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Uniden AX44 Service Manual

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AX 44 Service Manual

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Specifications

Receiver: S+N

Sens. For N = 10dB	uv
Sens. For 500mw	uv
Squelch Threshold	uv
Squelch Deep	uv
S-9	uv
Frequency Range	26.965mhz to 27.450mhz
Type Of Emission	
AF Power At 10% Distortion	Watts
IF Band Width	khz
AF Output Impedance	8 ohm
Adjacent Channel Rejection	db

Transmitter:

Power Output	
Spurious Suppression Better Than	-60dB
Percentage Of Modulation	%
Frequency Tolerance	± 1350hz
Frequency Range	26.965mhz to 27.405mhz
Type Of Emission	
Output Impedance	50 ohm
Frequency Method	PLL

Note:
All Transmitter Adjustments Must Be Performed By A
FCC 1st Or 2nd Class Radiotelephone License Holder.

Alignment of Receiver Portion

1. Equipment Required

- a. Signal Generator (27 MHz Band, 1000 Hz, 30% AM Modulation & Output Impedance 50 ohm)
- b. Audio VTVM
- c. Oscilloscope
- d. Dummy Load (8ohm, 5 watts, resistive)
- e. DC Power Supply (13.8 V, 2 Amp.)

2. Procedure

Step	SG Connection Frequency	Preset to	Audio VTVM	Adjustment	Remarks
1.	To Ant. Connector J401 Channel 19 Freq: 27.185 MHz	VOL: MAX SQL: MIN ANL: OFF NB OFF	To EXT. SPK. Jack 403	L1, 2, 3, 4, 5, 6, 7	Adjust for a max. Audio Output
2.	Same as step 1	same as Step 1	Same as step 1.	VR2	Adjust for 2 V output with SG output level of 0.4uV.
3.	Same as step 1	VOL MAX SQL MAX ANL OFF NB OFF	Same as step 1	VR4 (Squelch)	Adjust 2 V output with SG output level of 1000uV
4.	Same as step 1	Same as step 1	Same as Step 1	VR1	Adjust for a reading of S-9 on the S-meter of the Transceiver with SG output level of 100 uV

Attachment D

Ref. FCC Part 2.983 (d) (9)

Tune-up Procedure

ALIGNMENT OF P. L. L. PORTION

(Refer to Attachment B)

1. Test Equipments Required

- a. Oscilloscope (0-50 MHz)
- b. DC Volt Meter (10 Volts maximum, 100K ohm/Volt)

2. Alignment Procedure

Step	Preset to	Connections	Adjustment	Remarks
1	TX Mode No Modulation Channel 40	DC Volt Meter to Pin No. 7 of IC3 (TP2)	L15	Adjust L15 to obtain approx. 3.0 V reading
2	TX Mode No Modulation Channel 1	Oscilloscope to secondary of L16 (TP3)	L16	Adjust L16 for the maximum indica- tion on Oscilloscope

Alignment of Transmitter Portion
(for Transmitter Section)

1. Equipment Required

- a. VTVM (full scale· IV DC with RF Probe)
- b. RF Output Power Meter
- c. Tunable Field Intensity Meter (Wave Meter)
- d. Frequency Counter (0-30 MHz)
- e. DC Power Supply (13.8V/2-Amp.)
- f. 50 ohm load and Attenuator
- g. Oscilloscope (0-30 MHz)
- h. AF Oscillator

2. Procedure

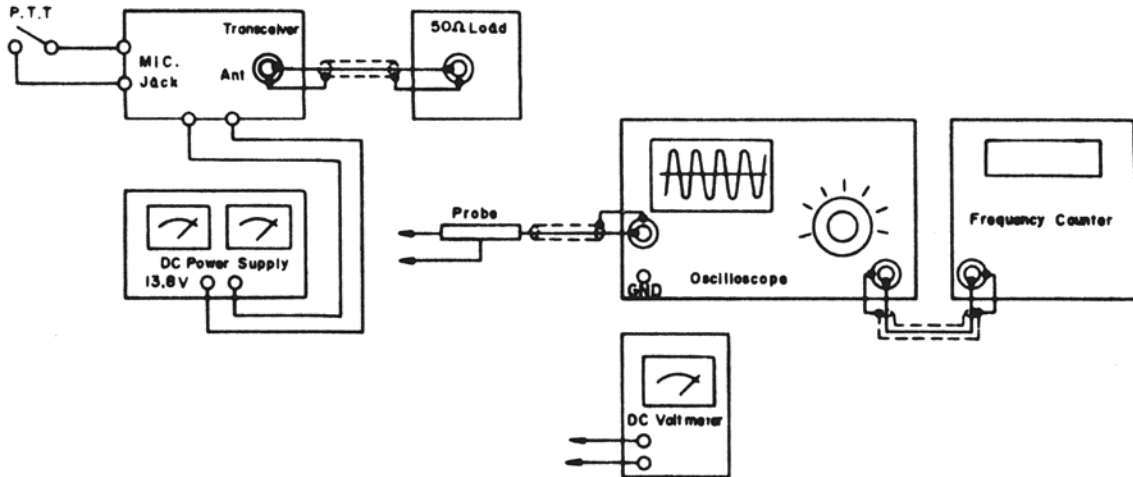
Step	Preset to	Condition	Alignment	Remarks
1.	TX Mode No Modulation Channel 19	RF Output Power Meter to ANT Jack J401 VTVM to TP4	L17,18	Adjust for a max. indication on VTVM
2.	Same as Step 1	RF Output Power Meter to ANT Jack J401	L10,14	Adjust for a max. indication on RF Output Power Meter.
3.	Same as Step 1	Same as Step 2	L10	Adjust to obtain Nominal 3.8 W of RF Output Power.
4.				
5.	Repeat the above adjustments, in order to confirm if the adjustments were made correctly.			
6.	TX Mode Ch. 19 1 KHz 100mV applied to Mic. Input for MOD	Audio Generator to Microphone Jack J501 Oscilloscope to ANT. Jack J401 through a suitable load and attenuator.	VR5	Adjust for 95% Modulation
7.	Same as Step 1	RF Output Power Meter to Ant. Jack J401	VR3	Check that RF Out- put Power Meter reads 3.8 W then adjust VR3 so that the Meter pointer of the transceiver just approaches 3 to 4 mark.

