SERVICE MANUAL

TENSAI
INTERNATIONAL

HI-FI STEREO RECEIVER
MODEL
TR-1030

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SPECIFICATIONS

Amplifier section

Continuous power output	4 ohms : 2x35W
at 1KHz both channels driven	8 ohms : 2x25W
T.H.D. at 1W	0.1%
at rated output	0.2%
Power bandwidth	20-40000 Hz
Frequency response	10-50000 Hz
Damping factor	50
Input sensitivty	Phono : 2.5mV
	Mic : 2.5mV
	Aux : 160mV
	Tape : 160mV
Cross talk	1KHz : 60dB
	10KHz : 40dB
S/N ratio	Phono : 70dB
(Unweighted)	Mic : 65dB
	Aux : 85dB
Input overload	120mV
Tone control	100Hz : ±10dB
	10KHz : ±10dB
Loudness	100Hz : 10dB
	10KHz : 6dB
Filter	Low : 7dB

FM section

Useable sensitivity	1.6μV
Tuning range	87.5–109MHz
T.H.D.	Mono : 0.2%
	Stereo : 0.4%
S/N ratio	Mono : 60dB
	Stereo : 55dB
Image rejection	80dB
I.F. rejection	90dB
AM suppression	55dB
Intermodulation	80dB
Spurious response	80dB
Muting level	5μV
Frequency response	20–15000Hz
19 KHz rejection	50dB
38 KHz rejection	60dB
Stereo separation	45dB

AM section

Tuning range	MW : 525–1650 KHz
	LW : 130–365 KHz
Useable sensitivity	MW : 20μV
	LW : 30 μV
T.H.D.	MW : 1%
	LW : 1.5 %
S/N ration	MW : 45dB
	LW : 40dB
I.F. rejection	MW : 40dB
	LW : 30dB
AGC figure of merit	MW : 60dB
	LW : 60dB
Frequency response	MW : 100–2500Hz
	LW : 100–2500Hz

GENERAL TROUBLESHOOTING CHART

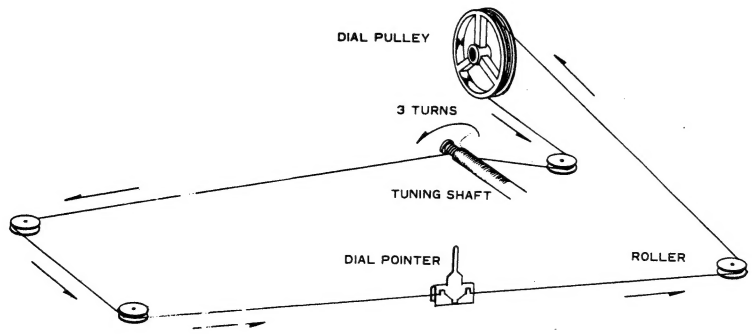
If the set is otherwise operating satisfactorily, the more common causes of trouble may be generally attributed to the following:

1. Incorrect connections or loose terminal contacts. Check the connections of speaker, record player, tape recorder, antenna and line cord.
2. Improper operation. Before operating any audio component, be sure to read the manufacturer's instructions.
3. Improper location of audio components. The proper positioning of components, such as speakers and turntable, is vital to stereo.
4. Defective audio components. The followings are some other common causes of mainfunction and what to do about them.

Program	Symption	Probable Cause	What to do
AM, FM, MPX	1. Constant or intermittent noise heard at times or in a certain area	1. Discharge or oscillation caused by electrical appliances, such as flourescent lamp, TV set, D.C. motor rectifier or oscillator 2. Natural phenomena such as atmospheric static or thunderbolts 3. Insufficient antenna input due to ferroconcrete wall or long distance from the station 4. Wave interference from other electrical appliances	1. Attach a noise limiter to the electrical appliances causing the noise, or attach it to the amplifiers power sources 2. Install an outdoor antenna and ground the set to raise the signal-to-noise ratio 3. Reverse the power cord plug receptacle connections 4. If the noise occurs at a certain frequency, attach a wave trap to the antenna input 5. Keep the set at a proper distance from other electrical appliances
	2. The needle of the signal and tuning meter does not move sharply	1. The set is located in a weak signal area 2. Some FM or TV broadcasting station is near at hand	1. Place the set to receive maximum signal strength 2. Ground the set to the earth
	3. The zero point of the meter diverges much	1. Regional difference in field intensity	1. The unit is not at fault
AM reception	1. Noise heard at a particular time of a day in a certain area of any part of dial	1. Due to the nature of AM broadcasts	1. In some cases, the noise can be eliminated by grounding the set or reversing the power cord plug-receptacle connections
	2. High-frequency noise	1. Adjacent channel interference or beat interference 2. TV set too close to audio system	1. Although such noise cannot be eliminated by the set, it is advisable to adjust the TREBLE control from midpoint to left and switch on the HIGH FILTER 2. Keep the TV set at a proper distance from the audio system
	3. Broadcasting interference	1. Antenna's input sensitivity is too strong	1. Connect resistor (1K-10K) in series to antenna terminal.

Program	Symptom	Probable Cause	What to do
FM reception	1. Noisy	1. Poor noise limiting effect or too low S/N ratio due to insufficient antenna input	1. Install the antenna for maximum signal strength 2. If this does not prove effective, use an outdoor antenna designed exclusively for FM. When you use a TV antenna for both TV and FM with a divider, make sure TV reception is not affected 3. An exclusively long antenna may cause noise
	Note: FM reception is affected considerably by transmission condition of station power and antenna efficiency. As a result, you may receive one station quite well while receiving another station poorly		
	2. Noise heard like scratch	1. Ignition noise caused by starting of an automobile engine	1. Install the antenna and its lead-in wire in proper distance from the road or raise the antenna input as described above
	3. Tuning noise between stations	1. This results from the nature of the FM reception. As the station signal becomes weak, the noise limiter effect is decreased and the amplification of the limiter, in turn, is enlarged generating noise	1. Turn the MUTING switch on. It reduces the sensitivity, and therefore it should be used sparingly
FM/MPX	1. Noise heard during FM/MPX reception while not heard during FM mono reception	1. Weaker signal because the service area of the FM/MPX broadcast is only half that of the FM mono broadcast	1. Install the antenna for maximum antenna input 2. Switch on the high filter and/or turn the TREBLE control from midpoint to left
	2. Clearness of channel separation is decreased during reception	1. Excess heat of IC	1. Circulation of air is important to the set. Be sure that air is flowing under the set 2. Operating after rest some time
	1. The stereo indicator blinks on and off	1. Interference 2. Too weak RF signal	1. The indicator is not at fault, adjust VR 101
Record playing or tape playback	1. Hum or howling	1. Record player placed too close to speaker 2. Wire other than shielded wire used 3. Loose terminal contact 4. Shielded wire too close to line cord, florescent lamp or other electrical appliances 5. Nearby amateur radio station or TV transmission antenna	1. Place a cushion between the player and the speaker or place them away from each other 2. The connecting shielded wire should be short as possible 3. Switch on the LOW FILTER and adjust the BASS control from midpoint to left 4. Consult the nearest Radio Regulatory Bureau
	2. Surface noise	1. Worn or old record 2. Worn needle 3. Needle dusty 4. Improper needle pressure	1. Recondition the playback head of the tape recorder or the needle, the record player 2. Adjust the TREBLE control from midpoint 3. HIGH FILTER on
All stereo programs	BALANCE control is not at midpoint when equal sound comes from left and right channels	It is important to adjust for equal sound comes from both channels. It should not always be set to the midpoint	Set the MODE switch to mono and then set the BALANCE control to a position where equal sound comes from both channels

