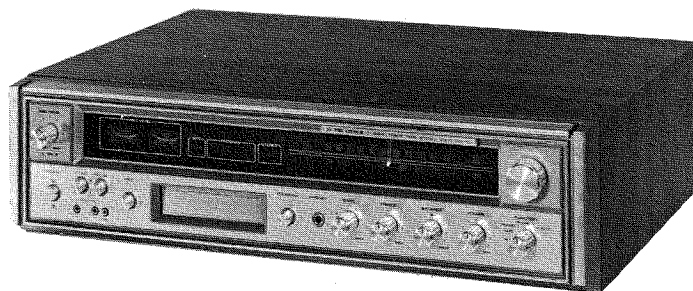


**SERVICE MANUAL**

# **FISHER**

# **MC-3010**

**INTEGRATED MUSIC SYSTEM**  
**STEREO RECEIVER**



*WORLD LEADER IN HIGH QUALITY STEREO*

## SPECIFICATIONS

### FM TUNER SECTION

Usable Sensitivity (IHF Standard)	5 $\mu$ V
Harmonic Distortion (at 400 Hz, 100% Modulation)	
Mono	1.0%
Stereo	1.5%
Signal-to-Noise Ratio (at 100% Modulation & 1mV Input)	60dB
Selectivity	36dB
Image Frequency Rejection (at 88 MHz)	40dB
IF Frequency Rejection (at 88 MHz)	70dB
FM Stereo Separation (at 1 KHz)	30dB
Capture Ratio, IHF, at 1mV	3dB

### AM TUNER SECTION

Usable Sensitivity (IHF Standard) S/N 20dB	
Loop Antenna	250 $\mu$ V/m
Selectivity (at 1 MHz & $\pm$ 10 KHz)	30dB
Image Frequency Rejection (at 1 MHz)	50dB
IF Frequency Rejection (at 1 MHz)	40dB

### AMPLIFIER SECTION

Total Continuous (RMS) Power (at 8 ohms)	10W (5 + 5W)
Harmonic Distortion (at 60 Hz to 15 KHz, Rated Power)	1.0%
Power Bandwidth, (IHF Standard)	40 – 15,000 Hz
Sensitivities (for rated output power at 8 ohms, 1 KHz)/Impedances	
Phono (Magnetic)	2.5mV/50K ohm
Phono (Ceramic)	300mV/1M ohm
Auxiliary	200mV/100K ohm
Microphone	1.0mV/600 ohm

### Hum & Noise (below rated output)

Phono (Magnetic)	62dB
Phono (Ceramic)	62dB
Auxiliary	62dB
Frequency Response $\pm$ 2.0dB	40 – 15,000 Hz
Bass Control Range (at 100 Hz)	$\pm$ 8dB
Treble Control Range (at 10 KHz)	$\pm$ 8dB
Loudness Control (at 40dB volume attenuation fixed)	+8dB at 100 Hz +5dB at 10 KHz

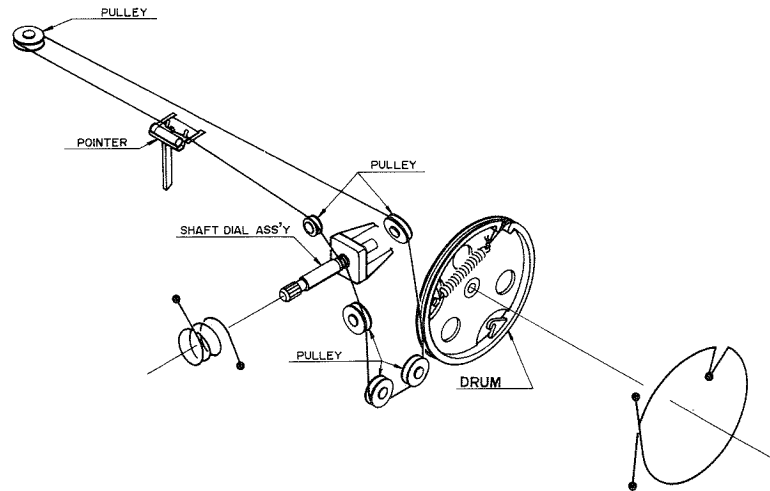
### TAPE SECTION

Tape Speed (Play & Record)	3.75 ips
(Fast Forward)	3.75 ips x 2
Wow and Flutter, maximum	0.2%
Signal-to-Noise Ratio (Play & Record)	40dB
Channel Separation	35dB
Crosstalk	45dB
Distortion	2.0%
Erase Ratio	55dB
Recording Sensitivity	
Microphone	1mV
Auxiliary	200mV

### GENERAL

AC Power	120V
Frequency	50/60 Hz
Consumption	70 Watts
Dimensions (including control panel, cabinet)	21-23/32" W 6-3/32" H 13-21/32" D

## DIAL CORD STRINGING



## 8 TRACK TAPE DECK ADJUSTMENT

### 1. Recommended Test Equipment

- Two Vacuum Tube Volt Meters
- Test tapes RCA-321, Pony-806, or Victor-801 (Track 1 and 3 with 1kHz and track 6 with 8kHz test signals)

### 2. Head Height Adjustment

- Use test cartridge tape (RCA-321 or Pony-806).
- Push program selector button to position tapehead to track 2 (on channel 2).
- Connect two Vacuum Tube Volt Meters to left and right channels.
- Turn the head height adjust screw slowly counterclockwise or clockwise and adjust for a null. For correct tapehead position, make sure there is a peak on either side of the null at the point where the output is minimum. Glyptol screw after correct positioning is attained.


- Switch to channel 4 and back to 2 again, make sure that the output on channel 2 is at minimum. Should the output on channel 2 be greater than on channel 4, repeat adjustments.

### 3. Azimuth Adjustment

- Use test tape cartridge RCA-321.
- Set tape player to track 2.
- Connect two Vacuum Tube Volt Meters to the left and right output channels.
- Adjust screw (A) with Phillips screwdriver for a balance at maximum output.
- Glyptol adjust screw after correct positioning is attained.

# ALIGNMENT PROCEDURES

## AM ADJUSTMENT

Step	Adjusting circuit	Connections		SG. frequency	Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output				
1	IF	Connect sweep generator to VC4.	Connect oscilloscope to test point TP2.	455 KHz	Max. capacity of VC. at position with no signal.	AM 1st* 9-20970 (Red, Blue) AM 2nd* 9-20980 (Non adj.)	
2	RF	Connect standard loop antenna to output terminals of SG. Place receiver 2 feet from loop antenna.	Connect V.T.V.M. to speaker terminals.	600 KHz (400Hz, 30% modulation)	600 KHz	AM ANT 9-21014 AM OSC 9-20700 (Red)	Max.
3				1400 KHz (400Hz, 30% modulation)	1400 KHz	TC4 TC5	Max.
4	Repeat adjustments						



1. Variable capacitor completely closed.
2. Set the dial pointer to left line on 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.

\*NOTE: On some production units IF transformers 9-21340 and 9-21330 are utilized.

## FM ADJUSTMENT

Step	Adjusting circuit	Connections		SG. frequency	Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output				
1	IF	Connect sweep generator to test point TP1 through 0.01μF.	Connect oscilloscope to test point TP3.	10.7 MHz (no modulation)	Max. capacity of VC. at position with no signal.	FM 1st 9-20890 (Violet) 9-20900 (Orange) FM 2nd 9-20160 (Non adj.)	
2	Ratio Det		Connect oscilloscope to test point TP4.			FM DET 9-20850 (Pink) 9-20860 (Blue)	
3	RF	Connect FM SG. to FM ANT. terminals.	Connect V.T.V.M. to speaker terminal.	90 MHz (400Hz, 30% modulation)	90 MHz	FM ANT 9-20990 FM OSC 9-20461 FM Coil 9-20270	Max.
4				106 MHz (400Hz, 30% modulation)	106 MHz	TC1 TC2 TC3	Max.
5	Repeat adjustments.						

1. Variable capacitor completely closed.
2. Set the dial pointer to left line on dial scale.
3. Connect sweep generator, FM SG, V.T.V.M. and oscilloscope (FM antenna input impedance is 300 ohm.)