Semiconductor Voltage Chart. AX 44 All Voltage Measurements taken with A 20,000 Ohm Per Volt VTVM Or VOM Channel 19 * Indicates Bright

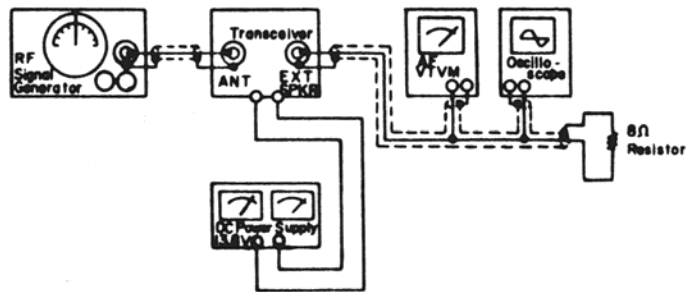
(.) Indicates Squelch Ch.

	RX			TX			TR	RX			TX			RX			TX			
	B	C	E	B	C	E		B	C	E	B	C	E	FET	G	D	S	B	C	E
1	1.9	9.3	1.2				15	5.2	6.8	5.0			1	0	9.4	.6				
2	1.2	8.7	.6				16	9.2	0	8.6	8.5	8.6	2	0	12.8	1.6				
3	.6	1.7	0				17	9.2	12.8	8.6	12.0	8.6								
4	1.7	13.0	1.1				18	3.3	12.6	2.8										
5	.6	.1	0				18*	7.2	9.7	6.6										
6	.0	1.2	0				19	.7	0	0	1.8	0								
6	(.6)	(0)	(0)																	
7																				
8																				
9																				
10	1.2	5.5	.6																	
11	3.2	5.8	2.7																	
12	2.0	2.8	1.4																	
13																				
14																				
Pin																				
IC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	13.5	6.3	0	.1	1.0	1.0	0	0	6.8	12.8										
2	2.6	2.2	1.4	2.4	0	8.7	1.8	4.6	8.4											
3	7.1	2.8	0	6.8	3.2	3.2	1.7	0	2.9	.6	.6	.6	7.0	7.0	7.0	7.0	0			

