SERVICE MANUAL FOR MODEL 31 PLUS

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FOR MODEL 31 PLUS

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ALIGNMENT PROCEDURE

ALIGNMENT OF VCO PORTION

1. Test Equipment Required

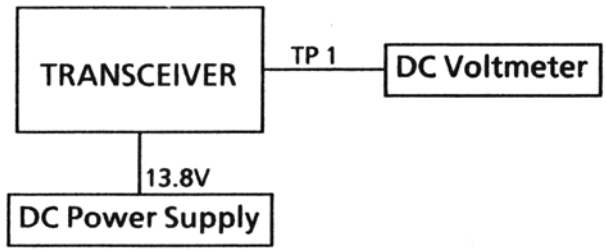
DC Power Supply (13.8 V)

DC Voltmeter (10 V maximum, 100 kΩ/V)

2. Alignment Procedure

Step	Preset to	Adjustment	Remarks
1	TX Mode CH : 40 No Modulation	L702	Connect DC Voltmeter to TP1 (Lead of R72). Adjust for approx. 4.5 V on DC Voltmeter.
2	RX Mode CH : 40 No Modulation	L701	Ditto

3. Alignment connection



ALIGNMENT OF CB TRANSMITTER PORTION

1. Test Equipment Required

DC Power Supply (13.8V)
50Ω / 200Ω Dummy Load & Attenuator
AF Oscillator
RF Power Meter
Oscilloscope

2. Preparation for Alignment

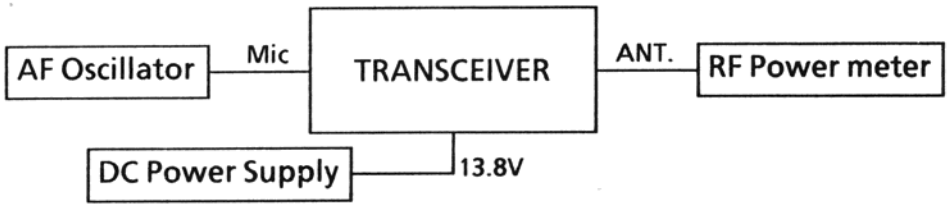
CH 9	OFF	S/RF/MOD/CAL/SWA	S/RF
PA	OFF	WX	OFF
ANT.	WX (SEP)		

3. Alignment Procedure

Step	Preset to	Adjustment	Remarks
1	TX Mode CH : 19 100mV 80% Mod.	L13, 16	Connect RF Power Meter to ANT. Jack (J501). Adjust for maximum reading.
2	TX Mode CH : 19 No Mod.	L13	Adjust for 4.0 W on RF Power Meter.
3	Ditto	VR3	Preset VR3 so that 6th digit of LED meter of the unit lights up.
4	TX Mode CH : 19 1 kHz 10 mV Mod. input	VR7	Adjust VR7 for 95% modulation on output wave.
5	CH : 19 MOD SW : MOD 1kHz 80% Mod.	—	Adjust for so that 7th digit of LED meter of the unit lights up.
6	Same as step 2.	VR 4	Connect a dummy load (200 ohm) to ANT. jack. Adjust VR 4 so that LED of ANT. lights up.

Note : After adjustment, seal to L11 and L14 with paraffin.

4. Alignment Connection



ALIGNMENT OF CB RECEIVER PORTION

1. Test Equipment Required

Standard Signal Generator (27 MHz Band, 1kHz, 30% Modulation & Output Impedance 50 Ω)

AF VTVM	Oscilloscope
Dummy Load (8 Ω, 5 watts, resistive)	DC Power Supply (13.8 V)
DC Voltmeter	Attenuator

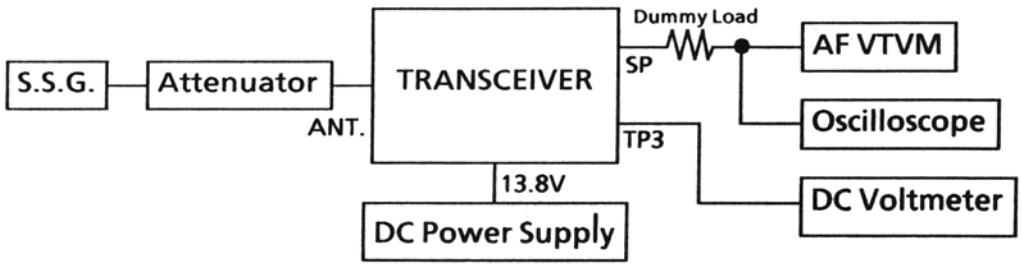
2. Preparation for Alignment

CH 9	:	OFF	LO/DX	:	OFF
ANL/NB	:	OFF	PA	:	OFF
SQUELCH	:	MIN (Fully Counter Clockwise)	WX	:	OFF
ANT SW	:	WX (SEP)	S/RF/MOD/CAL/SWR	:	S/RF

3. Alignment Procedure

Step	Preset to	Adjustment	Remarks
1	RX Mode NB : OFF Volume : Max. Squelch : Min. ANL : OFF CH : 19	L1,2,3,4,5, L6,7 and 8	Connect a S.S.G. to ANT Connector (J501) and set it 27.185 MHz. Connect an AF VTVM to EXT. SPK. Jack (J3). Adjust coils for the maximum reading on AF VTVM.
2	Same as Step 1.	VR1	Set the S.S.G. to 100 μV output level. Adjust for a reading of S-9 on the S-meter of the unit.
3	Same as Step 1. Except SQ : Max.	VR5 (Squelch)	Set the S.S.G. to 1000 μV output level. Adjust VR1 so that squelch just breaks.
5	Same as Step1. except NB : ON CH : 18	L651	Connect DC Voltmeter to TP3 (Lead of R8). Set S.S.G. to 100μV output level. Adjust for the maximum reading on DC Voltmeter.
4	Same as step 1	VR2	Adjust S.S.G. attenuator so that output is 0.5 W. Set the S.S.G. to 30 dB more 0.5 W. Adjust VR 2 so that output is 0.5 W , when set the LO/DX to ON(LO) on unit.

4.Alignment Connection



ALIGNMENT OF WX RECEIVER PORTION

1. Test Equipment Required

Standard Signal Generator (162.475 MHz (W3), 1kHz, 30% Deviation & Output Impedance 50 Ω)

AF VTVM

Oscilloscope

Alignment Channel : W3

DC Power Supply (13.8 V)

SINAD meter

Frequency Counter

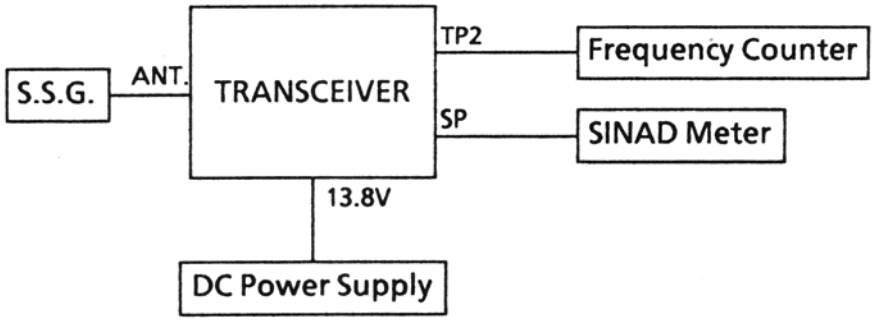
2.Preparation for Alignment

WX	: ON	PA	: OFF
ANL/NB	: OFF	SQUELCH	: MIN
LO/DX	: OFF(DX)	S/RF/MOD/CAL/SWR	: S/RF
ANT SW	: WX (SEP)		

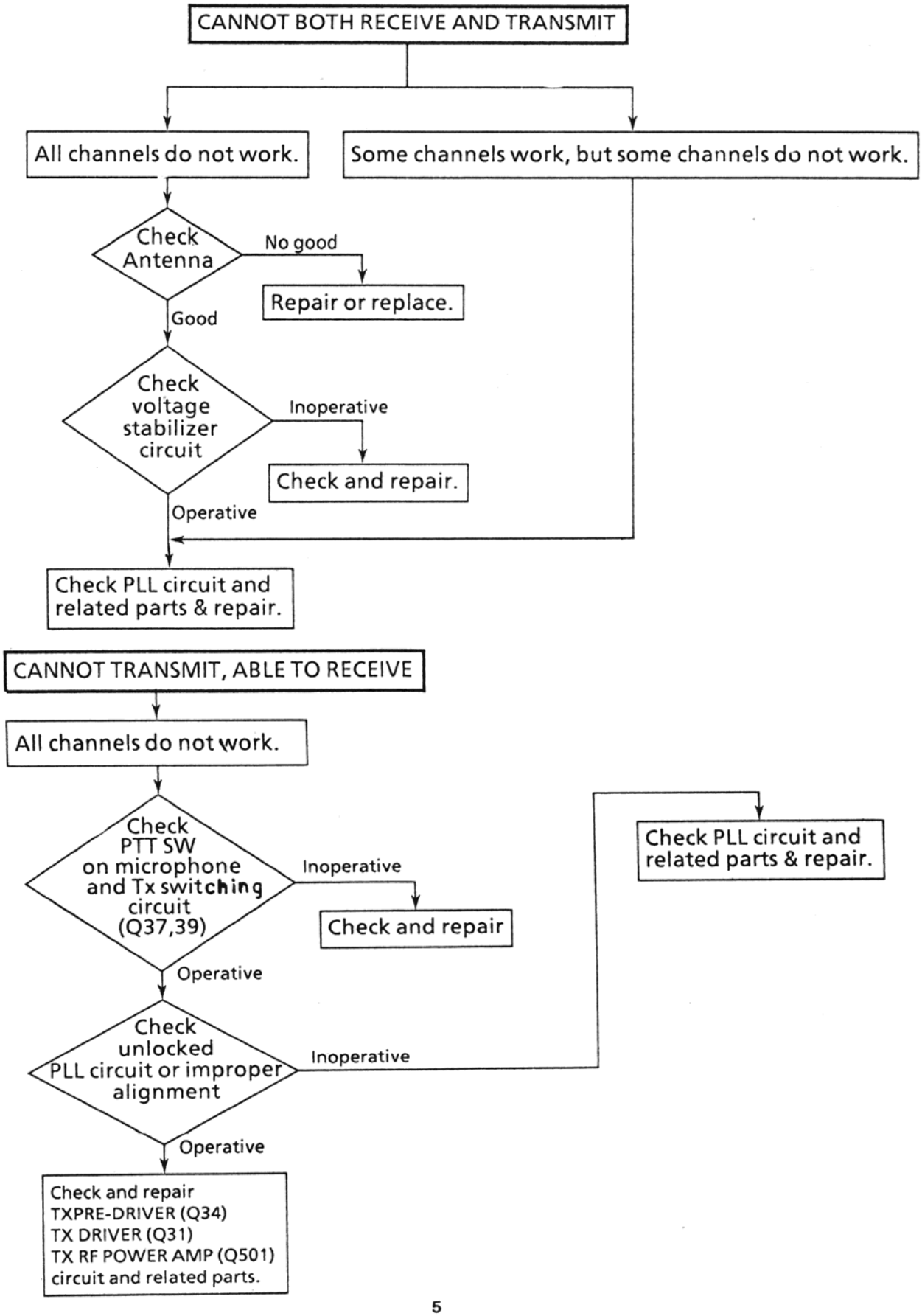
3. Alignment Procedure

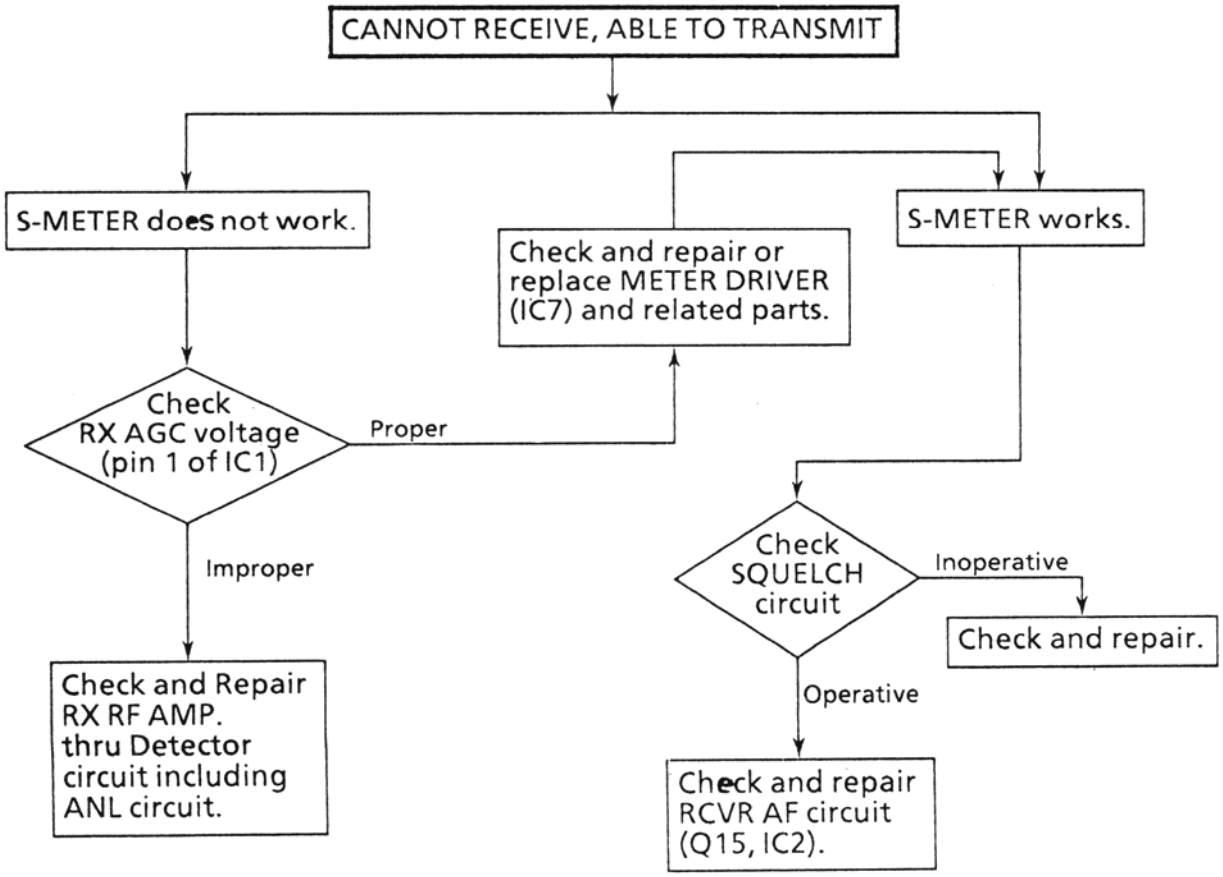
Step	Preset to	Adjustment	Remarks
1	W 3	L851~853 and L9	Adjust coils to obtain best SINAD. Repeat this step several times. During this step, set the level of S.S.G. to approx. 12 dB SINAD.
2	Ditto	L855	Connect an oscilloscope and a frequency counter to TP 2. Set output level of S.S.G . is 1 mV, adjust L855 for 450 kHz ± 1kHz reading on the frequency counter.
3	W 1	L854	Set output level of S.S.G . is 1 mV, adjust L854 for 450 kHz ± 1kHz reading on the frequency counter.

