

DJ-582T DJ-582E DJ-582TA DJ-582TC

Service Manual

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ALINCO ELECTRONICS INC.

Specifications

■ General

Channel Spacing:	5, 10, 12.5, 15, 20, 25 KHz steps
Memory Channels:	42 Channels (40 total combination of VHF and UHF) 1 VHF Call Channel 1 UHF Call Channel
Signal Type:	F3E(FM)
Antenna Impedance:	50Ω unbalanced
Microphone Impedance:	2kΩ unbalanced
Speaker Impedance:	8Ω unbalanced
Power Supply Requirements:	13.8 Volts DC (Rated 9 volts DC)
Dimensions (Radio Only):	140(H) x 58(W) x 33(D) mm
Weight:	Approximately 410g
DTMF:	16 Button Key Pad
Subaudible Tones:	Encode and Decode installed

■ U.S. Frequency Coverage

The frequency coverage listed as follows applies to DJ-582T.

VHF Band:	144.000~147.995MHz (TX) 130.000~173.995MHz (RX) 108.000~142.995MHz (RX)
UHF Band:	438.000~449.995MHz (TX) 400.000~511.995MHz (RX)

The frequency coverage listed as follows applies to DJ-582TA/TC.

VHF Band:	130.000~173.995MHz (TX) 130.000~173.995MHz (RX) 108.000~142.995MHz (RX)
UHF Band:	400.000~511.995MHz (TX) 400.000~511.995MHz (RX)

■ European Frequency Coverage

The frequency coverage listed as follows applies to DJ-582E.

VHF Band:	144.000 ~ 145.995MHz (TX/RX)
UHF Band:	430.000 ~ 439.995MHz (TX/RX)

■ Transmitter

Output Power:	Approximately 2Watts with Standard EBP-26N Battery Approximately 5Watts with Optional EBP-28N Battery
Modulation System:	Variable reactance FM
Max. Frequency Deviation:	+/- 5kHz
Spurious Emission:	Less than 60dB below carrier
Tone Frequency:	67.0 to 250.3Hz (39 selections) DJ-582T/TA/TC (Subaudible Encoding Tone) DJ-582E(1,750Hz Tone Barst)
Microphone:	Electret Condenser

Operating Mode:

Simplex:

Duplex: 5KHz steps minimum between 0 ~ 15.995MHz from receive frequency.

CTCSS Encoder: Built-in and included as standard for DJ-582T/TA/TC

CTCSS Decoder: Built-in and included as standard for DJ-582T/TA/TC

■ Receiver Specifications

Receiver System:	Superheterodyne, Dual Conversion
Sensitivity:	12db SINAD less than $-16\text{dB}\mu\text{V}$ at Band center
Intermediate Frequency:	VHF — 1st IF 55.05MHz 2nd IF 455kHz UHF — 1st IF 30.85MHz 2nd IF 455kHz
Audio Power Output:	250mW (at 10% T.H.D.)
Speaker Impedance:	8 Ω

Circuit Description

1. Receiver System

VHF and UHF receiver systems are the double superheterodyne. In VHF receiver system, the first IF is 55.05 MHz and the second IF is 455KHz. In UHF receiver system, the first IF is 30.85MHz and the second IF is 455KHz.

1.1 Front End

VHF:

The signal from the antenna is passed through a duplexer and an antenna switch, and then input to the RF coil L418.

The signal from L418 is amplified by Q416 and led to the band pass filter (L420, L421), and led to the first mixer base of Q417.

UHF:

The signal from the antenna is passed through a duplexer and an antenna switch, and then input to the RF coil L405.

The signal from L405 is amplified by Q404 and led to the band pass filter (L406, L407), passed through the band pass filter (L408, L409), and then led to the first mixer base of Q406.

1.2 First Mixer

VHF:

The signal (fo) is mixed with the first local oscillator signal (fo+55.05MHz) from the PLL circuit by the first-stage mixer Q417 and so is converted into the first IF signal.

The unwanted frequency band of the first IF signal is eliminated by the monolithic crystal filter (L423, L424, XF402).

UHF:

The signal (fo) is mixed with the first local oscillator signal (fo-30.85MHz) from the PLL circuit by the first-stage mixer Q406 and so is converted into the first IF signal.

The unwanted frequency band of the first IF signal is eliminated by the monolithic crystal filter (XF401).

1.3 IF Amplifier

VHF:

The first IF signal is amplified by Q418 and Q107, and input to pin 20 of IC102, where it is mixed with the second local oscillator signal (54.595MHz) and so is converted into the second IF signal (455KHz). The second IF signal is output from pin4 of IC102, and unwanted frequency band of the second IF signal is eliminated by a ceramic filter (FL102), and input to pin6 of IC102.

The resulting signal is then amplified by the second IF limiting amplifier, and detected by quadrature circuit, and the audio signal is output from pin11 of IC102.

UHF:

The first IF signal is amplified by Q403 and Q101, and input to pin 20 of IC101, where it is mixed with the second local oscillator signal (30.395MHz) and so is converted into the second IF signal (455KHz). The second IF signal is output from pin4 of IC101, and unwanted frequency band of the second IF signal is eliminated by a ceramic filter (FL101), and input to pin6 of IC101.

The resulting signal is then amplified by second IF limiting amplifier, and detected by quadrature circuit, and the audio signal is output from pin11 of IC101.

1.4 Audio Circuit

VHF:

The signal from pin 11 of IC102 is filtered with de-emphasis circuit (consists of R156, C153, R157, C154), and led to the mute circuit Q109, passed through the AF variable resistor (VR102-B) and amplified by the power amplifier IC106 to drive the speaker.

UHF:

The signal from pin 11 of IC102 is filtered with de-emphasis circuit (consists of R124, C119, R125, C120), and led to the mute circuit Q103, passed through the AF variable resistor (VR101-B) and amplified by the power amplifier IC106 to drive the speaker.

1.5 Squelch Circuit

VHF:

The audio signal from pin11 of IC102 is passed through the squelch control variable resistor (VR102-A) and input to pin13 of IC102. The audio signal is amplified by IC102 and output to pin14. The desired noise of the audio signal is eliminated by the high pass filter consisting of C147 and R166, and amplified by Q108. The resulting signal is rectified by D105 and then input to pin15 of IC102. When the voltage of pin15 is below 0.7V, SDV goes to "Lo". When the voltage of pin15 is over 0.7V, SDV goes to "Hi". The SDV signal is input to pin14 of IC107.

UHF:

The audio signal from pin11 of IC101 is passed through the squelch control variable resistor (VR101-A) and input to pin13 of IC101. The audio signal is amplified by IC101 and output to pin14. The desired noise of the audio signal is eliminated by the high pass filter consisting of C115 and R115, and amplified by Q102. The resulting signal is rectified by D101 and then input to pin15 of IC101. When the voltage of pin15 is below 0.7V, SDU goes to "Lo". When the voltage of pin15 is over 0.7V, SDU goes to "Hi". The SDU signal is input to pin15 of IC107.

1.6 S-meter Circuit

VHF:

The DC voltage of pin12 of IC102 is passed through VR104 and input to pin75 of IC107. The DC voltage is digitized to control the LCD S-meter display.

UHF:

The DC voltage of pin12 of C101 is passed through VR103 and input to pin74 of IC107. The DC voltage is digitized to control the LCD S-meter display.

1.7 AM , AGC Circuit

VHF:

AM audio signal from pin12 of IC102 is amplified by Q110, and supplied to pin 6 and pin7 of IC106. The S-meter signal from pin12 of IC102 is supplied to Q106. The gain of the second IF amplifier is controlled by the collector current of Q106, and the input level of pin 20 of IC102 is stabilized.

1.8 Cross Band Repeater Circuit

When the transceiver receives the VHF or UHF signal in the cross band repeater mode, it will be retransmitted from main band. The audio signal is passed through the cross band repeater switch Q105, and supplied to microphone amplifier IC105.

2. Transmitter System

2.1 Microphone Amplifier

VHF/UHF:

The voice from the internal or external microphone is led to pre-emphasis circuit, and then input to the microphone amplifier IC105, which consists of two operational amplifiers.

The output from the microphone amplifier is passed through variable resistors VR106 (VHF) and VR105 (UHF) for modulation adjustment to varicap diode of the VCO, controlling the VCO frequency

2.2 Power amplifier

VHF:

The signal from VCO is amplified by a buffer amplifier Q420, and input to the power module pin1 of IC 402 . The amplified signal is output from pin5, and then passed through the low-pass filter and the antenna switch circuit. The unwanted harmonics frequency signal is eliminated by the low-pass filter in the duplexer and input to the antenna.

UHF:

The signal from VCO is amplified by a buffer amplifier Q408, and input to the power module pin1 of IC 401. The amplified signal is output from pin5, and then passed through the low-pass filter and the antenna switch circuit. The unwanted harmonics frequency signal is eliminated by the low-pass filter in the duplexer and input to the antenna.

2.3 Automatic Power Control Circuit

VHF:

The automatic power control(APC) circuit is used to obtain a stable transmission power. This circuit detects the transmission power by D409 in the low-pass filter consisting of L425, C514, C515, and C516. The detected DC voltage is supplied to APC circuit consisting of Q411, Q412, Q413, and D410. The detected voltage to Q411 is passed through Q412, Q413 and Q414, and then controls the emitter current of Q420.

UHF:

The automatic power control(APC) circuit is used to obtain a stable transmission power. This circuit detects the transmission power by D408 in the low-pass filter consisting of L403, C421, C422, and C450. The detected DC voltage is supplied to APC circuit consisting of Q411, Q412, Q413, and D410. The detected voltage to Q411 is passed through Q412, Q413 and Q414, and then controls the collector voltage of Q408.

3. PLL Circuit

VHF:

Output frequency of PLL circuit is set by the serial data from microprocessor IC107.

The data (strobe, clock, data) are consisted of 16 bits serial data. The VCO output frequency is supplied to pin10 of IC404. The programmable divider in IC404 divides the VCO output frequency, and generates 5 or 6.25KHz.

PLL circuit generates TX frequency (fo) and RX frequency (fo + 55.05MHz).

3.1 Reference Divider Circuit

VHF:

The channel step is determined by the reference frequency.

6 channel steps (5, 10, 15, 12.5, 20, 25KHz) are obtained when the reference oscillation frequency (12.8MHz) is divided.

The reference frequency (5KHz) uses a channel step of 5, 10, 15, 20 or 25KHz.

The reference frequency (6.25KHz) uses the channel step of 12.5KHz. The frequencies multiplied by the even numbers of 12.5KHz use the reference frequency of 5KHz.

3.2 Phase Comparison Circuit (P/C)

VHF:

A comparison frequency is obtained when the VCO output is divided in IC404 (pulse swallow system-based PLL IC).

3.3 PLL Loop Filter Circuit

VHF:

The pulse wave output of charge pump is converted to DC voltage by PLL loop filter circuit, and supplied to D423, D424 of varicap diode in VCO unit.

3.4 VCO Circuit

VHF:

The VCO tune voltage is applied to the varicaps D423 and D424.

The frequency modulation is executed when the audio signal voltage is supplied to the varicaps D424 and D425.

UHF:

Output frequency of PLL circuit is set by the serial data from microprocessor IC107.

The data (strobe, clock, data) are consisted of 16 bits serial data. The VCO output frequency is supplied to pin10 of IC403. The programmable divider in IC403 divides the VCO output frequency, and generates 5 or 6.25KHz.

PLL circuit generates TX frequency (fo) and RX frequency (fo – 23.05MHz).

UHF:

The channel step is determined by reference frequency.

6 channel steps (5, 10, 15, 12.5, 20, 25KHz) are obtained when reference oscillation frequency (12.8MHz) is divided.

The reference frequency (5KHz) uses a channel step of 5, 10, 15, 20 or 25KHz.

The reference frequency (6.25KHz) uses the channel step of 12.5KHz. The frequencies multiplied by the even numbers of 12.5KHz use the reference frequency of 5KHz.

UHF:

A comparison frequency is obtained when the VCO output is divided in IC403 (pulse swallow system-based PLL IC).

UHF:

The pulse wave output of charge pump is converted to DC voltage by PLL loop filter circuit, and supplied to D421, D422 of varicap diode in VCO unit.

UHF:

The VCO tune voltage is applied to the varicaps D421 and D422.

The frequency modulation is executed when the audio signal voltage is supplied to the varicap D418.

4. DTMF Circuit

4.1 Decoder

The detected signal from pin11 of IC101 and IC102 is passed through VHF/UHF selector consisting of Q142 and Q111, and input to the DTMF decoder pin8 of IC108. The VHF/UHF selector is controlled by BND from pin42 of IC107. When the input signal is valid, the digital signal is output from pin1(D2), pin2(D1), pin15(D8) and pin16(D4) of IC108, and then input to pin48(DD2), pin47(DD1), pin50(DD8) and pin49(DD4) of IC107.

4.2 Encoder

The DTMF signal corresponding to the combination of the column and row is output from tone output pin17 of IC3. When using the DTMF keypad, IC107 pin31(IN0), pin32(IN1), pin33(IN2), pin34(IN3) and pin51(OT0), pin52(OT1), pin53(OT2), pin54(OT3) go to high impedance.

There are pull-up register(ROW) and pull-down register(COL) inside IC3. When the keyboard is pressed, ROW input and COL input are connected, and the input voltage goes to half level, then the DTMF is output. When the DTMF encoder is controlled by IC107, one of IN0, IN1, IN2 and IN3 goes to "High", and one of OT0, OT1, OT2 and OT3 goes to "Low". The DTMF signal is output corresponding to the input data.

5. Tone Squelch Circuit

5.1 Decoder

VHF/UHF:

The second IF signal from pin11 of IC101 and IC102, is passed through VHF/UHF selector consisting of Q142 and Q111, and input to the tone squelch decoder pin24 of IC701. The VHF/UHF selector is controlled by BND from pin42 of IC107.

When the tone squelch decoder IC701 decodes the input tone signal frequency as the programmed frequency, pin13 goes to "Low". The signal is input to pin16(DET) of IC107, and the squelch goes off.

When the Tone squelch decoder IC701 does not decode the input tone signal frequency as the programmed frequency, pin13 goes to "High". The signal is input to pin16(DET) of IC107, and the squelch goes on.

5.2 Encoder

VHF:

The tone signal is output from pin16 of IC701, and amplified at Q701, then output to the TO(MOV) terminal.

UHF:

The tone signal is output from pin16 of IC701, and amplified at Q701, then output to the TO(MOU) terminal.

6. 1750Hz Tone Burst Circuit

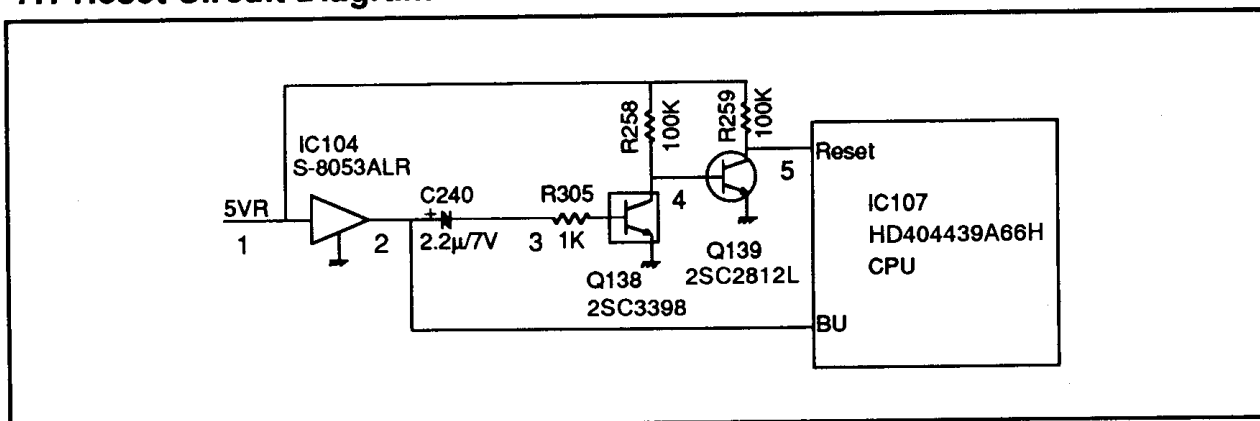
The 1750Hz Tone Burst signal is generated by IC107.

The signal is passed through the VR111, and supplied to MOV, MOU terminal.

※ Tone Burst Circuit is built in DJ-582E only.

7. Reset Circuit

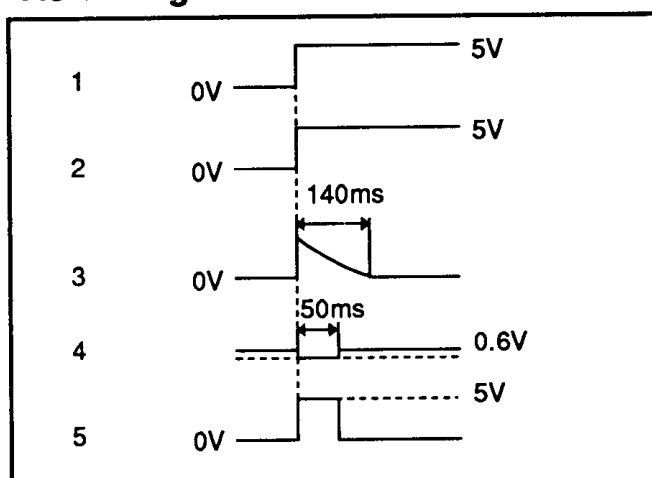
7.1 Reset Circuit Diagram



7.2 Reset Circuit

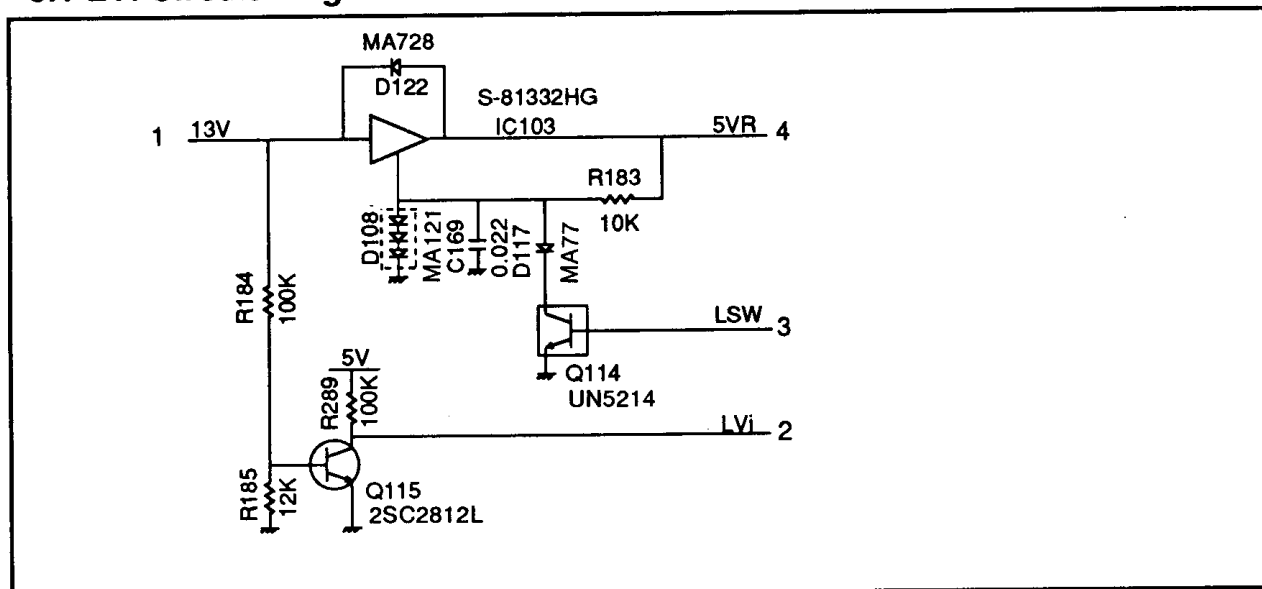
A pulse of duration about 50ms is output from reset circuits when power is turned on. Microprocessor IC107 is then reset. Voltage detector circuit IC104 detects a decrease in the 5VR line when power is turned off. BU is changed from "High" to "Low", the microprocessor IC107 enters backup state.

7.3 Timing Chart



8. LVI Circuit

8.1 LVI Circuit Diagram



8.2 LVI circuit

The 5VR is obtained by the stabilized power supply circuit IC103.

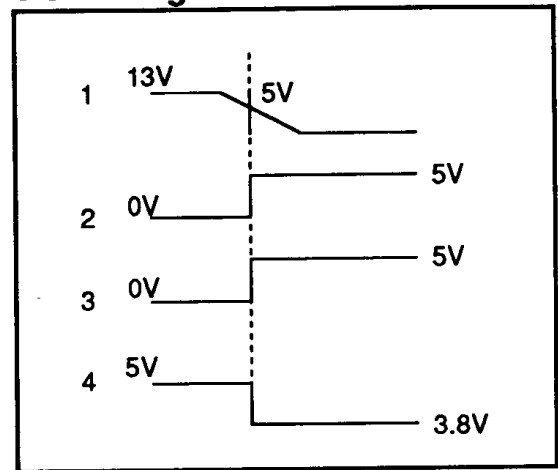
Voltage detector circuit Q115 detects a decrease in the 13V line when LVi output is changed from "Low" to "High".

Then LSW output in the microprocessor IC107 is changed from "High" to "Low".

LVi switch Q114 is turned on.

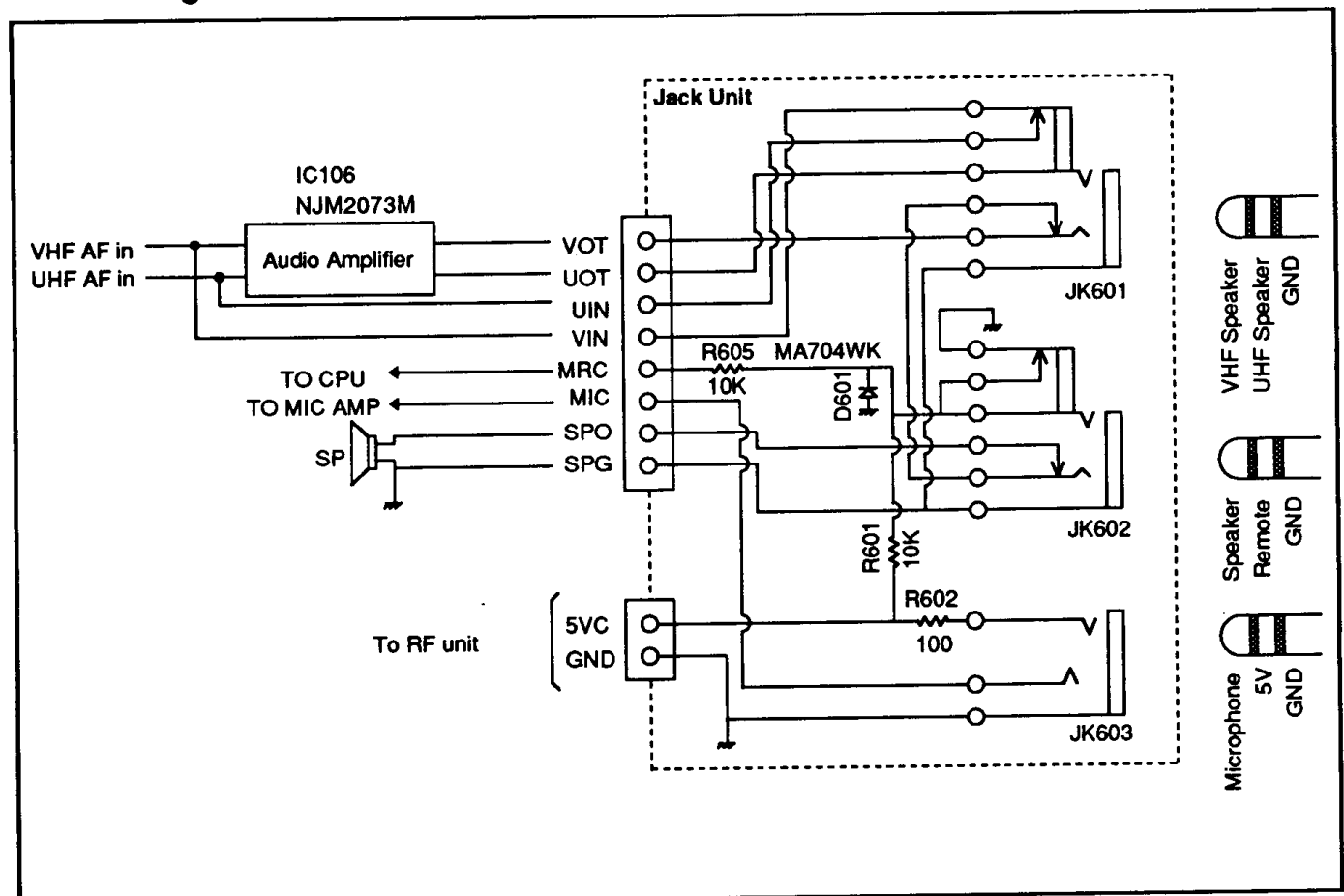
And then 5VR voltage is changed 5V to 3.8V.

8.3 Timing Chart



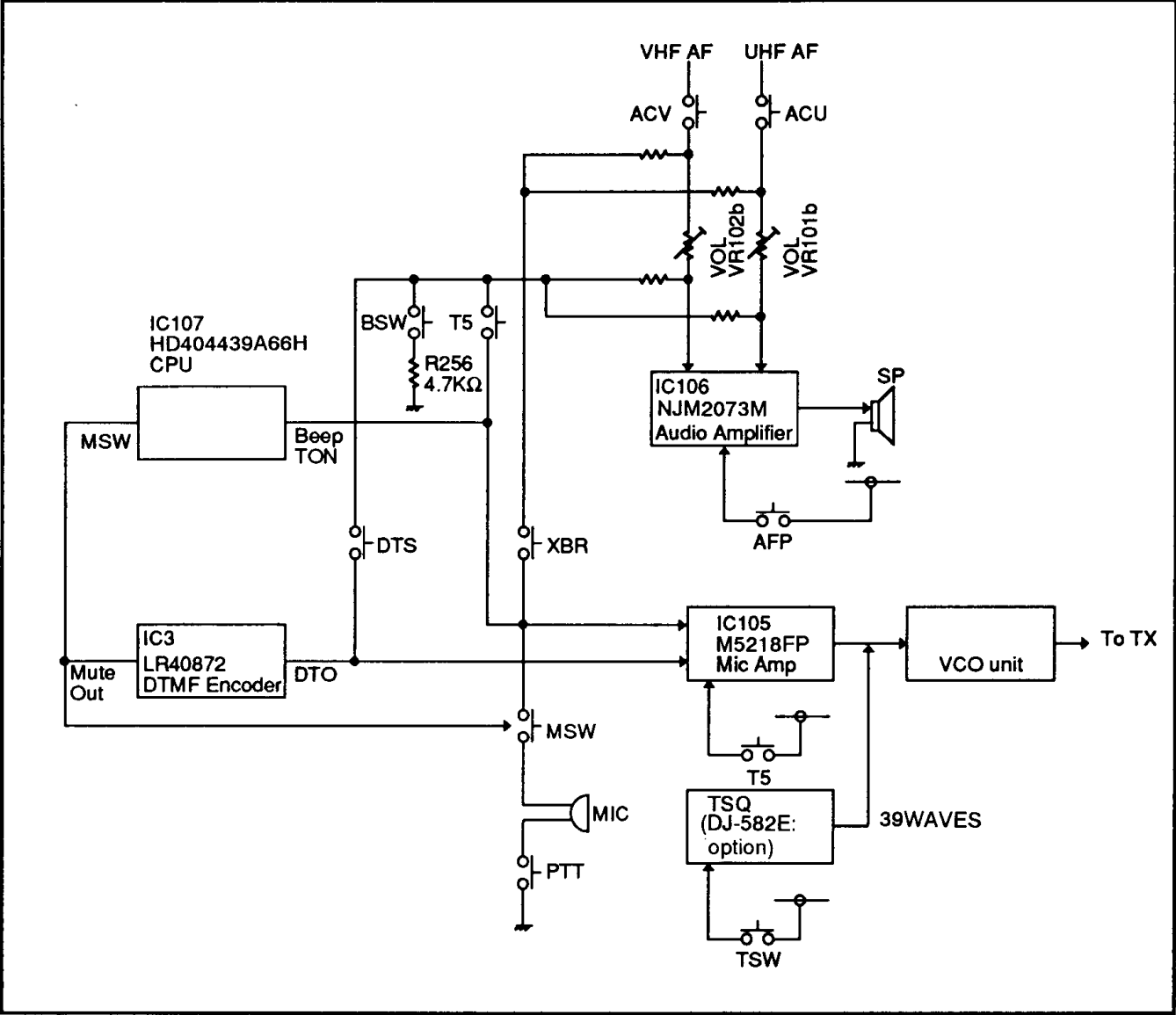
9. Jack Circuit

Circuit Diagram



10. Signal Sequence Diagram

10.1 Block Diagram



10.2 Function Table

	BEEP	88.5Hz	DTMF	1750Hz
BSW	OFF: loud ON : samll	OFF	—	—
XBR	OFF	—	OFF	OFF
DTS	—	—	ON : Trasmitting	OFF
AFP	ON	Depends on Sub SQL	ON	Depends on Sub SQL
T5	OFF	ON	ON	ON

