. Modulate with 30%, 1 kHz.	Center of 600 kHz calibration mark on dial.	Scope and AC-VTVM to TAPE output jack.	Adjust AM ANTENNA (9-25084) and AM OSC L08 for maximum.
3. AM FRONT END ALIGNMENT (1400 kHz)	Change frequency to 1400 kHz.	Center of 1400 kHz calibration mark on dial.	As above	Adjust TC4 and TC5 (OSC) for maximum. Repeat steps 2 and 3 until optimum alignment is reached.

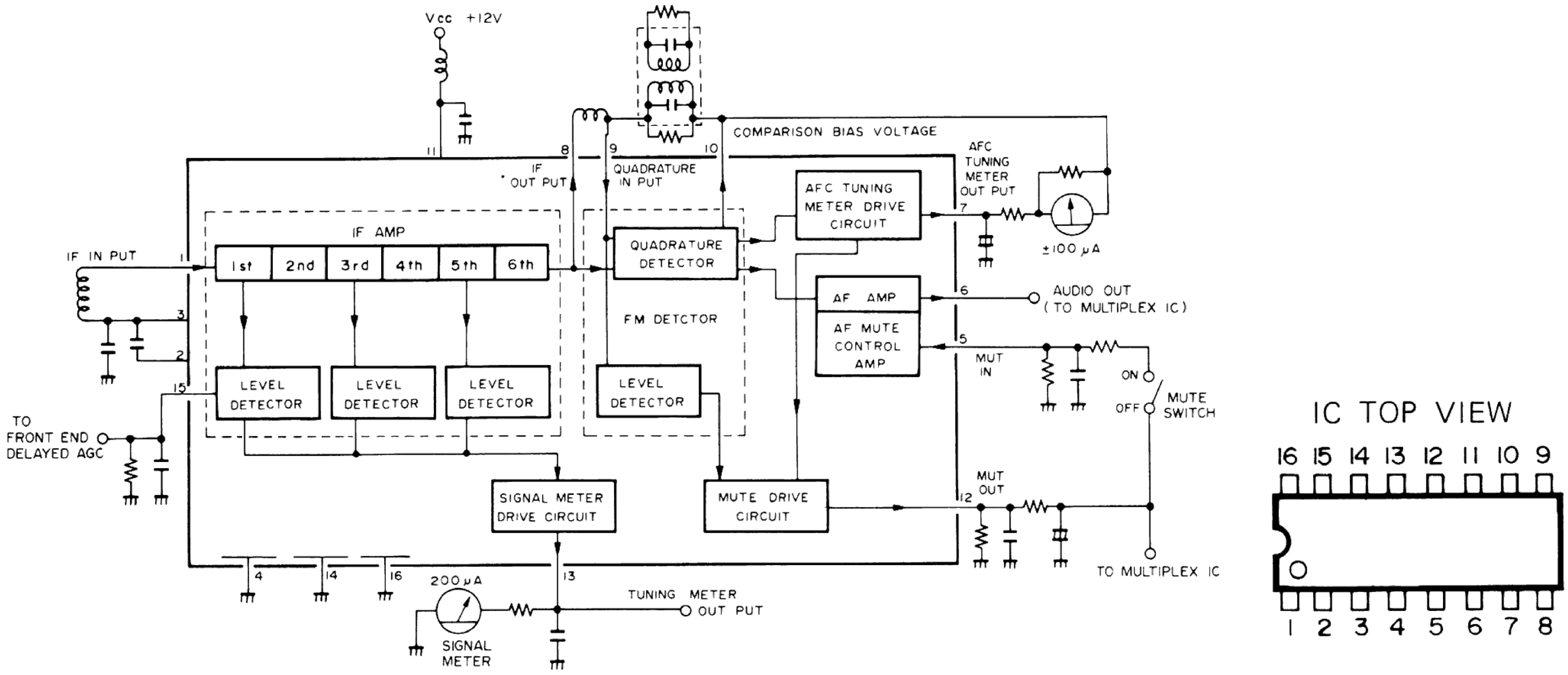
AM-FM RF/IF MULTIPLEX BOARD LAYOUT

WITH OSCILLOSCOPE TIME BASE SETTINGS

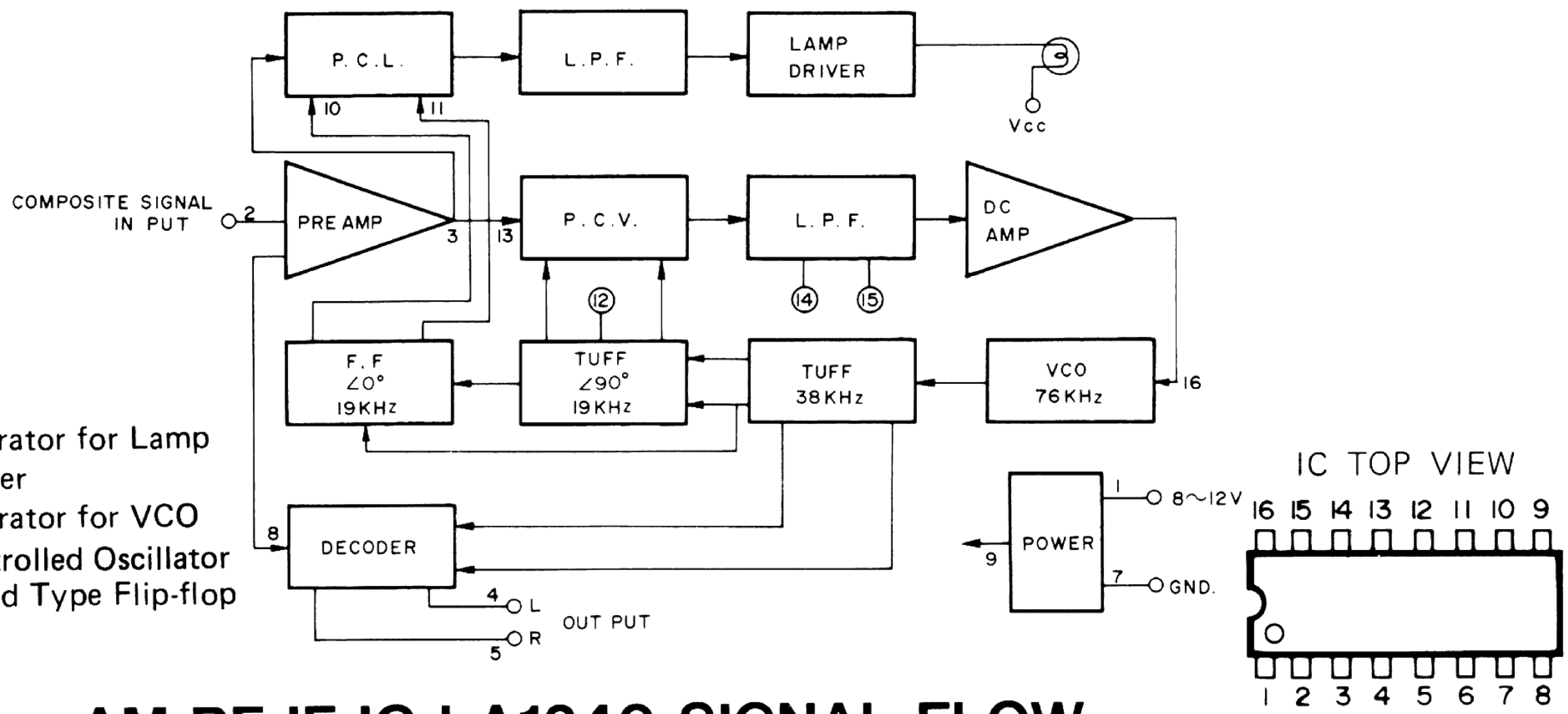
(TOP VIEW)