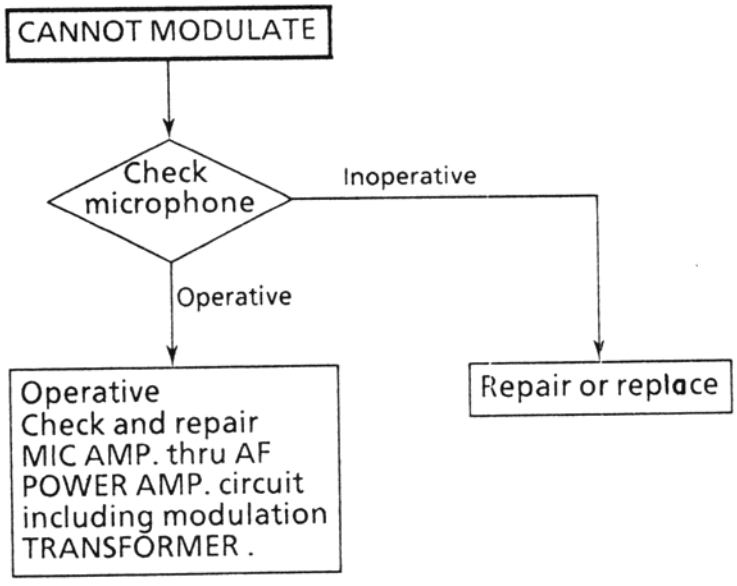
4. Alignment Connection



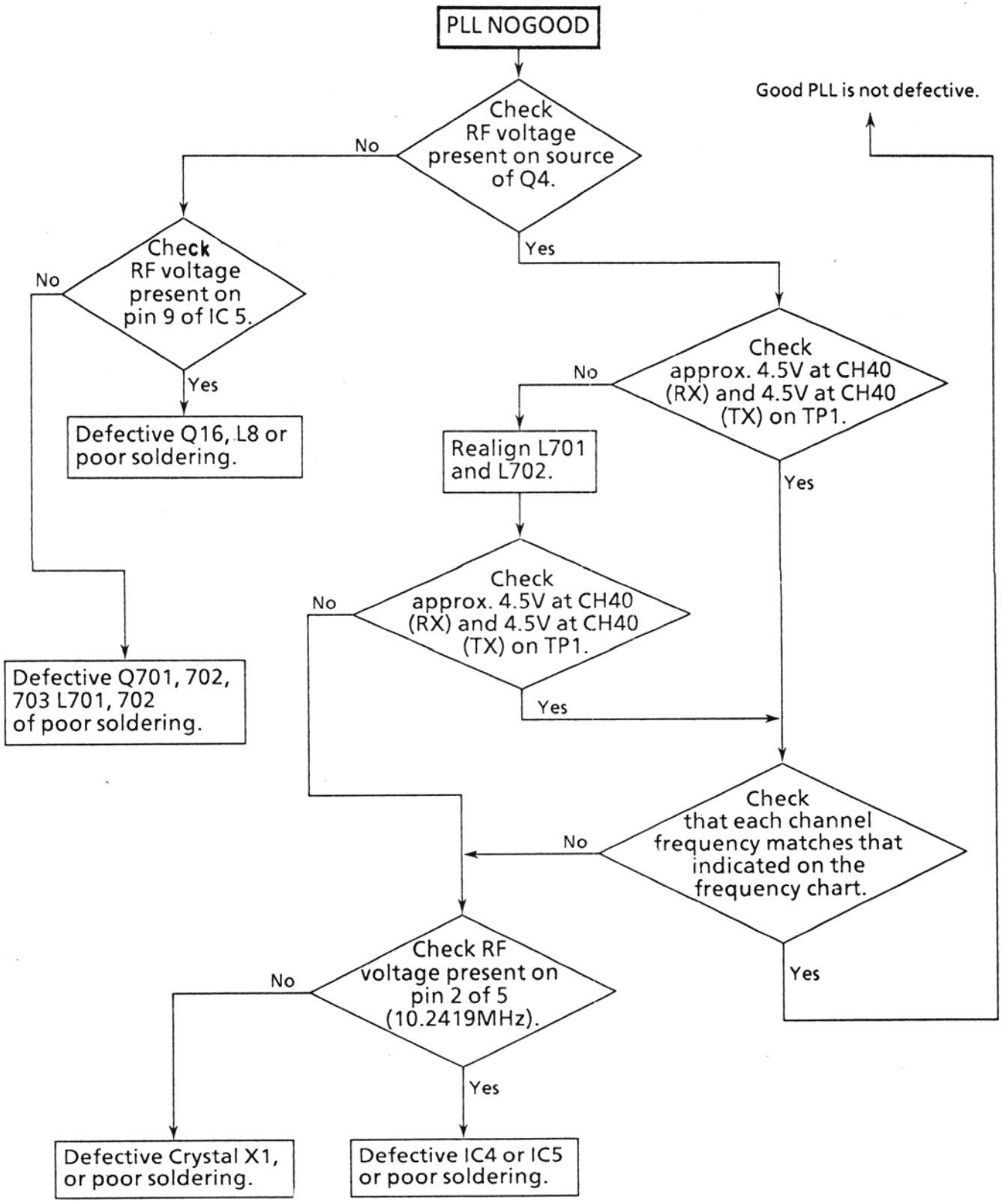
TROUBLE SHOOTING GUIDE
FOR CB TRANSCEIVER SECTION



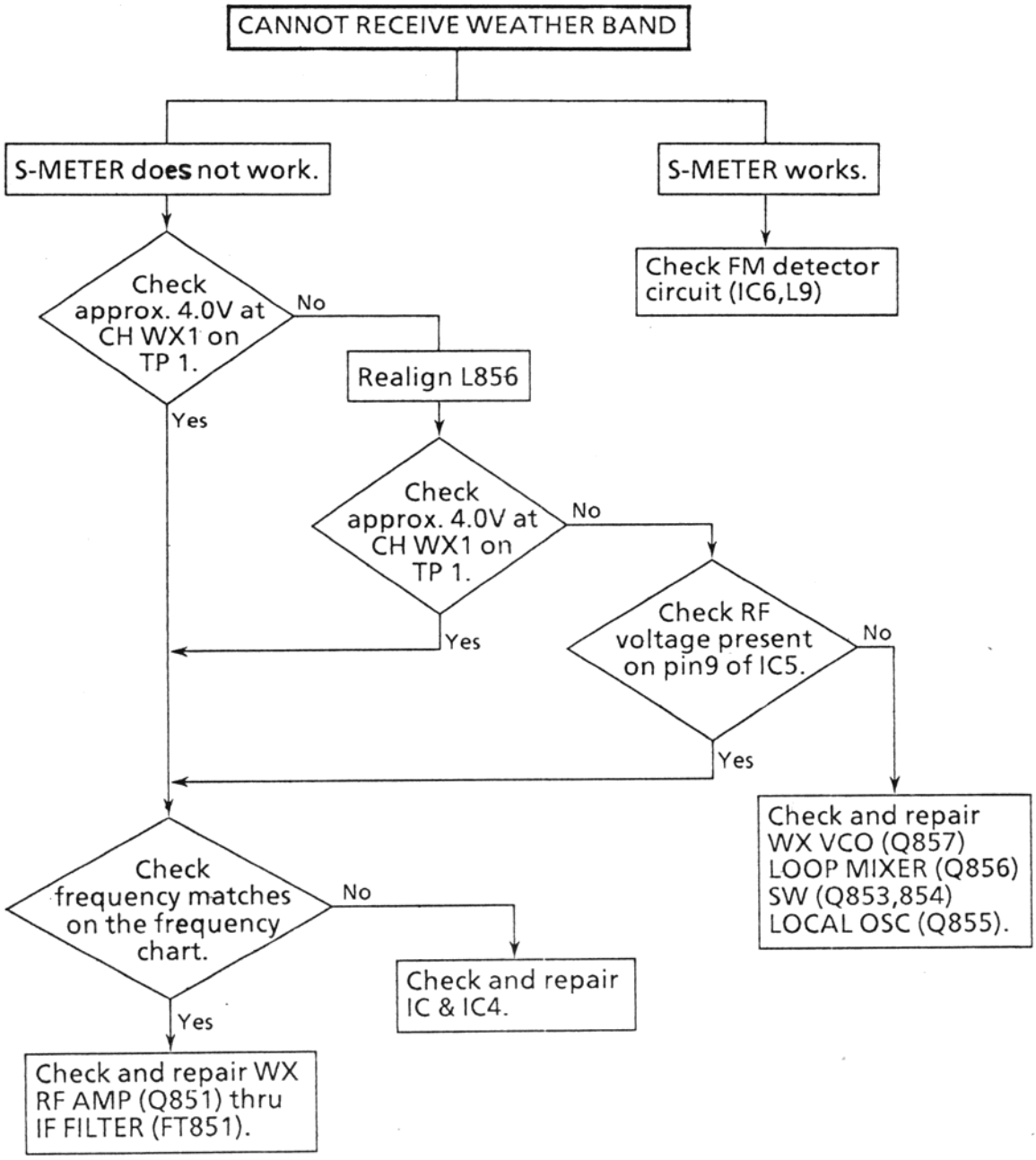

CANNOT RECEIVE, ABLE TO TRANSMIT
S-METER does not work.
S-METER works.
Check and repair or replace METER DRIVER (IC7) and related parts.
Check RX AGC voltage (pin 1 of IC1)
Proper
Improper
Check and Repair RX RF AMP. thru Detector circuit including ANL circuit.
Check SQUELCH circuit
Inoperative
Check and repair.
Operative
Check and repair RCVR AF circuit (Q15, IC2).

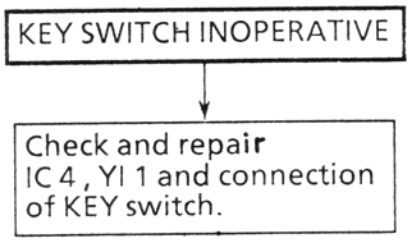

CANNOT MODULATE
Check microphone
Inoperative
Operative
Repair or replace
Operative Check and repair MIC AMP. thru AF POWER AMP. circuit including modulation TRANSFORMER .