11. Terminal Function of Microprocessor

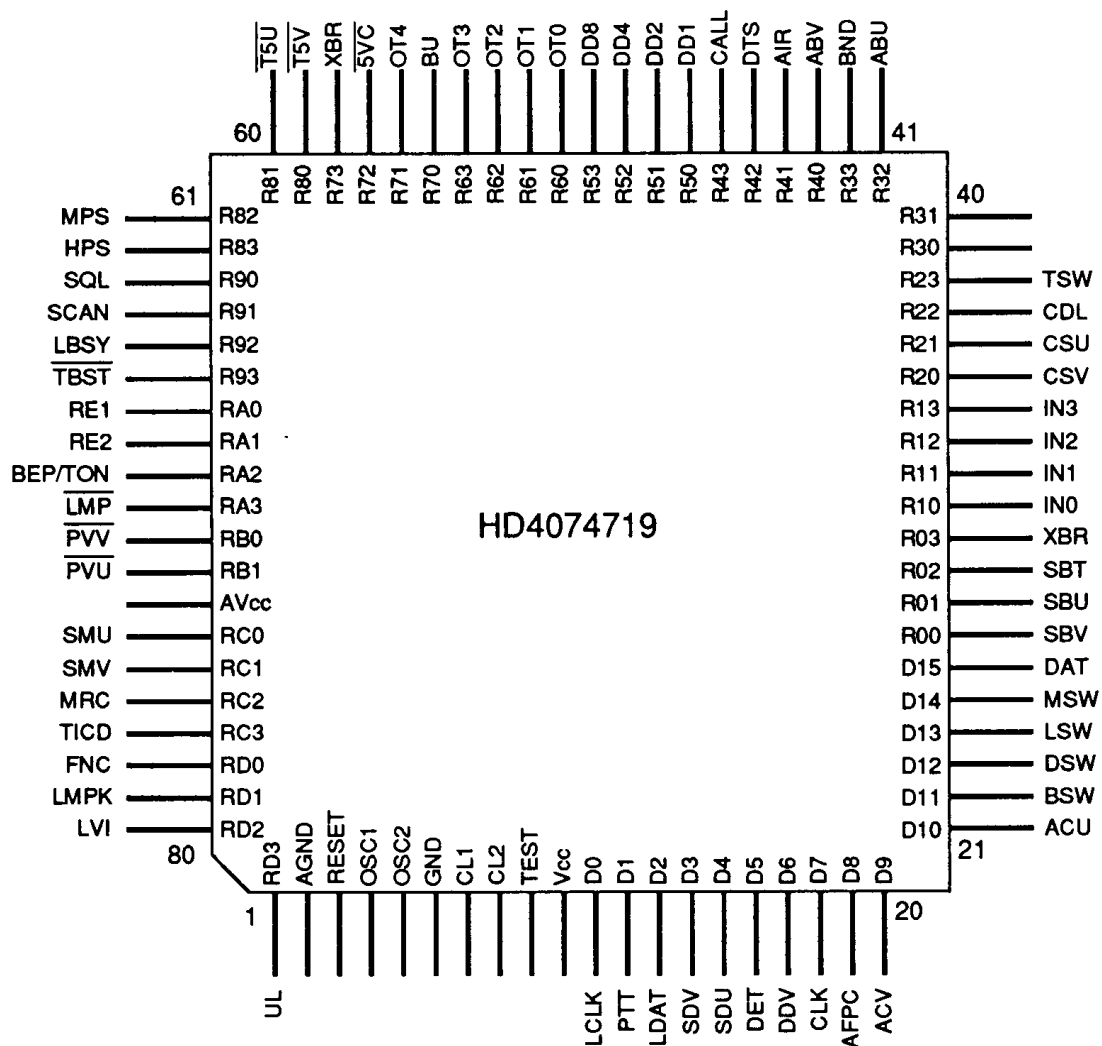
11.1 Function Table

Name	I/O	Description	Pin No.	Pin name	H	L
UL	I	Unlock detection signal input	1	RD3/AN7	unlocked	locked
			2	AGND		
	I		3	Reset		
			7	CL1		
			8	CL2		
			9	$\overline{\text{TEST}}$		
LCLK	O	LCD driver clock output	11	D0		usually set to Low
PTT	I	PTT switch input	12	D1	ON	OFF
LDAT	O	LCD driver data output	13	D2		usually set to Low
SDV	I	Signal detection input (VHF)	14	D3	detected	no signal
SDU	I	Signal detection input (UHF)	15	D4	detected	no signal
DET	I	Tone detection input	16	D5	undetected	detected
DDV	I	DTMF data valid input	17	D6	valid	invalid
CLK	O	PLL & CTCSS serial clock	18	D7		usually set to Low
AFPC	O	AF power amplifier on/off switch	19	D8	ON	OFF
ACV	O	Voice on/off switch (VHF)	20	D9	ON	OFF
ACU	O	Voice on/off switch (UHF)	21	D10	ON	OFF
BSW	O	Beep volume selector	22	D11	small	loud
DSW	O	DTMF IC power supply on/off switch	23	D12	ON	OFF
LSW	O	Battery low mode switch	24	D13	battery low	normal
MSW	O	Microphone on/off switch	25	D14	OFF	ON
DAT	O	PLL & CTCSS serial data output	26	D15		usually set to Low
SBV	O	PLL IC strobe (VHF)	27	R00		
SBU	O	PLL IC strobe (UHF)	28	R01		
SBT	O	CTCSS IC strobe	29	R02		
	I		30	R03		
IN0	I	Key matrix input 0	31	R10		
IN1	I	Key matrix input 1	32	R11		
IN2	I	Key matrix input 2	33	R12		
IN3	I	Key matrix input 3	34	R13		
CSV	O	LCD driver chip selection output (VHF)	35	R20		
CSU	O	LCD driver chip selection output (UHF)	36	R21		

Name	I/O	Description	Pin No.	Pin name	H	L
CDL	O	LCD driver command data	37	R22	command	data
TSW	O	Tone IC power supply on/off switch	38	R23	ON	OFF
ABU	O	UHF band on/off switch	41	R32	ON	OFF
BND	O	TONE/DTMF band selector	42	R33	VHF	UHF
ABV	O	UHF band on/off switch	43	R40	ON	OFF
AIR	O	Air band on/off switch	44	R41	air band	except air band
DTS	O	Mute signal during DTMF transmission	45	R42	normal	during DTMF transmission
CALL	I	Call key input	46	R43	OFF	ON
DD1	I	DTMF decord data input 1	47	R50/Vdisp	1	∅
DD2	I	DTMF decord data input 2	48	R51	1	∅
DD4	I	DTMF decord data input 4	49	R52	1	∅
DD8	I	DTMF decord data input 8	50	R53	1	∅
OT0	O	Key matrix output 0	51	R60/COMP	RX:H TX:Hi Z	
OT1	O	Key matrix output 1	52	R61/Vref		
OT2	O	Key matrix output 2	53	R62/TOE1		
OT3	O	Key matrix output 3	54	R63/TOE2		
BU	I	Backup mode input VCC < 3.2V: L	55	R70/INT0	normal	backup mode
OT4	O	Key matrix output & band plan	56	R71/INT1	RX:H TX:Hi Z	
5VC	O	+5V on/off	57	R72/INT2	Hi Z OFF	ON
XBR	O	Cross band repeater on/off switch	58	R73/INT3	OFF	ON
T5V	O	TX5V on/off (VHF)	59	R80/INT4	Hi Z OFF	ON
T5U	O	TX5V on/off (UHF)	60	R81/INT5	Hi Z OFF	ON
MPS	O	Middle power switch	61	R82/S01	high, low	middle power
HPS	O	High power switch	62	R83/S11	low, middle	high power
SQL	I	Squelch key input	63	R90/SCK1	OFF	ON
SCAN	I	Scan key input	64	R91/SCK2	OFF	ON
LBSY	I	LCD busy input	65	R92/S12	inhibited	permitted
TBST	I	Tone burst key input(DJ582E) Low PTT key input(DJ582T/TA/TC)	66	R93/S02	OFF	ON
RE1	I	Rotary encoder input	67	RA0/ICT0		

Name	I/O	Description	Pin No.	Pin name	H	L
RE2	I	Rotary encoder input	68	RA1/ICT1		
BEP TON	O	Beep output Tone output (88.5 Hz only)	69	RA2/T0G		
$\overline{\text{LMP}}$	O	Lamp on/off switch	70	RA3/BUZZ	Hi Z OFF	ON
$\overline{\text{PVV}}$	O	PLL power supply on/off (VHF)	71	RB0/T0C	Hi Z OFF	ON
$\overline{\text{PVU}}$	O	PLL power supply on/off (UHF)	72	RB1/T0D	Hi Z OFF	ON
SMU	I	S-meter (UHF)	74	RC0/AN0		
SMV	I	S-meter (VHF)	75	RC1/AN1		
MRC	I	Microphone remote control	76	RC2/AN2		
TICD	I	Tone squelch unit	77	RC3/AN3	nothing	equipped
FNC	I	Function key input	78	RD0/AN4	OFF	ON
LMPK	I	Lamp key input	79	RD1/AN5	OFF	ON
LVI	I	Low voltage input	80	RD2/AN6	Low voltage	normal

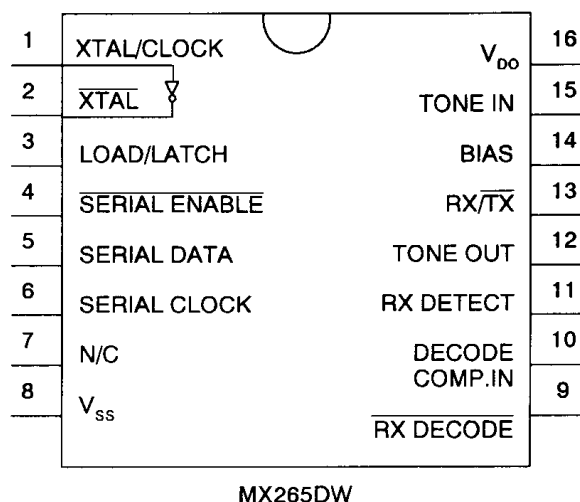
11.2 Terminal Connection of Microprocessor



Semiconductor Data

1) MX265DW (XA0241)

CTCSS Encoder/Decoder



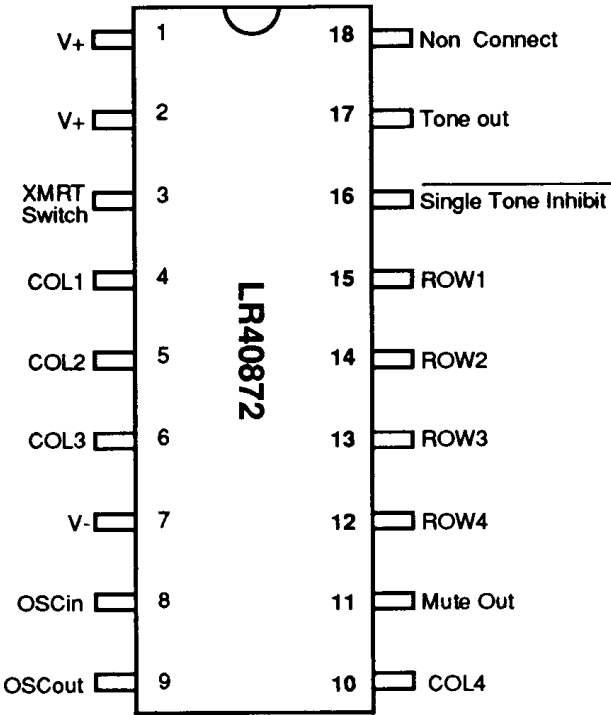
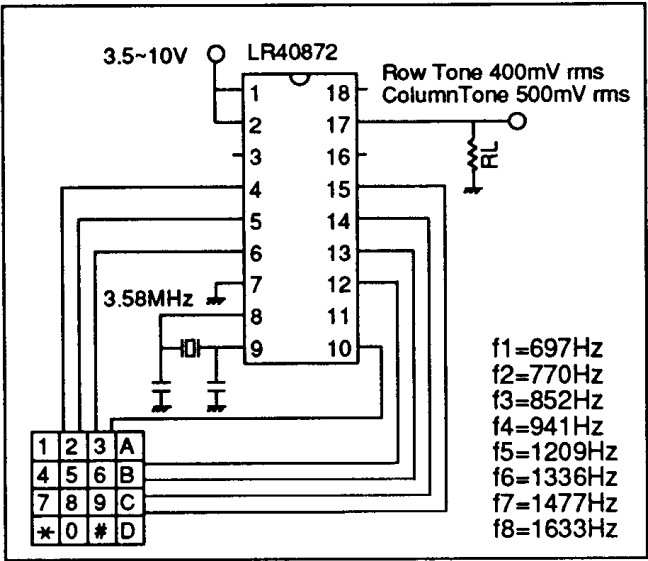
MX265DW

PIN FUNCTION TABLE

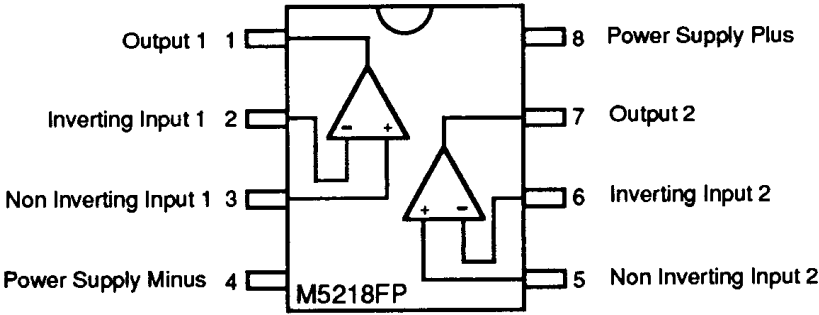
Pin	Function
1	Xtal/Clock: Input to the on-chip inverter used with a 1 MHz Xtal or external clock source.
2	Xtal: Output of the on-chip inverter (clock output).
3	Load/Latch: Controls 8 on-chip latches and is used to latch RX/TX, PTL, and D0-D5 (see Table 2 for D0-D5 programming information). This pin is internally pulled to V _{DD} . A logic "1" applied to this input puts the 8 latches in "transparent" mode. A logic "0" applied to this input puts the 8 latches in the "latched" mode. Data is loaded and latched by a 0-1-0 strobe pulse on this pin.
4	Serial Enable: A logic "0" applied to this input will enable serial programming. This pin is internally pulled to V _{DD} .
5	Serial Data Input: This is the serial data input. Data is loaded in the following order: D5, D4, D3, D2, D1, D0, RX/TX and PTL. This pin is internally pulled to V _{DD} .
6	Serial Clock Input: Data is clocked on the positive going edge. This pin is internally pulled to V _{DD} .
7	Internal Connection. Do Not Use.
8	V_{SS}: Negative supply.
9	RX Tone Decode Out: This is the gated output of the decode comparator. This output is used to gate the RX Audio path. A logic "0" on this pin indicates a successful decode and that the Decode Comparator Input pin is more positive than the Decode Comparator Ref. input.
10	Decode Comparator Input: This is the inverting input of the decode comparator. This pin is normally connected to the integrated output of the RX Tone Detect line.
11	RX Tone Detect: In RX mode this output will go to logic "1" during a successful decode. It must be externally integrated to control response and deresponse times.
12	TX Tone Out: The CTCSS sinewave output appears on this pin under control of the RX/TX pin. This pin, when not transmitting a tone, may be biased to V _{DD} -0.7V or O/C.
13	RX/TX: This input selects RX or TX mode. This function may be selected by this pin, or it may be serially loaded (see Serial Data Input description above). This pin is internally pulled to V _{DD} via a 1MΩ resistor.
14	Bias: This pin is the output of an internally generated V _{DD} /2 bias level and would normally be externally decoupled to V _{SS} via capacitor C6.
15	Tone Input: This is the input to the CTCSS tone detector. It is internally biased to V _{DD} /2.
16	V_{DD}: Positive Supply.

2) LR40872 (XA0042)
Tone Dialer

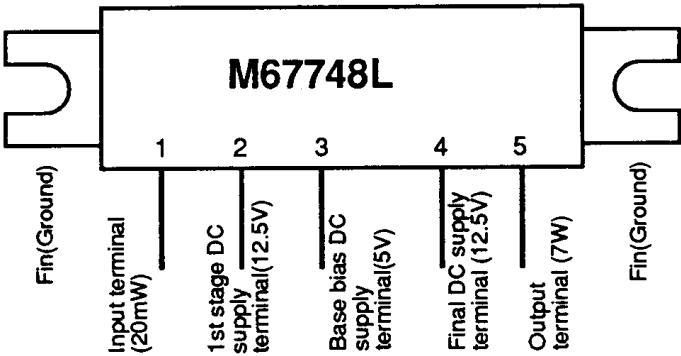
Test Circuit



3) M5218FP (XA0006)
Dual Low Noise
Operational Amplifiers

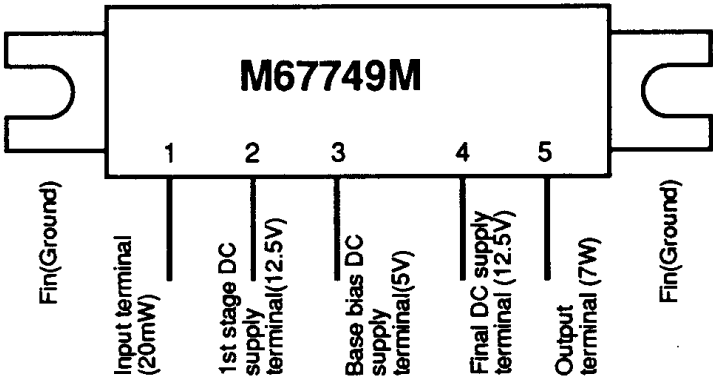


4) M67748L (XA0148)
135 ~ 150MHz 7W
RF Power Module



5) **M67749M (XA0143)**

430 ~ 450MHz 7W
RF Power Module

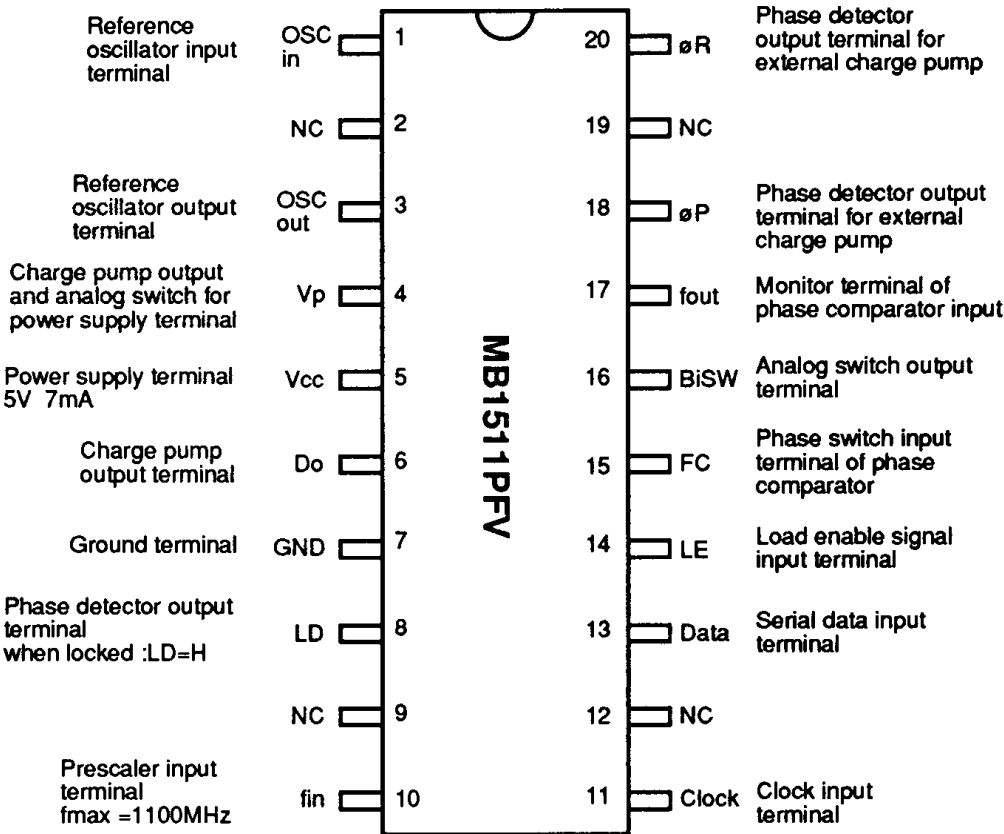


6) **MB1511PFV (XA0173)**

Frequency Synthesizer

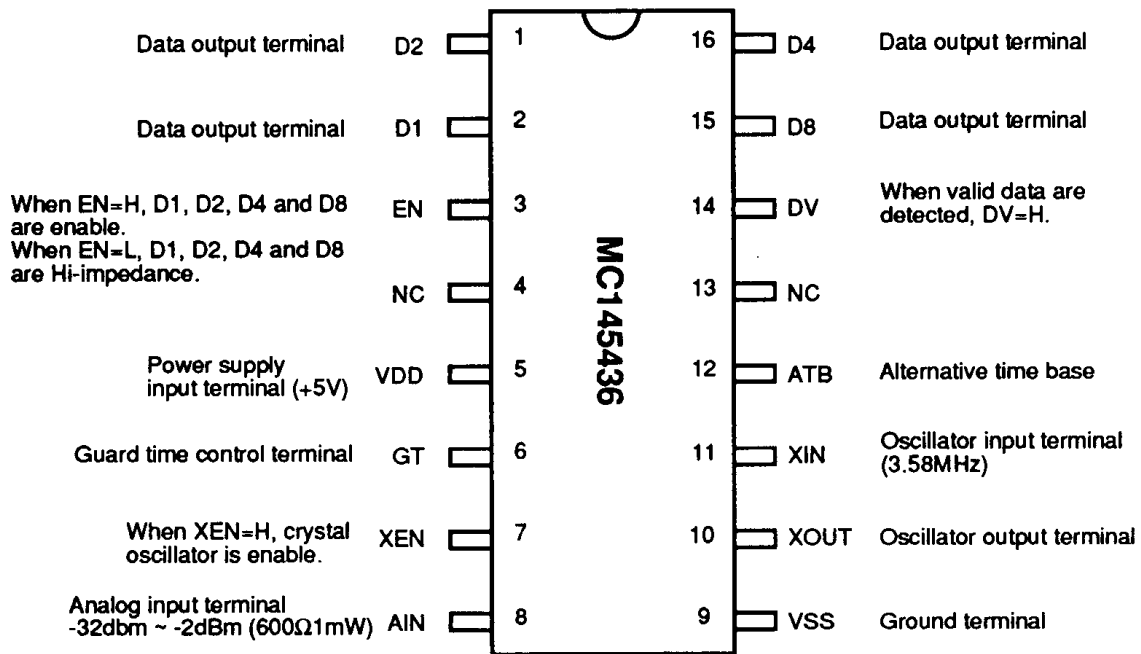
Function Table

FC input	P.D.input	Do output
High or Low	$fr=fp$	Hi Z
High	$fr>fp$	High
High	$fr<fp$	Low
Low	$fr>fp$	Low
Low	$fr<fp$	High

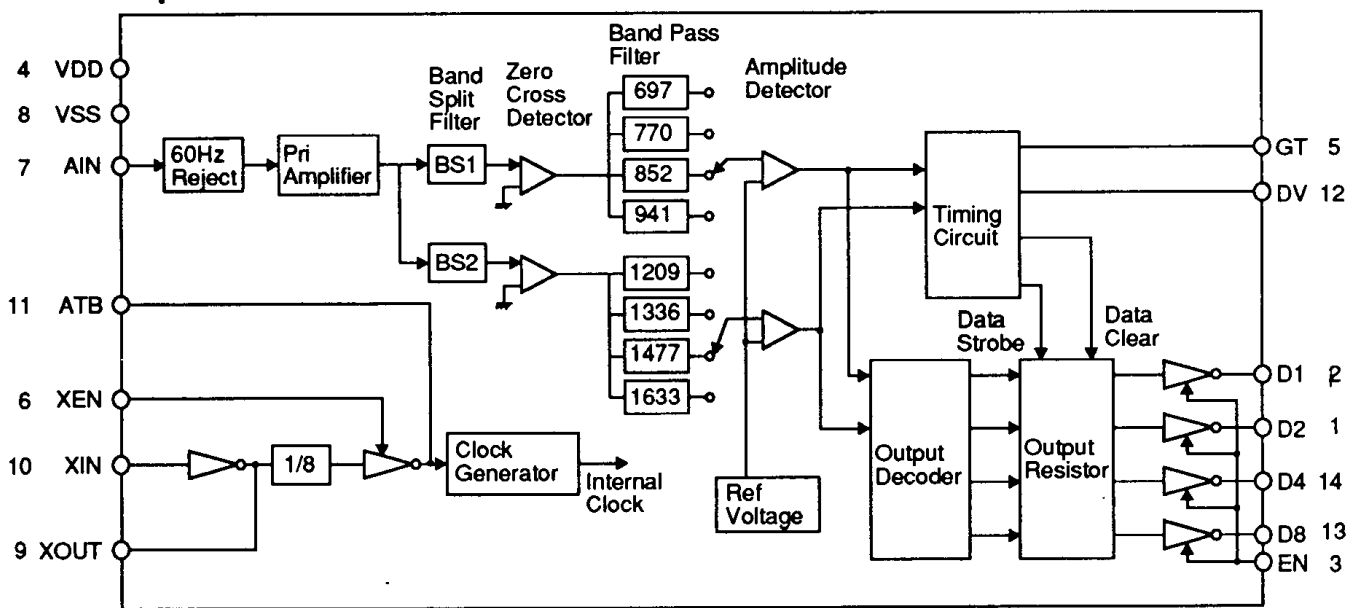


7) MC145436DWR (XA0105)

DTMF Receiver

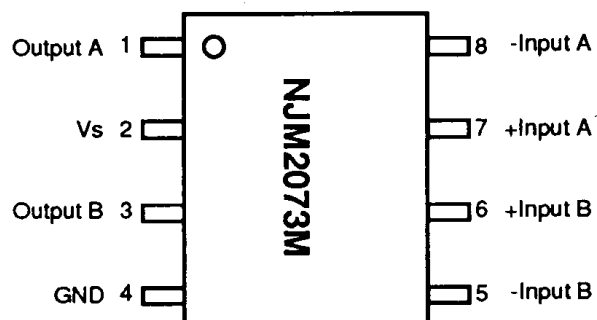
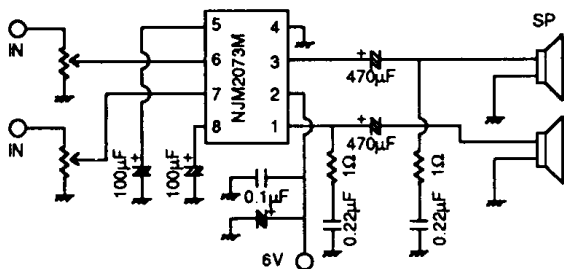
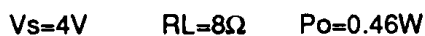


Equivalent Circuit



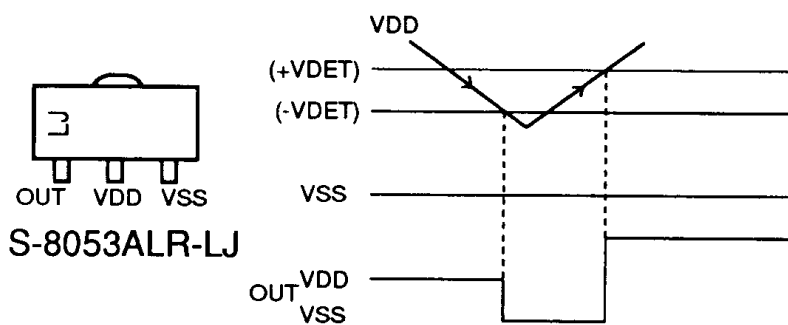
8) NJM2073M (XA0111)

Dual Power Amplifiers

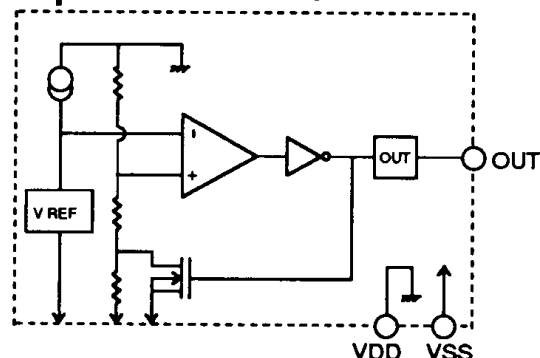


9) S-8053ALR (XA0172)

C-MOS Voltage Detector



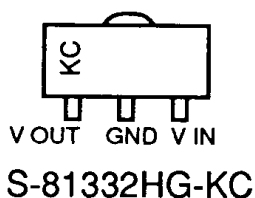
Equivalent Circuit



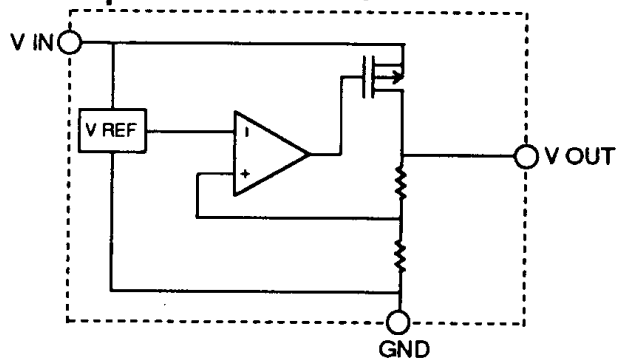
10) S-81332HG (XA0182)

Voltage Regulator

$V_{out}=3.200V$
 $I_{out}=30mA$
 $V_{in}=15V$
 $I_{ss}=16\mu A$



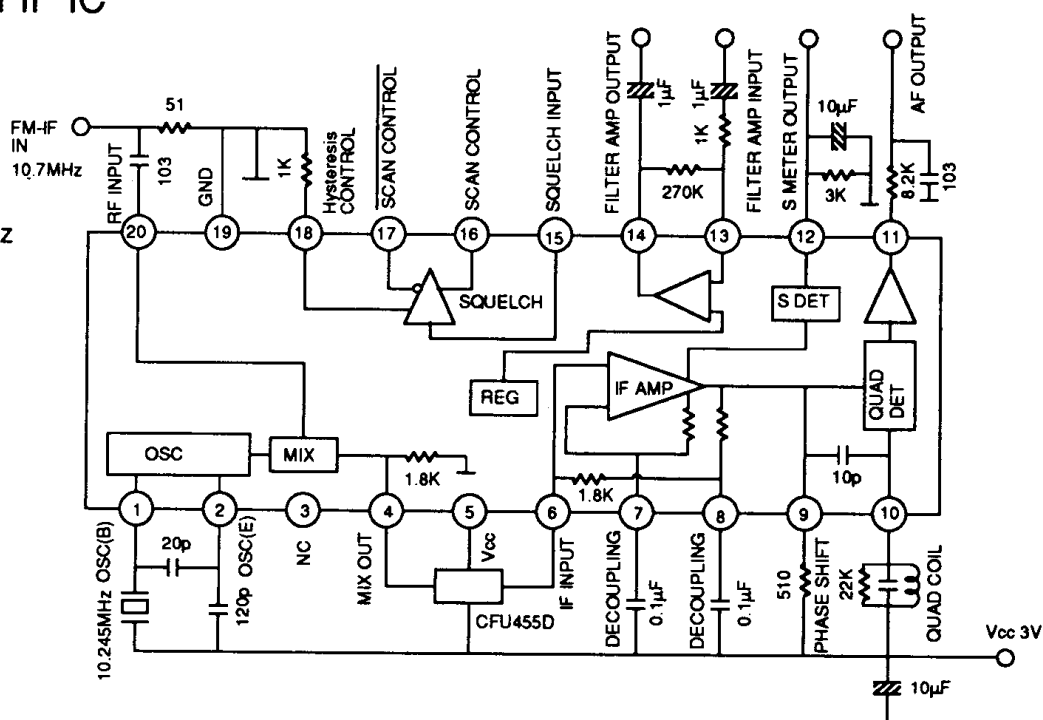
Equivalent Circuit



11) TK10487MTR (XA0144)

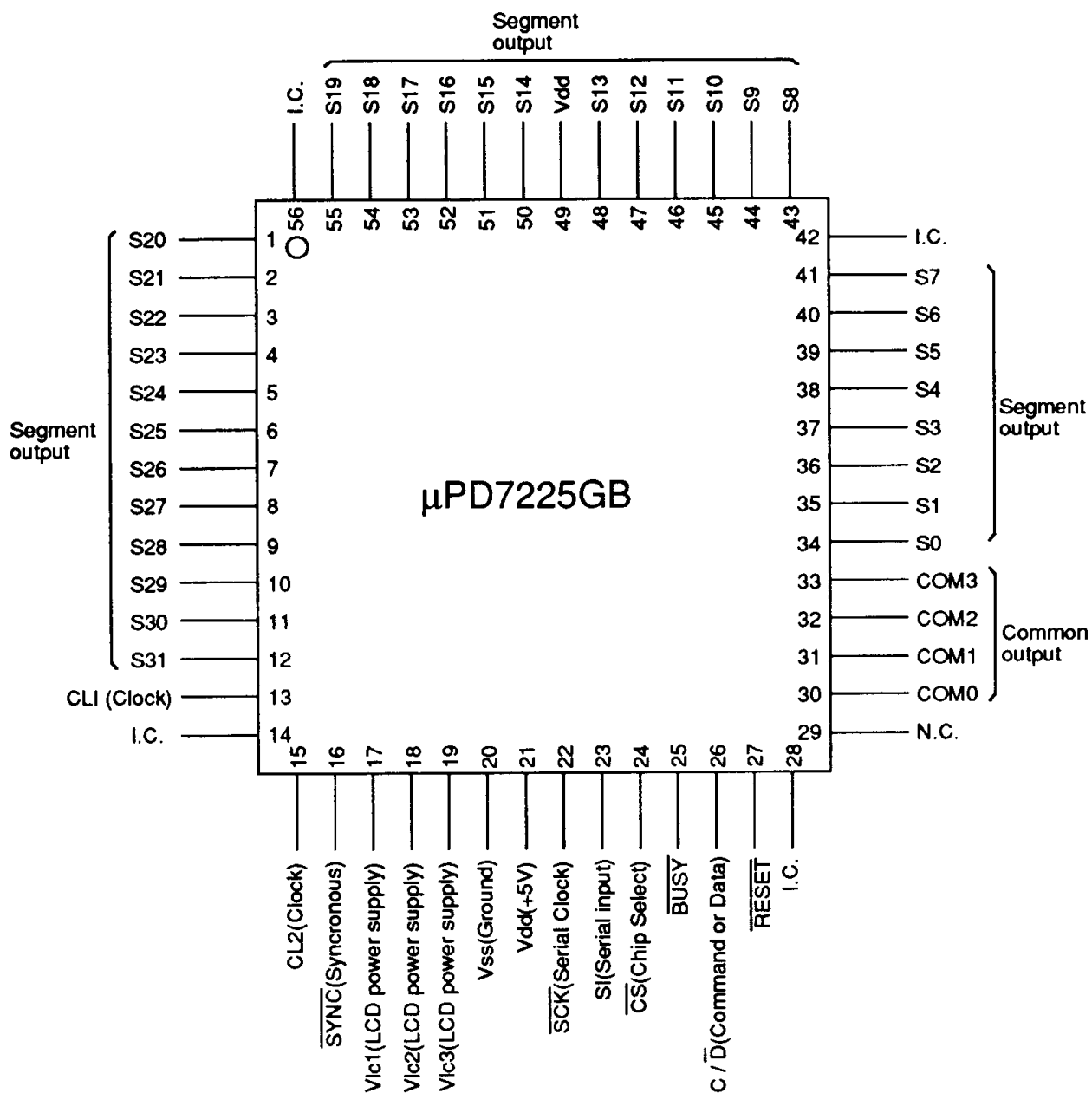
Narrow Band FM IF IC

$V_{cc}=3V$
 $F=10.7MHz$
 $I_{cc}=5mA$
 $Limit=2\mu V$ $-3dB$
 $V_o=180mV$ $Dev=3KHz$
 $THD=1.0\%$



