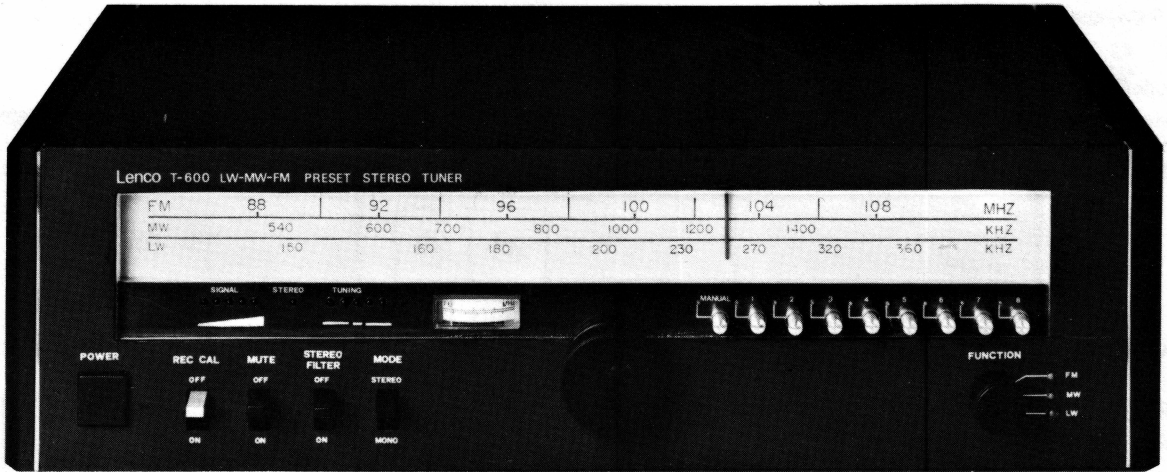


Service Instructions



Lenco

Stereo Tuner T-600

Specifications

FM Section

Frequency Range	87.5—108 MHz
Sensitivity (26 dB S+N/N 40 kHz)	0.8 μ V (75 Ω)
T.H.D.	0.2 % (Mono) 0.3 % (Stereo)
S/N (40 kHz Deviation)	70 dB (Mono)
Selectivity (\pm 300 kHz)	60 dB
Image Rejection	80 dB
Capture Ratio (100 μ V)	1.2 dB
AM Rejection (1 μ V)	55 dB
Stereo Separation (1 kHz)	45 dB

IF Rejection	40 dB
T.H.D. (at 1 MHz 30 % mod. 400 Hz) at input 100 mV	3 % 5 mV 0.8 %
S/N (at 1 MHz input 1 mV 30 % mod. 1 kHz)	45 dB

LW Section

Frequency Range	145—360 kHz
Sensitivity (26 dB S/N 30 % mod. 1 kHz)	40 μ V
Image Rejection	35 dB
IF Rejection	35 dB
Dimension	462 \times 130 \times 325 mm (L \times H \times D)
Weight	10.3 kg (approx.)

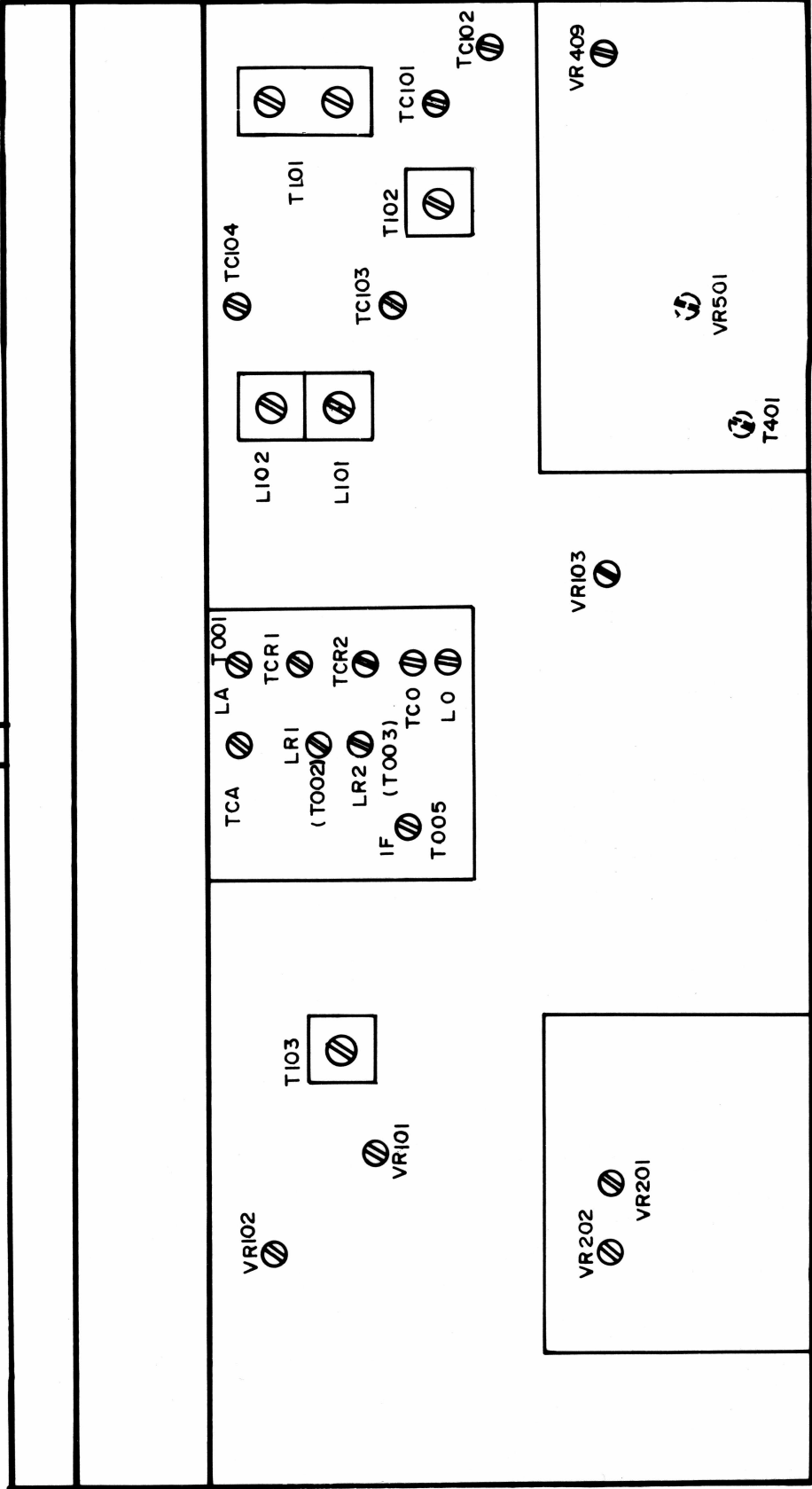
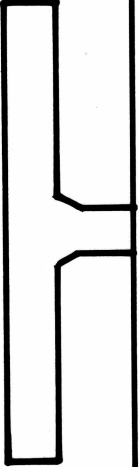
MW Section

Frequency Range	510—1650 kHz
Sensitivity (26 dB S/N 30 % mod. 1 kHz)	30 μ V
Image Rejection	40 dB

FM Alignment Procedure

Step Align	Condition	Dial Setting	Adjust	Adjust for
1. Tuning Voltage	Select any channel and turn its control knob fully counter-clockwise		VR 409	Voltage of J 123 to be +2,7 V
2. Tuning Voltage	Select manual ch.	Lower end	VR 103	Voltage of J 123 to be +2,7 V
3. Align IF 1	Mute OFF	Anywhere of no signal	T 005	Maximum noise level
4. Align IF 2	Mute OFF	Anywhere of no signal	Lower core of T 103	Only green tuning LED LIT
5. Frequency Calibration	FM SSG 88 MHz 400 Hz 40 kHz deviation	88 MHz	Front end Lo	Green LED LIT
6. Frequency Calibration	FM SSG 108 MHz 400 Hz 40 kHz deviation	108 MHz	Front end Tco	Green LED LIT
7. Reiterate 5 and 6				
8. RF Align	FM SSG 9 MHz 400 Hz 40 kHz deviation	90 MHz	Front end LR 1, LR 2, LA	Maximum sensitivity
9. RF Align	FM SSG 106 MHz 400 Hz 40 kHz deviation	106 MHz	Front end TCR 1, TCR 2, TCA	Maximum sensitivity
10. Reiterate 8 and 9				
11. Distortion	FM SSG 90 MHz 400 Hz 40 kHz 60 dB input	90 MHz	Upper core of T 103	Minimum distortion
12. MPX 19 kHz Align	Mute ON no signal		VR 101	Square wave frequency of TP 1 19 kHz \pm 50 Hz by frequency counter
13. Stereo Separation	FM Stereo modulator 98 MHz 400 Hz, 40 kHz deviation Pilot 8 %	98 MHz	VR 102	Minimum crosstalk from opposite channel

Note: All DC Voltage should be checked with high input impedance Voltmeter (international resistance 1 M Ω up).



