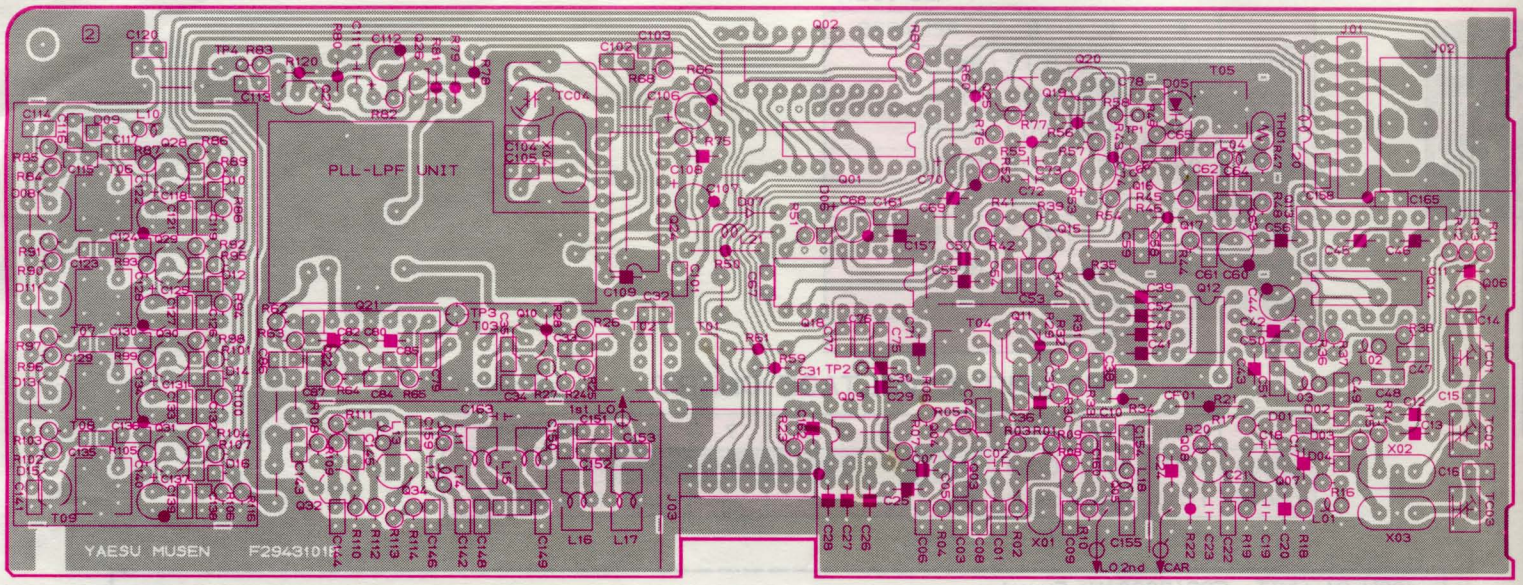
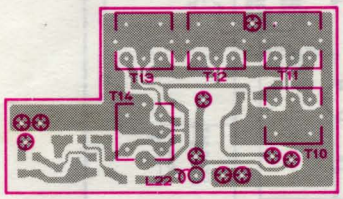
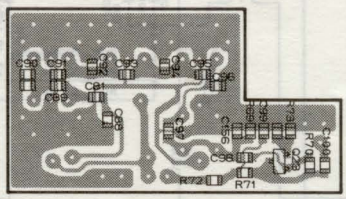


Component side (reverse)

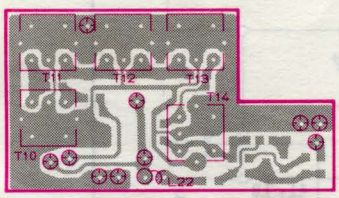
PLL-LPF UNIT PARTS LAYOUT



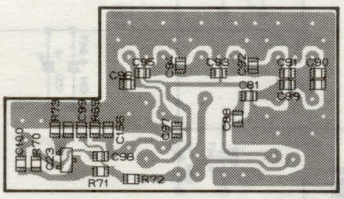
Component side (obverse)



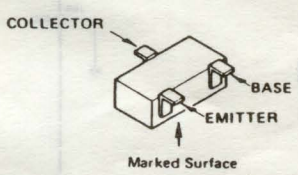
Solder side (obverse)



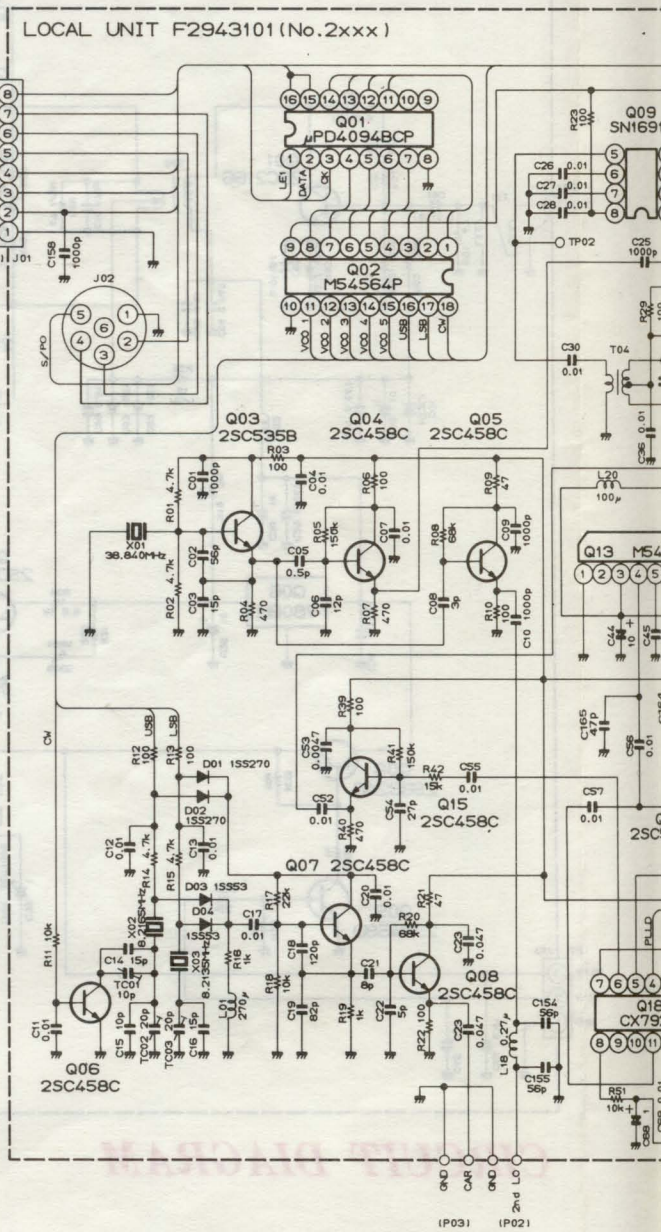
Component side (reverse)

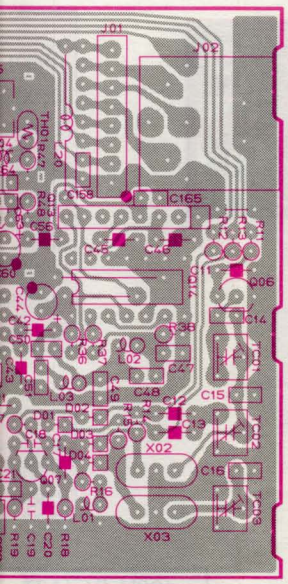


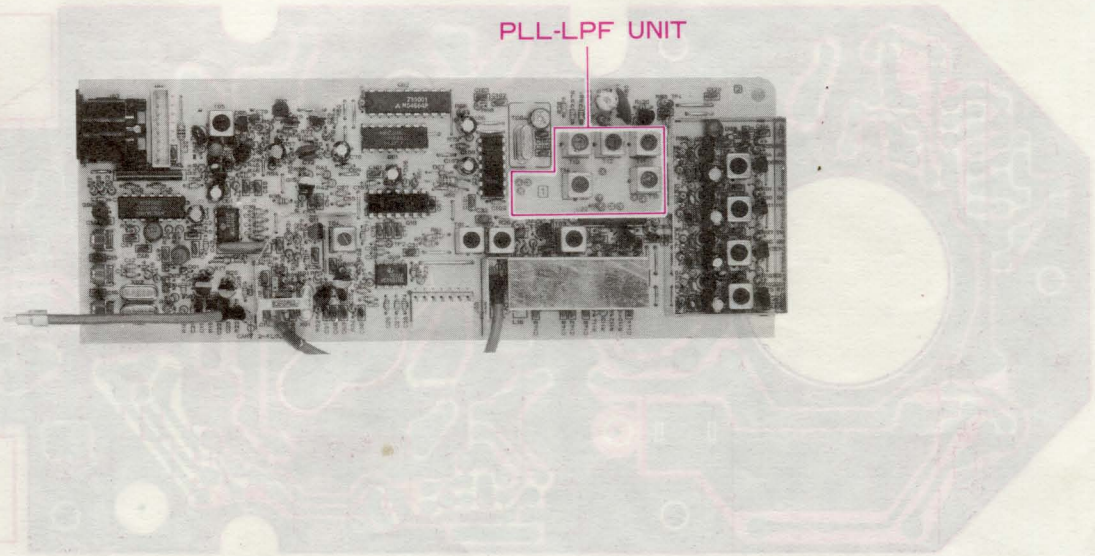
Solder side (reverse)



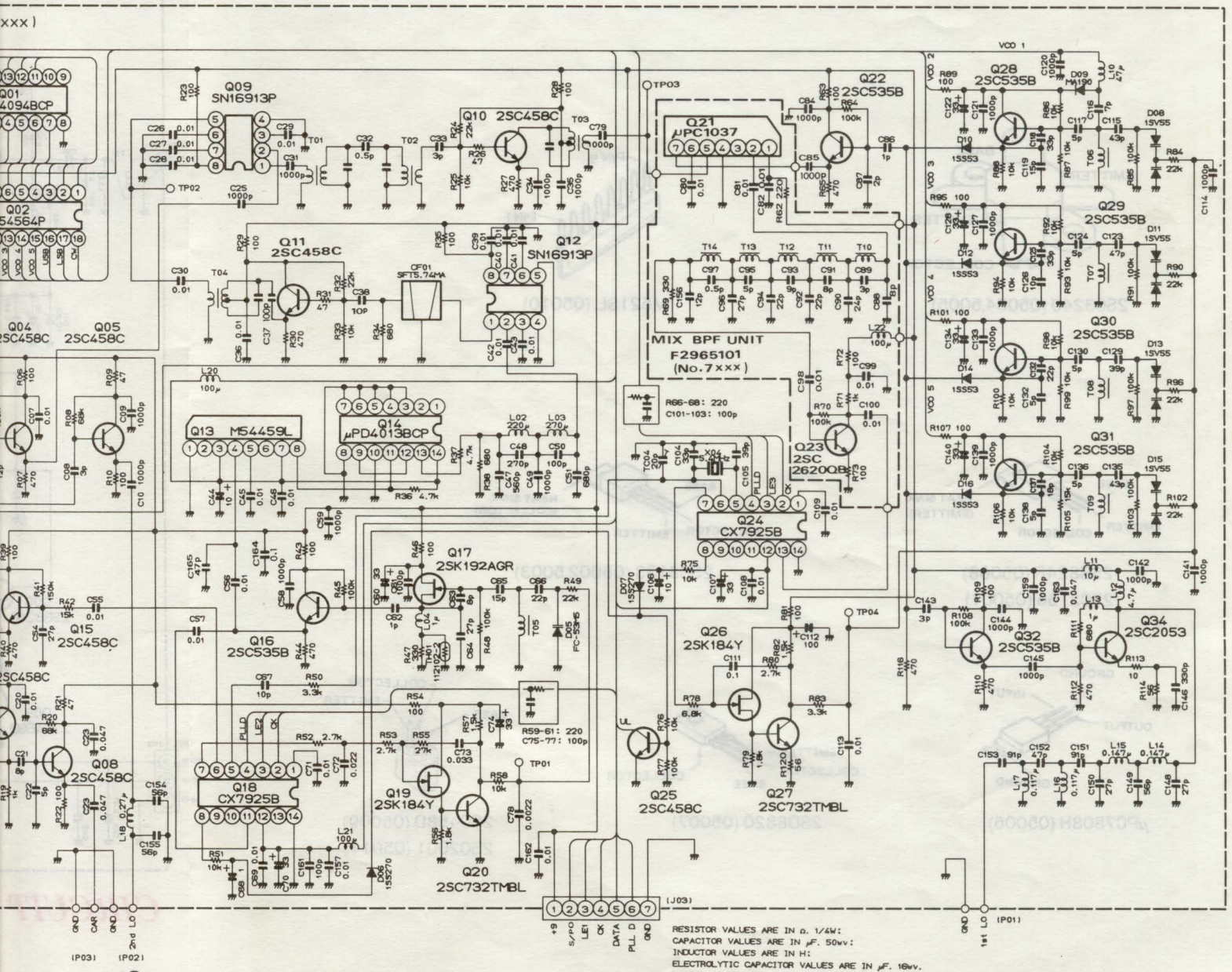
2SC2620QB (Q7023)

