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SERVICE MANUAL

MULTI CHANNEL AM/FM TRANSCEIVER

TCB-550

TTI Tech

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SECTION1 SPECIFICATIONS

GENERAL	Channel	40 (See the frequency band chart)
	Frequency Range	26.56 MHz ~ 28.00 MHz
	Operating mode	F3E (FM), A3E (AM)
	Frequency Control	PLL Synthesizer
	Frequency Tolerance	0.002%
	Operating Temperature Range	-10 to + 55 °C
	Microphone	Plug-in Type
	Input Voltage	13.2V DC ± 15%
	Size	124 (W) x 135 (L) x 37 (H)
	Weight	655 g
	Antenna Connector	Antenna Connector
TRANSMITTER	Power Output	Duty cycle 10% 4 Watts @13.2V DC
	Modulation	AM:from 85% to 95% FM:1.8KHz ± 0.2KHz
	Frequency Response	300Hz to 3000Hz
	Output Impedance	50ohms, Unbalanced
	Harmonic Suppression	More than -36dBm
	Current Drain	AM Full Mod. 1.6A Max.
RECEIVER	Receiving System	Dual conversion superheterodyne
	IF Frequencies	Double Conversion 1st 10.695MHz/2nd 455KHz
	Sensitivity	0.7µV for 10dB(S+N)/N in AM Mode 0.5µV for 20dB SINAD in FM Mode
	Audio Output Power	2.0W @ 8 Ohm
	Audio Distortion	Less than 8% @ 1KHz
	Image Rejection	60 dB
	Adjacent Channel Rejection	60 dB
	Conducted Spurious	More than 60 dB
	Frequency Response	300 to 2500Hz
	Built-in Speaker	8 Ohms, round
Squelch	Adjustable; Threshold less than 1 microvolt	

* Specification is subject to change without prior notice.

SECTION2 CIRCUIT DESCRIPTION

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1. General

1-1. Receiver

Display : 40 Channels and other functions indication

Frequency Range : 26.965 to 27.405 [MHz]

Frequency Response : 300 to 2,500 [Hz]

Power Source : 13.2 [V] DC

Audio Output Load : 8 [OHM] Resistive

Audio Output : 4.0 [W] (or More)

Squelch : Adjustable from 0.2[uV] to 1 [mV]

Sensitivity :

- FM : 20 dB [SINAD] under 1.0 [uV] or less
- AM : 10 dB [S/N] under 1.0 [uV] or less

Intermediate Frequency :

- 1st IF : 10.695 [MHz]
- 2nd IF : 455 [KHz]

1-2. Transmitter

Carrier Power(Conducted) : AM 1 [W] / FM 4.0 [W]

Current Drain (13.2 [V] Supply Voltage)

- No Modulation : 1,100 [mA] (No Modulation)
- Max Modulation : 1,400 [mA] (Full Modulation)

Modulation Capabilities

- AM : +/- 90 [%]
- FM : +/- 1.8 [KHz/Dev]

Spurious Radiation : Less than -74 [dBc]

Antenna Impedance : 50 [OHM]

Frequency Tolerance : 0.002 [%]

2. Technical Description

2-1. General

Model CB-550 is an mobile type AM/FM radio transceiver for use of the Citizen Radio Service.

Front Panel Controls

LCD Display(Cannel ,RX,TX,AQ,SCAN,AM,FM,EMG Indicator).
Receiver Audio Control (With Power ON/OFF Control) Volume
Squelch Control Volume (S/W ON : TIGHT, S/W OFF : AUTO SQ)
RF Gain Control Volume
CHANNEL UP/DOWN TACT SWITCH.
AM/FM TACT SWITCH
EMG TACT SWITCH

Accessable Connectors

Antenna Jack
External Speaker Jack
External Power Cord
Microphone Jack.

2-2. Type of emission : AM(A3E) , FM(F3E)

2-3. Frequency Range : 26.965 MHz (CH.1) - 27.405 MHz (CH.40)

2-4. RF Power Output : AM/FM 4.0 Watts

2-5. DC Input Voltage and Current With 13.2V DC Input to Power AMP

Transmitter Power AMP ----- VOLTAGE 12.5 V
Current 820mA

Transmitter DRIVER AMP -----VOLTAGE 12.5 V
Current 130mA

2-6. RECEIVER IF AND LOCAL OSCILLATOR FREQUENCIES.

FIRST IF ----- 10.695 MHz
SECOND IF ----- 455 KHz
FIRST LOCAL OSCILLATOR----- 10.965 MHz Below RECEIVING FREQUENCY
SECOND LOCAL OSCILLATOR--- 10.240 MHz

2-3. SEMICONDUCTORS AND FUNCTION

REF.NO	DESCRIPTION	RX	TX	REMARK
QR1	KTC4080E	RF AMP	X	KEC
QR2	KTC4080E	1'st MIXER	X	KEC
QR3	KTC4080E	1'st MIXER	X	KEC
QR4	KTC4075E	RF ATTENUATOR	RF ATTENUATOR	KEC
QR5	KTC4080E	IF AMP	X	KEC
QR6	KTC4080E	IF AMP	X	KEC
QR7	KRA2014E	A.N.L.	X	KEC
QQ1	KRC410E	SQ MUTE	X	KEC
QQ2	KTC4075E	RF ARRENUATOR	RF ATTENUATOR	KEC
QQ4	KRC402E	AUTO SQ S/W	X	KEC
QAS1	KRC410E	FM MUTE	X	KEC
QAS2	KRA305E	AM B+	X	KEC
QAS3	KRC402E	AM B+ CONTROL	X	KEC
QAS4	KRC410E	X	AM AUDIO PATH	KEC
QFS1	KRC402E	X	FM AUDIO S/W	KEC
QFS2	KRC410E	POP MUTE	X	KEC
QUS1	KRC404E	SQ CONTROL	X	KEC
QRS1	KTC4075E	RX B+	X	KEC
QTS1	KTA2014E	X	TX B+	KEC
QG1	KTA1658	X	TX POWER REGULATOR	KEC
QG2	KTA2014E	X	TX POWER REGULATOR	KEC
QG3	KRC401E	X	TX POWER REGULATOR	KEC
QG4	KTC3875S	MAIN REGULATOR	MAIN REGULATOR	KEC
QG5	KTC3875S	CPU REGULATOR	CPU REGULATOR	KEC
QHL1	KRC402E	X	POWER HI/LOW S/W	KEC
QV1	KTC4080E	VCO	VCO	KEC
QW1	KTC4080E	X	BUFFER	KEC
QW2	KTC4080E	X	DOUBLER	KEC
QN1	KRC401E	X	TX ENABLE	KEC
QN2	KRA305E	X	TX ENABLE B+	KEC
QT2	KTC4080	X	BUFFER	KEC
QT3	2SC2314	X	DRIVER	SANYO
QT4	2SC2078	X	POWER AMP	SANYO
Q1	KRA226S	LCD BACK LIT	LCD BACK LIT	KEC
Q2	KRC401E	LCD BACK LIT	LCD BACK LIT	KEC
Q3	KRC404E	CPU RESET	CPU RESET	KEC
IC1	DBL5019	FM 1F	X	AUK
IC2	KIA358F	SQ CONTROL	X	KEC
IC3	TDA2003	X	TX AM AUDIO AMP	SGS
IC4	24WCO2J	EEPROM	EEPROM	HOLTEK
IC5	TMP86FM29UG	CPU	CPU	TOSHIBA
IC6	LC7152	PLL	PLL	SANYO
IC7	KIA358F	X	TX FM AUDIO AMP	KEC

*** MANUFACTURER INFORMATION ***

* K.E.C ----- KOREA ELECTRONICS SEMICONDUCTOR CO.,LTD.

* TOSHIBA ----- TOSHIBA SEMICONDUCTOR CO.,LTD.

* SANYO ----- JAPAN SANYO SEMICONDUCTOR CO.,LTD.

* SGS ----- SGS THOMSON SEMICONDUCTOR CO.,LTD.

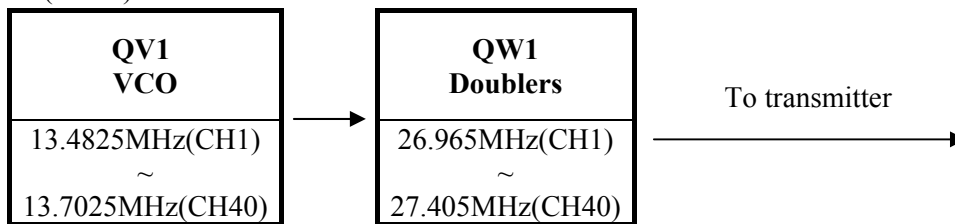
4. Description of Frequency Determining and Stabilizing Circuitry

4-1. Introduction

The Frequencies for transmitter and receiver first local frequencies are all derived from a signal 10.695MHz crystal and second local frequencies are derived from 10.240 MHz crystal by means of a Phase locked loop.

The first local oscillator frequencies are 16.270MHz(CH1) to 16.710MHz(CH40). The second local frequency is fixed at 10.240MHz to generate second IF 455KHz.

Transmit, the VCO of the PLL operates 13.4825MHz(CH1) to 13.7025MHz(40CH). The VCO frequency goes to the doublers circuit DW2, LT1, LT2 which doubles the frequency to generate 26.965MHz(CH1) to 27.405MHz(40CH).



The VCO operating frequency for the receiver is 16.27MHz(CH1) to 16.710MHz(CH40) as the first local oscillator, injected through the buffer amplifier Q302 into the first FET balanced mixer QR2,3.

4-2. Basic Synthesis Scheme

The crystal frequency(10.24MHz) is divided by 4069 times to make 2.5KHz which is fed to one side of the phase detector. The VCO output is divided by a programmable divider, and fed to other side of the phase detector Pin 22, 23 of IC6.

The feedback loop is closed by passing the phase detector output through an active low pass filter and using the output to control the VCO frequency through varicap diode DV1,2.

Under locked conditions, both of phase detector input signal must be identical at 2.5KHz.

The VCO frequency is then given by ;

$$\text{Receiver} \quad : \quad F_{vco} / N = 0.0025 \text{ [MHz]} \quad \text{OR} \quad F_{vco} = 0.0025 \times N \text{ [MHz]}$$

Since “N” is an integer, the VCO frequency can be stepped up with 2.5 KHz increments.

