M-550 Power

Service Manual

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SPECIFICATIONS

1. GENERAL

Channels……..…….....400 Ch AM/FM 4W
Frequency Range……...…… ..25.315 to 29.105 MHz
FrequencyControl……..……..……PLL
Operating Temperature Range……..……-10° / +55°C
DC Input Voltage……...……....13.2 V DC ±15%
Size……..……..…180(L) X 50(H) X 153(D) mm
Weight……..……...……0.850 kg

2. RECEIVER

Receiving System……....Dual Conversion Super Heterodyne
Intermediate Frequency……..…1st IF: 10.695 MHz, 2nd IF: 455 MHZ
Sensitivity……...….0.5 μV for 20 db SINAD in FM mode
Audio Distortion……..……Less Than 8% @ 1 KHz
ImageRejection……...65 dB
Adjacent ChannelRejection……....65 dB
Signal/ Noise Ratio……..….45 dB
Current Drain at standby……..325 mA

3. TRANSMITTER

Output Power……..……...….4W @ 13.2 V DC
Modulation……...……FM: 1.6 KHz ±0.2 KHz
Frequency response……...From 300 Hz to 2.5 KHz
Output impedance……..……RF 50 ohm Unbalance
Signal/ Noise Ratio……..40 dB MIN
Current Drain…….……1300 mA

OPERATION INSTRUCTIONS

Having properly installed your batteries and hooked-up the antenna, you are now ready to operate your radio for optimum reception and voice transmission.

Turn the power “ON” with ON/OFF switch.

Set the desired channel.

Adjust the squelch control knob to reduce any undesirable background noise when no signal is being received. To do this, select a channel where no signal are present, or wait until signals cease on your channel. Then, rotate the squelch control knob clockwise to a point where the background noise disappears.

> **Note:** When the squelch is set properly, the speaker will remain quiet until a signal is received. In order to receive weak signals, do not set the squelch too high.

Adjust the volume to the desired listening level.

To Transmit

Press and hold the push-to-talk button. Speak slowly and clearly in a normal voice two to three inches from the microphone. A buit-in modulation control circuit will automatically adjust the microphone input level. There is no need to speak loudly.

To Receive

Release the push-to-talk button.

THEORY OF OPERATIONS

TRANSMITTER

A. RF Amplification

The output of double AMP Q301 is fed through tuning IFT L301 and L302 to the base of pre driver AMP Q302. The output is then supplied to RF driver AMP Q303. The output of Q303 is supplied with tuning circuit L304 and C317,C315,C21 and goes to the base of final RF AMP Q304. The output of Q304 is supplied to the antenna through L-C tuning circuit.

B. Circuit for Suppression of Spurious Radiation

The tuning circuit between the output of final AMP Q304 and antenna, 4-stage "PHI" network L308, C324, C325, C327, L311, C337, C333, L312, C328, C334, C338, L313 serves as a spurious radiation suppressor . This network also serves to match the impedance between TX power AMP Q304 and the antenna.

C. Circuit for Limiting Power

After finished all alignment, the constant voltage supply circuit limits the available power 4 W or slightly less. RV1 and corresponding three transistors control supply voltage of RF amplifier and other circuits.

Tune all the trimmer parts for maximum indication of RF power meter and adjust RV1 to make 4 w indication of RF power meter.

The tuning is adjusted so that the actual power is from 3.8 to 4.0 W. There are no other additional controls for adjusting the TX output power.

D. Modulation Control

a. FM

The mic input is fed to mic audio amplifier IC KIA324 which drives modulation varicap diode D403 in the VCO circuit. RV401 limits the incoming modulation audio levels to inhibit over modulation. While reading the modulation factor on the modulation analyzing equipment, adjust RV401 shall not exceed +/-1.6 KHz/Dev. After 20 dB up from 1.25 KHz/1.2 KHz/Dev. Audio level

b. AM

Modulation signals are filtered with RC network and goes to the audio power AMP IC IC104 to make nominal signal level to achieve wanted modulation. To control incoming audio signal, diode D203 and corresponding ALC circuit limits the modulation shall not exceed +/-80% adjust RV201 +/-80% modulation under 1.0 KHz AF 60% mod plus 20 dB of audio signal.

E. Receiver

CB receiver is dual conversion supper-heterodyne type with the first IF 10.695 MHz and second IF 455 KHz. Receiver is separated two blocks, 1st IF section and 2nd IF section.
The PLL synthesizer supplies first local frequency 16.270 ~ 16.710 MHz.(for EU) and 16.90625 MHz ~ 17.29625 MHz (for UK) With the provided first local frequencies Q105,Q106 mixes the incoming RF signal to generate first IF signal. Mixed signals were filtered with the XF101 (10.695 MHz) crystal filter and other tuning circuits. Output signal of mixer is filtered with CF101 (455 KHz ceramic filter). The 455 KHz signal from the 2nd IF filter was amplified and limits internaly. After amplification the signals fed the quadrature detector loop L104. Then we can see the recovered audio signals on Pin 9 for FM of IC1. With the amplitude of recovered signals, Q108 serves as an audio amplifier. For AM signal Will be pass filter CF1 and induced to Q110, Q111 respective and detected to voice signal by D111.