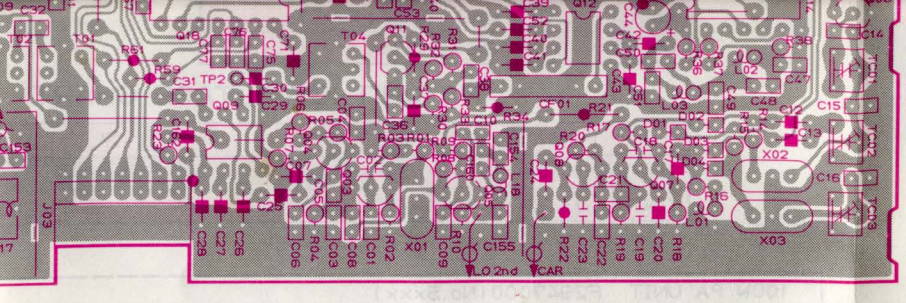






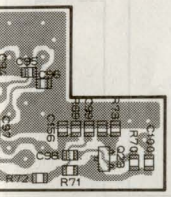
CIRCUIT DIAGRAM



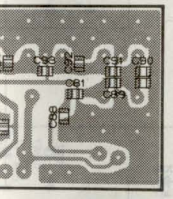


CIRCUIT DIAGRAM

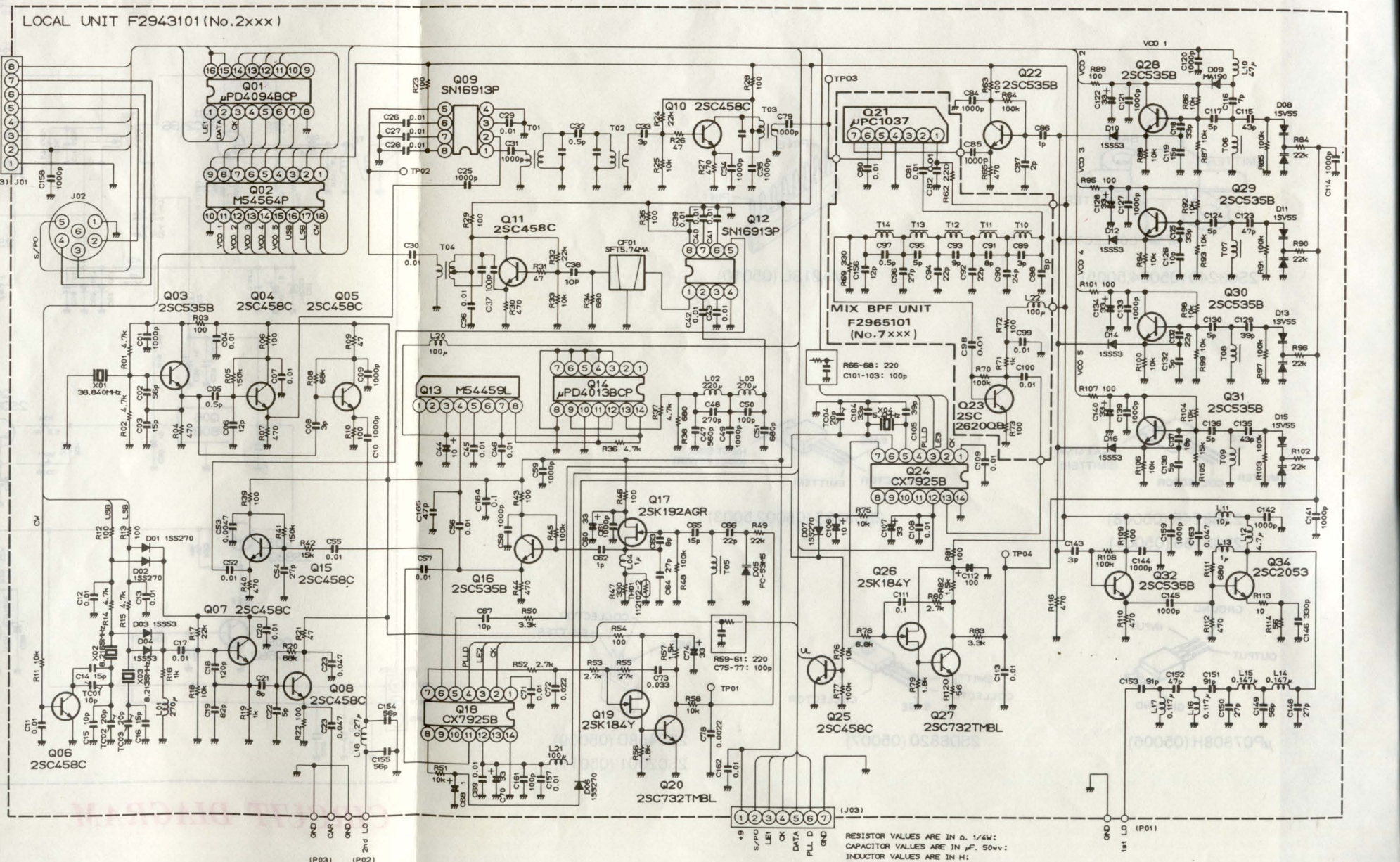
AYOUT



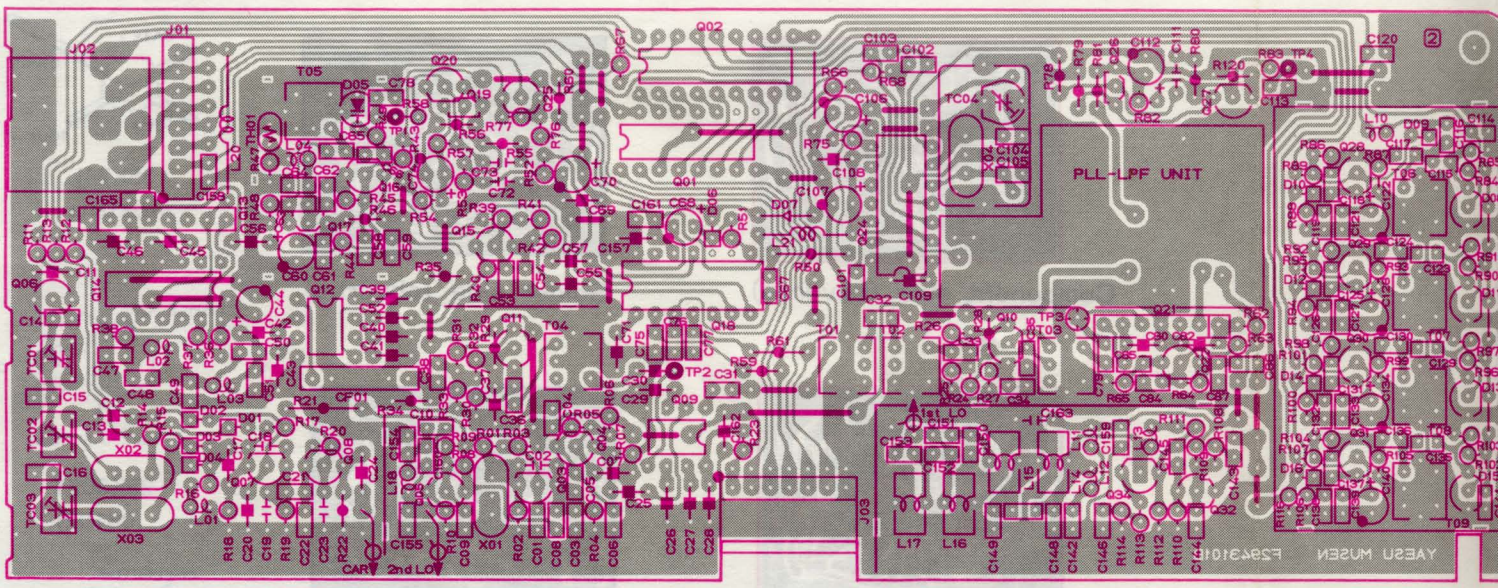
e (obverse)



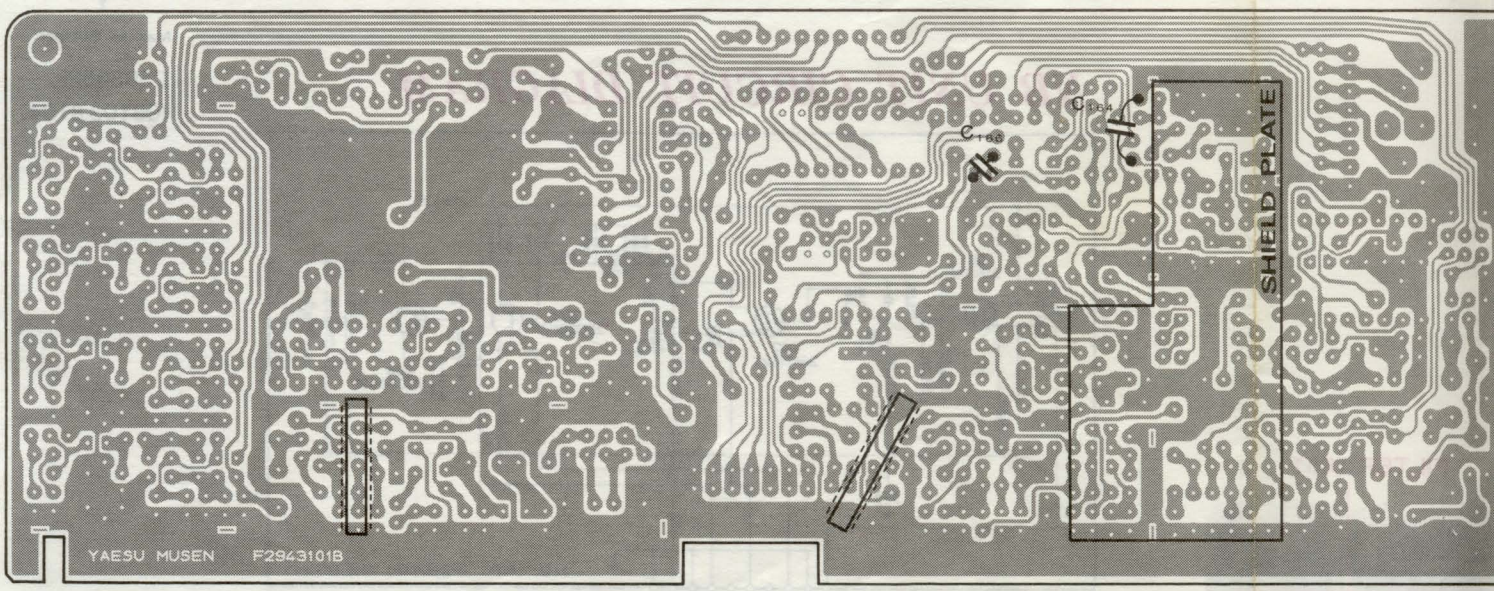
e (reverse)