4. Function switch to "FM"

5. Use a screwdriver with plastic grip for all adjustments.

## FM MPX ADJUSTMENT

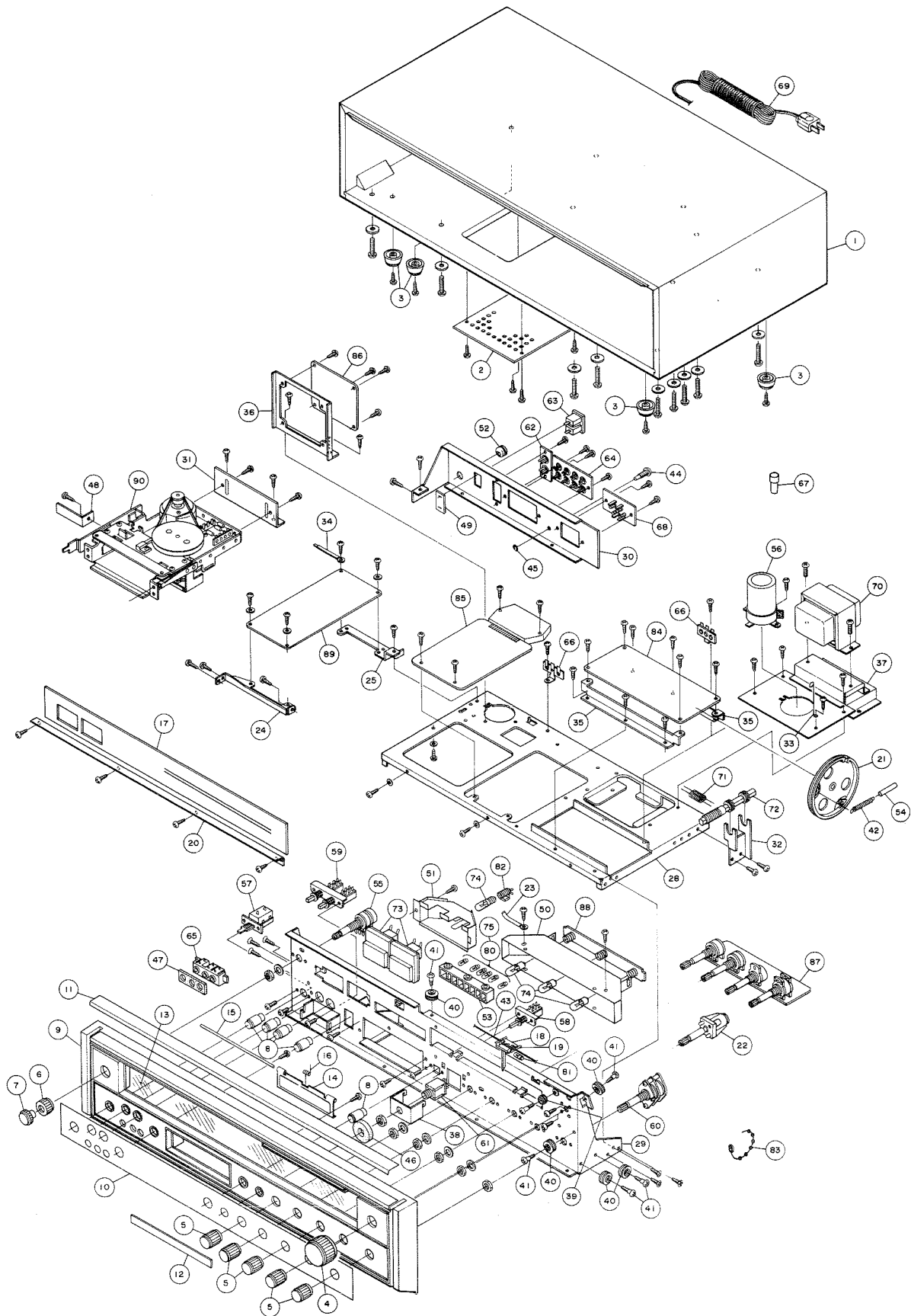
Step	Adjusting circuit	Connections		Position of tuning dial	Adjustment	V.T.V.M.
		Input	Output			
1	SCA signal filter (67 KHz)	Add SCA signal to FM stereo SG. and connect to FM ANT. terminals. FM stereo signal OFF.	Connect V.T.V.M. to test point TP5.	Max. capacity of VC. at position with no signal.	67KHz 9-20140 (Red)	Min.
2	38 KHz	Connect FM stereo SG. to FM ANT terminals. 19KHz signal ON. Main channel, sub channel signal ON. Add 1000Hz signal from L Ch.	Connect V.T.V.M. to test point TP6.		38KHz 9-20210 (Black) 9-20220 (White)	Max.
3	FM stereo signal separation		Connect V.T.V.M. to R speaker terminal.		38KHz 9-20210 (Black)	Min.
4		Connect V.T.V.M. to L speaker terminal.	Min.			
5	Repeat steps 3 - 4.					

1. Variable capacitor completely closed.
2. Connect FM stereo SG. and V.T.V.M.

3. Function switch to "FM STEREO".

4. Use a screwdriver with plastic grip for all adjustments.

# EXPLODED VIEW



**PARTS LIST**

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>CHASSIS – MECHANICAL</b>			<b>CHASSIS – ELECTRICAL</b>		
1	1310110107800	Cabinet Assembly	55 (VR701)	RP4222924990	Potentiometer, 100K B x 2 Record Level
2*	1312141013800	Bottom Cover P/O 1	56 (C701)	CE0259757	Capacitor, Elect. 2200MF 50V
3	1312180113200	Leg P/O 1	57 (S1)	SP4231924070	Switch, Push, Power
4	EK1310100133700	Knob Assy. Tuning	58 (S2)	SP4231924080	Switch, Push, Program
5	EK1310100133800	Knob, Assy, Function, Volume, Balance, Bass, Treble	59 (S3,8)	SP4231924091	Switch, Push, 2 Button Fast Forward, Pause
6	EK1310100133900	Knob Assy, Record Level, Right	60 (S6)	SR4231924110	Switch, Rotary, Function
7	EK1310100134000	Knob Assy, Record Level, Left	61 (J4)	JK4235921080	Jack, Headphone
8	EK1310100134100	Knob Assy, Tape Controls	62	JK4235921280	Jack, 2 RCA Phono, Speakers
9-13	1310101620900	Dress Panel Assembly	63	JK2657281	AC Outlet
14	1312110317101	Door, 8 Track	64	JK4235922250	Jack, 8 RCA Phono, Rear Accessory Panel
15	1312210510700	Shaft, Door 8 Track	65 (J1)	JK4235922300	Jack, Microphone
16	1312510112400	Spring, 8 Track Door Shaft	66*	42379201400	Terminal Strip
17	1312120127300	Dial Plate	67*	42379209300	Terminal Strip
18	1312410117100	Pointer, Plastic	68	ET42379215510	Terminal Strip, 4P, Antenna
19	1312411314000	Metal Slide, Pointer	69	W50023	AC Power Cord
20*	1312611319800	Holder Dial Plate	70 (T1)	TD4251923382	Power Transformer 110V
21	1310300210201	Drum Assembly, Tuning Gang	71 (L701)	LC4253920140	Heater Choke Coil
22	1310300317700	Tuning Shaft Assembly	72 (921014)	LA42579210140	Antenna, AM
23*	1310301610400	Wire Clamp Assembly	73	MC45119202	Meter, VU
24*	1312310131000	Mounting Bracket	74	LM4612920100	Lamp, Screw Type 6.3V .25A Meter, Dial
25*	1312310131100	Mounting Bracket	75-80	LM4612920535	Lamp 6V .25A Indicator
26*	1312310131200	Mounting Bracket	81	LM2767094	Lamp 5V 60MA, Pointer
27*	1312310133200	Mounting Bracket	82	1310400211400	Socket, Meter Lamp
28*	1312330121002	Chassis	83*	1312360811300	Wire Clamp Assy.
29*	1312330518901	Front Panel	C706,707	CK22349-1	Capacitor Ceramic .01MF 50V +80 -20%
30*	1312330621100	Rear Panel	C708-709	CK22347-1	Capacitor Ceramic 100PF 50V ±10%
31*	1312331013200	Support Bracket, 8 Track	R701,703	RF25DC102J	Resistor 1K ohm 1/4W
32*	1312360313800	Support Bracket, AM Antenna	R704,705	RF25DC124J	Resistor 120K ohm 1/4W
33*	1312360810800	Wire Clamp Assembly	R706,707	RF25DC473J	Resistor 47K ohm 1/4W
34*	1312360812700	Wire Clamp Assembly	R708,709	RF25DC185J	Resistor 1.8M ohm 1/4W
35*	1312361417700	Mounting Bracket, P.C.B.			
36*	1312361417800	Mounting Bracket, P.C.B.			
37*	1312361714800	Mounting Bracket, Transformer			
38*	1312362412200	Mounting Bracket, Headphones			
39	EA50540-1	Pulley, Small Dial Stringing			
40	EA50540-3	Pulley, Large Dial Stringing			
41	1312410810300	Spindle, Pulley			
42	1312411100200	Tension Spring, Dial Stringing			
43*	1312411210200	Dial Cord			
44	1312420115400	Screw, Ground			
45*	1312420611300	E Ring			
46*	1312420816400	Cushion, Headphone Jack			
47*	1312420821400	Cushion, Mike Jacks			
48*	1312510113800	Lever, Record Switch			
49*	1312610719300	Insulator AC Outlet			
50*	1312611024600	Housing Metal, Dial Lamp			
51*	1312611024700	Housing Metal, Meter Lamp			
52*	1312611114200	Bushing Line Cord			
53*	1312611115300	Housing, Rubber, Indicator Lamps			
54*	394300040000	Tubing, Dial Tension Spring			