FM IF IC LA1230 SIGNAL FLOW

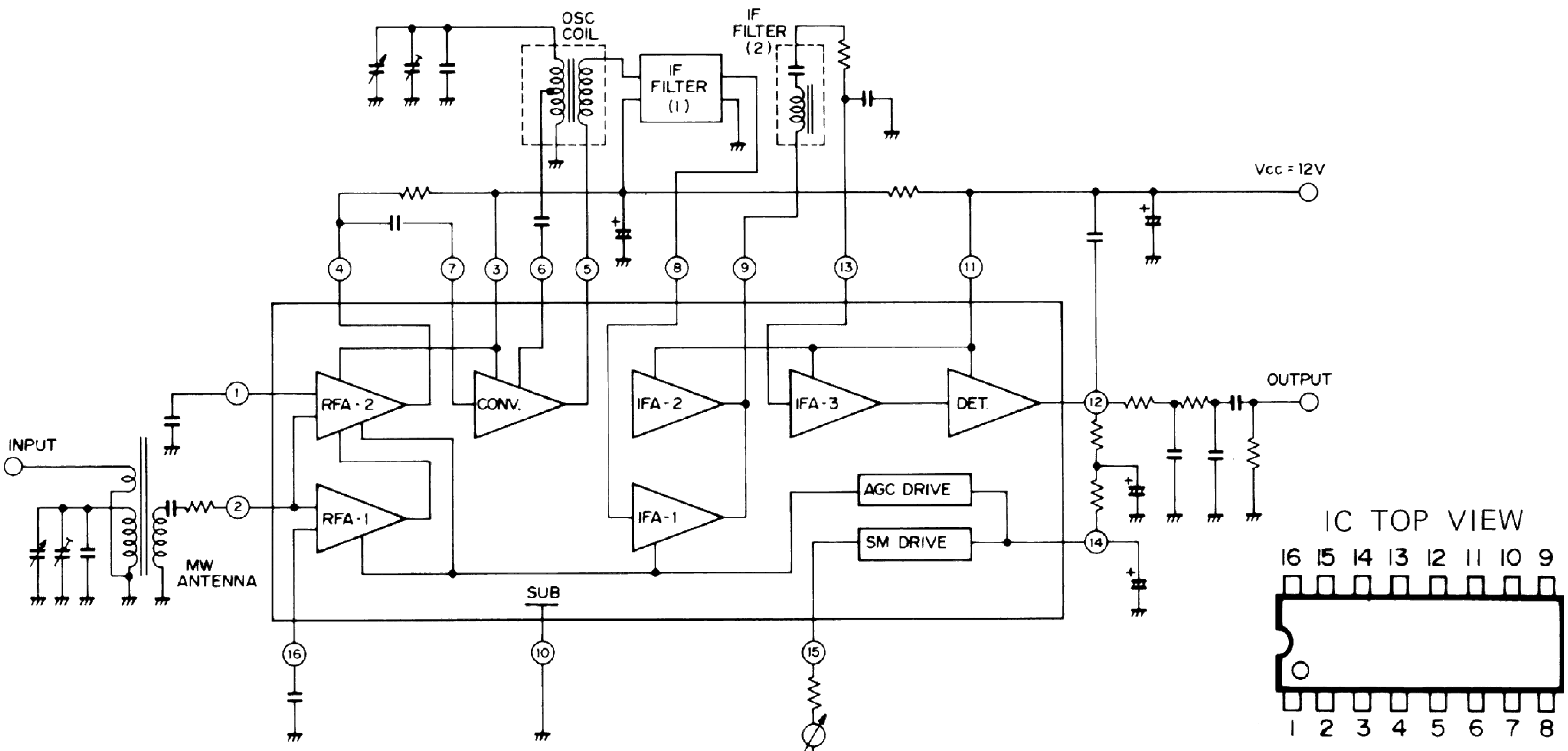


FM MPX IC LA3350 SIGNAL FLOW



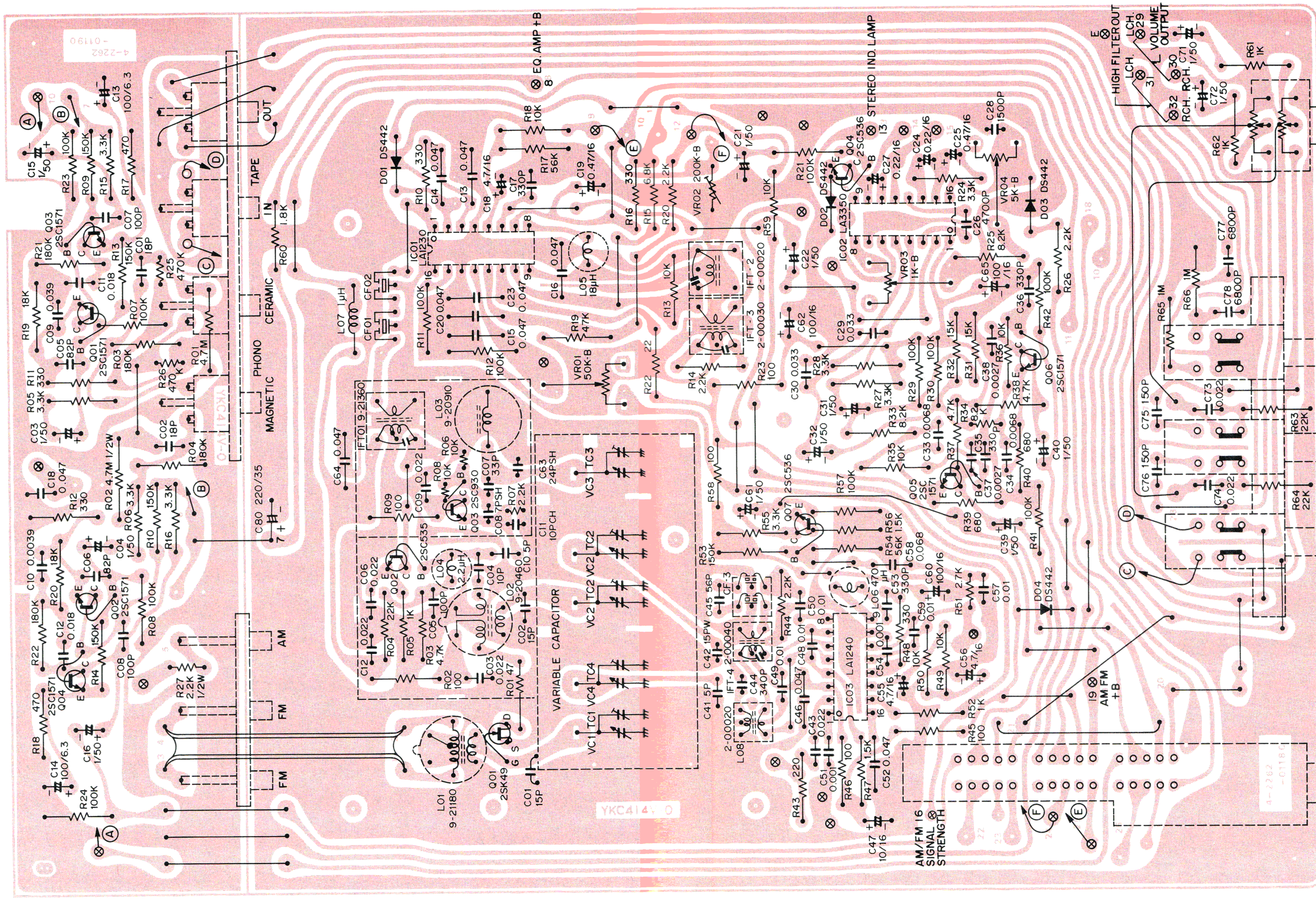
P. C. L. : Phase Comparator for Lamp
L. P. F. : Low Pass Filter
P. C. V. : Phase Comparator for VCO
V C O : Voltage Controlled Oscillator
TUFF : Direct coupled Type Flip-flop