DIAL CORD STRINGING



FM ALIGNMENT PROCEDURE

Step	Align	Generator	Dial Setting	Adjust	Adjust for
1.	IF			Front end IF	Maximum noise output
2.	Discriminator	1) Sweep generator 2) 98MHz 400Hz 40KHz deviation	98MHz	FM detector T101 top & bottom core T101 Top core T101 Front End IF	Maximum S curve Center meter Center position Minimum distortion Minimum distortion
3.	OSC	88MHz 400Hz 40KHz deviation	88MHz	Front End Lo	Maximum
4.	OSC	108MHz 400Hz 40KHz deviation	108MHz	Front End Tco	Maximum
5.	Reiterate 3 & 4				
6.	High-frequency Amp. circuit	90MHz 400Hz 40KHz deviation	90MHz	Front End LR1, LR2, LA	Maximum
7.	High-frequency Amp. circuit	106MHz 400Hz 40KHZ deviation	106MHz	Front End TCR1, TCR2, TCA	Maximum
8.	Reiterate 6 & 7				
9.	FM stereo lamp			VR 101	19KHz setting with counter connected to P123
10.	Stereo separation	98MHz 400Hz 40KHz deviation	98MHz	VR102	Maximum output difference between P119, P120 output from L output and that from R output of SSG

Note: To align, connect the output of FM SSG to antenna terminal of 75 ohms for feeding signal and connect the FM output P119 in P120 to VTVM and oscilloscope for output indication.

AM ALIGNMENT PROCEDURE

Step	Align	SSG	Dial Setting	Adjust	Adjust for
1.	IF	455KHz ± 30KHz		IFT1 T003 IFT2 T004	Best IF Curve Maximum
2.	OSC	535KHz 400Hz 30% modulation	535KHz	OSC T002	Maximum Tuning
3.	OSC	1600KHz 400Hz 30% modulation	1600KHz	OSC Trimmer Front end AM	Maximum Tuning
4.	Reiterate 2 & 3				
5.	RF AMP	600KHz 400Hz 30% modulation	600KHz	RF coil T001	Maximum Tuning
6.	External Bar Ant.	600KHz	600KHz	AM External Bar Ant.	Maximum Tuning
7.	Antenna Circuit	1400KHz 400Hz 30% modulation	1400KHz	Front end	Maximum Tuning

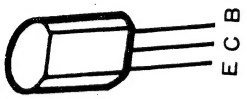
Note: To align, connect AM S.S.G. to AM antenna terminal for feeding signal and connect oscilloscope and VTVM to P002 output indicating.

PROTECTION CIRCUIT

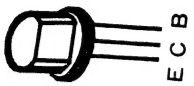
*** Current Limiter "L"**

This circuit is designed to protect the speaker and power transistor from damage when the over current is flowed to power transistor by shorting the output or overload.
If the over current to R551, R552 and the voltage drop across the resistors more than turn on voltage of Q506 and Q508 then these transistors are turned on and the input of Q504, Q509 is shunted.
Hence this circuit protects the power transistor and speaker from damage by limiting the over current.

TRANSISTOR VIEW



2SA 777
C 1509



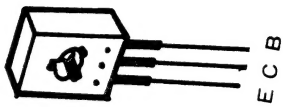
2SC 1681
C 732
C 733
C 734
A 841
A 561
C 381
C 371