TROUBLESHOOTING HINTS

Symptom	**Probable Cause**	**Remedy**
Unit does not work at all	• Defective power switch VR102. • Blown fuse. • Broken DC power cord. • Defective IC3.	• Replace • Replace • Replace • Replace
No output from speaker at all	• Defective external speaker jack. • Poor connection on microphone connector • Defective push switch on microphone. • Defective internal speaker. • Defective VR102, IC104 other components.	• Repair or replace • Repair or replace • Repair or replace • Replace • Replace the defective components.
No noise on speaker	• Measure all the voltage of IC104 with voltage chart • Defective squelch circuit components (RV102, VR101, IC104)	• Replace • Replace
Squelch does not work	• Defective VR108, RV2, IC2.	• Replace the defective components. • Re-adjust

No modulation	• Defective VR1. • Defective microphone. • Poor audio output and defective modulation microphone amplifier components (IC103). • Defective microphone connector components. • Defective ALC circuit D413, D414.	• Replace • Replace • Replace the defective components. • Replace • Replace the defective
LCD display does not work	• Defective RED wire fuse. • Defective IC3, Q1.Q2.Q3.Q4.	• Replace • Replace
Channel selector does not work	• Defective IC3, SW7.	• Replace
EMG CH9.19 does not work	• Defective EMG SW. • Defective IC3.	• Replace • Replace

ALIGNMENT PROCEDURE

Step	Setting	Connection	Adjuster	Adjust for
1	Frequency adjustment MIC : Receive Volume : optional Squelch : optional CH selector : 19 EU CH9 : off	Frequency counter to dummy load (Figure 1).	CT201	27.185MHz±300Hz
2	VCO Voltage adjustment MIC : Receive Volume : optional Squelch : optional CH selector : 00 BAND 16 CH9 : OFF	Connect DC voltmeter between R406, C418 and GND. (Figure 2).	L501	1.0V at RX.

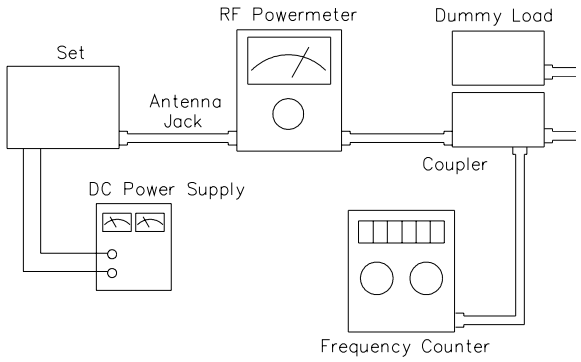


Figure 1

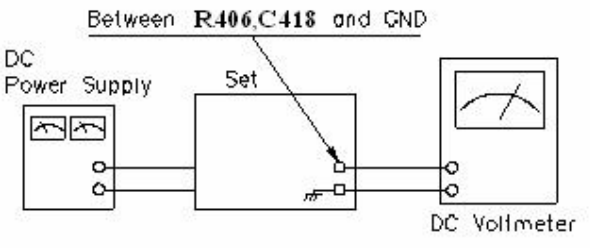


Figure 2

TRANSMITTER SECTION

Test Equipment Required

- RF power meter (RF SSVM)
- 50 ohms dummy load (non-inductive)
- RF attenuator (50 ohms non-inductive)
- Oscilloscope
- Audio generator
- DC power supply (13.2 volt, 5 amp)
- Spectrum analyzer
- Frequency counter
- Coupler

ALIGNMENT PROCEDURE

Step	Setting	Connection	Adjuster	Adjust for
1	RF power stage MIC : Transmit Volume : optional Squelch : optional CH : selector : 19 CH9 : OFF	Connect dummy load and RF power meter to the EXT-ANT jack on the set (Figure 3).	L301 L302 L303	Maximum indication on the power meter (4 watts). If indication is not in 4 watts range, adjust L301, L302.
2	Second harmonic check MIC : Transmit Volume : optional Squelch : optional CH : selector : 19 CH9 : OFF	Connect RF power meter With dummy load to spectrum analyzer through coupler /-40 dB Attenuator to EXT-ANT jack on the set (Figure 4).		At no modulation, compare the level o fundamental frequency to the level of harmonic frequency. Suppression of the 2nd harmonic frequency level must be lower than –60 dB. Check for the other channels.
3	Frequency check MIC : Transmit Volume : optional Squelch : optional CH : selector : 19 CH9 : OFF	Connect dummy load and frequency counter though coupler to RF powermeter. Connect RF powermeter to EXT-ANT jack on the set (Figure 5).	CT201	Be sure that the indication of the transmitter frequency is 27.185MHz±300Hz on the frequency counter.

4	TX power adjustment Volume : optional Squelch : optional CH : selector : 19 CH9 : OFF	Connect dummy load and oscilloscope through Coupler to RF powermeter connect audio generator to microphone jack (Figure 6).	RV1	Adjust until 3.6-4 Watts