AM RF IF IC LA1240 SIGNAL FLOW

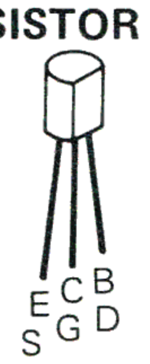


RF-IF/MPX/SWITCH & EQ/TERMINAL P.C.BOARD

(BOTTOM VIEW)



TRANSISTOR FRONT VIEW



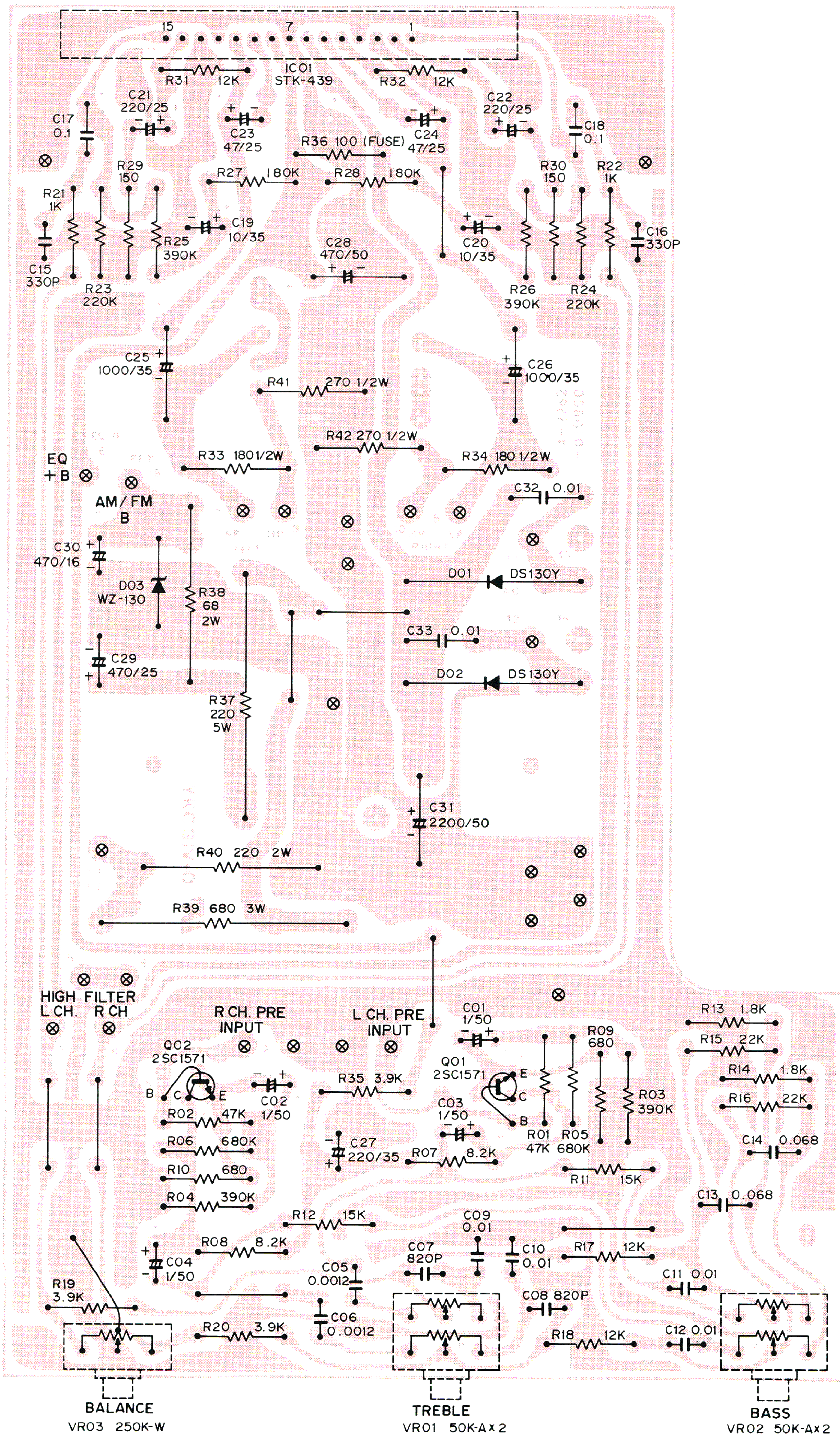
TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q01,02	2SC1571	0.7V	2.4V	0.08V
Q03,04	2SC1571	2.4V	15.7V	1.7V