FOR CB TRANSMITTER SECTIONI



FOR WEATHER BAND SECTION





B651 PA-242

Q651 2SC2814F5
Q652 2SC2814F5
Q653 2SC2812L5
Q654 2SA1179M6
Q655 2SC2812L5

B001 PA-255

Q1 2SC1675L
Q2 2SC1675L
Q3 2SC1674L
Q4 2SK192ABL
Q5 2SC1675L
Q6 2SC1675L
Q7 2SC941TM0
Q13 2SC1675L
Q8 2SC945AQ
Q9 2SA733P
Q12 2SC945AQ
IC1 M5223L

B551 PA-256

B851 PA-258

Q851 2SC3772-3
Q852 2SC3772-3
Q853 2SC2814F5
Q855 2SC2814F4
Q857 2SC3772-3
Q854 2SC2812L5
Q856 2SC3772-3

B701 PA-243

Q701 2SC2814F5
Q702 2SC2814F5
Q703 2SC2814F5

Q24 2SC945AQ
IC6 TA7130P
IC2 μPC1242H
Q14 2SC945AQ
Q15 2SC945AQ

Q32 2SC945AQ
Q45 2SA733P
Q36 2SC945AQ
Q37 2SC945AQ
Q38 2SC945AQ
Q25 2SC945AQ
Q27 2SC945AQ
Q28 2SC945AQ
Q26 2SC945AQ
Q29 2SA733P
Q39 2SA733P
Q11 2SC945AQ
IC7 LB1417
Q33 2SC945AQ
Q41 2SA733P
Q43 2SA733P
Q42 2SA733P
IC8 HA17808W

B801 PA-262

Q501 2SC2166C
Q31 2SC2086D
Q34 2SC941TM0
Q35 2SC1675L

Q18 2SC3242AE
Q22 2SC945AQ
Q17 2SB525C
Q19 2SB525C
Q21 2SB525C
Q23 2SC3242AE
Q16 2SC1675L
Q44 2SC945AQ

IC4 UC1138
IC3 LB1710
IC5 SM5124A

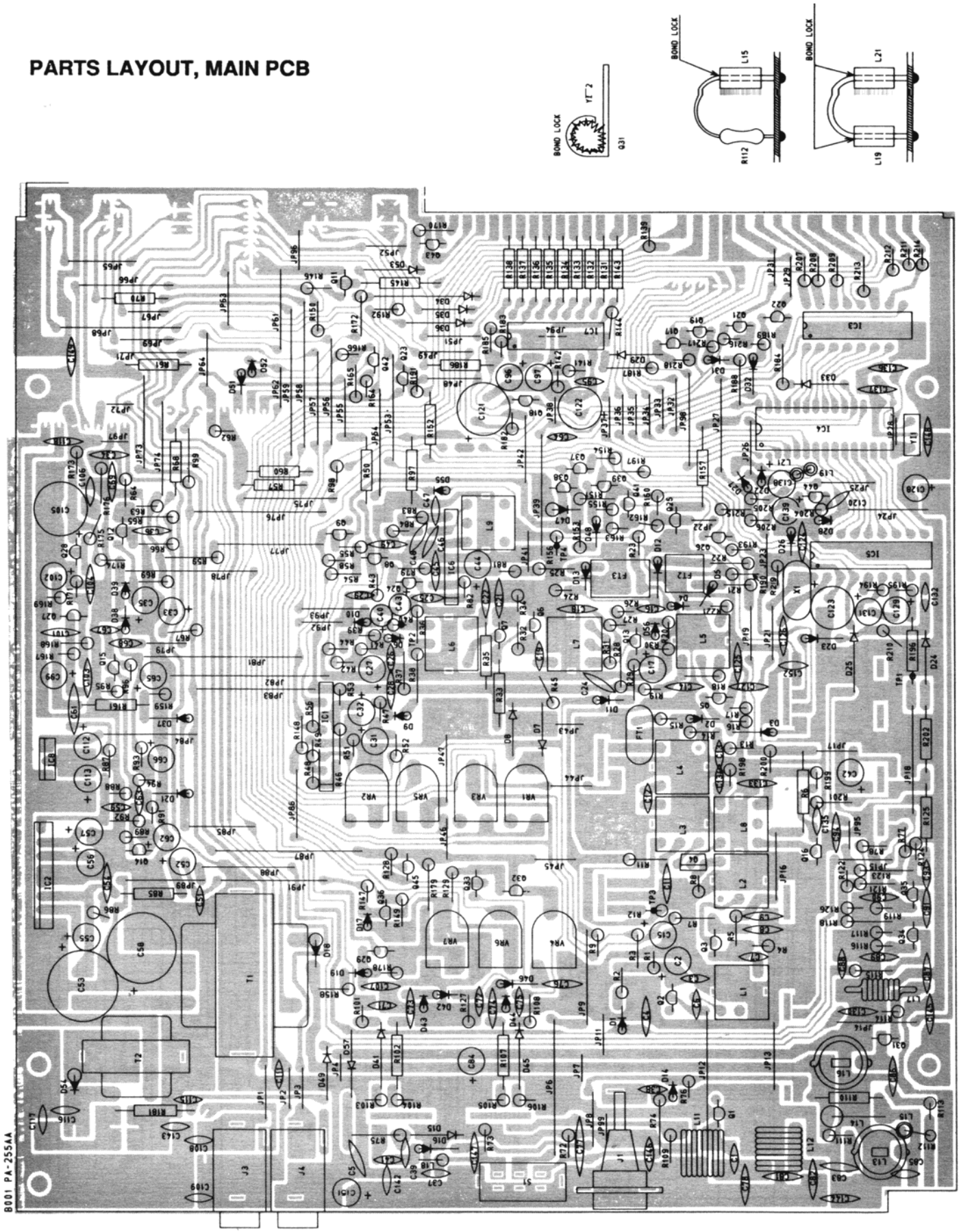
B351 PA-257

D351 LL2997

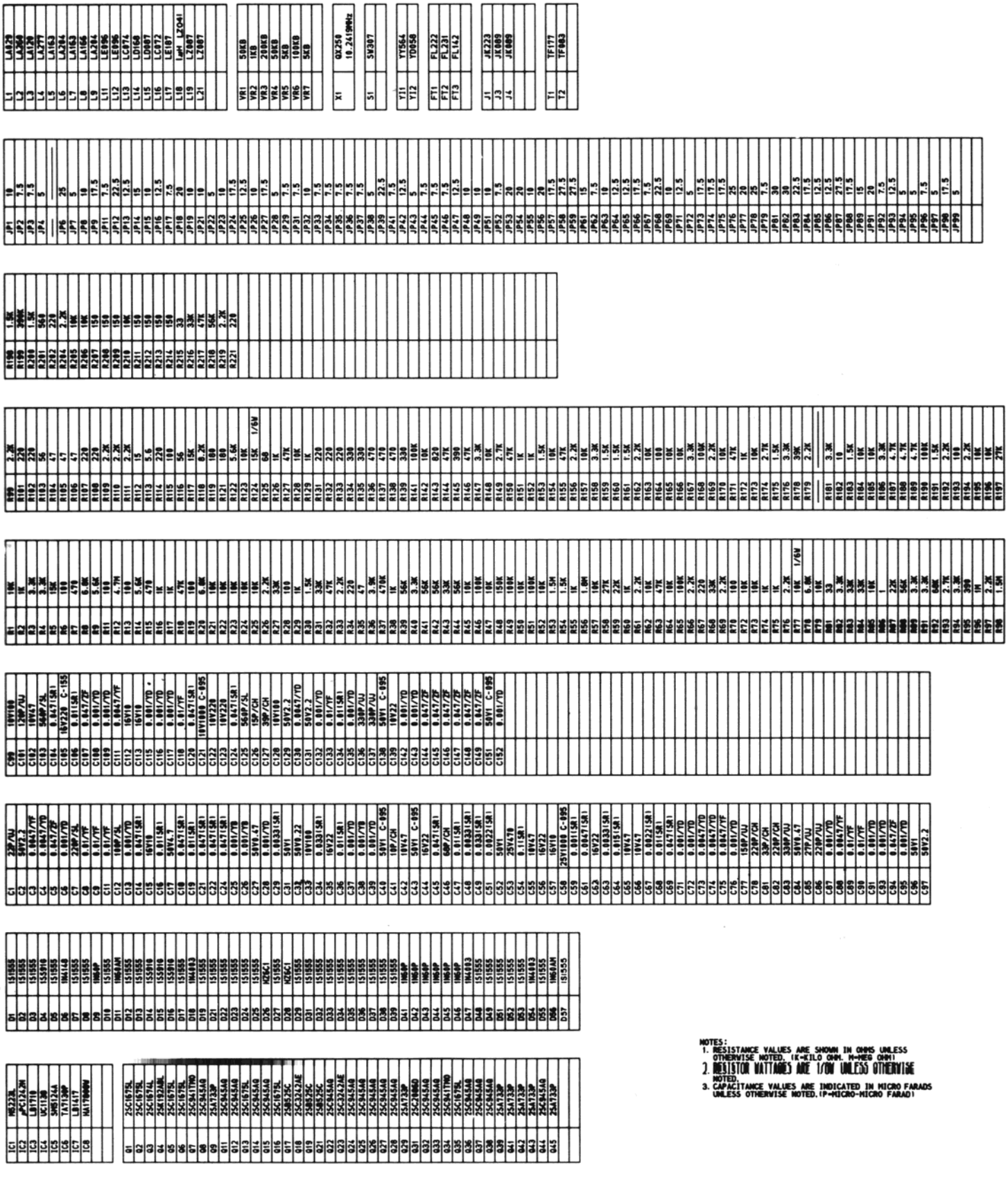
B901 PA-265

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM, M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/6W UNLESS OTHERWISE NOTED.
3. AP.CITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)
4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE ZF UNLESS OTHERWISE NOTED.
5. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE SL (LESS THAN 1000PF) OR ZF (MORE THAN 1000PF) UNLESS OTHERWISE NOTED.
6. CHIP PARTS ARE NOT SPECIFIED IN THIS SCHEMATIC DIAGRAM.
PLEASE REFER TO THE PARTS LIST FOR THE CHIP PARTS.
7. VOLTAGE IN ▭ SHOWS TX CONDITION.
8. VOLTAGE IN ( ) SHOWS RX CONDITION UNDER OPERATION OF EACH FUNCTION.
9. VOLTAGE IN NO MARK SHOWS RX CONDITION

PARTS LAYOUT, MAIN PCB



PARTS LAYOUT, MAIN PCB



L1	LA329
L2	LA360
L3	LA330
L4	LA277
L5	LA1163
L6	LA284
L7	LA1163
L8	LA1166
L9	LA284
L11	LE096
L12	LE096
L13	LC074
L14	LD160
L15	LD007
L16	LC072
L17	LE107
L18	Lot* LZ041
L19	LZ007
L21	LZ007

VR1	50KB
VR2	1KB
VR3	200KB
VR4	50KB
VR5	5KB
VR6	100KB
VR7	5KB

X1	QX259 10.2419MHz

S1	SW307

Y11	YY564
Y12	YD058

FT1	FL222
FT2	FL231
FT3	FL142

J1	JK223
J3	JK009
J4	JK009

T1	TF177
T2	TF083

JP1	10
JP2	7.5
JP3	7.5
JP4	5
JP5	25
JP7	5
JP8	10
JP9	17.5
JP11	7.5
JP12	22.5
JP13	12.5
JP14	15
JP15	10
JP16	12.5
JP17	7.5
JP18	20
JP19	10
JP21	10
JP22	5
JP23	10
JP24	17.5
JP25	12.5
JP26	10
JP27	17.5
JP28	5
JP29	7.5
JP31	7.5
JP32	10
JP33	7.5
JP34	7.5
JP35	7.5
JP36	7.5
JP37	5
JP38	5
JP39	22.5
JP41	7.5
JP42	12.5
JP43	5
JP44	7.5
JP45	7.5
JP46	7.5
JP47	12.5
JP48	10
JP49	10
JP51	10
JP52	7.5
JP53	20
JP54	20
JP55	10
JP56	20
JP57	17.5
JP58	27.5
JP59	27.5
JP61	15
JP62	7.5
JP63	10
JP64	12.5
JP65	12.5
JP66	17.5
JP67	7.5
JP68	22.5
JP69	10
JP71	12.5
JP72	5
JP73	17.5
JP74	17.5
JP75	17.5
JP76	25
JP77	20
JP78	25
JP79	7.5
JP81	30
JP82	30
JP83	22.5
JP84	17.5
JP85	12.5
JP86	12.5
JP87	27.5
JP88	17.5
JP89	15
JP91	20
JP92	7.5
JP93	12.5
JP94	5
JP95	5
JP96	7.5
JP97	5
JP98	17.5
JP99	5

R199	1.5K
R199	200K
R200	1.5K
R201	560
R202	220
R204	2.2K
R205	10K
R206	10K
R207	150
R208	150
R209	150
R210	10K
R211	150
R212	150
R213	150
R214	150
R215	33
R216	33K
R217	47K
R218	56K
R219	2.2K
R221	220

R99	2.2K
R101	220
R102	220
R103	56
R104	47
R105	47
R106	47
R107	220
R108	220
R109	2.2K
R110	2.2K
R111	2.2K
R112	15
R113	5.6
R114	220
R115	100
R116	56
R117	15K
R118	8.2K
R119	100
R121	100
R122	5.6K
R123	10K
R124	15K 1/6W
R125	60
R126	1K
R127	47K
R128	10K
R129	1K
R131	220
R132	220
R133	220
R134	330
R135	330
R136	470
R137	470
R138	470
R139	330
R141	100K
R142	10K
R143	820
R144	47K
R145	390
R146	47K
R147	3.3K
R148	10K
R149	2.7K
R150	47K
R151	1K
R152	1K
R153	1.5K
R154	10K
R155	47K
R156	2.2K
R157	10K
R158	3.3K
R159	1.5K
R160	1.5K
R161	1.5K
R162	2.2K
R163	10K
R164	100
R165	10K
R166	10K
R167	3.3K
R168	100K
R169	2.2K
R170	10K
R171	47K
R172	1K
R173	10K
R174	2.7K
R175	1.5K
R176	3.3K
R177	39K
R179	2.2K
———	———
R181	3.3K
R182	10
R183	1.5K
R184	10K
R185	10K
R186	3.3K
R187	4.7K
R188	56K
R189	4.7K
R190	100K
R191	1.5K
R192	2.2K
R193	100
R194	2.2K
R195	10K
R196	10K
R197	27K