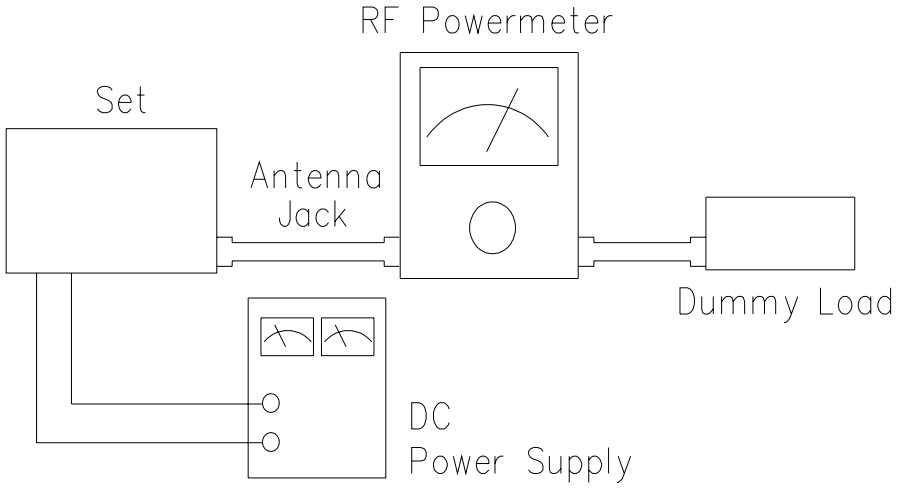


Figure 3

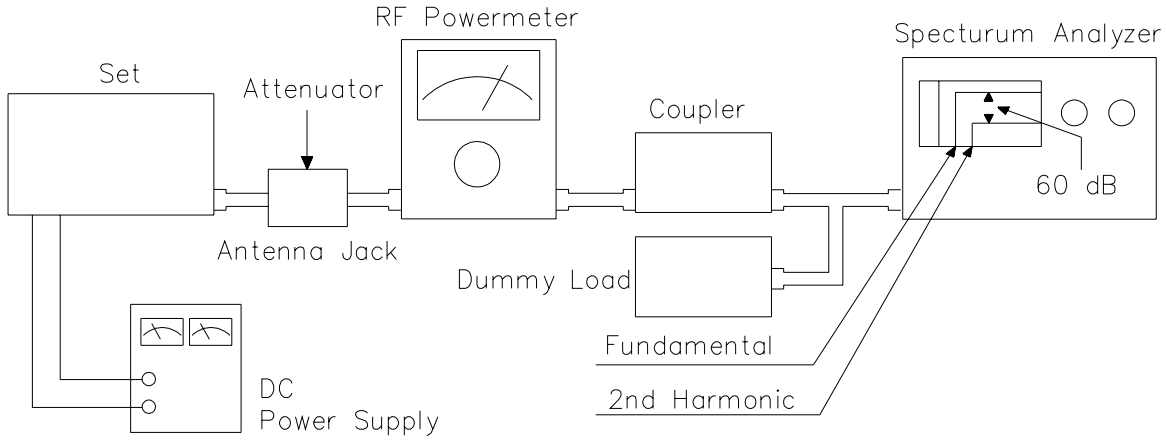


Figure 4

RECEIVER SECTION

Test Equipment Required

- RF Signal generator (RFSG)
- SSVM
- Distortion meter
- DC power supply

ALIGNMENT PROCEDURE

Step	Setting	Connection	Adjuster	Adjust for
1	Audio output adjustment MIC : Receive Volume : Fully clockwise Squelch: Turn to- Counter clockwise CH selector : 19 RF gain : Fully clockwise CH9 : OFF RFSG:27.185 MHz,1kHZ 1μV , 1.2 K Dev.	Connect RF signal generator to EXT-ANT jack. Connect SSVM and distortion meter with 8 ohm dummy load (Figure 7).	L3 L4 L102 L103 L104	Maximum indication on SSVM. Reduce output from RFSG until the audio output becomes about 500mW (2V).

2	Squelch adjustment MIC : Receive Volume : 50mW (2V) Squelch : Clockwise CH selector : 19 RFSG:27.185MHz, 1kHZ 1mV, 1.2K DEV.	Connect RF signal generator to EXT-ANT Jack. Connect SSVM and distortion meter to EXT speaker jack with 8 ohm dummy load (Figure 7).	RV2	Adjust until the audio output appears.