TRANSISTOR & DC VOLTAGES				
SYMBOL NO.	DEVICE	B,G	C,D	E,S
Q01	2SK49	0.01V	13.9V	–
Q02	2SC535	2.4V	14.2V	1.7V
Q03	2SC930	6.7V	–	6.0V

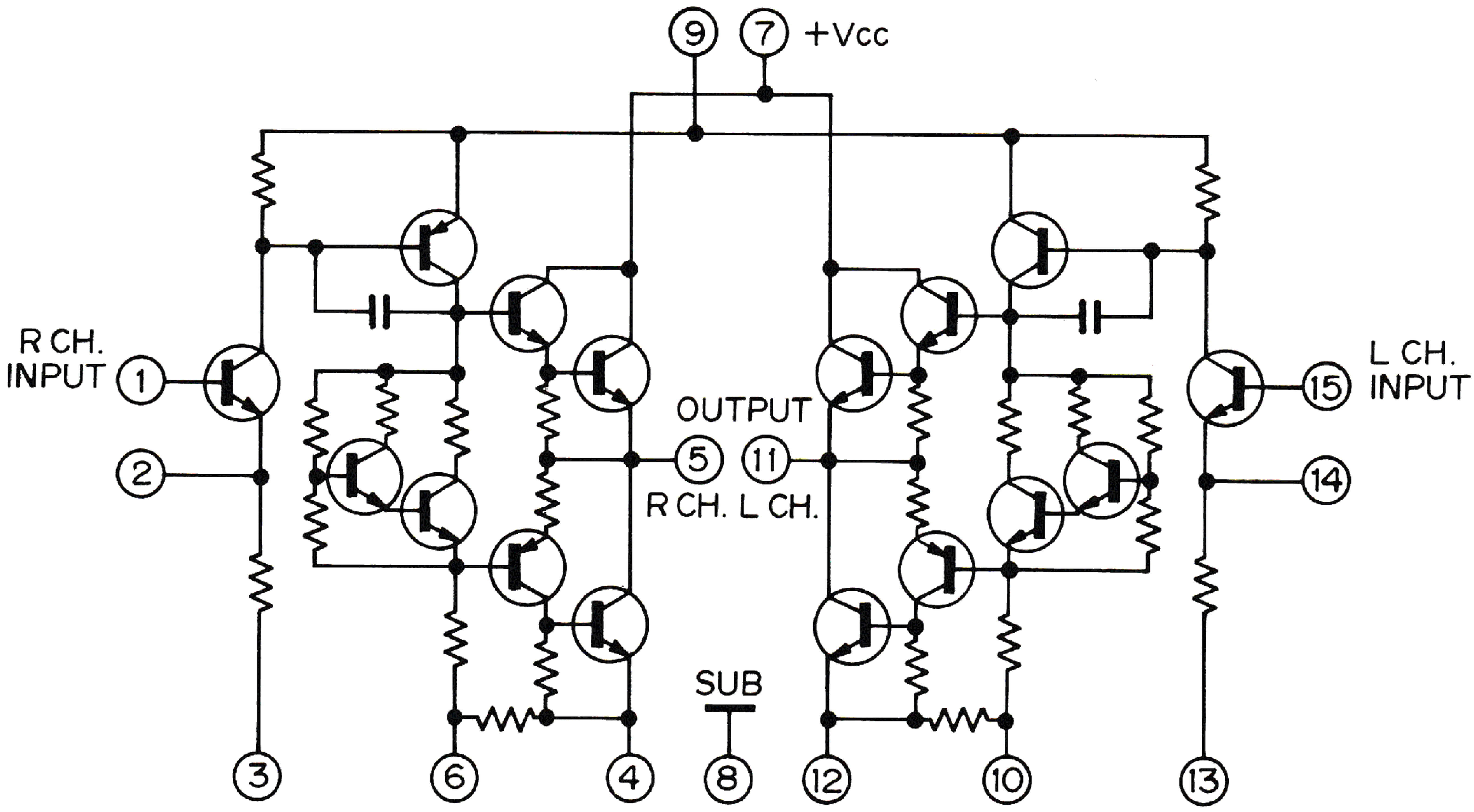
TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q04	2SC536	1.1V	0.6V	0.5V
Q05,06	2SC1517	1.5V	6.0V	0.8V
Q07	2SC536	3.4V	7.3V	2.7V

IC PIN NUMBER VOLTAGES																
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC01 LA1230	2.7V	2.7V	2.7V	–	0V	5.8V	5.7V	5.7V	5.7V	5.8V	12.6V	3.7V	–	–	5.1V	–
IC02 LA3350	11.3V	2.9V	5.7V	8.2V	8.2V	13.1V	0V	0.4V	6.4V	0.5V	2.1V	2.3V	1.9V	2.1V	2.1V	2.9V
IC03 LA1240	4.6V	1.7V	12.0V	10.3V	12.0V	3.3V	1.3V	2.7V	10V	0V	12.2V	2.1V	0.6V	2.0V	0V	1.1V

PRE & POWER AMP P.C.BOARD
(BOTTOM VIEW)



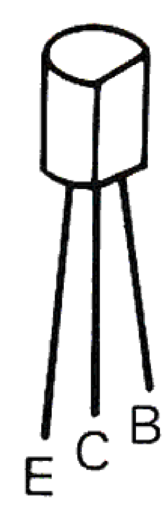
POWER AMP IC STK439 EQUIVALENT CIRCUIT



POWER AMP IC PIN NUMBER VOLTAGES															
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IC01 STK439	11.5V	11.1V	0V	0V	23.2V	5.1V	14.2V	0V	42.8V	5.1V	23.2V	0V	0V	11.1V	11.5V