B1	10K
B2	1K
B3	3.3K
B4	3.3K
B5	15K
B6	100
B7	470
B8	6.8K
B9	5.6K
B11	100
B12	4.7M
B13	100
B14	5.6K
B15	470
B16	1K
B17	1K
B18	47K
B19	100
B20	6.8K
B21	10K
B22	10K
B23	10K
B24	10K
B25	10K
B26	2.2K
B27	3.3K
B28	100
B29	1K
B30	1.5K
B31	3.3K
B32	47K
B33	2.2K
B34	220
B35	47
B36	3.9K
B37	470K
B38	1K
B39	56K
B40	3.3K
B41	56K
B42	56K
B43	33K
B44	56K
B45	10K
B46	100K
B47	10K
B48	150K
B49	100K
B50	10K
B51	100K
B52	10K
B53	1.5M
B54	1.5M
B55	1K
B56	1.8M
B57	10K
B58	27K
B59	22K
B60	1K
B61	2.2K
B62	10K
B63	47K
B64	10K
B65	100K
B66	2.2K
B67	220
B68	33K
B69	2.2K
B70	100
B71	10K
B72	1K
B73	10K
B74	1K
B75	1K
B76	2.2K
B77	10K 1/6W
B78	6.8K
B79	10K
B81	33
B82	3.3K
B83	33K
B84	33K
B85	10K
B86	1
B87	22K
B88	56K
B89	3.3K
B91	3.3K
B92	68K
B93	2.7K
B94	3.3K
B95	390
B96	1M
B97	2.2K
B98	1.5M

C99	10V100
C101	120P/AU
C102	10V47
C103	560P/SL
C104	0.047/SB1
C105	16V220 C-155
C106	0.011SB1
C107	0.047/ZF
C108	0.001/TD
C109	0.001/TD
C111	0.0047/YF
C112	16V10
C113	0.001/TD
C114	16V10
C115	0.001/TD *
C116	0.001/TD
C117	0.001/TD
C118	0.01/YF
C120	0.047SB1
C121	10V1000 C-095
C122	10V220
C123	10V220
C124	0.047SB1
C125	560P/SL
C126	15P/CH
C127	39P/CH
C128	10V100
C129	50V2.2
C130	0.047/TD
C131	50V2.2
C132	0.001/TD
C133	0.01/YF
C134	0.011SB1
C135	0.001/TD
C136	330P/AU
C137	330P/AU
C138	50V1 C-095
C139	10V22
C142	0.001/TD
C143	0.001/TD
C144	0.047/ZF
C145	0.047SB1
C146	0.047/ZF
C147	0.047/ZF
C148	0.047/ZF
C149	0.047/ZF
C151	50V1 C-095
C152	0.001/TD

C1	22P/AU
C2	50V2.2
C3	0.0047/YF
C4	0.0047/YD
C5	0.047/ZF
C6	0.001/TD
C7	220P/SL
C8	0.01/YF
C9	0.01/YF
C11	0.01/YF
C12	100P/SL
C13	0.001/TD
C14	0.047SB1
C15	16V10
C16	0.011SB1
C17	50V4.7
C18	0.047SB1
C19	0.011SB1
C21	0.047SB1
C22	0.047SB1
C23	0.001/TD
C24	0.001/TD
C25	0.001/TD
C26	0.001/TD
C27	50V0.47
C28	0.001/TD
C29	0.0033SB1
C31	50V1
C33	50V0.22
C34	10V100
C35	16V22
C36	0.011SB1
C37	0.001/TD
C38	0.001/TD
C39	50V1 C-095
C41	10P/CH
C42	10V47
C43	50V1 C-095
C44	16V22
C45	0.047SB1
C46	68P/CH
C47	0.011SB1
C48	0.0033SB1
C49	0.0033SB1
C51	0.0022SB1
C52	50V1
C53	25V470
C54	0.11SB1
C55	10V4.7
C56	16V22
C57	16V10
C58	25V1000 C-095
C59	0.0011SB1
C61	0.0047SB1
C62	16V22
C63	0.0033SB1
C64	0.011SB1
C65	10V47
C66	10V47
C67	0.0022SB1
C68	0.011SB1
C69	0.047SB1
C71	0.001/TD
C72	0.001/TD
C73	0.0047/YD
C74	0.0047/YD
C75	0.0047/YF
C76	0.001/TD
C77	150P/AU
C78	220P/CH
C81	33P/CH
C82	220P/CH
C83	330P/AU
C84	50V0.47
C85	27P/AU
C86	220P/AU
C87	0.001/TD
C88	0.0047/YF
C89	0.01/YF
C90	0.01/YF
C91	0.001/TD
C93	0.001/TD
C94	0.047/ZF
C95	0.001/TD
C96	50V1
C97	50V2.2

D1	1S1588
D2	1S1555
D3	1S1555
D4	1SS910
D5	1S1588
D6	1N4148
D7	1S1555
D8	1S1555
D9	1N60P
D10	1S1555
D11	1N60AM
D12	1S1555
D13	1S1555
D14	1S1555
D15	1SS910
D16	1SS910
D17	1S1588
D18	1N4003
D19	1S1555
D21	1S1555
D22	1S1555
D23	1S1555
D24	1S1555
D25	1S1555
D26	MZ06C1
D27	1S1588
D28	MZ06C1
D29	1S1555
D30	1S1588
D31	1S1555
D32	1S1555
D33	1S1555
D34	1S1555
D35	1S1555
D36	1S1555
D37	1S1555
D38	1S1555
D39	1S1555
D41	1N60P
D42	1N60P
D43	1N60P
D44	1N60P
D45	1N60P
D46	1N60P
D47	1N4003
D48	1S1555
D49	1S1555
D51	1S1555
D52	1S1555
D53	1S1555
D54	1N4003
D55	1S1555
D56	1N60AM
D57	1S1555

IC1	M5223L
IC2	μPC1242H
IC3	LB1710
IC4	UC1138
IC5	SW01244
IC6	TA7130P
IC7	LB1417
IC8	HA178006H

Q1	2SC1675L
Q2	2SC1675L
Q3	2SC1674L
Q4	2SK192ABL
Q5	2SC1675L
Q6	2SC1675L
Q7	2SC945AQ
Q8	2SC945AQ
Q9	2SA733P
Q11	2SC945AQ
Q12	2SC945AQ
Q13	2SC1675L
Q14	2SC945AQ
Q15	2SC945AQ
Q16	2SC1675L
Q17	2SB539C
Q18	2SC3042AE
Q19	2SB539C
Q21	2SC945AQ
Q22	2SC945AQ
Q23	2SC3042AE
Q24	2SC945AQ
Q25	2SC945AQ
Q26	2SC945AQ
Q27	2SC945AQ
Q28	2SC945AQ
Q29	2SA733P
Q31	2SC2688D
Q32	2SC945AQ
Q33	2SC945AQ
Q34	2SC1675L
Q35	2SC1675L
Q36	2SC945AQ
Q37	2SC945AQ
Q38	2SC945AQ
Q39	2SA733P
Q41	2SA733P
Q42	2SA733P
Q43	2SA733P
Q44	2SC945AQ
Q45	2SA733P

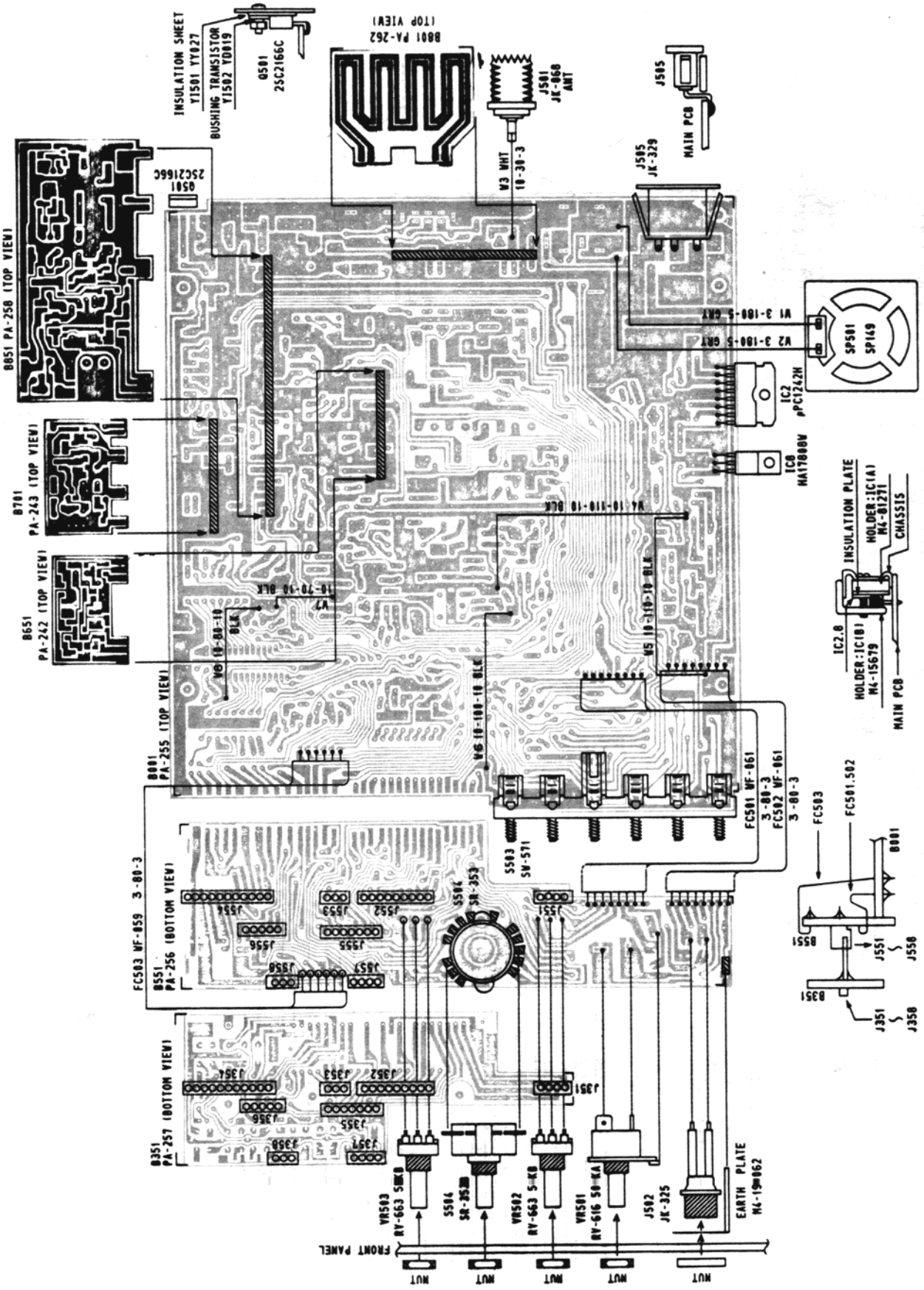
NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. 1K=KILO OHM. M=MEG OHM!
2. RESISTOR WATTAGES ARE 1/6W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD!

IC VOLTAGE CHART

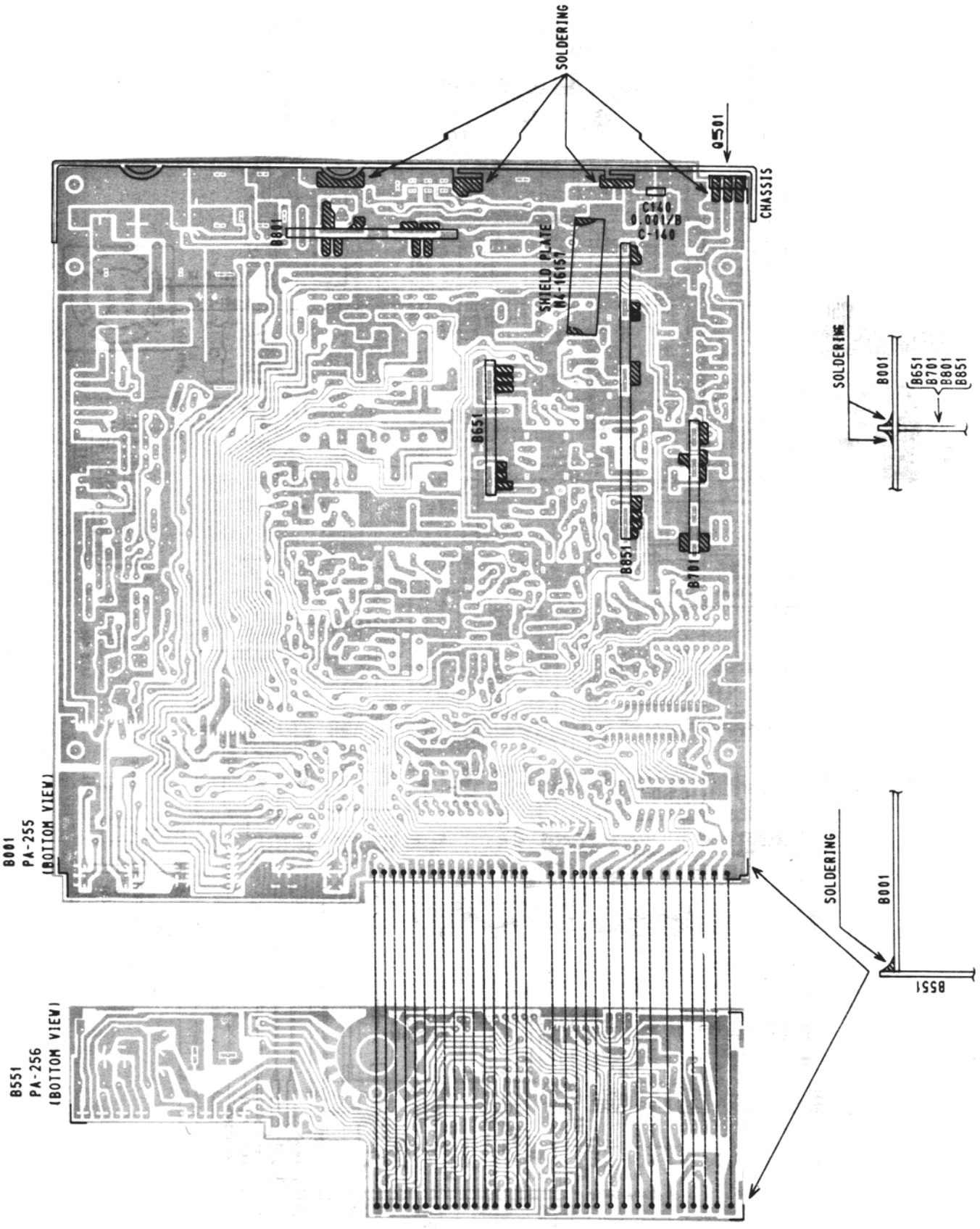
IC NO.	IC NAME	PIN NO.	RX (V)		TX (V)
			RX	SQ MAX	
1	M5223L	1	0.02	0.02	0.6
		2	0.01	0.01	0.3
		3	0	0	0
		4	0	0	0
		5	0	2.1	0
		6	0.5	0.5	1.1
		7	0	6.5	0
		8	8.0	8.0	8
2	μPC1242H	1	0.03		0.03
		2	1.9		1.9
		3	1.3		1.2
		4	0		0
		5	0		0
		6	6.9		6.7
		7	12.6		12.3
		8	13.6		13.6
3	LB1710	1	4.5		4.5
		2	4.5		4.5
		3	6.2		6.2
		4	4.5		4.5
		5	2.6		2.6
		6	2.6		2.6
		7	4.5		4.5
		8	0		0
		9	6.9		6.9
		10	3.5		3.5
		11	2.4		2.4
		12	2.4		2.4
		13	3.5		3.5
		14	4.5		4.5
		15	3.5		3.5
		16	3.5		3.5