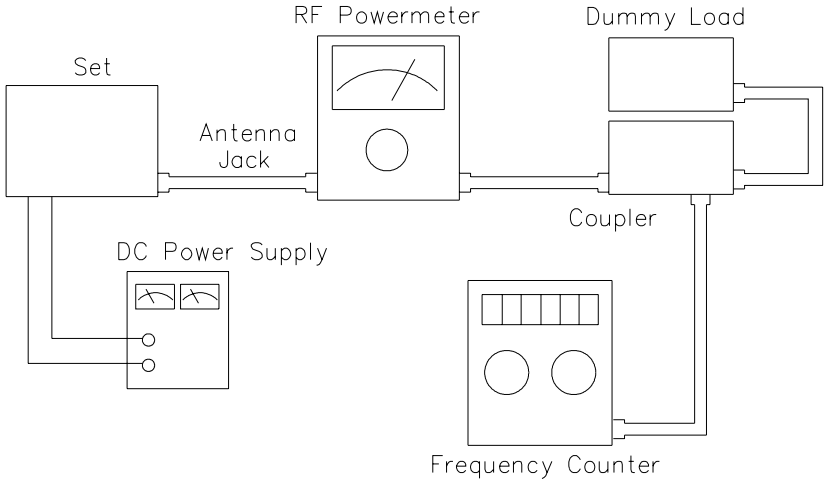


Figure 5

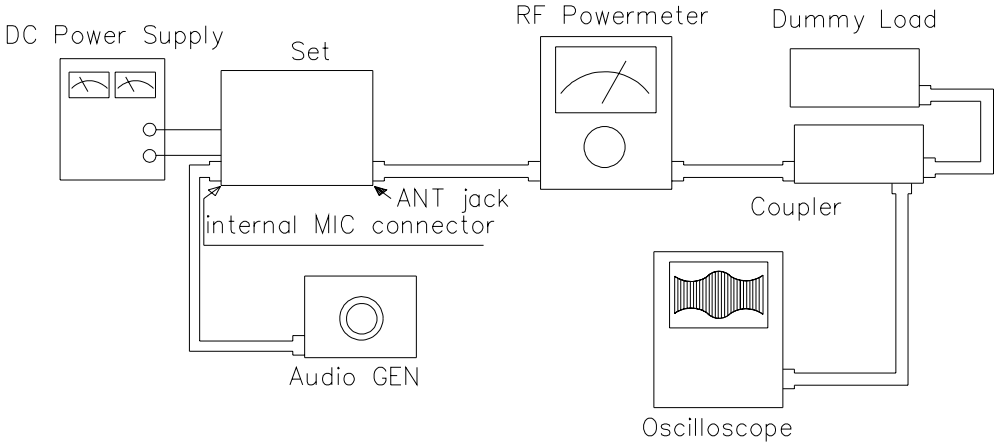


Figure 6

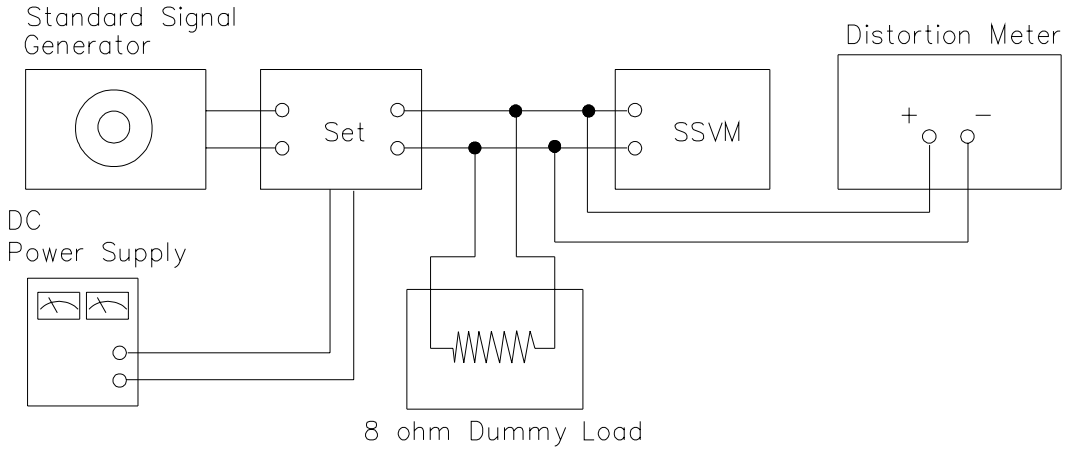
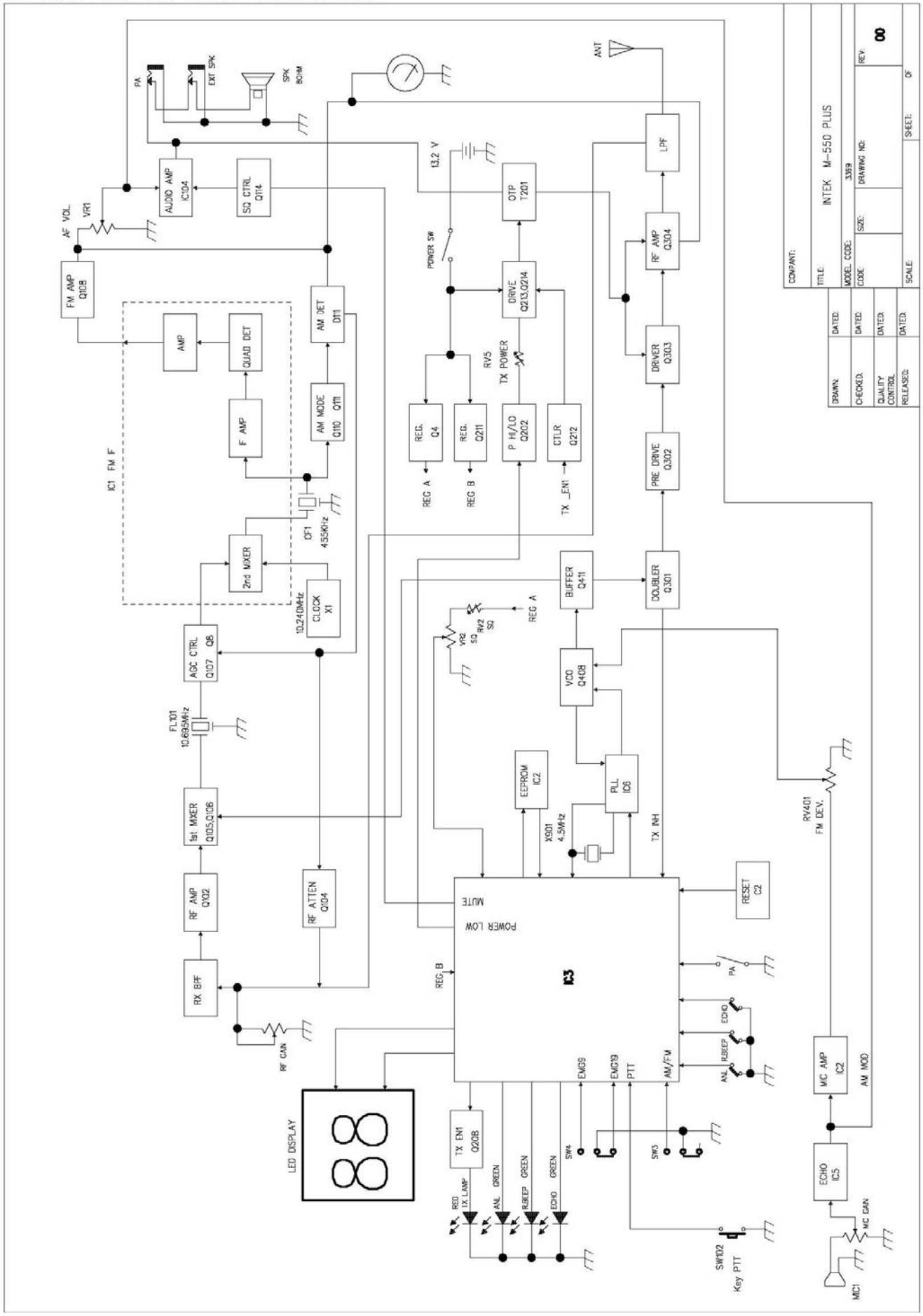