TRANSISTOR FRONT VIEW

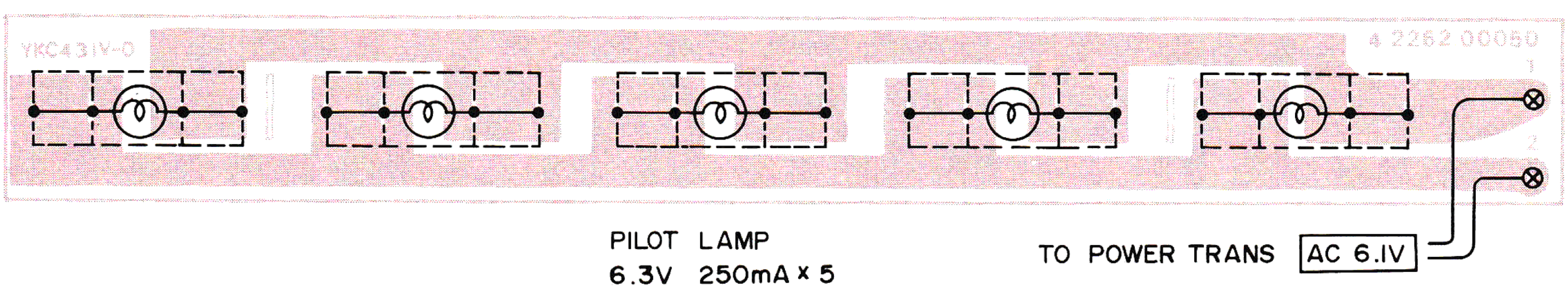
Q01, 02 2SC1571



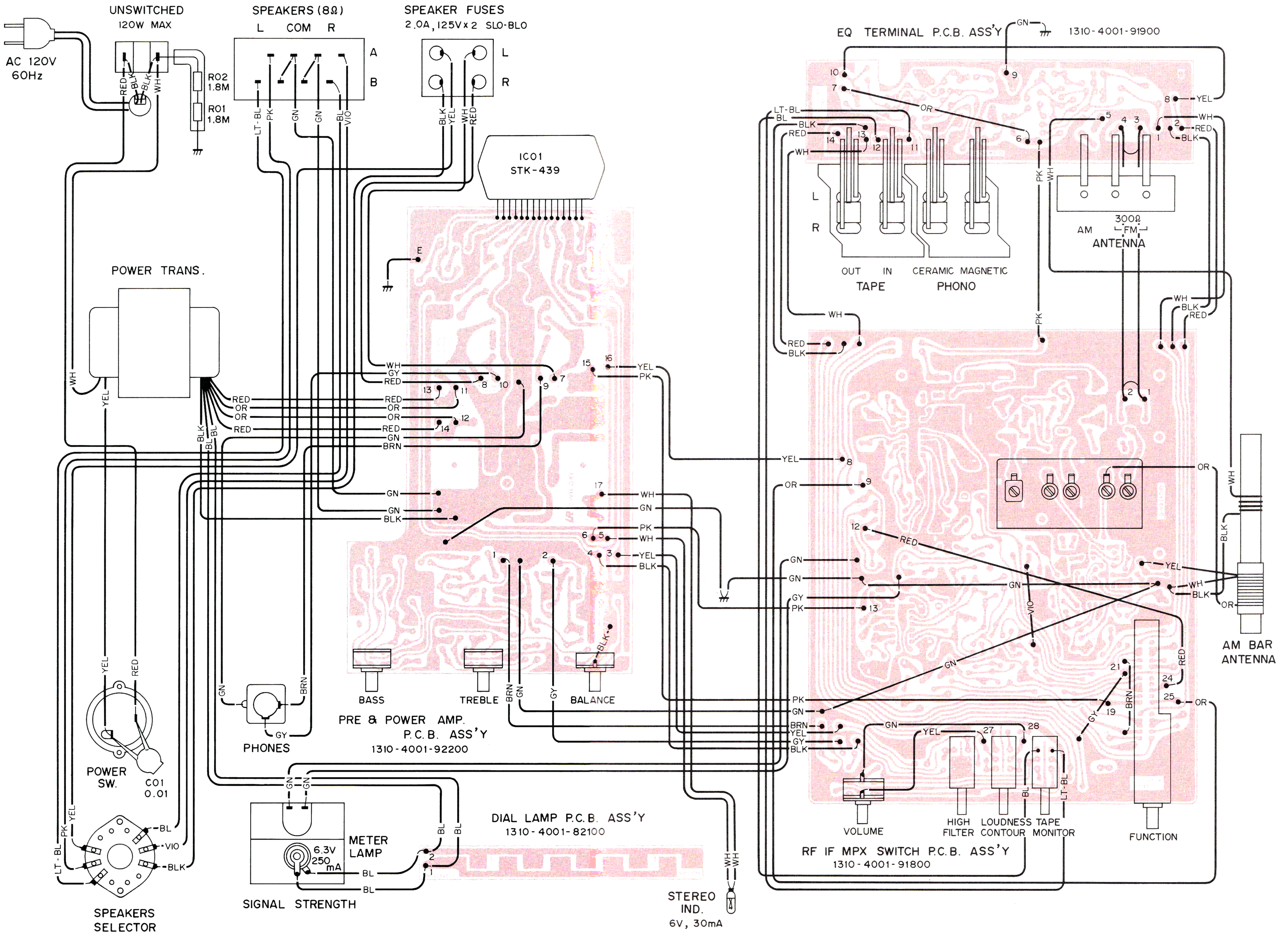
TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q01,02	2SC1571	2.0V	9.1V	1.4V