12) μ PD7225GB (XA0141)

LCD Driver

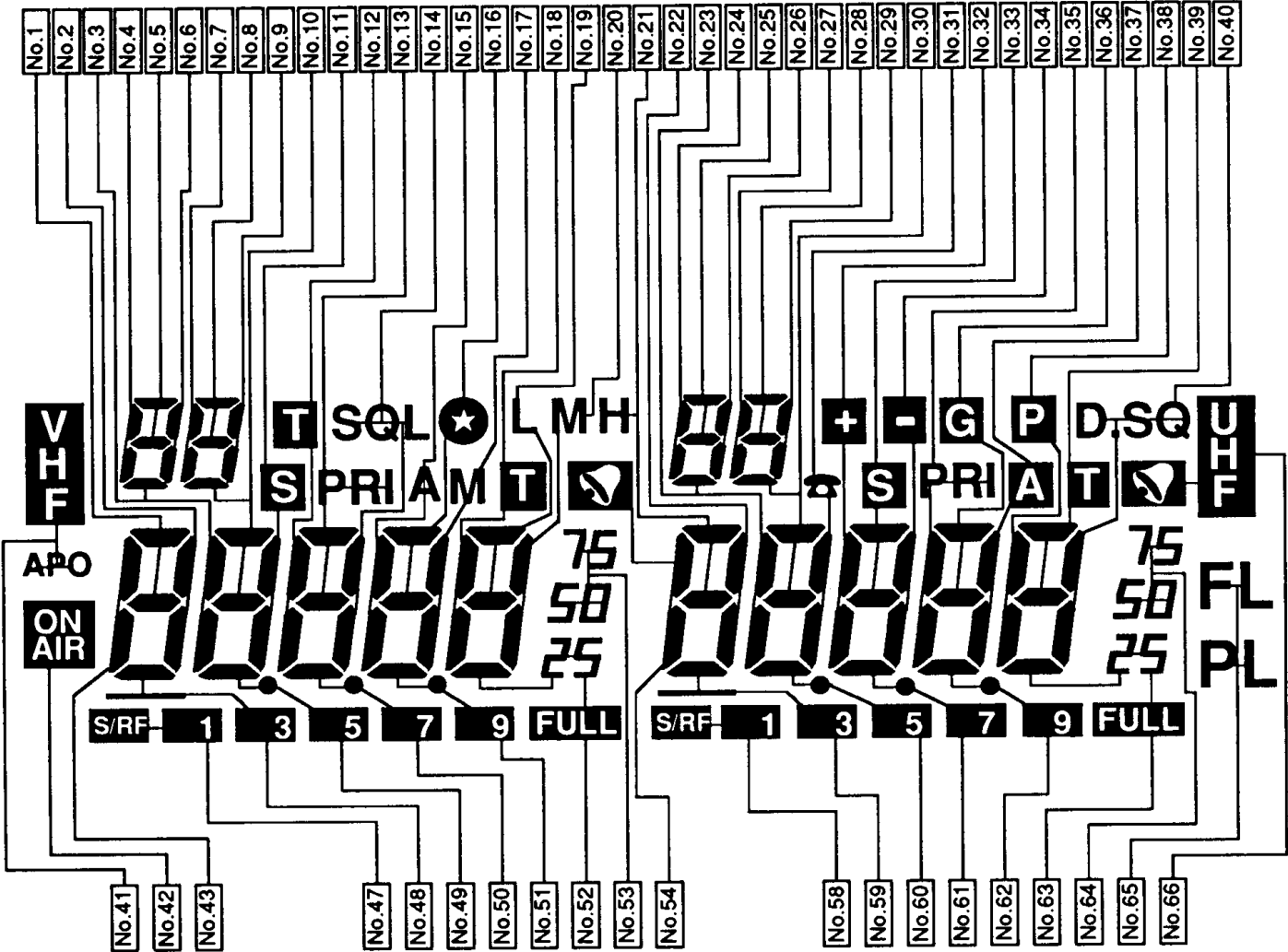


13) Transistor, Diode, and LED Outline Drawings

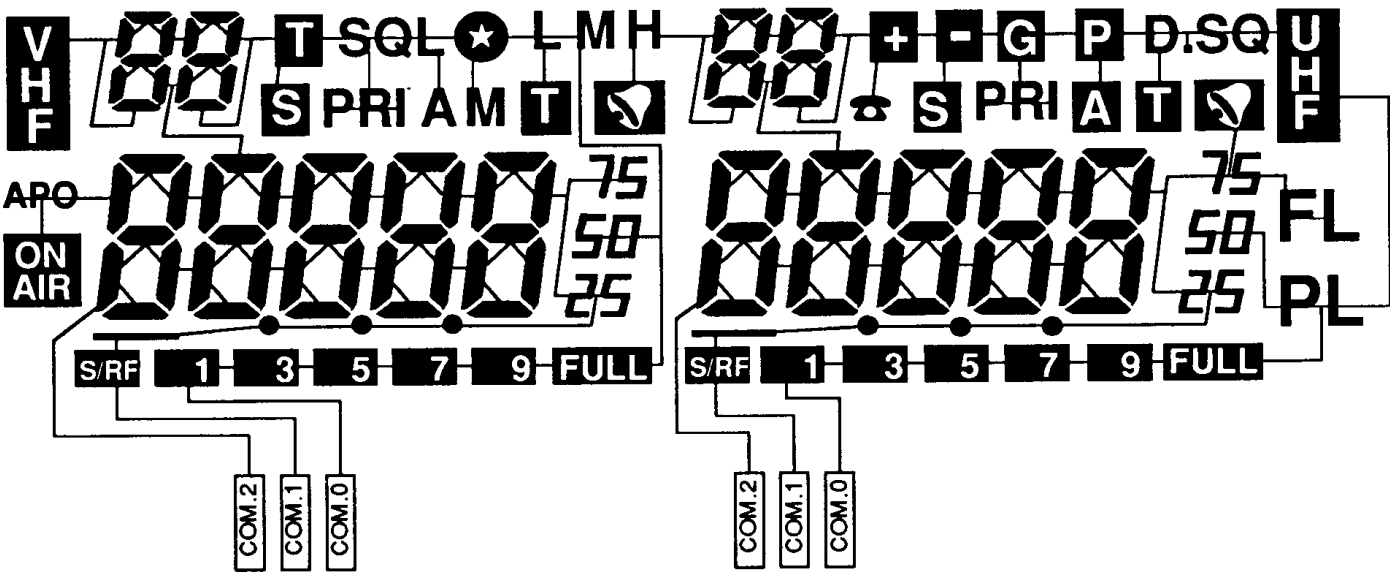
2SA1179 XT0104 	2SA1213 XT0088 	2SA1576 XT0094 	2SC2714 XT0081 	2SC2812 XT0102 	2SC3356 XT0030 	2SC3429 XT0035 	2SC4081 XT0095 	2SC4099 XT0096
2SC4211 XT0103 	2SC4393 XT0097 	2SJ144 XE0019 	2SK302 XE0015 	2SK506 XE0010 	2SA1344 XU0044 	DTA143XU XU0032 	2SC3398 XU0045 	2SC4047 XU0043
DTC114YU XT0029 	UN5214 XU0052 	02CZ4.3Y XD0113 	IN5551 XD0110 	1SV229 XD0131 	1SV215 XD0132 	1SV229 XD0133 	DAN0202U XD0230 	DAP202U XD0231
DE5SC4N XD0248 	MA121 XD0245 	MA142WK XD0243 	MA147 XD0242 	MA151WA XD0244 	MA704WA XD0127 	MA704WK XD0120 	MA713 XD0128 	MA716 XD0118
MA728 XD0234 	MA741WA XD0251 	MA77 XD0241 	MA8027-L XD0232 	MA860 XD0240 	SML-110MT XL0037 	SML-310MT XL0036 	SML-310UT XL0035 	
FMA7 XU0027 	FMG2 XU0042 	XN1213 XU0054 		XN1401 XU0034 				
XN1501 XU0027 	XN1A312 XU0041 	TC4S69F XA0137 						