\*Not a service part

**PARTS LIST**

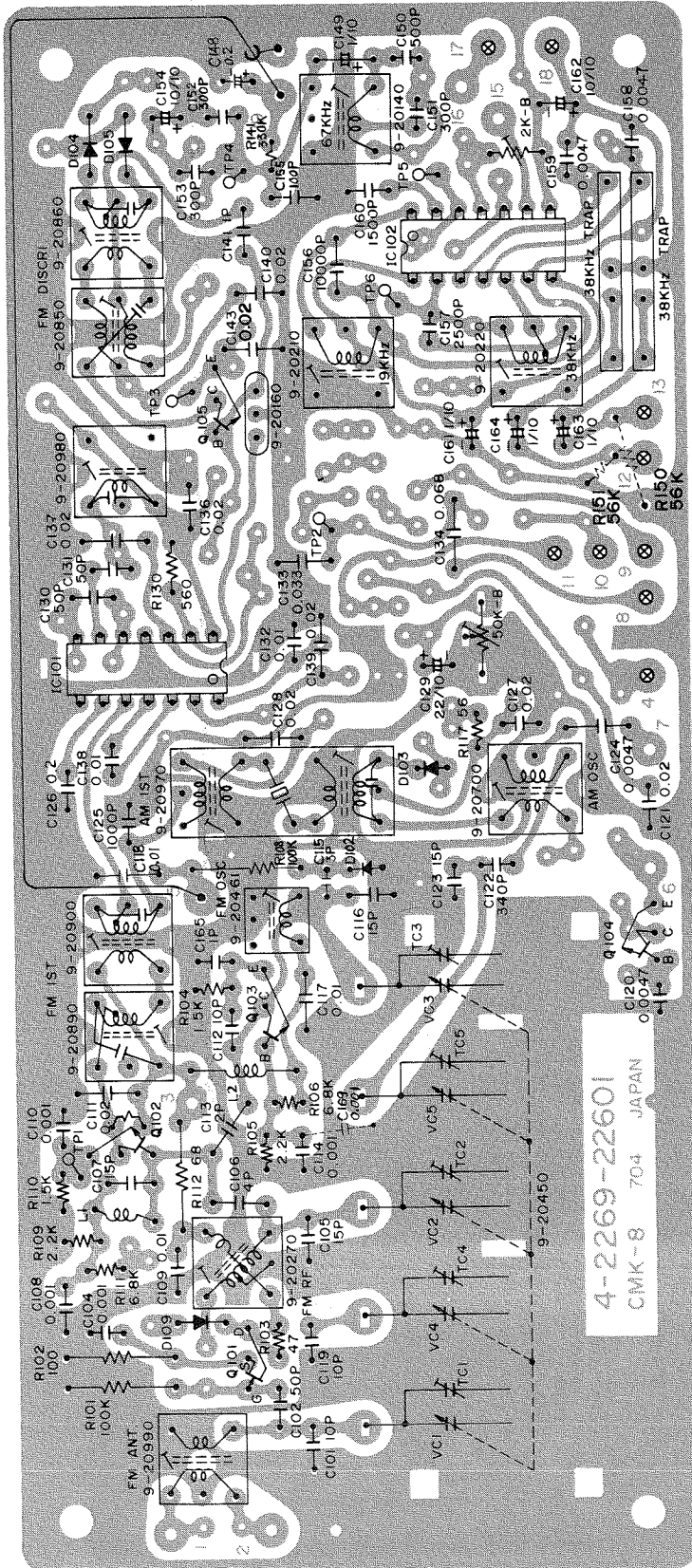
Ref. No.	Part No.	Description
RF, IF, MPX PCB ASSEMBLY PB1310400122147		
84	PB1310400122147	RF, IF, MPX PCB Assy.
VR101	RP4222921810	Potentiometer 50K-B IC Bias
VR102	RP4222922760	Potentiometer 2K-B
920450	CV4224920450	Variable Capacitor, Tuning Gang
	PC4227920140	Packaged Circuit 38KHz Filter
920160	ZK4227920160	Ceramic Filter 10.7KHz
L2	LC4253920120	IF Trap Coil
L1	LC4253920130	RF Filter Choke Coil
920850	ZZ4256920850	IF Transformer, FM
920860	ZZ4256920860	IF Transformer, FM
920890	ZZ4256920890	IF Transformer, FM
920900	ZZ4256920900	IF Transformer, FM
920970	ZZ4256920970	IF Transformer, AM
	(See Note)	
920980	ZZ4256920980	IF Transformer, AM
	(See Note)	
920990	LC4257920990	Antenna Coil, FM
920461	LC4258920461	FM OSC. Coil
920700	LC4258920700	AM OSC. Coil
920270	LC4259920270	RF Coil FM
920140	LC4265920140	Multiplex Coil
920210	LC4265920210	Multiplex Coil 19KHz
920220	LC4265920220	Multiplex Coil 38KHz
C163,164	CS22340-5	Capacitor, Sintered Alum. 1MF 10V
C148	CL22305-8	Capacitor, Tantalum 0.2MF 10V
C126	C1BBDZ204TY	Capacitor, Semiconductor 0.2MF 12V
C161	CE22342-2	Capacitor, Elect. 1MF 16V
C154,162	CE0252621	Capacitor, Elect. 10MF 16V
C129	CE1252522	Capacitor, Elect. 22MF 16V
C149	CE22342-2	Capacitor, Elect. 1MF 16V
C104,108,110,114	CK22349-4	Capacitor, Ceramic .001MF 25V
C109,118	CK2083-11	Capacitor, Ceramic .01MF 25V
C111	CK0245018	Capacitor, Ceramic .02MF 25V
C169	CK22349-4	Capacitor, Ceramic .001MF 25V
C138	CK2083-11	Capacitor, Ceramic .01MF 25V
C121,128,136,137,139,140,143,127	CK0245018	Capacitor, Ceramic .02MF 25V
C113	CK22346-3	Capacitor, Ceramic 2pF 50V
C141,165	CK0248641	Capacitor, Ceramic 1pF 50V
C115	CK22345-1	Capacitor, Ceramic 3pF 50V
C106	CK22346-5	Capacitor, Ceramic 4pF 50V
C112	CK22344-22	Capacitor, Ceramic 10pF 50V
C101,119	CK22345-3	Capacitor, Ceramic 10pF 50V
C107,123	CK22344-9	Capacitor, Ceramic 15pF 50V
C116	C1HCSJ150TJ	Capacitor, Ceramic 15pF 50V N470
C155	CK22347-1	Capacitor, Ceramic 100pF 50V
C105	CK22344-9	Capacitor, Ceramic 15pF 50V
C152,153	CK22350-6	Capacitor, Ceramic 300pF 50V
C102,130,131	CK0242011	Capacitor, Ceramic 50pF 50V
C132	CY22335-1	Capacitor, Mylar .01MF 50V
C133	CY22335-14	Capacitor, Mylar .033MF 50V
C120,158,159	CY22335-8	Capacitor, Mylar .0047MF 50V
C134	CY22335-16	Capacitor, Mylar .068MF 50V
C124	CY22335-8	Capacitor, Mylar .0047MF 50V
C151	CP0221322	Capacitor, Styrol 300pF 50V
C150	C1HSEK501A	Capacitor, Styrol 500pF 50V
C117	CK22349-1	Capacitor, Ceramic .01MF 50V
C122	C1VSEJ341A	Capacitor, Styrol 340pF 35V
C125	C1VSEK102A	Capacitor, Styrol 1000pF 35V
C156	C1VSEK103A	Capacitor, Styrol 10000pF 35V
C160	CP0217813	Capacitor, Styrol 1500pF 35V
C157	C1VSEK252A	Capacitor, Styrol 2500pF 35V
R104,110	RF25DC152J	Resistor 1.5K ohm 1/4W 5%
R105,109	RF25DC222J	Resistor 2.2K ohm 1/4W 5%
R103	RF25DC470J	Resistor 47 ohm 1/4W 5%
R117	RF25DC560J	Resistor 56 ohm 1/4W 5%
R130	RF25DC561J	Resistor 560 ohm 1/4W 5%
R150,151	RF25DC563J	Resistor 56K ohm 1/4W 5%
R106,111	RF25DC682J	Resistor 6.8K ohm 1/4W 5%
R102	RF25DC101J	Resistor 100 ohm 1/4W 5%
R101,108	RF25DC104J	Resistor 100K ohm 1/4W 5%
R112	RF25DC680J	Resistor 68 ohm 1/4W 5%
R141	RF25DC334J	Resistor 330K ohm 1/4W 5%

Ref. No.	Part No.	Description
RF, IF, MPX PCB ASSEMBLY PB1310400122147		
R113	RF25DC472J	Resistor 4.7K ohm 1/4W 5%
R114	RF25DC682J	Resistor 6.8K ohm 1/4W 5%
R115	RF25DC473J	Resistor 47K ohm 1/4W 5%
R116	RF25DC101J	Resistor 100 ohm 1/4W 5%
R118	RF25DC402J	Resistor 4K ohm 1/4W 5%
R119	RF25DC102J	Resistor 1K ohm 1/4W 5%
R120	RF25DC472J	Resistor 4.7K ohm 1/4W 5%
R122	RF25DC471J	Resistor 470 ohm 1/4W 5%
R121	RF25DC103J	Resistor 10K ohm 1/4W 5%
R123	RF25DC561J	Resistor 560 ohm 1/4W 5%
R124	RF25DC222J	Resistor 2.2K ohm 1/4W 5%
R126	RF25DC152J	Resistor 1.5K ohm 1/4W 5%
R127	RF25DC101J	Resistor 100 ohm 1/4W 5%
R129	RF25DC561J	Resistor 560 ohm 1/4W 5%
R133	RF25DC681J	Resistor 680 ohm 1/4W 5%
R135,134	RF25DC102J	Resistor 1K ohm 1/4W 5%
R136	RF25DC680J	Resistor 68 ohm 1/4W 5%
R137	RF25DC101J	Resistor 100 ohm 1/4W 5%
R138	RF25DC682J	Resistor 6.8K ohm 1/4W 5%
R139	RF25DC682J	Resistor 6.8K ohm 1/4W 5%
R143	RF25DC102J	Resistor 1K ohm 1/4W 5%
R144	RF25DC682J	Resistor 6.8K ohm 1/4W 5%
R145	RF25DC682J	Resistor 6.8K ohm 1/4W 5%
R147	RF25DC472J	Resistor 4.7K ohm 1/4W 5%
R148	RF25DC391J	Resistor 390 ohm 1/4W 5%
R149	RF25DC332J	Resistor 3.3K ohm 1/4W 5%
D102	TRIS553	Diode, IS553
D103,104,105	TRIS188FM	Diode, IS188FM
D109	TRDS442	Diode DS442
Q103	TR2SC668D	Transistor, 2SC668D
Q102	TR2SC668E or D	Transistor, 2SC668D or E
Q104	TR2SC929E or D	Transistor, 2SC929D or E
Q105	TR2SC930E	Transistor, 2SC930E
Q101	TR2SK41F	Transistor, 2SK41F
IC101	TRLA1201	IC, LA1201
IC102	TRLA3301	IC, LA3301

NOTE: Some production units utilizes IF Trans. type ZZ4256921340 and ZZ4256921330 as pairs. Proper parts are to be ordered by part number indicated on case.

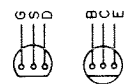
RF. IF. MPX. P.C.B. BOTTOM VIEW PB1310400122147

CLASSIFICATION	Q101	Q102	Q103	Q104	Q105	D102	D103~D105	D109	IC101	IC102
TR	2SK41	2SC668R	2SC668R	2SC929	2SC930	IS553	IS188	DS-442	LA1201	LA3301
RANK	F	D,E	D	E,D	D,E		FMI			



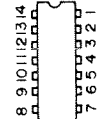
TERMINAL NO	TERMINAL NO
1, 2	FM ANT
3	FM +B
4	AM +B
5, 19	AFC
6, 7	AM ANT
8	AM OUT
9, 10, 11	TV METER
12	FM OUT (R)
13	FM OUT (L)
14	STEREO IND.
15, 16	INDICATOR +B
17	+B (9V)
18	