IC NO.	IC NAME	PIN NO.	RX (V)		TX (V)
4	UC1138	1	4.3		4.3
		2	6.2		6.2
		3	6.2		6.2
		4	6.2		6.2
		5	6.2		6.2
		6	6.2		6.2
		7	6.1		6.1
		8	6.1		6.1
		9	0		0
		10	6.1		6.1
		11	5.2		5.2
		12	0		0
		13	0		0
		14	0		0
		15	3.0		3.0
		16	2.6		2.6
		17	0		0
		18	0		0
		19	6.1		6.1
		20	0.1		0.1
		21	4.5		4.5
		22	2.6		2.6
		23	2.6		2.6
		24	4.5		4.5
		25	6.2		6.2
		26	4.5		4.5
		27	4.5		4.5
		28	6.2		6.2
		29	4.2		4.2
		30	4.2		4.2
6		1	Rx 0.1	Wx 1.8	0.1
		2	0.1	1.8	0.1
		3	0	7.6	0
		4	0	0	0
		5	0	3.7	0
		6	0	3.7	0
		7	0	5.7	0

IC NO.	IC NAME	PIN NO.	RX (V)	TX (V)
5	SM5124A	1	2.7	2.7
		2	2.8	2.8
		3	6.1	6.1
		4	6.1	6.1
		5	2.8	2.8
		6	2.8	2.8
		7	3.6	3.8
		8	1.8	5.9
		9	2.9	2.9
		10	0	0
		11	0	0
		12	0	0
		13	5.2	5.2
		14	6.1	6.1
		15	0	0
		16	6.1	6.1
		17	6.1	6.1
		18	0	0
			METER OFF	METER ALL ON
7	LB1417	1	8.0	8.0
		2	2.8	2.8
		3	2.8	2.8
		4	0	0.3
		5	0	0.3
		6	0.04	2.9
		7	0	0
		8	5.4	0.6
		9	5.4	0.7
		10	5.4	0.7
		11	5.5	0.7
		12	5.5	0.5
		13	5.4	0.7
		14	5.4	0.4
			RX (V)	TX (V)
8	HA17808W	1	13.6	13.6
		2	0	0
		3	8.0	8.0


B801 PA-262 (TOP VIEW)
INSULATION SHEET Y1501 YY027
BUSHING TRANSISTOR Y1502 YD019
Q501 2SC2166C
J501 JK-060 ANT
J505
MAIN PCB
J505 JK-329
V3 WHT 10-30-3
B851 PA-258 (TOP VIEW)
Q501 2SC2166C
V1 3-180-5 GRY
V2 3-180-5 GRY
SP501 SP149
IC2 μPC1242H
IC8 HA17808V
B701 PA-243 (TOP VIEW)
B651 PA-242 (TOP VIEW)
V4 10-110-10 BLK
V5 10-110-10 BLK
V7 10-70-10 BLK
V8 10-80-10 BLK
INSULATION PLATE
HOLDER:IC(A) N4-81291
CHASSIS
IC2,8
HOLDER:IC(B) N4-15679
MAIN PCB
B001 PA-255 (TOP VIEW)
V6 10-100-10 BLK
FC501 WF-061
FC502 WF-061
3-80-3
FC503
FC501,502
B001
SS03 SW-571
FC503 WF-059 3-80-3
B551 PA-256 (BOTTOM VIEW)
SS04 SR-353
J551
J552
J553
J554
J555
J556
J557
J558
B551
J551 ~ J558
B351
J351 ~ J358
B351 PA-257 (BOTTOM VIEW)
J351
J352
J353
J354
J355
J356
J357
J358
VR503 RY-663 5MKB
SS04 SR-353B
VR502 RY-663 5-KB
VR501 RY-616 50-KA
JS02 JK-325
EARTH PLATE N4-19#062
FRONT PANEL
NUT
NUT
NUT
NUT
NUT

ADDED PARTS, BOTTOM



PARTS LAYOUT, LED PCB

S351	SV-539
S352	SV-539
S353	SV-570
S354	SV-570
S355	SV-570
S356	SV-570
S357	SV-570
S358	SV-570
S359	SV-570

JP351	7.5
JP352	12.5
JP353	5.0
JP354	5.0
JP355	5.0
JP356	12.5

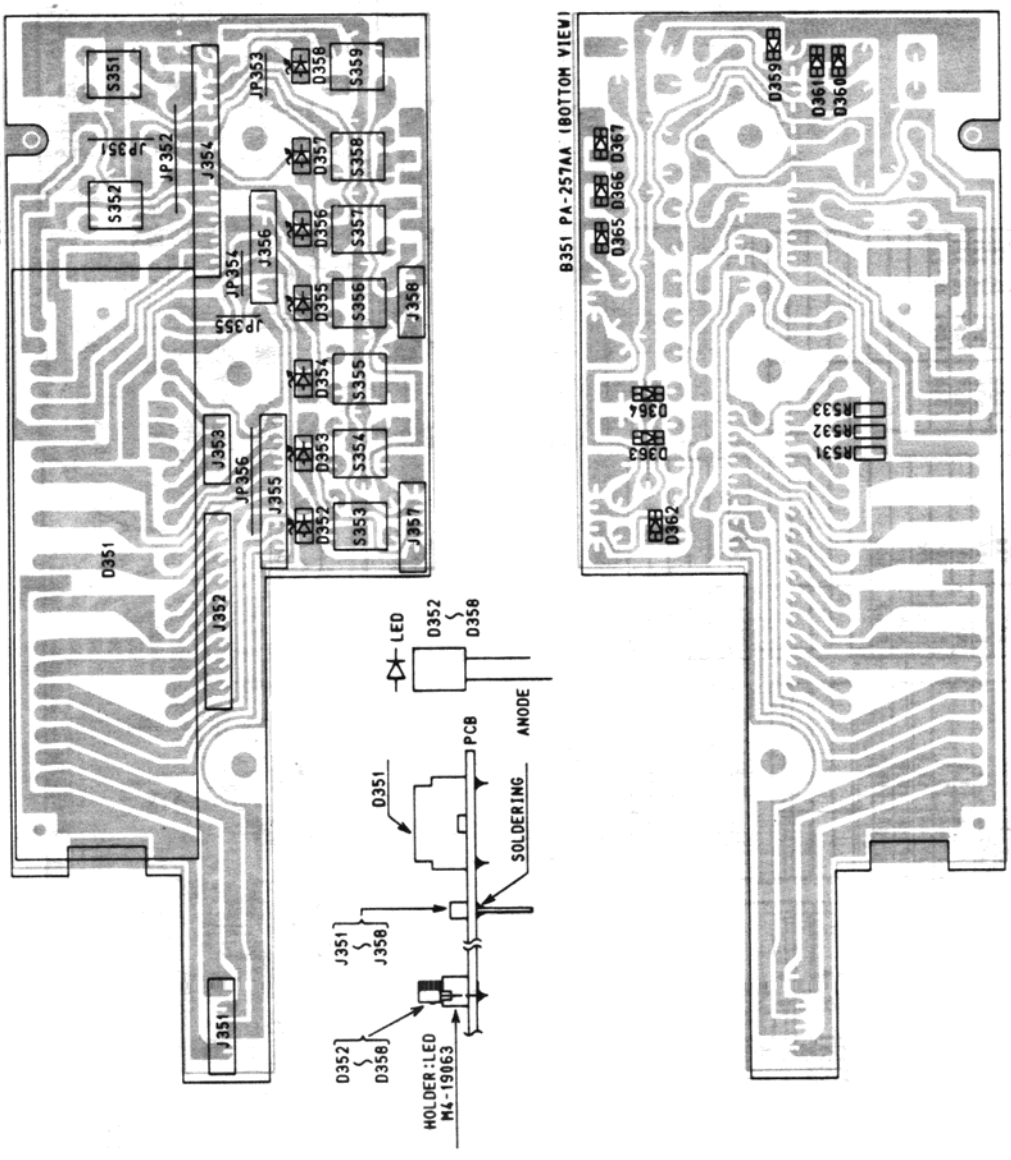
J351	(6P) JK-320
J352	(9P) JK-320
J353	(3P) JK-409
J354	(11P) JK-409
J355	(7P) JK-409
J356	(5P) JK-320
J357	(4P) JK-320
J358	(3P) JK-320

D351	LL-2957
D352	RT-242/565
D353	RT-242/565
D354	RT-242/565
D355	RT-242/565
D356	RT-242/565
D357	RT-242/565
D358	RT-242/PRS

D359	RLS4148
D360	RLS4148
D361	RLS4148
D362	RLS4148
D363	RLS4148
D364	RLS4148
D365	RLS4148
D366	RLS4148
D367	RLS4148

R531	220
R532	220
R533	220

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM, M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
3. PARTS COMPONENTS LOCATED ON PCB BOTTOM ARE HELF CHIP TYPE UNLESS OTHERWISE NOTED.



JP551	17.5
JP552	7.5
JP553	5.0
JP554	5.0
JP555	20.0
JP556	17.5
JP557	7.5
JP558	7.5
JP559	27.5
JP561	22.5
JP562	22.5
JP563	10.0
JP564	25.0
JP565	20.0
JP566	7.5
JP567	10.0
JP568	5.0
JP569	5.0
JP571	15.0
JP572	7.5
JP573	10.0
JP574	5.0
JP575	5.0

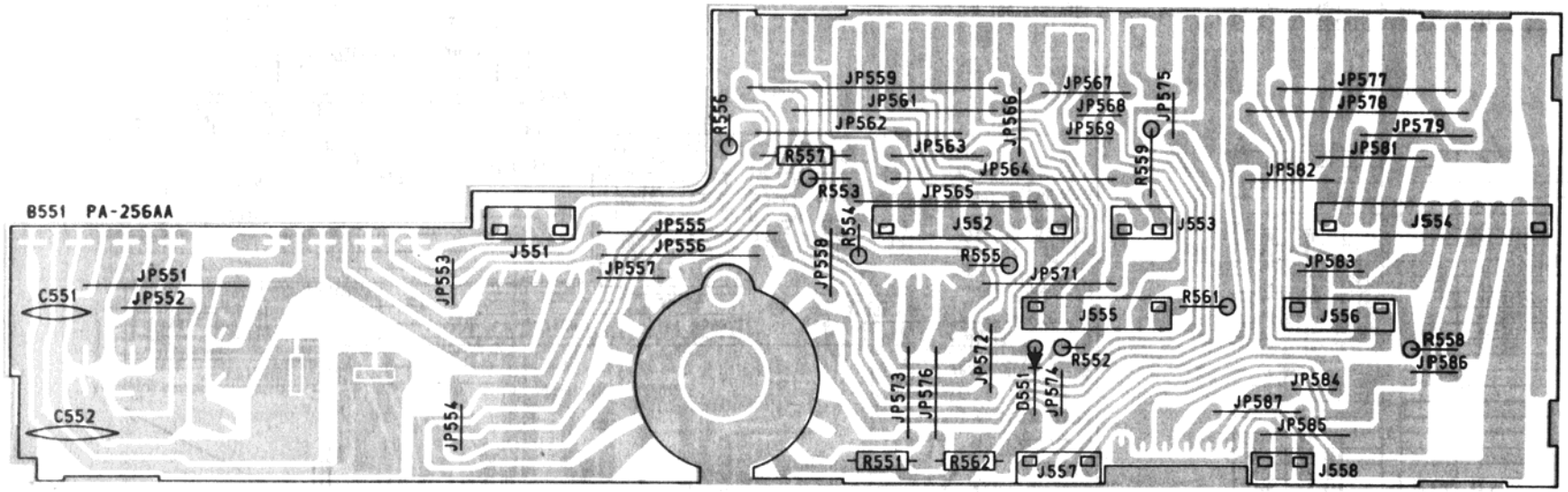
JP576	10.0
JP577	20.0
JP578	25.0
JP579	12.5
JP581	12.5
JP582	10.0
JP583	7.5
JP584	5.0
JP585	10.0
JP586	5.0
JP587	10.0