14) LCD Connection

SEGMENT

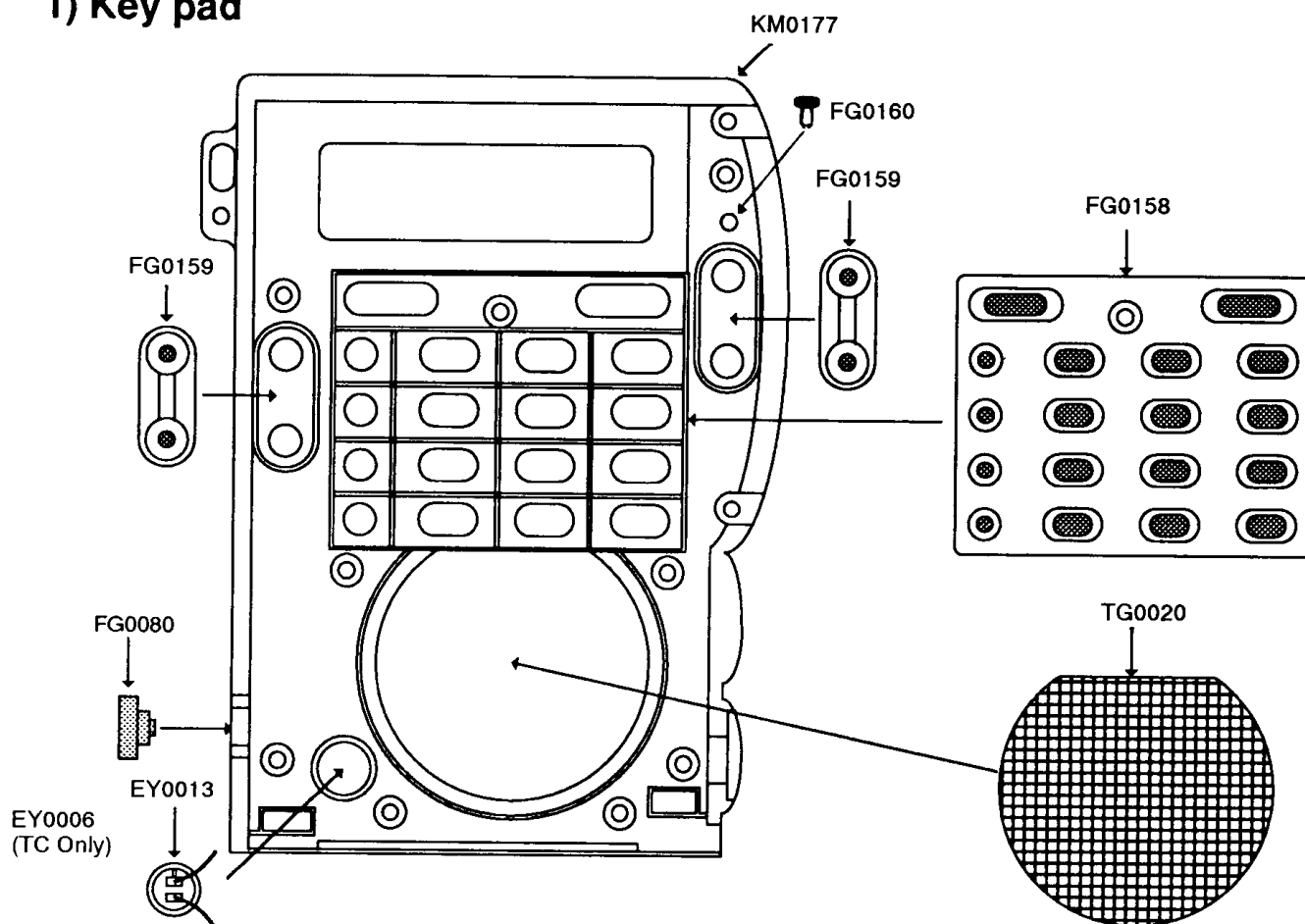


COMMON

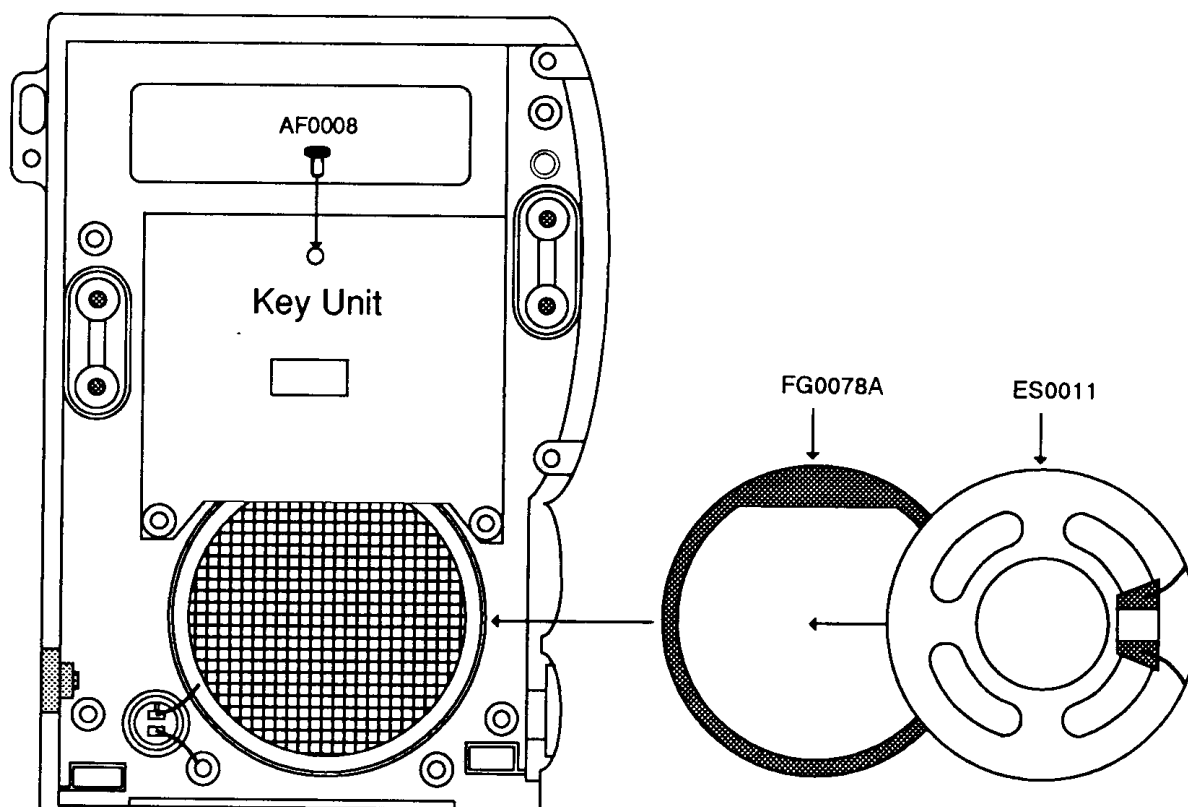


Exploded View

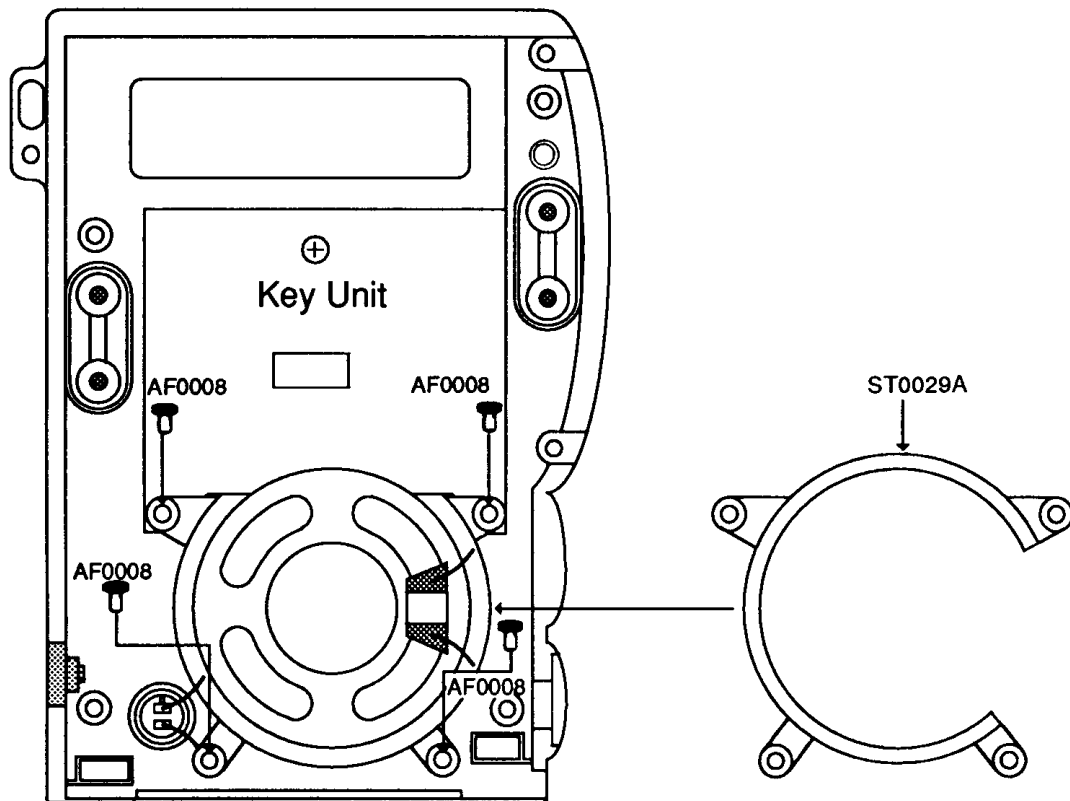
1) Key pad



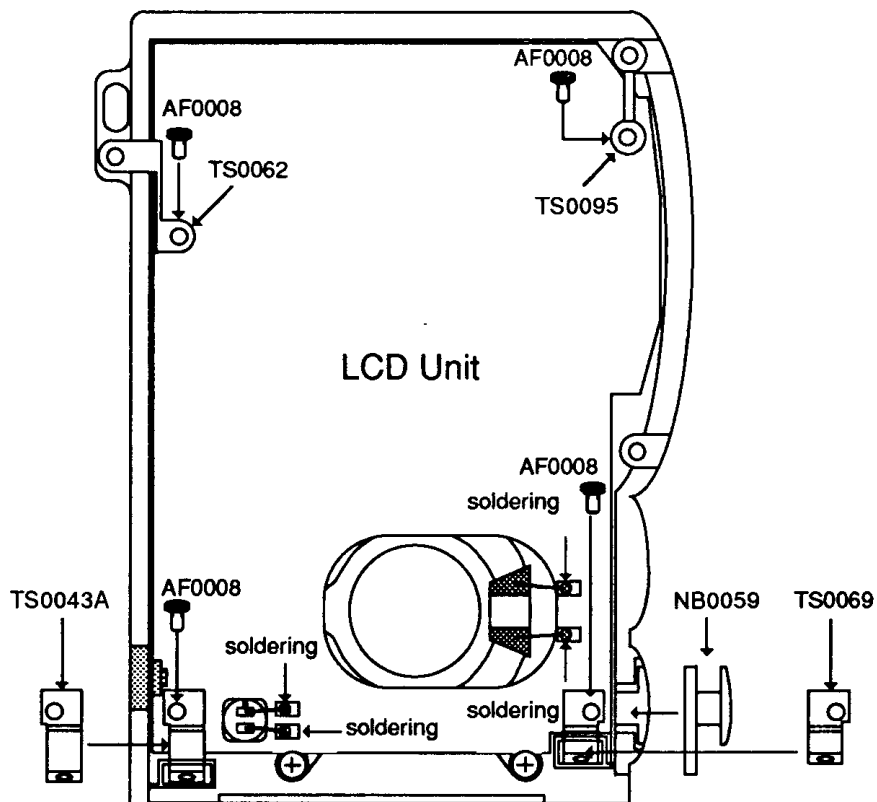
2) Speaker



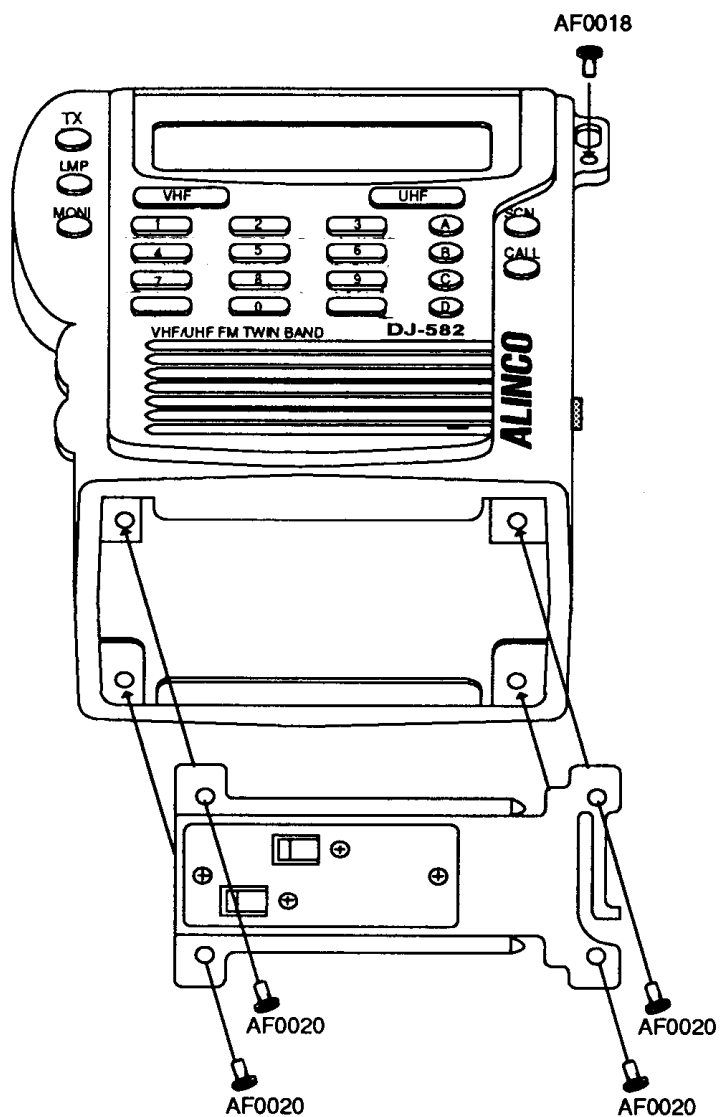
3) Key Unit



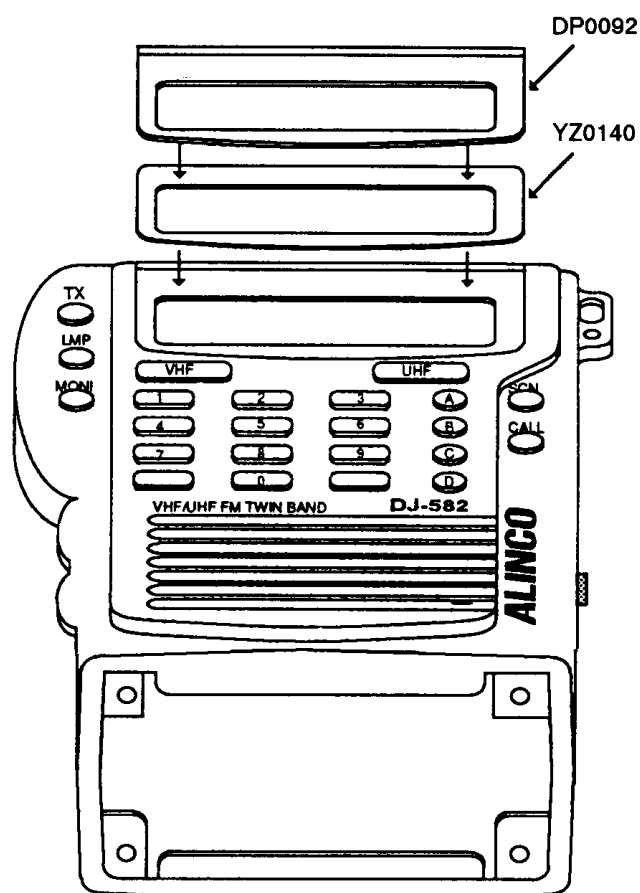
4) LCD Unit



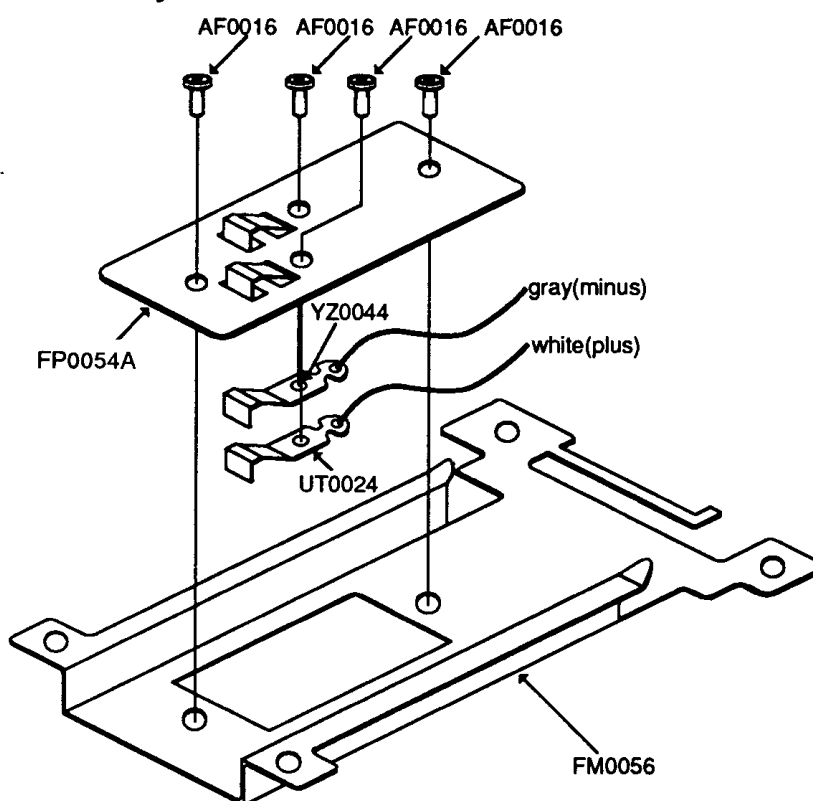
5) Battery Terminal



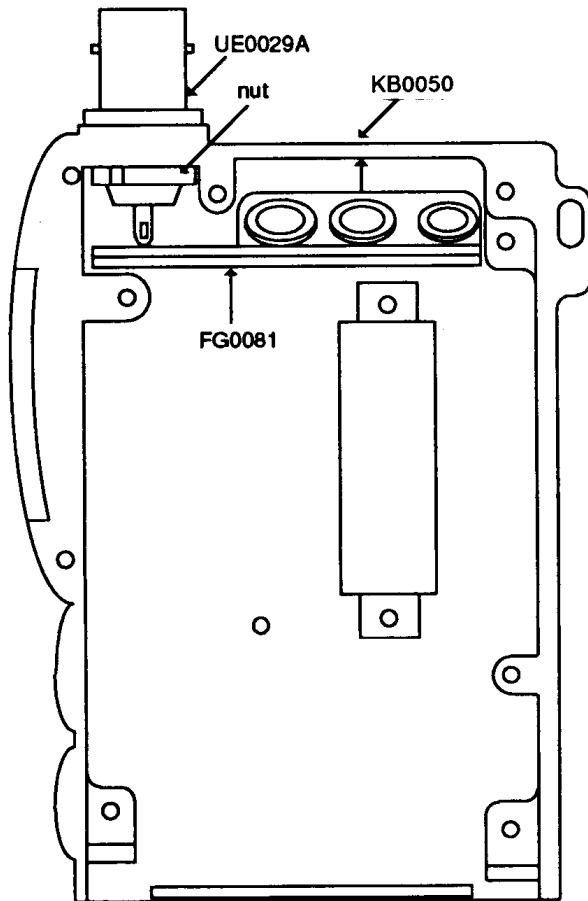
6) LCD Panel



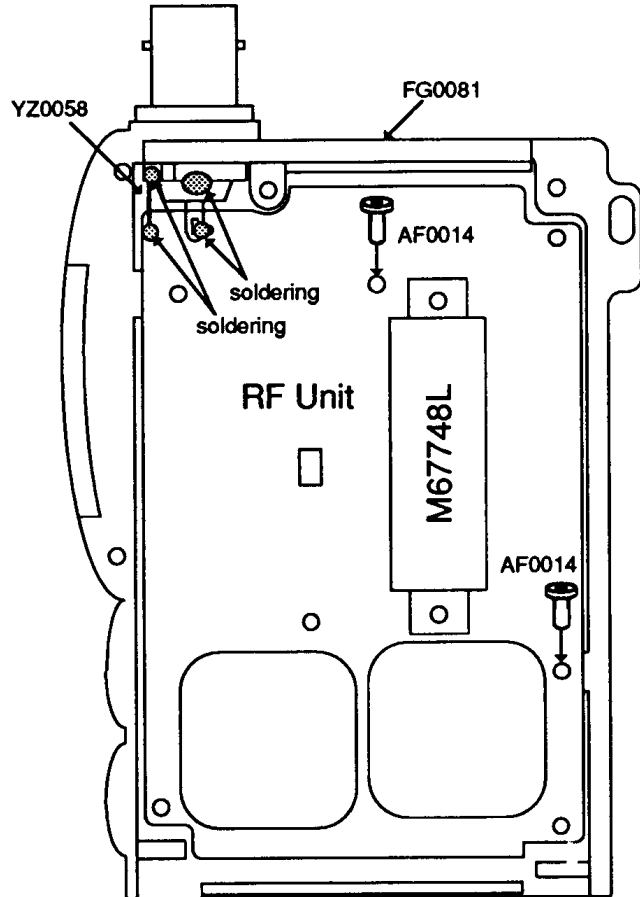
7) Battery Terminal Assembly



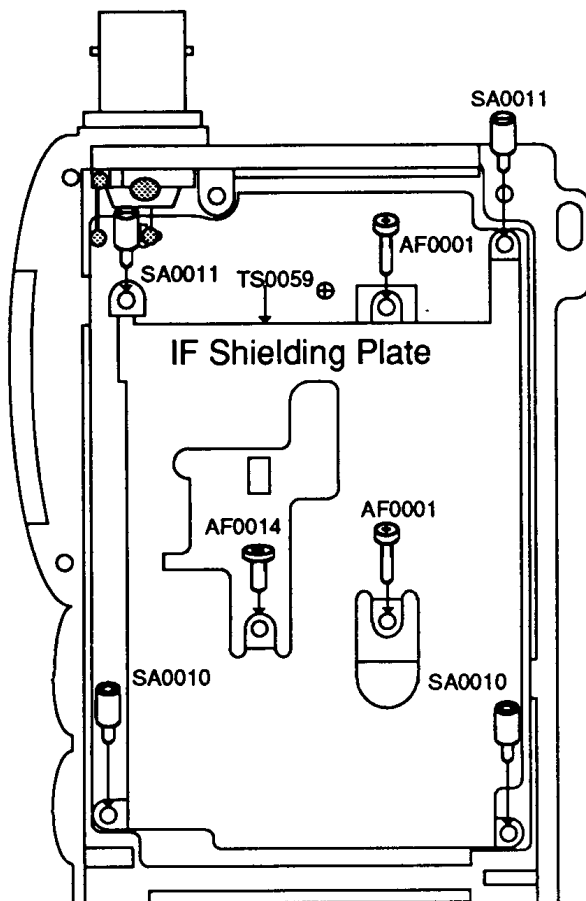
8) BNC Receptacle



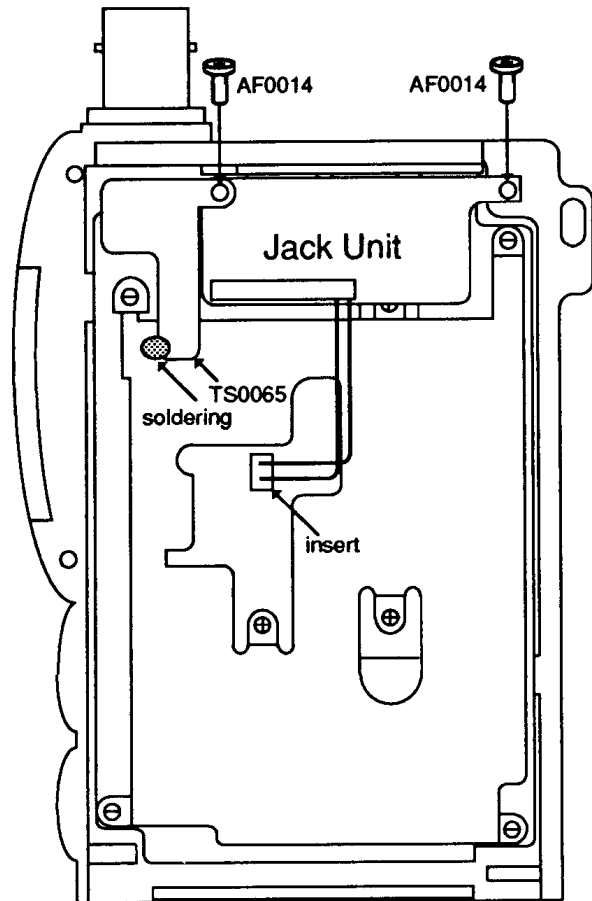
9) RF Unit



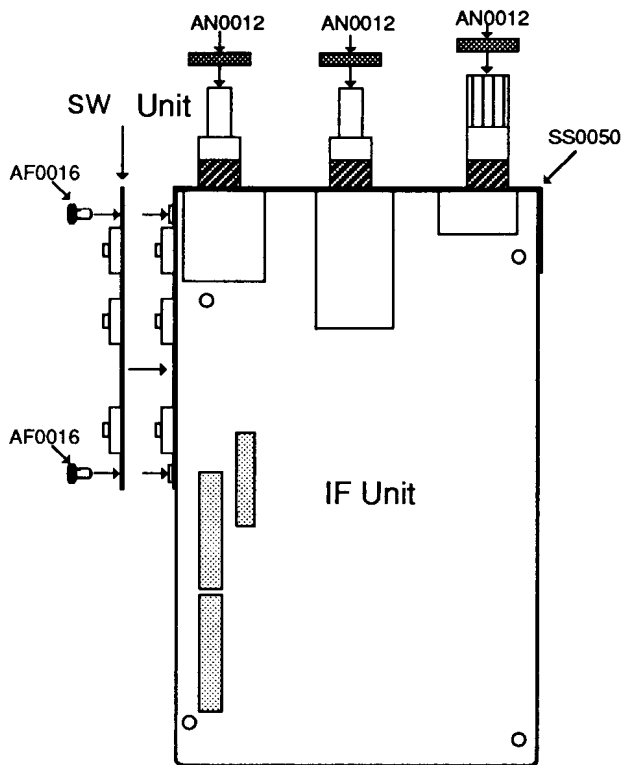
10) IF Shielding Plate



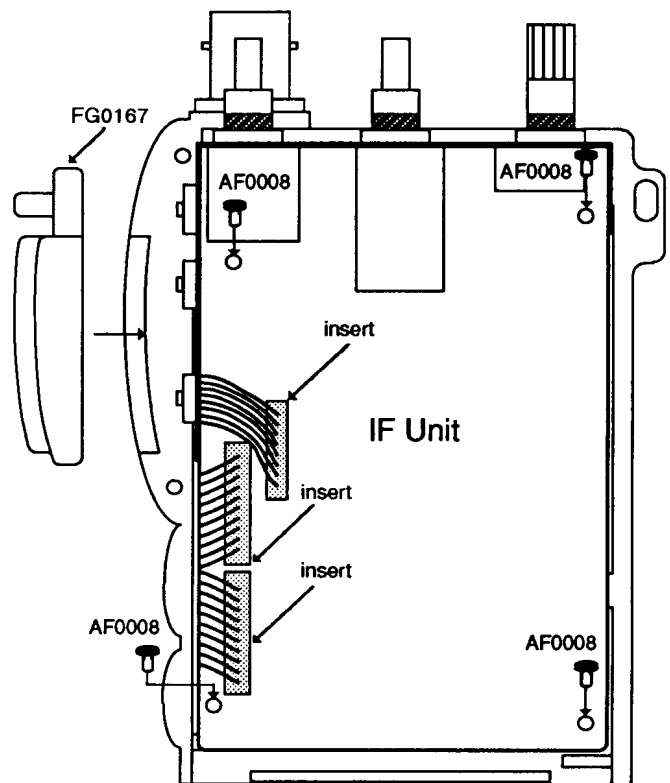
11) Jack Unit



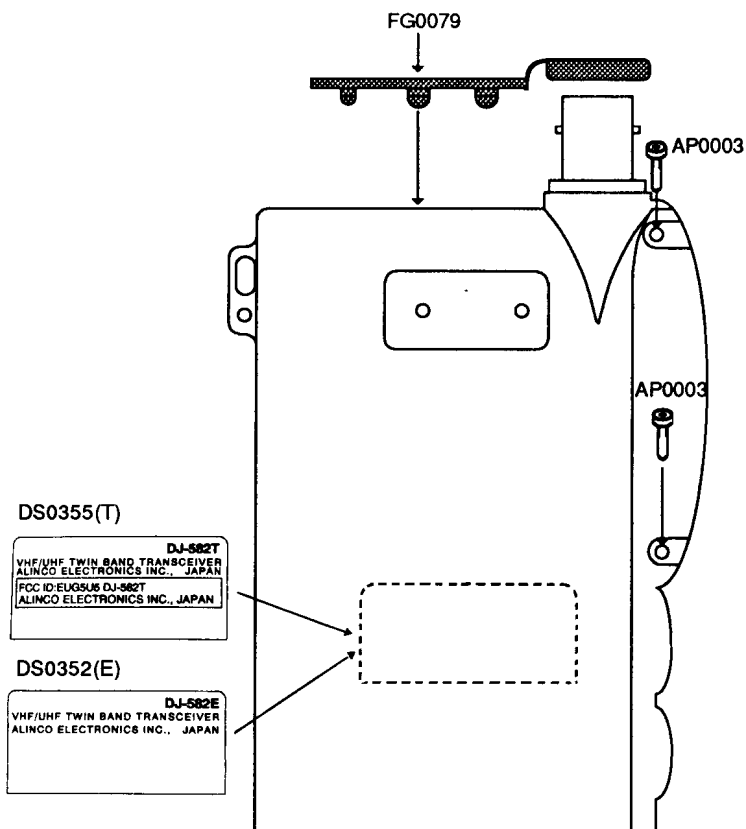
12) SW Unit



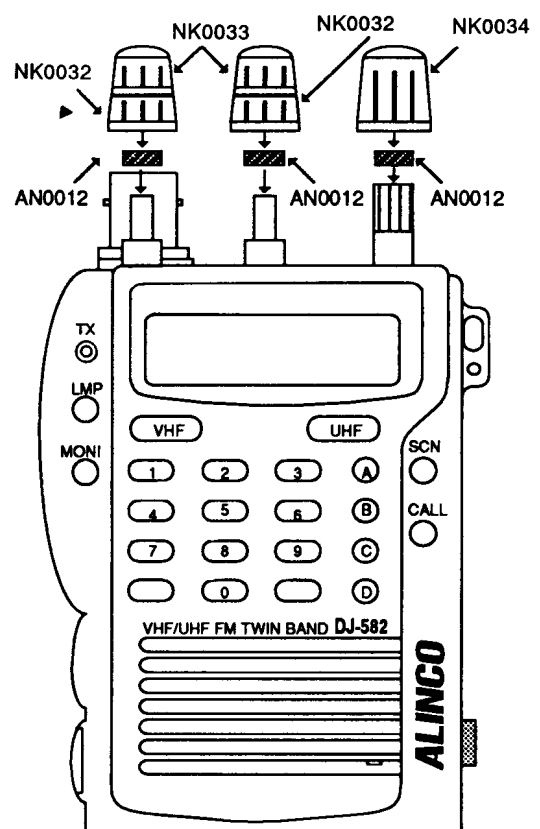
13) IF Unit



14) Name Plate



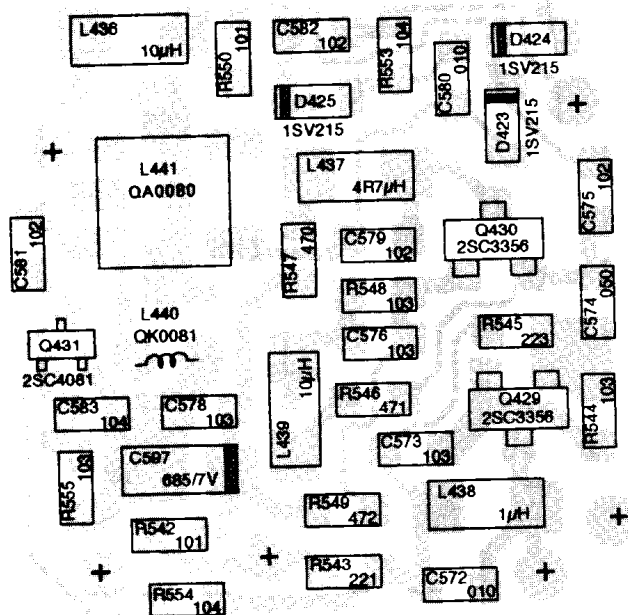
15) Knob



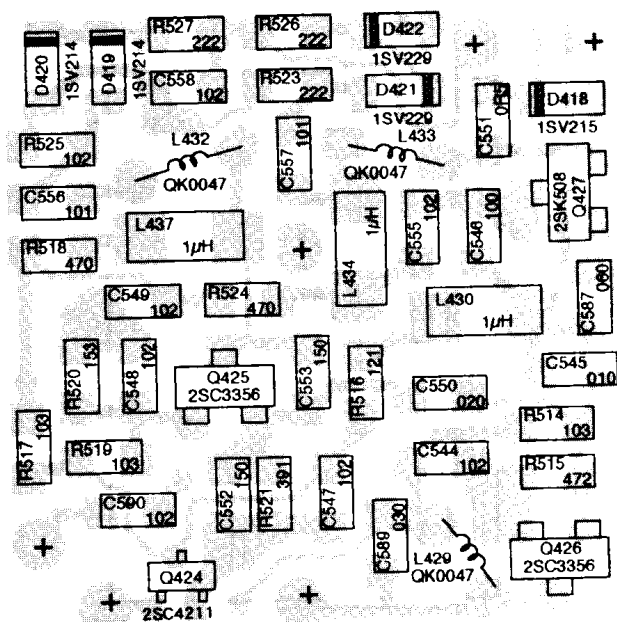
PC Board Views

1) VCO Unit Side A

V-VCO

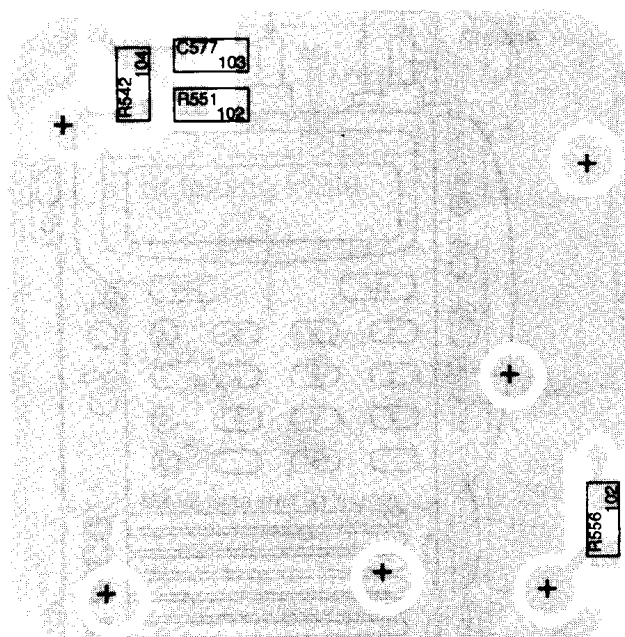


U-VCO

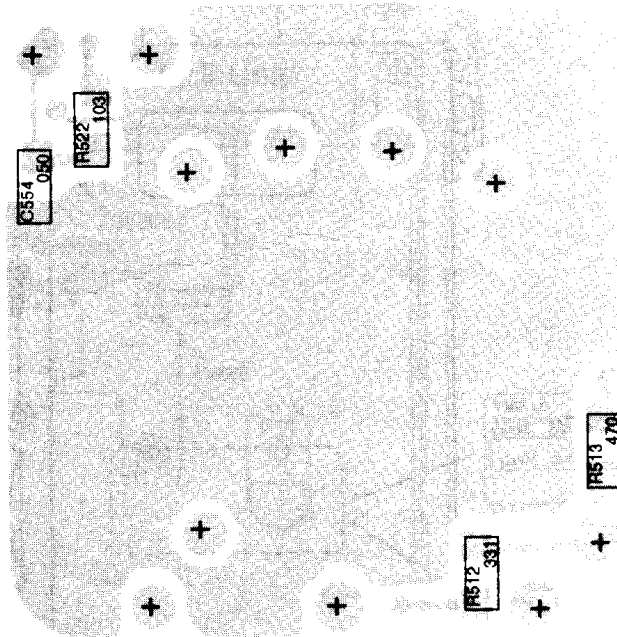


2) VCO Unit Side B

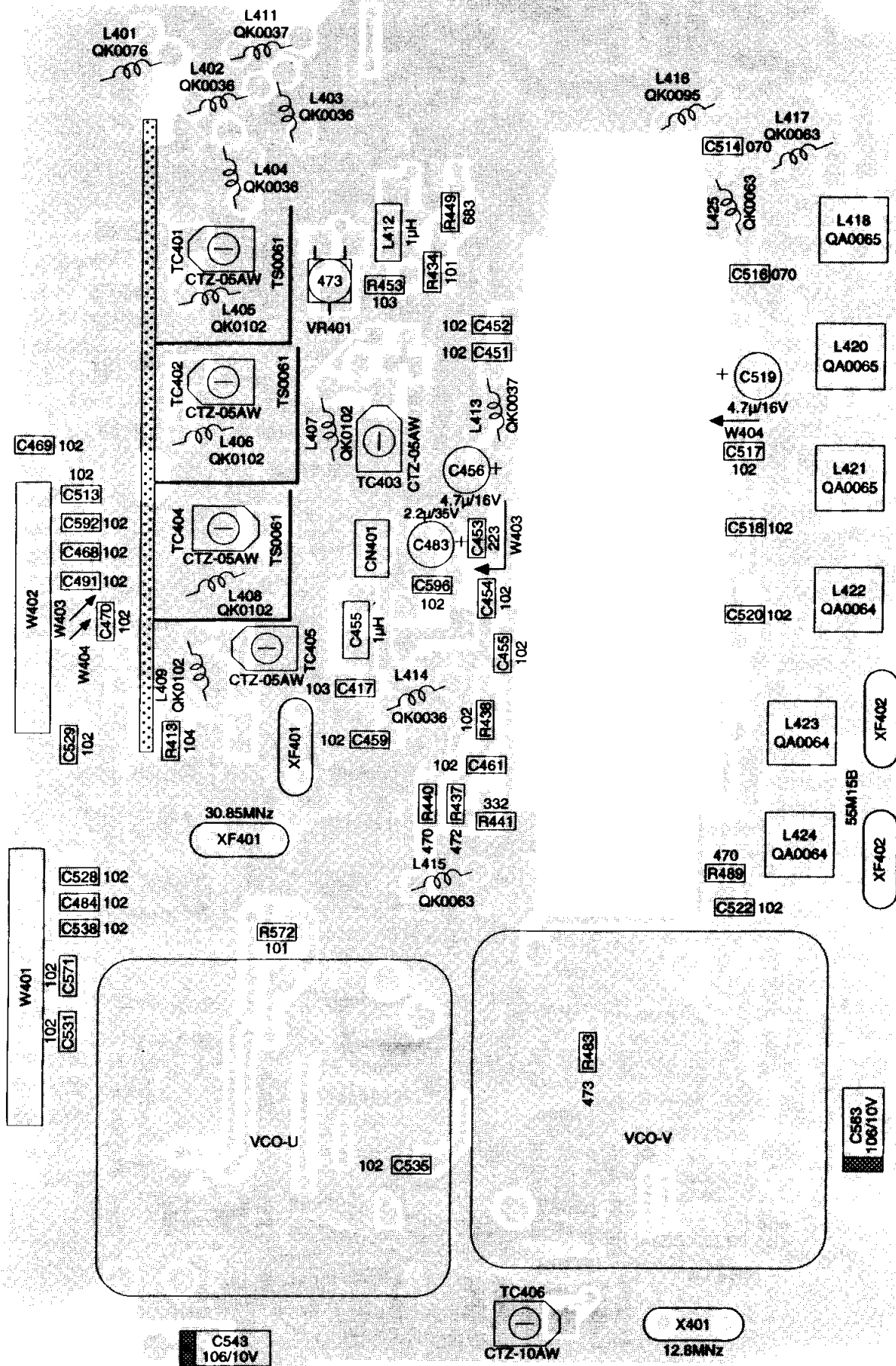
V-VCO



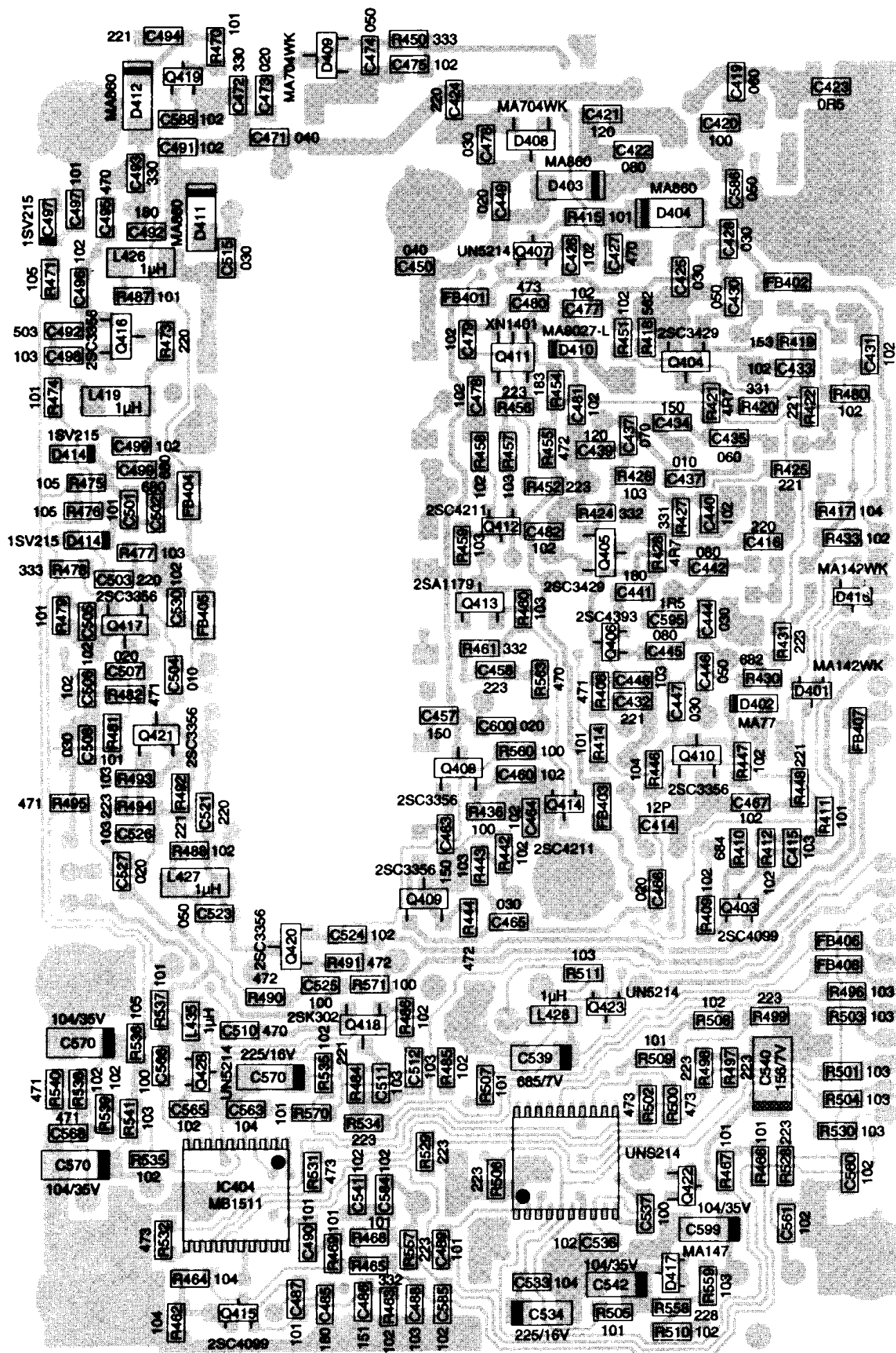
U-VCO



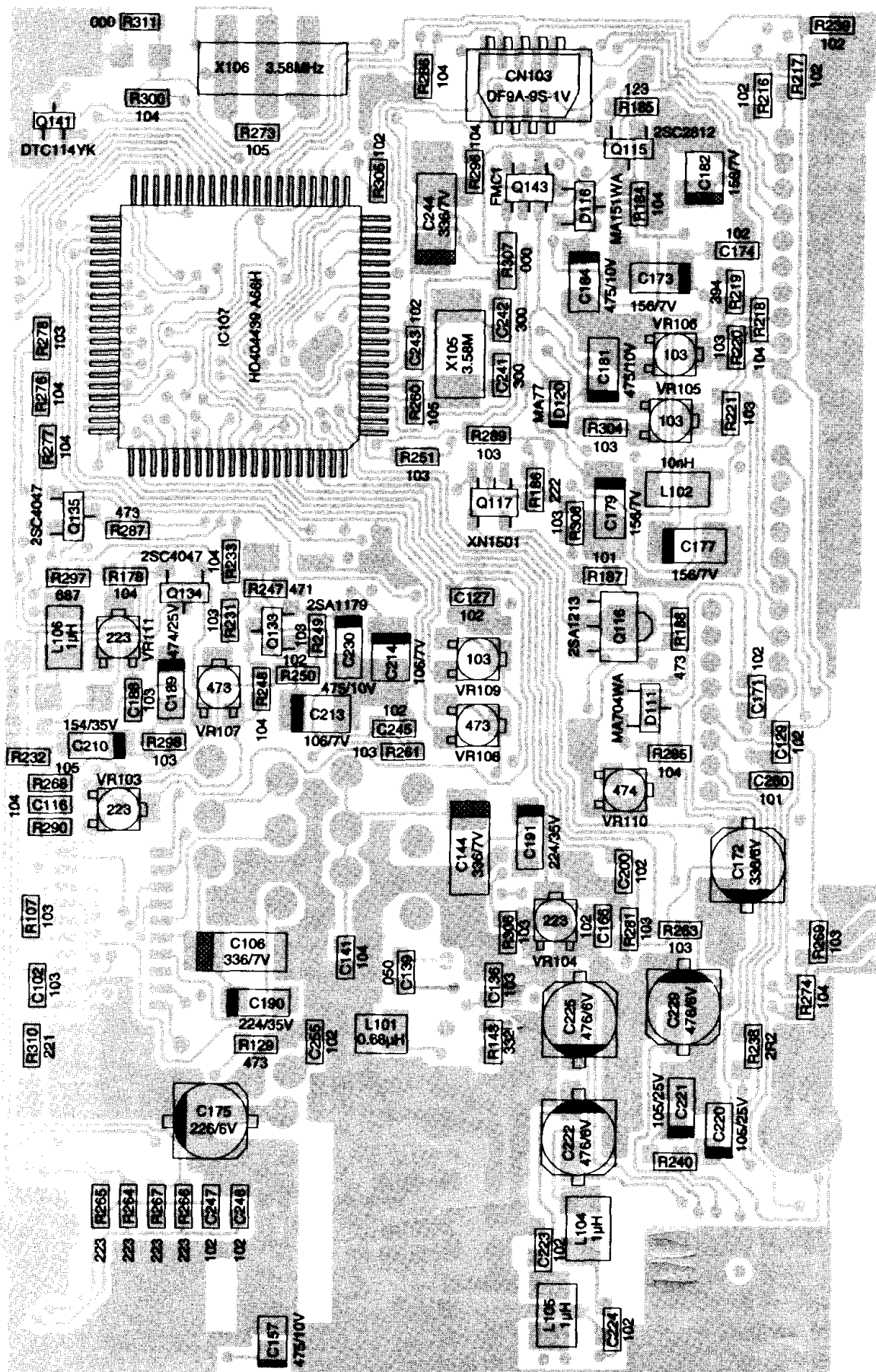
3) RF Unit Side A



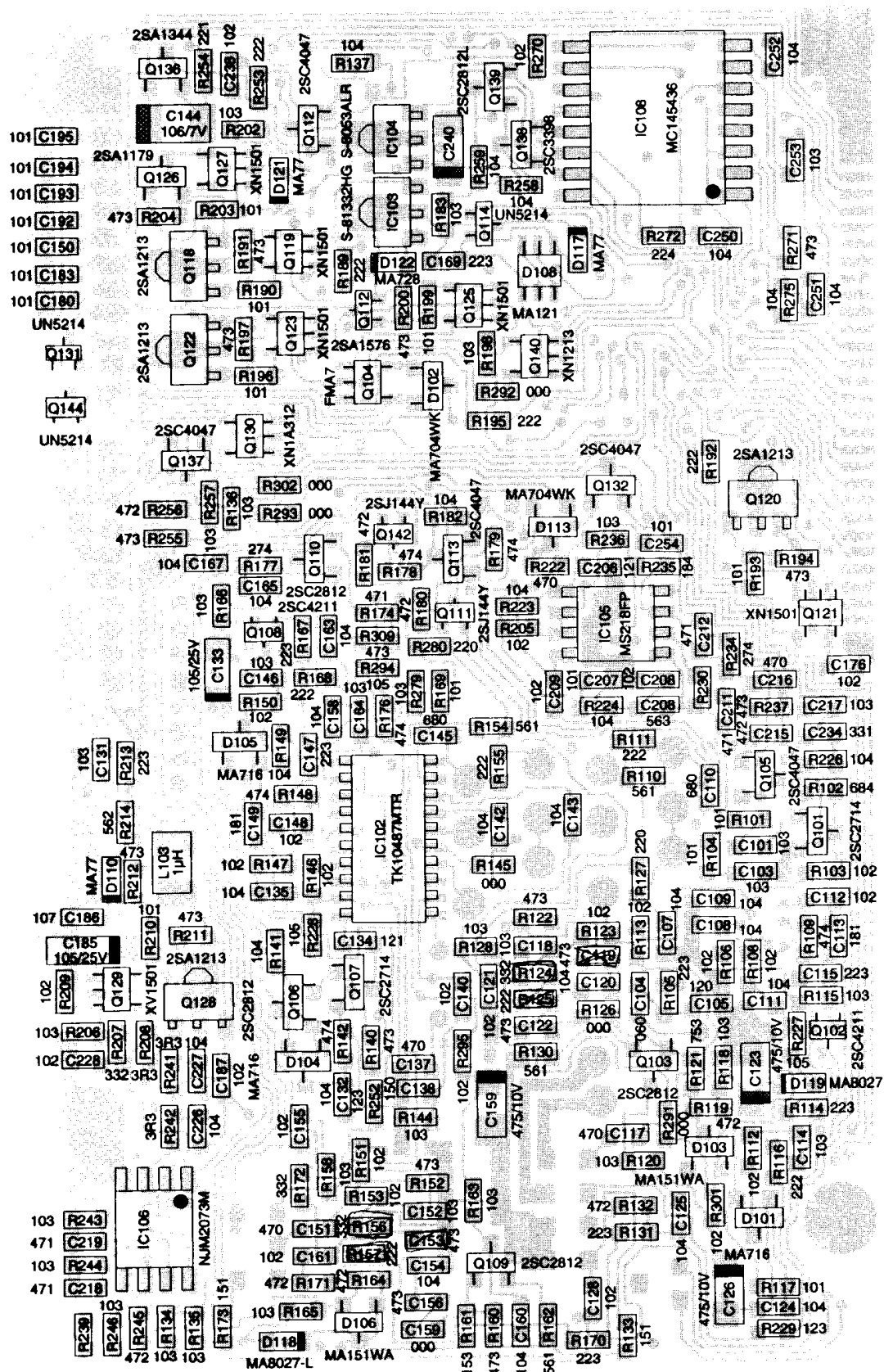
4) RF Unit Side B



5) IF Unit Side A

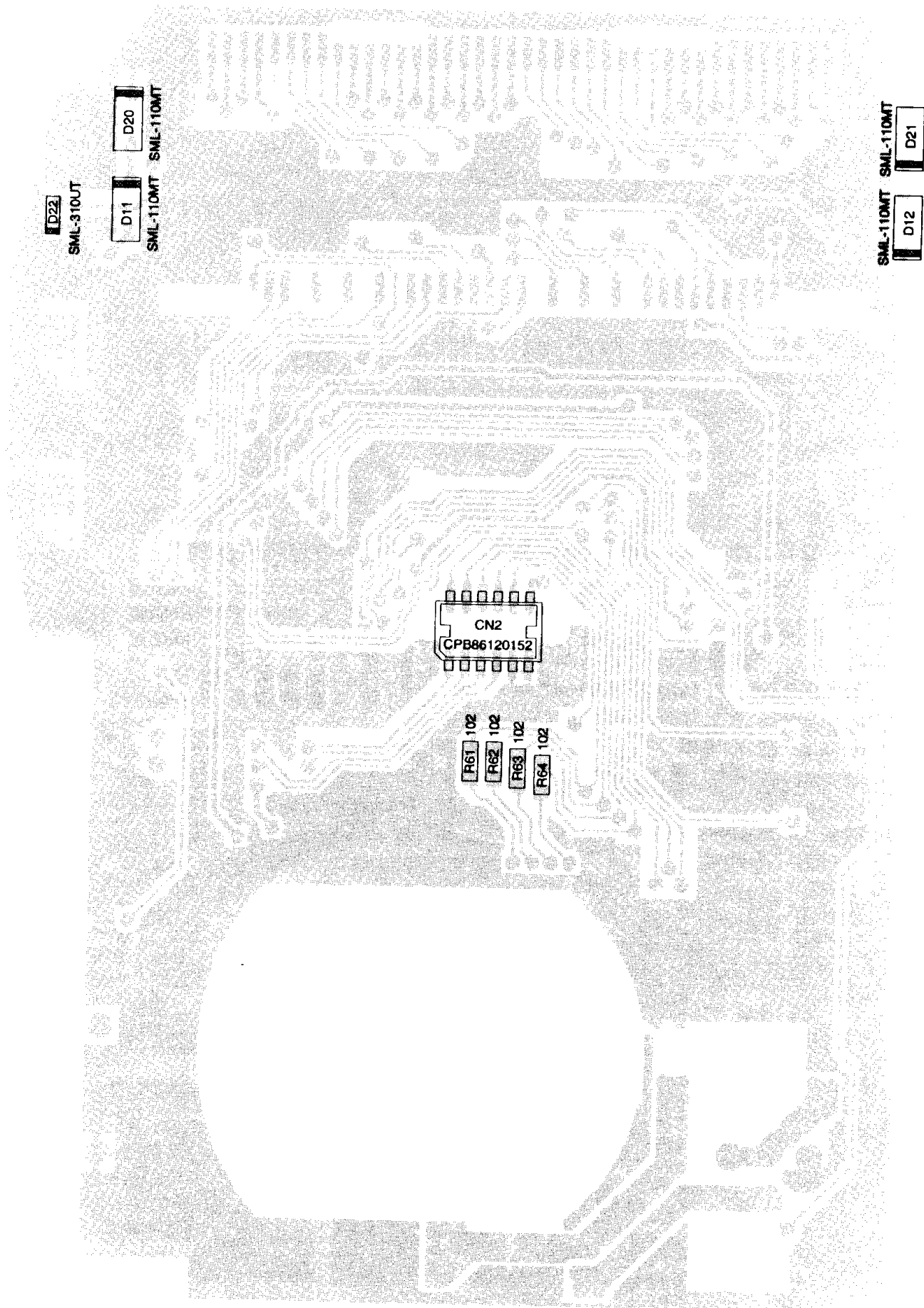


6) IF Unit Side B

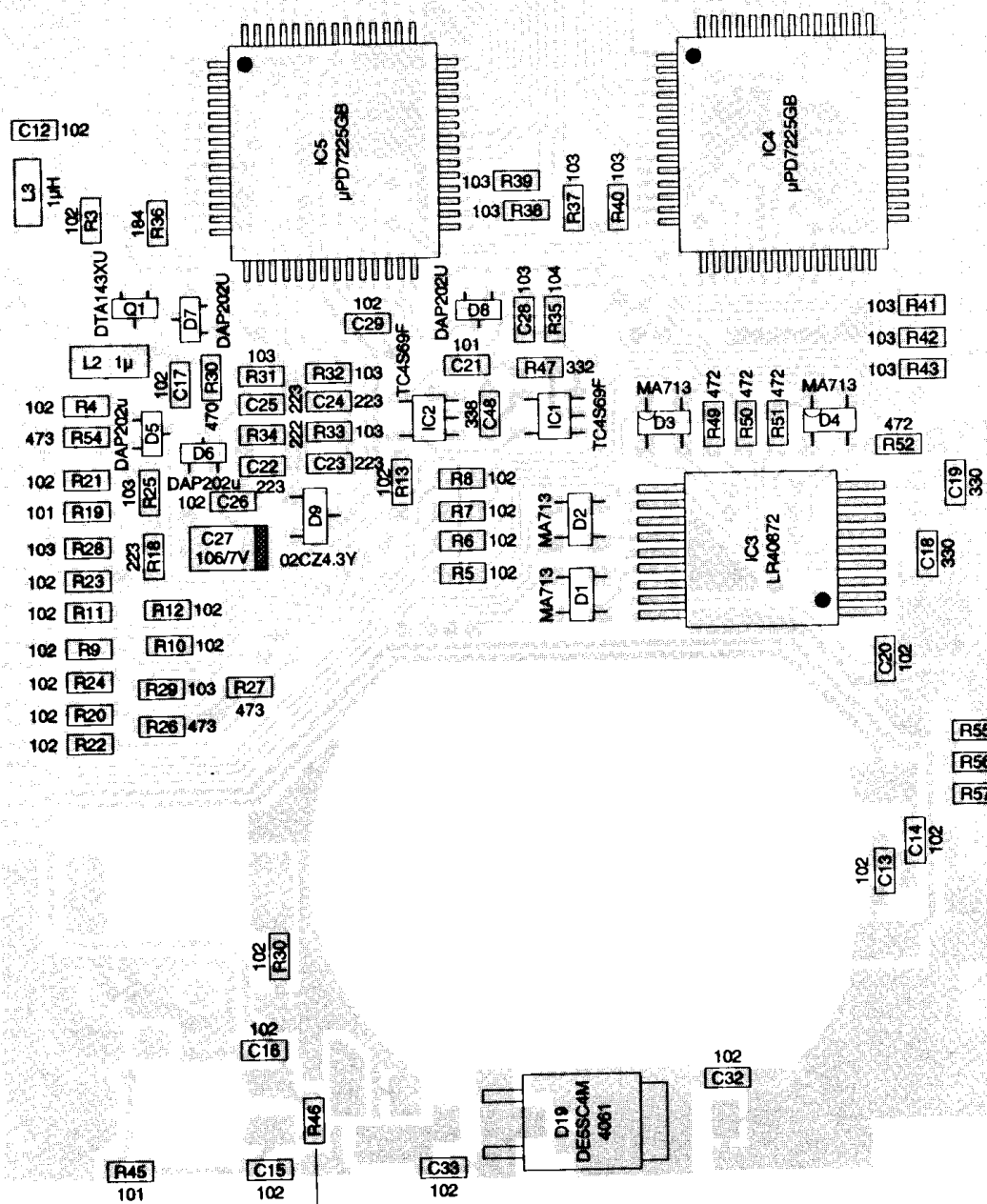


	T/E/TA	TC
R230	334	224
R239	471	122

7) LCD Unit Side A

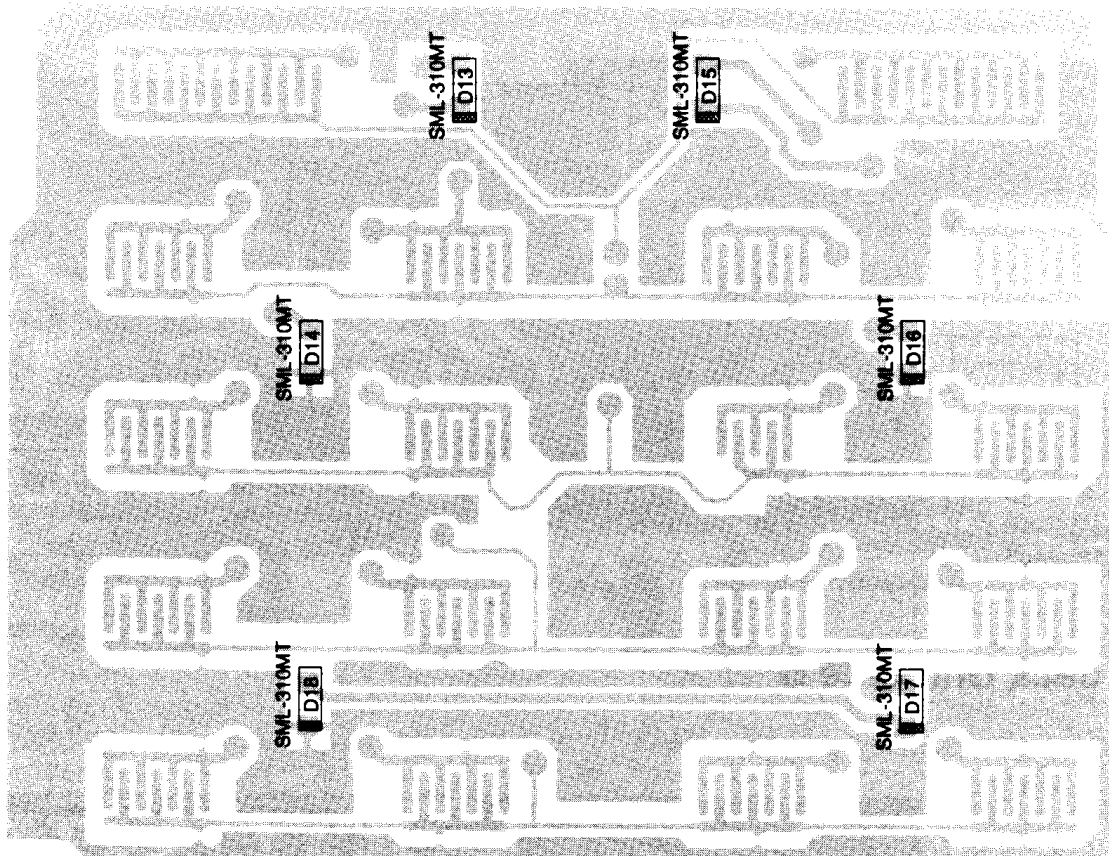


8) LCD Unit Side B

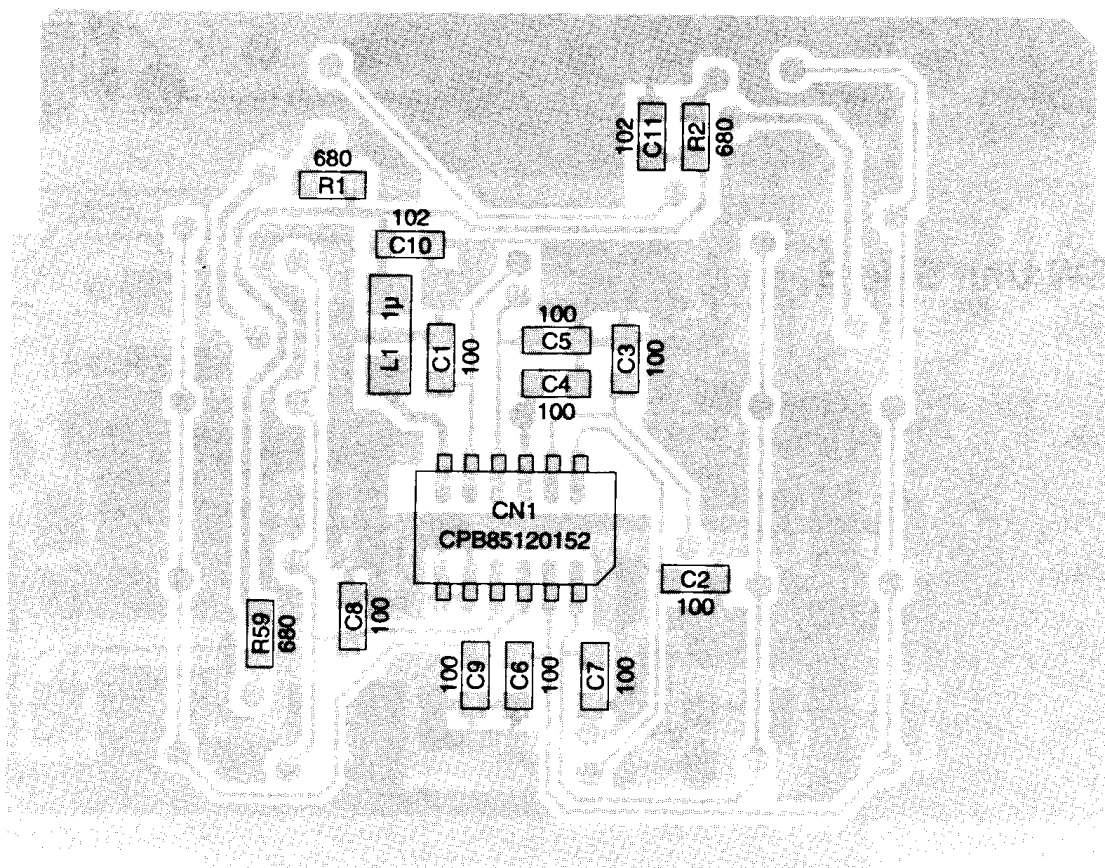


	T/E/TA	TC
R46	333	222

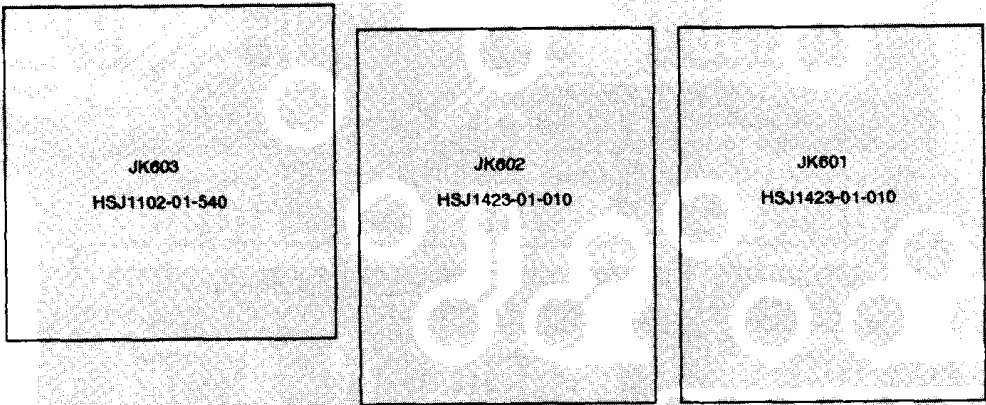
10) Key Unit Side A



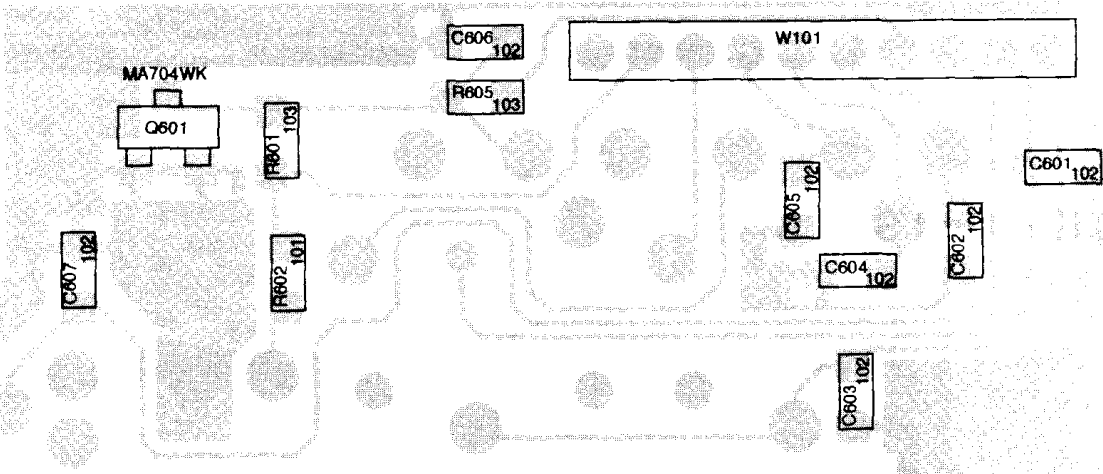
10) Key Unit Side B



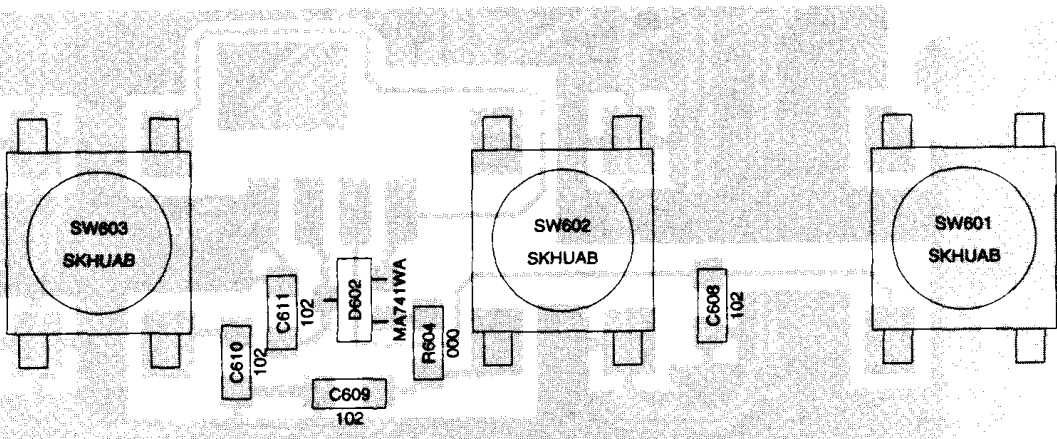
11) Jack Unit Side A



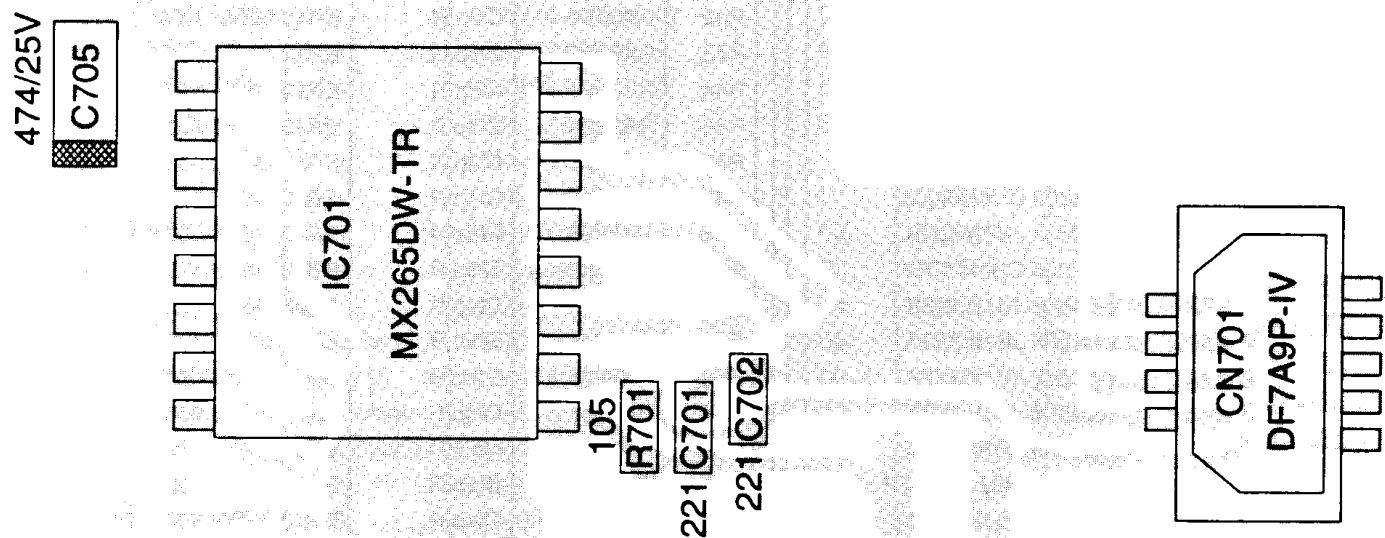
12) Jack Unit Side B



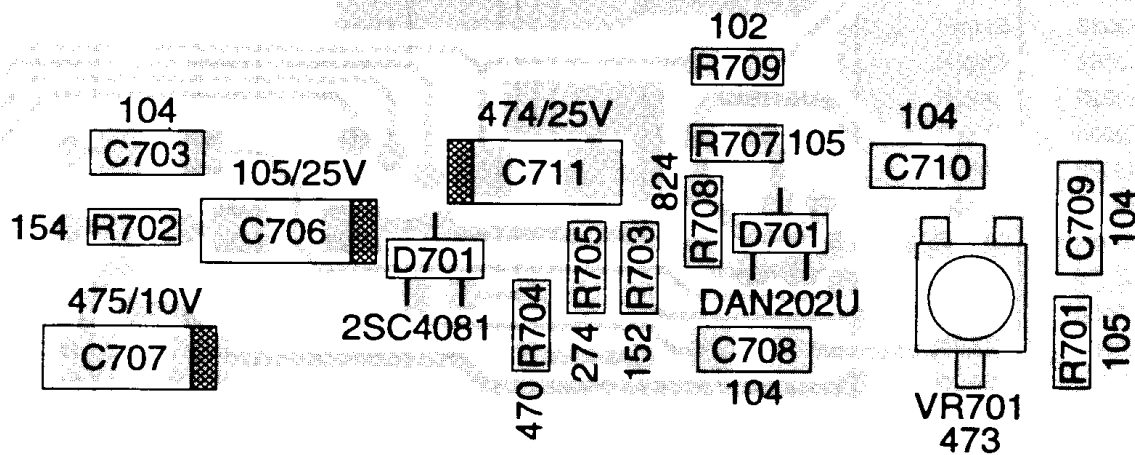
13) SW Unit Side B



14) CTCSS Unit Side A



15) CTCSS Unit Side B



Parts List

LCD Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
LCD Unit							
C12	CU3035	Chip C.	C1608 JB1H 102K	R39	RK3050	Chip R.	ERJ3 GSYJ 103V
C13	CU3035	Chip C.	C1608 JB1H 102K	R40	RK3050	Chip R.	ERJ3 GSYJ 103V
C14	CU3035	Chip C.	C1608 JB1H 102K	R41	RK3050	Chip R.	ERJ3 GSYJ 103V
C15	CU3035	Chip C.	C1608 JB1H 102K	R42	RK3050	Chip R.	ERJ3 GSYJ 103V
C16	CU3035	Chip C.	C1608 JB1H 102K	R43	RK3050	Chip R.	ERJ3 GSYJ 103V
C17	CU3035	Chip C.	C1608 JB1H 102K	R44	RK3024	Chip R.	ERJ3 GSYJ 680V
C18	CU3017	Chip C.	C1608 CH1H 330J	R45	RK3026	Chip R.	ERJ3 GSYJ 101V
C19	CU3017	Chip C.	C1608 CH1H 330J	R46	RK3056	Chip R.	ERJ3 GSYJ 333V
C20	CU3035	Chip C.	C1608 JB1H 102K	R47	RK3044	Chip R.	ERJ3 GSYJ 332V
C21	CU3023	Chip C.	C1608 CH1H 101J	R48	RK3056	Chip R.	ERJ3 GSYJ 333V
C22	CU3054	Chip C.	C1608 JB1E 223K	R49	RK3046	Chip R.	ERJ3 GSYJ 472V
C23	CU3054	Chip C.	C1608 JB1E 223K	R50	RK3046	Chip R.	ERJ3 GSYJ 472V
C24	CU3054	Chip C.	C1608 JB1E 223K	R51	RK3046	Chip R.	ERJ3 GSYJ 472V
C25	CU3054	Chip C.	C1608 JB1E 223K	R52	RK3046	Chip R.	ERJ3 GSYJ 472V
C26	CU3035	Chip C.	C1608 JB1H 102K	R54	RK3058	Chip R.	ERJ3 GSYJ 473V
C27	CS0209	Chip Tantal	TMC MBQJ 106MTR	R55	RK3055	Chip R.	ERJ3 GSYJ 273V (E)
C28	CU3052	Chip C.	C1608 JB1H 103K	R56	RK3051	Chip R.	ERJ3 GSYJ 123V (T)
C29	CU3035	Chip C.	C1608 JB1H 102K	R57	RK3049	Chip R.	ERJ3 GSYJ 822V (E)
C30	CU3035	Chip C.	C1608 JB1H 102K	R58	RK3024	Chip R.	ERJ3 GSYJ 680V
C31	CE0056	Electrolytic C.	16MV 100SW	R61	RK3038	Chip R.	ERJ3 GSYJ 102V
C32	CU3035	Chip C.	C1608 JB1H 102K	R62	RK3038	Chip R.	ERJ3 GSYJ 102V