PARTS LAYOUT



Component side (obverse



Solder side (obverse

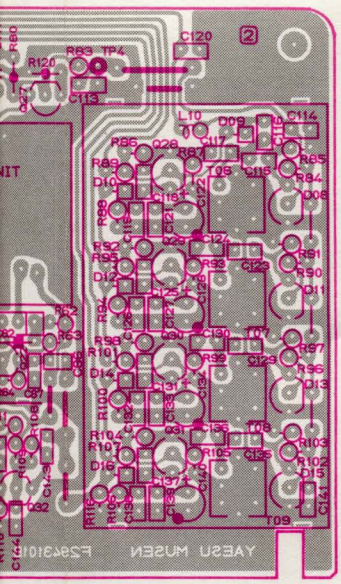
LOCAL UNIT IC VOLTAGE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	RI
Q2001	—	—	—	0	4.8	0	0	0	0	0	0	4.8	0	0	5.0	5.0			14MH
Q2002	0	0	4.8	0	0	4.8	0	0	8.8	0	0	0	7.6	0	0	7.6	-0.4	0	14MH
Q2009	6.4	3.8	2.7	0	2.7	3.8	3.8	7.8											14MH
Q2012	6.4	3.8	2.7	0	2.7	3.8	3.8	7.7											14MH
Q2013	0	0	4.9	2.6	2.6	0	4.9	2.5											14MH
Q2014	0	4.9	0	0	0	0	0	0	2.5	0	2.5	2.5	2.3	4.9					14MH
Q2018	-2.4	—	—	—	2.1	2.2	0.5	0	—	—	2.4	5.0	4.2	0					14MH
Q2021	5.9	5.2	4.8	0	2.6	2.6	2.6												14MH
Q2024	-2.4	—	—	—	2.2	1.9	0.5	0	—	—	0.5	4.8	2.0	0					14MH

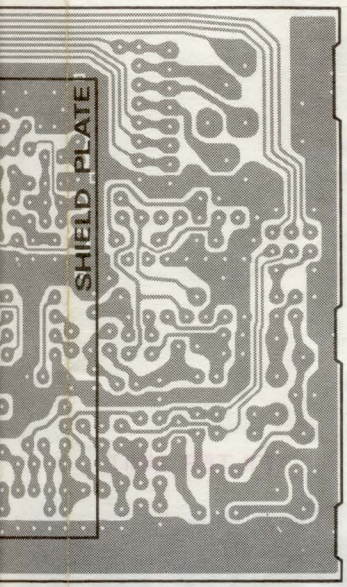
LOCAL UNIT VOLTAGE CHART

(DC VOLT)

	E (S)	C (D)	B (G)	REMARKS
Q2003	3.1	8.1	3.9	
Q2004	3.5	8.1	4.2	
Q2005	1.4	8.1	2.2	
Q2006	0/0	0.7/0	0/0.7	RX/TX, MODE CW
Q2007	2.0	6.6	2.0	MODE USB
Q2008	1.7	8.0	2.4	MODE USB
Q2010	1.8	8.4	2.5	
Q2011	1.9	8.4	2.6	
Q2015	3.6	8.0	4.2	
Q2016	2.3	8.3	2.9	
Q2017	1.0	8.4	0	
Q2019	8.6	0.5	0.6	
Q2020	0	5.6	0.7	
Q2022	2.5	8.3	3.2	
Q2025	0/0	5.0/0	0/0.6	PLL LOCK/UNLOCK
Q2026	0.8	8.6	0.5	14MHz
Q2027	0.1	5.3	0.8	14MHz
Q2028	2.6	7.1	3.3	3.5MHz
Q2029	2.6	7.1	3.3	28MHz
Q2030	2.6	7.1	3.3	18MHz
Q2031	3.1	7.0	3.9	28MHz
Q2032	2.5	8.3	3.3	
Q2034	2.8	8.7	3.5	



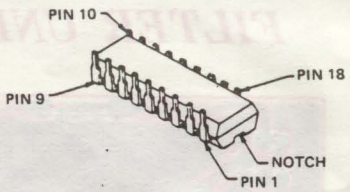
Component side (obverse)



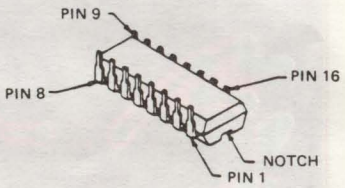
Solder side (obverse)

(DC VOLT)

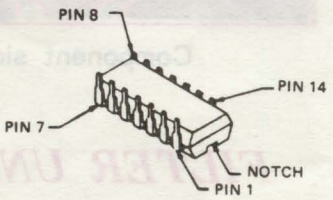
15	16	17	18	REMARKS
5.0	5.0			14MHz
0	7.6	-0.4	0	14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB



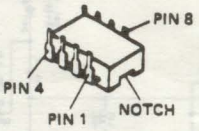
M54564P (Q2002)



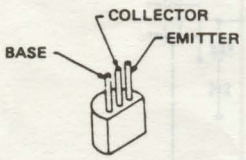
μPD4094BC (Q2001)



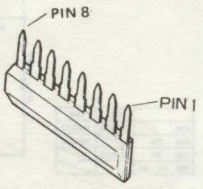
CX-7925B (Q2018,2024)
μPD4013BC (Q2014)



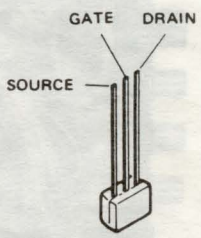
SN16913P (Q2009,2012)



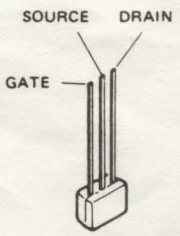
2SC458C (Q2004~2008, 2010,2011, 2015,2025)
2SC535B (Q2003,2016, 2022,2028-2032)
2SC732TMBL (Q2020,2027)
2SC2053 (Q2034)



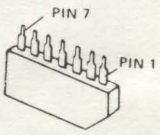
M54459L (Q2013)



2SK184Y (Q2019,2026)



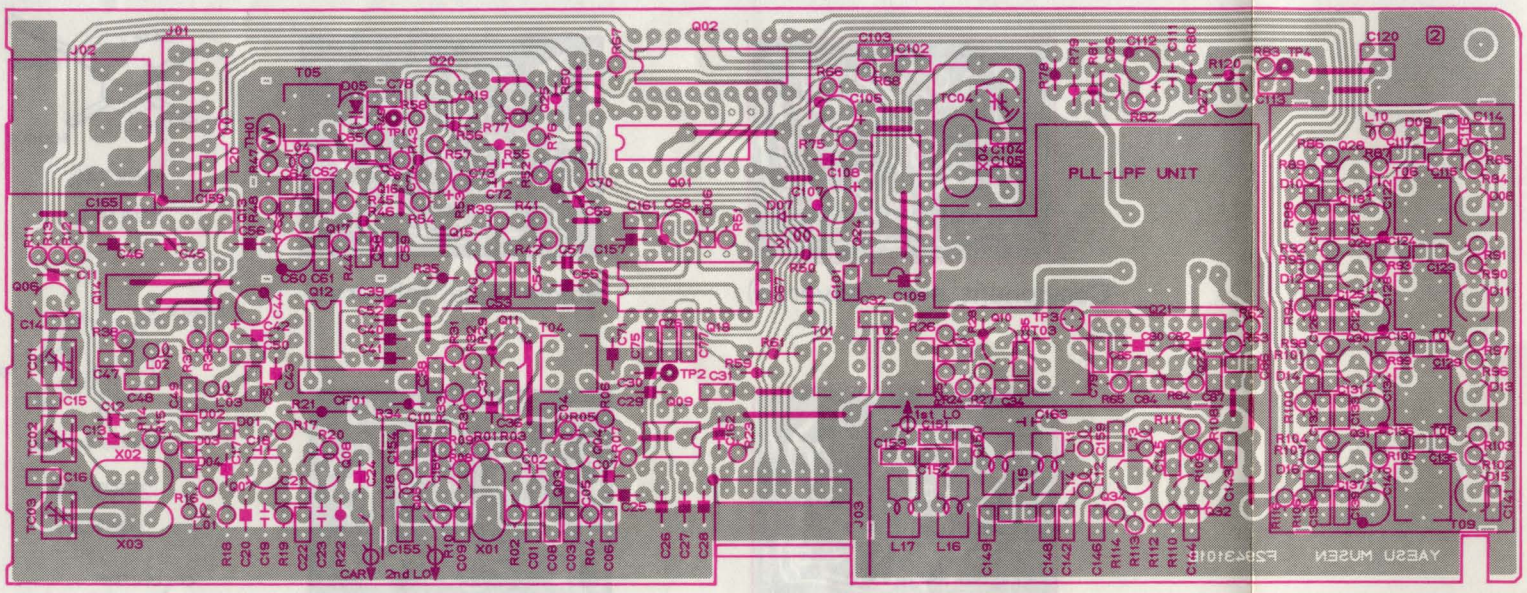
2SK192AGR (Q2017)