R551	10K
R552	330
R553	220
R554	220
R555	220
R556	100
R557	100
R558	100
R559	270
R561	270
R562	560

J551	(4P) JK-221
J552	(9P) JK-221
J553	(3P) JK-221
J554	(11P) JK-221
J555	(7P) JK-221
J556	(5P) JK-221
J557	(4P) JK-221
J558	(8P) JK-221

C551	0.0047/YD
C552	0.0047/YD

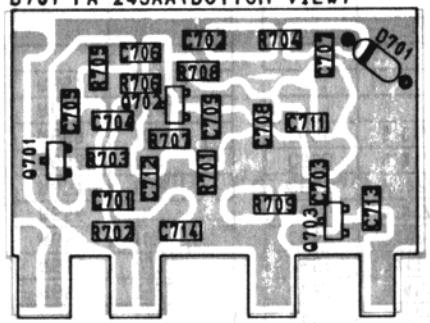
D551	1S1555



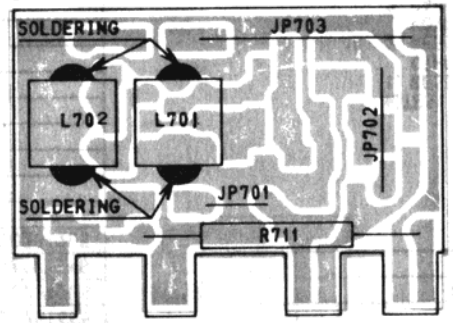
NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/6W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED.(P=MICRO-MICRO FARAD)

PARTS LAYOUT, FRONT PCB, TOP

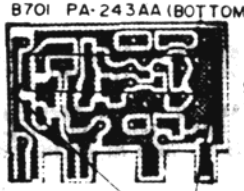
B701 PA-243AA(BOTTOM VIEW)



B701 PA-243AA(TOP VIEW)



B701 PA-243AA(BOTTOM VIEW)



C701	39P/SL
C702	0.01/Y
C703	0.01/Y
C704	0.01/Y
C705	39P/SL
C706	15P/CH
C707	47P/SL
C708	100P/B
C709	330P/B
C711	39P/SL
C712	68P/SL
C713	0.01/Y
C714	0.01/Y

R701	33K
R702	100
R703	390
R704	10K
R705	39K
R706	100
R707	15K
R708	330
R709	56K

Q701	2SC2814F5
Q702	2SC2814F5
Q703	2SC2814F5

D701	1SV73EB

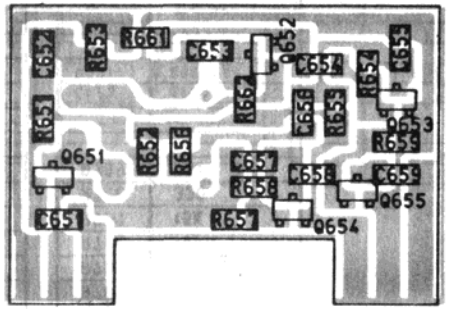
JP701	5
JP702	10
JP703	17.5

R711	1K

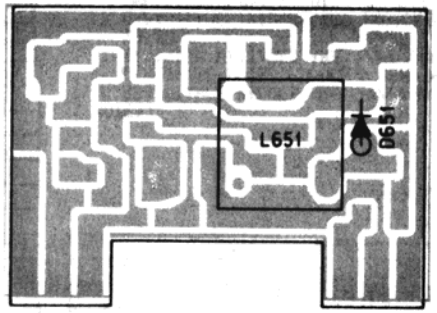
L701	LB537
L702	LB537

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)

B651 PA-242AA(BOTTOM VIEW)



B651 PA-242AA(TOP VIEW)



R651	220K
R652	2.2K
R653	2.2K
R654	2.2M
R655	10K
R656	1K
R657	68K
R658	47K
R659	100K
R661	RZ025
R662	RZ025

C651	15P/CH
C652	0.01/Y
C653	0.01/Y
C654	220P/B
C655	220P/B
C656	0.01/Y
C657	680P/B
C658	0.01/Y
C659	0.01/Y

Q651	2SC2814F5
Q652	2SC2814F5
Q653	2SC2812L5
Q654	2SA1179M6
Q655	2SC2812L5

D651	1N60AM

L651	LA181

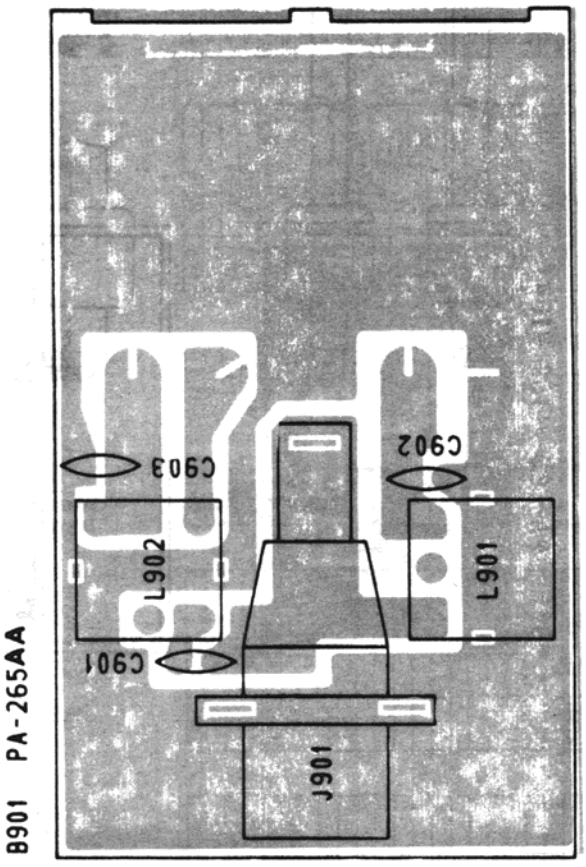
NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED.(P=MICRO-MICRO FARAD)

PARTS LAYOUT, SPLITTER PCB

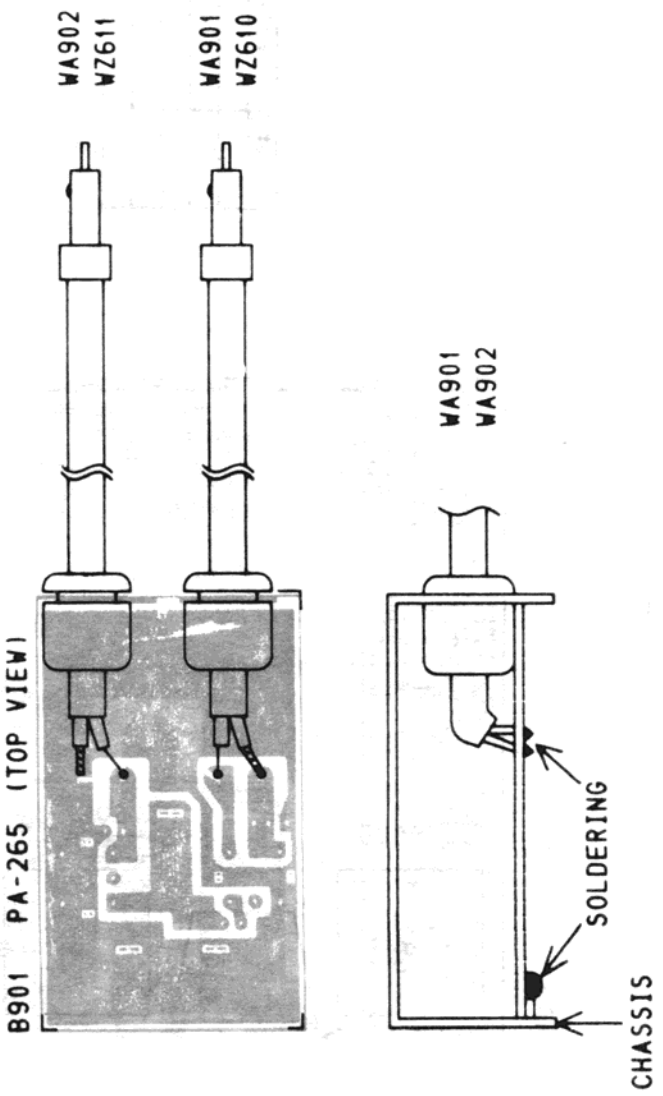
C901	5P/CH
C902	15P/CH
C903	0.001/YD

L901	LA058
L902	LA296

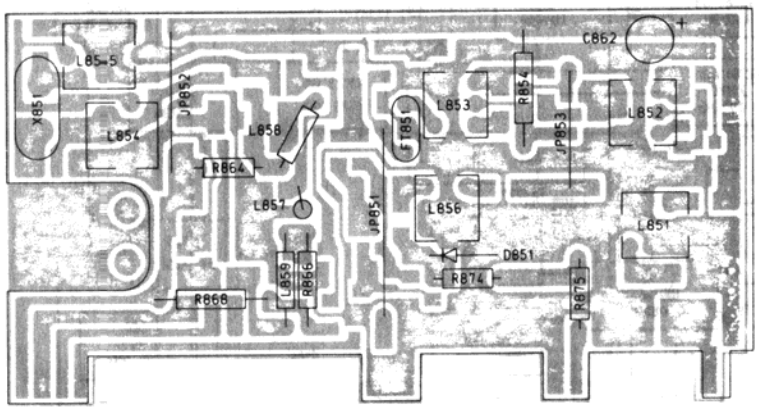
J901	JK223



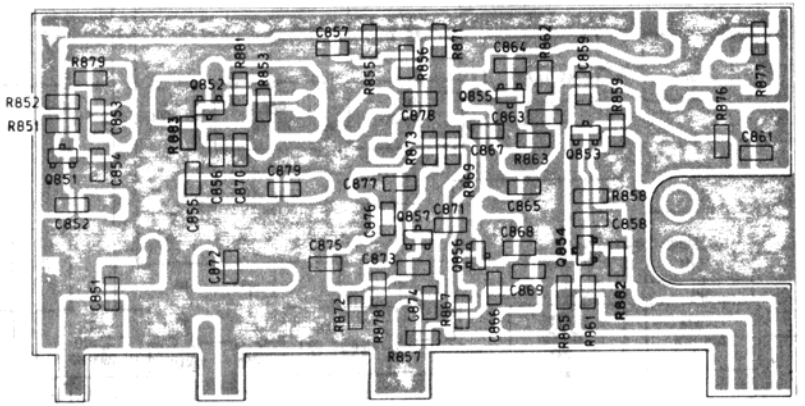
B901 PA-265AA


WA902
WZ611
WA901
WZ610
B901 PA-265 (TOP VIEW)
WA901
WA902
SOLDERING
CHASSIS

B851 PA-258AA(TOP)



B851 PA-258AA(BOTTOM)



B851 (BOTTOM)

(TOP)

R854	2.2K	1/6W
R864	1.5K	1/6W
R868	1.5K	1/6W
R874	100K	1/6W
R875	2.2K	1/6W
R866	**1.5K**	**1/6W**

JP851	20
JP852	15
JP853	12.5

X851	QX264
	45.1067MHz

C862	10V47

L851	LB556
L852	LB557
L853	LB341
L854	LB566
L855	LB558
L856	LB559
L857	0.68μH LZ041
L858	0.68μH LZ041
L859	10μH LZ041

FT851	**FL 048**

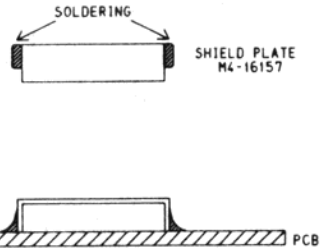
D851	1S2339G

(BOTTOM)

Q851	2SC3772-3
Q852	2SC3772-3
Q853	2SC2814-F5
Q854	2SC2812-L5
Q855	2SC2814-F4
Q856	2SC3772-3
Q857	2SC3772-3

C851	8P/CH
C852	0.001/B
C853	10P/CH
C854	0.001/B
C855	220P/CG(ML)
C856	0.01/Y
C857	0.01/Y
C858	0.001/B
C859	0.001/B
C861	27P/CG(ML)
C863	0.001/B
C864	56P/CG(ML)
C865	56P/CG(ML)
C866	0.01/Y
C867	10P/CH
C868	10P/CH
C869	10P/CH
C870	0.047/C(ML)
C871	10P/CH
C872	**0.047/C(ML)**
C873	33P/CG(ML)
C874	27P/UJ
C875	47P/UJ
C876	10P/CH
C877	10P/CH
C878	0.0047/X
C879	1P/CH

R851	100K
R852	1K
R853	470K
R855	1K
R856	4.7K
R857	RZ025
R858	10K
R859	560K
R861	10K
R862	560K
R863	820
R865	100
R867	330K
R869	100
R871	180
R872	**3.9K**
R873	27K
R876	4.7K
R877	4.7K
R878	27K
R879	47
R881	33
R882	2.2K
R883	**330**