DIAL LAMP P.C.BOARD

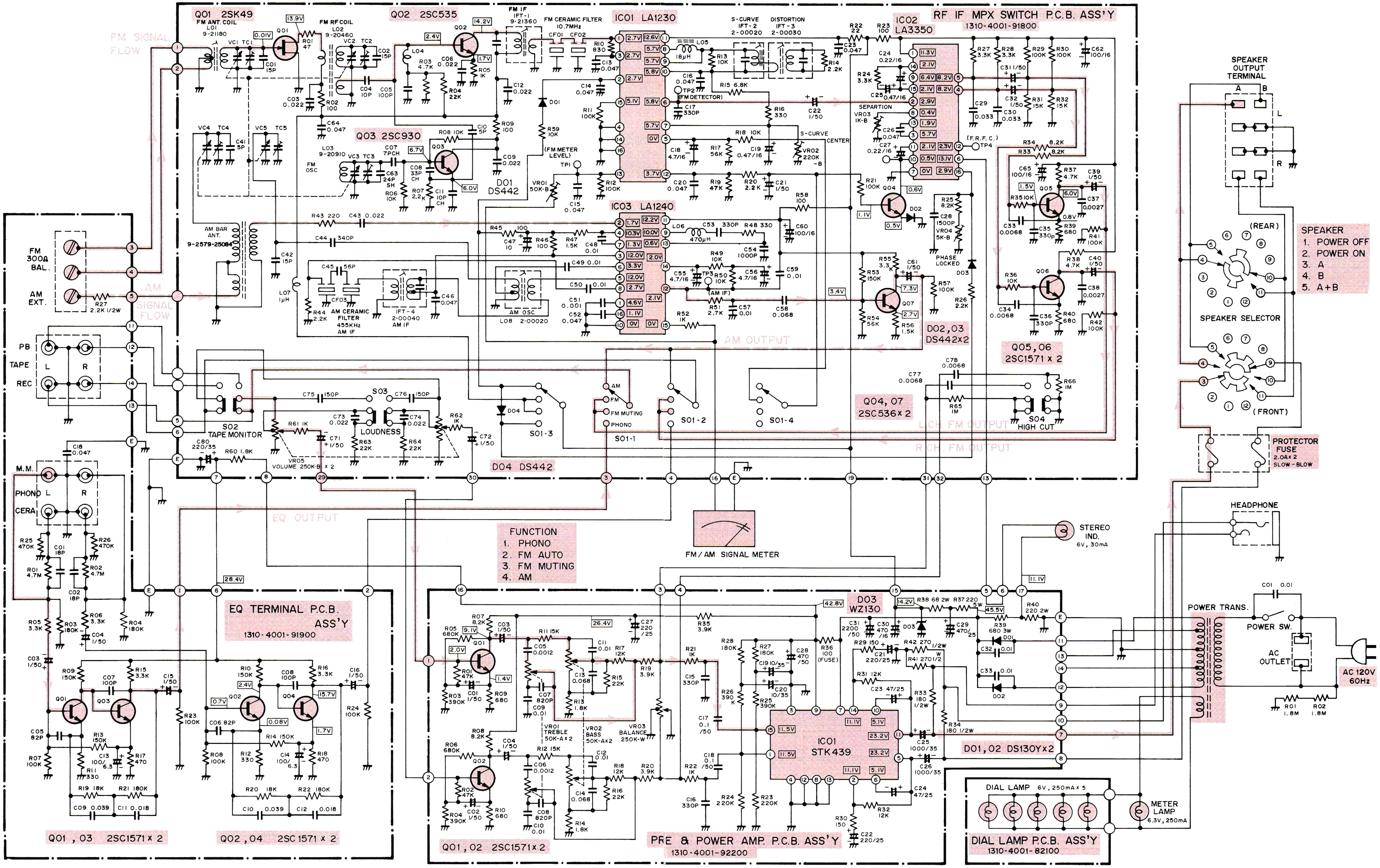
(BOTTOM VIEW)



POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM



NOTES:

1. All resistors values are indicated in "ohm" (K=10^3, M=10^6).
2. All capacitors values are indicated in "μF" (P=10^{-12}).
3. All voltages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10% with respect chassis ground
   c. No signals at input terminals
   d. AC input at 120 volts 60Hz
4. This is fundamental schematics diagram. Some products may be modified without notice.

PARTS LIST

RF-IF/MPX & SWITCH P.C.B. Assy
1310 4001 91800

Ref. No.	Parts Number	Description
	4 2249 20530	Variable Capacitor
	4 2312 00651	Switch Rotary Slide 164
	4 2319 24020	Push Switches (Tape, Loudness, High)
	4 2579 25084	AM Antenna
	131 2 3101 54900	Metal Mount (Antenna)
	131 2 6103 16400	Cover Shield
IFT1	4 2569 21360	IF Transformer FM
IFT2	4 2562 00020	IF Transformer FM
IFT3	4 2562 00030	IF Transformer FM
IFT4	4 2562 00040	IF Transformer AM
L01	4 2579 21180	Antenna Coil FM
L02	4 2599 20460	RF Coil FM
L03	4 2589 20910	OSC Coil FM
L04	4 2532 00010	Choke Coil 2.2 μH
L05	4 2532 00030	Choke Coil 18 μH
L06	4 2532 00020	Choke Coil 470 μH
L07	4 2532 00040	Choke Coil 1 μH
L08	4 2582 00020	OSC Coil AM
VR01	4 2229 25400	VR 50k-Bx1 (FM Meter Level)
VR02	4 2229 21482	VR 220k-B (S-Curve Center)
VR03	4 2229 24210	VR 1k-B (Separation)
VR04	4 2229 22842	VR 5k-Bx 1 (Phase Locked Loop)
VR05	4 2229 26300	VR 250k-Bx2 (Main Volume)
CF01,02	4 2279 20340	Ceramic Filter (FM IF 10.7MHz)
CF03	4 2272 00010	Ceramic Filter (AM IF 455KHz)

CAPACITORS

Ref. No.	Parts Number	Description	Value	Voltage	Tolerance
C01,02	C1HCSJ150SL	Ceramic	15 pF	50V	±5%
C03	C1HYYZ223APA	Ceramic	22000 pF	50V	+80,–20%
C04	C1HCSD100SL	Ceramic	10 pF	50V	±0.5%
C05	C1HCSK101SL	Ceramic	100 pF	50V	±10%
C06	C1HYYZ223APA	Ceramic	22000 pF	50V	+80,–20%
C07	C1HCSD070CH	Ceramic	7 pF	50V	±0.5%
C08	C1HCSK330CH	Ceramic	33 pF	50V	±10%
C09	C1HYYZ223APA	Ceramic	22000 pF	50V	+80,–20%
C10	C1HCSC050SL	Ceramic	5pF	50V	±0.25%
C11	C1HCSD100CH	Ceramic	10 pF	50V	±0.5%
C12	C1HYYZ223APA	Ceramic	22000 pF	50V	+80,–20%
C13,14 15,16	C1HYYZ473APA	Ceramic	47000 pF	50V	+80,–20%
C17	C1HCYK331APA	Ceramic	330 pF	50V	±10%
C18	C1CRB-475A	Electrolytic	4.7 μF	16V	
C19	C1CUBX474A	Sint. Alu.	0.47 μF	16V	+40,–20%
C20	C1HYYZ473APA	Ceramic	47000 pF	50V	+80,–20%
C21,22	C1HRY-105APA	Electrolytic	1 μF	50V	
C23	C1HYSZ473A	Ceramic	0.047 μF	50V	+80,–20%
C24	C1CUBX224A	Sint. Alu.	0.22 μF	16V	+40,–20%
C25	C1CUBX474A	Sint. Alu.	0.47 μF	16V	+40,–20%
C26	C1HFYK473APA	Mylar	47000 pF	50V	±10%
C27	C1CUBX224A	Sint. Alu.	0.22 μF	16V	+40,–20%
C28	C1HSEJ152A	Styrol	1500 pF	50V	±5%
C29,30	C1HFYK333APA	Mylar	33000 pF	50V	±10%
C31,32	C1HRY-105APA	Electrolytic	1 μF	50V	
C33,34	C1HFYK682APA	Mylar	6800 pF	50V	±10%
C35	C1HCYK331APA	Ceramic	330 pF	50V	±10%