TRANSISTOR BOTTOM VIEW

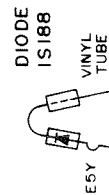


FET  
2SK41

TR  
2SC668  
2SC929  
2SC930



IC  
LA1201  
LA3301



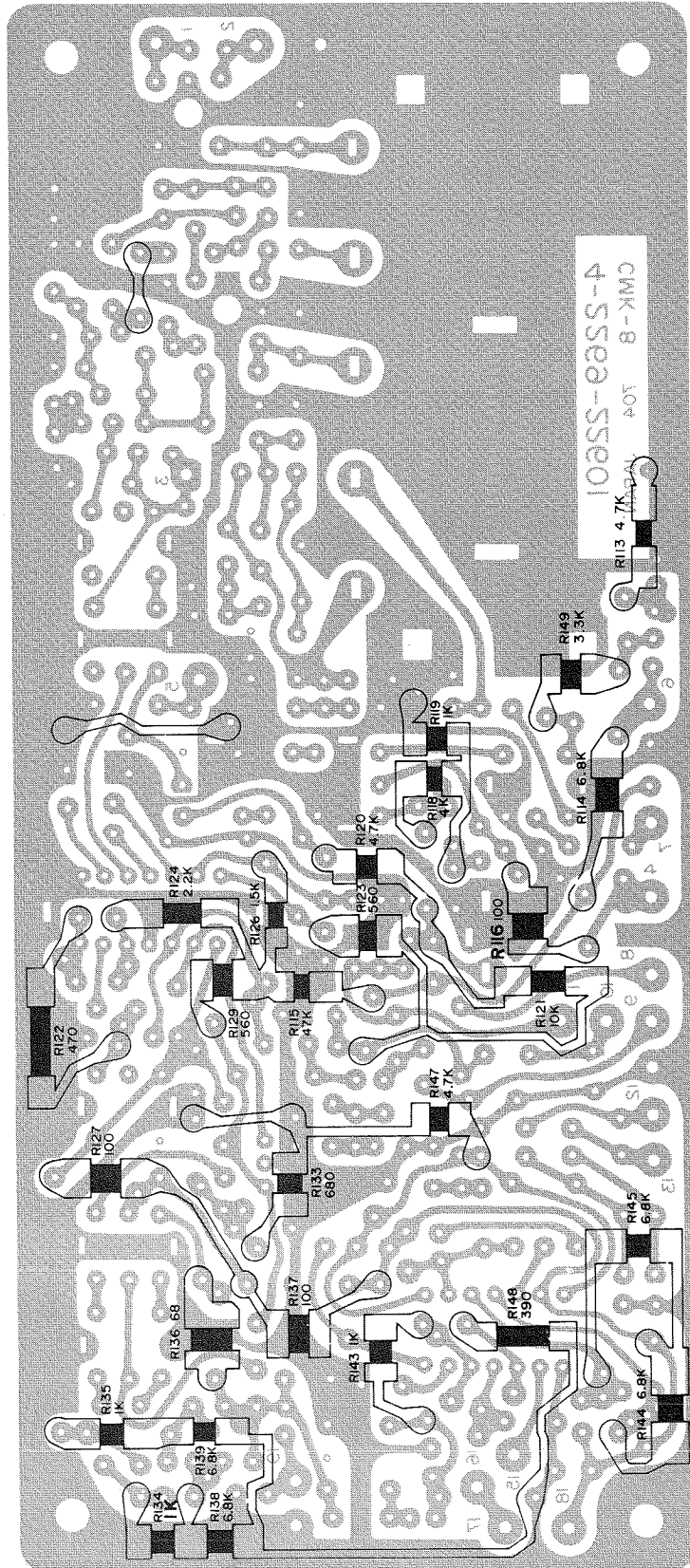
DIODE  
IS188  
VINYL TUBE



STICON  
VINYL TUBE



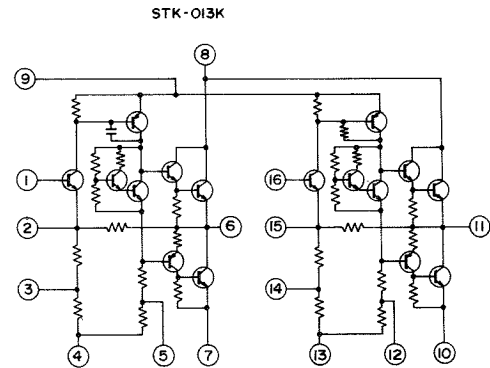
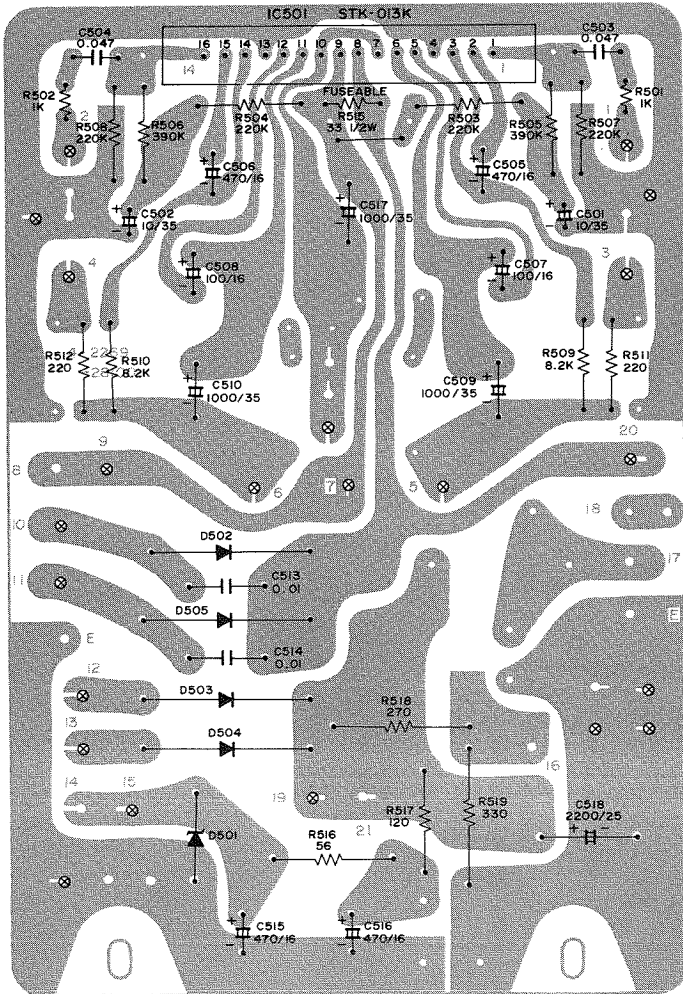




PARTS LIST

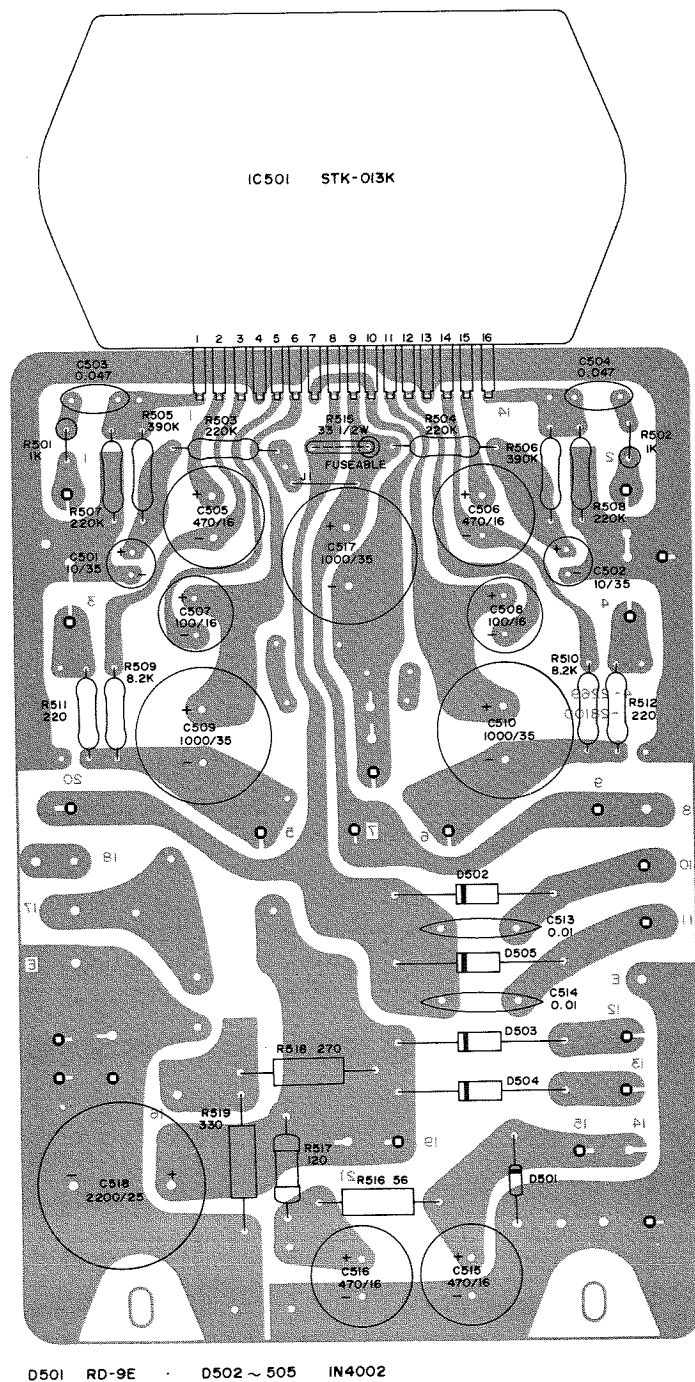
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
MAIN POWER SUPPLY PCB ASSY. PB1310400165301			MAIN POWER SUPPLY PCB ASSY. PB1310400165301		
85	PB1310400165301	Main Power Supply PCB Assy	D501	TRRD9.1E	Diode RD9.1E
C507,508	CE22342-12	Capacitor, Elect. 100MF 16V	R511,512	RF25DC221J	Resistor 220 ohm 1/4W 5%
C505,506,515,516	CE402470519	Capacitor, Elect. 470MF 16V	R503,504,507,508	RF25DC224J	Resistor 220K ohm 1/4W 5%
C518	CECDV2200/25	Capacitor, Elect. 2200MF 25V	R505,506	RF25DC394J	Resistor 390K ohm 1/4W 5%
C501,502	CE22342-28	Capacitor, Elect. 10MF 35V	R509,510	RF25DC822J	Resistor 8.2K ohm 1/4W 5%
C503,504	C1HBDM473N	Semiconductor .047MF 50V	R501,502	RF25DC102J	Resistor 1K ohm 1/4W 5%
C509,510,517	CDV1000/35	Capacitor, Elect. 1000MF 35V	R518	RC20BF271J	Resistor 270 ohm 1/2W 5%
C513,514	C2HYSY103A	Capacitor Ceramic 0.01MF 500V	R519	RC20BF331J	Resistor 330 ohm 1/2W 5%
D502,503,504,505	TR1N4002	Diode 1N4002	R515	R2H2PK330A	Resistor 33 ohm 1/2W
			R516	RC20BF560J	Resistor 56 ohm 1/2W 5%
			IC501	TRSTK013K	IC STK013K
			R517	RC20BF121J	Resistor 120 ohm 1/2W 5%