C33	CU3035	Chip C.	C1608 JB1H 102K	R63	RK3038	Chip R.	ERJ3 GSYJ 102V
				R64	RK3038	Chip R.	ERJ3 GSYJ 102V
				R66	RK3030	Chip R.	ERJ3 GSYJ 221V
CN2	UE0130	Connector	DF9A11S-1V				
R3	RK3038	Chip R.	ERJ3 GSYJ 102V	L2	QC0003	Chip L.	MLF3216A 1R0M
R4	RK3038	Chip R.	ERJ3 GSYJ 102V	L3	QC0003	Chip L.	MLF3216A 1R0M
R5	RK3038	Chip R.	ERJ3 GSYJ 102V				
R6	RK3038	Chip R.	ERJ3 GSYJ 102V	IC1	XA0137	IC	TC4S69F
R7	RK3038	Chip R.	ERJ3 GSYJ 102V	IC2	XA0137	IC	TC4S69F
R8	RK3038	Chip R.	ERJ3 GSYJ 102V	IC3	XA0042	IC	LR40872
R9	RK3038	Chip R.	ERJ3 GSYJ 102V	IC4	XA0141	IC	μPD7225GB-3B7
R10	RK3038	Chip R.	ERJ3 GSYJ 102V	IC5	XA0141	IC	μPD7225GB-3B7
R11	RK3038	Chip R.	ERJ3 GSYJ 102V				
R12	RK3038	Chip R.	ERJ3 GSYJ 102V	X1	XQ0045	Crystal	DSMAT 3.58 MHz 18P
R13	RK3038	Chip R.	ERJ3 GSYJ 102V				
R18	RK3054	Chip R.	ERJ3 GSYJ 223V	D1	XD0128	Diode	MA713TX
R19	RK3026	Chip R.	ERJ3 GSYJ 101V	D2	XD0128	Diode	MA713TX
R20	RK3038	Chip R.	ERJ3 GSYJ 102V	D3	XD0128	Diode	MA713TX
R21	RK3038	Chip R.	ERJ3 GSYJ 102V	D4	XD0128	Diode	MA713TX
R22	RK3038	Chip R.	ERJ3 GSYJ 102V	D5	XD0231	Diode	DAP202U
R23	RK3038	Chip R.	ERJ3 GSYJ 102V	D6	XD0231	Diode	DAP202U
R24	RK3038	Chip R.	ERJ3 GSYJ 102V	D7	XD0231	Diode	DAP202U
R25	RK3050	Chip R.	ERJ3 GSYJ 103V	D8	XD0231	Diode	DAP202U
R26	RK3058	Chip R.	ERJ3 GSYJ 473V	D9	XD0113	Diode	02CZ4.3Y
R27	RK3058	Chip R.	ERJ3 GSYJ 473V	D10	XD0110	Diode	1N5551
R28	RK3050	Chip R.	ERJ3 GSYJ 103V	D11	XL0037	LED	SML-110MT
R29	RK3050	Chip R.	ERJ3 GSYJ 103V	D12	XL0037	LED	SML-110MT
R30	RK3022	Chip R.	ERJ3 GSYJ 470V	D19	XD0248	Diode	DE5SC4M-4061
R31	RK3050	Chip R.	ERJ3 GSYJ 103V	D20	XL0037	LED	SML-110MT
R32	RK3050	Chip R.	ERJ3 GSYJ 103V	D21	XL0037	LED	SML-110MT
R33	RK3050	Chip R.	ERJ3 GSYJ 103V	D22	XL0035	LED	SML-310UT
R34	RK3042	Chip R.	ERJ3 GSYJ 222V				
R35	RK3062	Chip R.	ERJ3 GSYJ 104V	Q1	XU0032	Transistor	DTA143XU
R36	RK3065	Chip R.	ERJ3 GSYJ 184V				
R37	RK3050	Chip R.	ERJ3 GSYJ 103V	FB1	QB0020	Toroidal Core	H5D T6 × 1.5 × 3E
R38	RK3050	Chip R.	ERJ3 GSYJ 103V				

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
				Key Unit			
W1	MPDJ11AA	Wire	# 26P 02-110-02	D13	XL0036	LED	SML310MT
W2	MBDJ11AA	Wire	# 26B 02-110-02	D14	XL0036	LED	SML310MT
W3	MWDJ06AA	Wire	# 26W 02-060-02 (T/TA/TC)	D15	XL0036	LED	SML310MT
	MWDK06AA	Wire	# 28W 02-060-02 (E)	D16	XL0036	LED	SML310MT
W4	MNDK06AA	Wire	# 28N 02-060-02	D17	XL0036	LED	SML310MT
	MNDK06AA	Wire	# 28N 02-060-02 (E)	D18	XL0036	LED	SML310MT
W5	MADJH4AA	Wire	# 26A 02-045-02 (T)	C1	CU3011	Chip C.	C1608 CH1H 100CTA
W6	MKCL02AA	Wire	# 30K 02-020-02	C2	CU3011	Chip C.	C1608 CH1H 100CTA
W7	MBCL02AA	Wire	# 30B 02-020-02	C3	CU3011	Chip C.	C1608 CH1H 100CTA
W8	MBCL02AA	Wire	# 30B 02-020-02	C4	CU3011	Chip C.	C1608 CH1H 100CTA
W9	MBCL02AA	Wire	# 30B 02-020-02	C5	CU3011	Chip C.	C1608 CH1H 100CTA
	UJ0015	DC Jack	HEC1781-01-020	C6	CU3011	Chip C.	C1608 CH1H 100CTA
	ES0011	Speaker	22GAU-36W0824	C7	CU3011	Chip C.	C1608 CH1H 100CTA
	EY0006	Microphone	WM-60AT (TC)	C8	CU3011	Chip C.	C1608 CH1H 100CTA
	EY0013	Microphone	WM-60AY (T/E/TA)	C9	CU3011	Chip C.	C1608 CH1H 100CTA
	EL0016	LCD	DJ-F5 LCD	C10	CU3035	Chip C.	C1608 JB1H 102KTA
	UP0264B	PCB	LCD Unit B	C11	CU3035	Chip C.	C1608 JB1H 102KTA
	TS0064	Shield Tape	LCD Shield	R1	RK3024	Chip R.	ERJ3 GSYJ 680V
	TS0070A	Shield Tape	CLOCK Shield	R2	RK3024	Chip R.	ERJ3 GSYJ 680V
	TT1008	Tube	F2 AWG20	R59	RK3024	Chip R.	ERJ3 GSYJ 680V
	YZ0042	Adhesion		L1	QC0003	Chip L.	MLF3216 A 1R0 M
	ST0030		LCD Flame	CN1	UE0242	Connector	CPB8512-0152
	FG0087		LCD Connector				
	DH0007		Lighting Plate				
	TT3007	Tube	6.0 (E)				
	QB0020		H5D T6 × 1.5 × 3E (E)				
	TZ0051		TONE Insulation				
	YZ0082	Tape	Tape 12mm				