AM Alignment Procedure

Step Align	Condition	Dial Setting	Adjust	Adjust for
1. IF Align SSG	IF sweep scope or 455 kHz ±30 kHz	Lower side	IFT 1, T 001 IFT 1, T 002	Best IF curve or maximum
2. Frequency Cal (Low)	AM SSG MW LW 550 kHz 150 kHz 400 Hz 400 Hz 30 % 30 % modulation modulation	MW LW 550 kHz 150 kHz	MW LW L 102 L 102	Maximum tuning
3. Frequency Cal (High)	AM SSG MW LW 1600 kHz 350 kHz 400 Hz 400 Hz 30 % 30 % modulation modulation	MW LW 1600 kHz 350 kHz	MW LW TC 104 TC 103	Maximum tuning
4. Reiterate 2 and 3				
5. RF Align low	AM SSG MW LW 600 kHz 170 kHz 400 Hz 400 Hz 30 % 30 % modulation modulation	MW LW 600 kHz 170 kHz	External External MW LW Barant Barant	Maximum Sensitivity
6. RF Align high	AM SSG MW LW 1400 kHz 350 kHz 400 Hz 400 Hz 30 % 30 % modulation modulation	MW LW 1400 kHz 350 kHz	MW LW TC 101 TC 102	Maximum Sensitivity
7. Reiterate 5 and 6				

Present Frequency Meter

1. Set dial pointer at 90 MHz.
2. Adjust VR 202 until the needle of relevant meter indicates 90 MHz.
3. Set dial pointer at 106 MHz.
4. Adjust VR 201 until the needle of preset meter indicates 106 MHz.
5. Reiterate 1., 2., 3., 4.

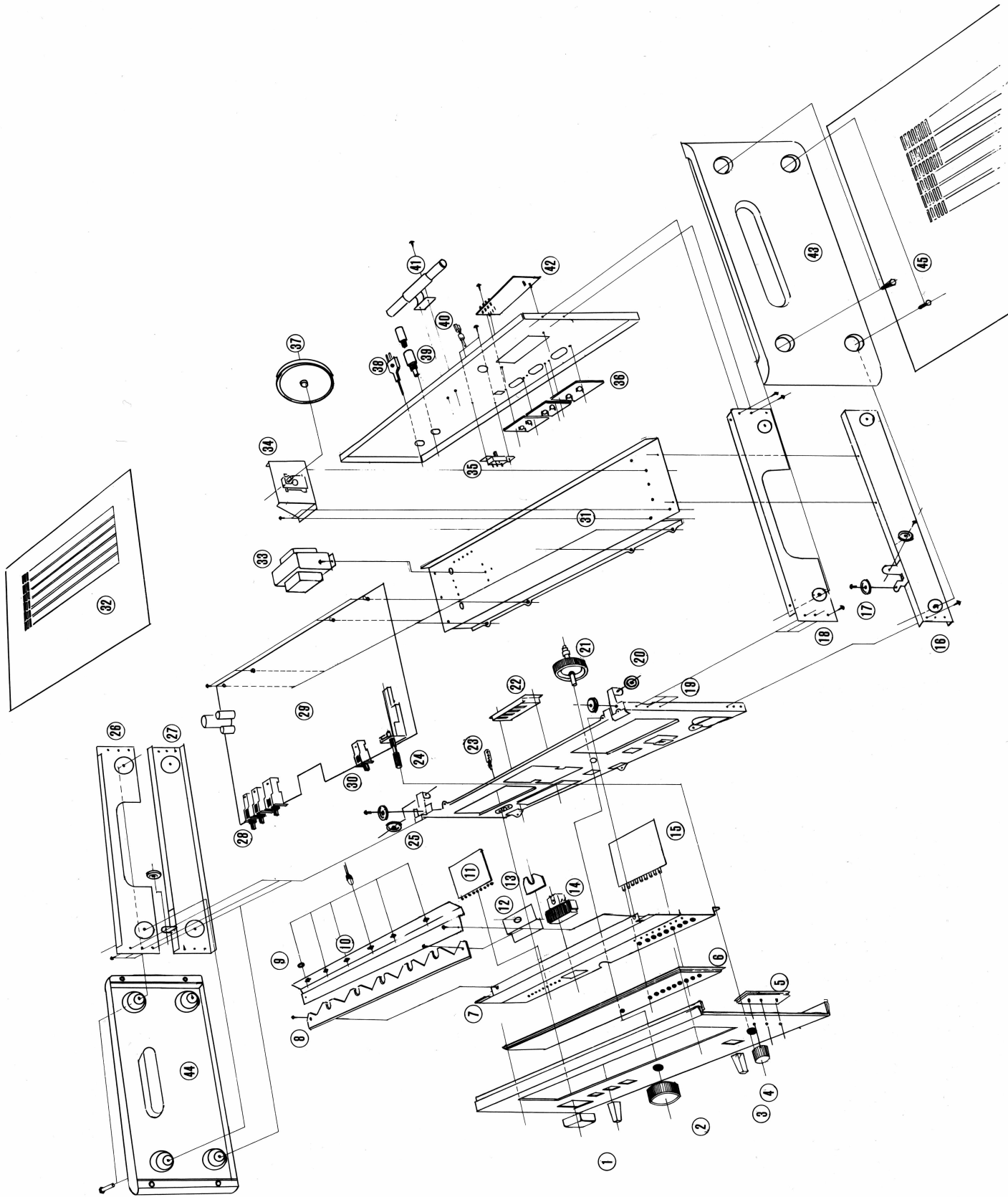
Rec. Calibration Align

1. Connect AC voltmeter to output terminal set Rec cal. SW ON.
2. Adjust VR 501 until voltmeter indicates 200 mV.

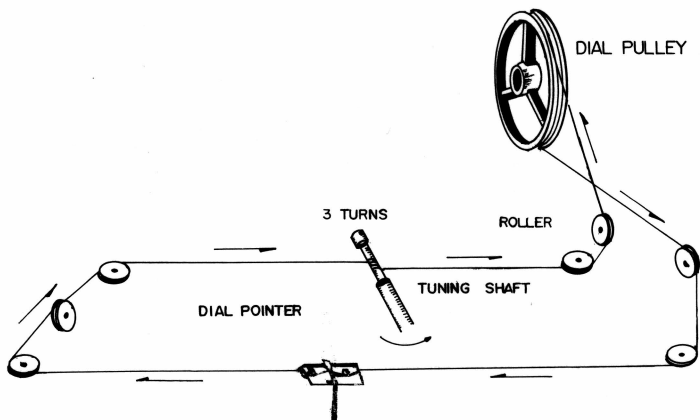
Description of Exploded View

Ref. No.	Parts name	Part No.			
1	Power knob	22-555	24	Rotary switch	52-337
2	Tuning knob	22-557	25	Roller B.K.T	32-186
3	Lever knob	22-553	26	Stiffener B.K.L (L)	32-184
4	Control knob	22-552	27	Side B.K.T (L)	32-166
5	LED holder	31-514	28	Lever switch 2 C 2 P	52-225
6	Dial Lens	40-231	29	Tuner B/D	S 1310
7	Dial scale	40-125	30	Lever switch 4 C 2 P	52-226
8	Reflector for scale	40-230	31	Master chassis	11-017
9	Lamp grommet	40-401	32	Top cover	13-029
10	Lamp house	30-529	33	Transformer	32-021 S
11	LED B/D	S 1312	34	Varicon	70-023
12	B.K.T for meter	32-192	35	De-emp switch	51-101
13	Reflector for meter	40-232	36	RCA Jack (2 pin)	51-214
14	Frequency meter	51-830	37	Dial pulley 58 φ	60-007
15	Pre-set B/D	S 1313	38	AC cord	60-301
16	Side B.K.T (R)	32-165	39	Fuse holder	50-401
17	Dial roller	60-101	40	System ground	51-902
18	Stiffener B.K.T (R)	32-211	41	Arm ant	40-601
19	Front chassis	10-029	42	Ant terminal	51-102
20	Dial roller	60-101	43	Side Panel (R)	20-038
21	Tuning shaft AS'S	60-909	44	Side Panel (L)	20-038
22	B.K.T lever	32-188	45	Bottom Cover	13-030
23	Power push switch	52-032			

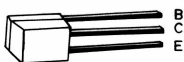
EXPLODED VIEW



DIAL CORD STRINGING



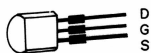
TRANSISTOR VIEW



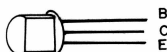
2SC1166



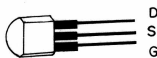
3SK49



2SK30



2 SA495
2 SA841
2 SC372
2 SC373
2 SC381
2 SC733
2 SC784
2 SC785



2SK83

Correct Ordering of Spare Parts

When ordering spare parts please specify the complete name, part number, and the relevant page number of the service manual for each required part. By this method you will be sure to obtain the required part.