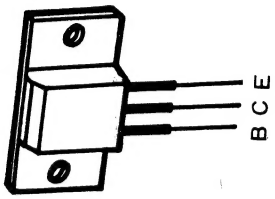
2SK 83



2SK 30



2SC 1567
A 794



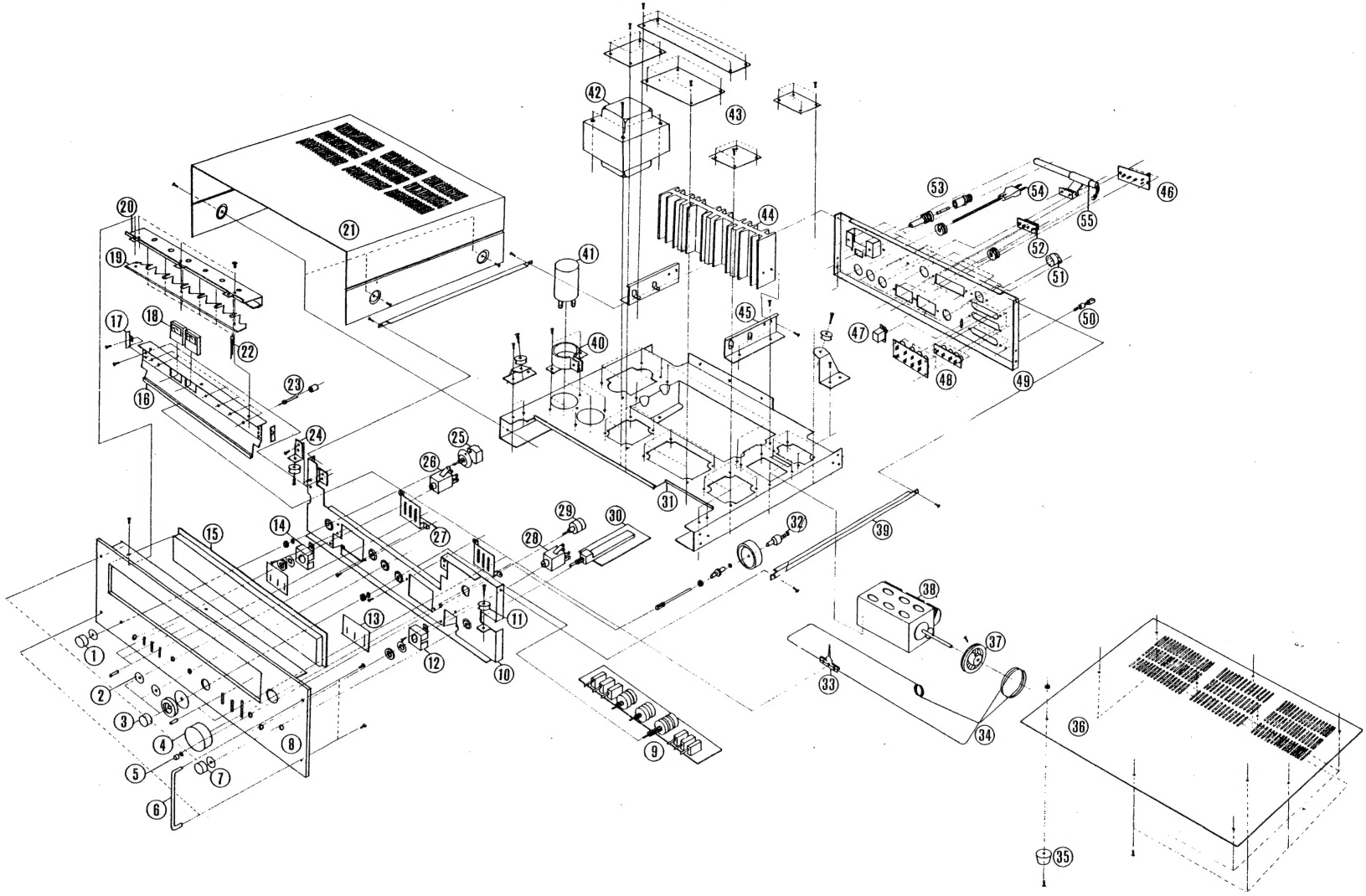
2SD 586
B 616

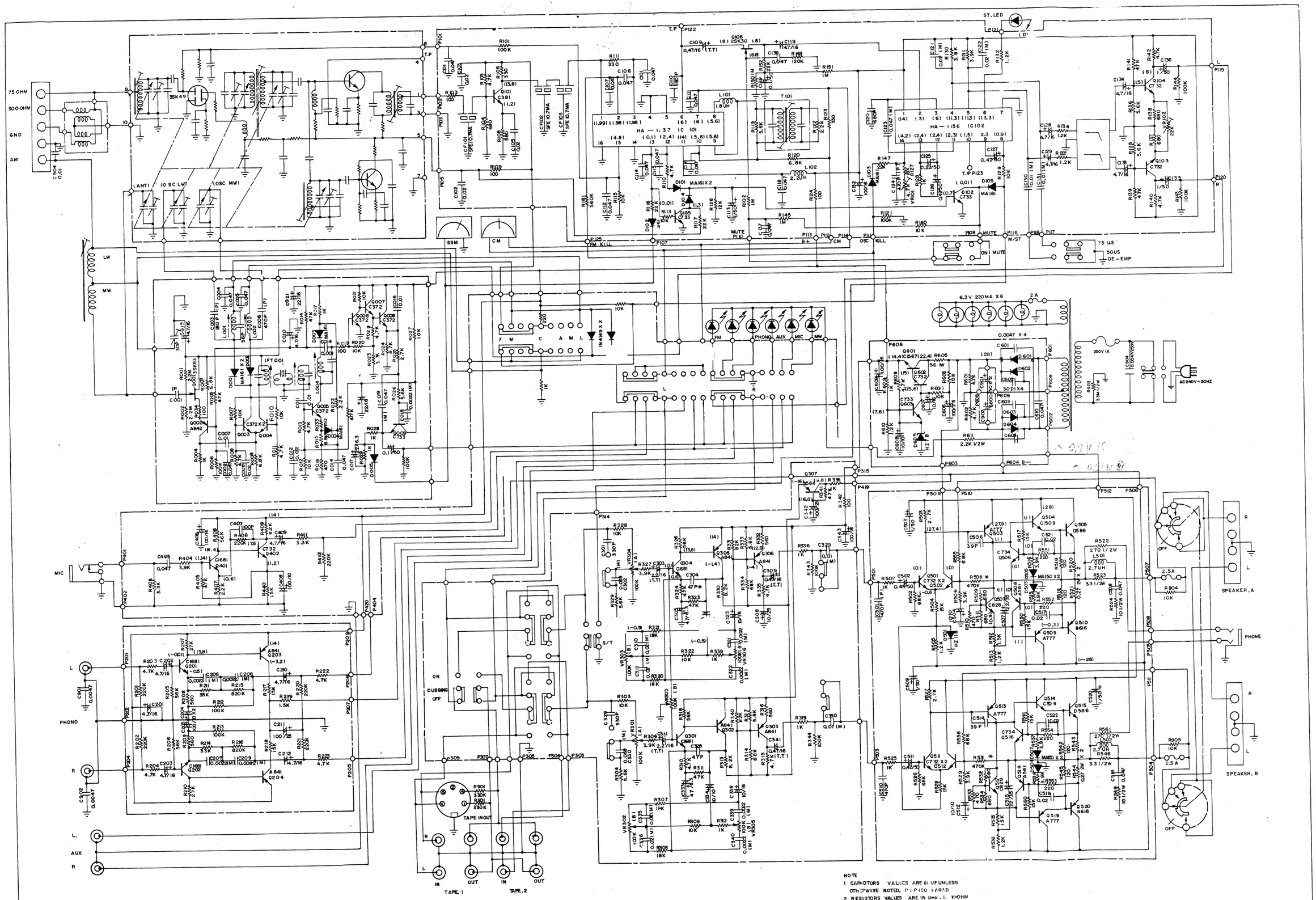
DESCRIPTION OF EXPLODED VIEW

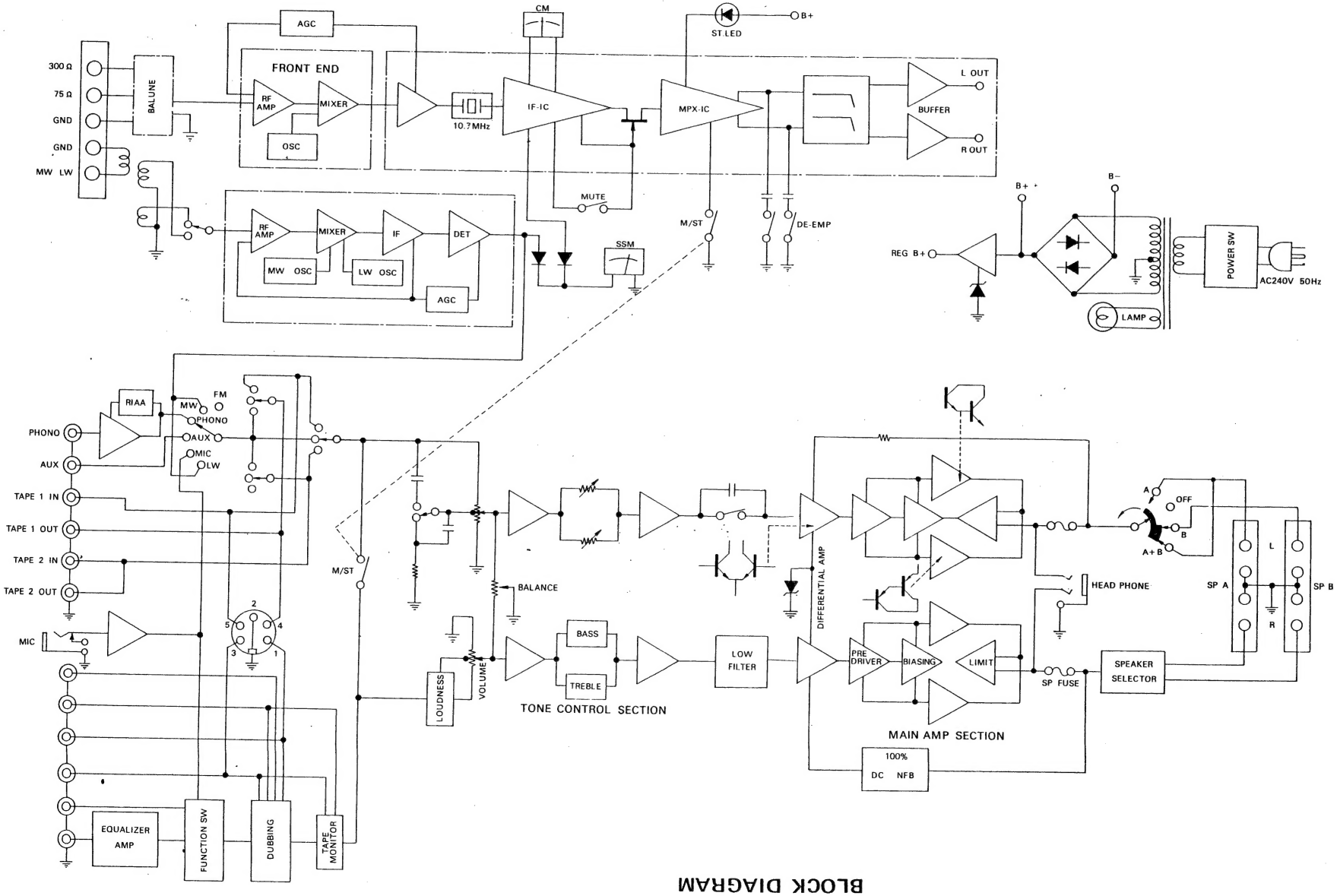
Ref. No.	Parts Name	Part No.
1)	Knob for Power, Speakers and Felt	22-524 80-426
2)	Handle	38-001
3)	Knob for Selector and Felt	22-524, 80-426
4)	Knob for Tuning	22-527
5)	Front Panel	20-021
6)	Felt for Lever and Push	80-428
7)	Bezel for Push	40-204
8)	Dial Lens	40-204
9)	Dial Scale and B.K.T.	40-109, 32-047
10)	Acryl Reflector	40-214
11)	Lamp House	30-013
12)	Meter for Signal and Tuning	51-818, 51-817
13)	Lamp	51-705
14)	L.E.D. and L.E.D. Socket	51-708, 70-502
15)	Power and Speaker SW	52-306-30
16)	B.K.T.for Lever	32-087
17)	Mic Jack	51-401
18)	Selector SW	52-318
19)	Front Chassis.	10-019
20)	B.K.T. for Mic Jack	32-086
21)	P.C. B	
22)	Dial Pointer	606-202
23)	Dial Cord	
24)	Rubber Foot	40-301
25)	Bottom Cover	13-022

Ref. No.	Parts Name	Part No.
26)	Dial Pulley	60-022
27)	Front End	
28)	Tuning Mechanism Ass'y	60-902
29)	Master Chassis	11-007
30)	Dial Roller B.K.T.	32-045
31)	Dial Roller	60-101
32)	B.K.T. for Support	32-098
33)	Steel Cabinet	21-505
34) 35)	Elect.Cap. 4700μF/35WV	
36)	B.K.T. for Heat Sink	32-005
37)	Heat Sin'.	80-309
38)	Power Transformer	72-006
39)	P.C. B	
40)	AC Cord	60-301, 40-503
41)	DE-EMP. SW	52-101
42)	RCA Connector 4p and 8p	51-201, 51-207
43)	Back Chassis	12-021
44)	System Ground	51-902
45)	Din Connector	51-301
46)	Speaker Terminal	51-001
47)	Antenna Terminal	51-102
48)	AM Antenna Ass'y	72-416, 40-601
49)	Fuse Holder and Fuse	50-401