VCO-V Unit / VCO-U Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
VCO-V Unit				VCO-U Unit			
C572	CU3002	Chip C.	C1608 CH1H 010C	C544	CU3035	Chip C.	C1608 JB1H 102K
C573	CU3047	Chip C.	C1608 JB1H 103K	C545	CU3002	Chip C.	C1608 CH1H 010C
C574	CU3006	Chip C.	C1608 CH1H 050C	C546	CU3011	Chip C.	C1608 CH1H 100D
C575	CU3035	Chip C.	C1608 JB1H 102K	C547	CU3035	Chip C.	C1608 JB1H 102K
C576	CU3047	Chip C.	C1608 JB1H 103K	C548	CU3035	Chip C.	C1608 JB1H 102K
C577	CU3047	Chip C.	C1608 JB1H 103K	C549	CU3035	Chip C.	C1608 JB1H 102K
C578	CU3047	Chip C.	C1608 JB1H 103K	C550	CU3003	Chip C.	C1608 CH1H 020C
C579	CU3035	Chip C.	C1608 JB1H 102K	C551	CU3001	Chip C.	C1608 CH1H 0R5C
C580	CU3002	Chip C.	C1608 CH1H 010C	C552	CU3013	Chip C.	C1608 CH1H 150J
C581	CU3035	Chip C.	C1608 CH1H 102K	C553	CU3013	Chip C.	C1608 CH1H 150J
C582	CU3035	Chip C.	C1608 CH1H 102K	C554	CU3035	Chip C.	C1608 JB1H 102K
C583	CU3059	Chip C.	C1608 JF1 104Z	C555	CU3035	Chip C.	C1608 JB1H 102K
C597	CS0236	Chip Tantal	TMC MA0J 685MTR	C556	CU3023	Chip C.	C1608 JB1H 101J
R542	RK3026	Chip R.	ERJ3 GSYJ 101V	C557	CU3023	Chip C.	C1608 JB1H 101J
R543	RK3030	Chip R.	ERJ3 GSYJ 221V	C558	CU3035	Chip C.	C1608 JB1H 102K
R544	RK3050	Chip R.	ERJ3 GSYJ 103V	C587	CU3007	Chip C.	C1608 CH1H 060C
R545	RK3054	Chip R.	ERJ3 GSYJ 223V	C589	CU3004	Chip C.	C1608 CH1H 030C
R546	RK3034	Chip R.	ERJ3 GSYJ 471V	C590	CU3035	Chip C.	C1608 JB1H 102K
R547	RK3022	Chip R.	ERJ3 GSYJ 470V	R512	RK3032	Chip R.	ERJ3 GSYJ 331V
R548	RK3050	Chip R.	ERJ3 GSYJ 103V	R513	RK3022	Chip R.	ERJ3 GSYJ 470V
R549	RK3046	Chip R.	ERJ3 GSYJ 472V	R514	RK3050	Chip R.	ERJ3 GSYJ 103V
R550	RK3026	Chip R.	ERJ3 GSYJ 101V	R515	RK3046	Chip R.	ERJ3 GSYJ 472V
R551	RK3038	Chip R.	ERJ3 GSYJ 102V	R516	RK3023	Chip R.	ERJ3 GSYJ 560V
R552	RK3062	Chip R.	ERJ3 GSYJ 104V	R517	RK3050	Chip R.	ERJ3 GSYJ 103V
R553	RK3062	Chip R.	ERJ3 GSYJ 104V	R518	RK3022	Chip R.	ERJ3 GSYJ 470V
R554	RK3062	Chip R.	ERJ3 GSYJ 104V	R519	RK3050	Chip R.	ERJ3 GSYJ 103V
R555	RK3050	Chip R.	ERJ3 GSYJ 103V	R520	RK3052	Chip R.	ERJ3 GSYJ 153V
R556	RK3038	Chip R.	ERJ3 GSYJ 102V	R521	RK3033	Chip R.	ERJ3 GSYJ 391V
L436	QC0010	Chip L.	MLF3216E 100M	R522	RK3050	Chip R.	ERJ3 GSYJ 103V
L437	QC0110	Chip L.	LER015T4R7K	R523	RK3042	Chip R.	ERJ3 GSYJ 222V
L438	QC0003	Chip L.	MLF3216A 1R0M	R524	RK3022	Chip R.	ERJ3 GSYJ 470V
L439	QC0010	Chip L.	MLF3216E 100M	R525	RK3038	Chip R.	ERJ3 GSYJ 102V
L440	QK0081	Coil	0.4-1.5 × 4T	R526	RK3042	Chip R.	ERJ3 GSYJ 222V
L441	QA0080	Coil	QA0080	R527	RK3042	Chip R.	ERJ3 GSYJ 222V
D423	XD0132	Diode	1SV215 TPH4	L429	QK0047	Coil	0.5-2.2 × 3.5T
D424	XD0132	Diode	1SV215 TPH4	L430	QC0003	Chip L.	MLF3216A 1R0M
D425	XD0132	Diode	1SV215 TPH4	L431	QC0003	Chip L.	MLF3216A 1R0M
Q429	XT0030	Transistor	2SC3356	L432	QK0047	Coil	0.5-2.2 × 3.5T
Q430	XT0030	Transistor	2SC3356	L433	QK0047	Coil	0.5-2.2 × 3.5T
Q431	XT0103	Transistor	2SC4211	L434	QC0003	Chip L.	MLF3216A 1R0M
	UT0030	Terminal	0.6 Pin	D418	XD0132	Diode	1SV215 TPH4
	TS0055A	Case	VCO Case	D419	XD0131	Diode	1SV214 TPH4
				D420	XD0131	Diode	1SV214 TPH4
				D421	XD0133	Diode	1SV229 TPH3
				D422	XD0133	Diode	1SV229 TPH3
				Q424	XT0103	Transistor	2SC4211
				Q425	XT0030	Transistor	2SC3356
				Q426	XT0030	Transistor	2SC3356
				Q427	XE0010	FET	2SK508K52
					UT0030	Terminal	0.6 Pin
					TS0055A	Case	VCO Case
					YZ0013	Hot Melt	TC3764 (3M) 1G

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
RF Unit				C476	CU3004	Chip C.	C1608 CH1H 030C
C414	CU3012	Chip C.	C1608 CH1H 120J	C477	CU3035	Chip C.	C1608 JB1H 102K
C415	CU3047	Chip C.	C1608 JB1H 103K	C478	CU3035	Chip C.	C1608 JB1H 102K
C416	CU3015	Chip C.	C1608 CH1H 220J	C479	CU3035	Chip C.	C1608 JB1H 102K
C417	CU3047	Chip C.	C1608 JB1H 103K	C480	CU3056	Chip C.	C1608 JF1E 473Z
C419	CU3007	Chip C.	C1608 CH1H 060C	C481	CU3035	Chip C.	C1608 JB1H 102K
C420	CU3011	Chip C.	C1608 CH1H 100D	C482	CU3035	Chip C.	C1608 JB1H 102K
C421	CU3012	Chip C.	C1608 CH1H 120J	C483	CE0024	Electrolytic C.	35MV 2R2 UW
C422	CU3009	Chip C.	C1608 CH1H 080C	C484	CU3035	Chip C.	C1608 JB1H 102K
C423	CU3001	Chip C.	C1608 CH1H 0R5C	C485	CU3014	Chip C.	C1608 CH1H 180J
C424	CU3014	Chip C.	C1608 CH1H 180J	C486	CU3025	Chip C.	C1608 CH1H 151K
C425	CU3004	Chip C.	C1608 CH1H 030C	C487	CU3023	Chip C.	C1608 CH1H 101J
C426	CU3035	Chip C.	C1608 JB1H 102K	C488	CU3047	Chip C.	C1608 JB1H 103K
C427	CU3019	Chip C.	C1608 CH1H 470J	C489	CU3023	Chip C.	C1608 CH1H 101J
C428	CU3004	Chip C.	C1608 CH1H 030C	C490	CU3023	Chip C.	C1608 CH1H 101J
C430	CU3006	Chip C.	C1608 CH1H 050C	C491	CU3035	Chip C.	C1608 JB1H 102K
C431	CU3035	Chip C.	C1608 JB1H 102K	C492	CU3014	Chip C.	C1608 CH1H 180J
C433	CU3035	Chip C.	C1608 JB1H 102K	C493	CU3017	Chip C.	C1608 CH1H 330J
C434	CU3013	Chip C.	C1608 CH1H 150J	C494	CU3027	Chip C.	C1608 CH1H 221J
C435	CU3007	Chip C.	C1608 CH1H 060C	C495	CU3019	Chip C.	C1608 CH1H 470J
C437	CU3002	Chip C.	C1608 CH1H 010C	C496	CU3035	Chip C.	C1608 JB1H 102K
C438	CU3008	Chip C.	C1608 CH1H 070C	C497	CU3023	Chip C.	C1608 CH1H 101J
C439	CU3012	Chip C.	C1608 CH1H 120J	C498	CU3047	Chip C.	C1608 JB1H 103K
C440	CU3035	Chip C.	C1608 JB1H 102K	C499	CU3035	Chip C.	C1608 JB1H 102K
C441	CU3014	Chip C.	C1608 CH1H 180J	C500	CU3021	Chip C.	C1608 CH1H 680J
C442	CU3009	Chip C.	C1608 CH1H 080C	C501	CU3023	Chip C.	C1608 CH1H 101J
C444	CU3004	Chip C.	C1608 CH1H 030C	C502	CU3021	Chip C.	C1608 CH1H 680J
C445	CU3009	Chip C.	C1608 CH1H 080C	C503	CU3015	Chip C.	C1608 CH1H 220J
C446	CU3006	Chip C.	C1608 CH1H 050C	C504	CU3002	Chip C.	C1608 CH1H 010C
C447	CU3004	Chip C.	C1608 CH1H 030C	C505	CU3035	Chip C.	C1608 JB1H 102K
C448	CU3047	Chip C.	C1608 JB1H 103K	C506	CU3035	Chip C.	C1608 JB1H 102K
C449	CU3003	Chip C.	C1608 CH1H 020C	C507	CU3003	Chip C.	C1608 CH1H 020C
C450	CU3005	Chip C.	C1608 CH1H 040C	C508	CU3004	Chip C.	C1608 CH1H 030C
C451	CU3035	Chip C.	C1608 JB1H 102K	C510	CU3019	Chip C.	C1608 CH1H 470J
C452	CU3035	Chip C.	C1608 JB1H 102K	C511	CU3047	Chip C.	C1608 JB1H 103K
C453	CU3051	Chip C.	C1608 JB1E 223K	C512	CU3047	Chip C.	C1608 JB1H 103K
C454	CU3035	Chip C.	C1608 JB1H 102K	C513	CU3035	Chip C.	C1608 JB1H 102K
C455	CU3035	Chip C.	C1608 JB1H 102K	C514	CU3008	Chip C.	C1608 CH1H 070J
C456	CE0032	Electrolytic C.	16MV 4R7 UWA	C515	CU3004	Chip C.	C1608 CH1H 030C
C457	CU3013	Chip C.	C1608 CH1H 150J	C516	CU3008	Chip C.	C1608 CH1H 070J
C458	CU3051	Chip C.	C1608 JB1E 223K	C517	CU3035	Chip C.	C1608 JB1H 102K
C459	CU3035	Chip C.	C1608 JB1H 102K	C518	CU3035	Chip C.	C1608 JB1H 102K
C460	CU3035	Chip C.	C1608 JB1H 102K	C519	CE0032	Electrolytic C.	16MV 4R7 UWA
C461	CU3035	Chip C.	C1608 JB1H 102K	C520	CU3035	Chip C.	C1608 JB1H 102K
C462	CU3011	Chip C.	C1608 CH1H 100D	C521	CU3015	Chip C.	C1608 CH1H 220J
C463	CU3013	Chip C.	C1608 CH1H 150J	C522	CU3035	Chip C.	C1608 JB1H 102K
C464	CU3035	Chip C.	C1608 JB1H 102K	C523	CU3006	Chip C.	C1608 CH1H 050C
C465	CU3004	Chip C.	C1608 CH1H 030C	C524	CU3035	Chip C.	C1608 JB1H 102K
C466	CU3003	Chip C.	C1608 CH1H 020C	C525	CU3011	Chip C.	C1608 CH1H 100D
C467	CU3035	Chip C.	C1608 JB1H 102K	C526	CU3047	Chip C.	C1608 JB1H 103K
C468	CU3035	Chip C.	C1608 JB1H 102K	C527	CU3003	Chip C.	C1608 CH1H 020C
C469	CU3035	Chip C.	C1608 JB1H 102K	C528	CU3035	Chip C.	C1608 JB1H 102K
C470	CU3035	Chip C.	C1608 JB1H 102K	C529	CU3035	Chip C.	C1608 JB1H 102K
C471	CU3005	Chip C.	C1608 CH1H 040C	C530	CU3035	Chip C.	C1608 JB1H 102K
C472	CU3017	Chip C.	C1608 CH1H 330D	C531	CU3035	Chip C.	C1608 JB1H 102K
C473	CU3003	Chip C.	C1608 CH1H 020C	C533	CU3059	Chip C.	C1608 JF1E 104Z
C474	CU3006	Chip C.	C1608 CH1H 050C	C534	CS0220	Chip Tantal	TMC MA1C 225MTR
C475	CU3035	Chip C.	C1608 JB1H 102K	C535	CU3035	Chip C.	C1608 JB1H 102K

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
C536	CU3035	Chip C.	C1608 JB1H 102K	R432	RK3030	Chip R.	ERJ3 GSYJ 221V
C537	CU3011	Chip C.	C1608 CH1H 100C	R433	RK3038	Chip R.	ERJ3 GSYJ 102V
C538	CU3035	Chip C.	C1608 JB1H 102K	R434	RK3026	Chip R.	ERJ3 GSYJ 101V
C539	CS0236	Chip Tantal	TMC MA0J 685MTR	R436	RK3014	Chip R.	ERJ3 GSYJ 100V
C540	CS0210	Chip Tantal	TMC MB0J 156MTR	R437	RK3046	Chip R.	ERJ3 GSYJ 472V
C541	CU3035	Chip C.	C1608 JB1H 102K	R438	RK3038	Chip R.	ERJ3 GSYJ 102V
C542	CS0063	Chip Tantal	TMC SA1V 104MTR	R440	RK3022	Chip R.	ERJ3 GSYJ 470V
C543	CS0216	Chip Tantal	TMC MB1A 106MTR	R441	RK3044	Chip R.	ERJ3 GSYJ 332V
C559	CS0063	Chip Tantal	TMC SA1V 104MTR	R442	RK3038	Chip R.	ERJ3 GSYJ 102V
C560	CU3035	Chip C.	C1608 JB1H 102K	R443	RK3050	Chip R.	ERJ3 GSYJ 103V
C561	CU3035	Chip C.	C1608 JB1H 102K	R444	RK3046	Chip R.	ERJ3 GSYJ 472V
C563	CU3059	Chip C.	C1608 JF1E 104Z	R446	RK3062	Chip R.	ERJ3 GSYJ 104V
C564	CS0220	Chip Tantal	TMC MA1C 225MTR	R447	RK3038	Chip R.	ERJ3 GSYJ 102V
C565	CU3035	Chip C.	C1608 JB1H 102K	R448	RK3030	Chip R.	ERJ3 GSYJ 221V
C566	CU3011	Chip C.	C1608 CH1H 100D	R449	RK3060	Chip R.	ERJ3 GSYJ 683V
C567	CS0216	Chip Tantal	TMC MB1A 106MTR	R450	RK3056	Chip R.	ERJ3 GSYJ 333V
C568	CU3056	Chip C.	C1608 JF1E 473Z	R451	RK3038	Chip R.	ERJ3 GSYJ 102V
C569	CS0063	Chip Tantal	TMC SA1V 104MTR	R452	RK3054	Chip R.	ERJ3 GSYJ 223V
C570	CS0063	Chip Tantal	TMC SA1V 104MTR	R453	RK3050	Chip R.	ERJ3 GSYJ 103V
C571	CU3035	Chip C.	C1608 JB1H 102K	R454	RK3053	Chip R.	ERJ3 GSYJ 183V
C584	CU3035	Chip C.	C1608 JB1H 102K	R455	RK3046	Chip R.	ERJ3 GSYJ 472V
C585	CU3035	Chip C.	C1608 JB1H 102K	R456	RK3054	Chip R.	ERJ3 GSYJ 223V
C586	CU3006	Chip C.	C1608 CH1H 050C	R457	RK3050	Chip R.	ERJ3 GSYJ 103V
C588	CU3035	Chip C.	C1608 JB1H 102K	R458	RK3038	Chip R.	ERJ3 GSYJ 102V
C591	CU3035	Chip C.	C1608 JB1H 102K	R459	RK3050	Chip R.	ERJ3 GSYJ 103V
C592	CU3035	Chip C.	C1608 JB1H102K	R460	RK3050	Chip R.	ERJ3 GSYJ 103V
C595	CU3064	Chip C.	C1608 CH1H 1R5C	R461	RK3044	Chip R.	ERJ3 GSYJ 332V
C596	CU3035	Chip C.	C1608 JB1H 102K	R462	RK3062	Chip R.	ERJ3 GSYJ 104V
C600	CU3003	Chip C.	C1608 CH1H 020C	R463	RK3038	Chip R.	ERJ3 GSYJ 102V
TC401	CT0031	Trimmer	CTZ-05AW	R464	RK3062	Chip R.	ERJ3 GSYJ 104V
TC402	CT0031	Trimmer	CTZ-05AW	R465	RK3044	Chip R.	ERJ3 GSYJ 332V
TC403	CT0031	Trimmer	CTZ-05AW	R466	RK3026	Chip R.	ERJ3 GSYJ 101V
TC404	CT0031	Trimmer	CTZ-05AW	R467	RK3026	Chip R.	ERJ3 GSYJ 101V
TC405	CT0031	Trimmer	CTZ-05AW	R468	RK3026	Chip R.	ERJ3 GSYJ 101V
TC406	CT0012	Trimmer	CTZ-10AW	R469	RK3026	Chip R.	ERJ3 GSYJ 101V
R408	RK3034	Chip R.	ERJ3 GSYJ 471V	R470	RK3026	Chip R.	ERJ3 GSYJ 101V
R409	RK3038	Chip R.	ERJ3 GSYJ 102V	R471	RK3074	Chip R.	ERJ3 GSYJ 105V
R410	RK3072	Chip R.	ERJ3 GSYJ 684V	R472	RK3059	Chip R.	ERJ3 GSYJ 563V
R411	RK3026	Chip R.	ERJ3 GSYJ 101V	R473	RK3018	Chip R.	ERJ3 GSYJ 220V
R412	RK3038	Chip R.	ERJ3 GSYJ 102V	R474	RK3026	Chip R.	ERJ3 GSYJ 101V
R413	RK3062	Chip R.	ERJ3 GSYJ 104V	R475	RK3074	Chip R.	ERJ3 GSYJ 105V
R414	RK3026	Chip R.	ERJ3 GSYJ 101V	R476	RK3074	Chip R.	ERJ3 GSYJ 105V
R415	RK3026	Chip R.	ERJ3 GSYJ 101V	R477	RK3050	Chip R.	ERJ3 GSYJ 103V
R417	RK3062	Chip R.	ERJ3 GSYJ 104V	R478	RK3056	Chip R.	ERJ3 GSYJ 333V
R418	RK3047	Chip R.	ERJ3 GSYJ 562V	R479	RK3026	Chip R.	ERJ3 GSYJ 101V
R419	RK3052	Chip R.	ERJ3 GSYJ 153V	R480	RK3038	Chip R.	ERJ3 GSYJ 102V
R420	RK3032	Chip R.	ERJ3 GSYJ 331V	R481	RK3026	Chip R.	ERJ3 GSYJ 101V
R421	RK3010	Chip R.	ERJ3 GSYJ 4R7V	R482	RK3034	Chip R.	ERJ3 GSYJ 471V
R422	RK3030	Chip R.	ERJ3 GSYJ 221V	R483	RK3058	Chip R.	ERJ3 GSYJ 473V
R424	RK3044	Chip R.	ERJ3 GSYJ 332V	R484	RK3030	Chip R.	ERJ3 GSYJ 221V
R425	RK3030	Chip R.	ERJ3 GSYJ 221V	R485	RK3038	Chip R.	ERJ3 GSYJ 102V
R426	RK3050	Chip R.	ERJ3 GSYJ 103V	R486	RK3038	Chip R.	ERJ3 GSYJ 102V
R427	RK3032	Chip R.	ERJ3 GSYJ 331V	R487	RK3026	Chip R.	ERJ3 GSYJ 101V
R428	RK3010	Chip R.	ERJ3 GSYJ 4R7V	R488	RK3038	Chip R.	ERJ3 GSYJ 102V
R430	RK3048	Chip R.	ERJ3 GSYJ 682V	R489	RK3022	Chip R.	ERJ3 GSYJ 470V
R431	RK3054	Chip R.	ERJ3 GSYJ 223V	R490	RK3046	Chip R.	ERJ3 GSYJ 472V
				R491	RK3046	Chip R.	ERJ3 GSYJ 472V
				R492	RK3030	Chip R.	ERJ3 GSYJ 221V

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
R493	RK3050	Chip R.	ERJ3 GSYJ 103V	L415	QK0063	Coil	0.5 - 3 - 3.5T
R494	RK3054	Chip R.	ERJ3 GSYJ 223V	L416	QK0063	Coil	0.6 - 3 - 3.5T
R495	RK3034	Chip R.	ERJ3 GSYJ 471V	L417	QK0063	Coil	0.5 - 3 - 3.5T
R496	RK3050	Chip R.	ERJ3 GSYJ 103V	L418	QA0065	IFT	BPF-T QA65
R497	RK3054	Chip R.	ERJ3 GSYJ 223V	L419	QC0003	Chip L.	MLF3216A 1R0M
R498	RK3054	Chip R.	ERJ3 GSYJ 223V	L420	QA0065	IFT	BPF-T QA65
R499	RK3054	Chip R.	ERJ3 GSYJ 223V	L421	QA0065	IFT	BPF-T QA65
R500	RK3058	Chip R.	ERJ3 GSYJ 473V	L422	QA0064	IFT	QA64
R501	RK3050	Chip R.	ERJ3 GSYJ 103V	L423	QA0064	IFT	QA64
R502	RK3058	Chip R.	ERJ3 GSYJ 473V	L424	QA0064	IFT	QA64
R503	RK3050	Chip R.	ERJ3 GSYJ 103V	L425	QK0063	Coil	0.5 - 3 - 3.5T
R504	RK3050	Chip R.	ERJ3 GSYJ 103V	L426	QC0003	Chip L.	MLF3216A 1R0M
R505	RK3026	Chip R.	ERJ3 GSYJ 101V	L427	QC0009	Chip L.	MLF3218D R10M
R506	RK3054	Chip R.	ERJ3 GSYJ 223V	L428	QC0215	Chip L.	MLF2012A 1R0K T
R507	RK3026	Chip R.	ERJ3 GSYJ 101V	L435	QC0215	Chip L.	MLF2012A 1R0K T
R508	RK3038	Chip R.	ERJ3 GSYJ 102V	IC401	XA0143	IC	M67749M
R509	RK3026	Chip R.	ERJ3 GSYJ 101V	IC402	XA0148	IC	M67748L
R510	RK3038	Chip R.	ERJ3 GSYJ 102V	IC403	XA0173	IC	MB1511 PFV-G-BND-EF
R511	RK3050	Chip R.	ERJ3 GSYJ 103V	IC404	XA0173	IC	MB1511 PFV-G-BND-EF
R528	RK3054	Chip R.	ERJ3 GSYJ 223V	D401	XD0243	Diode	MA142WK
R529	RK3054	Chip R.	ERJ3 GSYJ 223V	D402	XD0241	Diode	MA77
R530	RK3050	Chip R.	ERJ3 GSYJ 103V	D403	XD0240	Diode	MA860
R531	RK3058	Chip R.	ERJ3 GSYJ 473V	D404	XD0240	Diode	MA860
R532	RK3058	Chip R.	ERJ3 GSYJ 473V	D408	XD0120	Diode	MA704WK TX
R533	RK3038	Chip R.	ERJ3 GSYJ 102V	D409	XD0120	Diode	MA704WK TX
R534	RK3054	Chip R.	ERJ3 GSYJ 223V	D410	XD0232	Diode	MA8027-L TX
R535	RK3038	Chip R.	ERJ3 GSYJ 102V	D411	XD0240	Diode	MA860
R536	RK3074	Chip R.	ERJ3 GSYJ 105V	D412	XD0240	Diode	MA860
R537	RK3026	Chip R.	ERJ3 GSYJ 101V	D413	XD0132	Diode	1SV215 TPH4
R538	RK3038	Chip R.	ERJ3 GSYJ 102V	D414	XD0132	Diode	1SV215 TPH4
R539	RK3038	Chip R.	ERJ3 GSYJ 102V	D415	XD0132	Diode	1SV215 TPH4
R540	RK3034	Chip R.	ERJ3 GSYJ 471V	D416	XD0243	Diode	MA142WK
R541	RK3050	Chip R.	ERJ3 GSYJ 103V	D417	XD0242	Diode	MA147
R557	RK3054	Chip R.	ERJ3 GSYJ 223V	Q403	XT0096	Transistor	2SC4099T106N
R558	RK3042	Chip R.	ERJ3 GSYJ 222V	Q404	XT0035	Transistor	2SC3429 T85R
R559	RK3050	Chip R.	ERJ3 GSYJ 103V	Q405	XT0035	Transistor	2SC3429 T85R
R560	RK3014	Chip R.	ERJ3 GSYJ 100V	Q406	XT0097	Transistor	2SC4393TE85L
R563	RK3022	Chip R.	ERJ3 GSYJ 470V	Q407	XU0052	Transistor	UN5214
R570	RK3026	Chip R.	ERJ3 GSYJ 101V	Q408	XT0030	Transistor	2SC3356 T1 BR25
R571	RK3026	Chip R.	ERJ3 GSYJ 101V	Q409	XT0030	Transistor	2SC3356 T1 BR25
R572	RK3026	Chip R.	ERJ3 GSYJ 101V	Q410	XT0030	Transistor	2SC3356 T1 BR25
VR401	RH0060	Trim. pot	MVR32HXBN 473	Q411	XU0034	Transistor	XN1401
L401	QK0076	Coil	0.6 - 2 - 2.5T	Q412	XT0103	Transistor	2SC4211
L402	QK0036	Coil	0.6 - 3 - 1.5T	Q413	XT0104	Transistor	2SA1179M6
L403	QK0036	Coil	0.6 - 3 - 1.5T	Q414	XT0103	Transistor	2SC4211
L404	QK0036	Coil	0.6 - 3 - 1.5T	Q415	XT0096	Transistor	2SC4099T106N
L405	QK0102	Coil	0.5 - 2.6 - 1.5T	Q416	XT0030	Transistor	2SC3356 T1 BR25
L406	QK0102	Coil	0.5 - 2.6 - 1.5T	Q417	XT0030	Transistor	2SC3356 T1 BR25
L407	QK0102	Coil	0.5 - 2.6 - 1.5T	Q418	XE0015	FET	2SK302 YTE85
L408	QK0102	Coil	0.5 - 2.6 - 1.5T	Q419	XU0052	Transistor	UN5214
L409	QK0102	Coil	0.5 - 2.6 - 1.5T	Q420	XT0030	Transistor	2SC3356 T1 BR25
L410	QC0003	Chip L.	MLF3216A 1R0M	Q421	XT0030	Transistor	2SC3356 T1 BR25
L411	QK0037	Coil	0.6 - 3 - 2.5T	Q422	XU0052	Transistor	UN5214
L412	QC0003	Chip L.	MLF3216A 1R0M	Q423	XU0052	Transistor	UN5214
L413	QK0037	Coil	0.6 - 3 - 2.5T	Q428	XU0052	Transistor	UN5214
L414	QK0036	Coil	0.6 - 3 - 1.5T				

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
				IF Unit			
FB401	QB0008	Ferrite bead	HF30ACB201209-T	C101	CU3047	Chip C.	C1608 JB1H 103K
FB402	QB0008	Ferrite bead	HF30ACB201209-T	C102	CU3047	Chip C.	C1608 JB1H 103K
FB403	QB0008	Ferrite bead	HF30ACB201209-T	C103	CU3047	Chip C.	C1608 JB1H 103K
FB404	QB0008	Ferrite bead	HF30ACB201209-T	C104	CU3007	Chip C.	C1608 CH1H 060C
FB405	QB0008	Ferrite bead	HF30ACB201209-T	C105	CU3012	Chip C.	C1608 CH1H 120J
FB406	QB0008	Ferrite bead	HF30ACB201209-T	C106	CS0211	Chip Tantal	TMC MC0J 336M
FB407	QB0008	Ferrite bead	HF30ACB201209-T	C107	CU3059	Chip C.	C1608 JF1E 104Z
FB408	QB0008	Ferrite bead	HF30ACB201209-T	C108	CU3059	Chip C.	C1608 JF1E 104Z
XF401	XF0014	Crystal Filter	30.85MHz UM-5	C109	CU3059	Chip C.	C1608 JF1E 104Z
XF402	XF0003	Crystal Filter	55M15B1	C110	CU3021	Chip C.	C1608 CH1H 680J
X401	XQ0060	Crystal	UM5 12.8MHz	C111	CU3059	Chip C.	C1608 JF1E104Z
CN401	UE0039	Connector	TZL-P02P-A1	C112	CU3035	Chip C.	C1608 JB1H 102K
W401	UX1060	Wire	DJF52 W401	C113	CU3026	Chip C.	C1608 CH1H 181K
W402	UX1061	Wire	DJF52 W402	C114	CU3047	Chip C.	C1608 JB1H 103K
W403	MYDJH6AA	Wire	#26Y 2 - 6 - 2	C115	CU3051	Chip C.	C1608 JB1E 223K
W404	MKDJO8AA	Wire	#26K 2 - 8 - 2	C116	CU3059	Chip C.	C1608 JF1E 104Z
	UP0214E	PCB	DJF5 RF PCB-E	C117	CU3019	Chip C.	C1608 CH1H 470J
	TS0061		L Shield	C118	CU3047	Chip C.	C1608 JB1H 103K
	UE0047		Round Pin R9 × 10	C119	CU3056	Chip C.	C1608 JF1E 473Z
	YZ0001		Silicon Grease	C120	CU3059	Chip C.	C1608 JF1E 104Z
	YZ0051		Tone Insulation	C121	CU3035	Chip C.	C1608 JB1H 102K
				C122	CU3056	Chip C.	C1608 JF1E 473Z
				C123	CS0237	Chip Tantal	TMC MA1A 475M
				C124	CU3059	Chip C.	C1608 JF1E 104Z
				C125	CU3059	Chip C.	C1608 JF1E 104Z
				C126	CS0237	Chip Tantal	TMC MA1A 475MTR
				C127	CU3035	Chip C.	C1608 JB1H 102K
				C128	CU3035	Chip C.	C1608 JB1H 102K
				C129	CU3035	Chip C.	C1608 JB1H 102K
				C131	CU3047	Chip C.	C1608 JB1H 103K
				C132	CU3059	Chip C.	C1608 JF1E 104Z
				C133	CS0049	Chip Tantal	TMC SA1C 105M
				C134	CU3024	Chip C.	C1608 CH1H 121K
				C135	CU3059	Chip C.	C1608 JF1E 104Z
				C136	CU3047	Chip C.	C1608 JB1H 103K
				C137	CU3019	Chip C.	C1608 CH1H 470J
				C138	CU3013	Chip C.	C1608 CH1H 150J
				C139	CU3006	Chip C.	C1608 CH1H 050C
				C140	CU3035	Chip C.	C1608 JB1H 102K
				C141	CU3059	Chip C.	C1608 JF1E 104Z
				C142	CU3059	Chip C.	C1608 JF1E 104Z
				C143	CU3059	Chip C.	C1608 JF1E 104Z
				C144	CS0211	Chip Tantal	TMC MC0J 336M
				C145	CU3021	Chip C.	C1608 CH1H 680J
				C146	CU3047	Chip C.	C1608 JB1H 103K
				C147	CU3051	Chip C.	C1608 JB1E 223K
				C148	CU3035	Chip C.	C1608 JB1H 102K
				C149	CU3026	Chip C.	C1608 CH1H 181K
				C150	CU3035	Chip C.	C1608 JB1H 102K
				C151	CU3019	Chip C.	C1608 CH1H 470J
				C152	CU3047	Chip C.	C1608 JB1H 103K
				C153	CU3056	Chip C.	C1608 JF1E 473Z
				C154	CU3059	Chip C.	C1608 JF1E 104Z
				C155	CU3035	Chip C.	C1608 JB1H 102K
				C156	CU3056	Chip C.	C1608 JF1E 473Z
				C157	CS0237	Chip Tantal	TMC MA1A 475M
				C158	CU3059	Chip C.	C1608 JF1E 104Z