By suitable choice of “N” the desired output frequency can be obtained.

	Channel 1		Channel 40	
	N	Fvco	N	Fvco
Transmit	5393	13.4825	5481	13.7025
Receiver	3254	16.2700	3342	16.7100
See the [Table 1]for other Channels				

The VCO frequency goes to the doublers circuit, with doubles the incoming signals.

	VCO Output Frequency	Doublers Output Frequency

Transmit	CH 1 , 13.4825 MHz	26.965 MHz

Transmit	CH 40 , 13.7025 MHz	27.405 MHz

Since all frequencies are obtained from the crystal controlled PLL oscillator, all outputs are coherent with the crystal oscillator frequency and matching the same percentage accuracy.



Program Data & Frequency[Table 1]

Channel	Frequency [MHz]	RX		TX	
		N	Fvco	N	Fvco
1	26.965	3254	16.27	5393	13.4825
2	26.975	3256	16.28	5395	13.4875
3	26.985	3258	16.29	5397	13.4925
4	27.005	3262	16.31	5401	13.5025
5	27.015	3264	16.32	5403	13.5075
6	27.025	3266	16.33	5405	13.5125
7	27.035	3268	16.34	5407	13.5175
8	27.055	3272	16.36	5411	13.5275
9	27.065	3274	16.37	5413	13.5325
10	27.075	3276	16.38	5415	13.5375
11	27.085	3278	16.39	5417	13.5425
12	27.105	3282	16.41	5421	13.5525
13	27.115	3284	16.42	5423	13.5575
14	27.125	3286	16.43	5425	13.5625
15	27.135	3288	16.44	5427	13.5675
16	27.155	3292	16.46	5431	13.5775
17	27.165	3294	16.47	5433	13.5825
18	27.175	3296	16.48	5435	13.5875
19	27.185	3298	16.49	5437	13.5925
20	27.205	3302	16.51	5441	13.6025
21	27.215	3304	16.52	5443	13.6075
22	27.225	3306	16.53	5445	13.6125
23	27.255	3312	16.56	5451	13.6275
24	27.235	3308	16.54	5447	13.6175
25	27.245	3310	16.55	5449	13.6225
26	27.265	3314	16.57	5453	13.6325
27	27.275	3316	16.58	5455	13.6375
28	27.285	3318	16.59	5457	13.6425
29	27.295	3320	16.60	5459	13.6475
30	27.305	3322	16.61	5461	13.6525
31	27.315	3324	16.62	5463	13.6575
32	27.325	3326	16.63	5465	13.6625
33	27.335	3328	16.64	5467	13.6675
34	27.345	3330	16.65	5469	13.6725
35	27.355	3332	16.66	5471	13.6775
36	27.365	3334	16.67	5473	13.6825
37	27.375	3336	16.68	5475	13.6875
38	27.385	3338	16.69	5477	13.6925
39	27.395	3340	16.70	5479	13.6975
40	27.405	3342	16.71	5481	13.7025

4-3. Description Of Each Block

4-3-1. Introduction

The synthesizer is implemented with the following components :

PLL IC (IC6)
X-TAL(X2)
VARICAP DIODE(DV1,2)

IC6 is a CMOS LSI that includes most of PLL block. The VCO with varicap diode DV1,2 as a part of the oscillator tank circuit.

QV2 is a switching transistor to connect or disconnect the tuning capacitor in the VCO oscillator tank circuit for transmitter or receiver.

4-3-2. Reference frequency

The crystal, X2(10.24MHz) and other components at PIN 1 and 24 of IC6 can make a reference frequency oscillator with internal amplifier.

The oscillator output is internally fed to a divider by 4096 to produce a 2.5KHz square wave which is the reference input to the phase detector.

4-3-3. VCO

QV1 is connected as a Hartley type oscillator with varicap diode as part of the tank circuit. With appropriate control voltage on D601 the VCO can oscillate over the required range of 13.4825MHz to 16.710 MHz.

4-3-4. Programmable divider and its control

The programmable inputs for each channel are set by the PLL clock(PIN34), DATA(PIN35), Enable(PIN33) of IC5.

Each input signal to control the PLL IC is done with the provided key input PIN 12~15.

For each key input, an internal code convert EEPROM provides the appropriate control to the programmable divider for that channel.

Since the change transmit and receive, and additional BIT is required at PIN 16 of IC5 to allow the ROM to recognize the status TX or RX.

During transmit the push to talk switch grounds PIN 16 thru diode(DS1) which is the transmit status.

The programmable divider output is fed to the phase detector for comparison with the 2.5KHz reference. See TABLE 1 for actual input and divide ratio on all channels.

4-3-5. Phase Detector and VCO control

The phase detector is a digital phase comparator which compares the phase of the reference with programmable divider output square waves and develops a series of pulses whose DC level depends on the phase error of each signal.

The phase detector pulse output is fed to an active low pass filter and RC LPF output signal of IC6 is filtered and fed to varicap DV1,2 control the VCO frequency.

4-3-6. Transmitter / Receiver Buffer AMP

The VCO output is fed into buffer AMP QW1 from the capacitor of CW1.

4-3-7. Transmitter Doubler

The output signal of QW1 goes to an amplifier tuning circuit(27MHz) QW2, LT1, LT2 which doubles incoming 13MHz signals.

4-3-8. Switching of tuning capacitor in VCO.

The VCO circuit must turn with a wide range of frequencies 13.4825MHz - 13.7025 MHz for transmitter and 16.27MHz - 16.710 MHz for receiver. The use of one tuning capacitor in common has adverse effects as a decrease in C in the tuning circuit and the occurrence of may spurious. To eliminate these effects, the tuning capacitance is switched for transmission or reception. The tank circuit consist of the primary of LV1, CV1, CV4, CV6, CV7 when receiving QV2 becomes off.

So. the primary of LV1 and make tuning function. when transmitting, QW2 becomes on.

So, the primary if LV1 and the parable capacitance of CV11 make turning function.

4-3-9. Receiver Local Oscillator Outputs

-First Mixer :

The output of VCO is injected through buffer AMP QW1 and than

The emitter follower output through the emitter of 1'st mixer or 2,3.

-Second Mixer :

The output of 10.240 MHz oscillator circuit with X2 is injected into the if IC of IC1.

Incoming if signal and 10.240 MHz signal are mixed inside the IF IC to 2'nd IF signal 455MHz.

FM audio signal are recovered with the way of quadrature detector.

AM signlas are recovered with envelope detector.

4-4. Frequency Stability

LET : F_o =Crystal Oscillator Frequency

F_r =Phase detector reference frequency

F_{vco} =VCO frequency

F_t =Transmit frequency

THEN : $F_r = F_o / 1800$

And under locked confitions : $F_r = F_{vco} / N$

Where N is the programmable divider divide ratio.

THEN : $F_{vco} = N \times F_r = N(F_o / 1800)$

From which it can be seen, the percentage error in F_t is the percentage error in F_o .

The stability of the crystal oscillator is determined primarily by the crystal itself and having lesser deviation by the active and passive components of the oscillator. The choice of crystal and components is such that the required frequency stability is maintained over the required voltage and tempertature range. □

4-5. Description of other circuits.

4-5-1. Transmitter

1. RF Amplification

The output of doubler AMP QW2 is fed through double tuning(27MHz) LT1 and LT2 to the base of PRE AMP QT2. The output is then supplied through tuning circuit LT3 to RF driver AMP QT3. The QT3 output is capacitance divided by tuning circuit CT10, CT12, LT4, CT13 and passed through the base of final RF stage QT4. The QT4 output is supplied to the antenna through L-C tuning circuit (CT21, CT22, LT11, CT26, LT12, CT27, CT28, LT14, CT30).

2. Circuit for suppression of spurious radiation

The tuning circuit between frequency synthesizer and final AMP QT4 and 4-stage " PI" network CT21, CT22, LT11, CT26, LT12, CT27, CT28, LT14, CT30 in the QT4 output circuit serve to suppress spurious radiation. This network serves to impedance match QT4 to the antenna and to reduce spurious content to acceptable levels in the frequency synthesizer.

3. Circuit for Limiting Power

After finished all alignment, the constant voltage supply circuit limits the available power 4W or slightly less. Corresponding three-TR control supply voltage of RF power amplifier. When power low S/W function QHL1 changed the supply voltage. Tune all the trimming parts for max indication of RF power meter and adjust VR3 to make 4W indication of RF power meter. After finished the above adjustment check the RF power meter reading is changed 1W under ' Low" state.

The tuning is adjusted so that the actual power is from 3.6 to 3.9 watts.

There are no other additional controls for adjusting the TX output power.

4. Modulation

- AM

The MIC input is fed to audio power amplifier IC3 which drives modulation transformer TM1.

The audio output at the secondary of TM1 is fed the modulating audio signals series with the B+ voltage to the collectors of driver QT3 and TX power AMP QT4 to modulate both these stages.

A portion of the modulating voltage is rectified with DM1 which controls QM2 and QM1 to attenuate the MIC input to MIC AMP IC3.

The resulting feedback loop keeps the modulation from exceeding 100 percent inputs approximately 40dB greater than that requires to produce 50% modulation.

- FM

The MIC input is fed to MIC audio amplifier IC7 that drives modulation varicap diode DV1,2 in the VOC circuit RV3 limits the incoming modulation audio levels to inhibit over modulation. While reading the modulation factor on the modulation analyzing equipment, adjustment RV3 shall not exceed 2.0 KHz deviation.

4-5-2. Receiver

CB receiver is dual conversion super-heterodyne type with the first IF 10.695MHz and the second IF 455KHz.

Receiver is separated two blocks, 1st IF section and 2nd IF section. The PLL synthesizer supplies 1st local frequency 16.270MHz ~ 16.710MHz.

With the provided first local frequencies QR2,3 mixes the incoming signal to generate first IF signal. Mixed signals were filtered with the CF1(10.695MHz) crystal filter and tuned circuits.

With the 10.24MHz signal, IC1 FM IF IC converts the incoming signals to generate second IF signal. 2nd IF is filtered by a razor sharp ceramic filter CF3 coupled.