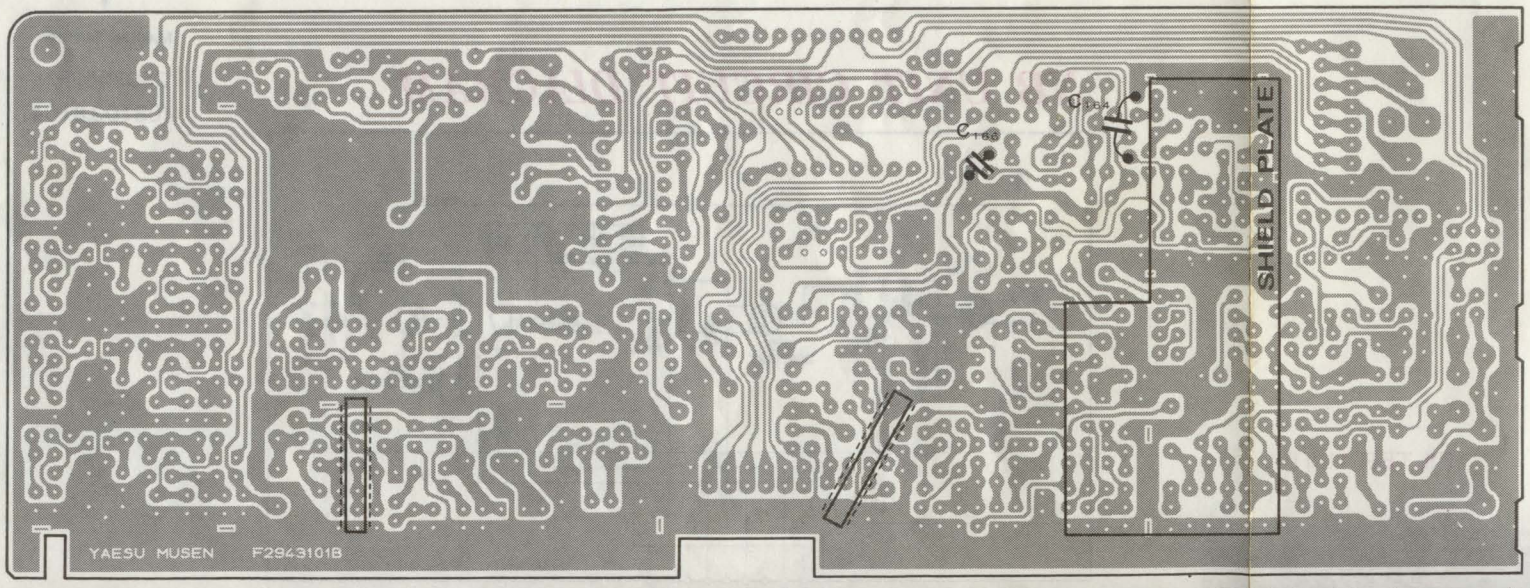
μPC1037H (Q2021)

LOCAL UNIT

PARTS LAYOUT



Component side (obverse)

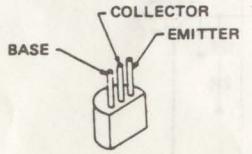


Solder side (obverse)

LOCAL UNIT VOLTAGE CHART

(DC VOL

	E (S)	C (D)	B (G)	REMARKS
Q2003	3.1	8.1	3.9	
Q2004	3.5	8.1	4.2	
Q2005	1.4	8.1	2.2	
Q2006	0/0	0.7/0	0/0.7	RX/TX, MODE C
Q2007	2.0	6.6	2.0	MODE USB
Q2008	1.7	8.0	2.4	MODE USB
Q2010	1.8	8.4	2.5	
Q2011	1.9	8.4	2.6	
Q2015	3.6	8.0	4.2	
Q2016	2.3	8.3	2.9	
Q2017	1.0	8.4	0	
Q2019	8.6	0.5	0.6	
Q2020	0	5.6	0.7	
Q2022	2.5	8.3	3.2	
Q2025	0/0	5.0/0	0/0.6	PLL LOCK/UNLOCK
Q2026	0.8	8.6	0.5	14MHz
Q2027	0.1	5.3	0.8	14MHz
Q2028	2.6	7.1	3.3	3.5MHz
Q2029	2.6	7.1	3.3	28MHz
Q2030	2.6	7.1	3.3	18MHz
Q2031	3.1	7.0	3.9	28MHz
Q2032	2.5	8.3	3.3	
Q2034	2.8	8.7	3.5	

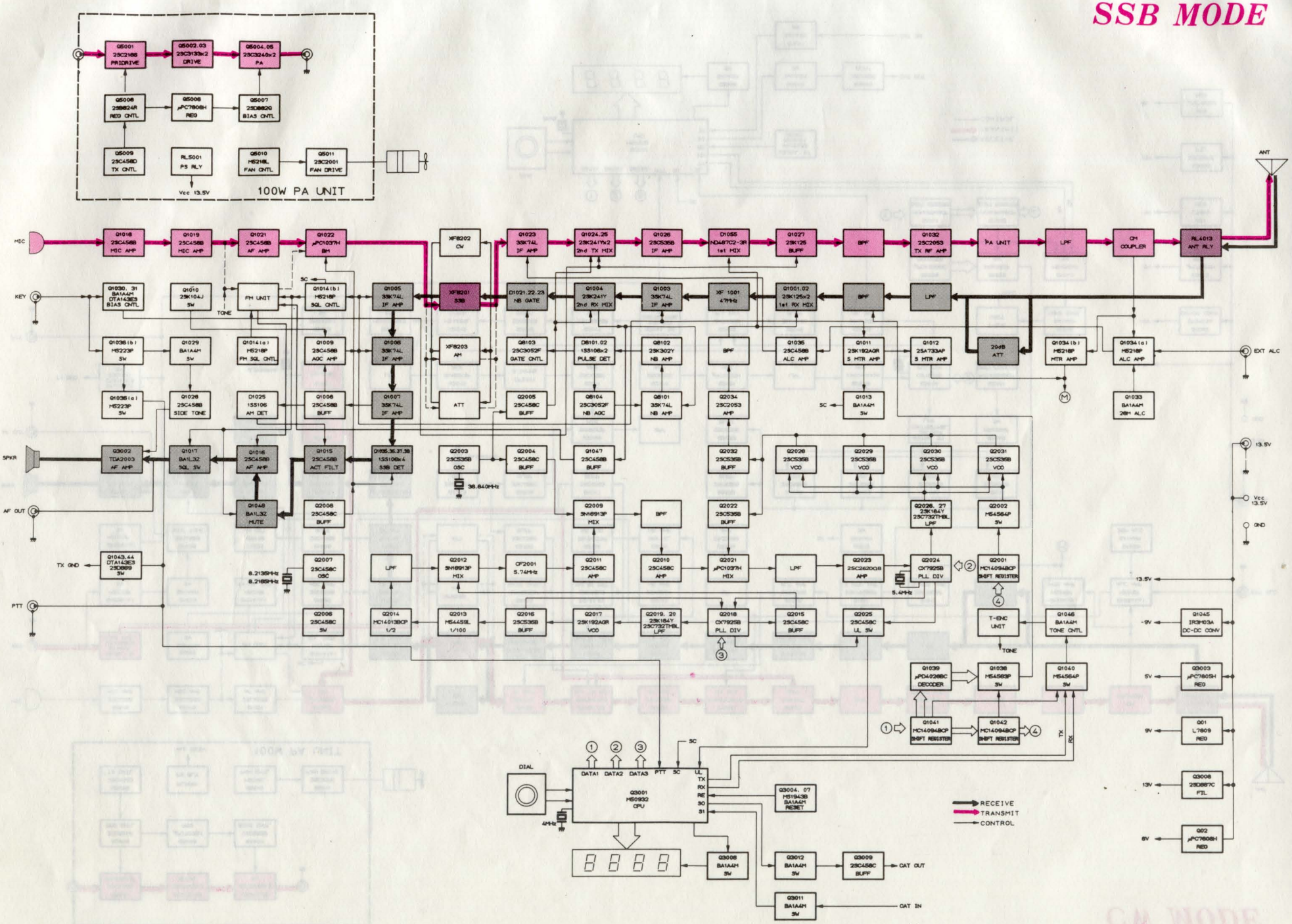


2SC458C (Q2004～2008, 2010,2011, 2015,2025)

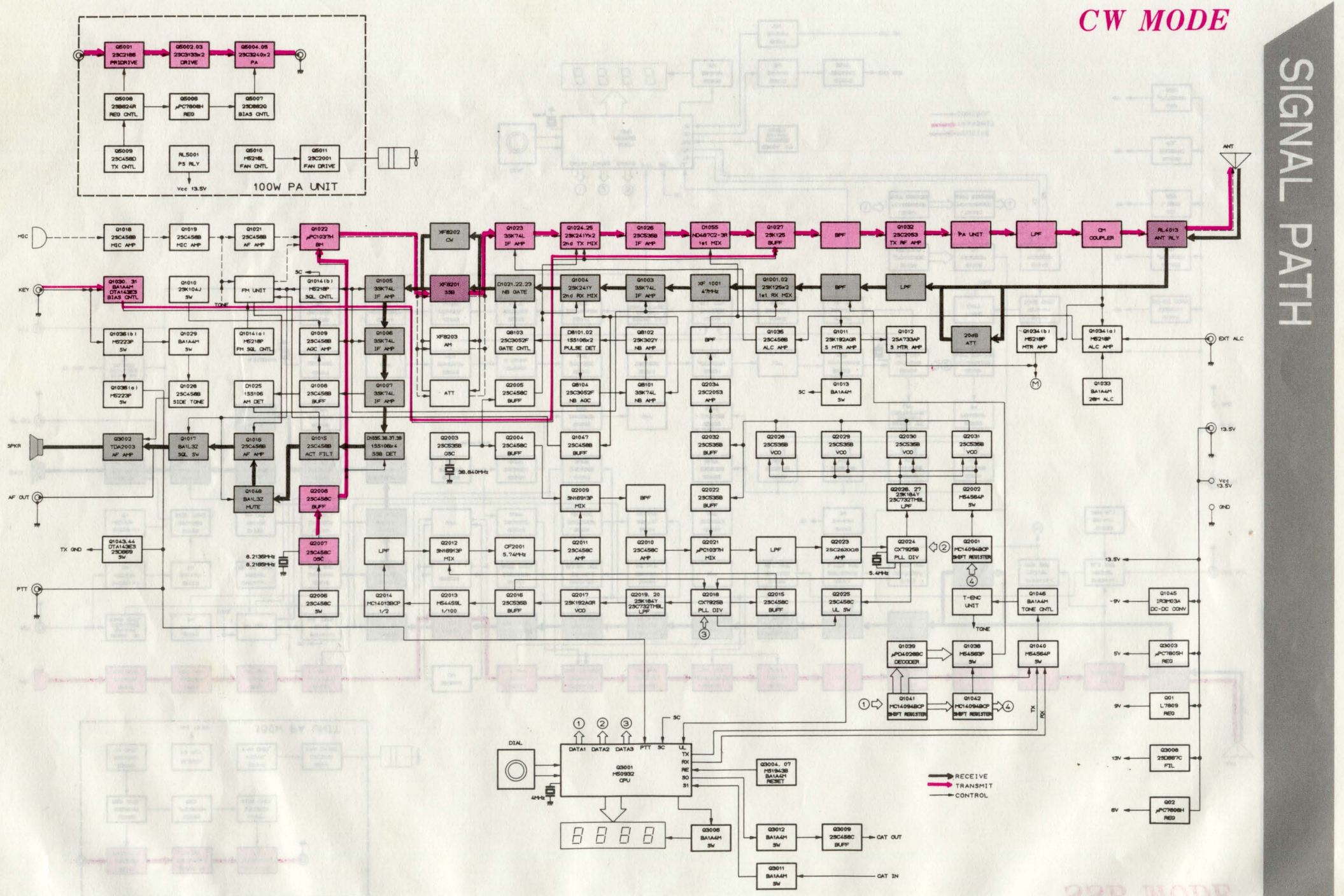
2SC535B (Q2003,2016, 2022,2028-2032)

2SC732TMBL (Q2020,2027)