S 1310 (Tuner and Supply BD)

Symbol	Description	Symbol	Description	Symbol	Description
Capacitors					
C 101	3 pF	C 166	22 μ F 10 V	R 140	100 Ω $\pm 5\%$ 0.25 W
C 102	0.047 μ F	C 167	47 μ F 6.3 V	R 141	100 k Ω $\pm 5\%$ 0.25 W
C 103	0.01 μ F	C 168	4.7 μ F 16 V	R 142	4.7 k Ω $\pm 5\%$ 0.25 W
C 104	0.047 μ F	C 169	100 μ F 6.3 V	R 143	680 Ω $\pm 5\%$ 0.25 W
C 105	68 pF	C 170	0.47 μ F 50 V	R 144	330 Ω $\pm 5\%$ 0.25 W
C 106	0.022 μ F	C 171	47 μ F 16 V	R 145	560 Ω $\pm 5\%$ 0.25 W
C 107	0.022 μ F	C 172	100 μ F 16 V	R 146	100 Ω $\pm 5\%$ 0.25 W
C 108	0.047 μ F	C 174	22 μ F 25 V	R 147	330 Ω $\pm 5\%$ 0.25 W
C 109	340 pF (Poly)	C 301	0.01 μ F	R 148	22 k Ω $\pm 5\%$ 0.25 W
C 110	150 pF (Poly)	C 302	0.01 μ F	R 149	560 k Ω $\pm 5\%$ 0.25 W
C 112	0.01 μ F	C 303	1000 μ F 25 V	R 150	10 k Ω $\pm 5\%$ 0.25 W
C 113	0.047 μ F	C 304	470 μ F 10 V	R 151	10 k Ω $\pm 5\%$ 0.25 W
C 114	4.7 μ F 16 V	C 305	100 μ F 50 V	R 152	22 k Ω $\pm 5\%$ 0.25 W
C 115	0.001 μ F	C 306	22 μ F 35 V	R 153	4.7 k Ω $\pm 5\%$ 0.25 W
C 116	0.01 μ F	C 307	100 μ F 10 V	R 154	1 M Ω $\pm 5\%$ 0.25 W
C 117	0.047 μ F (M)	C 308	220 μ F 10 V	R 155	1 M Ω $\pm 5\%$ 0.25 W
C 118	22 μ F 6.3 V	C 501	0.027 μ F (M)	R 156	1 M Ω $\pm 5\%$ 0.25 W
C 119	10 μ F 10 V	C 502	0.027 μ F (M)	R 157	5.6 k Ω $\pm 5\%$ 0.25 W
C 120	0.0022 μ F (M)	C 503	0.027 μ F (M)	R 158	560 Ω $\pm 5\%$ 0.25 W
C 121	22 μ F 6.3 V	C 504	100 μ F 6.3 V	R 159	22 k Ω $\pm 5\%$ 0.25 W
C 122	22 μ F 16 V	C 505	10 μ F 16 V	R 160	1 M Ω $\pm 5\%$ 0.25 W
C 123	0.1 μ F 50 V	C 506	1 μ F 50 V	R 161	2.2 k Ω $\pm 5\%$ 0.25 W
C 124	22 μ F 16 V	C 507	4.7 μ F 16 V	R 162	6.8 k Ω $\pm 5\%$ 0.25 W
C 125	0.047 μ F	Resistors		R 163	120 k Ω $\pm 5\%$ 0.25 W
C 126	0.022 μ F	R 101	2.2 M Ω $\pm 5\%$ 0.25 W	R 164	4.7 k Ω $\pm 5\%$ 0.25 W
C 127	0.022 μ F	R 102	2.2 M Ω $\pm 5\%$ 0.25 W	R 165	4.7 k Ω $\pm 5\%$ 0.25 W
C 128	0.022 μ F	R 103	100 Ω $\pm 5\%$ 0.25 W	R 166	680 Ω $\pm 5\%$ 0.25 W
C 129	0.047 μ F	R 104	1 k Ω $\pm 5\%$ 0.25 W	R 167	18 k Ω $\pm 5\%$ 0.25 W
C 130	0.047 μ F	R 105	6.8 k Ω $\pm 5\%$ 0.25 W	R 168	1 k Ω $\pm 5\%$ 0.25 W
C 131	0.047 μ F	R 106	47 k Ω $\pm 5\%$ 0.25 W	R 169	22 k Ω $\pm 5\%$ 0.25 W
C 132	180 pF	R 107	100 k Ω $\pm 5\%$ 0.25 W	R 170	47 k Ω $\pm 5\%$ 0.25 W
C 133	0.047 μ F	R 108	4.7 k Ω $\pm 5\%$ 0.25 W	R 171	100 k Ω $\pm 5\%$ 0.25 W
C 134	4.7 μ F 16 V	R 109	10 k Ω $\pm 5\%$ 0.25 W	R 172	12 k Ω $\pm 5\%$ 0.25 W
C 135	0.47 μ F 16 V (T.T)	R 110	4.7 k Ω $\pm 5\%$ 0.25 W	R 173	10 k Ω $\pm 5\%$ 0.25 W
C 136	0.047 μ F	R 111	6.8 k Ω $\pm 5\%$ 0.25 W	R 174	820 Ω $\pm 5\%$ 0.25 W
C 137	0.047 μ F	R 112	10 k Ω $\pm 5\%$ 0.25 W	R 175	1 k Ω $\pm 5\%$ 0.25 W
C 138	0.047 μ F	R 113	4.7 k Ω $\pm 5\%$ 0.25 W	R 176	1 k Ω $\pm 5\%$ 0.25 W
C 139	0.047 μ F	R 114	10 k Ω $\pm 5\%$ 0.25 W	R 177	820 Ω $\pm 5\%$ 0.25 W
C 140	0.047 μ F	R 115	4.7 k Ω $\pm 5\%$ 0.25 W	R 178	4.7 k Ω $\pm 5\%$ 0.25 W
C 141	0.1 μ F 50 V	R 116	4.7 k Ω $\pm 5\%$ 0.25 W	R 179	4.7 k Ω $\pm 5\%$ 0.25 W
C 142	4.7 μ F 16 V	R 117	220 k Ω $\pm 5\%$ 0.25 W	R 180	4.7 k Ω $\pm 5\%$ 0.25 W
C 143	0.047 μ F	R 118	150 Ω $\pm 5\%$ 0.25 W	R 181	4.7 k Ω $\pm 5\%$ 0.25 W
C 144	680 pF	R 119	6.8 k Ω $\pm 5\%$ 0.25 W	R 182	220 k Ω $\pm 5\%$ 0.25 W
C 145	0.047 μ F (M)	R 120	470 Ω $\pm 5\%$ 0.25 W	R 183	27 k Ω $\pm 5\%$ 0.25 W
C 146	5600 pF (M)	R 121	4.7 k Ω $\pm 5\%$ 0.25 W	R 184	47 k Ω $\pm 5\%$ 0.25 W
C 147	5600 pF (M)	R 122	47 k Ω $\pm 5\%$ 0.25 W	R 185	5.6 k Ω $\pm 5\%$ 0.25 W
C 148	5600 pF (M)	R 123	2.7 k Ω $\pm 5\%$ 0.25 W	R 186	100 k Ω $\pm 5\%$ 0.25 W
C 149	5600 pF (M)	R 124	1 k Ω $\pm 5\%$ 0.25 W	R 187	10 k Ω $\pm 5\%$ 0.25 W
C 150	470 pF (Poly)	R 125	1 k Ω $\pm 5\%$ 0.25 W	R 188	10 k Ω $\pm 5\%$ 0.25 W
C 151	0.22 μ F 50 V	R 126	5.6 k Ω $\pm 5\%$ 0.25 W	R 189	3.3 k Ω $\pm 5\%$ 0.25 W
C 152	0.47 μ F 50 V	R 127	1 k Ω $\pm 5\%$ 0.25 W	R 190	100 k Ω $\pm 5\%$ 0.25 W
C 154	1 μ F 50 V	R 128	2.2 k Ω $\pm 5\%$ 0.25 W	R 191	100 k Ω $\pm 5\%$ 0.25 W
C 155	0.0033 μ F (M)	R 129	100 Ω $\pm 5\%$ 0.25 W	R 192	100 k Ω $\pm 5\%$ 0.25 W
C 156	0.47 μ F 50 V	R 130	10 k Ω $\pm 5\%$ 0.25 W	R 193	220 k Ω $\pm 5\%$ 0.25 W
C 157	1 μ F 50 V	R 131	680 k Ω $\pm 5\%$ 0.25 W	R 194	2.2 M Ω $\pm 5\%$ 0.25 W
C 158	22 μ F 6.3 V	R 132	10 k Ω $\pm 5\%$ 0.25 W	R 195	100 k Ω $\pm 5\%$ 0.25 W
C 159	22 μ F 6.3 V	R 133	10 k Ω $\pm 5\%$ 0.25 W	R 196	4.7 k Ω $\pm 5\%$ 0.25 W
C 160	4.7 μ F 16 V	R 134	47 k Ω $\pm 5\%$ 0.25 W	R 197	1 k Ω $\pm 5\%$ 0.25 W
C 161	4.7 μ F 16 V	R 135	2.2 k Ω $\pm 5\%$ 0.25 W	R 198	4.7 k Ω $\pm 5\%$ 0.25 W
C 162	10 μ F 25 V	R 136	4.7 k Ω $\pm 5\%$ 0.25 W	R 199	8.2 k Ω $\pm 5\%$ 0.25 W
C 163	10 μ F 16 V	R 137	3.3 k Ω $\pm 5\%$ 0.25 W	R 301	680 Ω $\pm 5\%$ 0.25 W
C 164	100 μ F 10 V	R 138	4.7 k Ω $\pm 5\%$ 0.25 W	R 302	390 Ω $\pm 5\%$ 0.25 W
C 165	22 μ F 10 V	R 139	100 k Ω $\pm 5\%$ 0.25 W	R 303	10 k Ω $\pm 5\%$ 0.25 W
				R 304	4.7 k Ω $\pm 5\%$ 0.25 W