The 455KHz signals from the 2nd IF filter were amplified and limited internally. After amplification the signals fed to the quadrature detector loop LR5. Then could see the recovered signals PIN 9 of IC1.

AM signals from the PIN 5 of IC1 were tapped with CR34 and amplified two-stage amplifier QR5,6 is a first 455KHz amplifier.

DR3 is a detector diode which produces audio signal as well as negative DC voltage for AGC action.

The negative voltage also provides forward biasing to the emitter of ANL clipping TR QR7.

The biasing voltage has a time constant determined by RR44 and CR54.

Therefore any sharp negative going pulse from DR3 will back bias QR7 and clip it.

The way to recover the AM information audio is envelope detector.

** Test Equipment Setup and Alignment Instructions

5-1. VCO voltage adjustment

5-1-1. Required Test Equipment

- 1) DC power supply : 13.8VDC / 3A
- 2) DC Voltmeter or Oscilloscope
- 3) RF attenuator (30dB)

5-1-2. Alignment Procedure

Step	Test Item	UUT setting	Equipment setting	Alignment point	Spec.
1	RX VCO voltage Adjustment	Channel: CH1 UUT: RX condition Others: Don't care	Measure the DC voltage on the VCO test point	LV1	1.8~2.1 (VDC)
2	TX VCO voltage Adjustment	Channel: CH1 UUT: TX condition Others: Don't care	Measure the DC voltage on the VCO test point	LV1	1.5~2.5 (VDC)

5-3. Equipment connection

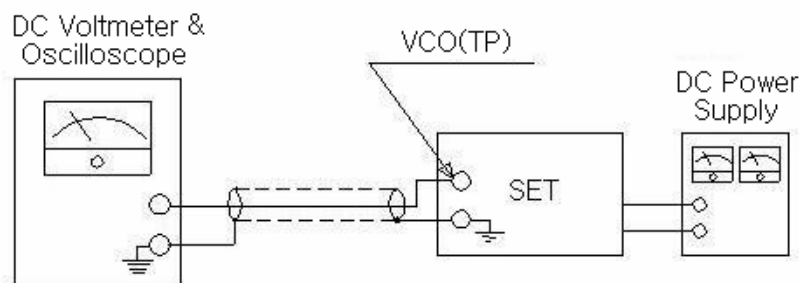


Figure 1

5-2. Transmitter Section Alignment

5-2-1. Required Test Equipment : If uses in HP8920, the 1)~7) equipment is not a necessity.

- | | |
|--------------------------------|----------------------------------|
| 1) RF Power Meter | 6) Frequency counter |
| 2) 50 ohm Load (non-inductive) | 7) DC Voltmeter |
| 3) RF attenuator (30dB) | 8) Spectrum analyzer |
| 4) Audio Generator | 9) DC power supply: 13.8VDC / 3A |
| 5) Modulation meter | 10) Oscilloscope |

5-2-2. Alignment procedure

Step	Test Item	UUT setting	Equipment setting	Alignment point	Spec.
1	TX Frequency Adjustment	Channel: CH19 <u>Function:</u> 1) AM or FM mode 2) CB <u>Unit:</u> TX condition (MIC PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.2	CTX1	27.185MHz +/-300Hz
2	TX Power Adjustment	Channel: CH19 <u>Function:</u> 1) AM or FM mode DC power supply : 15.6V <u>Unit:</u> TX condition (MIC PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.3	LT1 LT2	Max.4W (If cannot get a power up to 4W, adjust VR3)
3	AM Modulation Adjustment	Channel: CH19 <u>Function:</u> 1) AM mode 2) CB <u>Unit:</u> TX condition (PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.3 <u>Audio generator</u> 1) Set to 1KHz / 50mV 2) Input to MIC <u>Adjustment:</u> 1) Adjust RVM1 to obtain 85% modulation	RVM1	Max : 90 %

Step	Test Item	UUT setting	Equipment setting	Alignment point	Spec.
4	FM Deviation Adjustment	Channel: CH19 <u>Function:</u> 1) FM mode 2) CB <u>Unit:</u> TX condition (PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.3 <u>Audio generator</u> 1) Set to 1KHz / 50mV 2) Input to MIC <u>Adjustment:</u> 1) Adjust RV3 to obtain 1.8KHz deviation	RV3	1.8KHz
5	TX Signal Meter of the UUT Adjustment	Band Mode : F Band Channel: CH19 <u>Function:</u> 1) FM mode 2) CB <u>Unit:</u> TX condition (PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.2 AM:1W , FM:4W Adjustment: 1. AM mode : 1 W 2. FM mode : 4 W		Should display .AM mode : 1W TX - Bar .FM mode : 4W TX - Bar
6	Half harmonic of the UUT Adjustment	Channel: CH19 <u>Function:</u> 1) AM mode 2) CB <u>Unit:</u> TX condition (PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.4 <u>Spectrum</u> 1) Reference Level 35dB 2) Span 50KHz <u>Adjustment:</u> 1) Carrier Level (by spectrum) Center Frequency : 27.185MHz Spec : 33 ~ 35dBm 2) Half Harmonic (by spectrum) Center Frequency : 39.5925MHz Spec : < -100 dBm	LT1 LT2	< -100dBm
7	2 nd Harmonic of the UUT Adjustment	Channel: CH19 <u>Function:</u> 1) AM mode 2) CB <u>Unit:</u> TX condition (PTT on) <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.4 <u>Spectrum</u> 1) Reference Level 35dB 2) Span 50KHz <u>Adjustment:</u> 1) Carrier Level (by spectrum) Center Frequency : 27.185MHz Spec : 33 ~ 35dBm 2) 2nd Harmonic (by spectrum) Center Frequency : 54.37 MHz Spec : < -86 dBm	LT11 LT12 LT13 LT14	< -86dBm

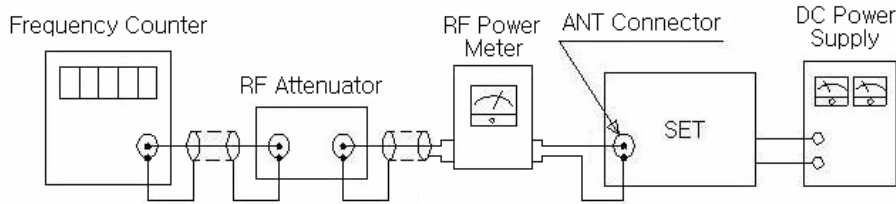


Figure 2

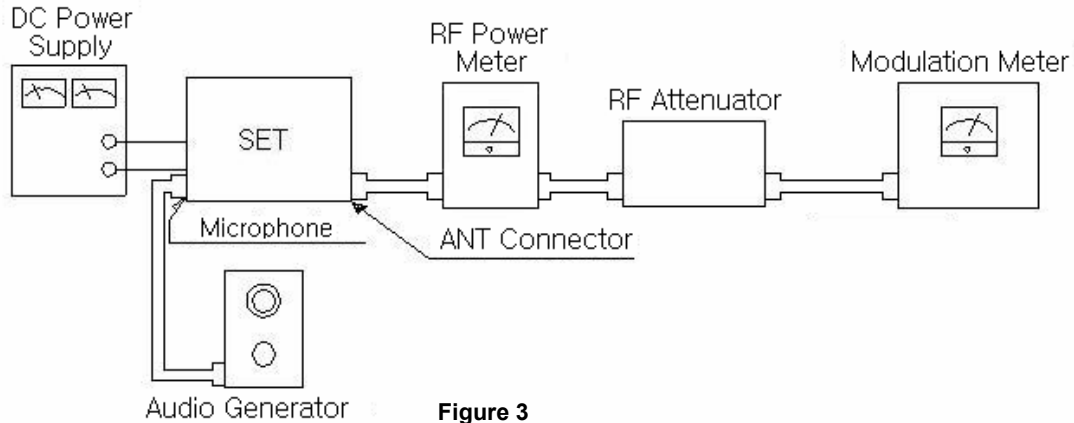


Figure 3

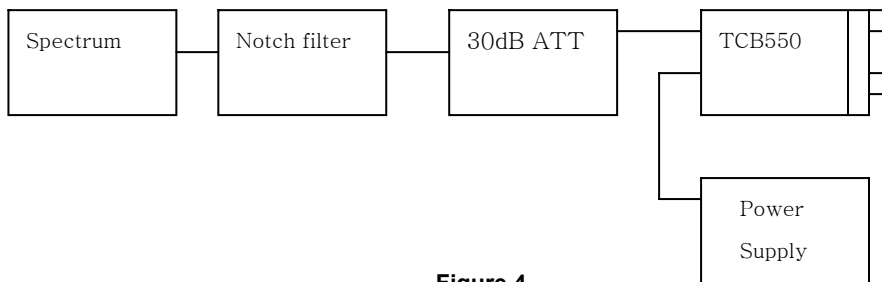


Figure 4

5-3. Receiver Section Alignment

5-3-1. Required Test Equipment : If uses in HP8920, the 1)~4) equipment is not a necessity.