EXPLODED VIEW



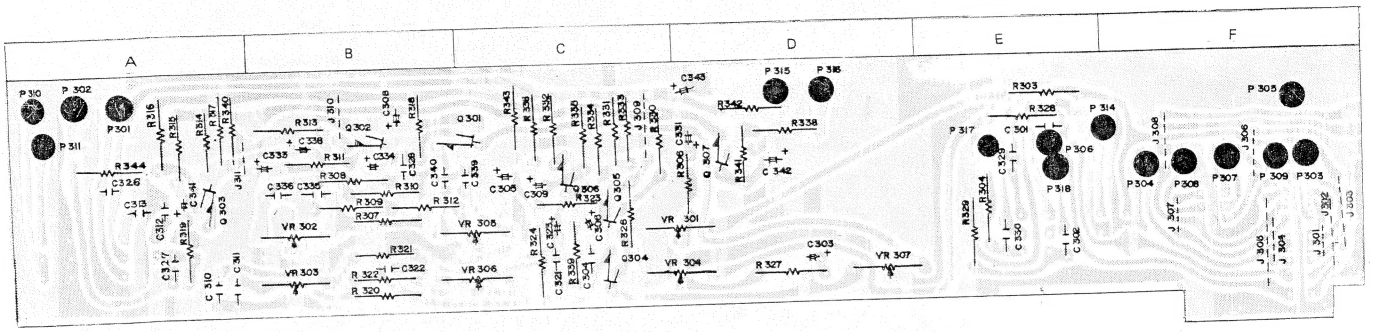

75 OHM
300 OHM
GND
AM
(ANT)
(OSC SW)
(OSC MW)
LW
MW
SSM
CM
MUTE
ON/ MUTE
75 US
50US
DE-EMP
ST. LED
M/ST
FM
PHONO
AUX
MIC
MW
6.3V 220MA X6
2A
250V 1A
AC240V-50HZ
SPEAKER. A
SPEAKER. B
PHONE
TAPE INOUT
TAPE. 1
TAPE. 2
ON
DUBBING
OFF
S/T
MIC
PHONO
AUX
NOTE
1 CAPACITORS VALUES ARE IN UF UNLESS OTHERWISE NOTED, P=PICO FARAD
2 RESISTORS VALUES ARE IN OHM, K=KOHM
3. NOTED DC VOLTAGE ARE MEASURED WITH D V M AT NO INPUT SIGNAL



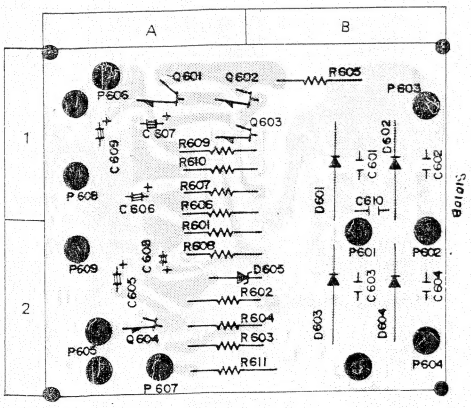
BLOCK DIAGRAM

P.C.B AND PARTS LIST

Pre Amp & SW. B.D.	S1006F	FM	B.D.	S1003F
Supply B.D.	S1010B	Main AMP	B.D.	S1000A
AM B.D.	S1003O	Selector	SW. B.D.	S1023E
EQ B.D.	S1008K			



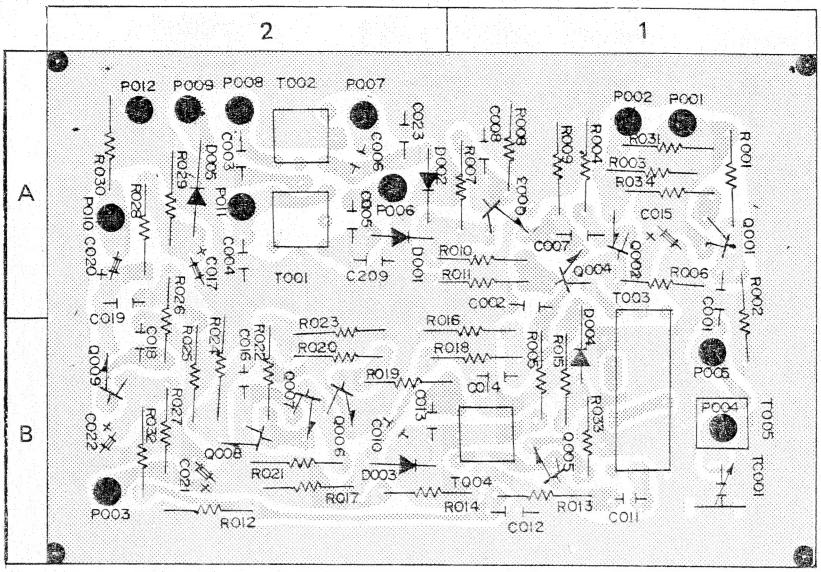
Symbol	Descripton	Location	Symbol	Description	Locition	Smybol	Description	Location
R303	10K±5% ¼W	E	R335	4.7K±5% ¼W	C	C334	10 μF 10WV	B
R304	5.6K 〃	E	R336	1K 〃	C	C335	0.02 μF (M)	B
R306	3.9K 〃	D	R338	1K 〃	D	C336	0.02 μF (M)	B
R307	18K 〃	B	R339	1K 〃	C	C338	10 μF 16WV	B
R308	18K 〃	B	R340	82K 〃	A	C339	0.0022 μF (M)	C
R309	10K 〃	B	R341	47K 〃	D	C340	0.0022 μF (M)	B
R310	4.7K 〃	B	R342	100Ω 〃	D	C341	0.47 μF 16WV (T)	A
R311	47K 〃	B	R343	100K 〃	C	C342	100 μF 26WV	D
R312	1K 〃	B	R344	100K	A	C343	100 μF 16WV	D
R313	8.2K 〃	B				C350	0.01 μF (M)	D
R314	68K 〃	A	C301	330PF	E			
R315	4.7K 〃	A	C302	0.068μF (M)	E			
R316	560 〃		C303	2.2μF 16WV (T)	D	Q301	2SC 1681	
R317	5.6K 〃	A	C304	47PF	C	Q302	2SA 841	BC
R318	56K 〃	B	C305	47μF 6.3 WV	C	Q303	2SA 841	A
R319	1K 〃	A	C306	10μF 10 WV	C	Q304	2SC 1681	C
R320	18K 〃	B	C308	10μF 25 WV	B	Q305	2SA 841	C
R321	18K 〃	B	C309	0.47 μF 16WV (T)	C	Q306	2SA 841	C
R322	10K 〃	B	C301	0.02 μF (M)	A	Q307	2SA 564	D
R323	47K 〃	C	C311	0.02 μF (M)	A			
R324	4.7K 〃	C	C321	0.0022 μF (M)	C			
R326	56K 〃	C	C322	0.0022 μF (M)	B	VR301	100K (A)	CD
R327	3.9K 〃	D	C323	10 μF 16WV	C	VR302	100K (B)	B
R328	10K 〃	E	C325	0.01 μF (M)	B	VR303	100K (B)	B
R329	5.6K 〃	E	C326	47PF	A	VR304	100K (A)	CD
R330	8.2K 〃	C	C329	330PF	E	VR305	100K (B)	BC
R331	82K 〃	C	C330	0.068 μF (M)	E	VR306	100K (B)	BC
R332	560 〃	C	C331	2.2 μF 16WV (T)	D	VR307	100K (B)	D
R333	5.6K 〃	C	C333	47 μF 6.3WV	B			
R334	68K 〃							



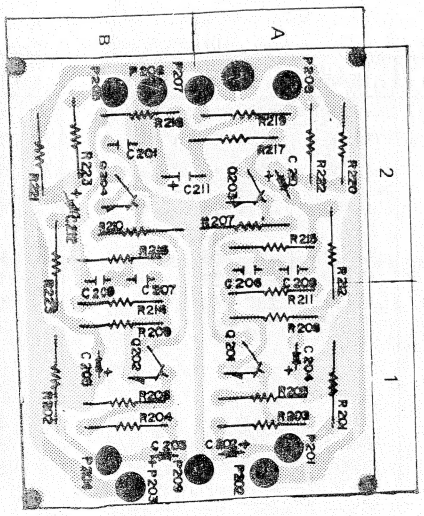
S1010B Supply B.D.