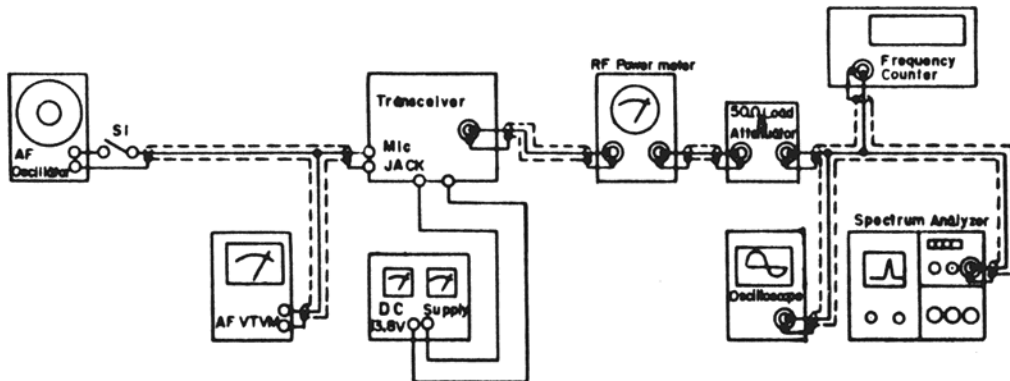
PLL Test Setup



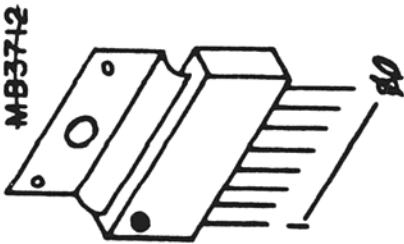
Receiver Test Setup



Transmitter Test Setup

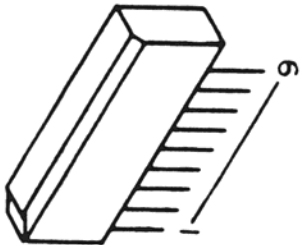


TA 722 2

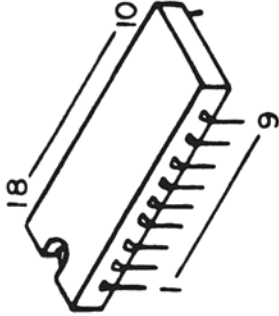


MB3742

TA7310P



TC 9106
TC9109P



2SA733-P
2SC945A-Q
2SC1675-M
2SC2076-C



2SC1342-B



2SC2028-B/20



2SC2029-B/10



IN60-AM



IS2075-K

IS2076

SRIK-1

IS34



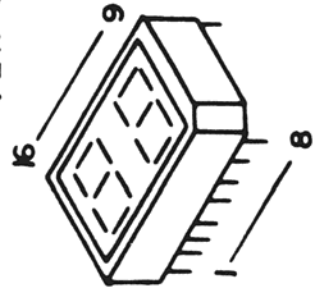
CZ-094

WZ-071

O5Z7.5-UNI

IS2688-EA

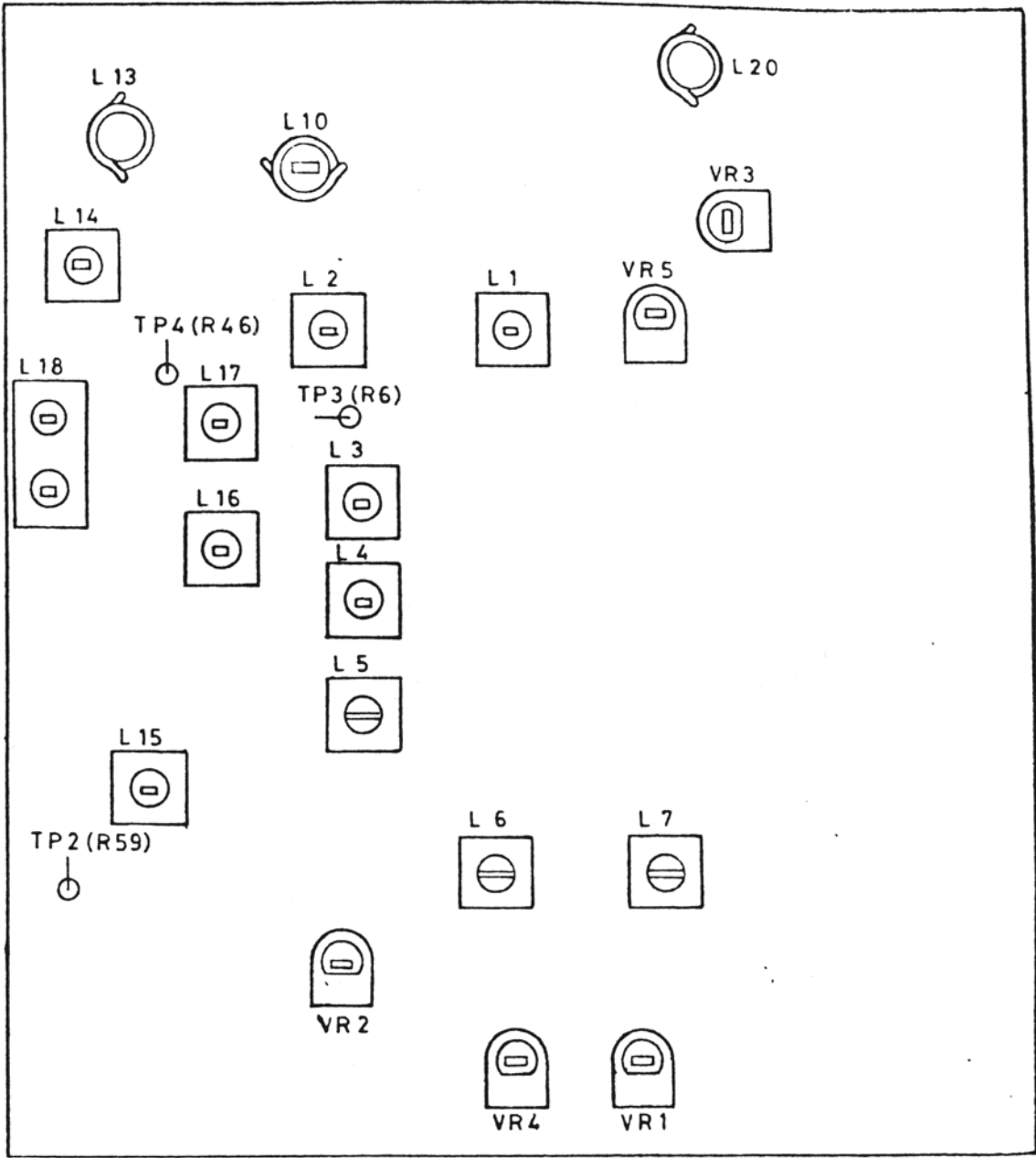
TLR-321

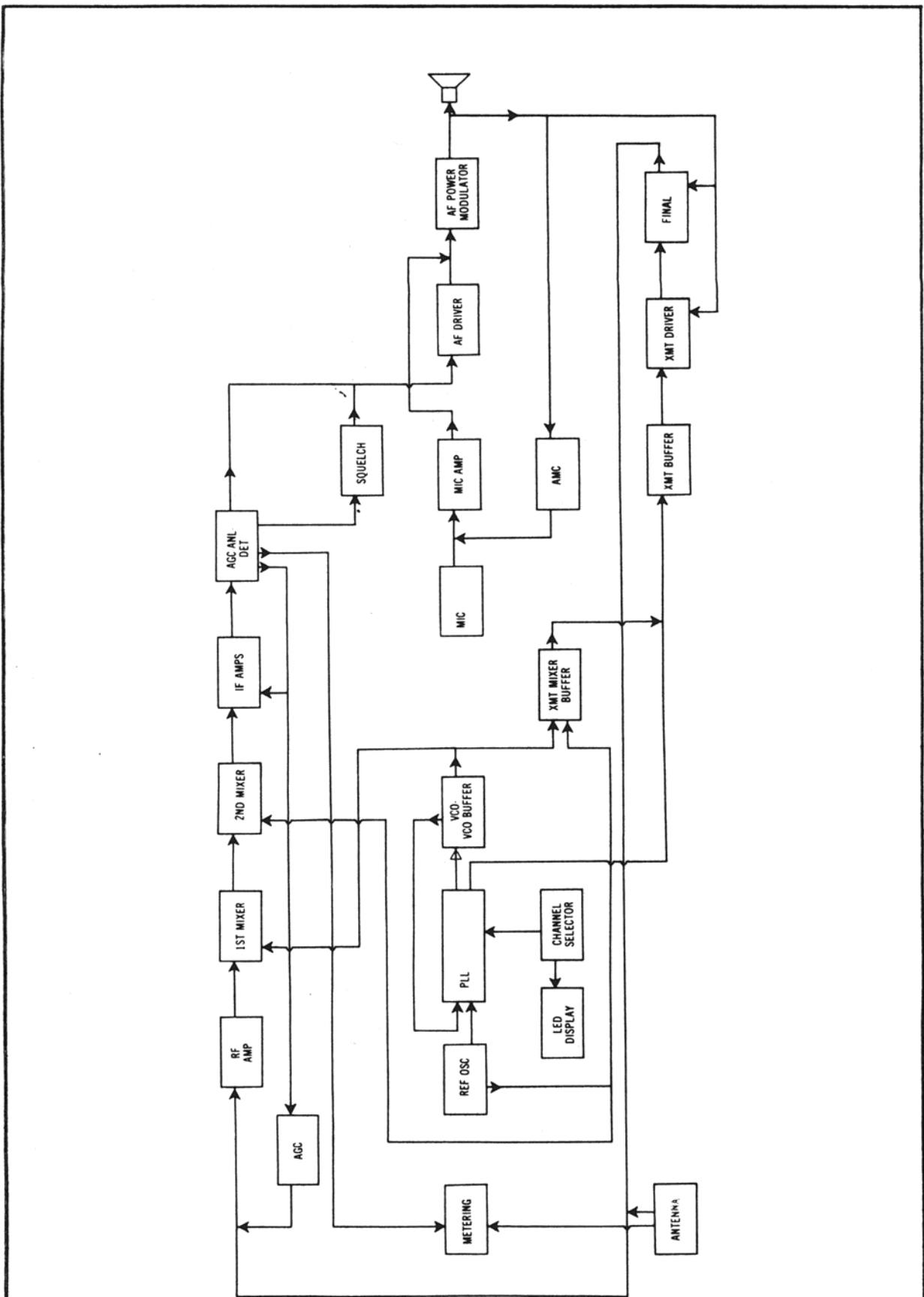


TLR-124

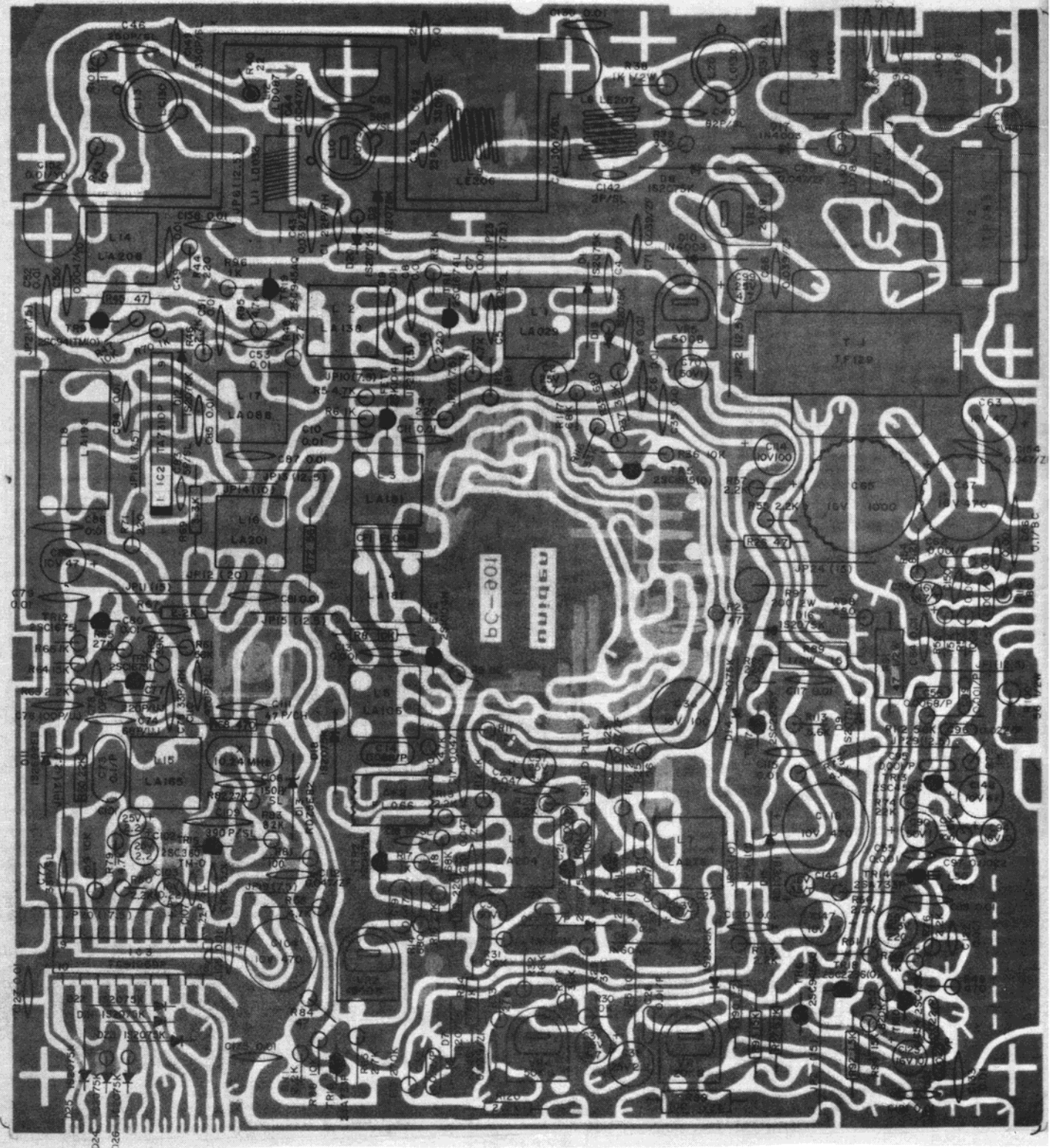
Channel Number	Program Code								R/T=L (Receive)		R/T=ll (Transmit)	
	P0	P1	P2	P3	P4	P5	P6	P7	N	f _{VCO}	N	f _{VCO}
1	0	0	0	0	0	0	0	0	3245	16.27	3345	16.725