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
C159	CS0237	Chip Tantal	TMC MA1A 475M	C228	CU3035	Chip C.	C1608 JB1H 102K
C160	CU3059	Chip C.	C1608 JF1E 104Z	C229	CE0307	Electrolytic C.	ECEV A0J 470P
C161	CU3035	Chip C.	C1608 JB1H 102K	C230	CS0237	Chip Tantal	TMC MA1A 475M
C163	CU3059	Chip C.	C1608 JF1E 104Z	C234	CU3029	Chip C.	C1608 JB1H 331K
C164	CU3047	Chip C.	C1608 JB1H 103K	C237	CS0209	Chip Tantal	TMC MB0J 106M
C165	CU3059	Chip C.	C1608 JF1E 104Z	C238	CU3035	Chip C.	C1608 JB1H 102K
C166	CU3035	Chip C.	C1608 JB1H 102K	C239	CU3035	Chip C.	C1608 JB1H 102K
C167	CU3059	Chip C.	C1608 JF1E 104Z	C240	CS0057	Chip Tantal	TMC SA0J 225M
C169	CU3051	Chip C.	C1608 JB1E 223K	C241	CU3085	Chip C.	C1608 CH1H 300J
C171	CU3035	Chip C.	C1608 JB1H 102K	C242	CU3085	Chip C.	C1608 CH1H 300J
C172	CE0306	Electrolytic C.	ECEV A0J 330R	C243	CU3035	Chip C.	C1608 JB1H 102K
C173	CS0210	Chip Tantal	TMC MB0J 156M	C244	CS0211	Chip Tantal	TMC MC0J 336M
C174	CU3035	Chip C.	C1608 JB1H 102K	C245	CU3035	Chip C.	C1608 JB1H 102K
C175	CE0313	Electrolytic C.	ECEV A1C 220P	C246	CU3035	Chip C.	C1608 JB1H 102K
C176	CU3035	Chip C.	C1608 JB1H 102K	C247	CU3035	Chip C.	C1608 JB1H 102K
C177	CS0210	Chip Tantal	TMC MB0J 156M	C250	CU3059	Chip C.	C1608 JF1E 104Z
C178	CS3059	Chip C.	C1608 JF1E 104Z	C251	CU3059	Chip C.	C1608 JF1E 104Z
C179	CS0210	Chip Tantal	TMC MB0J 156M	C252	CU3059	Chip C.	C1608 JF1E 104Z
C180	CU3035	Chip C.	C1608 JB1H 102K	C253	CU3047	Chip C.	C1608 JB1H 103K
C181	CS0237	Chip Tantal	TMC MA1A 475M	C254	CU3023	Chip C.	C1608 CH1H 101J
C182	CS0210	Chip Tantal	TMC MB0J 156M	C255	CU3035	Chip C.	C1608 JB1H 102K
C183	CU3035	Chip C.	C1608 JB1H 102K	C260	CU3023	Chip C.	C1608 CH1H 101J
C184	CS0237	Chip Tantal	TMC MA1A 475M				
C185	CS0049	Chip Tantal	TMC SA1C 105M	R101	RK3026	Chip R.	ERJ3 GSYJ 101V
C186	CU3035	Chip C.	C1608 JB1H 102K	R102	RK3072	Chip R.	ERJ3 GSYJ 684V
C187	CU3035	Chip C.	C1608 JB1H 102K	R103	RK3038	Chip R.	ERJ3 GSYJ 102V
C188	CU3047	Chip C.	C1608 JB1H 103K	R104	RK3026	Chip R.	ERJ3 GSYJ 101V
C189	CU0060	Chip Tantal	TMC SA1E 474M	R105	RK3054	Chip R.	ERJ3 GSYJ 223V
C190	CS0061	Chip Tantal	TMC SA1V 224M	R106	RK3038	Chip R.	ERJ3 GSYJ 102V
C191	CS0061	Chip Tantal	TMC SA1V 224M	R107	RK3050	Chip R.	ERJ3 GSYJ 103V
C192	CU3023	Chip C.	C1608 CH1H 101J	R108	RK3038	Chip R.	ERJ3 GSYJ 102V
C193	CU3023	Chip C.	C1608 CH1H 101J	R109	RK3070	Chip R.	ERJ3 GSYJ 474V
C194	CU3023	Chip C.	C1608 CH1H 101J	R110	RK3035	Chip R.	ERJ3 GSYJ 561V
C195	CU3023	Chip C.	C1608 CH1H 101J	R111	RK3042	Chip R.	ERJ3 GSYJ 222V
C200	CU3035	Chip C.	C1608 JB1H 102K	R112	RK3038	Chip R.	ERJ3 GSYJ 102V
C205	CU3035	Chip C.	C1608 JB1H 102K	R113	RK3038	Chip R.	ERJ3 GSYJ 102V
C206	CU3024	Chip C.	C1608 CH1H 121K	R114	RK3054	Chip R.	ERJ3 GSYJ 223V
C207	CU3023	Chip C.	C1608 CH1H 101J	R115	RK3050	Chip R.	ERJ3 GSYJ 103V
C208	CU3035	Chip C.	C1608 JB1H 102K	R116	RK3042	Chip R.	ERJ3 GSYJ 222V
C209	CU3035	Chip C.	C1608 JB1H 102K	R117	RK3026	Chip R.	ERJ3 GSYJ 101V
C210	CS0069	Chip Tantal	TMC SA1V 154M	R118	RK3050	Chip R.	ERJ3 GSYJ 103V
C211	CU3031	Chip C.	C1608 JB1H 471K	R119	RK3046	Chip R.	ERJ3 GSYJ 472V
C212	CU3031	Chip C.	C1608 JB1H 471K	R120	RK3050	Chip R.	ERJ3 GSYJ 103V
C213	CS0209	Chip Tantal	TMC MB0J 106M	R121	RK3103	Chip R.	ERJ3 GSYJ 753V
C214	CS0209	Chip Tantal	TMC MB0J 106M	R122	RK3058	Chip R.	ERJ3 GSYJ 473V
C215	CU3043	Chip C.	C1608 JB1H 472K	R123	RK3038	Chip R.	ERJ3 GSYJ 102V
C216	CU3019	Chip C.	C1608 CH1H 470J	R124	RK3044	Chip R.	ERJ3 GSYJ 332V
C217	CU3052	Chip C.	C1608 JB1H 103K	R125	RK3042	Chip R.	ERJ3 GSYJ 222V
C218	CU3031	Chip C.	C1608 JB1H 471K	R126	RK3001	Chip R.	ERJ3 GSYJ 000V
C219	CU3031	Chip C.	C1608 JB1H 471K	R127	RK3018	Chip R.	ERJ3 GSYJ 220V
C220	CS0049	Chip Tantal	TMC SA1C 105M	R128	RK3050	Chip R.	ERJ3 GSYJ 103V
C221	CS0049	Chip Tantal	TMC SA1C 105M	R129	RK3058	Chip R.	ERJ3 GSYJ 473V
C222	CE0307	Electrolytic C.	ECEV A0J 470P	R130	RK3035	Chip R.	ERJ3 GSYJ 561V
C223	CU3035	Chip C.	C1608 JB1H 102K	R131	RK3054	Chip R.	ERJ3 GSYJ 223V
C224	CU3035	Chip C.	C1608 JB1H 102K	R132	RK3046	Chip R.	ERJ3 GSYJ 472V
C225	CE0307	Electrolytic C.	ECEV A0J 470P	R133	RK3028	Chip R.	ERJ3 GSYJ 151V
C226	CU3059	Chip C.	C1608 JF1E 104Z	R134	RK3050	Chip R.	ERJ3 GSYJ 103V
C227	CU3059	Chip C.	C1608 JF1E 104Z	R135	RK3050	Chip R.	ERJ3 GSYJ 103V

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
R136	RK3050	Chip R.	ERJ3 GSYJ 103V	R197	RK3058	Chip R.	ERJ3 GSYJ 473V
R137	RK3062	Chip R.	ERJ3 GSYJ 104V	R198	RK3050	Chip R.	ERJ3 GSYJ 103V
R140	RK3070	Chip R.	ERJ3 GSYJ 474V	R199	RK3026	Chip R.	ERJ3 GSYJ 101V
R141	RK3062	Chip R.	ERJ3 GSYJ 104V	R200	RK3058	Chip R.	ERJ3 GSYJ 473V
R142	RK3070	Chip R.	ERJ3 GSYJ 474V	R202	RK3050	Chip R.	ERJ3 GSYJ 103V
R143	RK3044	Chip R.	ERJ3 GSYJ 332V	R203	RK3026	Chip R.	ERJ3 GSYJ 101V
R144	RK3050	Chip R.	ERJ3 GSYJ 103V	R204	RK3058	Chip R.	ERJ3 GSYJ 473V
R145	RK3001	Chip R.	ERJ3 GSYJ 000V	R206	RK3050	Chip R.	ERJ3 GSYJ 103V
R146	RK3038	Chip R.	ERJ3 GSYJ 102V	R207	RK3044	Chip R.	ERJ3 GSYJ 332V
R147	RK3038	Chip R.	ERJ3 GSYJ 102V	R208	RK3008	Chip R.	ERJ3 GSYJ 3R3V
R148	RK3070	Chip R.	ERJ3 GSYJ 474V	R209	RK3038	Chip R.	ERJ3 GSYJ 102V
R149	RK3062	Chip R.	ERJ3 GSYJ 104V	R210	RK3026	Chip R.	ERJ3 GSYJ 101V
R150	RK3038	Chip R.	ERJ3 GSYJ 102V	R211	RK3058	Chip R.	ERJ3 GSYJ 473V
R151	RK3038	Chip R.	ERJ3 GSYJ 102V	R212	RK3058	Chip R.	ERJ3 GSYJ 473V
R152	RK3058	Chip R.	ERJ3 GSYJ 473V	R213	RK3054	Chip R.	ERJ3 GSYJ 223V
R153	RK3038	Chip R.	ERJ3 GSYJ 102V	R214	RK3047	Chip R.	ERJ3 GSYJ 562V
R154	RK3035	Chip R.	ERJ3 GSYJ 561V	R216	RK3038	Chip R.	ERJ3 GSYJ 102V
R155	RK3042	Chip R.	ERJ3 GSYJ 222V	R217	RK3038	Chip R.	ERJ3 GSYJ 102V
R156	RK3044	Chip R.	ERJ3 GSYJ 332V	R218	RK3062	Chip R.	ERJ3 GSYJ 104V
R157	RK3042	Chip R.	ERJ3 GSYJ 222V	R219	RK3087	Chip R.	ERJ3 GSYJ 304V (T)
R158	RK3050	Chip R.	ERJ3 GSYJ 103V	R219	RK3069	Chip R.	ERJ3 GSYJ 394V (E)
R159	RK3001	Chip R.	ERJ3 GSYJ 000V	R220	RK3050	Chip R.	ERJ3 GSYJ 103V
R160	RK3058	Chip R.	ERJ3 GSYJ 473V	R221	RK3050	Chip R.	ERJ3 GSYJ 103V
R161	RK3103	Chip R.	ERJ3 GSYJ 753V	R222	RK3022	Chip R.	ERJ3 GSYJ 470V
R162	RK3035	Chip R.	ERJ3 GSYJ 561V	R223	RK3062	Chip R.	ERJ3 GSYJ 104V
R163	RK3050	Chip R.	ERJ3 GSYJ 103V	R224	RK3062	Chip R.	ERJ3 GSYJ 104V
R164	RK3046	Chip R.	ERJ3 GSYJ 472V	R225	RK3059	Chip R.	ERJ3 GSYJ 563V
R165	RK3050	Chip R.	ERJ3 GSYJ 103V	R226	RK3062	Chip R.	ERJ3 GSYJ 104V
R166	RK3050	Chip R.	ERJ3 GSYJ 103V	R227	RK3074	Chip R.	ERJ3 GSYJ 105V
R167	RK3054	Chip R.	ERJ3 GSYJ 223V	R228	RK3074	Chip R.	ERJ3 GSYJ 105V
R168	RK3042	Chip R.	ERJ3 GSYJ 222V	R229	RK3051	Chip R.	ERJ3 GSYJ 123V
R169	RK3026	Chip R.	ERJ3 GSYJ 101V	R230	RK3068	Chip R.	ERJ3 GSYJ 334V
R170	RK3054	Chip R.	ERJ3 GSYJ 223V	R231	RK3050	Chip R.	ERJ3 GSYJ 103V
R171	RK3046	Chip R.	ERJ3 GSYJ 472V	R232	RK3029	Chip R.	ERJ3 GSYJ 181V
R172	RK3044	Chip R.	ERJ3 GSYJ 332V	R233	RK3062	Chip R.	ERJ3 GSYJ 104V
R173	RK3028	Chip R.	ERJ3 GSYJ 151V	R234	RK3067	Chip R.	ERJ3 GSYJ 274V
R174	RK3034	Chip R.	ERJ3 GSYJ 471V	R235	RK3065	Chip R.	ERJ3 GSYJ 184V
R176	RK3070	Chip R.	ERJ3 GSYJ 474V	R236	RK3050	Chip R.	ERJ3 GSYJ 103V
R177	RK3067	Chip R.	ERJ3 GSYJ 274V	R237	RK3058	Chip R.	ERJ3 GSYJ 473V
R178	RK3070	Chip R.	ERJ3 GSYJ 474V	R238	RK0105	Chip R.	ERJ6 GEYJ 2R2V
R179	RK3070	Chip R.	ERJ3 GSYJ 474V	R239	RK3034	Chip R.	ERJ3 GSYJ 471V
R180	RK3046	Chip R.	ERJ3 GSYJ 472V	R240	RK3034	Chip R.	ERJ3 GSYJ 471V
R181	RK3046	Chip R.	ERJ3 GSYJ 472V	R241	RK3008	Chip R.	ERJ3 GSYJ 3R3V
R182	RK3062	Chip R.	ERJ3 GSYJ 104V	R242	RK3008	Chip R.	ERJ3 GSYJ 3R3V
R183	RK3050	Chip R.	ERJ3 GSYJ 103V	R243	RK3050	Chip R.	ERJ3 GSYJ 103V
R184	RK3062	Chip R.	ERJ3 GSYJ 104V	R244	RK3050	Chip R.	ERJ3 GSYJ 103V
R185	RK3051	Chip R.	ERJ3 GSYJ 123V	R245	RK3046	Chip R.	ERJ3 GSYJ 472V
R186	RK3042	Chip R.	ERJ3 GSYJ 222V	R246	RK3050	Chip R.	ERJ3 GSYJ 103V
R187	RK3026	Chip R.	ERJ3 GSYJ 101V	R247	RK3034	Chip R.	ERJ3 GSYJ 471V
R188	RK3058	Chip R.	ERJ3 GSYJ 473V	R248	RK3062	Chip R.	ERJ3 GSYJ 104V
R189	RK3042	Chip R.	ERJ3 GSYJ 222V	R249	RK3050	Chip R.	ERJ3 GSYJ 103V
R190	RK3026	Chip R.	ERJ3 GSYJ 101V	R250	RK3038	Chip R.	ERJ3 GSYJ 102V
R191	RK3058	Chip R.	ERJ3 GSYJ 473V	R251	RK3050	Chip R.	ERJ3 GSYJ 103V
R192	RK3042	Chip R.	ERJ3 GSYJ 222V	R252	RK3051	Chip R.	ERJ3 GSYJ 123V
R193	RK3026	Chip R.	ERJ3 GSYJ 101V	R253	RK3042	Chip R.	ERJ3 GSYJ 222V
R194	RK3058	Chip R.	ERJ3 GSYJ 473V	R254	RK3034	Chip R.	ERJ3 GSYJ 471V
R195	RK3042	Chip R.	ERJ3 GSYJ 222V	R255	RK3058	Chip R.	ERJ3 GSYJ 473V
R196	RK3026	Chip R.	ERJ3 GSYJ 101V	R256	RK3046	Chip R.	ERJ3 GSYJ 472V

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
R257	RK3050	Chip R.	ERJ3 GSYJ 103V	L101	QC0132	Chip L.	NL322522T-R68J-3
R258	RK3062	Chip R.	ERJ3 GSYJ 104V	L102	QC0055	Chip L.	NL322522T-010M
R259	RK3062	Chip R.	ERJ3 GSYJ 104V	L103	QC0039	Chip L.	NL322522T-1R0M
R260	RK3074	Chip R.	ERJ3 GSYJ 105V	L104	QC0039	Chip L.	NL322522T-1R0M
R261	RK3050	Chip R.	ERJ3 GSYJ 103V	L105	QC0039	Chip L.	NL322522T-1R0M
R263	RK3050	Chip R.	ERJ3 GSYJ 103V	L106	QC0039	Chip L.	NL322522T-1R0M
R264	RK3054	Chip R.	ERJ3 GSYJ 223V	IC101	XA0144	IC	TK10487MTR
R265	RK3054	Chip R.	ERJ3 GSYJ 223V	IC102	XA0144	IC	TK10487MTR
R266	RK3054	Chip R.	ERJ3 GSYJ 223V	IC103	XA0182	IC	S-81332HG-KC-T1
R267	RK3054	Chip R.	ERJ3 GSYJ 223V	IC104	XA0172	IC	S-8053ALR-LJ-T1
R268	RK3074	Chip R.	ERJ3 GSYJ 105V	IC105	XA0068	IC	M5218FP
R269	RK3050	Chip R.	ERJ3 GSYJ 103V	IC106	XA0111	IC	NJM2073M
R270	RK3038	Chip R.	ERJ3 GSYJ 102V	IC107	XA0318	IC	HD404439A66H
R271	RK3058	Chip R.	ERJ3 GSYJ 473V	IC108	XA0105	IC	MC145436
R272	RK3066	Chip R.	ERJ3 GSYJ 224V	D101	XD0118	Diode	MA716
R273	RK3074	Chip R.	ERJ3 GSYJ 105V	D102	XD0120	Diode	MA704WK
R274	RK3062	Chip R.	ERJ3 GSYJ 104V	D103	XD0244	Diode	MA151WA
R275	RK3062	Chip R.	ERJ3 GSYJ 104V	D104	XD0118	Diode	MA716
R276	RK3062	Chip R.	ERJ3 GSYJ 104V	D105	XD0118	Diode	MA716
R277	RK3062	Chip R.	ERJ3 GSYJ 104V	D106	XD0244	Diode	MA151WA
R278	RK3050	Chip R.	ERJ3 GSYJ 103V	D108	XD0245	Diode	MA121
R279	RK3050	Chip R.	ERJ3 GSYJ 103V	D110	XD0241	Diode	MA77
R280	RK3018	Chip R.	ERJ3 GSYJ 220V	D111	XD0127	Diode	MA704WA TX
R281	RK3050	Chip R.	ERJ3 GSYJ 103V	D113	XD0120	Diode	MA704WK
R285	RK3062	Chip R.	ERJ3 GSYJ 104V	D116	XD0244	Diode	MA151WA
R286	RK3062	Chip R.	ERJ3 GSYJ 104V	D117	XD0241	Diode	MA77
R287	RK3058	Chip R.	ERJ3 GSYJ 473V	D118	XD0232	Diode	MA8027-L TX
R289	RK3050	Chip R.	ERJ3 GSYJ 103V	D119	XD0232	Diode	MA8027-L TX
R290	RK3049	Chip R.	ERJ3 GSYJ 822V	D120	XD0241	Diode	MA77
R291	RK3001	Chip R.	ERJ3 GSYJ 000V	D121	XD0241	Diode	MA77
R292	RK3001	Chip R.	ERJ3 GSYJ 000V	Q101	XT0081	Transistor	2SC2714
R293	RK3001	Chip R.	ERJ3 GSYJ 000V	Q102	XT0103	Transistor	2SC4211
R294	RK3074	Chip R.	ERJ3 GSYJ 105V	Q103	XT0102	Transistor	2SC2812
R295	RK3038	Chip R.	ERJ3 GSYJ 102V	Q104	XU0027	Transistor	FMA7
R296	RK3062	Chip R.	ERJ3 GSYJ 104V	Q105	XU0002	Transistor	DTC114YK
R297	RK3036	Chip R.	ERJ3 GSYJ 681V	Q106	XT0102	Transistor	2SC2812
R298	RK3050	Chip R.	ERJ3 GSYJ 103V	Q107	XT0081	Transistor	2SC2714
R300	RK3062	Chip R.	ERJ3 GSYJ 104V	Q108	XT0103	Transistor	2SC4211
R301	RK3038	Chip R.	ERJ3 GSYJ 102V	Q109	XT0102	Transistor	2SC2812
R302	RK3001	Chip R.	ERJ3 GSYJ 000V	Q110	XT0102	Transistor	2SC2812
R304	RK3050	Chip R.	ERJ3 GSYJ 103V	Q111	XE0019	FET	2SJ144Y
R305	RK3038	Chip R.	ERJ3 GSYJ 102V	Q112	XU0043	Transistor	2SC4047
R306	RK3052	Chip R.	ERJ3 GSYJ 153V	Q113	XU0043	Transistor	2SC4047
R307	RK0107	Chip R.	ERJ6 GEY0R 00V	Q114	XU0052	Transistor	UN5214
R308	RK3050	Chip R.	ERJ3 GSYJ 103V	Q115	XT0102	Transistor	2SC2812
R309	RK3058	Chip R.	ERJ3 GSYJ 473V	Q116	XT0088	Transistor	2SA1213
R310	RK3030	Chip R.	ERJ3 GSYJ 221V	Q117	XU0053	Transistor	XN1501
R311	RK3001	Chip R.	ERJ3 GSY0R 00V	Q118	XT0088	Transistor	2SA1213
VR103	RH0059	Trim. pot	MVR32 HXB N223	Q119	XU0053	Transistor	XN1501
VR104	RH0059	Trim. pot	MVR32 HXB N223	Q120	XT0088	Transistor	2SA1213
VR105	RH0064	Trim. pot	MVR32HXBR N103	Q121	XU0053	Transistor	XN1501
VR106	RH0064	Trim. pot	MVR32HXBR N103	Q122	XT0088	Transistor	2SA1213
VR107	RH0060	Trim. pot	MVR32HXBN 473	Q123	XU0053	Transistor	XN1501
VR108	RH0060	Trim. pot	MVR32HXBN 473	Q124	XT0094	Transistor	2SA1576
VR109	RH0064	Trim. pot	MVR32HXBR N103	Q125	XU0053	Transistor	XN1501
VR110	RH0094	Trim. pot	MVR32 474				
VR111	RH0059	Trim. pot	MVR32 HXB N223				

Ref. No.	Parts No.	Description	Parts Name
Q126	XT0104	Transistor	2SA1179
Q127	XU0053	Transistor	XN1501
Q128	XT0088	Transistor	2SA1213
Q129	XU0053	Transistor	XN1501
Q130	XU0041	Transistor	XN1A312
Q131	XU0052	Transistor	UN5214
Q132	XU0043	Transistor	2SC4047
Q133	XT0104	Transistor	2SA1179
Q134	XU0043	Transistor	2SC4047
Q135	XU0043	Transistor	2SC4047
Q136	XU0044	Transistor	2SA1344
Q137	XU0043	Transistor	2SC4047
Q138	XU0045	Transistor	2SC3398
Q139	XT0102	Transistor	2SC2812
Q140	XU0054	Transistor	XN1213
Q141	XU0029	Transistor	DTC114YU
Q142	XE0019	FET	2SJ144Y
Q143	XU0042	Transistor	FMC1
Q144	XU0052	Transistor	UN5214
X101	XQ0058	Crystal	UM-5 30.395MHz
X102	XK0002	Discriminator	CDBM455C7
X103	XQ0039	Crystal	UM-5 54.595MHz
X104	XK0002	Discriminator	CDBM455C7
X105	XB0014	Crystal	CSA 3.58MGC300GA
X106	XB0015	Crystal	EF0S3584E3
FL101	XC0004	Filter	CFUM 455E
FL102	XC0004	Filter	CFUM 455E
CN101	UE0037	Connector	TZL-P10P-A1
CN102	UE0139	Connector	TZL-P11P-A1
CN103	UE0129	Connector	DF9A-9S-1V
W101	UX1003A	Wire	DJF5W101
W102	MTDJ06AA	Wire	# 26T 2 - 6 - 2
W103	UP0217	PCB	Flexible Printed Circuit Board
W105	MKCL07AA	Wire	# 30R 02 - 070 - 02
	RV0023	Pot. meter	TP96D00
	RV0024	Pot. meter	TP96D00N
	UR0008	Encoder	EC09P20-85
	ED0002	Battery	Lithium Battery BR1225-1VF
	UP0263	PCB	IF Circuit Board B
	TZ0021	Insulator	
	TZ0048	Lithium Battery Insulator	
	TZ0056	VCO Shield K1	
	TS0073A	CPU Shield F5	
	TZ0049	Silicon Damper	
	TZ0051	Tone Insulation	

Ref. No.	Parts No.	Description	Parts Name
SW Unit			
SW601	UU0013	Switch	SKHUAB
SW602	UU0013	Switch	SKHUAB
SW603	UU0013	Switch	SKHUAB
R604	RK3001	Chip R.	MCR03 EZ0J 000
C608	CU3035	Chip C.	C1608 JB1H 102K
C609	CU3035	Chip C.	C1608 JB1H 102K
C610	CU3035	Chip C.	C1608 JB1H 102K
C611	CU3035	Chip C.	C1608 JB1H 102K
D602	XD0251	Diode	MA741WA

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
Jack Unit				Others			
JK601	UJ0019	Jack	HSJ1423-01-010		KM0173		Front Case
JK602	UJ0019	Jack	HSJ1423-01-010		KB0050		Rear Case
JK603	UJ0022	Jack	HSJ1102-01-540		FG0158		Ten Key
					FG0159		Sub Key
R601	RK3050	Chip R.	ERJ3 GSY 103V		FG0080		DC Jack Cover
R602	RK3026	Chip R.	ERJ3 GSY 101V		FG0081		Rubber Shield
R605	RK3050	Chip R.	ERJ3 GSY 103V		FG0167		PTT Rubber
					NB0059		Release Knob
C601	CU3035	Chip C.	C1608 JB1H 102KTA		FP0054A		Terminal Base
C602	CU3035	Chip C.	C1608 JB1H 102KTA		DP0092		LCD Panel
C603	CU3035	Chip C.	C1608 JB1H 102KTA		FG0078A		SP Rubber
C604	CU3035	Chip C.	C1608 JB1H 102KTA		FG0079		MIC Rubber
C605	CU3035	Chip C.	C1608 JB1H 102KTA		YZ0140		Panel Tape
C606	CU3035	Chip C.	C1608 JB1H 102KTA		YZ0058		Cop. Wire 0.4 1mm
C607	CU3035	Chip C.	C1608 JB1H 102KTA		TG0020		SP Net
					AN0012		Dial Nut
D601	XD0120	Diode	MA704WK		UE0029A		BNC Receptacle
					NK0033A		VOL Knob
					NK0034		Dial Knob
					NK0032		SQL Knob
					TS0095		LCD Earth Plate A
					TS0062		LCD Earth Plate B
					TS0043A		Terminal Earth Plate
					TS0069		Earth Plate
					UT0024		Terminal
					ST0029A		SP Holder
					FM0056		Terminal Base Plate
					SS0050		VOL Angle
					TS0059		IF Shield
					TS0065		ANT Shield
					SA0011		Angle Boss
					SA0010		IF Boss
					AS0155		Screw Set
					YZ0044		Screw Lock 1401C
					TS0066		Flex Shield
					YZ0041		Cop. Tape Width 8mm
					YZ0013		Hot Melt TC3764 (3M) 1G × 1

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
Packing				CTCSS Unit			
	# G0535		Belt Hook Unit	IC701	XA0241	IC	MX265DW
	# G0517		Battery Case N Unit (TC)	Q701	XT0095	Transistor	2SC4081
	EA0031		Antenna	D701	XD0	Diode	DAN202
	PH0009		Registration Card	VR701	RH0060	Trim. pot	MVR32 HXBRN473
	PS0199A		Instruction Manual	X701	XB0006	Cristal	CSB1000J 221
	PT0004A		Lot Number Seal	CN701	UE0132	Connector	DF9A-9P-AV(22)
	PK0055		Schematic Diagram (T/E/TA)	C701	CU3027	Chip C.	C1608 CH1H 221JTA
	PR0237		Part 15 Seal (DJ582T only)	C702	CU3027	Chip C.	C1608 CH1H 221JTA
	HK0359		Item Carton Box (DJ582T)	C703	CU8042	Chip C.	C2012 JB1C 104K
	HK0360		Item Carton Box (DJ582E)	C704	CU3047	Chip C.	C1608 CH1H 103KTA
	HH0030		Polystyrene Foamed Fixture	C705	CS0060	Chip Tantal	TMC SA1E 474M
	HH0031		Polystyrene Plate	C706	CS0060	Chip Tantal	TMC MA1E 474M
	HH0036		Polystyrene Plate	C707	CS0237	Chip Tantal	TMC MA1A 475M
	DS0355		Model Name Plate (DJ582T)	C708	CU8042	Chip C.	C2012 JB1C 104K
	DS0352		Model Name Plate (DJ582E)	C709	CU8042	Chip C.	C2012 JB1C 104K
	HM0131		10 sets Carton Box (DJ582T)	C710	CU8042	Chip C.	C2012 JB1C 104K
	HH0037		Carton Cushion (DJ582T)	C711	CS0060	Chip Tantal	TMC SA1E 474TR
	EG0023		Ni-Cd Battery Pack (T/E/TA)	R701	RK3074	Chip R.	ERJ3 GSYJ 105V
	EDC-49		(DJ580T only)	R702	RK3064	Chip R.	ERJ3 GSYJ 154V
	EDC-50		(DJ580E only)	R703	RK3040	Chip R.	ERJ3 GSYJ 152V
	HP0024	Protection Bag	Unit 105 × 230	R704	RK3022	Chip R.	ERJ3 GSYJ 470V
	HP0028	Protection Bag	165 × 280	R705	RK3067	Chip R.	ERJ3 GSYJ 274V
	PR0094		Seal A (TA)	R706	RK3059	Chip R.	ERJ3 GSYJ 563V
Screw List				R707	RK3074	Chip R.	ERJ3 GSYJ 105V
	AF0008	Screw	2 + 3.5 Fe Ni	R708	RD3073	Chip R.	ERJ3 GSYJ 824V
	AF0018	Screw	2 + 4 Fe BC	R709	RK3038	Chip R.	ERJ3 GSYJ 102V
	AF0016	Screw	2 + 2 Fe BC	R710	RK3070	Chip R.	MCR03 EZHJ 474
	AF0020	Screw	2 + 3 Fe Ni		UP0265A		Tone Squelch Unit
	AF0014	Screw	2.6 + 3.5 Fe Ni		YZ0042		Adhesion
	AF0001	Screw	2.6 + 6 Fe				
	AP0003	Screw	P 2 + 16 Fe BC				

Adjustment

1) Required Test Equipment

1. Regulated Power Supply

Supply voltage: 2V to 15V
Current: 2A or more.
Standard voltage: 13.8V

2. Frequency Counter

Measurable frequency: Up to 1GHz
Measurements stability: 0.2ppm or so

3. Power Meter

Measurable frequency: Up to 500MHz.
Impedance: 50Ω, unbalanced.
Measuring range: Full scale of 100W or so.

4. Linear Detector

Measurable frequency: Up to 500MHz.
Characteristics: Flat
CN: 60dB or more.

5. Digital Multimeter

Voltage range: FS = 18V or so.
Input resistance: 1MΩ or more.

6. Oscilloscope

Measurable frequency: DC to 30MHz.

7. AF Voltmeter

Measurable frequency: 50Hz to 1MHz.
Maximum sensitivity: 1mV or more.

8. Spectrum Analyzer

Measuring range: DC to 2GHz or more.

9. SSG

Maximum frequency: 1GHz or more.
Output: -20dB/0.1μV to 120dB/1V.
Output Impedance: 50Ω, unbalanced.

10. Dummy Load

Impedance: 8Ω
Dissipation: 100W or more.

11. Distortion Meter

Measurable frequency: 30Hz to 100KHz.
Input level: 50mV to 10V rms.