- | | |
|------------------------------------|-------------------------------|
| 1) Standard Signal Generator (SSG) | 5) Oscilloscope |
| 2) SINAD Meter | 6) DC power supply (13.2V/3A) |
| 3) AC Level Meter | 7) 8 ohm Dummy Load |
| 4) Distortion Meter | |

5-3-2. Alignment procedure

Step	Test Item	UUT setting	Equipment setting	Alignment point	Spec.
1	AM Audio output Adjustment	Channel: CH19 <u>Function:</u> 1) AM mode 2) CB <u>Unit:</u> RX condition <u>Volume:</u> Optional <u>Squelch:</u> Minimum <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.5 <u>SSG setting:</u> 1) Freq.: 27.185MHz 2) AF: 1KHz 3) RF level: -47dBm 4) Modulation: 30%	LR1 L1 L2 L3 LR2 LR3 LR4	<u>Audio Level:</u> >5V at maximum unit's volume. <u>Distortion:</u> <5% at 2V audio level (need unit's volume adj. to get 2V audio level)

Step	Test Item	UUT setting	Equipment setting	Alignment point	Spec.
2	RX sensitivity	Same as step "1"	<u>SSG setting:</u> 1) RF level: -107dBm 2) Others: same as step "1"		<-107dBm at 10dB SINAD (if not,align again)
3	FM Audio output Adjustment	Channel: CH19 <u>Function:</u> 1) FM mode 2) CB <u>Unit:</u> RX condition <u>Volume:</u> Optional <u>Squelch:</u> Minimum <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.5 <u>SSG setting:</u> 1) Freq.: 27.185MHz 2) AF: 1KHz 3) RF level: -47dBm 4) Modulation: 1.5KHz	LR5	<u>Audio Level:</u> >5V at maximum unit's volume. <u>Distortion:</u> <5% at 2V audio level (need unit's volume adj. to get 2V audio level)
4	RX sensitivity	Same as step "3"	<u>SSG setting:</u> 1) RF level: -107dBm 2) Others: same as step "3"		<-107dBm at 20dB S/N (if not,align again)
5	TIGHT Squelch Adjustment	Channel: CH19 <u>Function:</u> 1) FM mode 2) CB <u>Unit:</u> RX condition <u>Volume:</u> Don't care <u>Squelch:</u> Maximum <u>Others:</u> Don't care	Connect the equipment and UUT as shown on Figure.5 <u>SSG setting:</u> 1) Freq.: 27.185MHz 2) AF: 1KHz 3) RF level: -47dBm 4) Modulation: 1.5KHz <u>Adjustment:</u> 1. adjust RVQ1	RVQ1	Adjust until audio signal is appeared on the scope.
6	AUTO Squelch Adjustment	Channel: CH19 <u>Function:</u> 1) FM mode 2) CB <u>Unit:</u> RX condition <u>Volume:</u> Don't care <u>Squelch VR:</u> OFF <u>Others:</u> Don't care	Connect the equipment and as shown on Figure.5 <u>SSG setting:</u> 1) Freq.: 27.185MHz 2) AF: 1KHz 3) RF level: -107dBm 4) Modulation: 1.5KHz <u>Adjustment:</u> 1. adjust the RVQ2	RVQ2	Adjust until audio signal is appeared on the scope.

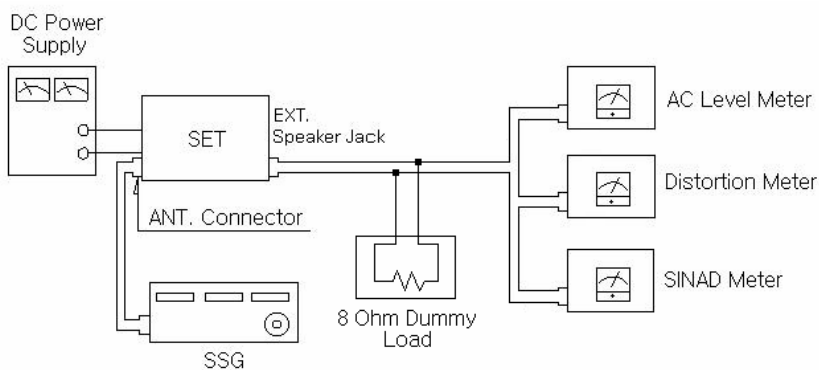


Figure 5

SECTION3 PART LIST

NO	LEVEL	P/N	DESCRIPTION	QTY
1	ASSY	5A0-5504-000	LCD PCB ASS'Y - TCB550	1.00
2	PART	102-331J-S00	FILM RES. 330OHM 0.5W +-5 ST	1.00
3	PART	102-471J-S00	FILM RES. 470OHM 0.5W +-5 ST	1.00
4	PART	142-100J-000	CHIP RES. 0603 10OHM +-5 PHILIPS	1.00
5	PART	142-102J-000	CHIP RES. 0603 1KOHM +-5 PHILIPS	1.00
6	PART	142-104J-000	CHIP RES. 0603 100KOHM +-5 PHILIPS	1.00
7	PART	142-105J-000	CHIP RES. 0603 1MOHM +-5 PHILIPS	1.00
8	PART	142-222J-000	CHIP RES. 0603 2.2KOHM +-5 PHILIPS	1.00
9	PART	142-223J-000	CHIP RES. 0603 22KOHM +-5 PHILIPS	1.00
10	PART	142-472J-000	CHIP RES. 0603 4.7KOHM +-5 PHILIPS	4.00
11	PART	142-473J-000	CHIP RES. 0603 47KOHM +-5 PHILIPS	29.00
12	PART	212-102B-3K0	CHIP CERAMIC CAP.0603 0.001UF X7R 16V +-10 PHILIPS	2.00
13	PART	212-103B-3K0	CHIP CERAMIC CAP. 0603 0.01UF X7R 16V +-10 PHILIPS	1.00
14	PART	212-105F-3Z0	CHIP CERAMIC CAP. 0603 1UF Y5V 16V -20+80 PHILIPS	2.00
15	PART	212-470C-6J0	CHIP CERAMIC CAP. 0603 47PF NP0 50V +-5 PHILIPS	2.00
16	PART	305-0226-000	CHIP TR. KRA226S KEC	1.00
17	PART	305-0401-000	CHIP TR. KRC401E KEC	1.00
18	PART	305-0404-000	CHIP TR. KRC404E KEC	1.00
19	PART	320-0509-006	IC CPU(FLASH) JT5BL9 TOSHIBA - TCB550	1.00
20	PART	338-2402-A00	IC EEPROM FT24C02A FMD	1.00
21	PART	350-0603-001	CHIP LED BLUE 0603 19-217 BHC-CLEM2RY 3T YADA	4.00
22	PART	352-4686-000	LCD SDM8A4686A SANTECH	1.00
23	PART	363-0800-000	CRYSTAL 8.0MHZ 49S-8.000-20-30 SHOULDER	1.00

24	PART	500-5504-000	LCD PCB MP03 - TCB550	1.00
25	PART	564-1109-100	SWITCH TACT KFC-821 GABOU	4.00
26	PART	701-C7700-60A	DIFFUSER LENS ACRYL CLEAR	1.00
27	PART	701-C7700-70A	REFLECTOR ACRYL CLEAR	1.00
28	PART	702-C7700-50A	LCD BRACKET SPTE 0.3T DESHAN	1.00
29	PART	703-C7700-20A	ZEBRA SILICONE	1.00
30	PART	718-R000D-036	EVA SPONGE-B 20X2.0X0.8T, BLACK	2.00
31	PART	718-R000D-037	EVA SPONGE-A 49X2.0X0.8T, BLACK	2.00
32	PART	719-R000D-004	DOUBLE SIDE TAPE FOR DIFFUSER 29X3.5X0.2T	2.00
33	PART	722-R0000-001	WHITE SHEET POLYESTER 0.1T	1.00
34	ASSY	5A0-5504-100	MAIN PCB ASS'Y - TCB550	1.00
35	PART	102-100J-S00	FILM RES. 10OHM 0.5W +-5 ST	1.00
36	PART	102-229J-S00	FILM RES. 2.2OHM 0.5W +-5 ST	1.00
37	PART	102-331J-S00	FILM RES. 330OHM 0.5W +-5 ST	1.00
38	PART	102-471J-S00	FILM RES. 470OHM 0.5W +-5 ST	1.00
39	PART	112-100J-S00	METAL OXID RESISTOR 100HM 2W +-5 ST	1.00
40	PART	142-000J-000	CHIP RES. 0603 0OHM +-5 PHILIPS	1.00
41	PART	142-100J-000	CHIP RES. 0603 10OHM +-5 PHILIPS	6.00
42	PART	142-101J-000	CHIP RES. 0603 100OHM +-5 PHILIPS	3.00
43	PART	142-102J-000	CHIP RES. 0603 1KOHM +-5 PHILIPS	7.00
44	PART	142-103J-000	CHIP RES. 0603 10KOHM +-5 PHILIPS	19.00
45	PART	142-104J-000	CHIP RES. 0603 100KOHM +-5 PHILIPS	10.00
46	PART	142-106J-000	CHIP RES. 0603 10MOHM +-5 PHILIPS	1.00
47	PART	142-152J-000	CHIP RES. 0603 1.5KOHM +-5 PHILIPS	3.00
48	PART	142-153J-000	CHIP RES. 0603 15KOHM +-5 PHILIPS	2.00
49	PART	142-154J-000	CHIP RES. 0603 150KOHM +-5 PHILIPS	1.00
50	PART	142-220J-000	CHIP RES. 0603 22OHM +-5 PHILIPS	1.00

51	PART	142-222J-000	CHIP RES. 0603 2.2KOHM +-5 PHILIPS	7.00
52	PART	142-223J-000	CHIP RES. 0603 22KOHM +-5 PHILIPS	5.00
53	PART	142-224J-000	CHIP RES. 0603 220KOHM +-5 PHILIPS	1.00
54	PART	142-225J-000	CHIP RES. 0603 2.2MOHM +-5 PHILIPS	1.00
55	PART	142-229J-000	CHIP RES. 0603 2.2OHM +-5 PHILIPS	3.00
56	PART	142-272J-000	CHIP RES. 0603 2.7KOHM +-5 PHILIPS	5.00
57	PART	142-273J-000	CHIP RES. 0603 27KOHM +-5 PHILIPS	1.00
58	PART	142-331J-000	CHIP RES. 0603 330OHM +-5 SAMSUNG_PHILIPS	1.00
59	PART	142-335J-000	CHIP RES. 0603 3.3MOHM +-5 PHILIPS	1.00
60	PART	142-393J-000	CHIP RES. 0603 39KOHM +-5 PHILIPS	1.00
61	PART	142-470J-000	CHIP RES. 0603 47OHM +-5 PHILIPS	4.00
62	PART	142-471J-000	CHIP RES. 0603 470OHM +-5 PHILIPS	1.00
63	PART	142-472J-000	CHIP RES. 0603 4.7KOHM +-5 PHILIPS	8.00
64	PART	142-473J-000	CHIP RES. 0603 47KOHM +-5 PHILIPS	14.00
65	PART	142-474J-000	CHIP RES. 0603 470KOHM +-5 PHILIPS	1.00
66	PART	142-562J-000	CHIP RES. 0603 5.6KOHM +-5 PHILIPS	1.00
67	PART	142-563J-000	CHIP RES. 0603 56KOHM +-5 PHILIPS	1.00
68	PART	142-681J-000	CHIP RES. 0603 680OHM +-5 PHILIPS	1.00
69	PART	142-821J-000	CHIP RES. 0603 820OHM +-5 PHILIPS	1.00
70	PART	162-103V-000	TRIM. POTENTIOMETER WS0612-B103-000-G36 CTR	2.00
71	PART	162-222V-001	TRIM. POTENTIOMETER WS0612-B222-000-G36 CTR	1.00
72	PART	162-223V-001	TRIM. POTENTIOMETER WS0612-B223-000-G36 CTR	1.00
73	PART	162-472V-001	TRIM. POTENTIOMETER WS0612-B472-000-G36 CTR	1.00
74	PART	202-1059-M00	ELECT CAP. 1UF KR1-16V010MA 5x11 DONGXIANG	1.00
75	PART	202-1069-M00	ELECT CAP. 10UF KR1-16V100MA 5x11 DONGXIANG	13.00
76	PART	202-108E-M00	ELECT CAP. 1000UF KR1-16V102MF 10x20 DONGXIANG	2.00
77	PART	202-2259-M00	ELECT CAP. 2.2UF KR1-16V2R2MA 5x11 DONGXIANG	1.00