2	0					0	0	0	3256	16.28	3347	16.735
3	0			0		0	0	0	3258	16.29	3349	16.745
4		0		0	0	0	0	0	3262	16.31	3353	16.765
5				0		0	0	0	3264	16.32	3355	16.775
6		0				0	0	0	3266	16.33	3357	16.785
7	0		0	0	0	0	0	0	3268	16.34	3359	16.795
8						0	0	0	3272	16.36	3363	16.815
9				0	0	0	0	0	3274	16.37	3365	16.825
10			0				0	0	3276	16.38	3367	16.835
11	0	0	0	0	0		0	0	3278	16.39	3369	16.845
12	0						0	0	3282	16.41	3373	16.865
13	0			0			0	0	3284	16.42	3375	16.875
14		0		0	0		0	0	3286	16.43	3377	16.885
15				0			0	0	3288	16.44	3379	16.895
16		0					0	0	3292	16.46	3383	16.915
17	0		0	0	0		0	0	3294	16.47	3385	16.925
18							0	0	3296	16.48	3387	16.935
19				0	0		0	0	3298	16.49	3389	16.945
20			0		0			0	3302	16.51	3393	16.965
21	0	0	0	0	0	0		0	3304	16.52	3395	16.975
22	0					0		0	3306	16.53	3397	16.985
23	0			0		0		0	3312	16.56	3403	17.015
24		0		0	0	0		0	3308	16.54	3399	16.995
25				0		0		0	3310	16.55	3401	17.005
26		0				0		0	3314	16.57	3405	17.025
27	0		0	0	0	0		0	3316	16.58	3407	17.035
28						0		0	3318	16.59	3409	17.045
29				0	0	0		0	3320	16.60	3411	17.055
30			0					0	3322	16.61	3413	17.065
31	0	0	0	0	0			0	3324	16.62	3415	17.075
32	0							0	3326	16.63	3417	17.085
33	0			0				0	3328	16.64	3419	17.095
34		0		0	0			0	3330	16.65	3421	17.105
35				0				0	3332	16.66	3423	17.115
36		0						0	3334	16.67	3425	17.125
37	0		0	0	0			0	3336	16.68	3427	17.135
38								0	3338	16.69	3429	17.145
39				0	0			0	3340	16.70	3431	17.155
40			0				0		3342	16.71	3433	17.165

te) Rotary Switch P₀ P₇ : None-mark is "ON" , 0-mark is "Open"