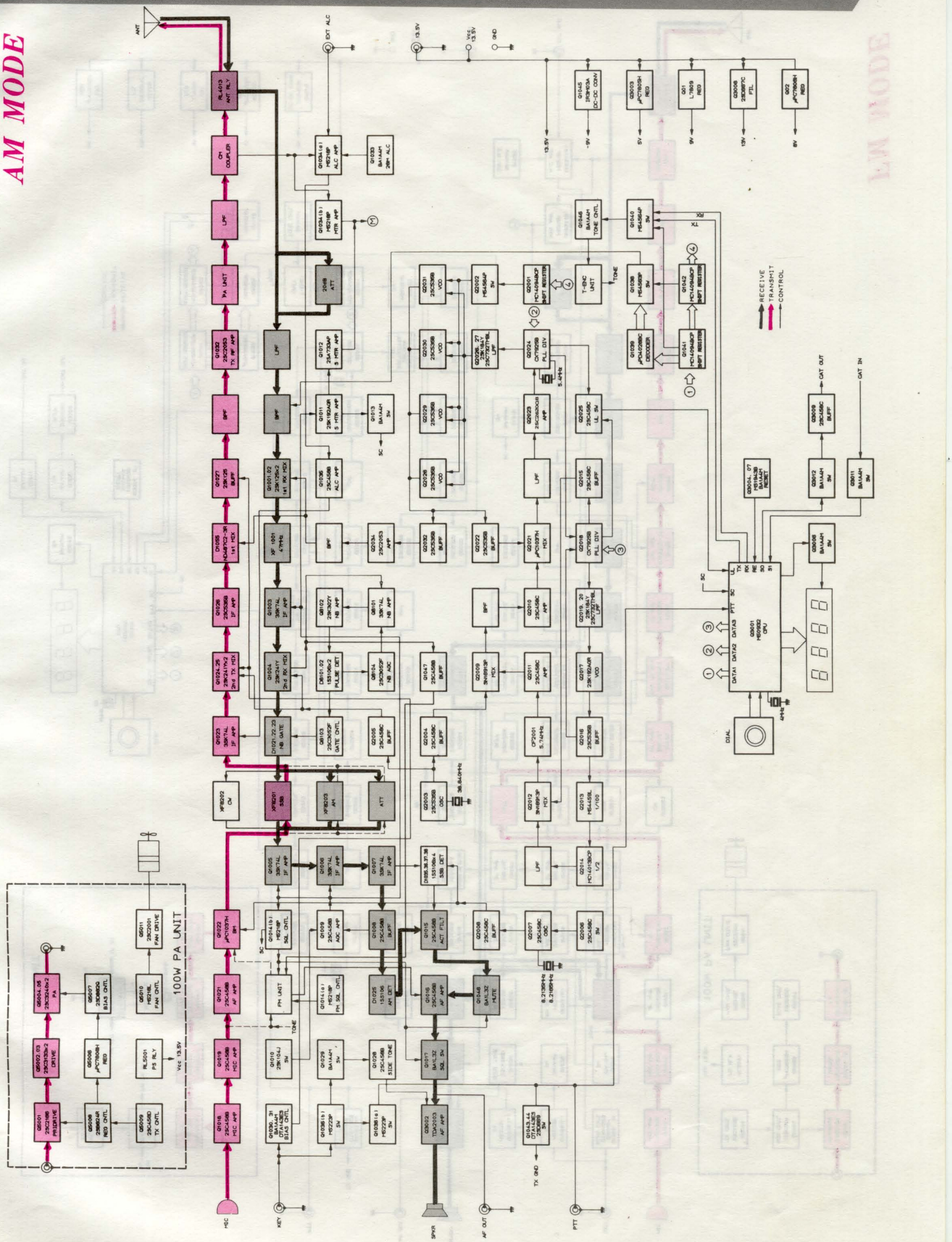
SSB MODE


100W PA UNIT
MIC
KEY
SPKR
AF OUT
TX GND
PTT
DIAL
ANT
EXT ALC
RECEIVE
TRANSMIT
CONTROL
CAT OUT
CAT IN

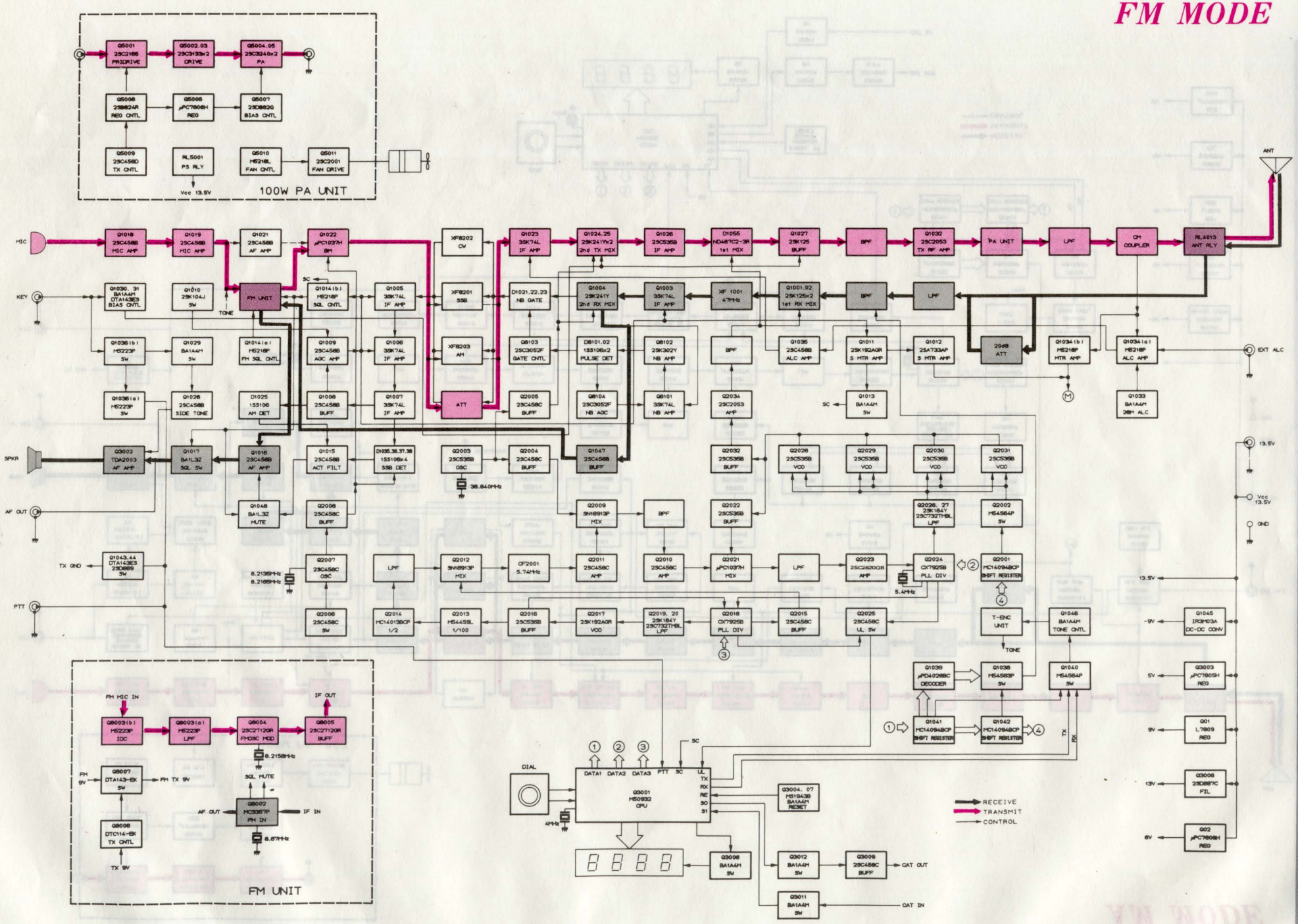
CW MODE


100W PA UNIT
Q5001 2SC2166 PRIDRIVE
Q5002.03 2SC3133×2 DRIVE
Q5004.05 2SC3240×2 PA
Q5006 2SB624R REG CNTL
Q5008 μPC7808H REG
Q5007 2SD882Q BIAS CNTL
Q5009 2SC458D TX CNTL
RL5001 PS RLY
Vcc 13.5V
Q5010 M5218L FAN CNTL
Q5011 2SC2001 FAN DRIVE
ANT
MIC
KEY
SPKR
AF OUT
TX GND
PTT
DIAL
BPF
LPF
PA UNIT
CPL COUPLER
ANT RLY
EXT ALC
20dB ATT
FM UNIT
TONE
SC
T-ENC UNIT
TONE CNTL
DECODER
SHIFT REGISTER
RECEIVE
TRANSMIT
CONTROL
CAT OUT
CAT IN

AM MODE


ANT
EXT ALC
13.5V
GND
100W PA UNIT
MIC
KEY
SPKR
AF OUT
PTT
TX GND
DIAL
CAT OUT
CAT IN
RECEIVE
TRANSMIT
CONTROL

FM MODE


100W PA UNIT
FM UNIT
MIC
KEY
SPKR
AF OUT
PTT
TX GND
EXT ALC
ANT
DIAL
RECEIVE
TRANSMIT
CONTROL
CAT OUT
CAT IN
FM MIC IN
IF OUT
FM TX 9V
AF OUT
IF IN
TX 9V

I. Local Unit

A. 2nd Local Overall Check

1. Disconnect TMP plug P2002 from J1022 on the Main Unit.
2. Connect the frequency counter to P2002 and confirm 38.8380 MHz ±400 Hz on the counter.
3. Remove the counter and connect a 50-ohm resistor and the RF voltmeter to P2002.
4. Confirm at least 230 mVrms on the voltmeter.
5. Disconnect the resistor and voltmeter, and replace P2002 in J1022.

B. PLL Subloop VCO

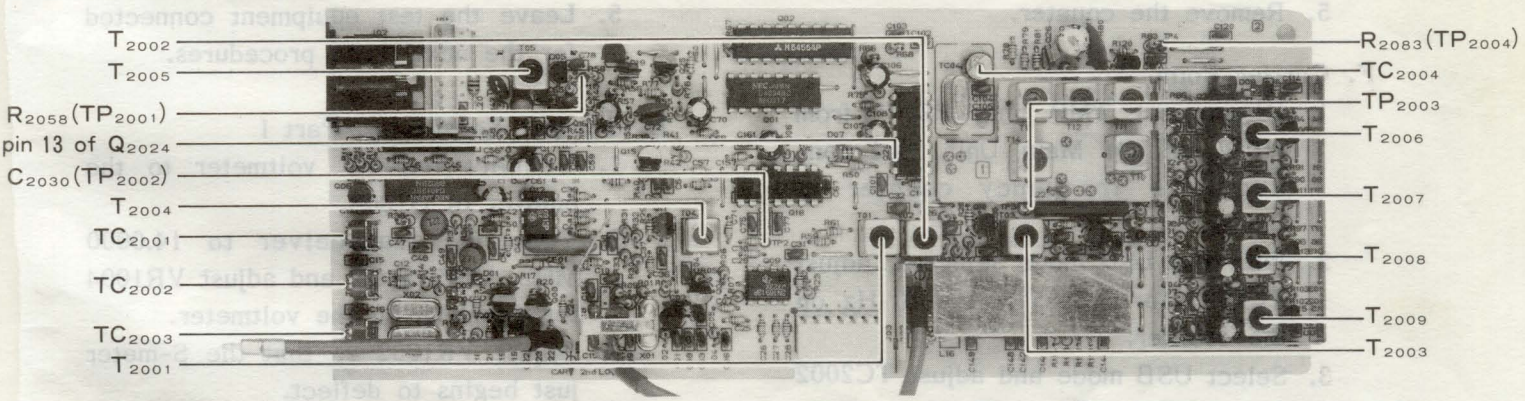
1. Connect the DC voltmeter between the exposed lead of R2058 (TP2001) and chassis ground.
2. Tune the transceiver to 7.0015 MHz, LSB mode.
3. Adjust T2005 for 2.0 ±0.1V on the meter.
4. Retune the transceiver to 7.0014 MHz and confirm at least 5.6 ±0.6V on the voltmeter.
5. Disconnect the voltmeter.