78	PART	202-2279-M00	ELECT CAP. 220UF KR1-16V221MB 5x11 DONGXIANG	1.00
79	PART	202-4749-M00	ELECT CAP. 0.47UF KR1-16V47MA 5x11 DONGXIANG	1.00
80	PART	202-4769-M00	ELECT CAP. 47UF KR1-16V470MA 5x11 DONGXIANG	2.00
81	PART	202-4779-M00	ELECT CAP. 470UF KR1-25V471MA 10x15 DONGXIANG	1.00
82	PART	212-050C-6C0	CHIP CERAMIC CAP. 0603 5PF NP0 50V +-0.25 PHILIPS	1.00
83	PART	212-080C-6C0	CHIP CERAMIC CAP. 0603 8PF NP0 50V +-0.25 PHILIPS	1.00
84	PART	212-100C-6J0	CHIP CERAMIC CAP. 0603 10PF NP0 50V +-5 PHILIPS	4.00
85	PART	212-101C-6J0	CHIP CERAMIC CAP. 0603 100PF NP0 50V +-5 PHILIPS	11.00
86	PART	212-102B-3K0	CHIP CERAMIC CAP.0603 0.001UF X7R 16V +-10 PHILIPS	5.00
87	PART	212-103B-3K0	CHIP CERAMIC CAP. 0603 0.01UF X7R 16V +-10 PHILIPS	26.00
88	PART	212-104B-3K0	CHIP CERAMIC CAP.0603 0.1UF X7R 16V +-10 PHILIPS	15.00
89	PART	212-105F-3Z0	CHIP CERAMIC CAP. 0603 1UF Y5V 16V -20+80 PHILIPS	5.00
90	PART	212-150C-6J0	CHIP CERAMIC CAP. 0603 15PF NP0 50V +-5 PHILIPS	1.00
91	PART	212-151C-6J0	CHIP CERAMIC CAP. 0603 150PF NP0 50V +-5 PHILIPS	4.00
92	PART	212-153B-3K0	CHIP CERAMIC CAP.0603 0.015UF X7R 16V +-10 PHILIPS	1.00
93	PART	212-180C-6J0	CHIP CERAMIC CAP. 0603 18PF NP0 50V +-5 PHILIPS	1.00
94	PART	212-181C-6J0	CHIP CERAMIC CAP. 0603 180PF NP0 50V +-5 PHILIPS	1.00
95	PART	212-221C-6J0	CHIP CERAMIC CAP. 0603 220PF NP0 50V +-5 PHILIPS	1.00
96	PART	212-270C-6J0	CHIP CERAMIC CAP. 0603 27PF NP0 50V +-5 PHILIPS	1.00
97	PART	212-390C-6J0	CHIP CERAMIC CAP. 0603 39PF NP0 50V +-5 PHILIPS	1.00
98	PART	212-470C-6J0	CHIP CERAMIC CAP. 0603 47PF NP0 50V +-5 PHILIPS	5.00
99	PART	212-471C-6J0	CHIP CERAMIC CAP. 0603 470PF NP0 50V +-5 PHILIPS	1.00
100	PART	212-472B-6K0	CHIP CERAMIC CAP.0603 0.0047UF X7R 50V +-10 PHILIP	2.00
101	PART	212-473B-3K0	CHIP CERAMIC CAP. 0603 0.047UF X7R 16V +-10 PHILIP	4.00
102	PART	212-560C-6J0	CHIP CERAMIC CAP. 0603 56PF NP0 50V +-5 PHILIPS	2.00
103	PART	212-561C-6J0	CHIP CERAMIC CAP. 0603 560PF NP0 50V +-5 PHILIPS	1.00
104	PART	22D-151C-J00	DISK CAP.CC1HCH151J (Label 50VCH151J) SAMIL	1.00

105	PART	22D-331C-J00	DISK CAP.CC1HSL331J (Label 50VSL331J) SAMIL	1.00
106	PART	22D-471C-J00	DISK CAP.CC1HSL471J (Label 50VSL471J) SAMIL	1.00
107	PART	22D-561C-J00	DISK CAP.CC1HSL561J (Label 50VSL561J) SAMIL	1.00
108	PART	22D-681C-J00	DISK CAP. CC1HSL681J (Label 50VSL681J) SAMIL	1.00
109	PART	230-2000-000	DIP TRIMMER CAP. 6DIA 20PF KCVN620 FOKITS	1.00
110	PART	300-1504-000	CHIP TR KTA1504S SOT-23 KEC	1.00
111	PART	300-2014-000	CHIP TR. SWITCHING KTA2014E-Y KEC	3.00
112	PART	300-3875-000	CHIP TR. SWITCHING KTC3875S SOT-23 KEC	2.00
113	PART	300-4075-A00	CHIP TR. SWITCHING KTC4075E KEC	4.00
114	PART	300-4080-000	CHIP TR KTC4080E-Y KEC	9.00
115	PART	302-1658-000	TR KTA1658 KEC	1.00
116	PART	302-2078-000	TR 2SC2078E SANYO	1.00
117	PART	302-2314-000	TR 2SC2314F SANYO	1.00
118	PART	305-0305-000	CHIP TR. SWITCHING KRA305E KEC	2.00
119	PART	305-0401-000	CHIP TR. KRC401E KEC	1.00
120	PART	305-0402-000	CHIP TR. SWITCHING KRC402E KEC	4.00
121	PART	305-0404-100	CHIP TR. KRC404 KEC	1.00
122	PART	305-0410-100	CHIP TR. SWITCHING KRC410E KEC	6.00
123	PART	331-0358-A00	IC OP AMP KIA358F KEC	2.00
124	PART	332-2003-000	IC AUDIO AMP TDA2003 ST	1.00
125	PART	335-7152-A00	IC PLL LC7152NM SANYO	1.00
126	PART	336-5019-A00	IC IF SL5019 AUK	1.00
127	PART	340-0243-A00	DIODE ZENER Z02W4.3V SOT-23 KEC	1.00
128	PART	340-0251-A00	DIODE ZENER Z02W5.1V SOT-23 KEC	1.00
129	PART	340-0282-A00	DIODE ZENER Z02W8.2V SOT-23 KEC	1.00
130	PART	341-0251-A00	DIODE VARICAP KDV251S SOT-23 KEC	3.00
131	PART	342-0114-A00	CHIP DIODE SWITCHING KDS114E KEC	2.00