Symbol	Description	Location	Symbol	Description	Location
R601	4.7KΩ± 5% ¼W	2AB	C606	100μF 25WV	1A
R602	4.7KΩ± 5% ¼W	2AB	C607	10μF 16WV	1A
R603	1K ± 5% ¼W	1AB	C608	10μF 10WV	2A
R604	47K± 5% ¼ W	1AB	C609	100μF 16WV	1A
R605	56Ω± 5% 1W	1B	C610	0.047μF	1B
R606	10KΩ± 5% ¼W	1AB			
R607	10KΩ± 5% ¼W	1AB	Q601	2SC 1567	1A
R608	4.7KΩ± 5% ¼W	2AB	Q602	2SC 732	1AB
R609	1KΩ± 5% ¼W	1AB	Q603	2SC 733	1AB
R610	1.2KΩ± 5% ¼W	1AB	Q604	2SA 564	2A
R611	2.2KΩ± 5% ½W	2AB			
			D601	$30D_1$	1B
C601	0.0047μF	1B	D602	$30D_1$	1B
C602	0.0047μF	1B	D603	$30D_1$	2B
C603	0.0047μF	2B	D604	$30D_1$	2B
C604	0.0047μF	2B	D605	HZ 7B Zener	2AB
C605	100μF 25WV	2A			

S10030 AM B.D.



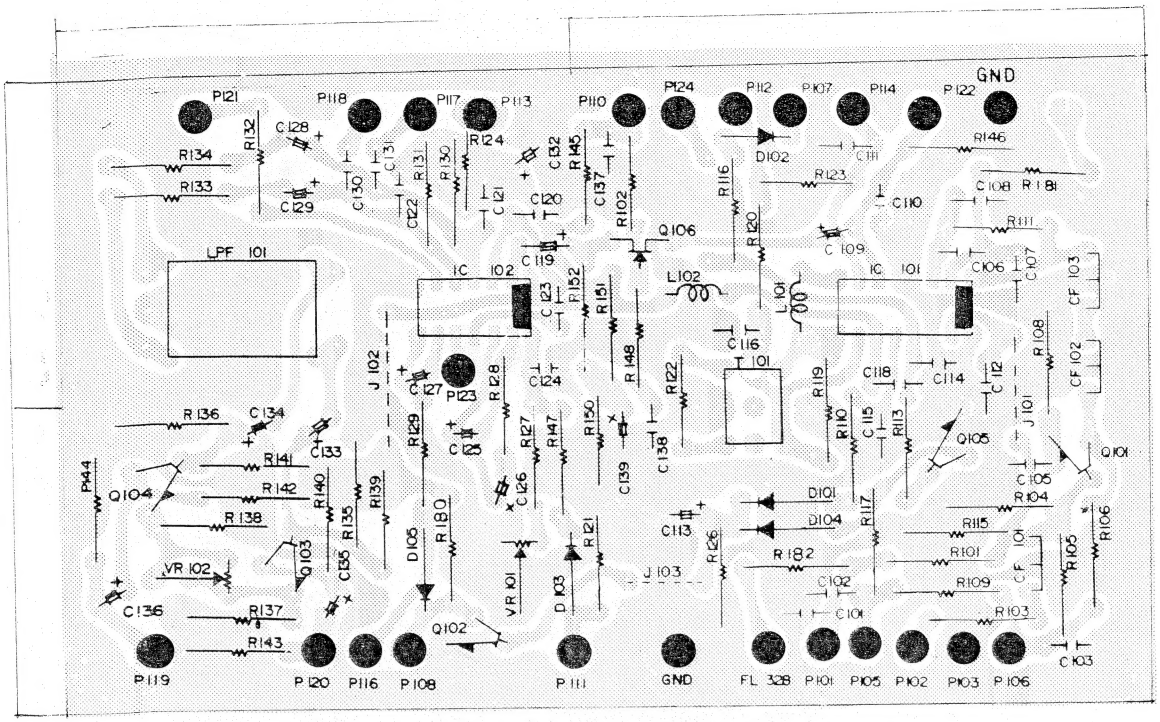
Symbol	Despription	Location	Symbol	Description	Location	Symbol	Description	Location
R001	2.2MΩ ±5% ¼W	1A	R028	1KΩ ±5% ¼W	2B	C019	0.047 μF ±5%(M)	2A
R002	〃 〃	1A	R029	470Ω	2A	C020	0.1 μF 50WV	2A
R003	6.8KΩ 〃	1A	R030	100KΩ	2B	C021	22 μF 16WV	2A
R004	1KΩ 〃	1A	R031	220Ω	2B	C022	22 μF 16WV	1A
R005	47KΩ 〃	1B	R032	4.7KΩ				2B
R006	100KΩ 〃	1A	R033	150Ω	2A	T001	LW OSC	1B
R007	10KΩ 〃	1A	R034	100Ω	2A	T002	MW OSC	1A
R008	4.7KΩ 〃	1A			1B	T003	AM IFT-1	
R009	3.3KΩ 〃	1A			1B	T004	AM IFT-2	
R010	10KΩ 〃	1A	C001	3P ±10%		T005	MW RF	1B
R011	4.7KΩ 〃	1A	C002	0.047 μF	1B	TC001	30P(Trimmer)	1A
R012	10KΩ 〃	2B	C003	0.047 μF				2A
R013	4.7KΩ 〃	1B	C004	0.047 μF	2A	D001	IN4149	2A
R014	47KΩ 〃	12B	C005	180P ±5% (P)	2A	D002	IN4149	2A
R015	6.8KΩ 〃	1B	C006	470P	2B	D003	MA 161	2A
R016	470Ω 〃	12B	C007	0.01 μF	1B	D004	MA 161	1A
R017	1KΩ 〃	2B	C008	0.02 μF	2A	D005	IN34	1A
R018	2.2KΩ 〃	12B	C009	47P ±10%		6		2A
R019	100KΩ 〃	2B	C010	4.7 μF 16WV	1A	Q007	2SK 83	2B
R020	10KΩ 〃	2B	C011	0.01 μF	1A	Q008	2SK 495(842)	1B
R021	10KΩ 〃	2B	C012	0.02 μF	1A	Q003	2SC 372	1B
R022	4.7KΩ 〃	2B	C013	0.001 μF	1A	Q004	2SC 372	2B
R023	6.8KΩ 〃	2B	C014	0.047 μF	1B	Q005	2SC 372	1B
R024	4.7KΩ 〃	2B	C015	47 μF 16WV	2B	Q006	2SC 372	1A
R025	2.7KΩ 〃	2B	C016	0.01 μF	2B	Q007	2SC 372	2B
R026	5.6KΩ 〃	2AB	C017	22 μF 6.3WV	2B	Q008	2SC 372	2A
R027	10KΩ 〃	2B	C018	0.0022 μF ±5%(M)	2B	Q009	2SC 733	2B



S1008K EQ. B.D.