Ref.No.	Parts Number	Description	Value	Voltage	Tolerance
CAPACITORS					
C36	C1HCSK331SL	Ceramic	330 pF	50V	±10%
C37,38	C1HFAK272A	Mylar	0.0027 μF	50V	±10%
C39,40	C1HRY-105APA	Electrolytic	1 μF	50V	
C41	C1HCSC050SL	Ceramic	5 pF	50V	±0.25%
C42	C1HCSJ150WK	Ceramic	15 pF	50V	±5%
C43	C1HFAM223A	Mylar	0.022 μF	50V	±20%
C44	C1HSEJ341A	Styrol	340 pF	50V	±5%
C45	C1HCSK560SL	Ceramic	56 pF	50V	±10%
C46	C1HYYZ473APA	Ceramic	47000 pF	50V	+80,–20%
C47	C1CRY-106APA	Electrolytic	10 μF	16V	
C48	C1HFAM103A	Mylar	0.01 μF	50V	±20%
C49	C1HFYK103APA	Mylar	10000 pF	50V	±10%
C50	C1HFAM103A	Mylar	0.01 μF	50V	±20%
C51	C1HYSZ102A	Ceramic	0.001 μF	50V	+80,–20%
C52	C1HYYZ473APA	Ceramic	47000 pF	50V	+80,–20%
C53	C1HCSK331SL	Ceramic	330 pF	50V	±10%
C54	C1HYSZ102A	Ceramic	0.001 μF	50V	+80,–20%
C55,56	C1CRB-475A	Electrolytic	4.7 μF	16V	
C57	C1HFYK103APA	Mylar	10000 pF	50V	±10%
C58	C1HFYK683APA	Mylar	68000 pF	50V	±10%
C59	C1HFAM103A	Mylar	0.01 μF	50V	±20%
C60	C1CRB-107A	Electrolytic	100 μF	16V	
C61	C1HRY-105APA	Electrolytic	1 μF	50V	
C62	C1CRB-107A	Electrolytic	100 μF	16V	
C63	C1HCSK240SH	Ceramic	24 pF	50V	±10%
C64	C1HYYZ473APA	Ceramic	47000 pF	50V	+80,–20%
C65	C1CRB-107A	Electrolytic	100 μF	16V	
C71,72	C1HRE-105AL	Electrolytic	1 μF	50V	
C73,74	C1HFYK223APA	Mylar	22000 pF	50V	±10%
C75,76	C1HCSK151SL	Ceramic	150 pF	50V	±10%
C77,78	C1HFYK682APA	Mylar	6800 pF	50V	±10%
C80	C1VRB-227A	Electrolytic	220 μF	35V	

SEMICONDUCTORS

Ref.No.	Parts Number	Description
D01,02 03,04	205 5 9040 44210	Diode, DS-442
IC01	206 5 0151 23010	IC, LA1230
IC02	206 5 0743 35012	IC, LA3350
IC03	206 5 0171 24010	IC, LA1240
Q01	TNN-2SK49--H	TR 2SK49 H
Q02	TKK2SC535--C	TR 2SC535 C
Q03	203 5 5500 93050	TR 2SC930 E
Q04	203 5 5100 53660	TR 2SC536 F
Q05,06	203 5 5151 57180	TR 2SC1571 H
Q07	203 5 5100 53660	TR 2SC536 F

RESISTORS

Ref.No.	Parts Number	Description	Value	Wattage	Tolerance
R01	R2EDZJ470APA	Carbon	47	1/4W	±5%
R02	R2EDZJ101APA	Carbon	100	1/4W	±5%
R03	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R04	R2EDZJ223APA	Carbon	22k	1/4W	±5%
R05	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R06	R2EDUJ103A	Carbon	10k	1/4W	±5%
R07	R2EDUJ222A	Carbon	2.2k	1/4W	±5%
R08	R2EDUJ103A	Carbon	10k	1/4W	±5%
R09	R2EDZJ101APA	Carbon	100	1/4W	±5%
R10	R2EDZJ331APA	Carbon	330	1/4W	±5%
R11,12	R2EDZJ104APA	Carbon	100k	1/4W	±5%

PARTS LIST

Ref.No.	Parts Number	Description			
	RESISTORS				
R13	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R14	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R15	R2EDZJ682APA	Carbon	6.8k	1/4W	±5%
R16	R2EDZJ331APA	Carbon	330	1/4W	±5%
R17	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R18	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R19	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R20	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R21	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R22	R2EDZJ220APA	Carbon	22	1/4W	±5%
R23	R2EDZJ101APA	Carbon	100	1/4W	±5%
R24	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R25	R2EDZJ822APA	Carbon	8.2k	1/4W	±5%
R26	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R27,28	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R29,30	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R31,32	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R33	R2EDZJ822APA	Carbon	8.2k	1/4W	±5%
R34	R2EDUJ822A	Carbon	8.2k	1/4W	±5%
R35,36	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R37,38	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R39,40	R2EDZJ681APA	Carbon	680	1/4W	±5%
R41,42	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R43	R2EDZJ221APA	Carbon	220	1/4W	±5%
R44	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R45,46	R2EDZJ101APA	Carbon	100	1/4W	±5%
R47	R2EDZJ152APA	Carbon	1.5k	1/4W	±5%
R48	R2EDZJ331APA	Carbon	330	1/4W	±5%
R49,50	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R51	R2EDUJ272A	Carbon	2.7k	1/4W	±5%
R52	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R53	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R54	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R55	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R56	R2EDZJ152APA	Carbon	1.5k	1/4W	±5%
R57	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R58	R2EDZJ101APA	Carbon	100	1/4W	±5%
R59	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R60	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R61	R2EDSJ102A	Carbon	1k	1/4W	±5%
R62	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R63,64	R2EDZJ223APA	Carbon	22k	1/4W	±5%
R65,66	R2EDZJ105APA	Carbon	1M	1/4W	±5%