Figure 7


ANT
LPF
RF AMP Q304
DRIVER Q303
PRE DRIVE Q302
DOUBLER Q301
BUFFER Q411
VCO Q408
PLL IC6
EEPROM IC2
X901 4.5MHz
TX INH
RV401 FM DEV.
MIC AMP IC2
AM MOD
ECHO IC5
MIC CAN
MIC1
RESET C2
MUTE
POWER LOW
IC3
REG. B
PA
ECHO
RBEEP
ANL
EMG9
EMG19
PTT
AM/FM
SW3
SW4
SW102
Key PTT
TX EN1 Q208
LED DISPLAY
RED TX LAMP
ANL GREEN
RBEEP GREEN
ECHO GREEN
RF ATTEN Q104
RF AMP Q102
RX BPF
RF GAIN
1st MIXER Q105,Q106
FL101 10.695MHz
AGC CTRL Q107 Q8
2nd MIXER
CLOCK X1 10.240MHz
CF1 455KHz
IC1 FM IF
AMP
QUAD DET
F AMP
AM MODE Q110 Q111
AM DET D11
FM AMP Q108
AF VOL VR1
AUDIO AMP IC104
SQ CTRL Q114
PA
EXT SPK
SPK 8OHM
POWER SW
13.2 V
OTP T201
DRIVE Q213,Q214
RV5 TX POWER
REG. Q4
REG. Q211
P HI/LO Q202
CTLR Q212
REG A
REG B
TX _EN1
VR2 SQ
RV2 SQ
REG A
COMPANY:
TITLE:
INTEK M-550 PLUS
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3359
CODE:
SIZE:
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REV:
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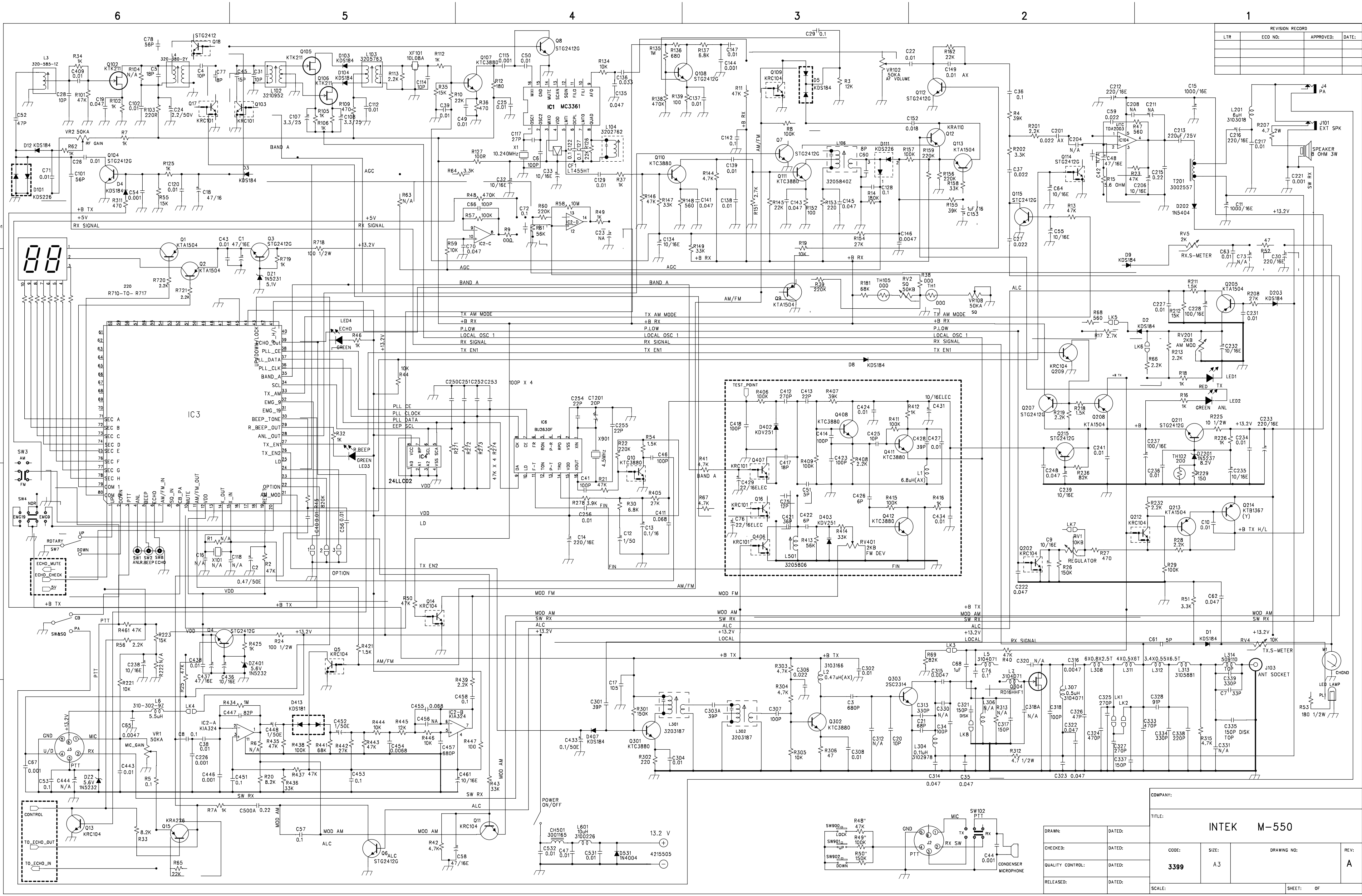