MAIN POWER SUPPLY PCB BOTTOM VIEW PB1310400165301



D501 RD-9E · D502 ~ 505 1N4002

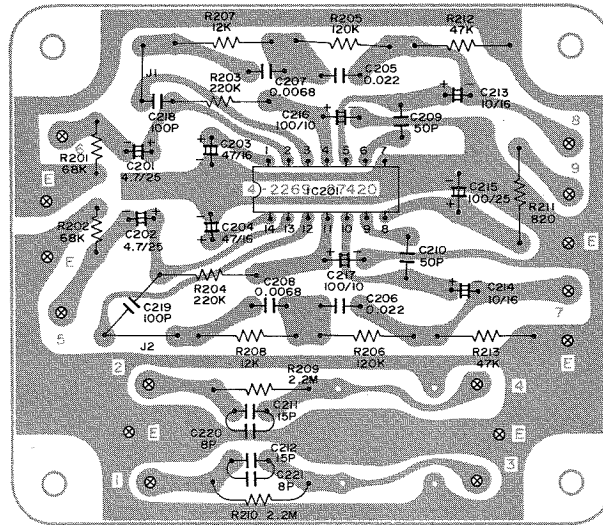
MAIN POWER SUPPLY P.C.B. TOP VIEW PB1310400165301



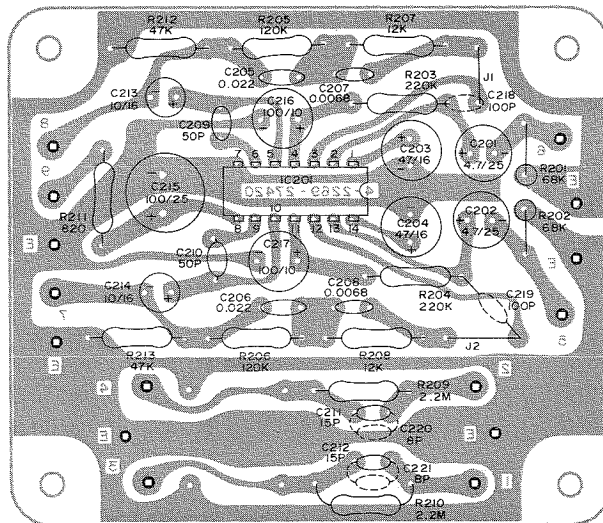
**PARTS LIST**

Ref. No.	Part No.	Description
<b>PRE AMP PCB ASSEMBLY (EQUALIZER PCB ASSEMBLY) PB1310400169300</b>		
86	PB1310400169300	Pre-Amp PCB Assy.
C216,217	CE0252331	Capacitor, Elect. 100MF 10V
C201,202	CS22340-6	Capacitor, Elect. 4.7MF 10V
C213,214	CE1252621	Capacitor, Elect. 10MF 16V
C203,204	CE22342-8	Capacitor, Elect. 47MF 16V
C215	CE22342-11	Capacitor, Elect. 100MF 25V
C211,212	CK22344-9	Capacitor, Ceramic 15pF, 50V
C218,219	CK22347-1	Capacitor, Ceramic 100pF 50V
C209,210	CK0242011	Capacitor, Ceramic 50pF, 50V
C205,206	CY22335-12	Capacitor, Mylar 0.022MF 50V
C207,208	CY22335-9	Capacitor, Mylar .0068MF 50V
R207,208	RF25DC123J	Resistor 12K ohm 1/4W 5%
R205,206	RF25DC124J	Resistor 120K ohm 1/4W 5%
R203,204	RF25DC224J	Resistor 220K ohm 1/4W 5%
R209,210	RF25DC225J	Resistor 2.2M ohm 1/4W 5%
R212,213	RF25DC473J	Resistor 47K ohm 1/4W 5%
R211	RF25DC821J	Resistor 820 ohm 1/4W 5%
R201,202	RF25DC683J	Resistor 68K ohm 1/4W 5%
IC201	TRLA3122	IC LA3122

**EQUALIZER PCB BOTTOM VIEW PB1310400169300**



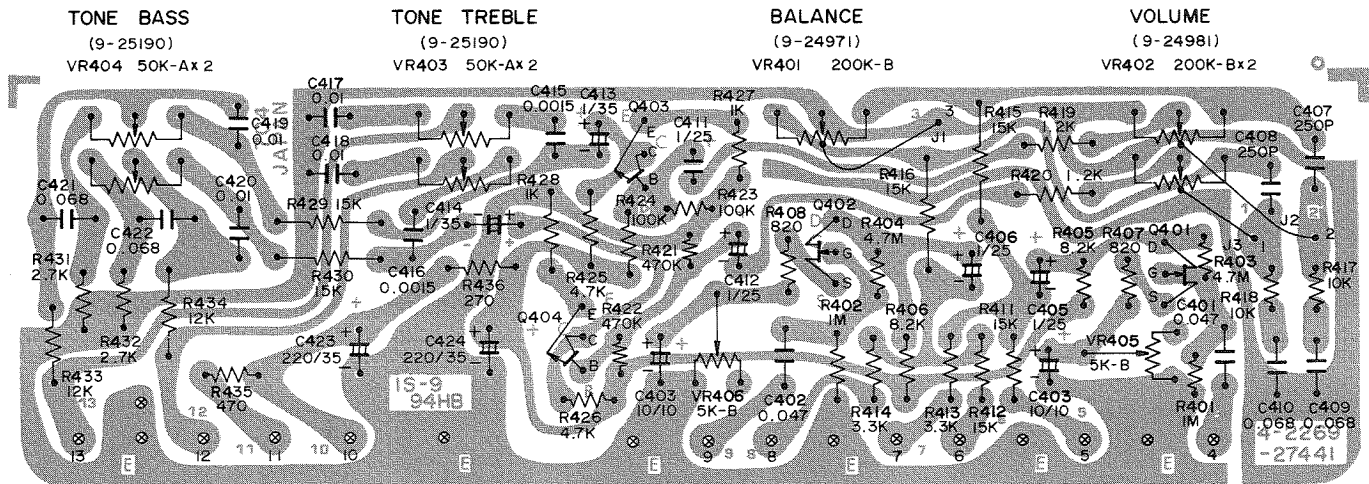
**EQUALIZER PCB TOP VIEW PB1310400169300**



**PARTS LIST**

Ref. No.	Part No.	Description
<b>CONTROL PCB ASSEMBLY PB1310400169200</b>		
87	PB1310400169200	PCB Control
VR401	RP42229249710	Balance Control B-200K
VR402	RP42229249810	Volume Control B-200K x 2
VR403,404	RP42229251900	Bass, Treble Control A50K x 2
C403,404	CECDV10/10	Capacitor, Elect. 10MF 10V
C407,408	CKC1HCSK251SL	Capacitor, Ceramic 250pF 50V
C405,406, 411,412	CEC1EUBX105A	Capacitor, Alsicon 1MF 25V
C417,418, 419,420	CY22335-1	Capacitor, Mylar 0.01MF 50V
C415,416	CY22335-24	Capacitor, Mylar 0.0015MF 50V
C401,402	CY22335-22	Capacitor, Mylar 0.047MF 50V
C421,422, 409,410	CY22335-16	Capacitor, Mylar 0.068MF 50V
C413,414	CE22342-2	Capacitor, Elect. 1MF 50V
C423,424	CE22342-20	Capacitor, Elect. 220MF 35V
C415,416, 429,430	RF25DC153J	Resistor 15K ohm 1/4W 5%
R427,428	RF25DC102J	Resistor 1K ohm 1/4W 5%
R417,418	RF25DC103J	Resistor 10K ohm 1/4W 5%
R423,424	RF25DC104J	Resistor 100K ohm 1/4W 5%
R401,402	RF25DC105J	Resistor 1M ohm 1/4W 5%
R409,410, 419,420	RF25DC122J	Resistor 1.2K ohm 1/4W 5%
R433,434	RF25DC123J	Resistor 12K ohm 1/4W 5%
R411,412	RF25DC153J	Resistor 15K ohm 1/4W 5%
R436	RF25DC271J	Resistor 270 ohm 1/4W 5%
R431,432	RF25DC272J	Resistor 2.7K ohm 1/4W 5%
R413,414	RF25DC332J	Resistor 3.3K ohm 1/4W 5%
R425,426	RF25DC472J	Resistor 4.7K ohm 1/4W 5%
R421,422	RF25DC474J	Resistor 470K ohm 1/4W 5%
R403,404	RF25DC475J	Resistor 4.7M ohm 1/4W 5%
R435	RF25DC471J	Resistor 470 ohm 1/4W 5%
R407,408	RF25DC821J	Resistor 820 ohm 1/4W 5%
R405,406	RF25DC822J	Resistor 8.2K ohm 1/4W 5%
Q401,402	TR2SK30GR	Transistor FET 2SK30GR
Q403,404	TR2SC693F-U	Transistor 2SC693 F.U

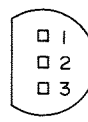
**CONTROL PCB BOTTOM VIEW PB1310400169200**