C. PLL Subloop BPF

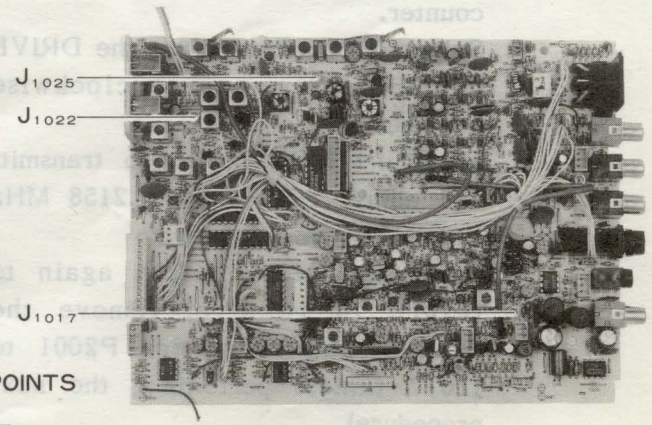
1. Connect the RF voltmeter to the exposed lead of C2030 (TP2002).
2. Tune the transceiver to 7.0265 MHz, LSB mode.
3. Adjust T2004 for peak on the voltmeter (at least 70 mVrms).
4. Move the voltmeter to TP2003, and retune the transceiver to 7.0267 MHz.
5. Adjust T2001-T2003 for peak on the voltmeter (more than 50 mVrms).
6. Disconnect the voltmeter.

D. PLL Main Loop VCO

1. Connect the DC voltmeter between the exposed lead of R2083 (TP2004) and chassis ground.
2. Referring to the following table, tune the transceiver to each adjustment frequency (MHz), adjust the corresponding transformer for 1.5 ±0.1V, retune to the corresponding check frequency and confirm the check voltage on the voltmeter.



LOCAL UNIT ALIGNMENT POINTS



MAIN UNIT ALIGNMENT POINTS

Adjust. Frequency	Adjust. Transformer	Check Freq.	Check Voltage
2.5000	T2006	2.4999	4.5-6.0V
		7.4999	5.0-6.5V
		0.1000	1.5-3.0V
7.5000	T2007	14.4999	5.0-6.5V
14.5000	T2008	21.4999	5.0-6.5V
21.5000	T2009	29.9999	5.0-6.5V

3. Connect the RF voltmeter to pin 13 of Q2024 and tune the transceiver to 29.9999 MHz. Confirm at least 90mVrms on the RF voltmeter.
4. Disconnect the voltmeters.

E. Reference Oscillator

1. Connect the frequency counter to the exposed lead of C2030 (TP2002).
2. Tune the transceiver to 7.0000 MHz, LSB mode.
3. If the TCXO option is installed, adjust the trimmer accessible through the hole in the TCXO housing, if necessary, for 5.7635 MHz ±3 Hz on the counter.
4. If the TCXO option is not installed, adjust TC2004, if necessary, for 5.7635 MHz ±10 Hz on the counter.
5. Remove the counter.

F. Carrier Point

1. Disconnect TMP plug P2001 from J1017 on the Main Unit, and connect the frequency counter to P2001.
2. With the LSB mode selected, adjust TC2003 for 8.2135 MHz ±10 Hz on the counter.
3. Select USB mode and adjust TC2002 for 8.2165 MHz ±10 Hz on the counter.
4. Select CW mode and set the DRIVE control fully counterclockwise (minimum).
5. Press the MOX button to transmit, and adjust TC2001 for 8.2158 MHz ±10 Hz on the counter.
6. Press the MOX button again to return to receive, remove the counter and reconnect P2001 to J1017 (unless performing the next procedure).

G. Carrier Level

1. Disconnect TMP plug P2003 from J1025 on the Main Unit, and connect a 50-ohm resistor in parallel with the RF voltmeter to P2003.
2. Confirm at lease 230 mVrms on the RF voltmeter in all modes.
3. Remove the voltmeter and resistor, and reconnect P2003 to J1025.

II. Main Unit - Receiver

A. RX IF, Part I

1. Connect the RF generator to the antenna jack, and the AF voltmeter and an 8-ohm, 3W resistor across the EXT SPKR jack.
2. Tune the transceiver to 14.2000 MHz, USB mode. Set the AF gain to the 10 o'clock position.
3. Tune the RF generator for a 1.5 kHz heterodyne in the receiver, and adjust the injection level for S-7 on the S-meter.
4. Adjust T1003-T1013 for peak on the AF voltmeter, reducing the injection level, if necessary, to keep S-meter deflection near S-7.
5. Leave the test equipment connected for the next three procedures.

B. S-meter Sensitivity, Part I

1. Connect the RF voltmeter to the emitter of Q1008.
2. Tune the transceiver to 14.0000 MHz, USB mode, and adjust VR1004 for minimum on the voltmeter.
3. Adjust VR1002 so that the S-meter just begins to deflect.
4. Disconnect the voltmeter, and continue with the next procedure.

PARTS LIST

T1020	L0020788A	Coil	
T1021	L0020788A	Coil	
RL1001	M1190056	Relay	FBR21D12 (DC12V)
S1001	N6090033	Slide Switch	
S1002	N6090033	Slide Switch	

NB UNIT

Symbol No.	Part No.	Description	Device
	F2949101	Printed Circuit Board	
	C029491AA	PCB with Components	
Q8101	G4800740L	FET	3SK74L
Q8102	G3803027Y	FET	2SK302Y TE85R
Q8103	G3330527F	Transistor	2SC3052-T14-2F
Q8104	G3330527F	Transistor	2SC3052-T14-2F
D8101	G2090244	Diode	1SS106
D8102	G2090244	Diode	1SS106
D8103	G2070009	Diode	1SS184 TE85R
R8101	J24205103	RES. Chip	1/10W 10k ohm
R8102	J24205473	RES. Chip	1/10W 47k ohm
R8103	J24205101	RES. Chip	1/10W 100 ohm
R8104	J24205153	RES. Chip	1/10W 15k ohm
R8105	J24205101	RES. Chip	1/10W 100 ohm
R8106	J24205104	RES. Chip	1/10W 100k ohm
R8108	J24205101	RES. Chip	1/10W 100 ohm
R8109	J24205102	RES. Chip	1/10W 1k ohm
R8110	J24205222	RES. Chip	1/10W 2.2k ohm
R8111	J24205223	RES. Chip	1/10W 22k ohm
R8112	J24205102	RES. Chip	1/10W 1k ohm
R8113	J24205224	RES. Chip	1/10W 220k ohm
R8114	J24205472	RES. Chip	1/10W 4.7k ohm
R8115	J24205472	RES. Chip	1/10W 4.7k ohm
R8116	J24205000	RES. Chip	1/10W 0 ohm
C8101	K22170235	CAP. Chip	CH 50V 100pF
C8102	K22171004	CAP. Chip	F 50V 0.01uF
C8103	K22171004	CAP. Chip	F 50V 0.01uF
C8104	K22171004	CAP. Chip	F 50V 0.01uF
C8105	K22171004	CAP. Chip	F 50V 0.01uF
C8106	K22170219	CAP. Chip	CH 50V 22pF
C8107	K22171004	CAP. Chip	F 50V 0.01uF
C8108	K22170243	CAP. Chip	CH 50V 220pF
C8109	K22170243	CAP. Chip	CH 50V 220pF
C8110	K40129004	AL. Electro. CAP.	16V 10uF
C8111	K40129004	AL. Electro. CAP.	16V 10uF
C8112	K22171004	CAP. Chip	F 50V 0.01uF
C8113	K40129004	AL. Electro. CAP.	16V 10uF
C8114	K22170235	CAP. Chip	CH 50V 100pF
C8115	K22171004	CAP. Chip	F 50V 0.01uF
L8101	L1190189	M. RFC	
T8101	L00221199	Coil	8.20MHz
T8102	L00221199	Coil	8.20MHz
J8101	P0090481	Connector	

LOCAL UNIT

Symbol No.	Part No.	Description	Device
	F2943101B	Printed Circuit Board	
	C029431AA	PCB with Components	
	C029431AB	PCB with Components w/o PLL LPF UNIT	
Q2001	G1090297	IC	uPD4094BC
Q2002	G1090836	IC	M54564P
Q2003	G3305350B	Transistor	2SC535B
Q2004	G3304580C	Transistor	2SC458C
Q2005	G3304580C	Transistor	2SC458C
Q2006	G3304580C	Transistor	2SC458C
Q2007	G3304580C	Transistor	2SC458C
Q2008	G3304580C	Transistor	2SC458C
Q2009	G1090012	IC	SN16913P
Q2010	G3304580C	Transistor	2SC458C
Q2011	G3304580C	Transistor	2SC458C
Q2012	G1090012	IC	SN16913P
Q2013	G1090838	IC	M54459L
Q2014	G1090280	IC	uPD4013BC
Q2015	G3304580C	Transistor	2SC458C
Q2016	G3305350B	Transistor	2SC535B
Q2017	G3801921G	Transistor	2SK192AGR
Q2018	G1090834	IC	CX-1925B
Q2019	G3801840Y	FET	2SK184Y
Q2020	G3307320B	Transistor	2SC732TMBL
Q2021	G1090101	IC	uPC1037H
Q2022	G3305350B	Transistor	2SC535B
Q2024	G1090834	IC	CX-7925B
Q2025	G3304580C	Transistor	2SC458C
Q2026	G3801840Y	FET	2SK184Y
Q2027	G3307320B	Transistor	2SC732TMBL
Q2028	G3305350B	Transistor	2SC535B
Q2029	G3305350B	Transistor	2SC535B
Q2030	G3305350B	Transistor	2SC535B
Q2031	G3305350B	Transistor	2SC535B
Q2032	G3305350B	Transistor	2SC535B
Q2034	G3320530	Transistor	2SC2053
D2001	G2090408	Diode	1SS270
D2002	G2090408	Diode	1SS270
D2003	G2090027	Diode	1SS53
D2004	G2090027	Diode	1SS53
D2005	G2090180	Diode	FC-53M-5
D2006	G2090408	Diode	1SS270
D2007	G2060004	Diode	1SS270 TJ
D2008	G2090161	Diode	1SV55
D2009	G2090237	Diode	MA190
D2010	G2090027	Diode	1SS53
D2011	G2090161	Diode	1SV55
D2012	G2090027	Diode	1SS53
D2013	G2090161	Diode	1SV55
D2014	G2090027	Diode	1SS53
D2015	G2090161	Diode	1SV55
D2016	G2090027	Diode	1SS53
X2001	H0102853	XTAL	HC-48/U 38.840MHz
X2002	H0102852	XTAL	HC-48/U 8.2165MHz
X2003	H0102851	XTAL	HC-48/U 8.2135MHz
X2004	H0102850	XTAL	HC-48/U 5.400MHz
CF2001	H3900390	Ceramic Filter	SFT-5.74MA
R2001	J02225472	Carbon Film RES.	1/6W 4.7k ohm UJ
R2002	J02225472	Carbon Film RES.	1/6W 4.7k ohm UJ
R2003	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
R2004	J02225471	Carbon Film RES.	1/6W 470 ohm UJ
R2005	J02225154	Carbon Film RES.	1/6W 150k ohm UJ
R2006	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
R2007	J02225471	Carbon Film RES.	1/6W 470 ohm UJ
R2008	J02225683	Carbon Film RES.	1/6W 68k ohm UJ
R2009	J02225470	Carbon Film RES.	1/6W 47 ohm UJ
R2010	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
R2011	J02225103	Carbon Film RES.	1/6W 10k ohm UJ
R2012	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
R2013	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
R2014	J02225472	Carbon Film RES.	1/6W 4.7k ohm UJ
R2015	J02225472	Carbon Film RES.	1/6W 4.7k ohm UJ
R2016	J02225102	Carbon Film RES.	1/6W 1k ohm UJ
R2017	J02225223	Carbon Film RES.	1/6W 22k ohm UJ
R2018	J02225103	Carbon Film RES.	1/6W 10k ohm UJ
R2019	J02225102	Carbon Film RES.	1/6W 1k ohm UJ
R2020	J02225683	Carbon Film RES.	1/6W 68k ohm UJ
R2021	J01225470	Carbon Film RES.	1/6W 47 ohm PJ
R2022	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
R2023	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
R2024	J02225223	Carbon Film RES.	1/6W 22k ohm UJ
R2025	J02225103	Carbon Film RES.	1/6W 10k ohm UJ
R2026	J01225470	Carbon Film RES.	1/6W 47 ohm UJ
R2027	J02225471	Carbon Film RES.	1/6W 470 ohm UJ
R2028	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
R2029	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
R2030	J02225471	Carbon Film RES.	1/6W 470 ohm UJ
R2031	J02225470	Carbon Film RES.	1/6W 47 ohm UJ
R2032	J02225223	Carbon Film RES.	1/6W 22k ohm UJ
R2033	J02225103	Carbon Film RES.	1/6W 10k ohm UJ
R2034	J01225681	Carbon Film RES.	1/6W 680 ohm PJ
R2035	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
R2036	J02225472	Carbon Film RES.	1/6W 4.7k ohm UJ