REVISION RECORD
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APPROVED:
DATE:
COMPANY:
TITLE:
INTEK M-550
DRAWN:
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QUALITY CONTROL:
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SHEET:
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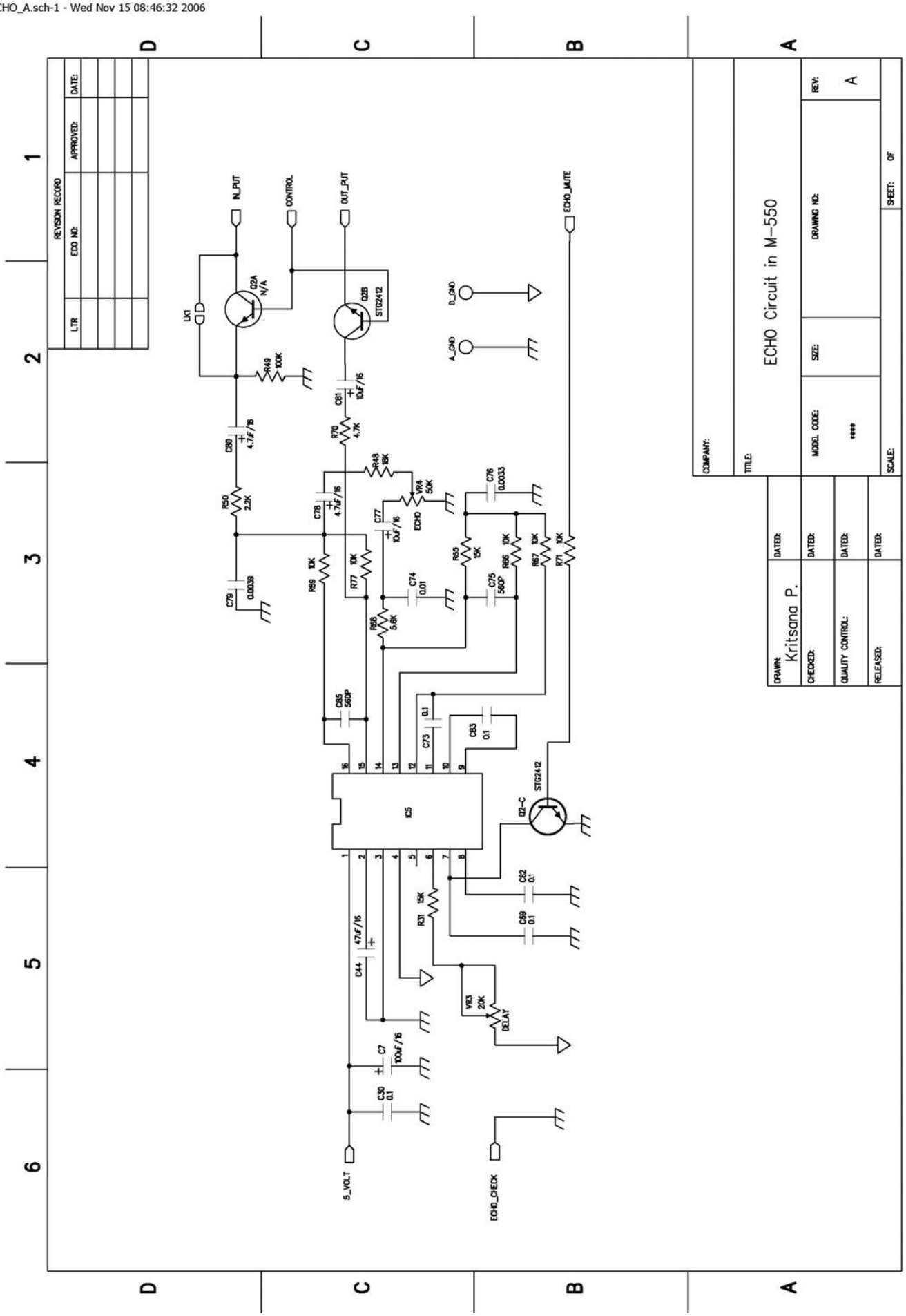
REVISION RECORD
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APPROVED:
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COMPANY:
TITLE:
DRAWN: Kritsana P.
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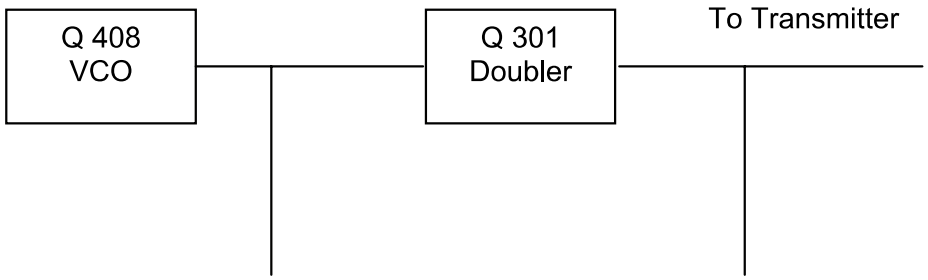
QUALITY CONTROL:
RELEASED:
MODEL CODE: ****
SIZE:
DRAWING NO:
REV: A
SCALE:
SHEET: 0F
IN_PUT
CONTROL
OUT_PUT
ECHO_MUTE
D_GND
A_GND
5_VOLT
ECHO_CHECK
DELAY
ECHO
IC5
Q2A N/A
Q2B STG2412
Q2-C STG2412

PLL CIRCUIT BLOCK DIAGRAM

1. INTRODUCTION

The frequencies for transmitter and receiver first local frequencies are all derived from a single 10.240 MHz crystal by means of a phase locked loop. The first local oscillator frequencies are 16.270 MHz (CH 1) to 16.710 MHz (CH 40) for EU and 16.90625 MHz (CH 1) to 17.29625 MHz (CH 40) for UK . The second local frequency is fixed at 10.240 MHz to generate second IF 455 KHz. During transmit, The VCO of the PLL operates 13.4825 MHz (CH 1) to 13.7025 MHz (CH 40) for EU ,13.800625 MHz (CH 1) to 13.995625 MHz (CH 40) for UK the VCO frequency gose to the double circuit Q301,L301,L302 which doubles the frequency to generate 26.965 MHz (CH 1) to 27.405 MHz (CH 40) for EU and 27.60125 MHz (CH 1) to 27.99125 MHz (CH 40) for UK



13.4825 MHz (CH 1) EU	26.965 MHz (CH 1)
13.7025 MHz (CH 40) EU	27.405 MHz (CH 40)
13.800625 MHz (CH 1) UK	27.60125 MHz (CH 1)
13.995625 MHz (CH 40) UK	27.99125 MHz (CH 40)

The VCO operating frequency for the receiver is 16.270,16.90625 MHz (CH 1) to 16.710,17.29625 MHz (CH 40) as the first local oscillator, injected through the buffer AMP Q411 into the first fed balanced mixer Q105,Q106

2. BASIC SYNTHESIZER SCHEME

The crystal frequency (10.240MHz) is divided by 1800 times to make 2.5 KHz 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 11 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 D402

Under locked conditions, both of phase detector input signal must be indential at 2.5 KHz. The VCO frequency is then given by:

FVCO / N = 0.0025 MHz or FVCO = 0.0025 x N 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		Function
	N	FVCO	N	FVCO	
Transmit	5393	13.4825	5481	13.7025	EU
Receive	6508	16.2700	6684	16.7100	
Transmit	5520.25	13.800625	5598.25	13.995625	UK
Receive	6762.50	16.90625	6918.5	17.29625	