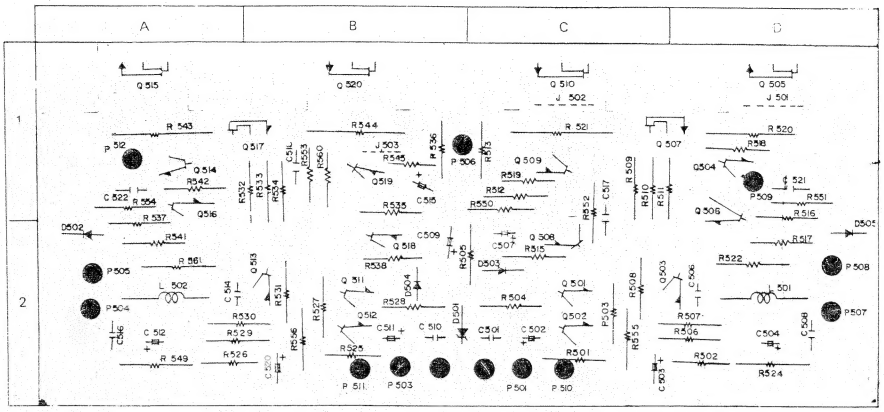
Symbol	Description	Location	Symbol	Description	Location
R201	220KΩ ±5% ¼W	1A	R221	220KΩ ±5% ¼W	2B
R202	220KΩ 〃	1B	R222	4.7KΩ	2A
R203	4.4KΩ 〃	1A	R223	4.7KΩ	2B
R204	4.7KΩ 〃	1B			
R205	560KΩ 〃	1A	C201	4.7μF 16WV	2B
R206	560KΩ 〃	1B	C202	4.7μF	1A
R207	27KΩ 〃	2A	C203	4.7μF	1B
R208	56KΩ 〃	1A	C204	100μF 10WV	1A
R209	56KΩ 〃	1B	C205	100μF 10WV	1B
R210	27KΩ 〃	2B	C206	0.0022μF ±5%(M)	2A
R211	33KΩ 〃	1A	C207	0.0022μF	2B
R212	100KΩ 〃	2A	C208	0.0082μF	2A
R213	100KΩ 〃	2B	C209	0.0082μF	2B
R214	33KΩ 〃	1B	C210	4.7μF 16WV	2B
R215	820KΩ 〃	2A	C211	220μF 25WV	2B
R216	820KΩ 〃	2B	C212	4.7μF 16WV	2B
R217	15KΩ 〃	2A			
R218	15KΩ 〃	2B	Q201	2SC 1681	1A
R219	3.3KΩ 〃	2A	Q202	2SC 1681	1B
R220	220KΩ 〃	2A	Q203	2SA 841	2A
			Q204	2SA 841	2B

S1003 F AM B.D.