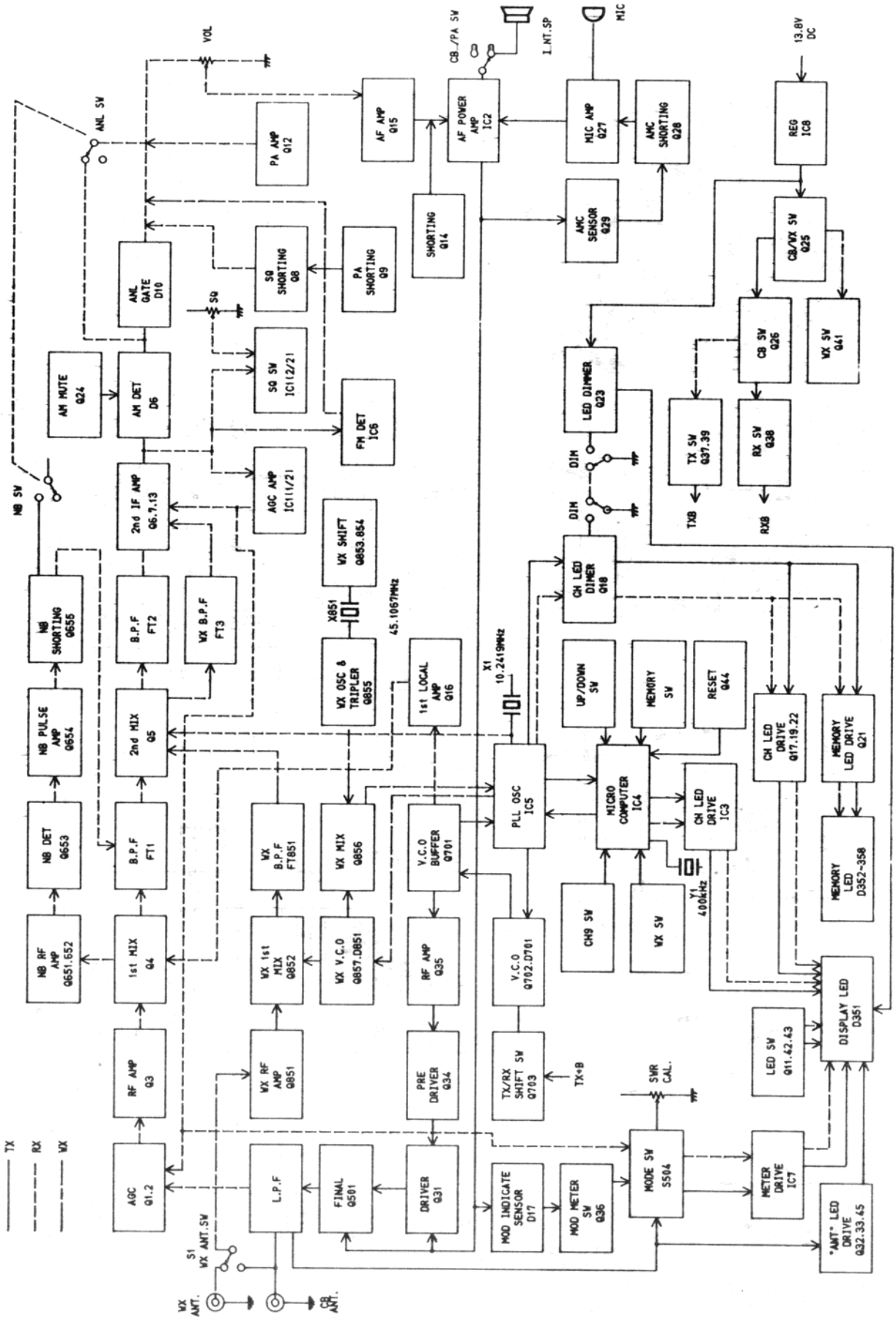


NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM, M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED.(P=MICRO-MICRO FARAD)
4. PARTS COMPONENTS LOCATED ON PCB BOTTOM ARE MELF CHIP TYPE UNLESS OTHERWISE NOTED.
5. MELF CHIP TYPE CAPACITORS ARE C-140 TYPE UNLESS OTHERWISE NOTED.

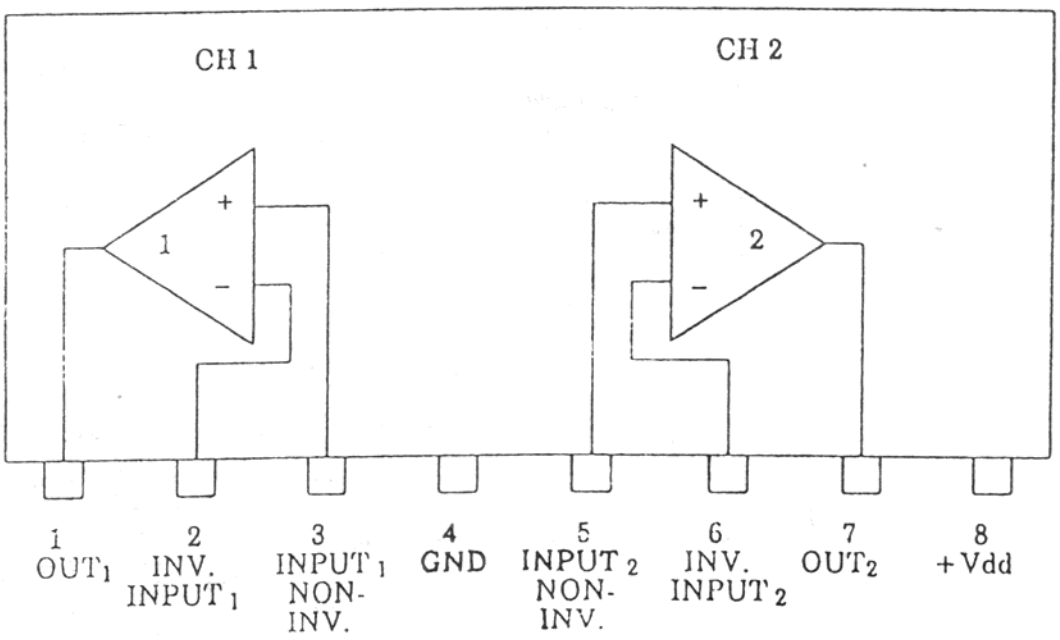
DESIGN.BY	DRAWN.BY	UNIDEN NO.	MODEL NO.
	62.4.25	UT-319	COBRA 31 PLUS
	FUMIKO.E	TITLE WX PCB PARTS ASSEMBLY	
CHECK.BY	APPRO.BY		REV. MARK