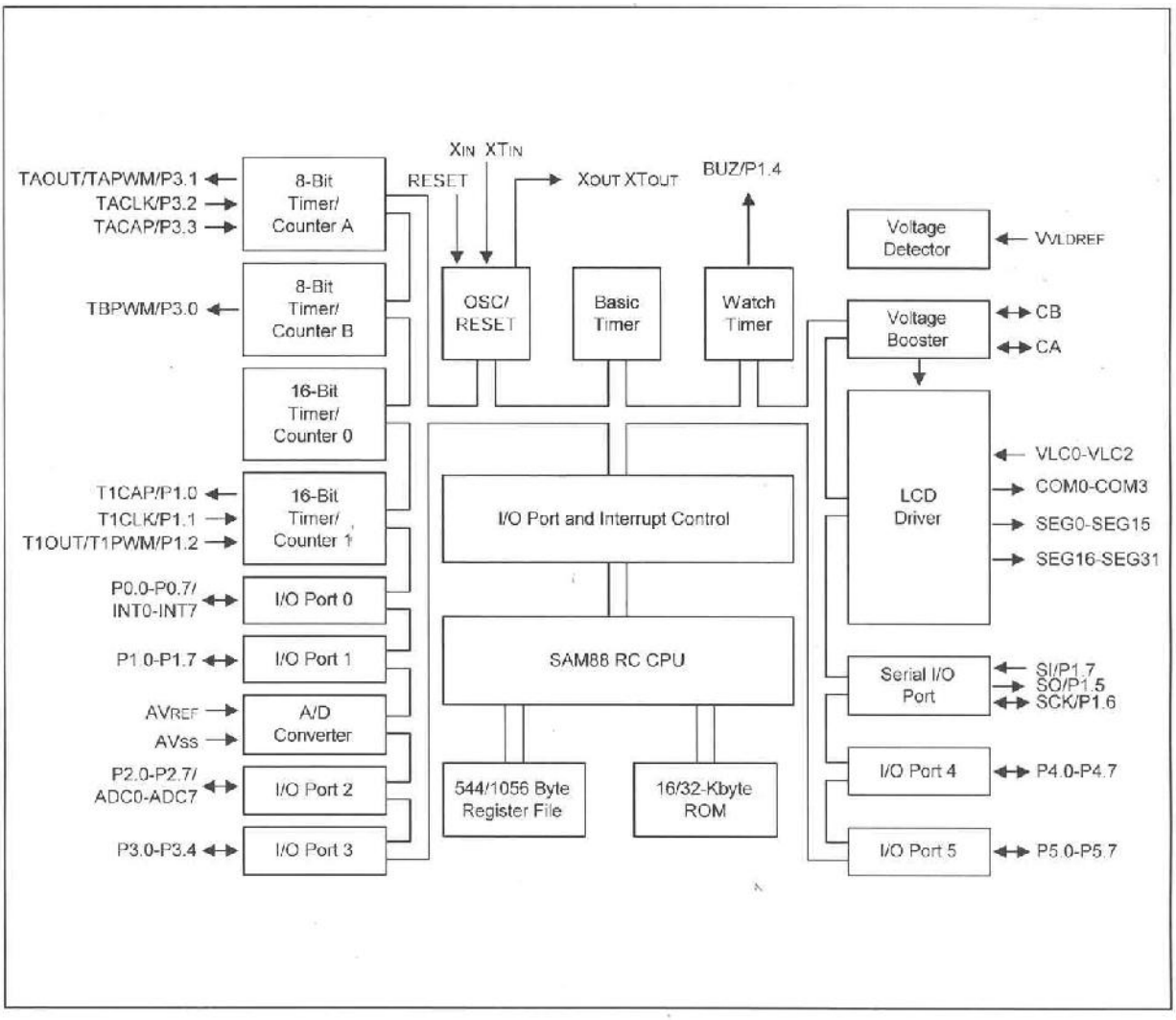
(SEE TABLE FOR OTHER CHANNELS)

The VCO frequency goes to the double circuit, which doubles the incoming signals.

		Double output Frequency
Transmit _____ Transmit _____	CH 1, 13.4825 MHz CH 1, 13.800625 MHz CH 40, 13.7025 MHz CH 40, 13.995625 MHz	26.965 MHz 27.60125 MHz 27.405 MHz 27.99125 MHz

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

INTERNAL BLOCK DIAGRAM



DIVIDE RATIO, VCO RX/TX FREQUENCIES FOR EACH CHANNEL OF "EU"

Channels	Frequencies (MHz)	RX		TX	
		N	Frequencies MHz	N	Frequencies MHz
1	26.965	6508	16.27	5393	13.4825
2	26.975	6512	16.28	5395	13.4875
3	26.985	6516	16.29	5397	13.4925
4	27.005	6524	16.31	5401	13.5025
5	27.015	6528	16.32	5403	13.5075
6	27.025	6532	16.33	5405	13.5125
7	27.035	6536	16.34	5407	13.5175
8	27.055	6544	16.36	5411	13.5275
9	27.065	6548	16.37	5413	13.5325
10	27.075	6552	16.38	5415	13.5375
11	27.085	6505	16.39	5417	13.5425
12	27.105	6512	16.41	5421	13.5525
13	27.115	6516	16.42	5423	13.5575
14	27.125	6524	16.43	5425	13.5626
15	27.135	6528	16.44	5427	13.5675
16	27.155	6532	16.46	5431	13.5775
17	27.165	6536	16.47	5433	13.5825
18	27.175	6544	16.48	5435	13.5875
19	27.185	6548	16.49	5437	13.5925
20	27.205	6552	16.51	5441	13.6025
21	27.215	6608	16.52	5443	13.6075
22	27.225	6612	16.53	5445	13.6125
23	27.255	6624	16.56	5451	13.6275
24	27.235	6616	16.54	5447	13.6175
25	27.245	6620	16.55	5449	13.6225
26	27.265	6628	16.57	5453	13.6325
27	27.275	6632	16.58	5455	13.6375
28	27.285	6636	16.59	5457	14.6425
29	27.295	6640	16.60	5459	13.6475
30	27.305	6644	16.61	5461	13.6525
31	27.315	6648	16.62	5463	13.6575
32	27.325	6652	16.63	5465	13.6625
33	27.335	6656	16.64	5467	13.6675
34	27.345	6660	16.65	5469	13.6725
35	27.355	6664	16.66	5471	13.6775
36	27.365	6668	16.67	5473	13.6825