Q401, 402 2SK30 GR      Q403, 404 2SC693 FU



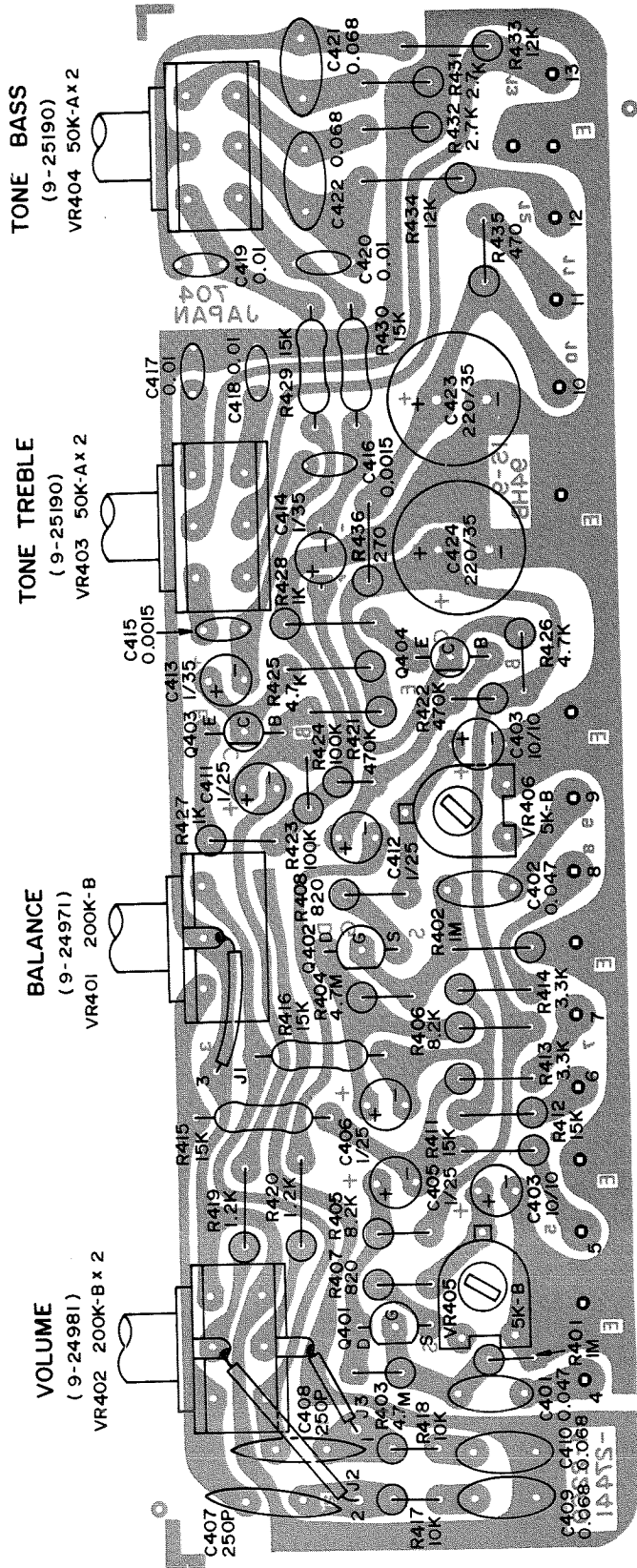
D. DRAIN  
G. GATE  
S. SOURCE



1. Base  
2. Collector  
3. Emitter

TRANSISTOR BOTTOM VIEW

CONTROL PCB TOP VIEW PB1310400169200

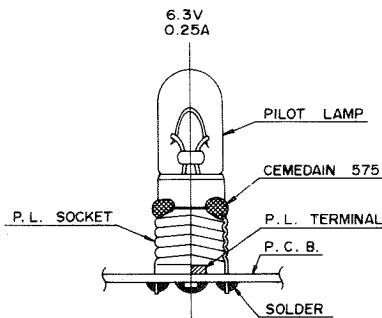
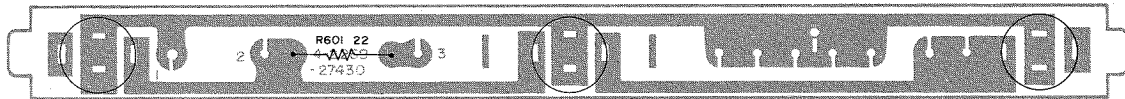


Q401, 402 2SK30 GR Q403, 404 2SC693 FU

**PARTS LIST**

Ref. No.	Part No.	Description
DIAL LAMP PCB ASSEMBLY PB1310400165401		
88	PB1310400165401	Dial Lamp PCB Assy
	4235921290	Socket, Lamp
	4237920950	Terminal, Socket
	LM4612920100	Lamp 6.3V 25mA, Screw Type
R601	RC20BF220J	Resistor 22 ohm 1/2W 5%

**DIAL LAMP PCB BOTTOM VIEW PB1310400165401**

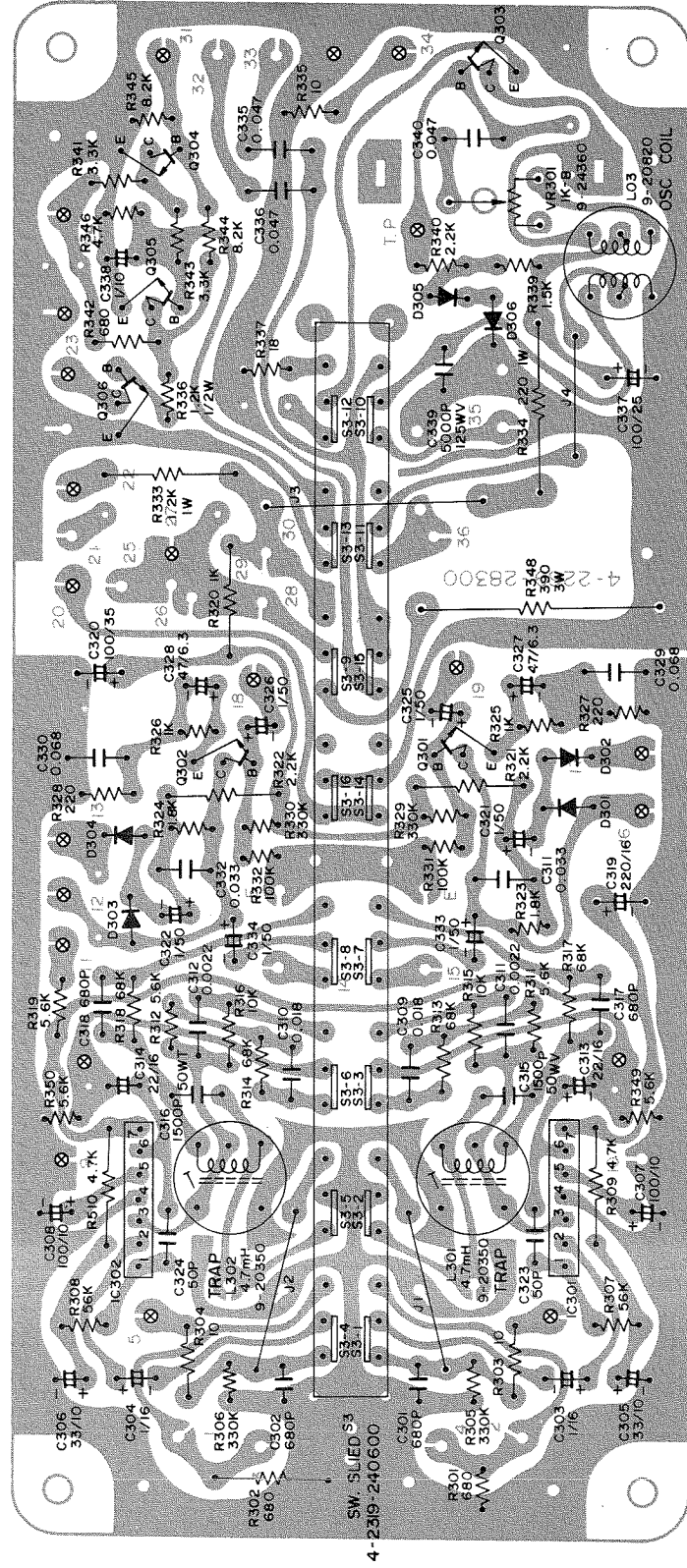


**PARTS LIST**

Ref. No.	Part No.	Description
8 TRACK RECORD/PLAYBACK BIAS AUTO STOP PCB ASSEMBLY PB13104001651010		
89	PB13104001651010	8 Track Rec/Play Bias Stop P.C. Ass'y
VR301	RV4222924360	Resistor, Variable, 1K ohm
S2	SS4231924060	Switch, Slide
L303	LC4258920820	Oscillator Coil, Tape Deck
L301,302	LC4259920350	Trap Coil
C327,328	CE0252225	Capacitor, Elect, 47MF, 6.3V
C338	CS22340-5	Capacitor, Elect, 1MF, 10V
C307,308	CE02523331	Capacitor, Elect, 100MF, 10V
C305,306	CDV33/10	Capacitor, Elect, 33MF, 10V
C313,314	CE1252522	Capacitor, Elect, 22MF, 16V
C319	CE22342-15	Capacitor, Elect, 220MF, 16V
C303,304	CS22346-5	Capacitor, Sint Alum, 1MF, 16V
C337	CE22342-11	Capacitor, Elect, 100MF, 25V
C324	CK0242011	Capacitor, Ceramic, 50pF, 50V
C309,310	CY22335-11	Capacitor, Mylar, 0.012MF, 50V
C311,312	CY22335-21	Capacitor, Mylar, 0.0022MF, 50V
C331,332	CY22335-14	Capacitor, Mylar, 0.033MF, 50V
C340	CY22335-22	Capacitor, Mylar, 0.047MF, 50V
C329,330	CY22335-16	Capacitor, Mylar, 0.068MF, 50V
C321,322, 333,325, 326,334	CE22342-2	Capacitor, Elect, 1MF, 50V
C315,316	CP0217823	Capacitor, Styrofoam, 1500PF, 50V
C301,302, 317,318	CK22347-10	Capacitor, Ceramic, 680PF, 50V
C335,336	CK22348-1	Capacitor, Ceramic, 0.047MF, 50V
C320	CE22342-10	Capacitor, Elect, 100MF, 35V
C339		Capacitor, Styrofoam, 5000PF, 125V
D305,306	TRVD1121	Diode, VD1121
IC301,302	TRTA7120P	Integrated Circuit, TA7120P-D
R309,310	RF25DC472J	Resistor, Carbon, 4.7K ohm, 1/4W, 5%
R302	RF25DC681J	Resistor, Carbon, 680 ohm, 1/4W, 5%
R321,322	RF25DC222J	Resistor, Carbon, 2.2K ohm, 1/4W, 5%
R304,303, 335	RF25DC100J	Resistor, Carbon, 10 ohm, 1/4W, 5%
R320,325, 326	RF25DC102J	Resistor, Carbon, 1K ohm, 1/4W, 5%
R315,316	RF25DC103J	Resistor, Carbon, 10K ohm, 1/4W, 5%
R331,332	RF25DC104J	Resistor, Carbon, 100K ohm, 1/4W, 5%
R339	RF25DC152J	Resistor, Carbon, 1.5K ohm, 1/4W, 5%
R337	RF25DC180J	Resistor, Carbon, 18 ohm, 1/4W, 5%
R319,323, 324	RF25DC182J	Resistor, Carbon, 1.8K ohm, 1/4W, 5%
R327,328	RF25DC221J	Resistor, Carbon, 220 ohm, 1/4W, 5%
R340	RF25DC222J	Resistor, Carbon, 2.2K ohm, 1/4W, 5%
R341,343	RF25DC332J	Resistor, Carbon, 3.3K ohm, 1/4W, 5%
R305,306, 329,330	RF25DC334J	Resistor, Carbon, 330K ohm, 1/4W, 5%
R346	RF25DC472J	Resistor, Carbon, 4.7K ohm, 1/4W, 5%
R311,312, 349,350	RF25DC562J	Resistor, Carbon, 5.6K ohm, 1/4W, 5%
R307,308	RF25DC563J	Resistor, Carbon, 56K ohm, 1/4W, 5%