EQ & TERMINAL P.C.B. Assy
131 0 4001 91900

Ref. No.	Parts Number	Description			
	4 2359 23180	Socket 4P (Accessory Jacks)			
	4 2372 00050	Terminal Antenna Connector			
	CAPACITORS				
C01,02	C1HCSK80SL	Ceramic	18 pF	50V	±5%
C03,04	C1HRE-105AL	Electrolytic	1 μF	50V	
C05,06	C1HCYK820APA	Ceramic	82 pF	50V	±10%
C07,08	C1HCYK101APA	Ceramic	100 pF	50V	±10%
C09,10	C1HFAM392A	Mylar	0.0039 μF	50V	±20%
C11,12	C1HFRM183A	Mylar	0.018 μF	50V	±20%
C13,14	C0JRY-107APA	Electrolytic	100 μF	6.3V	
C15,16	C1HRE-105AL	Electrolytic	1 μF	50V	
C18	C1HYYZ473APA	Ceramic	47000 pF	50V	+80,−20%
Q01,02	203 5 5151 57170	TR 2SC1571 G			
Q03,04	203 5 5151 57170	TR 2SC1571 G			
	RESISTORS				
R01,02	R2HCPK475A	Solid	4.7M	1/2W	±10%
R03,04	R2EDZJ184APA	Carbon	180k	1/4W	±5%
R05,06	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R07,08	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R09,10	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R11,12	R2EDZJ331APA	Carbon	330	1/4W	±5%
R13,14	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R15,16	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R17,18	R2EDZJ471APA	Carbon	470	1/4W	±5%
R19,20	R2EDZJ183APA	Carbon	18k	1/4W	±5%
R21,22	R2EDZJ184APA	Carbon	180k	1/4W	±5%
R23,24	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R25,26	R2EDUJ474A	Carbon	470k	1/4W	±5%
R27	R2HCPK222A	Solid	2.2k	1/2W	±10%

PRE & POWER AMP P.C.B. Assy
131 0 4001 92200

Ref. No.	Parts Number	Description			
VR01	4 2229 25440	VR 50K-A (TREBLE)			
VR02	4 2229 25440	VR 50K-A (BASS)			
VR03	4 2229 26080	VR 250K-W (BALANCE)			
	CAPACITORS				
C01,02	C1HRY-105APA	Electrolytic	1 μF	50V	
C03,04	C1HRE-105AL	Electrolytic	1 μF	50V	
C05,06	C1HFRM122A	Mylar	0.0012 μF	50V	±20%
C07,08	C1HYYK821RPA	Ceramic	820 pF	50V	±10%
C09,10 11,12	C1HFYK103APA	Mylar	10000 pF	50V	±10%
C13,14	C1HFYK683APA	Mylar	68000 pF	50V	±10%
C15,16	C1HCYK331APA	Ceramic	330 pF	50V	±10%
C17,18	C1HFRM104A	Mylar	0.1 μF	50V	±20%
C19,20	C1VRB-106A	Electrolytic	10 μF	35V	
C21,22	C1ERB-227A	Electrolytic	220 μF	25V	
C23,24	C1ERB-476A	Electrolytic	47 μF	25V	
C25,26	C1VRB-108A	Electrolytic	1000 μF	35V	

PARTS LIST

Ref.No.	Parts Number	Description
	CAPACITORS	
C27	C1ERB-227A	Electrolytic 220 μF 25V
C28	C1HRB-477A	Electrolytic 470 μF 50V
C29	C1ER-447A	Electrolytic 470 μF 25V
C30	C1CRB-477A	Electrolytic 470 μF 16V
C31	4 2239 21291	Electrolytic 2200 μF 50WV
C32,33	C2HYSP103A	Ceramic 0.01 μF 500V +100,–0%
	SEMICONDUCTORS	
D01,02	202 5 2310 13020	Diode, DS130YD
D03	DJJ-WZ-130	Diode, WZ-130
IC01	206 5 6750 43910	IC, STK-439
Q01,02	203 5 5151 57180	TR 2SC1571H
	RESISTORS	
R01,02	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R03,04	R2EDZJ394APA	Carbon 390k 1/4W ±5%
R05,06	R2EDZJ684APA	Carbon 680k 1/4W ±5%
R07,08	R2EDZJ822APA	Carbon 8.2k 1/4W ±5%
R09,10	R2EDZJ681APA	Carbon 680 1/4W ±5%
R11,12	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R13,14	R2EDZJ182APA	Carbon 1.8k 1/4W ±5%
R15,16	R2EDZJ223APA	Carbon 22k 1/4W ±5%
R17,18	R2EDZJ123APA	Carbon 12k 1/4W ±5%
R19,20	R2EDZJ392APA	Carbon 3.9k 1/4W ±5%
R21,22	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R23,24	R2EDZJ224APA	Carbon 220k 1/4W ±5%
R25,26	R2EDZJ394APA	Carbon 390k 1/4W ±5%
R27,28	R2EDZJ184APA	Carbon 180k 1/4W ±5%
R29,30	R2EDZJ151APA	Carbon 150 1/4W ±5%
R31,32	R2EDZJ123APA	Carbon 12k 1/4W ±5%
R33,34	R2HCPK181A	Solid 180 1/2W ±10%
R35	R2EDZJ392APA	Carbon 3.9k 1/4W ±5%
R36	R2HZPK101A	Resistor, Fuse 100 1/2W ±10%
R37	R3HEIK221A	Cement 220 5W ±10%
R38	R3DXBJ680A	Oxide Metal Film 68 2W ±5%
R39	R3WXBJ681A	Oxide Metal Film 680 3W ±5%
R40	R3DXBJ221A	Oxide Metal Film 220 2W ±5%
R41,42	R2HCPK271A	Solid 270 1/2W ±10%

DIAL LAMP P.C.B. Assy
131 0 4001 82100

Ref. No.	Parts Number	Description
	4 2359 23000	Lamp Holder
	4 6129 20282	Pilot Lamp (6.3V 0.25A)

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