Symbol	Description
R 305	18 kΩ ±5 % 0.25 W
R 306	3.9 kΩ ±5 % 0.25 W
R 307	4.7 kΩ ±5 % 0.25 W
R 308	8.2 kΩ ±5 % 0.25 W
R 309	33 Ω ±5 % 0.5 W
R 310	6.8 kΩ ±5 % 0.25 W
R 501	6.8 kΩ ±5 % 0.25 W
R 502	6.8 kΩ ±5 % 0.25 W
R 503	1.2 kΩ ±5 % 0.25 W
R 504	680 kΩ ±5 % 0.25 W
R 505	2.2 kΩ ±5 % 0.25 W
R 506	22 Ω ±5 % 0.25 W
R 507	100 kΩ ±5 % 0.25 W
R 508	220 Ω ±5 % 0.25 W
R 509	6.8 kΩ ±5 % 0.25 W
R 510	10 kΩ ±5 % 0.25 W
R 511	1.2 kΩ ±5 % 0.25 W
R 601	47 kΩ ±5 % 0.25 W
R 001	470 kΩ ±5 % 0.25 W

Diodes

D 101	1N4149
D 102	1N4149
D 103	1N4149
D 104	1N4149
D 105	1N4149
D 106	1N4149
D 107	1N4149
D 108	1N4149
D 109	1N4149
D 110	1N4149
D 111	1N4149
D 112	1N4149
D 113	1N4149
D 114	1N4149
D 115	1N4149
D 116	1N4149
D 117	1N4149
D 118	1N4149
D 119	1N4149
D 120	1N4149
D 121	1N4149
D 301	10D1
D 302	10D1
D 303	10D1
D 304	10D1
D 305	HZ7B
D 306	1N4149
D 501	1N4149
D 502	1N4149

Transistors

Q 101	2SK83 (R1)
Q 102	2SA495
Q 103	2SC372
Q 104	2SC372
Q 105	2SC372
Q 106	2SC372
Q 107	2SC372
Q 108	2SC372
Q 109	2SC733 (BL)
Q 110	2SC733 (BL)
Q 111	2SC381
Q 112	2SC373
Q 113	2SK30
Q 114	2SC373
Q 115	2SA841 (BL)
Q 116	2SA841 (BL)
Q 117	2SC373
Q 118	2SC373
Q 119	2SC373
Q 120	2SK30
Q 121	2SC373
Q 301	2SC733 (Y)

Symbol	Description
Q 302	2SC733 (Y)
Q 303	2SC1166
Q 501	2SC733 (BL)

Inductors

L 101	LW OSC
L 102	MW OSC
L 103	12 mH (Choke)
L 104	18 μH
L 105	2.2 μH
T 101	IFT 1
T 102	IFT 2
T 103	Det-Coil
TC 101	20 pF
TC 102	30 pF
TC 103	20 pF
TC 104	20 pF

Semifixed Resistors

VR 101	4.7 kΩ ±5 % 0.25 W
VR 102	22 kΩ ±5 % 0.25 W
VR 103	22 kΩ ±5 % 0.25 W
VR 501	50 kΩ ±5 % 0.25 W

IC

IC 101	HA 1137
IC 102	HA 1156

F, E BD

Resistors

R 001	470 kΩ ±5 % 0.25 W
R 002	100 kΩ ±5 % 0.25 W
R 003	470 kΩ ±5 % 0.25 W
R 004	100 kΩ ±5 % 0.25 W
R 005	100 kΩ ±5 % 0.25 W
R 006	100 Ω ±5 % 0.25 W
R 007	100 kΩ ±5 % 0.25 W
R 008	2.2 kΩ ±5 % 0.25 W
R 009	100 kΩ ±5 % 0.25 W
R 010	8.2 kΩ ±5 % 0.25 W
R 011	10 kΩ ±5 % 0.25 W
R 012	22 kΩ ±5 % 0.25 W
R 013	4.7 kΩ ±5 % 0.25 W
R 014	100 kΩ ±5 % 0.25 W
R 015	100 Ω ±5 % 0.25 W
R 016	1 kΩ ±5 % 0.25 W
R 017	10 kΩ ±5 % 0.25 W
R 018	100 kΩ ±5 % 0.25 W
R 019	1 MΩ ±5 % 0.25 W
R 020	100 Ω ±5 % 0.25 W

Capacitors

C 001	100 pF
C 002	100 pF
C 003	0.022 μF
C 004	0.022 μF
C 005	0.022 μF
C 006	0.022 μF
C 007	0.022 μF
C 008	5 pF CH
C 009	0.022 μF
C 010	15 pF TH
C 011	15 pF TH
C 012	6 pF TH
C 013	5 pF CH
C 014	2 pF
C 015	0.5 pF
C 016	3 pF UT
C 017	15 pF
C 018	1000 pF
C 019	6 pF TH
C 020	0.022 μF

Symbol	Description
C 021	0.022 μF
C 022	0.022 μF
C 023	0.47 μF 16 V (T.T)
C 024	0.022 μF
C 025	0.022 μF

Inductors

L 001	0.22 μH
T 001	ANT
T 002	RF 1
T 003	RF 2
T 004	OSC
T 005	IFT
TC 001	10 pF
TC 002	10 pF
TC 003	10 pF
TC 004	10 pF

Transistors

Q 001	3SK49 (Q)
Q 002	2SC785 (O)
Q 003	2SC784 (O)

Diodes

D 001	BB 104 (B)
D 002	BB 104 (B)
D 003	BB 104 (B)
D 004	BB 104 (B)
D 005	BB 105 (G)

S 1312 (LED Meter BD)

Resistors

R 201	8.2 kΩ ±5 % 0.25 W
R 202	4.7 kΩ ±5 % 0.25 W
R 203	5.6 kΩ ±5 % 0.25 W
R 204	270 Ω ±5 % 0.25 W
R 205	5.6 kΩ ±5 % 0.25 W
R 206	10 kΩ ±5 % 0.25 W
R 207	68 Ω ±5 % 0.25 W
R 208	68 Ω ±5 % 0.25 W
R 209	1 kΩ ±5 % 0.25 W
R 210	470 Ω ±5 % 0.25 W
R 211	2.2 kΩ ±5 % 0.25 W
R 212	470 Ω ±5 % 0.25 W
R 213	68 Ω ±5 % 0.25 W
R 214	33 Ω ±5 % 0.25 W
R 215	18 Ω ±5 % 0.25 W
R 216	10 Ω ±5 % 0.25 W
R 217	3.3 Ω ±5 % 0.25 W
R 218	10 kΩ ±5 % 0.25 W
R 219	1.8 kΩ ±5 % 0.25 W
R 220	470 Ω ±5 % 0.25 W
R 221	15 kΩ ±5 % 0.25 W

Diodes

D 201	1N4149
D 202	1N4149
D 203	1N4149
D 204	1N4149
D 205	1N4149
D 206	1N4149
D 207	1N34

Semifixed Resistors

VR 201	22 kΩ ±5 % 0.25 W
VR 202	4.7 kΩ ±5 % 0.25 W

Transistors

Q 201	2SC373
Q 202	2SA495
Q 203	2SA495
Q 204	2SC373

Symbol	Description	Symbol	Description	Symbol	Description
Q 205	2SC373	R 458	2.7 kΩ ± 5 % 0.25 W	D 404	1N4149
Q 206	2SC373	R 459	2.7 kΩ ± 5 % 0.25 W	D 405	1N4149
Q 207	2SC373	R 460	2.7 kΩ ± 5 % 0.25 W	D 406	1N4149
Q 208	2SA495	R 461	2.7 kΩ ± 5 % 0.25 W	D 407	1N4149
Q 209	2SC373	R 462	180 Ω ± 5 % 0.25 W	D 408	1N4149
Q 210	2SA495	R 463	180 Ω ± 5 % 0.25 W	D 409	1N4149

S 1313 (Preset BD)