Ref. No.	Part No.	Description
8 TRACK RECORD/PLAYBACK BIAS AUTO STOP PCB ASSEMBLY PB13104001651010		
R313,314, 317,318	RF25DC683J	Resistor, Carbon, 68K ohm, 1/4W, 5%
R344,345	RF25DC822J	Resistor, Carbon, 8.2K ohm, 1/4W, 5%
R336	RC20BF122J	Resistor, Carbon, 1.2K ohm, 1/2W, 5%
R342	RC20BF681J	Resistor, Carbon, 680 ohm, 1/2W, 5%
R333	R3AXPK122A	Resistor, 1.2K ohm, 1W
R334	R3AXPK221A	Resistor, 220 ohm, 1W
R348	R3WXP391A	Resistor, 390 ohm, 3W
D301,302	TR1S188FM	Diode 1S188FM
303,304		
Q304,305	TR2SC536D	Transistor 2SC536D
Q301,302	TR2SC693E	Transistor 2SC693E
Q306	TR2SD400D	Transistor 2SD400D
Q303	TR2SD330E	Transistor 2SD330E

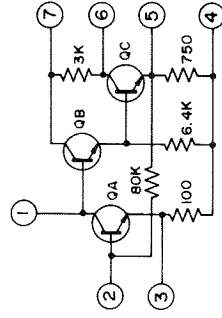




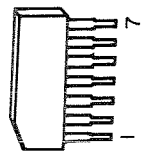
4-2319-240600

- IC301 , 302 TA-7120P
- Q301 , 302 2SC693 EL - WHT
- Q303 , 304 2SC536 D FP
- Q305 2SD400 D
- Q306 2SD330 E
- D301 ~ 304 IS188 FM
- D305 , 306 VD1121

TA-7120P

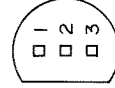


TA7120P



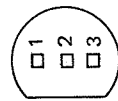
FRONT VIEW

2SC693, 2SD400



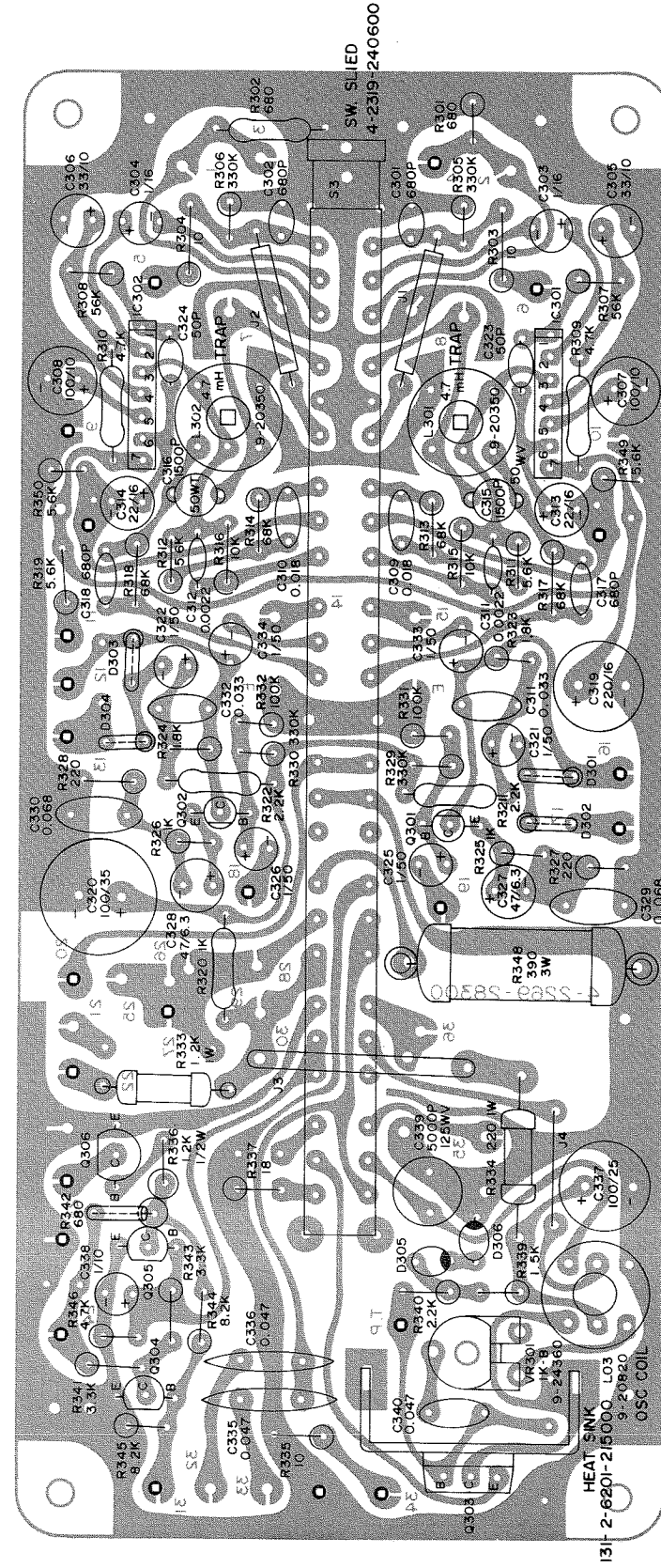
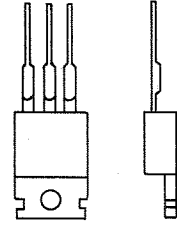
TRANSISTOR BOTTOM VIEW