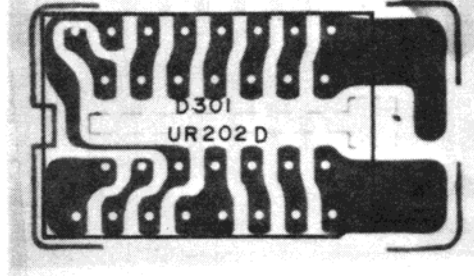




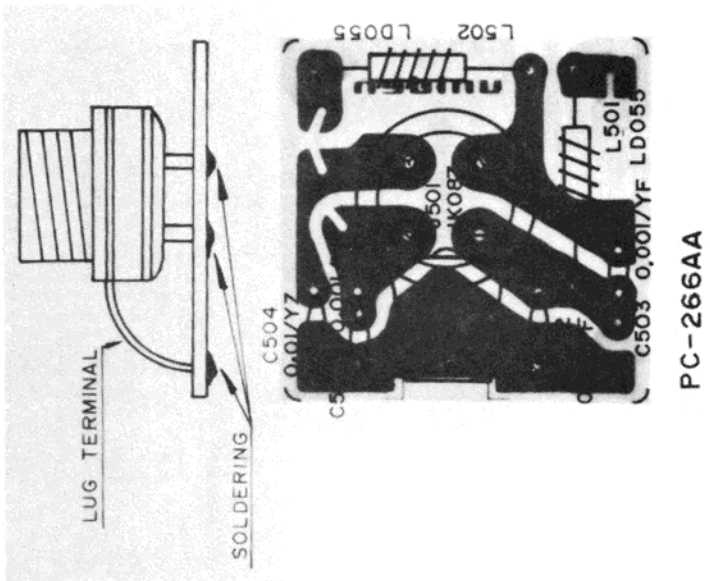
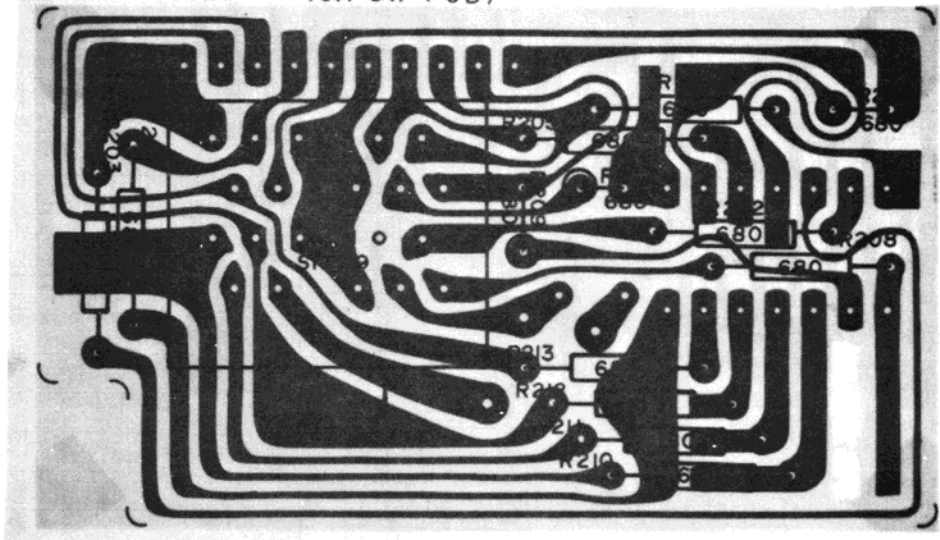
BLOCK DIAGRAM



PA-014 AA (LED PCB)



PC-719AA (CH SW PCB)



A X 44

Part NO.	Generic NO.	Symbol	Description
3500-062	PC 719 AA	--	PC Board CH SW
3500-032	PC 266 AA	--	PC Board Mic Jack
2000-054	TA 7222AP	ICI	Integrated Circuit
2000-017	TA 7310 P	IC2	Integrated Circuit
2000-035	TC 9106 BP	IC3	Integrated Circuit
2000-107	2SK 104 - H	F E T 1,2	Field Effect Transistor
2000-218	2SA 733 - P	TR 14, 16	Transistor
2000-244	2SC 1815 - O	TR 5	Transistor
2000-258	2SC 945 A - Q	TR 6, 19	Transistor
2000-288	2SC 380 TM - O	TR 15	Transistor
2000-203	2SC 458 - C	TR 10, 13	Transistor
2000-240	2SC 1674 - L	TR 1	Transistor
2000-213	2SC 1675 - L	TR 2,3,4,11,12	Transistor
2000-249	2SC 2075	TR 7	Transistor
2000-207	2SC 2091	TR 8	Transistor
2000-247	2SC 2236 - O	TR 18	Transistor
2000-248	2SC 2236 - Y	TR 17	Transistor
2000-246	2SC 941 TM-O	TR 9	Transistor
2000-303	IS 2075 - K	D 1, 2, 5, 7, 8	Diode
2000-301	IN 60 - AM	D 4, 6	Diode
2000-320	IN 4003	D 10, 17	Diode
2000-311	RD 7 5 E B 2	D 13	Diode Zener
2000-370	RD 10 E B 1	D 15	Diode Zener
2000-344	IS 2688 E B	D 11	Diode Vari-Cap
2000-343	TLRG 101	D 401	Diode LED
2000-306	UR 202 D	D 301	Diode LED
2000-347	TLR 124	D 402	Diode LED
2200-001	LA 029	L 1	Coil
2200-084	LA 088	L 17	Coil
2200-081	LA 106	L 5	Coil
2200-082	LA 138	L 2	Coil
2200-083	LA 165	L 15	Coil
2200-004	LA 181	L 3, 4	Coil
2200-045	LA 198	L 18	Coil
2200-047	LA 201	L 16	Coil
2200-048	LA 204	L 6	Coil
2200-085	LA 208	L 14	Coil
2200-086	LA 276	L 7	Coil
2200-034	LC 073	L 10	Coil
2200-020	LC 130	L 13, 20	Coil
2200-017	LD 033	L 11	Coil
2200-083	LD 055	L 501, 502	Coil
2200-052	LD 087	L 12, 50	Ferrite Bead Core
2200-101	LD 088	L 401	Ferrite Bead Core
2200-087	LE 206	L 9	Coil
2200-548	LE 207	L 8	Coil
2300-001	TF 083	T 2	Transformer AF Chock
2600-001	TF 129	T 1	Transformer Output
1900-205	RV 182 500 B	VR 2, 5	R Semi-fixed
1900-204	RV 182 20KB	VR 1, 3	R Semi-fixed
1900-153	RV 182 50KB	VR 4	R Semi-fixed