R2037	J02225472	Carbon Film RES.	1/6W	4.7k ohm	UJ
R2038	J02225681	Carbon Film RES.	1/6W	680 ohm	UJ
R2039	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2040	J02225471	Carbon Film RES.	1/6W	470 ohm	UJ
R2041	J02225154	Carbon Film RES.	1/6W	150k ohm	UJ
R2042	J02225153	Carbon Film RES.	1/6W	15k ohm	UJ
R2043	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2044	J02225471	Carbon Film RES.	1/6W	470 ohm	UJ
R2045	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2046	J01225101	Carbon Film RES.	1/6W	100 ohm	PJ
R2047	J02225331	Carbon Film RES.	1/6W	330 ohm	UJ
R2048	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2049	J02225223	Carbon Film RES.	1/6W	22k ohm	UJ
R2050	J01225332	Carbon Film RES.	1/6W	3.3k ohm	PJ
R2051	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2052	J02225272	Carbon Film RES.	1/6W	2.7k ohm	UJ
R2053	J02225272	Carbon Film RES.	1/6W	2.7k ohm	UJ
R2054	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2055	J01225273	Carbon Film RES.	1/6W	27k ohm	PJ
R2056	J01225182	Carbon Film RES.	1/6W	1.8k ohm	PJ
R2057	J02225152	Carbon Film RES.	1/6W	1.5k ohm	UJ
R2058	J01225103	Carbon Film RES.	1/6W	10k ohm	PJ
R2059	J01225221	Carbon Film RES.	1/6W	220 ohm	PJ
R2060	J01225221	Carbon Film RES.	1/6W	220 ohm	PJ
R2061	J01225221	Carbon Film RES.	1/6W	220 ohm	PJ
R2062	J02225221	Carbon Film RES.	1/6W	220 ohm	UJ
R2063	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2064	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2065	J02225471	Carbon Film RES.	1/6W	470 ohm	UJ
R2066	J02225221	Carbon Film RES.	1/6W	220 ohm	UJ
R2067	J02225221	Carbon Film RES.	1/6W	220 ohm	UJ
R2068	J02225221	Carbon Film RES.	1/6W	220 ohm	UJ
R2075	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2076	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2077	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2078	J01225682	Carbon Film RES.	1/6W	6.8k ohm	PJ
R2079	J01225182	Carbon Film RES.	1/6W	1.8k ohm	UJ
R2080	J01225272	Carbon Film RES.	1/6W	2.7k ohm	UJ
R2081	J01225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2082	J02225152	Carbon Film RES.	1/6W	1.5k ohm	UJ
R2083	J01225332	Carbon Film RES.	1/6W	3.3k ohm	PJ
R2084	J02225223	Carbon Film RES.	1/6W	22k ohm	UJ
R2085	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2086	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2087	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2088	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2089	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2090	J02225223	Carbon Film RES.	1/6W	22k ohm	UJ
R2091	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2092	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2093	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2094	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2095	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2096	J02225223	Carbon Film RES.	1/6W	22k ohm	UJ
R2097	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2098	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2099	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2100	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2101	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2102	J02225223	Carbon Film RES.	1/6W	22k ohm	UJ
R2103	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2104	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2105	J02225153	Carbon Film RES.	1/6W	15k ohm	UJ
R2106	J02225103	Carbon Film RES.	1/6W	10k ohm	UJ
R2107	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2108	J02225104	Carbon Film RES.	1/6W	100k ohm	UJ
R2109	J02225101	Carbon Film RES.	1/6W	100 ohm	UJ
R2110	J02225471	Carbon Film RES.	1/6W	470 ohm	UJ
R2111	J02225681	Carbon Film RES.	1/6W	680 ohm	UJ
R2112	J02225471	Carbon Film RES.	1/6W	470 ohm	UJ
R2113	J02225100	Carbon Film RES.	1/6W	10 ohm	UJ
R2114	J02225560	Carbon Film RES.	1/6W	56 ohm	UJ
R2116	J02225471	Carbon Film RES.	1/6W	470 ohm	UJ
R2120	J01225560	Carbon Film RES.	1/6W	56 ohm	PJ
TH2001	G9090008	Thermistor	11-2102-2		
C2001	K12171102	Ceramic CAP.	E	50V	1000pF
C2002	K02175560	Ceramic CAP.	CH	50V	56pF
C2003	K02175150	Ceramic CAP.	CH	50V	15pF
C2004	K12171102	Ceramic CAP.	E	50V	1000pF
C2005	K02172059	Ceramic CAP.	CH	50V	0.5pF
C2006	K02175120	Ceramic CAP.	CH	50V	12pF
C2007	K28179001	Ceramic CAP.	B	50V	1000pF
C2008	K02172030	Ceramic CAP.	CH	50V	3pF
C2009	K12171102	Ceramic CAP.	E	50V	1000pF
C2010	K12171102	Ceramic CAP.	E	50V	1000pF

C2011	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2012	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2013	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2014	K02175150	Ceramic CAP.	CH	50V	15pF
C2015	K02173100	Ceramic CAP.	CH	50V	10pF
C2016	K02175150	Ceramic CAP.	CH	50V	15pF
C2017	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2018	K02175121	Ceramic CAP.	CH	50V	120pF
C2019	K02175820	Ceramic CAP.	CH	50V	82pF
C2020	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2021	K02173080	Ceramic CAP.	CH	50V	8pF
C2022	K02172050	Ceramic CAP.	CH	50V	5pF
C2023	K19149021	Ceramic CAP.		25V	0.047uF
C2024	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2025	K28179001	Ceramic CAP.		50V	1000pF
C2026	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2027	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2028	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2029	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2030	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2031	K12171102	Ceramic CAP.	E	50V	1000pF
C2032	K00179001	Ceramic CAP.	SL	50V	0.5pF
C2033	K00172030	Ceramic CAP.	SL	50V	3pF
C2034	K12171102	Ceramic CAP.	E	50V	1000pF
C2035	K12171102	Ceramic CAP.	E	50V	1000pF
C2036	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2037	K00175101	Ceramic CAP.	SL	50V	100pF
C2038	K00173100	Ceramic CAP.	SL	50V	10pF
C2039	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2040	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2041	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2042	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2043	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2044	K40129004	AL. Electro. CAP.		16V	10uF
C2045	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2046	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2047	K10176561	Ceramic CAP.	B	50V	560pF
C2048	K10176271	Ceramic CAP.	B	50V	270pF
C2049	K10176102	Ceramic CAP.	B	50V	1000pF
C2050	K10176101	Ceramic CAP.	B	50V	100pF
C2051	K10176681	Ceramic CAP.	B	50V	680pF
C2052	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2053	K13179014	Ceramic CAP.	F	50V	0.0047uF
C2054	K00175270	Ceramic CAP.	SL	50V	27pF
C2055	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2056	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2057	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2058	K12171102	Ceramic CAP.	E	50V	1000pF
C2059	K12171102	Ceramic CAP.	E	50V	1000pF
C2060	K40129008	AL. Electro. CAP.		16V	33uF
C2061	K12171102	Ceramic CAP.	E	50V	1000pF
C2062	K02179001	Ceramic CAP.	CH	50V	1pF
C2063	K05173080	Ceramic CAP.	RH	50V	8pF
C2064	K02175270	Ceramic CAP.	CH	50V	27pF
C2065	K02175150	Ceramic CAP.	CH	50V	15pF
C2066	K06175220	Ceramic CAP.	UJ	50V	22pF
C2067	K02173100	Ceramic CAP.	CH	50V	10pF
C2068	K40179013	AL. Electro. CAP.		50V	1uF
C2069	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2070	K40129008	AL. Electro. CAP.		16V	33uF
C2071	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2072	K19149017	Ceramic CAP.		25V	0.022uF
C2073	K19149019	Ceramic CAP.		25V	0.033uF
C2074	K40129008	AL. Electro. CAP.		16V	33uF
C2075	K10176101	Ceramic CAP.	B	50V	100pF
C2076	K10176101	Ceramic CAP.	B	50V	100pF
C2077	K10176101	Ceramic CAP.	B	50V	100pF
C2078	K19149005	Ceramic CAP.		25V	0.0022uF
C2079	K12171102	Ceramic CAP.	E	50V	1000pF
C2080	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2082	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2084	K12171102	Ceramic CAP.	E	50V	1000pF
C2085	K12171102	Ceramic CAP.	E	50V	1000pF
C2086	K02179001	Ceramic CAP.	CH	50V	1pF
C2087	K02172020	Ceramic CAP.	CH	50V	2pF
C2101	K10176101	Ceramic CAP.	B	50V	100pF
C2102	K10176101	Ceramic CAP.	B	50V	100pF
C2103	K10176101	Ceramic CAP.	B	50V	100pF
C2104	K06179007	Ceramic CAP.	UJ	50V	36pF
C2105	K06175390	Ceramic CAP.	UJ	50V	39pF
C2106	K40129004	AL. Electro. CAP.		16V	10uF