Resistors

R 401	68	kΩ	± 5 %	0.25 W
R 402	68	kΩ	± 5 %	0.25 W
R 403	68	kΩ	± 5 %	0.25 W
R 404	68	kΩ	± 5 %	0.25 W
R 405	68	kΩ	± 5 %	0.25 W
R 406	68	kΩ	± 5 %	0.25 W
R 407	68	kΩ	± 5 %	0.25 W
R 408	68	kΩ	± 5 %	0.25 W
R 409	68	kΩ	± 5 %	0.25 W
R 410	270	kΩ	± 5 %	0.25 W
R 411	270	kΩ	± 5 %	0.25 W
R 412	270	kΩ	± 5 %	0.25 W
R 413	270	kΩ	± 5 %	0.25 W
R 414	270	kΩ	± 5 %	0.25 W
R 415	270	kΩ	± 5 %	0.25 W
R 416	270	kΩ	± 5 %	0.25 W
R 417	270	kΩ	± 5 %	0.25 W
R 418	270	kΩ	± 5 %	0.25 W
R 419	270	kΩ	± 5 %	0.25 W
R 420	270	kΩ	± 5 %	0.25 W
R 421	270	kΩ	± 5 %	0.25 W
R 422	270	kΩ	± 5 %	0.25 W
R 423	270	kΩ	± 5 %	0.25 W
R 424	270	kΩ	± 5 %	0.25 W
R 425	270	kΩ	± 5 %	0.25 W
R 426	1	kΩ	± 5 %	0.25 W
R 427	470	kΩ	± 5 %	0.25 W
R 428	470	kΩ	± 5 %	0.25 W
R 429	470	kΩ	± 5 %	0.25 W
R 430	470	kΩ	± 5 %	0.25 W
R 431	470	kΩ	± 5 %	0.25 W
R 432	470	kΩ	± 5 %	0.25 W
R 433	470	kΩ	± 5 %	0.25 W
R 434	470	kΩ	± 5 %	0.25 W
R 435	47	kΩ	± 5 %	0.25 W
R 436	47	kΩ	± 5 %	0.25 W
R 437	47	kΩ	± 5 %	0.25 W
R 438	47	kΩ	± 5 %	0.25 W
R 439	47	kΩ	± 5 %	0.25 W
R 440	47	kΩ	± 5 %	0.25 W
R 441	47	kΩ	± 5 %	0.25 W
R 442	47	kΩ	± 5 %	0.25 W
R 443	47	kΩ	± 5 %	0.25 W
R 444	47	kΩ	± 5 %	0.25 W
R 445	47	kΩ	± 5 %	0.25 W
R 446	47	kΩ	± 5 %	0.25 W
R 447	47	kΩ	± 5 %	0.25 W
R 448	47	kΩ	± 5 %	0.25 W
R 449	47	kΩ	± 5 %	0.25 W
R 450	47	kΩ	± 5 %	0.25 W
R 451	47	kΩ	± 5 %	0.25 W
R 452	47	kΩ	± 5 %	0.25 W
R 453	2.7	kΩ	± 5 %	0.25 W
R 454	2.7	kΩ	± 5 %	0.25 W
R 455	2.7	kΩ	± 5 %	0.25 W
R 456	2.6	kΩ	± 5 %	0.25 W
R 457	2.7	kΩ	± 5 %	0.25 W

R 458	2.7	kΩ	± 5 %	0.25 W
R 459	2.7	kΩ	± 5 %	0.25 W
R 460	2.7	kΩ	± 5 %	0.25 W
R 461	2.7	kΩ	± 5 %	0.25 W
R 462	180	Ω	± 5 %	0.25 W
R 463	180	Ω	± 5 %	0.25 W
R 464	180	Ω	± 5 %	0.25 W
R 465	180	Ω	± 5 %	0.25 W
R 466	180	Ω	± 5 %	0.25 W
R 467	180	Ω	± 5 %	0.25 W
R 468	180	Ω	± 5 %	0.25 W
R 469	180	Ω	± 5 %	0.25 W
R 470	180	Ω	± 5 %	0.25 W
R 471	33	kΩ	± 5 %	0.25 W
R 472	27	kΩ	± 5 %	0.25 W
R 473	1	kΩ	± 5 %	0.25 W
R 474	15	kΩ	± 5 %	0.25 W
R 475	4.7	kΩ	± 5 %	0.25 W
R 476	33	kΩ	± 5 %	0.25 W
R 477	150	kΩ	± 5 %	0.25 W

Capacitors

C 401	30	pF
C 402	30	pF
C 403	30	pF
C 404	30	pF
C 405	30	pF
C 406	30	pF
C 407	30	pF
C 408	30	pF
C 410	3	pF
C 411	3	pF
C 412	3	pF
C 413	3	pF
C 414	3	pF
C 415	3	pF
C 416	3	pF
C 417	5	pF
C 418	3	pF
C 419	0.022	μF
C 420	0.022	μF
C 421	0.022	μF
C 422	0.022	μF
C 423	0.022	μF
C 424	0.022	μF
C 425	0.022	μF
C 426	0.022	μF
C 427	0.022	μF
C 428	0.47	μF 50 V
C 429	0.47	μF 50 V
C 430	0.47	μF 50 V
C 431	0.47	μF 50 V
C 432	0.47	μF 50 V
C 433	0.47	μF 50 V
C 434	0.47	μF 50 V
C 435	0.47	μF 50 V
C 436	0.47	μF 50 V
C 437	0.047	μF
C 438	4700	pF (M)
C 439	100	μF 6.3 V
C 440	47	μF 16 V
C 441	0.22	μF 50 V
C 442	18	pF

Diodes

D 401	1N4149
D 402	1N4149
D 403	1N4149

D 404	1N4149
D 405	1N4149
D 406	1N4149
D 407	1N4149
D 408	1N4149
D 409	1N4149
D 410	1N4149
D 411	1N4149
D 412	1N4149
D 413	1N4149
D 414	1N4149
D 415	1N4149
D 416	1N4149
D 417	1N4149
D 418	1N4149
D 419	1N4149
D 420	1N4149
D 421	1N4149

Inductors

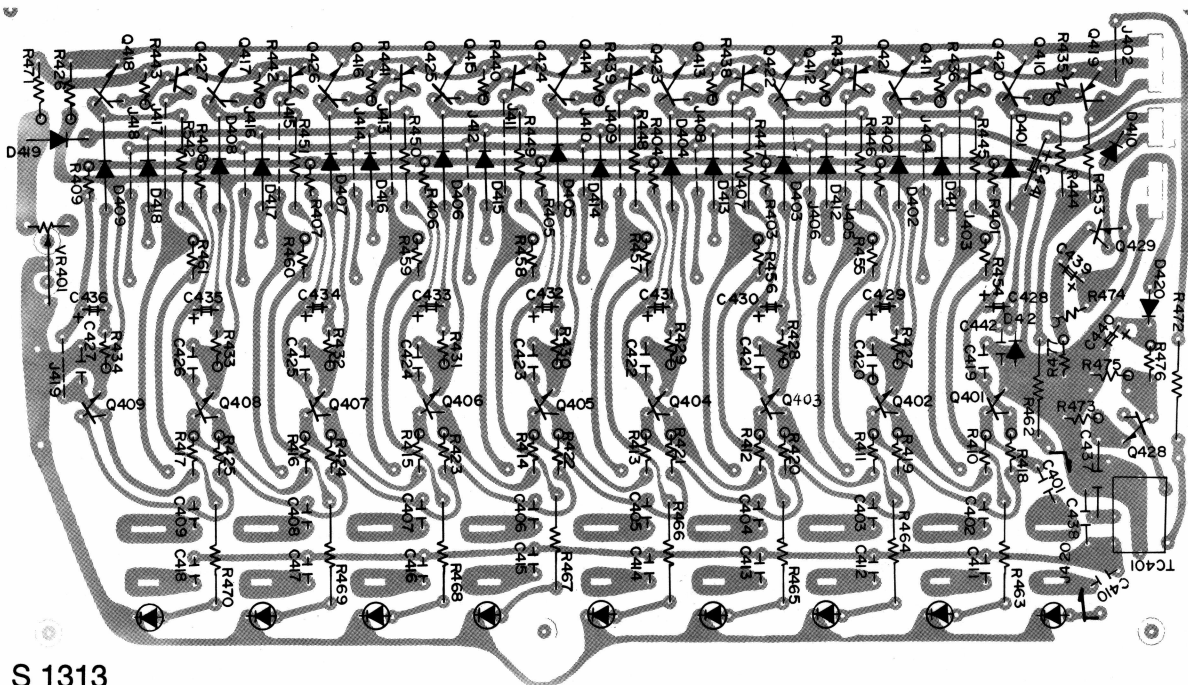
T 401	OSC
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Semifixed Resistors