Part No.	Generic No.	Symbol	Description
2200-301	FL 048	CF 1	Filter Ceramic
2200-302	FL 066	CF 2	Filter Ceramic
1900-322	3.9 ohm 1 WK	R 77	R Metal Film
1900-002	100 ohm 1/2 WK	R 99	R Carbon, Axial Lead
1900-040	2.2 ohm 1/8 WJ	R 90	R Carbon, Axial Lead
1900-008	56 ohm 1/8 WJ	R 72	R Carbon, Axial Lead
1900-010	220 ohm 1/8 WJ	R 19	R Carbon, Axial Lead
1900-012	470 ohm 1/8 WJ	R 68	R Carbon, Axial Lead
1900-014	680 ohm 1/8 WJ	R 201, 202, 205, 208, 210, 211, 212 213, 214	R Carbon, Axial Lead
1900-043	2.7 K 1/8 WJ	R 46	R Carbon, Axial Lead
1900-015	1 K 1/8 WJ	R 6	R Carbon, Axial Lead
1900-016	1.5 K 1/8 WJ	R 92	R Carbon, Axial Lead
1900-018	2.2 K 1/8 WJ	R 67, 120	R Carbon, Axial Lead
1900-019	3.3 K 1/8 WJ	R 69	R Carbon, Axial Lead
1900-065	8.2 K 1/8 WJ	R 27	R Carbon, Axial Lead
1900-023	10 K 1/8 WJ	R 8, 59	R Carbon, Axial Lead
1900-024	15 K 1/8 WJ	R 93	R Carbon, Axial Lead
1900-025	22 K 1/8 WJ	R 60	R Carbon, Axial Lead
1900-028	56 K 1/8 WJ	R 34	R Carbon, Axial Lead
1900-011	330 ohm 1/8 WJ	R 203	R Carbon, Axial Lead
1900-543	1 ohm 1/8 WJ	R 108	R Carbon, Formed VERT
1900-006	10 ohm 1/8 WJ	R 43	R Carbon, Formed VERT
1900-008	47 ohm 1/8 WJ	R 84	R Carbon, Formed VERT
1900-041	56 ohm 1/8 WJ	R 25	R Carbon, Formed VERT
1900-551	22 ohm 1/8 WJ	R 40	R Carbon, Formed VERT
1900-553	180 ohm 1/8 WJ	R 114	R Carbon, Formed VERT
1900-010	220 ohm 1/8 WJ	R 4, 7, 11, 21, 44, 71, 88	R Carbon, Formed VERT
1900-009	100 1/8 WJ	R 81	R Carbon, Formed VERT
1900-011	330 ohm 1/8 WJ	R 39	R Carbon, Formed VERT
1900-012	470 ohm 1/8 WJ	R 49	R Carbon, Formed VERT
1900-014	680 ohm 1/8 WJ	R 14, 98, 35, 206 207, 209	R Carbon, Formed VERT
1900-015	1 K 1/8 WJ	R 3, 9, 12, 17, 51 66, 70, 75, 96, 301	R Carbon, Formed VERT
1900-018	2.2 K 1/8 WJ	R 13, 23, 55, 56, 57, 63, 76, 80, 111	R Carbon, Formed VERT
1900-043	2.7 K 1/8 WJ	R 85, 82	R Carbon, Formed VERT
1900-019	3.3 K 1/8 WJ	R 37	R Carbon, Formed VERT
1900-020	4.7 K 1/8 WJ	R 1, 5, 10, 58, 73, 75, 95	R Carbon, Formed VERT
1900-021	5.6 K 1/8 WJ	R 110, 112, 113	R Carbon, Formed VERT
1900-065	8.2 K 1/8 WJ	R 54	R Carbon, Formed VERT
1900-023	10 K 1/8 WJ	R 20, 30, 36, 47, 86	R Carbon, Formed VERT
1900-024	15 K 1/8 WJ	R 52, 64, 94	R Carbon, Formed VERT
1900-082	18 K 1/8 WJ	R 2	R Carbon, Formed VERT
1900-025	22 K 1/8 WJ	R 28, 74	R Carbon, Formed VERT
1900-044	27 K 1/8 WJ	R 16, 33, 65	R Carbon, Formed VERT
1900-026	33 K 1/8 WJ	R 116	R Carbon, Formed VERT
1900-027	47 K 1/8 WJ	R 24	R Carbon, Formed VERT