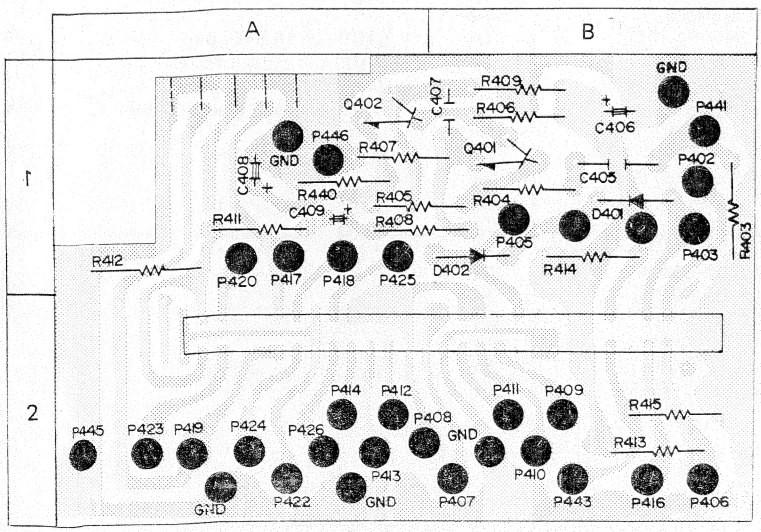


Symbol	Description	Location
R101	100KΩ ± 5% ¼W	1B
R102	1MΩ "	1A
R103	100Ω "	1B
R104	680Ω "	1B
R105	4.7KΩ "	1B
R106	330Ω "	1B
R108	560Ω "	1A
R109	100Ω "	1B
R110	4.7KΩ "	1B
R111	330Ω "	1A
R113	10KΩ "	1B
R115	10KΩ "	1B
R116	22KΩ "	1A
R117	22KΩ "	1B
R119	5.6KΩ "	1B
R120	6.8KΩ "	1A
R121	100KΩ "	1B
R122	2.2KΩ "	1A
R123	330Ω "	1A
R124	100Ω "	2A
R126	12KΩ "	1B
R127	18KΩ "	1B
R128	1KΩ "	2B
R129	10KΩ "	2B
R130	3.9KΩ "	2A
R131	3.9KΩ "	2A
R132	1.2KΩ "	2A
R133	1.2KΩ "	2A
R134	1.2KΩ "	2A
R135	5.6KΩ "	2B
R136	5.6KΩ "	2B
R137	680Ω "	2B
R138	680Ω "	2B
R139	47KΩ "	2B
R140	4.7KΩ "	2B
R141	47KΩ "	2B
R142	4.7KΩ "	2B
R143	100KΩ "	2B
R144	100KΩ "	2B
R145	1MΩ "	1A
R147	22KΩ "	2B
R148	120KΩ "	1A
R150	1MΩ "	1B
R151	1MΩ "	1A
R152	22KΩ "	1A
R180	10KΩ "	2B
R182	560KΩ "	1B
VR101	4.7KΩ semifixed	2B
VR102	22KΩ "	2B
C101	0.047μF +80 -20	1B
C102	0.02μF "	1B
C103	0.02μF "	1B
C105	0.02μF +80 -20	1B
C106	0.047μF "	1A
C107	0.047μF "	1A
C108	0.047μF "	
C109	0.47μF16WV (T)	1A
C110	180PF ± 10%	1A
C111	0.047μF +80 -20	1A
C112	0.047μF "	1A
C113	1μF 50WV	1B
C114	0.047μF +80 -20	1A
C115	0.047μF "	1B
C116	0.047μF "	1A
C118	0.047μF "	1A
C119	4.7μF 16WV "	2A
C120	680PF ± 10%	2A
C121	0.02μF ±5% (M)	2A
C122	0.02μF "	2A
C123	0.047μF "	2A
C124	470P ± 5% (P)	2A
C125	0.22μF 50WV	2B
C126	0.47μF 50WV	2B
C127	0.47μF 50WV	2A
C128	4.7μF 16WV	2A
C129	4.7μF 16WV	2A
C130	0.01μF ± 5% (M)	2A
C131	0.01μF ± 5% (M)	2A
C132	100 μF 16WV	2A
C133	4.7μF 16WV	2B
C134	4.7μF 16WV	2B
C135	1μF 50WV	2B
C136	1μF 50WV	2B
C137	0.047μF +80 -20	1A
C138	0.047μF	1B
C139	0.1μF 50WV	1B
CF101	SFE 10.7MA	1A
CF102	"	1A
CF103	"	1B
D101	MA 161	1B
D102	"	1A
D103	"	2B
D104	"	1B
D105	"	2B
IC101	HA-1137	1A
IC102	HA-1156	2A
L101	18μF Choke	1A
L102	2.2μF Choke	1A
T101	FM Detector Coil	1B
LPF101	170 BLR	2B
Q101	2SC 381	1B
Q102	2SC 733	2B
Q103	2SC 732	2B
Q104	2SC 732	2B
Q105	2SC 733	1B
Q106	2SK 30	1A
J101-3	Jump Wire	

S1000A MAIN AMP B.D.



Symbol	Description	Location	Symbol	Description	Location	Symbol	Description	Location
R501	1KΩ ± 5% ¼W	2C	R536	1.2KΩ ± 5% ¼W	1B	C518	0.02μF	1B
R502	68KΩ "	2D	R537	3.9KΩ ± 5% ¼W	2A	C520	1μF 50WV	2B
R503	27KΩ "	2C	R538	3.9KΩ ± 5% ¼W	2B	C521	0.02μF	1D
R504	15KΩ "	2C	R541	15KΩ ± 5% ¼W	2A	C522	0.02μF	2B
R505	1.2KΩ "	2C	R542	120Ω ± 5% ¼W	1A			
R506	3.9KΩ "	2D	R543	0.27Ω ± 5% 2W	1A	Q501	2SC 732	2D
R507	10Ω "	2D	R544	0.27Ω ± 5% 2W	1B	Q502	2SC 732	2C
R508	470KΩ "	2C	R545	120Ω ± 5% ¼W	1B	Q503	2SA 777	2D
R509	680Ω "	K	R546	3.3Ω ± 5% ½W	2A	Q504	2SC 1509	1D
R510	470Ω "	K	R549	10Ω ± 5% ½W	2A	Q505	2SD 586	1D
R511	680Ω "	1D	R550	15KΩ ± 5% ¼W	1C	Q506	2SC 734	1D
R512	1.5KΩ "	K	R551	220Ω ± 5% ¼W	1D	Q507	2SC 828	1CD
R513	1.2KΩ "	K	R552	220Ω ± 5% ¼W	1C	Q508	2SA 561	2C
R515	3.9KΩ "	2C	R553	220Ω ± 5% ¼W	1B	Q509	2SA 777	1C
R516	3.9KΩ "	1D	R554	220Ω ± 5% ¼W	1A	Q510	2SB 616	1C
R517	15KΩ "	2D	R555	68KΩ ± 5% ¼W	2C	Q511	2SC 732	2B
R518	120Ω "	1D	R556	68KΩ ± 5% ¼W	2B	Q512	2SC 732	2B
R519	120Ω "	1C	R560	15KΩ ± 5% ¼W	1A	Q513	2SA 777	2B
R520	0.27Ω ± 5% 2W	1D	R561	270Ω ± 5% ½W	2A	Q514	2SC 1509	1A
R521	0.27Ω "	K	C501	470PF	2C	Q515	2SD 586	1A
R522	270Ω "	2D	C502	0.47μF/50WV	2C	Q516	2SC 734	1A
R523	3.3Ω "	2D	C503	1μF/50WV	2C	Q517	2SC 828	1AB
R524	10Ω "	2D	C504	10μF 10WV	2D	Q518	2SA 561	2B
R525	1KΩ ± 5% ¼W	2B	C506	39PF	2D	Q519	2SA 777	1B
R526	68KΩ "	2A	C507	22μF 35WV	2C	Q520	2SB 616	1B
R527	2.7KΩ "	2B	C508	0.047μF	2D			
R528	15KΩ "	2B	C509	1μF 50WV	2B	L501	2.7μH Choke	2D
R529	3.9KΩ "	2A	C510	470PF	2B	L502	2.7μH Choke	2A
R530	15KΩ "	2A	C511	0.47μF 50WV	2B			
R531	470KΩ "	2B	C512	10μF 10WV	2A	D501	MZ11B Tener	2BC
R532	680Ω "	1A	C514	39PF	2A	D502	MA150	2A
R533	470Ω "	1B	C515	22μF 35WV	2B	D503	MA150	2C
R534	680Ω "	1B	C516	0.047μF	2A	D504	MA150	2B
R535	1.5KΩ "	1B	C517	0.02μF	1C	D505	MA150	2D



S1023C Selector SW. B.D.

Symbol	Description	Location
R403	3.3KΩ ±5% ¼W	1B
R404	3.9KΩ "	1B
R405	47KΩ	1A
R406	56KΩ	1B
R407	2.2KΩ	1A
R408	220KΩ	1A
R409	8.2KΩ	1B
R411	3.3KΩ	1A
R412	220KΩ	1A
R413	10KΩ	2B
R414	220Ω	1B
R415	1KΩ	2B
R440	1.5KΩ	1A
C405	0.047μF	1B
C406	100μF 16WV	1B
C407	100P	1B
C408	100μF 10WV	1A
C409	4.7μF 16WV	1A
Q401	2SC 1681	1B
Q402	2SC 732	1A
D401	1N4149	1B
D402	1N4149	1B