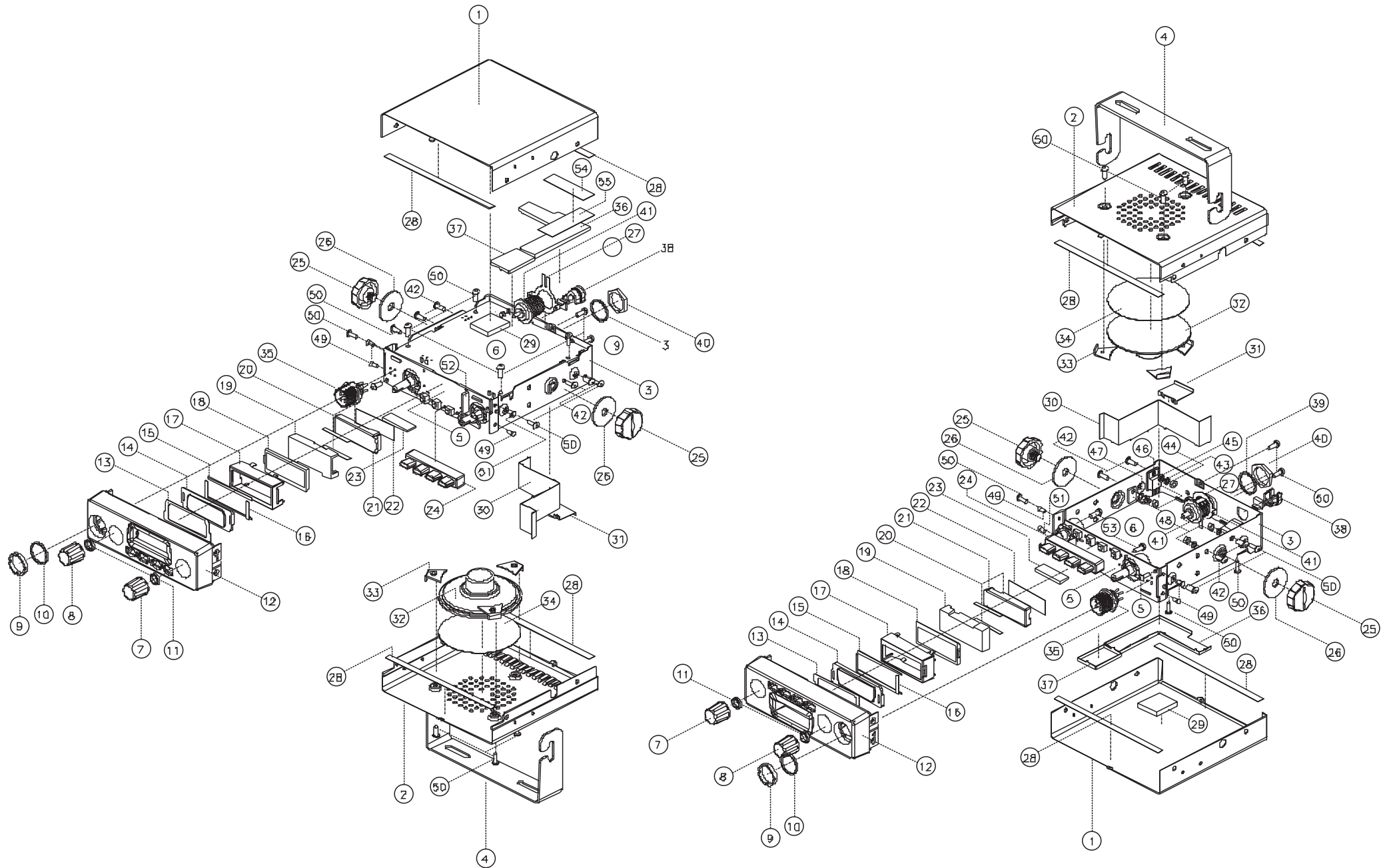
132	PART	342-0120-B00	CHIP DIODE SWITCHING KDS120E KEC	1.00
133	PART	342-0121-B00	CHIP DIODE SWITCHING KDS121E KEC	3.00
134	PART	342-0122-A00	CHIP DIODE SWITCHING KDS122 KEC	1.00
135	PART	342-5822-001	DIP SCHOTTKY DIODE 1N5822 GD	1.00
136	PART	343-1060-000	DIODE 1N60	1.00
137	PART	343-4004-000	DIODE 1N4004TR 400V 1A	1.00
138	PART	343-5402-000	DIODE 1N5402	1.00
139	PART	360-1024-001	CRYSTAL 10.24MHZ 32PF 30PPM HC-49U YOKETAN	1.00
140	PART	367-1060-200	CRYSTAL FILTER 10.695MHZ 49T-3L 10L08A DTRON	1.00
141	PART	373-4551-500	CERAMIC FILTER LT455HTW DTRON	1.00
142	PART	400-0019-000	TRANSFORMER CHOCK T1 FINE	1.00
143	PART	400-0024-000	TRANSFORMER EI-24(MOD) T2 FINE	1.00
144	PART	406-5006-000	COIL SPRING 5X0.6X13.5T : R 0.5UH FINE	1.00
145	PART	406-5008-000	COIL SPRING 5X0.8X8.5T : R FINE	2.00
146	PART	406-5008-400	COIL SPRING 5.0RX0.8X4.5T FINE	2.00
147	PART	406-6008-000	COIL SPRING 6X0.8X5T : R 0.225UH FINE	1.00
148	PART	410-0270-000	IFT COIL RF FREE TX 27MHZ TX1 FINE	2.00
149	PART	410-0271-000	IFT COIL 27MHZ-B RX1 FINE	1.00
150	PART	410-0272-000	IFT COIL 27MHZ RX (7RC) RX2 FINE	1.00
151	PART	410-0450-000	IFT COIL 81C013 450KHZ FINE	1.00
152	PART	410-1070-000	IFT COIL 10.7MHZ RX-B RX3 FINE	1.00
153	PART	410-1650-000	IFT COIL 16.5MHZ VCO VCO1 FINE	1.00
154	PART	410-4551-000	IFT COIL 455KHZ-B RX5 FINE	1.00
155	PART	425-0150-000	COIL AXIAL 1.5UH AL0305 MATSUTA	2.00
156	PART	425-0680-000	COIL AXIAL 6.8UH AL0305 MATSUTA	2.00
157	PART	425-R390-000	COIL AXIAL 0.39UH AL0305 MATSUTA	1.00
158	PART	425-R470-001	COIL AXIAL 0.47UH AL0305 MATSUTA	1.00

159	PART	427-0017-000	CORE SPRING 5.5TX0.45XM5ERX2.3 0.17UH FINE	3.00
160	PART	500-5504-100	MAIN PCB MP01 - TCB550	1.00
161	PART	535-3500-100	JACK DC PJ-625 GABOU	1.00
162	PART	540-0218-000	WAFER 2PIN PH-2A 180C FINE	1.00
163	PART	570-1001-000	VR R16100NS-KA20D11.5-B103-000-G74 CTR	1.00
164	PART	570-5001-000	VR R16100NS-KA20D11.5-A503-000-G74 CTR	1.00
165	PART	702-C5500-50A	TX SHIELD CAN(1) SPTE 0.3T	1.00
166	PART	702-C5500-60A	TX SHIELD CAN(2) SPTE0.3T	1.00
167	PART	702-C7700-80A	VCO SHIELD CAN SPTE 0.3T DESHAN	1.00
168	ASSY	700-C550C-A00	COVER ASSY - TCB550	1.00
169	PART	520-6600-000	SPEAKER 66mm 66AR000-8P-4K11 ASAHI	1.00
170	PART	540-0215-000	WIRE HARNESS PH-2PIN TO OPEN UL 1007 NO26 L150mm	1.00
171	PART	702-C5500-10A	BOTTOM COVER SPC+BLACK COATING 0.8t	1.00
172	PART	702-C5500-20A	UPPER COVER SPC+BLACK COATING 0.8t	1.00
173	PART	702-C7700-30A	BRACKET SPK EGI 1.0T COATING DESHAN	3.00
174	PART	706-3008T-BBH	SCREW MACH(+) 3X8L-TAPTITE BLACK BH	9.00
175	PART	715-C650N-001	FELT (SPK) D65X0.3T BLACK	1.00
176	PART	715-R000D-024	FELT(COVER) 6x117x0.2t BLACK ONE SIDE DOUBLE TAPE	4.00
177	PART	718-R000D-001	CUSHION 20X24X4.0T EVA SPONGE BLACK	1.00
178	ASSY	700-C550E-A00	ESCUTCHEON ASSY - TCB550	1.00
179	PART	541-0400-000	CONNECTOR SOCKET FD-MIC4PIN-F NINGBO	1.00
180	PART	701-C5500-10A	WINDOW ACRYL CLEAR SOLARIUM	1.00
181	PART	701-C5500-20A	ESCUTCHEON ABS BLACK SOLARIUM	1.00
182	PART	701-C7700-50A	VOL KNOB ABS (BLACK COLOR)	2.00
183	PART	703-C5500-10A	KEY PAD SILICONE NATURAL PU coating	1.00
184	PART	706-2604S-BFH	SCREW MACH(+) M2.6x4L BLACK FH	1.00
185	PART	706-2605S-NFH	SCREW MACH(+) M2.6X5L Ni PLATED FH	3.00

186	PART	708-26082-BPH	SCREW TAP(+) 2.6X8L-2S BLACK PH(HEAD DIA 4.2)	2.00
187	PART	712-M70NI-001	RING NUT BsBm	2.00
188	PART	719-S000D-035	DOUBLE TAPE(WINDOW) 3M 0.16t	1.00
189	ASSY	700-C550M-B00	MAIN BODY ASSY - TCB550	1.00
190	PART	541-0239-002	CONNECTOR FD-ANT-1 NINGBO	1.00
191	PART	543-2000-000	POWER CORD ASS'Y UL1015 20AWG 2A FUSE BOX BSQ	1.00
192	PART	701-C5500-70A	CORD STOPPER PP BLACK SOLARIUM	1.00
193	PART	701-C5500-80A	BUSH NYLON66+GRASS 15% SOLARIUM	1.00
194	PART	702-C5500-30A	MAIN BODY EGI 1.0t	1.00
195	PART	702-C5500-70A	SHIELD COVER SPTE, 0.3T	1.00
196	PART	702-C7701-30A	ANT. TERMINAL SPTE 0.2T	1.00
197	PART	706-3008T-BBH	SCREW MACH(+) 3X8L-TAPTITE BLACK BH	5.00
198	PART	706-3010S-BBH	SCREW MACH(+) M3X10L BLACK BH	4.00
199	PART	711-M30NI-000	NUT M3 Ni PLATED	4.00
200	PART	713-M30NI-S01	SPRING WASHER M3	4.00
201	PART	719-R000D-040	CU TAPE-1 COPPER(CU)41.7X9X0.1T 1 SIDE DOUBLE TAPE	1.00
202	PART	719-R000D-041	CU TAPE-2 COPPER(CU)63.5X15X0.1T 1SIDE DOUBLE TAPE	1.00
203	PART	723-C4100-011	INSULATION WASHER PAPER 3.0 (Red color)	1.00
204	PART	723-C7700-001	MICA 0.6T	1.00
205	ASSY	8A0-C550-000	PACKING ASS'Y - TCB550	1.00
206	PART	701-C5500-90A	STUD BOLT ABS M6X8L BLACK SOLARIUM	2.00
207	PART	702-C5500-40A	BRACKET SET SPC 1.6T BLACK	1.00
208	PART	702-C7701-10A	BRACKET MIC SUS304 1.0T	1.00
209	PART	703-C7700-50A	PACKING RUBBER	2.00
210	PART	706-3008T-BBH	SCREW MACH(+) 3X8L-TAPTITE BLACK BH	2.00
211	PART	708-50121-ZTH	SCREW TAP(+) 5X12L-1S ZN PLATING TH	3.00
212	PART	714-M30NI-001	STAR WASHER-S M3 NI PLATING B TYPE	2.00

213	PART	714-M50NI-002	STAR WASHER-L M5 NI PLATING B TYPE	3.00
214	PART	801-C550-001	GIFTBOX(REV.01)	1.00
215	PART	804-C550-A01	INNER BOX A SW1E 2.0T BROWN(REV.01)	1.00
216	PART	804-C550-B02	INNER BOX B SW1E 2.0T BROWN(REV.02)	1.00
217	PART	807-C550-001	INNER PAD FOR INNER BOX A(REV.01)	1.00
218	PART	809-C550-001	OUT BOX DW1E 7.0T(REV.01)	0.10
219	PART	817-0520-000	POLYBAG PE 50X200	1.00
220	PART	817-0810-000	POLYBAG PE 80X100	1.00
221	PART	817-2230-000	POLYBAG PE 220X300	1.00
222	PART	820-C550-001	OWNERS MANUAL(REV.01)	1.00
223	PART	830-C550-001	NAME LABEL(REV.01) (PE 0.2T, 35X20mm)	1.00
224	PART	833-C550-000	CODE 39 SERIAL NO. STICKER (20X25mm)	2.00
225	PART	834-0001-000	WARNING LABEL	1.00
226	PART	834-0002-000	ROHS STICKER - TTI	0.10
227	PART	836-C550-000	LCD PROTECTIVE SHEET	1.00
228	PART	837-0001-000	OPP TAPE 50MM TTI LOGO	0.29
229	PART	838-0001-000	YELLOW STRAP	0.26
230	PART	83A-0001-000	SILICA GEL 1g	1.00
231	PART	905-C550-000	MICROPHONE ASSY - TCB550	1.00