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C2107	K40129008	AL. Electro. CAP.		16V	33uF
C2108	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2109	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2111	K19149025	Ceramic CAP.		25V	0.1uF
C2112	K40129038	AL. Electro. CAP.		16V	100uF
C2113	K19149013	Ceramic CAP.		25V	0.01uF
C2114	K12171102	Ceramic CAP.	E	50V	1000uF
C2115	K06179008	Ceramic CAP.	UJ	50V	43uF
C2116	K02173070	Ceramic CAP.	CH	50V	7uF
C2117	K06172050	Ceramic CAP.	UJ	50V	5uF
C2118	K06175330	Ceramic CAP.	UJ	50V	33uF
C2119	K06175150	Ceramic CAP.	UJ	50V	15uF
C2120	K12171102	Ceramic CAP.	E	50V	1000uF
C2121	K12171102	Ceramic CAP.	E	50V	1000uF
C2122	K40129008	AL. Electro. CAP.		16V	33uF
C2123	K06175470	Ceramic CAP.	UJ	50V	47pF
C2124	K06172050	Ceramic CAP.	UJ	50V	5pF
C2125	K05175330	Ceramic CAP.	RH	50V	33pF
C2126	K02173100	Ceramic CAP.	CH	50V	10pF
C2127	K12171102	Ceramic CAP.	E	50V	1000pF
C2128	K40129008	AL. Electro. CAP.		16V	33uF
C2129	K06175390	Ceramic CAP.	UJ	50V	39pF
C2130	K06172050	Ceramic CAP.	UJ	50V	5pF
C2131	K06175220	Ceramic CAP.	UJ	50V	22pF
C2132	K06172050	Ceramic CAP.	UJ	50V	5pF
C2133	K12171102	Ceramic CAP.	E	50V	1000pF
C2134	K40129008	AL. Electro. CAP.		16V	33uF
C2135	K06179008	Ceramic CAP.	UJ	16V	43pF
C2136	K05172050	Ceramic CAP.	RH	50V	5pF
C2137	K05175180	Ceramic CAP.	RH	50V	18pF
C2138	K05172050	Ceramic CAP.	RH	50V	5pF
C2139	K12171102	Ceramic CAP.	E	50V	1000pF
C2140	K40129008	AL. Electro. CAP.		16V	33uF
C2141	K12171102	Ceramic CAP.	E	50V	1000pF
C2142	K12171102	Ceramic CAP.	E	50V	1000pF
C2143	K02172030	Ceramic CAP.	CH	50V	3pF
C2144	K12171102	Ceramic CAP.	E	50V	1000pF
C2145	K12171102	Ceramic CAP.	E	50V	1000pF
C2146	K10176331	Ceramic CAP.	B	50V	330pF
C2148	K00175270	Ceramic CAP.	SL	50V	27pF
C2149	K00175560	Ceramic CAP.	SL	50V	56pF
C2150	K00175270	Ceramic CAP.	SL	50V	27pF
C2151	K00179013	Ceramic CAP.	SL	50V	91pF
C2152	K00175470	Ceramic CAP.	SL	50V	47pF
C2153	K00179013	Ceramic CAP.	SL	50V	91pF
C2154	K00175560	Ceramic CAP.	SL	50V	56pF
C2155	K00175560	Ceramic CAP.	SL	50V	56pF
C2157	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2158	K12171102	Ceramic CAP.	E	50V	1000pF
C2159	K12171102	Ceramic CAP.	E	50V	1000pF
C2161	K00175101	Ceramic CAP.	SL	50V	100pF
C2162	K28129001	Ceramic CAP.	Y	16V	0.01uF
C2163	K13179009	Ceramic CAP.	F	50V	0.047uF
C2164	K19149025	Ceramic CAP.		25V	0.1uF
C2165	K00175470	Ceramic CAP.	SL	50V	47pF
C2166	K10176331	Ceramic CAP.	B	50V	330pF
TC2001	K91000141	Trimmer CAP.			10pF
TC2002	K91000142	Trimmer CAP.			20pF
TC2003	K91000142	Trimmer CAP.			20pF
TC2004	K91000186	Trimmer CAP.			20pF
L2001	L1190223	M. RFC			270uH
L2002	L1190024	M. RFC			220uH
L2003	L1190038	M. RFC			270uH
L2004	L1190005	M. RFC			1uH
L2010	L1190029	M. RFC			47uH
L2011	L1190014	M. RFC			10uH
L2012	L1190011	M. RFC			4.7uH
L2013	L1190005	M. RFC			1uH
L2014	L0021410	Coil			0.147uH
L2015	L0021410	Coil			0.147uH
L2016	L0021409	Coil			0.117uH
L2017	L0021409	Coil			0.117uH
L2018	L1190190	M. RFC			0.27uH
L2020	L1190218	M. RFC			100uH
L2021	L1190218	M. RFC			100uH
T2001	L0021862	Coil			44.6MHz
T2002	L0021862	Coil			44.6MHz
T2003	L0021862	Coil			44.6MHz
T2004	L0021861	Coil			5.74MHz
T2005	L0021380	Coil			0.40uH
T2006	L0021860	Coil			0.45uH
T2007	L0021380	Coil			0.40uH
T2008	L0021380	Coil			0.40uH
T2009	L0021382	Coil			0.29uH
J2001	P0090627	Connector			
J2002	P1090554	Connector			
J2003	P1090594	Connector			
	T9317814	Wire ASSY	P2001		
	T9317813	Wire ASSY	P2002		
	T9317812	Wire ASSY	P2003		
	R0124120	VCO Case			
	R0124130	VCO Cover			
	R0124140A	Shield Plate			
	R0124150A	Shield Plate			
	R0124160B	Shield Plate			
	R0123770	Ground Lead			
	R0125800	Leaf Spring			

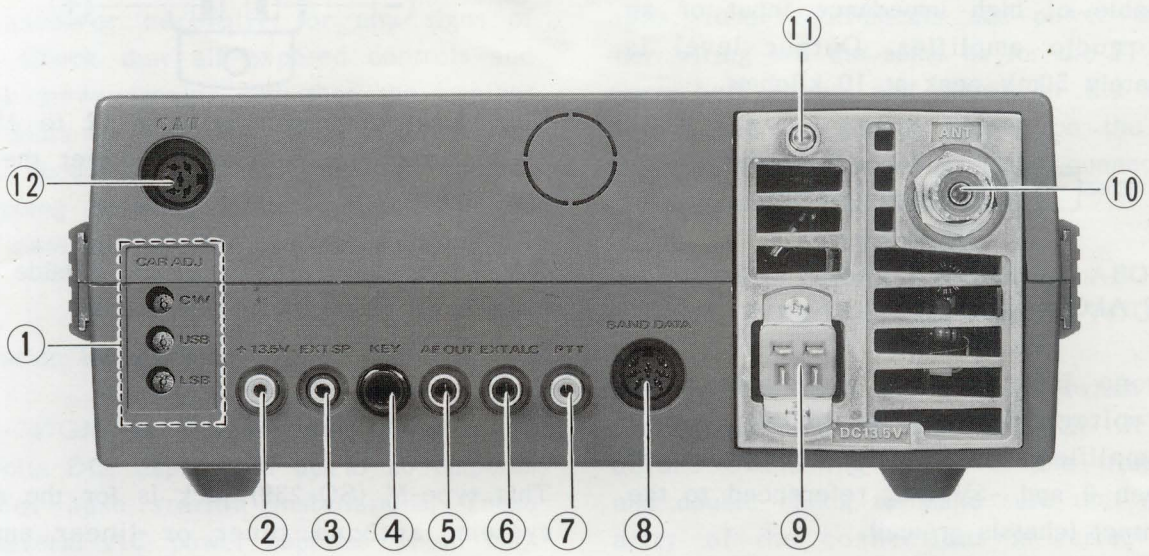
PLL-LPF UNIT

Symbol No.	Part No.	Description	Device		
	F2971101A	Printed Circuit Board			
	C029711AA	PCB with Components			
Q7023	G3326207B	Transistor	2SC2620QBTR		
R7069	J24205331	RES. Chip	1/10W 330 ohm		
R7070	J24205104	RES. Chip	1/10W 100k ohm		
R7071	J24205102	RES. Chip	1/10W 1k ohm		
R7072	J24205101	RES. Chip	1/10W 100 ohm		
R7073	J24205101	RES. Chip	1/10W 100 ohm		
C7081	K22170817	CAP. Chip	B	50V	0.01uF
C7088	K22170209	CAP. Chip	CH	50V	8pF
C7089	K22170204	CAP. Chip	CH	50V	3pF
C7090	K22170220	CAP. Chip	CH	50V	24pF
C7091	K22170209	CAP. Chip	CH	50V	8pF
C7092	K22170219	CAP. Chip	CH	50V	22pF
C7093	K22170210	CAP. Chip	CH	50V	9pF
C7094	K22170219	CAP. Chip	CH	50V	22pF
C7095	K22170206	CAP. Chip	CH	50V	5pF
C7096	K22170221	CAP. Chip	CH	50V	27pF
C7097	K22170201	CAP. Chip	CH	50V	0.5pF
C7098	K22170817	CAP. Chip	B	50V	0.01uF
C7099	K22170817	CAP. Chip	B	50V	0.01uF
C7100	K22170817	CAP. Chip	B	50V	0.01uF
C7156	K22170213	CAP. Chip	CH	50V	12pF
L7022	L1190218	M. RFC			100uH
T7010	L0021553	Coil			
T7011	L0021554	Coil			
T7012	L0021554	Coil			
T7013	L0021553	Coil			
T7014	L0021555	Coil			

DISPLAY UNIT

Symbol No.	Part No.	Description	Device
	F2943102C	Printed Circuit Board	
	C029432AA	PCB with Components	
Q3001	G1090865	IC	M50932-501FP
Q3002	G1090815	IC	TDA2003H
Q3003	G1090299	IC	uPC7805H
Q3004	G1090840	IC	M51943BSL
Q3005	G3090074	Transistor	BA1A4M
Q3006	G3090074	Transistor	BA1A4M
Q3007	G3090079	Transistor	BA1A4P
Q3008	G3406670C	Transistor	2SD667C
Q3009	G3304580C	Transistor	2SC458C
Q3014	G3090075	Transistor	BA1A4P
D3001	G2090118	Diode	1SS97
D3002	G2090375	Diode	GL-9PR4
D3005	G2090408	Diode	1SS270

REAR PANEL CONTROLS & CONNECTORS



(1) CAR ADJ Potentiometers

These (recessed) trimmer capacitors set the IF passband center offset from the carrier. They are aligned at the factory and should not be adjusted without proper test equipment. The procedure is described in the "FT-747GX Technical Supplement".

(2) +13.5V

This phono jack provides 13.5V DC at up to 200 mA for powering accessories. The center contact is positive.

Note: Repairs to damage caused by exceeding the current capabilities of the accessory DC jack may not be covered by the warranty.

(3) EXT SP (External Speaker)

This 1/8-inch 2-conductor mini phone jack provides amplified receiver output to drive an external 4- to 16-ohm loudspeaker.

(4) KEY

This $\frac{1}{4}$-inch 2-conductor phone jack accepts a CW key or external electronic keyer. Open circuit voltage is +13V DC and closed circuit current is 0.7 to 1 mA.