2SC536



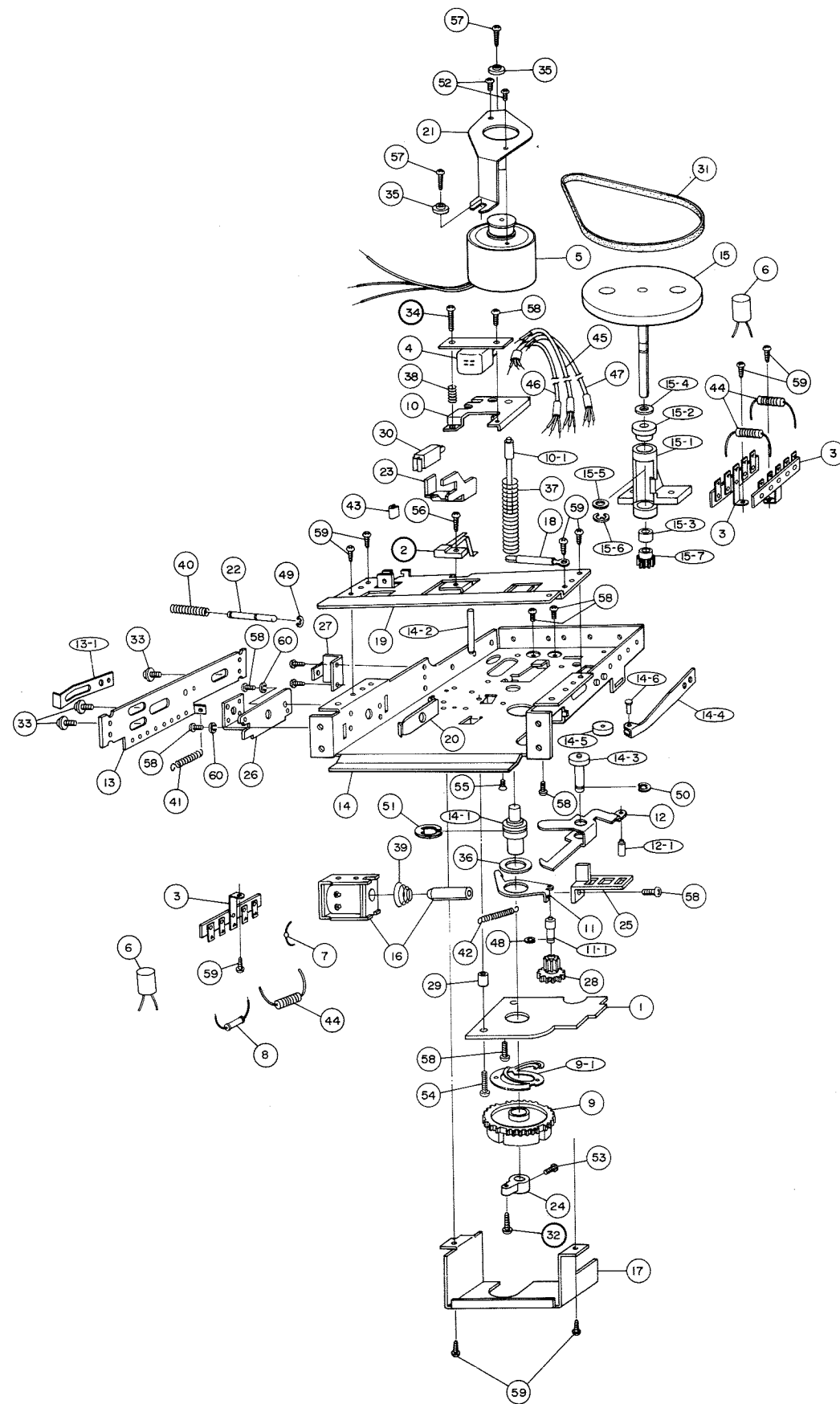
BOTTOM VIEW

2SD330E



131-2-6201-215000

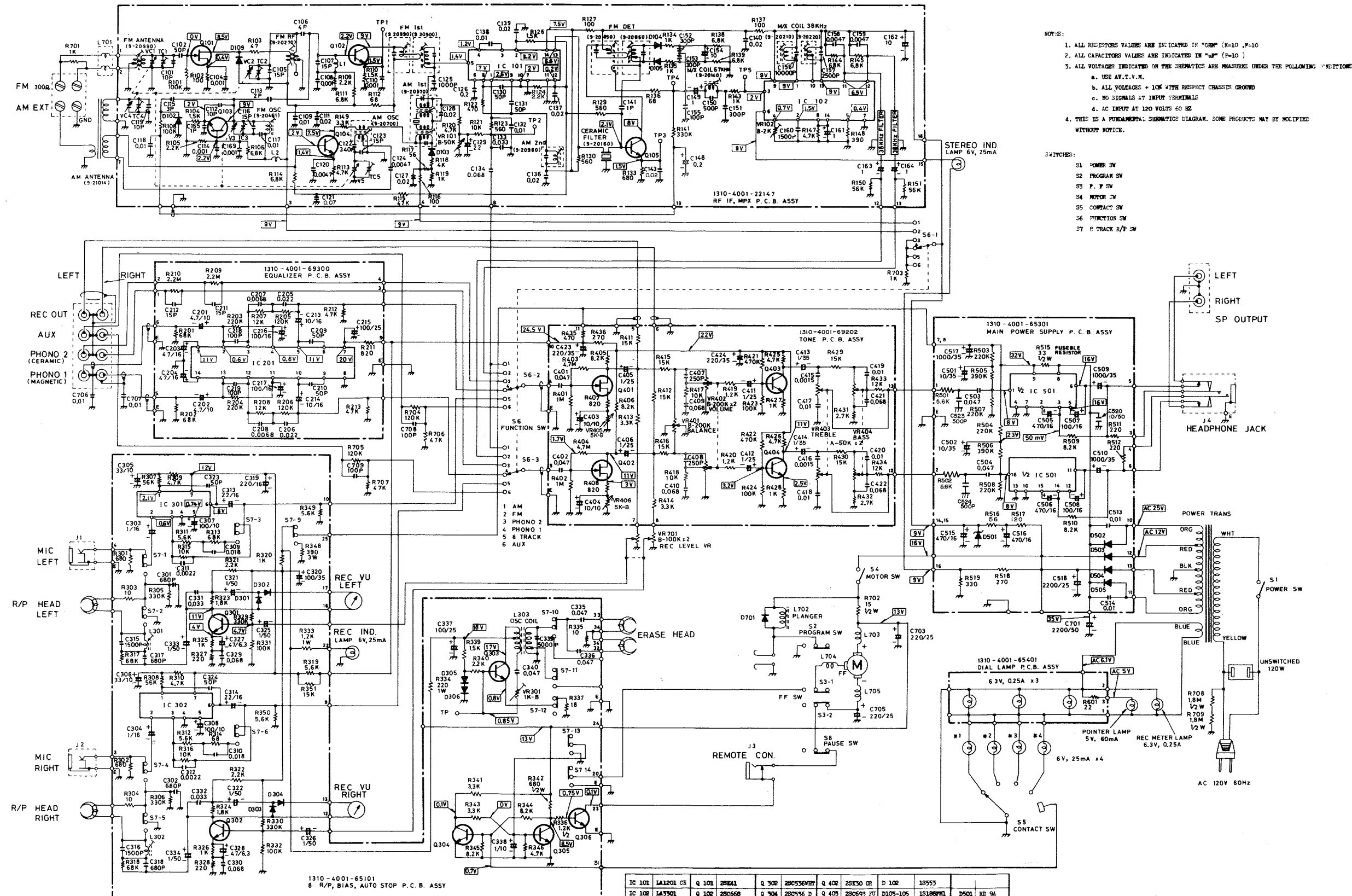
- IC301 , 302 TA-7120P
- Q301 , 302 2SC693 EL - WHT
- Q303 , 304 2SC536 D FP
- Q305 2SD400 D
- Q306 2SD330 E
- D301 ~ 304 IS188 FM
- D305 , 306 VD1121

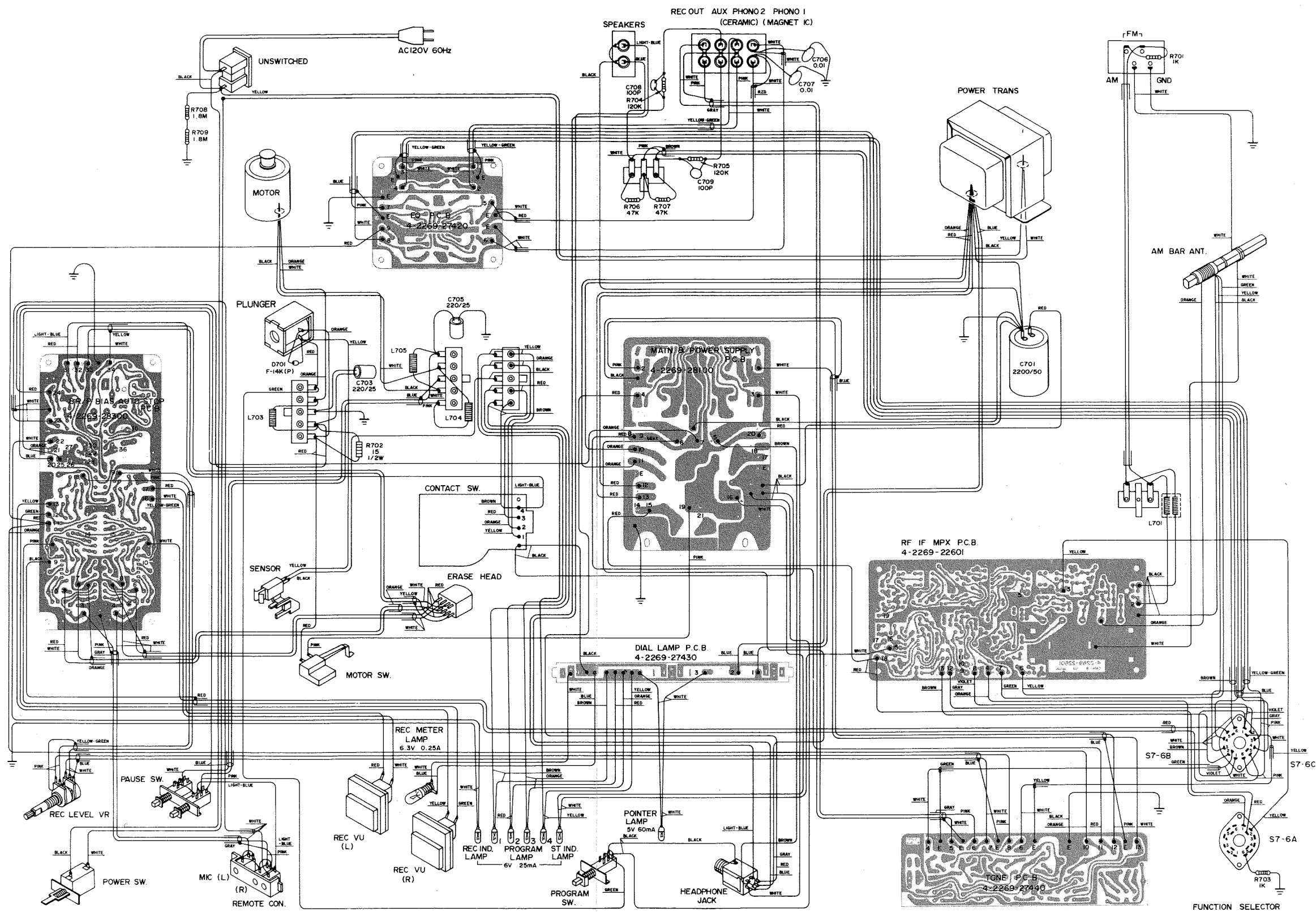


Ref. No.	Part No.	Description
TAPE DECK ASSEMBLY		
1	4226927090	Connector PCB
2	4231971280	Switch, Leaf
3*	4237920121	Terminal Strip 4 Lug
4	4242920040	Record/Playback Head
5	4526929001	Motor DC
6	CE22342-14	Capacitor, Elect. 200MF 25V
7	TRF14K (P)	Diode F14K (P)
8	RC20BF150K	Resistor 15 Ohm 1/2W
9	1310380300120	Gear Arm, Assembly
10, 10-1	1310380400130	Head Base Assembly
11	1310380600130	Gear Arm, Assembly
12	1310380600140	Lever, Stop Assembly
13, 13-1	1310380600150	Slide Assembly, Record
14*	1310380700100	Chassis Assembly
15	1310380800110	Flywheel Capstan Assembly
16	1310400800301	Solenoid Assembly
17*	1312141013700	Cover
18*	1310301610400	Wire Clamp
19*	1312380200120	Bridge
20	1312380300120	Guide
21*	1312380400120	Motor Mounting Bracket
22	1312380600110	Pin Record Lock
23	1312380700110	Tape Guide
24	1312381100120	Head Base Adjustment Cam
25	1312381500110	Stopper, Plunger
26*	1312382100100	Bracket, Record Lever
27*	1312382100110	Bracket, Record Lever
28	1312382200110	Planetary Gear
29	1312420821200	Spacer
30	1312480200120	Sensor
31	1312480400120	Drive Belt
32	1312480800120	Screw, Head Base Adjustment
33*	1312480800130	Screw, Record Lock Slide
34	1312480800140	Screw, Azimuth
35*	1312480900170	Washer, Motor Mount
36*	1312480900180	Washer, Gear Arm Assembly
37	1312580100210	Spring, Head Base
38	1312580100220	Spring, Azimuth
39	1312580100230	Spring, Solenoid Plunger
40	1312580100240	Spring, Record Lock Pin
41	1312580100250	Spring, Record Slide Assembly
42	1312580100260	Spring, Gear Arm Assembly
43	1412446908800	Pad, Tape
44	4253920210	Choke Coil
45*	3353020310000	Wire Assembly
46*	3353040285000	Wire Assembly
47*	3353090320000	Wire Assembly
48*	1083110200000	E Ring 2mm
49*	1083110250000	E Ring 2.5mm
50*	1083110300000	E Ring 3mm
51*	1083111000000	E Ring 10mm
52*	1013110260401	Screw Pan Head 2.6 x 4mm
53*	1013110260603	Screw Pan Head 2.6 x 6mm
54*	1013110301201	Screw Pan Head 3 x 12mm
55*	1013120300604	Screw Flat Head 3 x 6mm
56*	1023120260600	Screw Pan Head 2.6 x 6mm
57*	1023220301202	Screw Tap 3 x 12mm
58	1013110300401	Screw Pan Head 3 x 4mm
59*	1023120300602	Screw Pan Head 3 x 6mm
60*	1053120300002	Spring Washer 3mm
90	1310400700401	Tape Deck Assembly

\* Not a service part

**SCHEMATIC DIAGRAM**





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