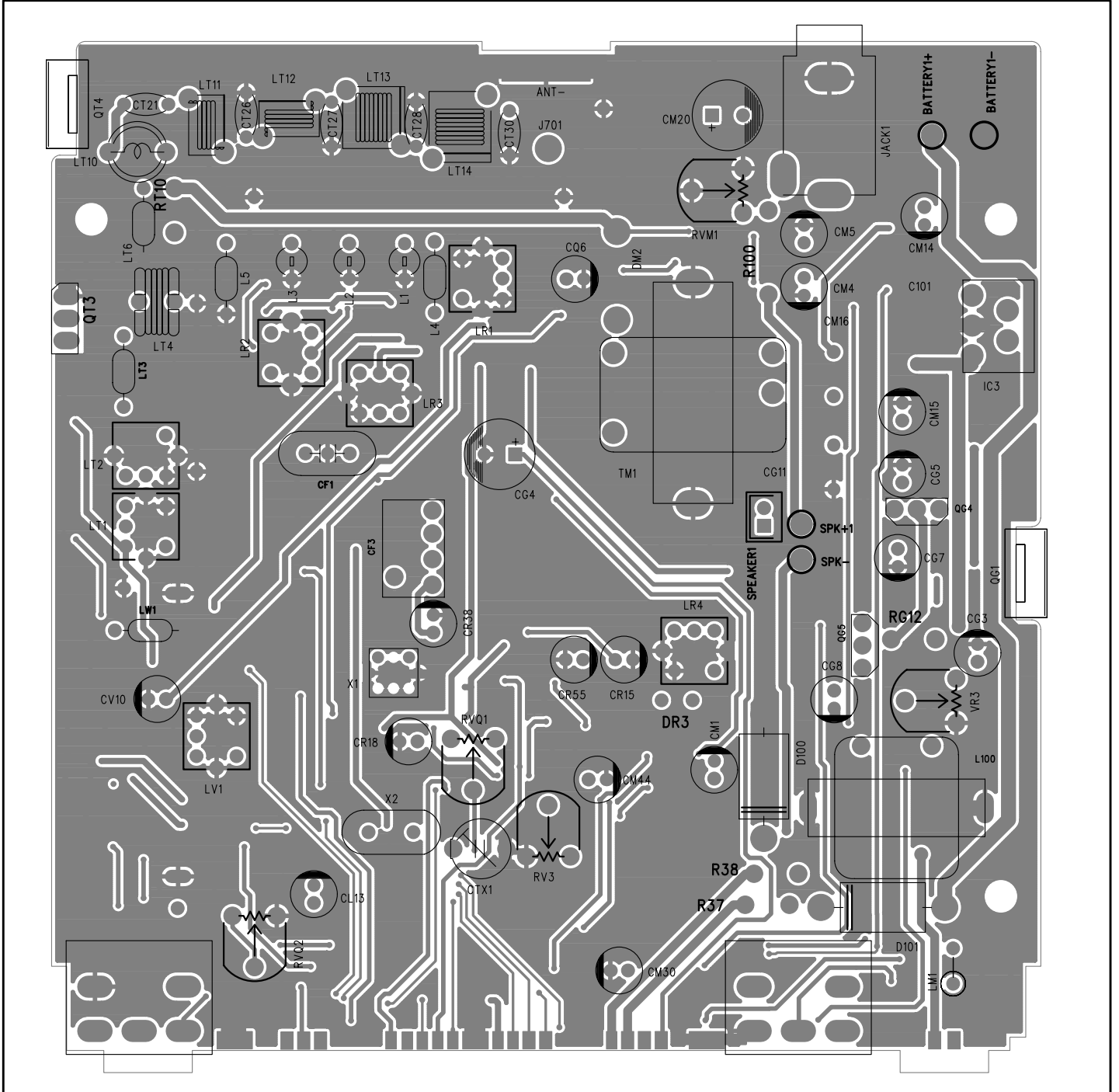
SECTION 4 MECHANICAL DISASSEMBLY



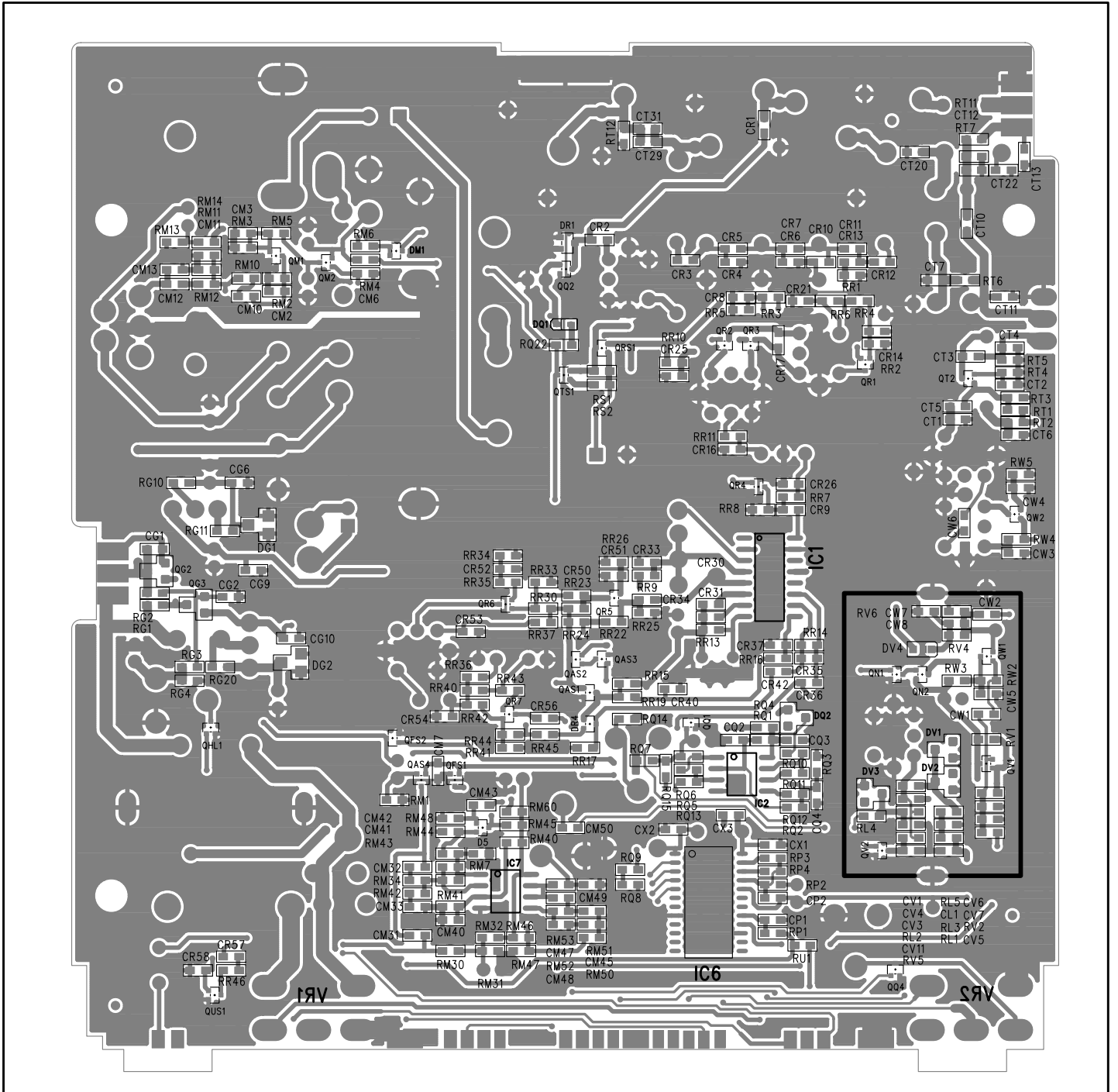
NO	PART NAME	DESCRIPTION	QTY	REMARK
1	Upper cover	SPC 0.8t, Black	1	
2	Bottom cover	SPC 0.8t, Black	1	
3	Main body	EGI, 1.0t	1	
4	Bracket(Set)	SPC 1.6t, Black	1	
5	Key PCB	1.6t	1	
6	Main PCB	1.6t	1	
7	Ch knob	ABS, Black	1	
8	Vol knob	ABS, Black	1	
9	Nut for Mic connector		1	
10	Washer for Mic connector		1	
11	Ring nut	BsBm, Ni plating	2	
12	Escutcheon	ABS, Black	1	
13	Double tape(Window)	3M, 0.16t	1	
14	Window	Acryl, Clear	1	
15	EVA SPONGE-A	49x2 0xD 5t	2	
16	EVA SPONGE-B	16.5x2.0x0.5t	2	
17	LCD Bracket	SPTe, 0.3t	1	
18	LCD		1	
19	Reflector	Acryl	1	
20	DOUBLE SIDE TAPE	29X3.5X0.2T	2	
21	Diffuser Lens	Acryl	1	
22	WHITE SHEET	POLYESTER 0.1t	1	
23	Zebra	Silicone	1	
24	Key pad	Silicone, PU coating	1	
25	Stud bolt	ABS, BsBm	1	
26	Packing rubber	NBR	2	
27	Ant terminal	SPTe, 0.2t	1	
28	Felt(Cover)	6x117x0.2t	4	
29	Cushion	EVA sponge	1	
30	TX shield can(2)	SPTe, 0.3t	1	
31	Shield cover	SPTe, 0.3t	1	
32	Speaker		1	
33	Bracket(Spk)	EGI, 1.0t	3	
34	Felt(Spk)	Dia 65 x 0.3t	1	
35	Mic connector	4PIN	1	
36	TX shield can(1)	SPTe, 0.3t	1	
37	VCO shield can	SPTe, 0.3t	1	
38	Cord stopper	PP, Black	1	
39	Washer for Ant connector		1	
40	Nut for Ant connector		1	
41	Ant connector		1	
42	Screw Mach(+)	M3x10, BH	4	For TR
43	Spring washer	M3	4	For TR
44	Nut	M3, SS41	4	For TR
45	Bush	Nylon66xGlass15%	1	
46	Mica	0.6t	1	
47	INSULATION WASHER	PAPER #3 0(REd)	1	
48	TR		4	
49	Screw Mach(+)	M2.6x5L, FH, Ni	3	For Escutcheon
50	Screw Mach(+)	M3x8L_Taptite, BH	15	
51	Screw Mach(+)	M2.6x4L, FH, Black	1	For Escutcheon
52	LED PCB	1.6t	1	
53	Screw Top(+)	2.6x8L_2S,Black,PH	15	
54	Cu tape-1	41 7x9 0xD 1t	1	Copper(Cu)
55	Cu tape-2	63 5x15 0xD 1t	1	Copper(Cu)