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Part No.	Generic No.	Symbol	Description
1900-028	56 K 1/8 WJ	R 32, 61	R Carbon, Formed VERT
1900-045	68 K 1/8 WJ	R 18, 117	R Carbon, Formed VERT
1900-083	270 K 1/8 WJ	R 15	R Carbon, Formed VERT
1900-084	820 K 1/8 WJ	R 50 J	R Carbon, Formed VERT
1900-522	82 K 1/8 WJ	R 83	R Carbon, Formed VERT
1800-604	3.3 M 16 VM	C 144	C Tantalum
1800-616	4.7 M 16 VM	C 59	C Tantalum
1800-602	10 M 6.3 VM	C 22	C Tantalum
1800-302	1 M 50 V	C 30, 90, 70	C Electrolytic
1800-303	2.2 M 25 V	C 38, 101, 102	C Electrolytic
1800-304	4.7 M 25 V	C 2, 31, 37, 99	C Electrolytic
1800-306	10 M 16 V	C 94, 123, 155	C Electrolytic
1800-324	47 M 10 V	C 82, 147, 148	C Electrolytic
1800-316	47 M 16 V	C 63	C Electrolytic
1800-312	100 M 16 V	C 36	C Electrolytic
1800-310	100 M 10 V	C 114	C Electrolytic
1800-327	470 M 10 V	C 104, 118	C Electrolytic
1800-309	470 M 16 V	C 67	C Electrolytic
1800-328	1000 M 16 V M	C 65	C Electrolytic
1800-502	0.22 M 16 VM	C 103	C Solid
1800-406	0.001 M 25 VM	C 21, 57, 62, 89, 95	C Mylar
1800-419	0.002 M 25 VM	C 29, 151	C Mylar
1800-419	0.0047 M 25 VM	C 27	C Mylar
1800-414	0.0068 M 25 VM	C 56	C Mylar
1800-402	0.01 M 25 VM	C 28	C Mylar
1800-408	0.022 M 25 VM	C 32, 54, 96	C Mylar
1800-411	0.047 M 25 VM	C 19	C Mylar
1800-405	0.068 M 25 VM	C 14, 510	C Mylar
1800 412	0.1 M 25 VM	C 73	C Mylar
1800-007	22 P 50 VKRH	C 1	C Ceramic
1800-005	33 P 50 VKRH	C 75	C Ceramic
1800-047	150 P 50 VKSL	C 108, 159	C Ceramic
1800-021	390 P 50 VKUJ	C 74	C Ceramic
1800-122	68 P 50 VKUJ	C 76	C Ceramic
1800-124	220 P 50 VKUJ	C 77	C Ceramic
1800-084	2 P 50 VCSL	C 142	C Ceramic
1800-045	5 P 50 VCSL	C 83	C Ceramic
1800-013	10 P 50 VCSL	C 78	C Ceramic
1800-031	33 P 50 VKSL	C 72, 402	C Ceramic
1800-014	22 P 50 VKSL	C 107, 48	C Ceramic
1800-089	56 P 50 VKSL	C 45	C Ceramic
1800-039	220 P 50 VKSL	C 5	C Ceramic
1800-109	250 P 50 VKSL	C 46	C Ceramic
1800-040	330 P 50 VKSL	C 42, 149	C Ceramic
1800-074	470 P 50 VKSL	C 110, 157	C Ceramic
1800-005	300 P 50 VKSL	C 41	C Ceramic
1800-148	0.01 M 50 VZYP	C 3, 4, 6, 7, 8, 9, 10, 11, 35, 49, 51, 52, 53, 60, 64, 79, 80, 81, 84, 85, 86, 87, 98, 105, 106, 115, 117, 120, 121, 127, 129 130, 131, 133, 135, 146, 153, 156, 158, 402, 403, 502, 504	C Ceramic

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Part No.	Generic No.	Symbol	Description
1800-701	0.1 M 25 VZBC	C 66	C Semiconductor
3000-155	SR - 319	S 201	Switch Rotary
3000-010	SW - 150	S 401, 403, 404	Switch Push
1900-130	RV 227 - 1 KB	VR 401	R Variable
1900-104	RV 320 - 50 KA	VR 403	R Variable
1900-158	RV 241 - 50 KB	VR 402	R Variable
1900-131	RV 394 - 5 KA	VR 404	R Variable
3400-403	YD - 039	TA 7222 AP	Insulation sheet
3400-212	YD - 041	2 SC 2075	Insulation sheet
3400-212	YD - 032	2 SC 2091	Insulation sheet
3400-235	YD - 019	--	Bushing
1100-801	YY - 047	--	Clamper Wire
2100-013	QX - 074	--	Crystal
3100-009	SP - 057	SP 401	Speaker
2900-011	MT - 147	M 401	Meter
3200-005	MK - 221	--	Microphone
1100-002	JK - 068	J 401	Jack Antenna
1100-021	JK - 89	J 402, 403	Jack Speaker
1100-003	JK - 052	J 405	Receptacle DC Power
2800-001	FS - 014 (2A)	F 401	Fuse
2700-001	W - 070088	--	DC Power Cord
3300-118			Cover Top
3300-160			Cover Bottom
3300-210			Mounting Bracket
3300-401			Hanger Microphone
3300-558			Shield Plate
1300-001			Knob Channel
1300-002			Knob
1300-003			Knob Core Push Button
1100-202			Screw Mounting
3400-018			Holder LED LED
1700-207			Label Serial No.
1600-004			Label Warning DC Cord
3400-128			Nameplate Control
3400-108			Optional Filter Display
1100-315			Washer Rubber
1100-702			Screw Pan Hd Plastic
1100-777			Screw Pan Hd Plastic
1100-708			Tapping Screw Round Hd
1100-709			Tapping Screw Round Hd
1100-725			Tap Tight Screw Bind Hd
1100-707			Tapping Screw Bind Hd
1100-711			Washer Lock
1100-712			Washer Star
1100-735			Nut Hex
1100-710			Nut Flange
1100-305			Spring Plate Knob
1100-311			Rivet AL, ID Plate
1100-307			Terminal Lug, Solder
1500-009			Styrofoam Pad
1500-109			Styrofoam Pad
1500-250			Display Box
1600-191			Owners Instruction Manual
1600-201			Warranty Card
1600-204			Emergency Card