2)Adjustment for DJ-582T/TA/TC

TX-RX Common Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Backup Voltage	Power off	Digital multimeter	D116 TP3			Check	2.8V or more

PLL Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Reference Frequency	Frequency: 445.00MHz PTT: ON	Frequency Counter	ANT	RF	TC406		445.00000MHz
UHF TX VCO	Frequency: 445.00MHz PTT: ON Power: Middle	Digital multimeter	TP1	U-VCO	L433		1.5 ~ 1.7V
UHF RX VCO	Frequency: 445.00MHz	Digital multimeter	TP1	U-VCO	L432		1.8 ~ 2.2V
VHF VCO	Frequency: 145.00MHz	Digital multimeter	TP2	V-VCO	L441		2.0 ~ 2.1V

RX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Receive Sensitivity	Freq: 445.05MHz SSG mod: 1KHz Power Supply Voltage: 6V	SSG Oscilloscope AF Voltmeter Distortion meter	SP	RF	TC401 ~ TC405	12dB SINAD: MAX	12dB SINAD -7.5dbμV (EMF)
	Freq: 145.05MHz SSG mod: 1KHz Power Supply Voltage: 6V			RF	L422, L424 ~ L428	12dB SINAD: MAX	12dB SINAD -7.5dbμV (EMF)
S Meter	Freq: 445.05MHz SSG output: 15dBμV (EMF)			IF	VR103	Full	+10 ~ +25dBμV (EMF)
	Freq: 145.05MHz SSG output: 15dBμV (EMF)			IF	VR104	Full	+10 ~ +25dBμV (EMF)

TX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Power	1) Before adjustment	Power meter Spectrum Analyzer	ANT	IF	VR109	MAX	
	2) Freq: 445.00MHz PTT: ON Power: High			RF	L402		spurious below -65dBc
	3) Freq: 445.00MHz PTT: ON Power: High			IF	VR109		5.0 ~ 5.3W
	4) Freq: 445.00MHz PTT: ON Power: Middle			IF	VR108		0.9~1.1W
	5) Freq: 445.00MHz PTT: ON Power: Low			IF	VR110		0.15~0.25W
	6) Freq: 145.00MHz PTT: ON Power: High			RF	VR401		5.0 ~ 5.3W
	7) Freq: 145.00MHz PTT: ON Power: Middle					Check	0.8 ~ 1.5W
	8) Freq: 145.00MHz PTT: ON Power: Low					Check	0.1 ~ 0.6W
DEV	1) Freq: 445.00MHz AG output: 1KHz, -30dBm PTT: ON Power: Low	Power meter AG Liner detector	ANT	IF	VR105		4.7KHz/DEV
	2) Freq: 145.00MHz AG output: 1KHz, -30dBm PTT: ON Power: Low			IF	VR106		4.7KHz/DEV
DTMF	Freq: 445.00MHz PTT: ON Power: Low Push "1" key on keypad			IF	VR107		3KHz/DEV
CTCSS (88.5Hz)	Freq: 445.00MHz PTT: ON Power: Low with Tone SQL Unit			Tone SQL	VR701		800Hz/DEV

3)Adjustment for DJ-582E

TX-RX Common Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Backup Voltage	Power off	Digital multimeter	D116 TP3			Check	2.8V or more

PLL Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Reference Frequency	Frequency: 435.00MHz PTT: ON	Frequency Counter	ANT	RF	TC406		435.00000MHz ± 100Hz
UHF TX VCO	Frequency: 435.00MHz PTT: ON Power: Middle	Digital multimeter	TP1	U-VCO	L433		1.3 ~ 1.8V
UHF RX VCO	Frequency: 435.00MHz		TP1	U-VCO	L432		1.8 ~ 2.2V
VHF VCO	Frequency: 145.00MHz		TP2	V-VCO	L441		2.0 ~ 2.1V

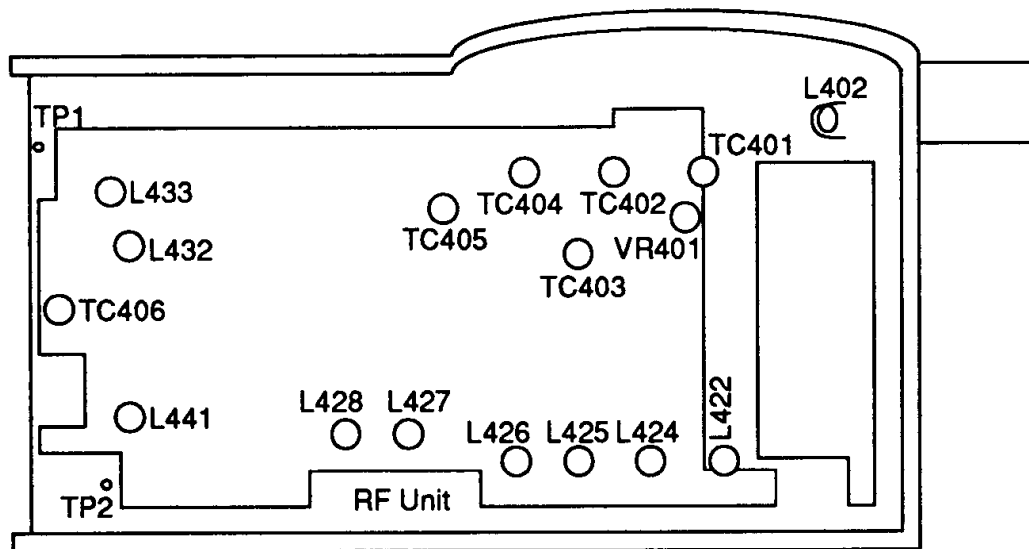
RX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Receive Sensitivity	Freq: 435.05MHz SSG mod: 1KHz Power Supply Voltage: 6V	SSG Oscilloscope AF Voltmeter Distortion meter	SP	RF	TC401 ~ TC405	12dB SINAD: MAX	12dB SINAD -7.5dBμV (EMF)
	Freq: 145.05MHz SSG mod: 1KHz Power Supply Voltage: 6V			RF	L422, L424 ~ L428	12dB SINAD: MAX	12dB SINAD -7.5dBμV (EMF)
S Meter	Freq: 435.05MHz SSG output: 15dBμV (EMF)			IF	VR103	Full	+10 ~ +25dBμV (EMF)
	Freq: 145.05MHz SSG output: 15dBμV (EMF)			IF	VR104	Full	+10 ~ +25dBμV (EMF)

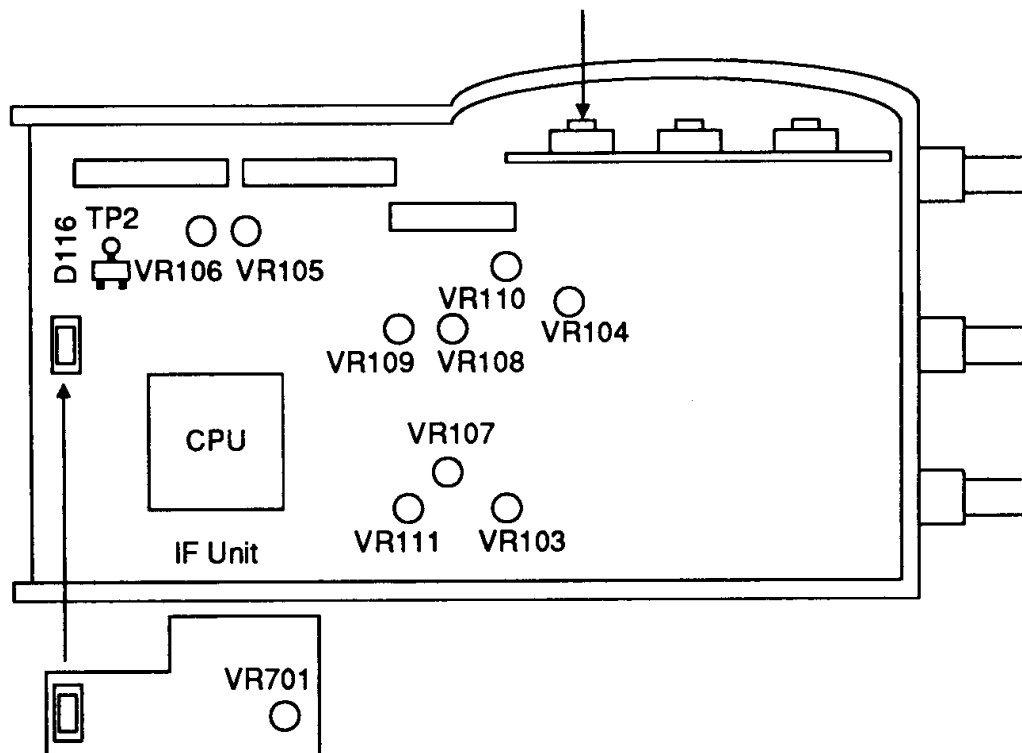
TX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Power	1) Before adjustment	Power meter Spectrum Analyzer	ANT	IF	VR109	MAX	
	2) Freq: 435.00MHz PTT: ON Power: High			RF	L402		spurious below -65dBc
	3) Freq: 435.00MHz PTT: ON Power: High			IF	VR109		5.0 ~ 5.3W
	4) Freq: 435.00MHz PTT: ON Power: Middle			IF	VR108		0.9~1.1W
	5) Freq: 435.00MHz PTT: ON Power: Low			IF	VR110		0.15~0.25W
	6) Freq: 145.00MHz PTT: ON Power: High			RF	VR401		5.0 ~ 5.3W
	7) Freq: 145.00MHz PTT: ON Power: Middle					Check	0.8 ~ 1.5W
	8) Freq: 145.00MHz PTT: ON Power: Low					Check	0.1 ~ 0.6W
DEV	1) Freq: 435.00MHz AG output: 1KHz, -30dBm PTT: ON Power: Low	Power meter AG Liner detector	ANT	IF	VR105		4.5KHz/DEV
	2) Freq: 145.00MHz AG output: 1KHz, -30dBm PTT: ON Power: Low			IF	VR106		4.5KHz/DEV
DTMF	Freq: 435.00MHz PTT: ON Power: Low Push "1" Key on keypad			IF	VR107		3KHz/DEV
1750Hz Tone	Freq: 435.00MHz PTT: ON Power: Low			IF	VR111		3KHz/DEV

4) Adjustment Points

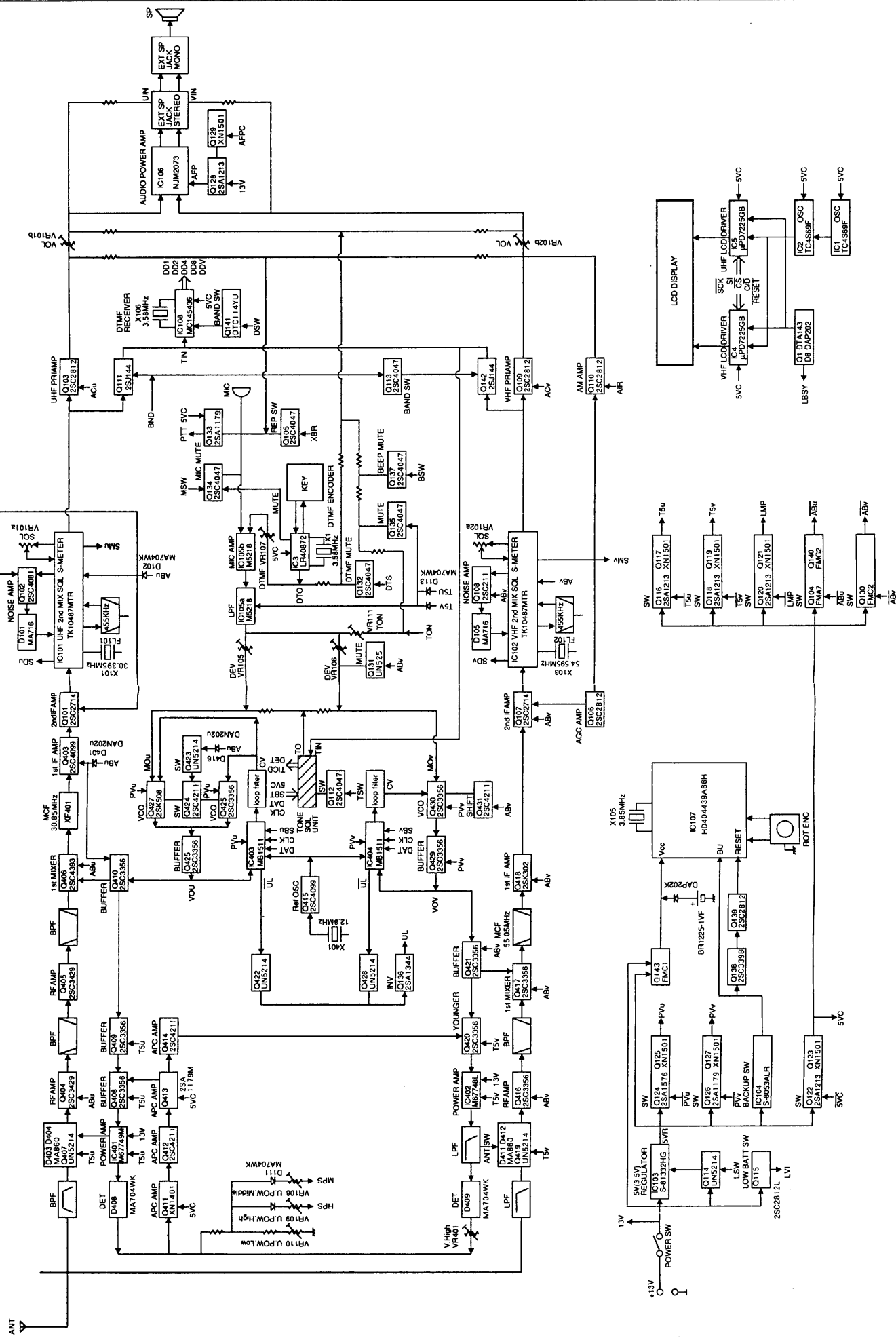


LOW PTT Key (T/TA/TC)
Tone Burst Key (E only)



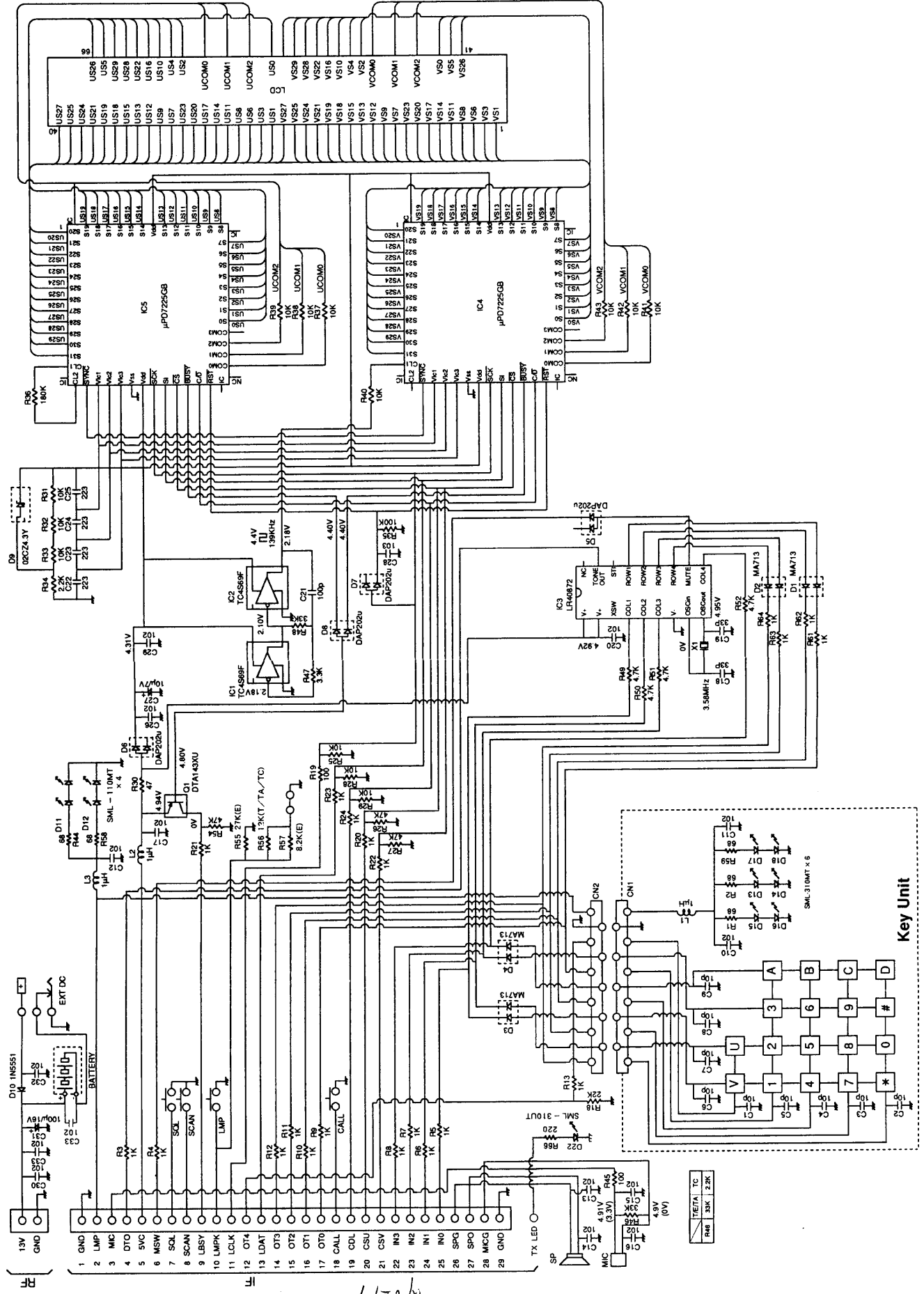
Tone SQL Unit (T/TA/TC)

Block Diagram

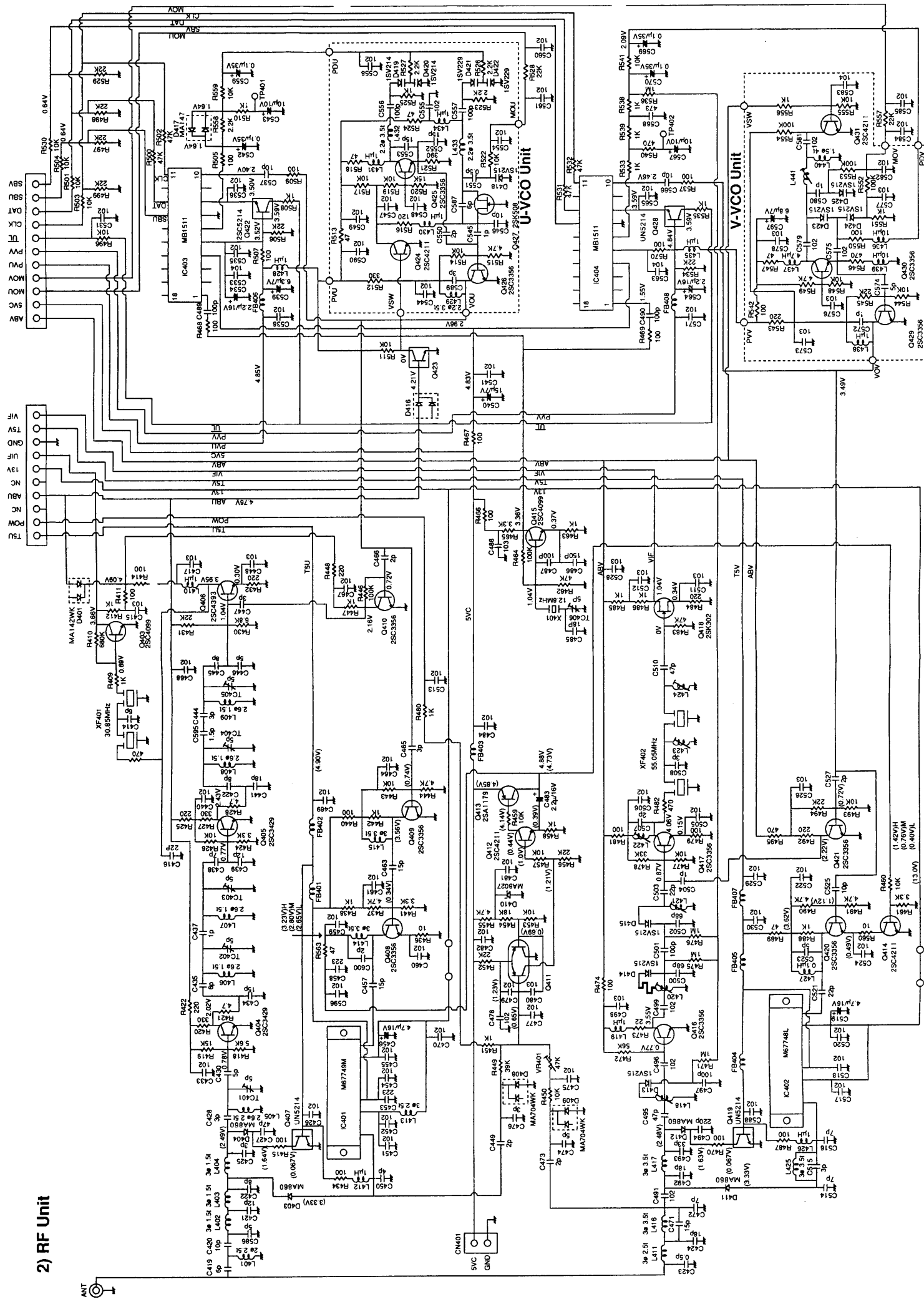


Circuit Diagrams

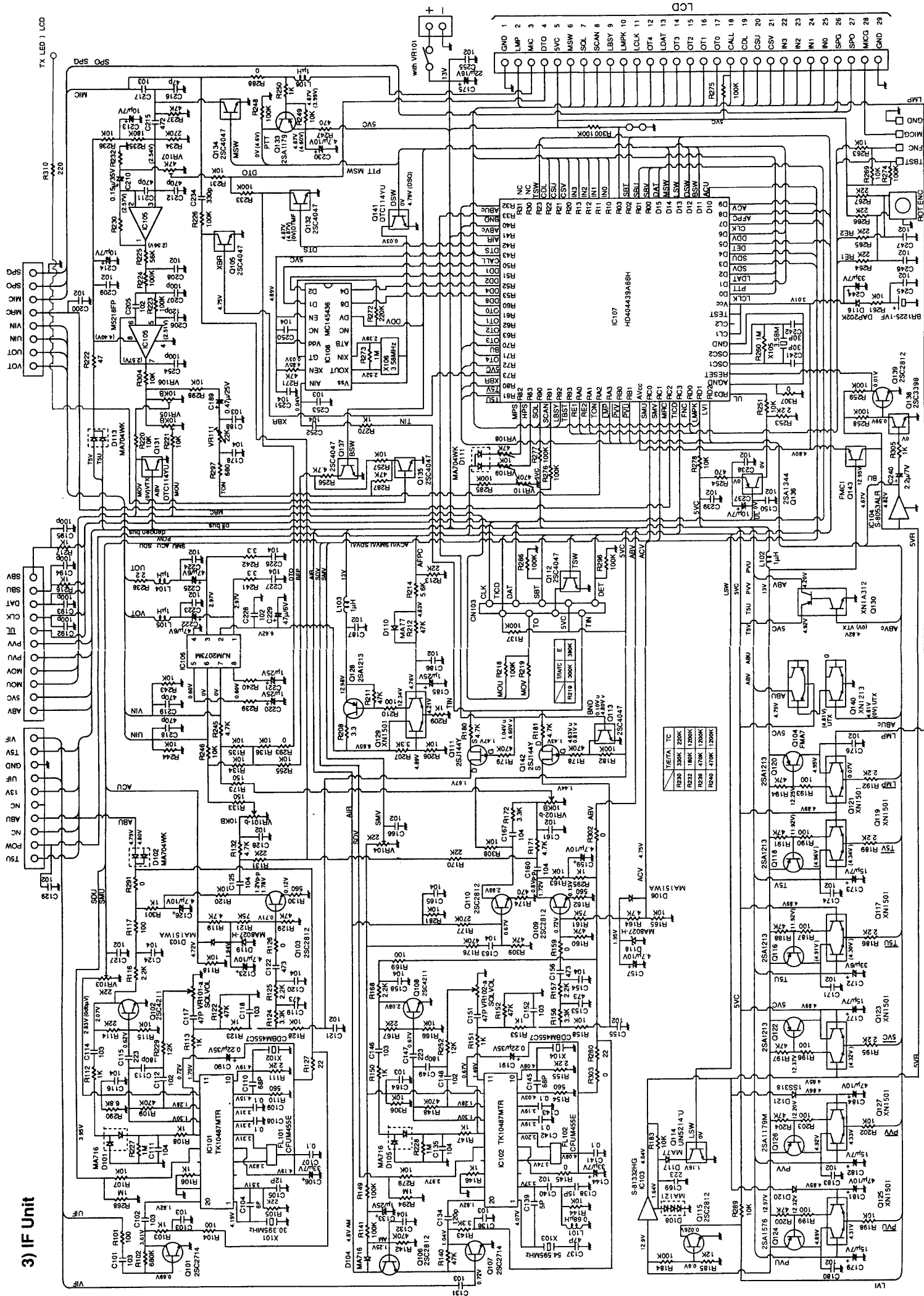
1) LCD Unit



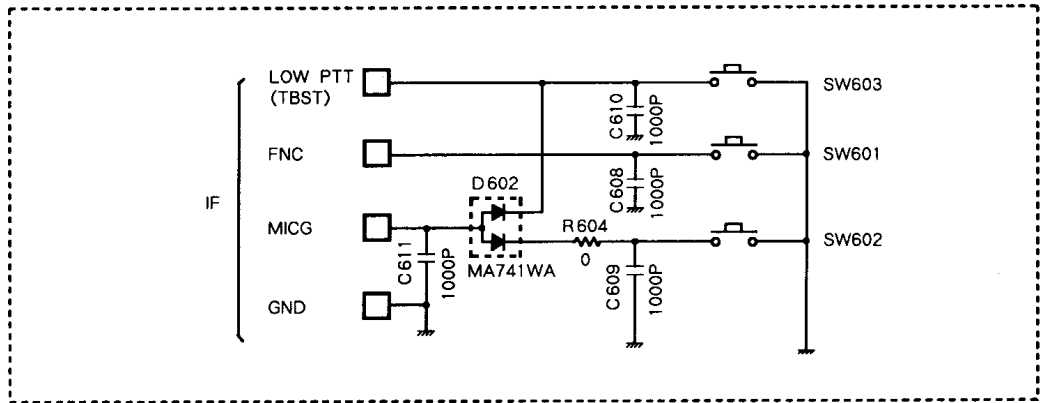
2) RF Unit



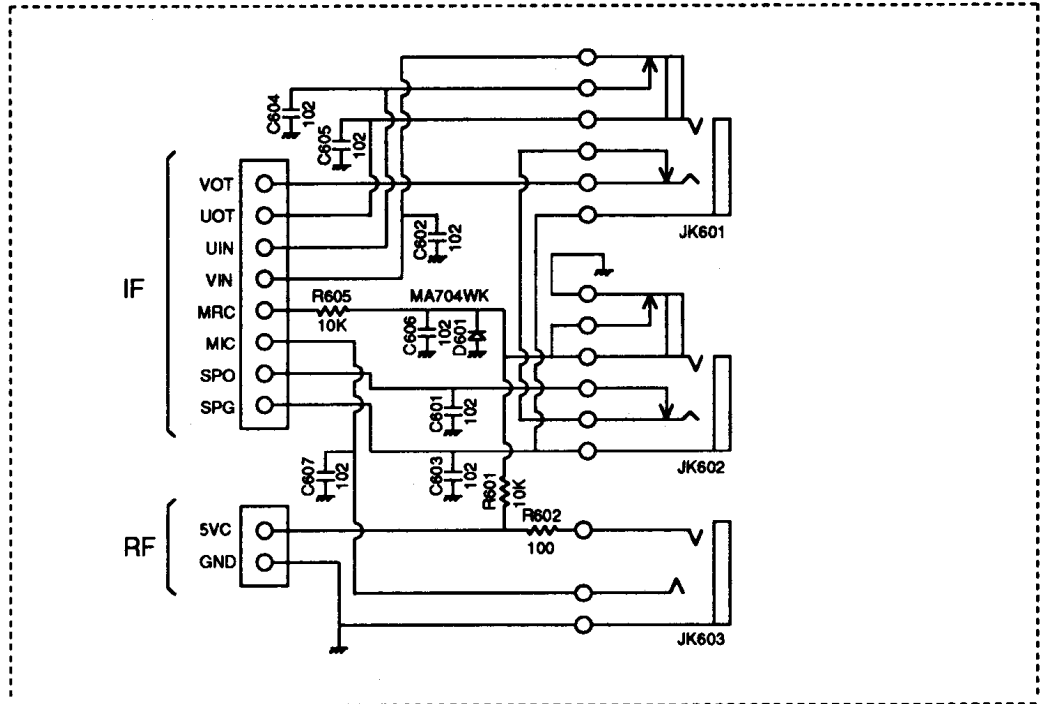
3) IF Unit



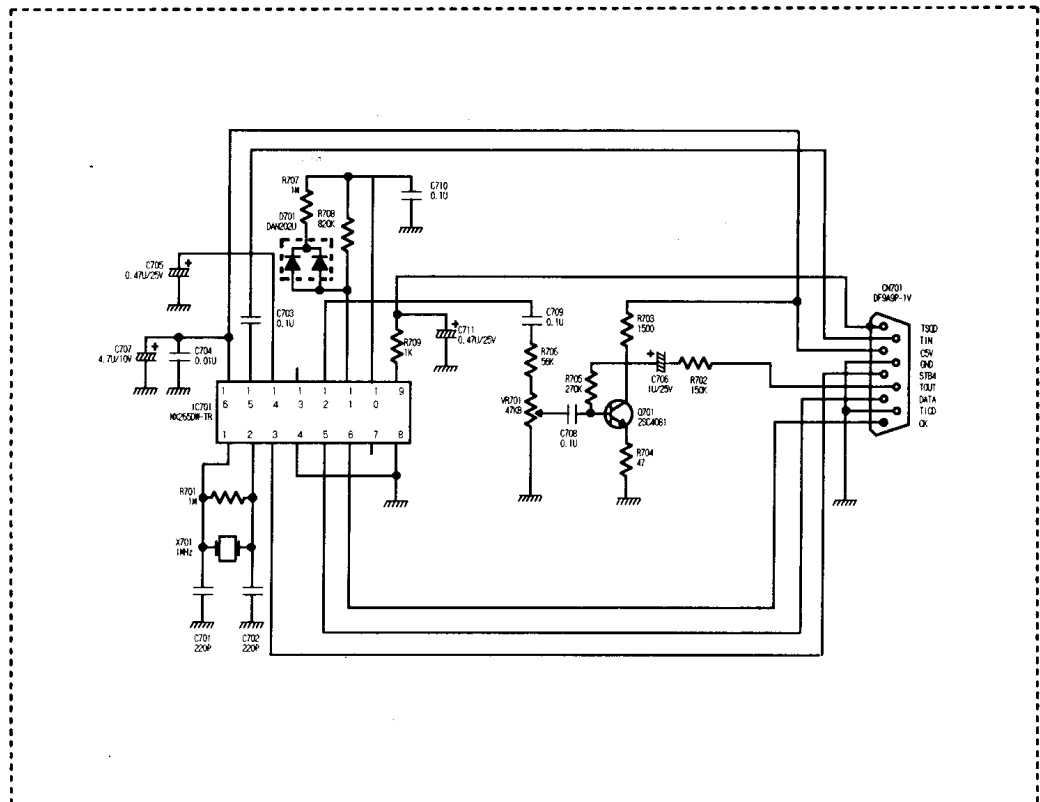
4) SW Unit



5) Jack Unit



6) CTCSS Unit DJ-582T/TA/TC





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