SECTION5 BOARD LAYOUT

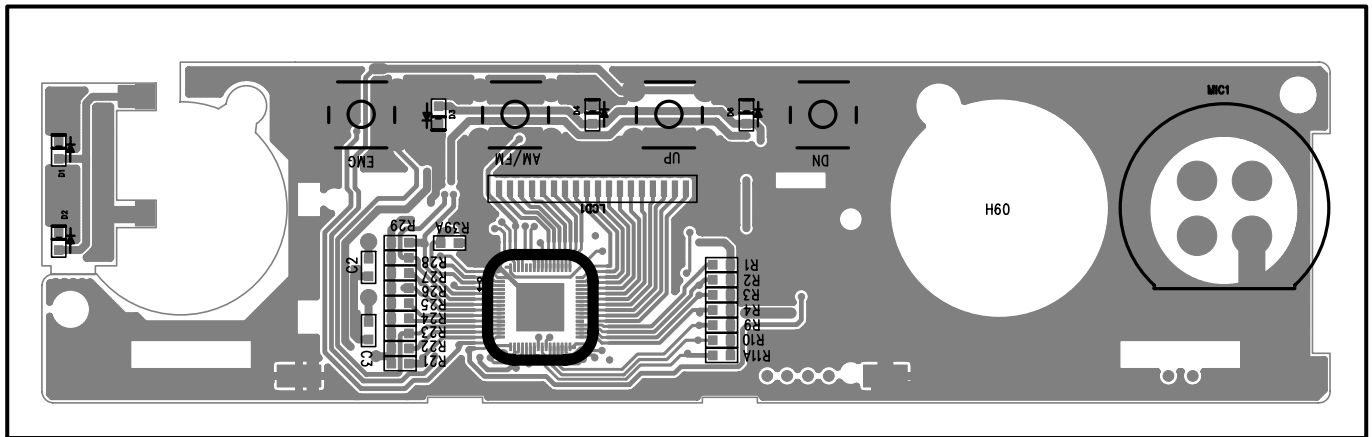
Main PCB (Top side)



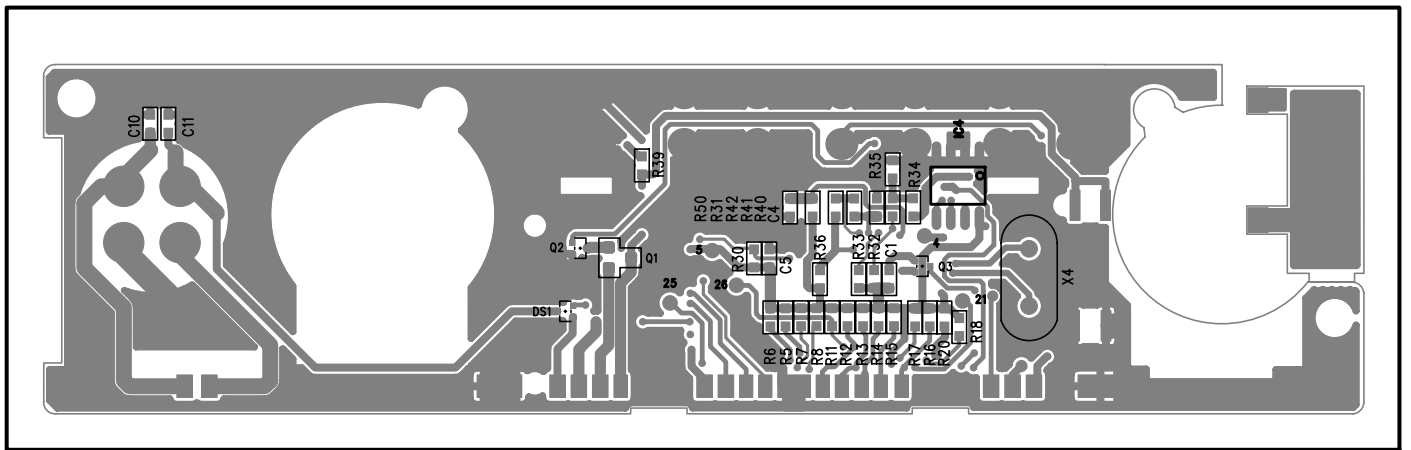
Main PCB (Bottom side)



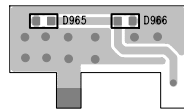
5-2 Front PCB (Top side)



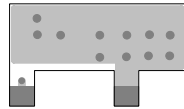
Front PCB (Bottom side)



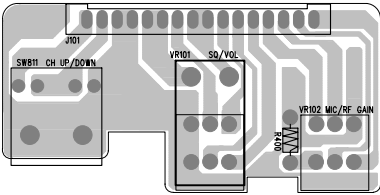
5-3 LED PCB (Top side)



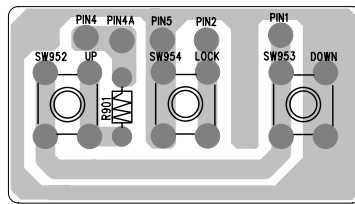
LED PCB (Bottom side)



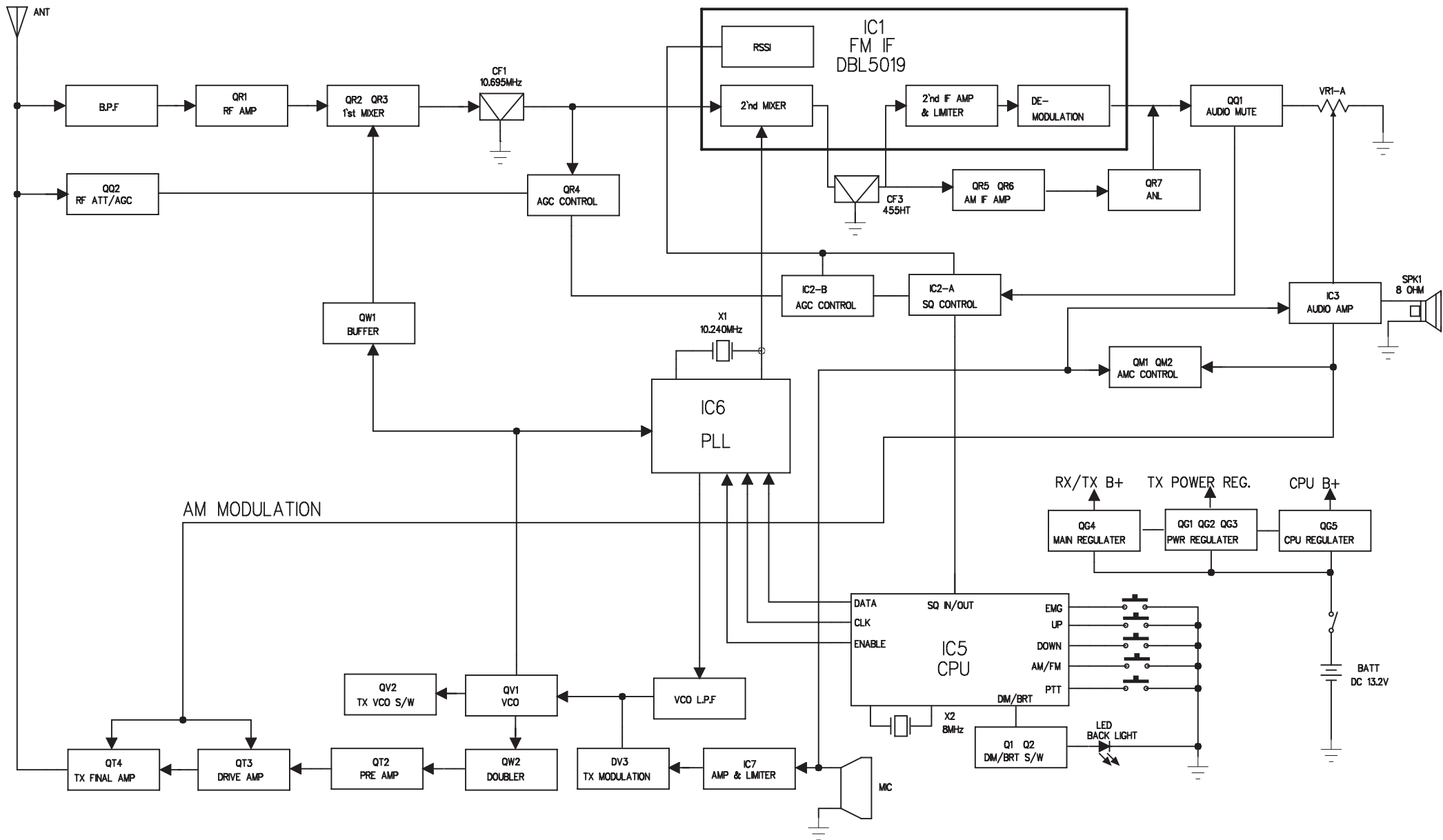
5-4 Volume PCB



5-5 MIC PCB



SECTION 6 BLOCK DIAGRAM



SECTION 7 SCHEMATIC