UNIDEN CORP

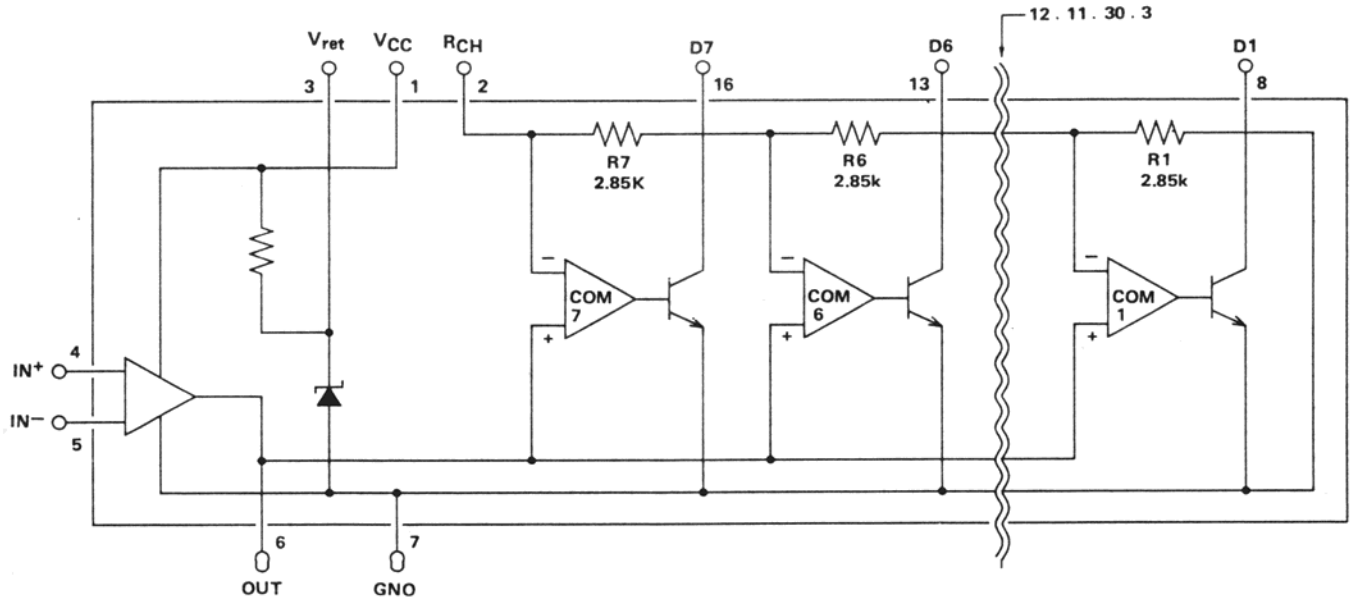
BLOCK DIAGRAM, 31 PLUS



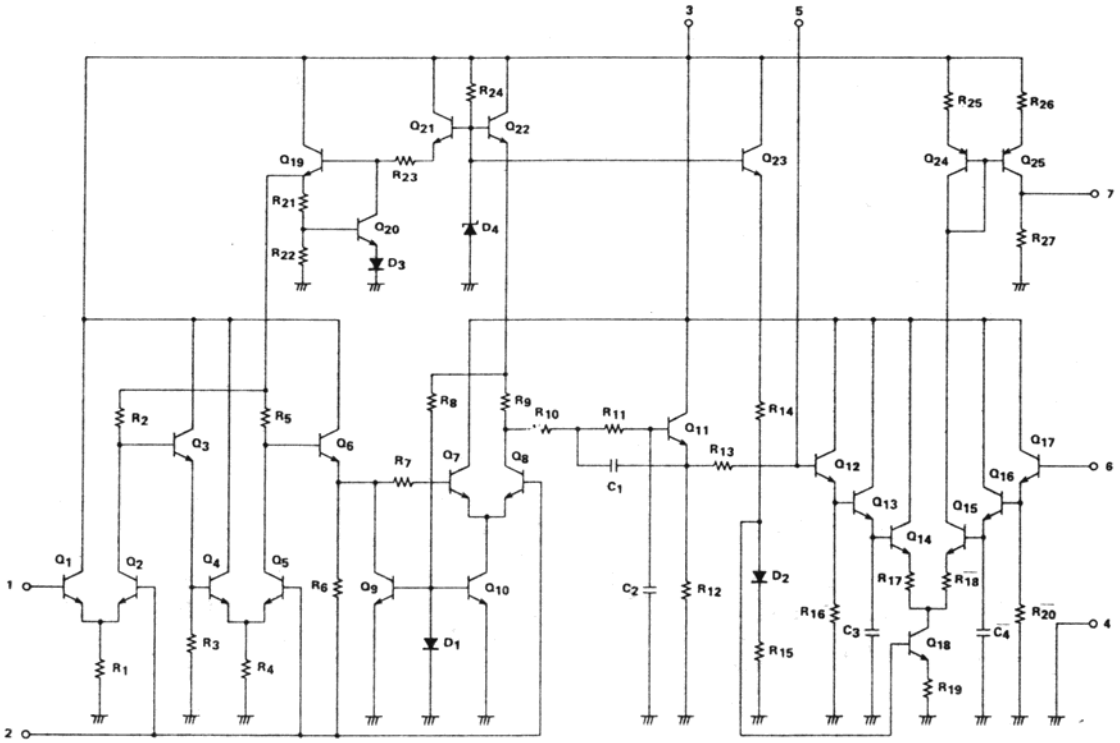
IC DIAGRAM M-5223-L



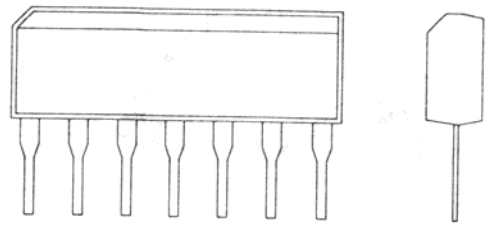
IC DIAGRAM LB-1417

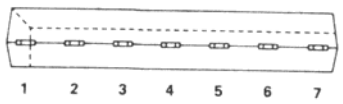


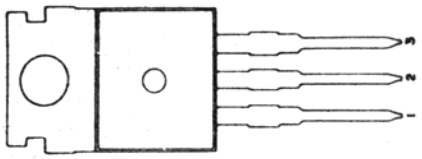
TA7130P

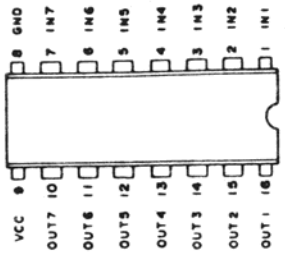


TA7130P

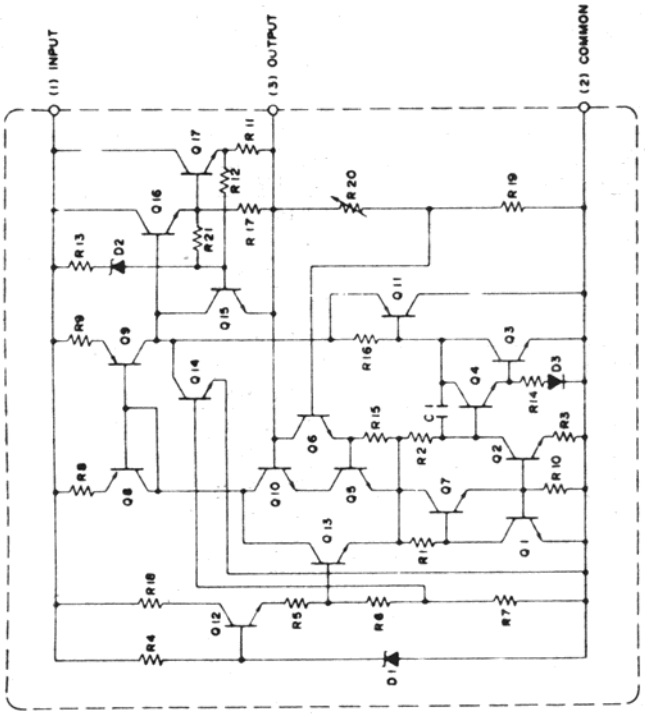




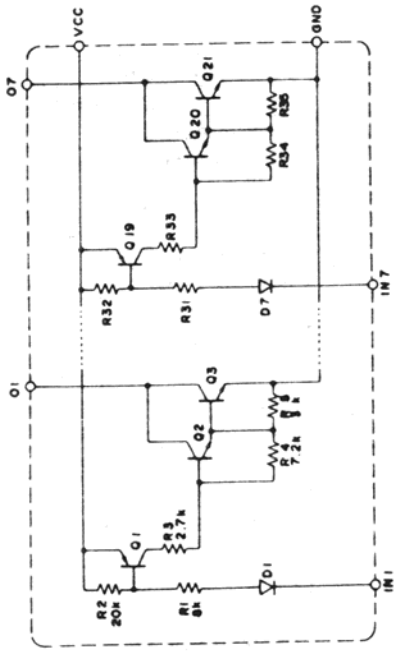




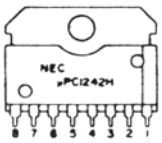
HA17808W



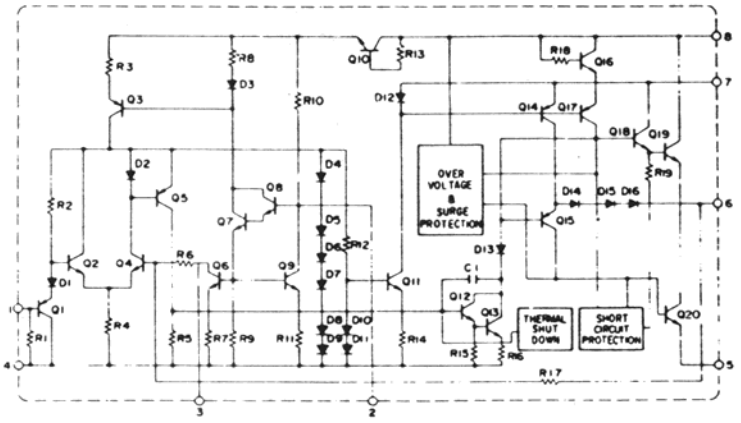
LB1710



μPC1242H



NO	μPC1242H
1	INPUT
2	RIPPLE FILTER
3	N F B
4	GND
5	GND
6	OUTPUT
7	BOOTSTRAP
8	V+



PARTS LIST 31 PLUS

SYMBOL	DESCRIPTION	PART NO.
D11, 56, 651	DIODE 1N60 AM	150 014 9 001
D9, 41, 42, 43, 44, 45, 46	DIODE 1N60 P	150 006 9 001
D851	DIODE 1S2339-G	154 016 9 001
D18, 47, 54	DIODE 1N4003	151 083 9 001
D1, 2, 3, 5, 7, 8, 10, 12, 13, 17, 19, 21, 22, 23, 24, 25, 27, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 49, 51, 52, 53, 55, 57, 551	DIODE 1S1555 OR DIODE 1N4148	151 028 9 007 / 151 038 9 001
D701	DIODE 1SV73-EB	151 137 9 001
D4, 14, 15, 16	DIODE 1SS91G	151 152 9 001
D6	DIODE 1N4148	151 038 9 001
D26, 28	DIODE: ZENER HZ-6C1	152 177 9 001
D352, 353, 354, 355, 356, 357	DIODE: LED RT-242 SGS	158 070 9 002
D358	DIODE: LED RT-242 PRS	158 070 9 003
D351	DIODE: LED LL-2957	158 097 9 001
D359, 360, 361, 362, 363, 364, 365, 366, 367	DIODE RLS4148 TAPING	151 038 9 001
Q9, 29, 39, 41, 42, 43, 45	TRANSISTOR DB-003 2SA733-P	177 020 9 001
Q654	TRANSISTOR DB-048 2SA1179-M6 TAPING	177 111 9 001
Q17, 19, 21	TRANSISTOR DB-106 2SB525-C	177 045 9 001
Q7, 34	TRANSISTOR DB-301 2SC941TM-0	176 089 9 004
Q8, 11, 12, 14, 15, 22, 24, 25, 26, 27, 28, 32, 33, 36, 37, 38, 44	TRANSISTOR DB-224 2SC945A-Q	176 062 9 001
Q3	TRANSISTOR DB-295 2SC1674-L	176 081 9 002
Q1, 2, 5, 6, 13, 16, 35	TRANSISTOR DB-259 2SC1675-L	176 065 9 001
Q31	TRANSISTOR DB-228 2SC2086-D	176 108 9 002
Q501	TRANSISTOR DB-331 2SC2166-C	176 108 9 001
Q653, 655, 854	TRANSISTOR DB-743 2SC2812-L5 TAPING	176 219 9 001
Q651, 652, 701, 702, 703, 853	TRANSISTOR DB-744 2SC2814-F5 TAPING	176 219 9 002
Q855	TRANSISTOR DB-744 2SC2814-F4 TAPING	176 219 9 003
Q18, 23	TRANSISTOR DB-383 2SC3242A-E	176 191 9 001
Q851, 852, 856, 857	TRANSISTOR DB-752 2SC3722-3 TAPING	176 219 9 004
Q4	FIELD EFFECT TRANSISTOR DC-019 2SK192A-BL	182 076 9 001
IC6	INTEGRATED CIRCUIT TA7130P	307 218 9 001
IC2	INTEGRATED CIRCUIT UPC1242H	307 415 9 001
IC8	INTEGRATED CIRCUIT HA17808W	307 415 9 002
IC1	INTEGRATED CIRCUIT M5223L	307 459 9 001
IC3	INTEGRATED CIRCUIT LB1710	307 415 9 003
IC7	INTEGRATED CIRCUIT LB1417	307 415 9 005
IC5	INTEGRATED CIRCUIT SM5124A	308 404 9 001
IC4	INTEGRATED CIRCUIT UC1138 (LC6543C 3391)	308 404 9 002
FT851	FILTER: CERAMIC FL-048 SFE10.7MS2-M	140 020 9 001
FT3	FILTER: CERAMIC FL-142 SFR450D	141 017 9 001
FT1	FILTER FL-222 UMF-269 10.692	140 042 9 001
FT2	FILTER: CERAMIC FL-231 CFU450HT 450KHZ	140 042 9 002
J501	JACK JK-068 N-7512	772 036 9 001
J3, 4	JACK JK-089 HSJ0615	773 086 9 001
J553, 558	JACK JK-221 3P	777 081 9 001
J551, 557	JACK JK-221 5224 04H 4P	777 036 9 004
J556	JACK JK-221 5P	777 081 9 002
J555	JACK JK-221 7P	777 050 9 001
J552	JACK JK-221 5224-9CH 9P	777 014 9 002
J554	JACK JK-221 5224-11CH 11P	777 081 9 003
J1, 901	JACK JK-223 TI-P9 (L)	777 072 9 001
J502	JACK JK-325 4S-L-D107	777 050 9 005
J358	JACK JK-328-5551-03H 3P	777 081 9 004
J351, 357	JACK JK-328 5551-04H 4P	777 052 9 003
J356	JACK JK-328 5551-05H 5P	777 081 9 005
J352	JACK JK-328 9P	777 081 9 006
J505	JACK JK-329	777 050 9 009
J353	JACK JK-409 5040-3E 3P	777 081 9 007
J355	JACK JK-409 5040-7E 7P	777 081 9 008

PARTS LIST 31 PLUS

SYMBOL	DESCRIPTION	PART NO.
J354	JACK JK-409 5040-11E 11P	777 081 9 009
L1	COIL LA-029 TKXN-22160BU	060 023 9 001
L901	COIL LA-058 TKEN-23398Z	046 016 9 003
L3	COIL LA-120 TKAC-24073F	046 037 9 001
L5, 7	COIL LA-163 ROC-42066N	060 022 9 001
L8	COIL LA-166 TKXC-18501N	066 025 9 005
L651	COIL LA-181 TKAC-19073N	060 024 9 002
L6, 9	COIL LA-204 RMC-41997N	046 024 9 003
L2	COIL LA-260 TKXC-25114N	060 030 9 014
L4	COIL LA-277 TKAC-25365N	046 025 9 004
L902	COIL LA-296 TKENA-25912N	047 070 9 001
L853	COIL LB-341 199CC-13499A	047 070 9 002
L701, 702	COIL LB-537 V113CN-6851BS	047 070 9 003
L851	COIL LB-556	047 070 9 004
L852	COIL LB-557	047 070 9 005
L855	COIL LB-558	047 070 9 006
L856	COIL LB-559	047 070 9 007
L854	COIL LB-566	047 070 9 008
L16	COIL LC-072 VARIABLE RF	044 040 9 001
L13	COIL LC-074	044 040 9 002
L15, 19, 21	COIL LD-087 BF04-3*5*1	047 062 9 007
L14	COIL LD-168	047 046 9 001
L11, 12	COIL LE-096 8 1/2T	047 044 9 001
L17	COIL LE-187 D4.0 7T	041 128 9 002
L859	INDUCTOR: MOLDED LZ-041 10UH	047 070 9 009
L18	INDUCTOR: MOLDED LZ-041 1UH	047 070 9 010
L857, 858	INDUCTOR: MOLDED LZ-041 0.68UH	047 070 9 011
MC951	MICROPHONE MK-372	560 009 9 001
X1	CRYSTAL QX-250 10.2419M	135 078 9 001
X851	CRYSTAL QX-264 45.1067	135 078 9 002
VR2	RES:SEMI-FIXED RT-182 TT24R 1KB	008 450 9 001
VR6	RES:SEMI-FIXED RT-182 TT24R 100KB	008 465 9 003
VR3	RES:SEMI-FIXED RT-182 TT24R 200KB	008 465 9 005
VR5, 7	RES:SEMI-FIXED RT-182 TT24R 5KB	008 450 9 003
VR1, 4	RES:SEMI-FIXED RT-182 TT24R 50KB	008 455 9 003
VR501	RES:VARIABLE RV-616 RK61121 50KA W/SW	008 843 9 006
VR502, 503	RES:VARIABLE RV-663 VB12L N17F-B5K 5KB	008 879 9 001
SP501	SPEAKER SP-149	580 087 9 001
S504	SWITCH:ROTARY SR-353 SRRN14089A	083 312 9 001
S1	SWITCH:SLIDE SW-307SSFZUB-22-07	084 106 9 001
S351, 352	SWITCH:TACT SW-539 M-6050	084 155 9 001
S353, 354, 355, 356, 357, 358, 359	SWITCH:TACT SW-570 M-6150-030	088 176 9 001
S503	SWITCH:PUSH SW-571 PV1306	088 176 9 002
T2	TRANSFORMER:AF CHOKE TF-083	042 021 9 001
T1	TRANSFORMER:OUTPUT TF-177	061 050 9 001
WA951	CORD:DC POWER WZ-520 1500	426 107 9 001
WA901	CORD:PLUG WZ-610	428 177 9 003
WA902	CORD:PLUG WZ-611	428 177 9 004
	WINDOW ABS GRAY SMOKE	380 538 9 003
	BUTTON:PUSH (WX) ABS, CR, SILK BLACK	384 109 9 002
	BUTTON:PUSH (NB/ANL) ABS, CR, SILK BLACK	384 109 9 003
	BUTTON:PUSH (LO/DX) ABS, CR, SILK BLACK	384 109 9 004
	BUTTON:PUSH(PA) ABS, CR, SILK BLACK	384 109 9 005
	BUTTON:PUSH (DIM) ABS, CR, SILK BLACK	384 109 9 006
	BUTTON:PUSH (CH9) ABS, CR, SILK RED	384 109 9 007
	BUTTON:PUSH (DOWN) ABS, CR, SILK BLACK	384 109 9 008
	BUTTON:PUSH (UP) ABS, CR, SILK BLACK	384 109 9 009
	KNOB ABS, CR	751 335 9 001
	MOUNTING BRACKET SPCC, 1.6T, BLACK PAINT	250 245 9 001
	COVER: BOTTOM VINYTOP, SB-K08, 1.0T BLACK	271 435 9 001
	COVER: TOP VINYTOP, SB-K08, 1.0T BLACK	271 435 9 003