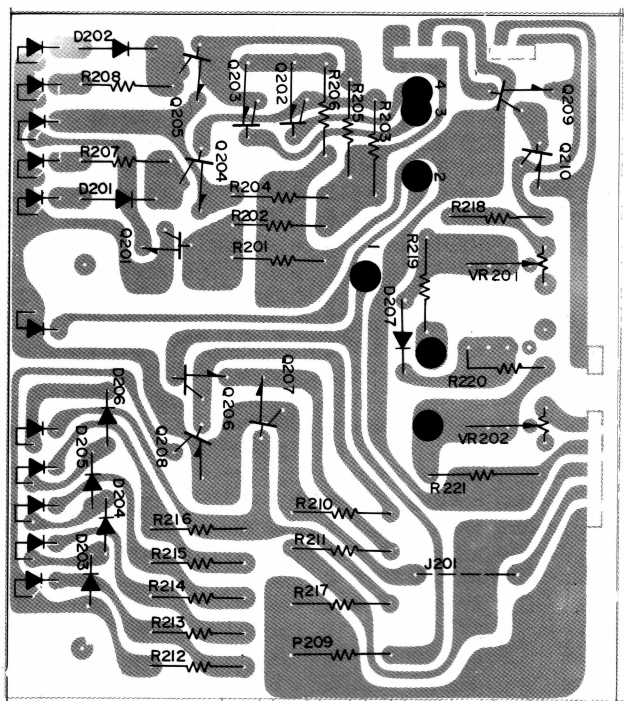
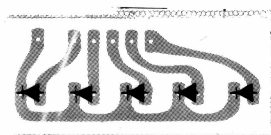
VR 401	20 kΩ (B)
VR 402	20 kΩ (B)
VR 403	20 kΩ (B)
VR 404	20 kΩ (B)
VR 405	20 kΩ (B)
VR 406	20 kΩ (B)
VR 407	20 kΩ (B)
VR 408	20 kΩ (B)
VR 409	10 kΩ

Transistors

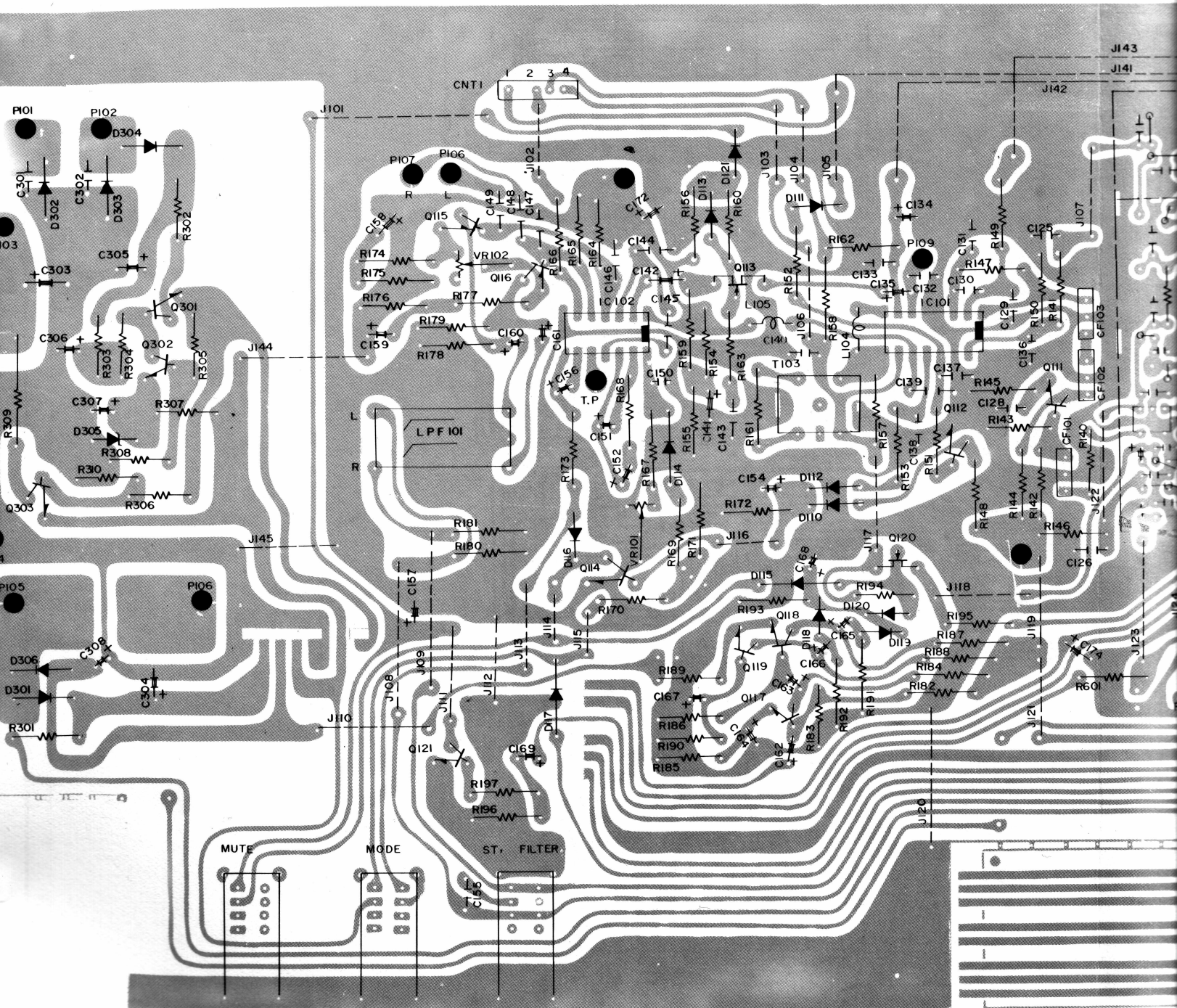
Q 401	2SC373
Q 402	2SC373
Q 403	2SC373
Q 404	2SC373
Q 405	2SC373
Q 406	2SC373
Q 407	2SC373
Q 408	2SC373
Q 409	2SC373
Q 410	2SC373
Q 411	2SC373
Q 412	2SC373
Q 413	2SC373
Q 414	2SC373
Q 415	2SC373
Q 416	2SC373
Q 417	2SC373
Q 418	2SC373
Q 419	2SA495
Q 420	2SA495
Q 421	2SA495
Q 422	2SA495
Q 423	2SA495
Q 424	2SA495
Q 425	2SA495
Q 426	2SA495
Q 427	2SA495
Q 428	2SC733 (BL)
Q 429	2SA495

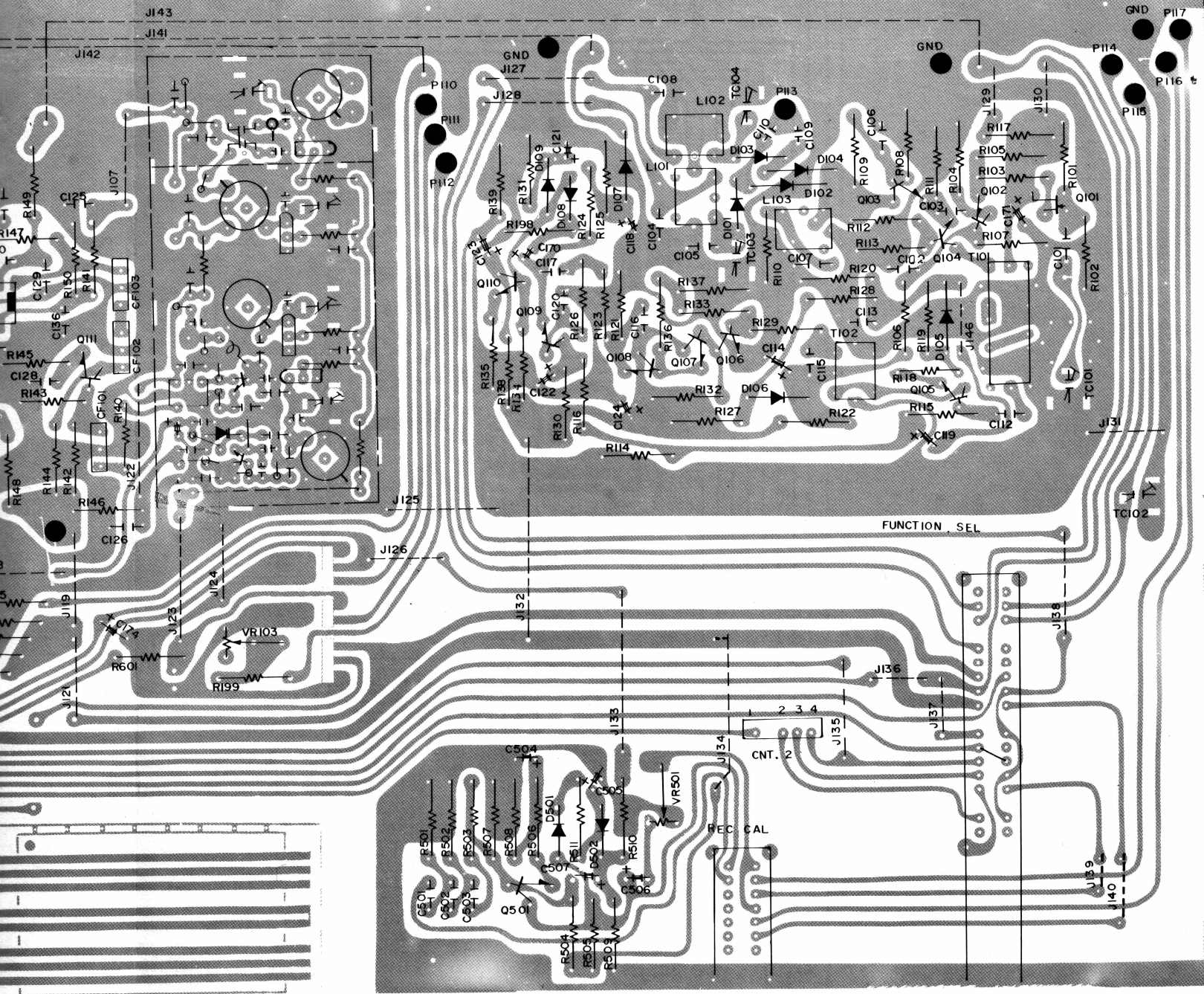


S 1313

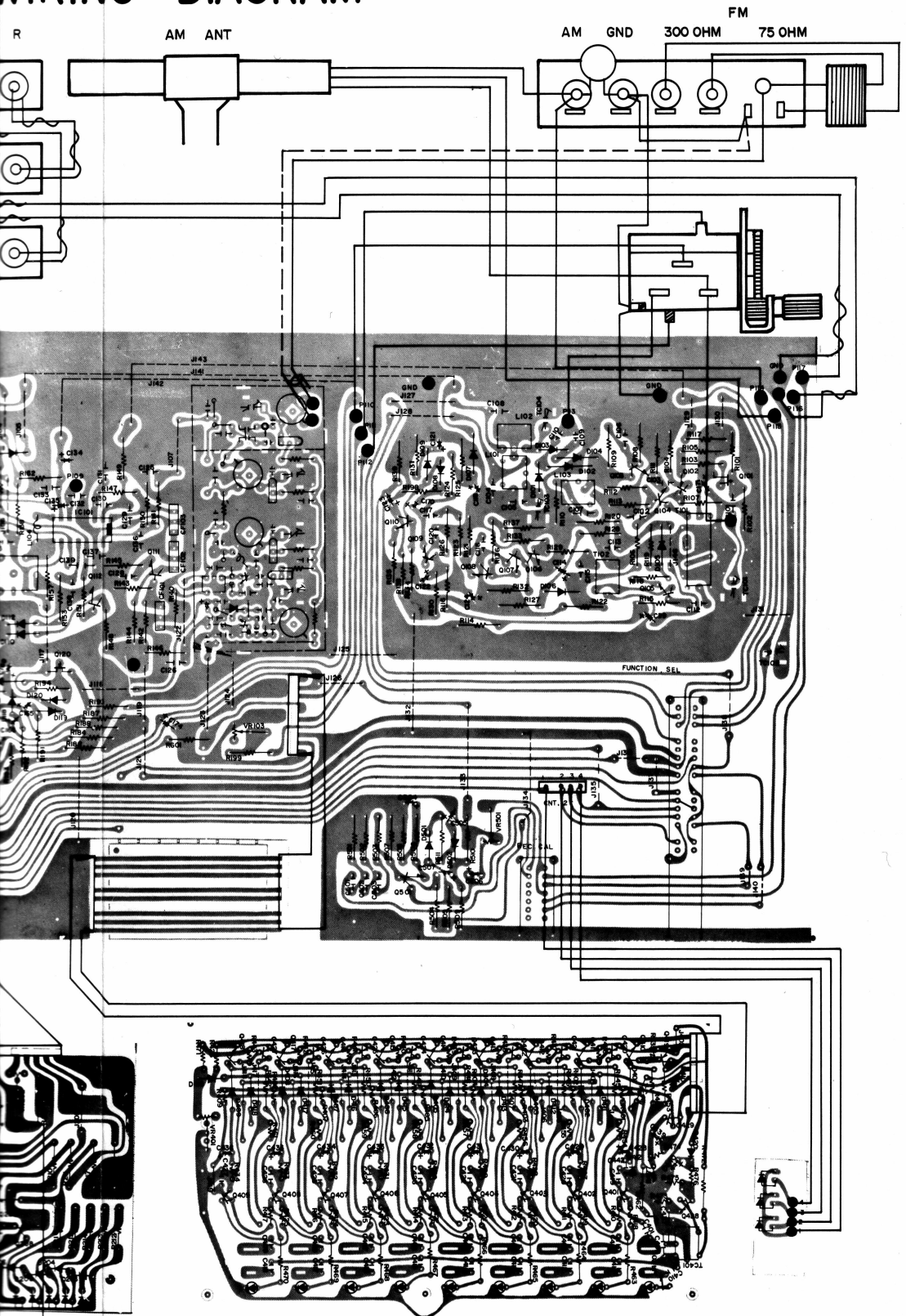


S 1312



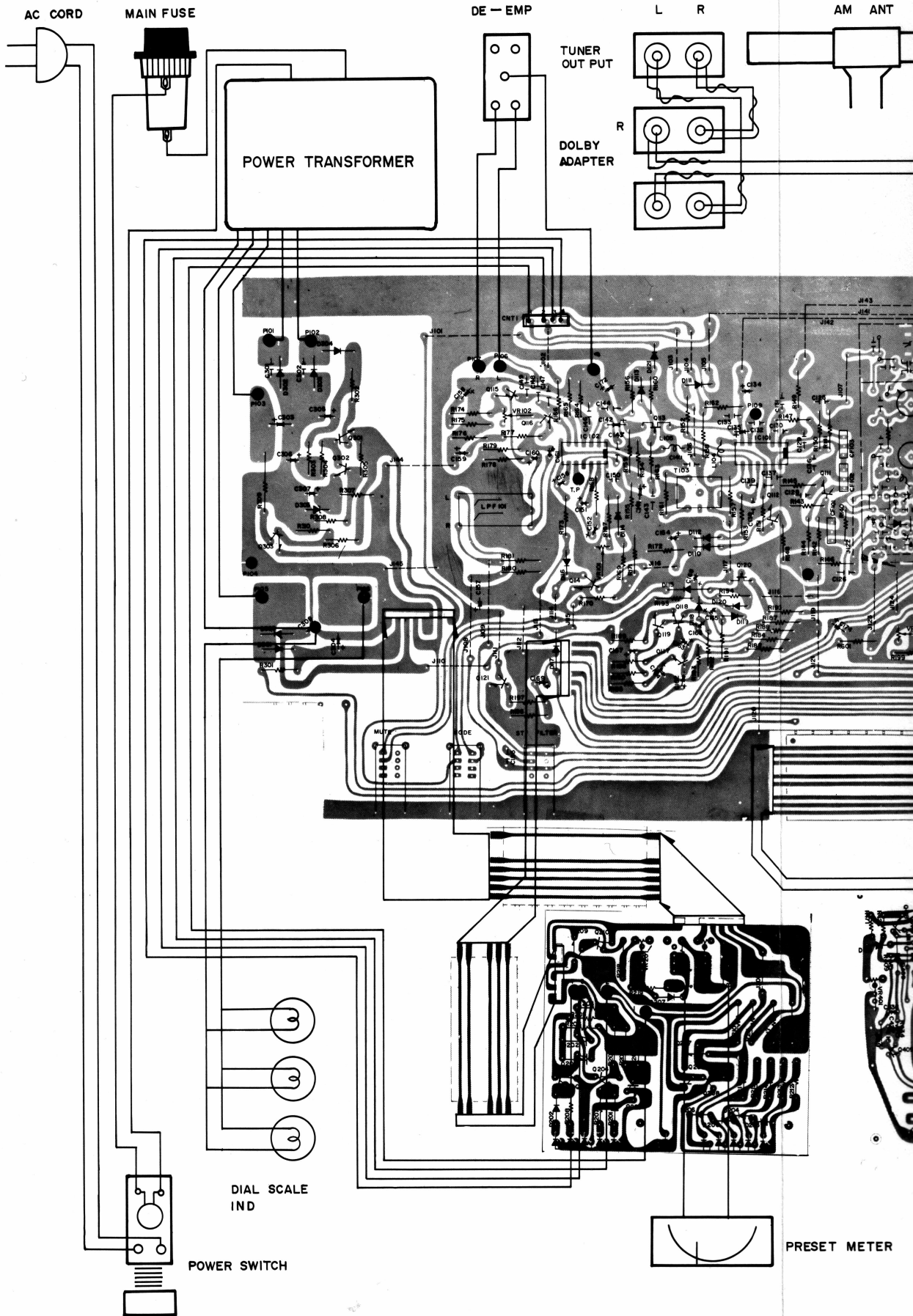


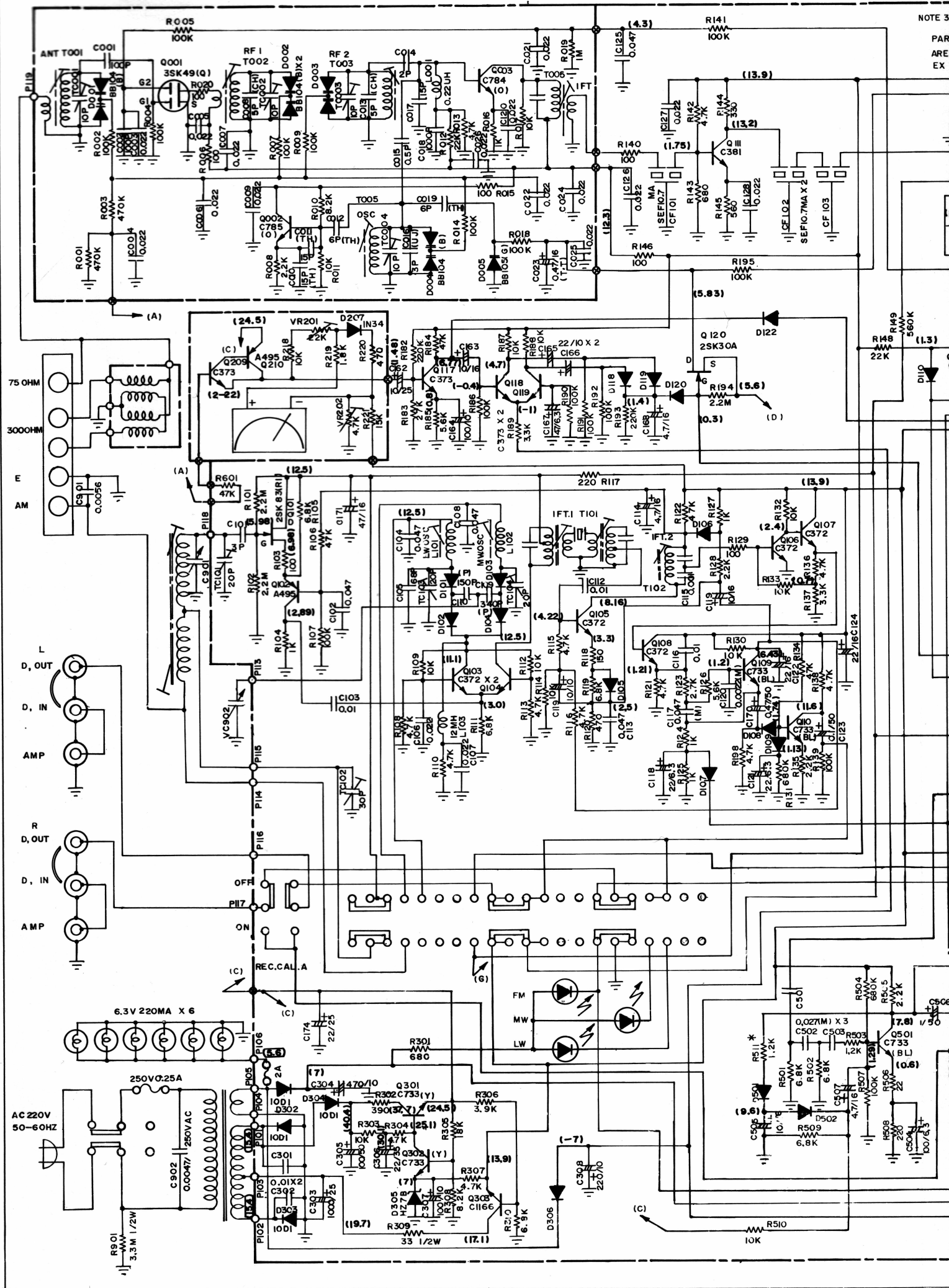
WIRING DIAGRAM



PRESET METER

WIRING DIAG



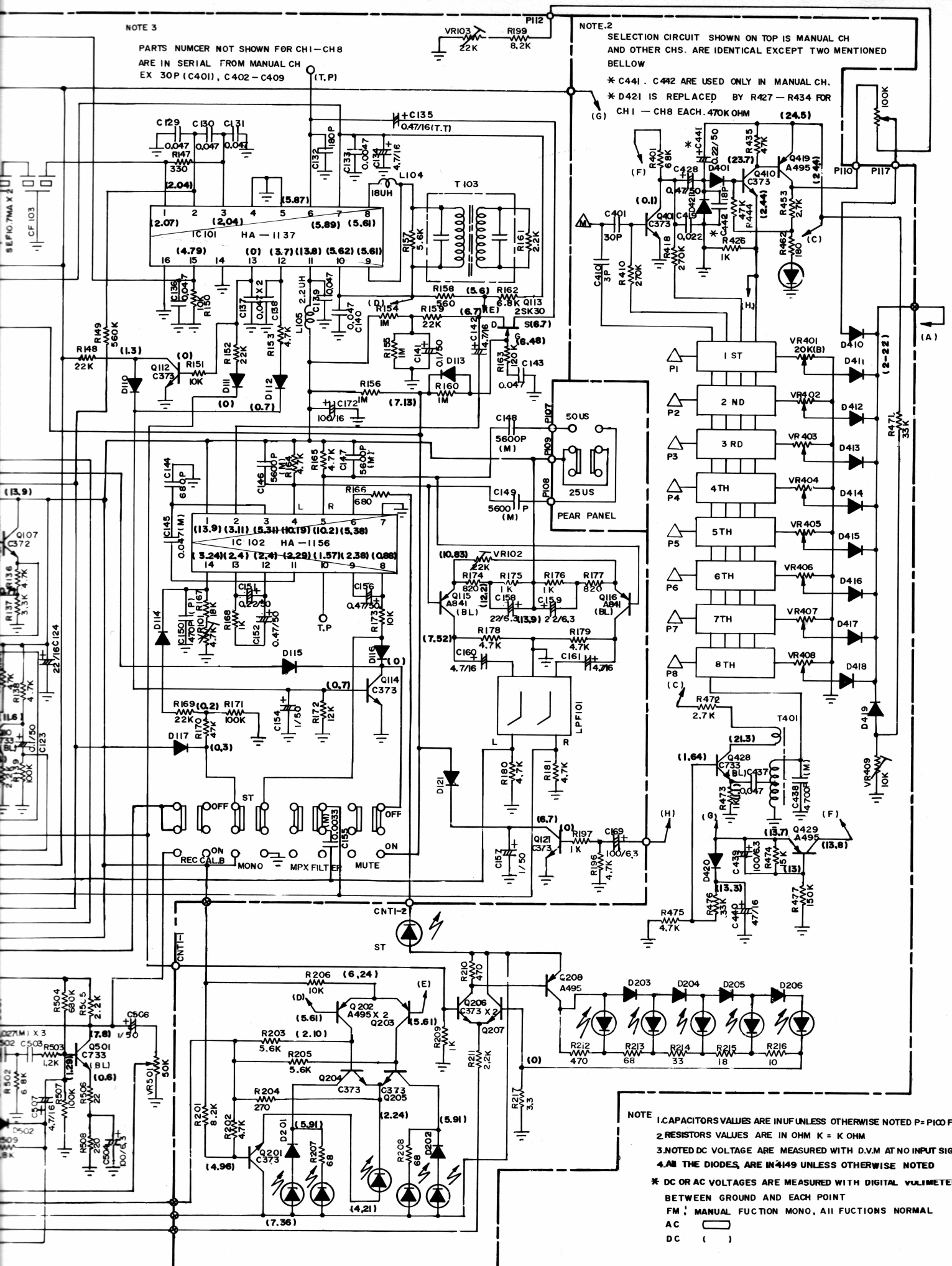


NOTE 3

PARTS NUMCER NOT SHOWN FOR CH1-CH8
ARE IN SERIAL FROM MANUAL CH
EX 30P (C401), C402-C409

NOTE 2

SELECTION CIRCUIT SHOWN ON TOP IS MANUAL CH
AND OTHER CHS. ARE IDENTICAL EXCEPT TWO MENTIONED
BELLOW
* C441, C442 ARE USED ONLY IN MANUAL CH.
* D421 IS REPLACED BY R427-R434 FOR
CH1-CH8 EACH .470K OHM



NOTE
1. CAPACITORS VALUES ARE IN UF UNLESS OTHERWISE NOTED P= PICO FARAD
2. RESISTORS VALUES ARE IN OHM K = K OHM
3. NOTED DC VOLTAGE ARE MEASURED WITH D.V.M AT NO INPUT SIGNAL
4. ALL THE DIODES, ARE IN 4149 UNLESS OTHERWISE NOTED
* DC OR AC VOLTAGES ARE MEASURED WITH DIGITAL VOLUMETER
BETWEEN GROUND AND EACH POINT
FM : MANUAL FUCION POINT, ALL FUCIONS NORMAL
AC ()
DC ()

BLOCK DIAGRAM