37	27.375	6672	16.68	5475	13.6875
38	27.385	6676	16.69	5477	13.6925
39	27.395	6680	16.70	5479	13.6975
40	27.405	6684	16.71	5481	13.7025

DIVIDE RATIO, VCO RX/TX FREQUENCIES FOR EACH CHANNEL OF "UK"

Channels	Frequencies (MHz)	RX		TX	
			Frequencies MHz		Frequencies MHz
1	27.60125	6546.5	16.90625	5412.25	13.800625
2	27.61125	6766.5	16.91625	5522.25	13.805625
3	27.62125	6770.5	16.92625	5524.25	13.810625
4	27.63125	6774.5	16.93625	5526.25	13.815625
5	27.64125	6778.5	16.94625	5528.25	13.820625
6	27.65125	6782.5	16.95625	5530.25	13.825625
7	27.66125	6786.5	16.96625	5532.25	13.830625
8	27.67125	6790.5	16.67625	5534.25	13.835625
9	27.68125	6794.5	16.98625	5536.25	13.840625
10	27.69125	6798.5	16.99625	5538.25	13.845625
11	27.70125	6802.5	17.00625	5540.25	13.850625
12	27.71125	6806.5	17.01625	5542.25	13.855625
13	27.72125	6810.5	17.02625	5544.25	13.860625
14	27.73125	6814.5	17.03625	5546.25	13.865625
15	27.74125	6818.5	17.04625	5548.25	13.870625
16	27.75125	6822.5	17.05625	5550.25	13.875625
17	27.76125	6826.5	17.06625	5552.25	13.880625
18	27.77125	6830.5	17.07625	5554.25	13.885625
19	27.78125	6834.5	17.08625	5556.25	13.890625
20	27.79125	6838.5	17.09625	5558.25	13.895625
21	27.80125	6842.5	17.10625	5560.25	13.900625
22	27.81125	6846.5	17.11625	5562.25	13.905625
23	27.82125	6850.5	17.12625	5564.25	13.910625
24	27.83125	6854.5	17.13625	5566.25	13.915625
25	27.84125	6858.5	17.14625	5568.25	13.920625
26	27.85125	6861.5	17.15625	5570.25	13.925625
27	27.86125	6866.5	17.16625	5572.25	13.930625
28	27.87125	6870.5	17.17625	5574.25	13.935625
29	27.88125	6874.5	17.18625	5576.25	13.940625
30	27.89125	6878.5	17.19625	5578.25	13.945625

31	27.90125	6882.5	17.20625	5580.25	13.950625
32	27.91125	6886.5	17.21625	5582.25	13.955625
33	27.92125	6890.5	17.22625	5584.25	13.960625
34	27.93125	6844.5	17.23625	5586.25	13.965625
35	27.94125	6898.5	17.24625	5588.25	13.970625
36	27.95125	6902.5	17.25625	5590.25	13.975625
37	27.96125	6906.5	17.26625	5592.25	13.980625
38	27.97125	6910.5	17.27625	5594.25	13.985625
39	27.98125	6914.5	17.28625	5596.25	13.990625
40	27.99125	6918.5	17.29625	5598.25	13.995625

3. DESCRIPTIONS OF EACH BLOCK

A. Introduction

The synthesizer is implemented with the following

Components:

PLL IC (IC6)
X-TAL (X901)
VCO, VARICAP DOIDE (D402)

IC3 is a cmos LSI that includes most of PLL block and driver, the Q408, C51, C414, C417, C423 and L501, Varicap diode D402 are clapp oscillator circuit to operate as a VCO of the IC6. Q408 is a switching transistor to connect or disconnect the tuning capacitor in the VCO oscillator tank circuit for transmitter or receiver. Q406 works as a buffer AMP for RX local frequencies (16 MHz) and TX generating frequencies (13 MHz).

B. Reference frequency

The crystal, X1 (10.240 MHz) and other components of IC6 can make a reference frequency oscillator with internal amplifier.

C. VCO

Q408 and surrounding parts are consisting a clapp oscillator works as a VCO of IC6. the VCO can be oscillate over the required of 13.4825 MHz to 17.29625 MHz

D. Phase detector and VCO control

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

E. Transmitter/Receiver buffer AMP

Output signal of Q408 is fed into buffer AMP Q411,

F. Transmitter doubler

The output signals of Q411 goes to an amplifier with tuning circuit Q301,L301,L302 which doubles incoming 13 MHz signals.

G. Switching of tuning capacitor in VCO

The VCO circuit must tune with a wide rang of frequencies 13.4825 ~ 13.7025 MHz (EU), 13.800625 ~ 13.995625 MHz (UK) for transmitter and 16.270~16.710 MHz (EU), 16.90625 ~ 17.29625 MHz (UK) for receiver. To comply above rang of VCO, the tuning capacitance should switched for transmission or reception.

H. Receiver local oscillator outputs

First Mixer:

The secondary output signals is injected to the sources of 1st mixer Q105,Q106 in the 1st IF mixer section

Second Mixer:

The output of 10.24 MHz oscillator circuit with X-1 is injected into the IF IC internally. Incoming IF signal and 10.24 MHz are mixed inside the IF IC to extract 2nd IF signal 455 KHz. FM,AM audio signals are recovered with the way of quadrature detector, AM signals are recovered with envelope detector.

4. FREQUENCY STABILITY

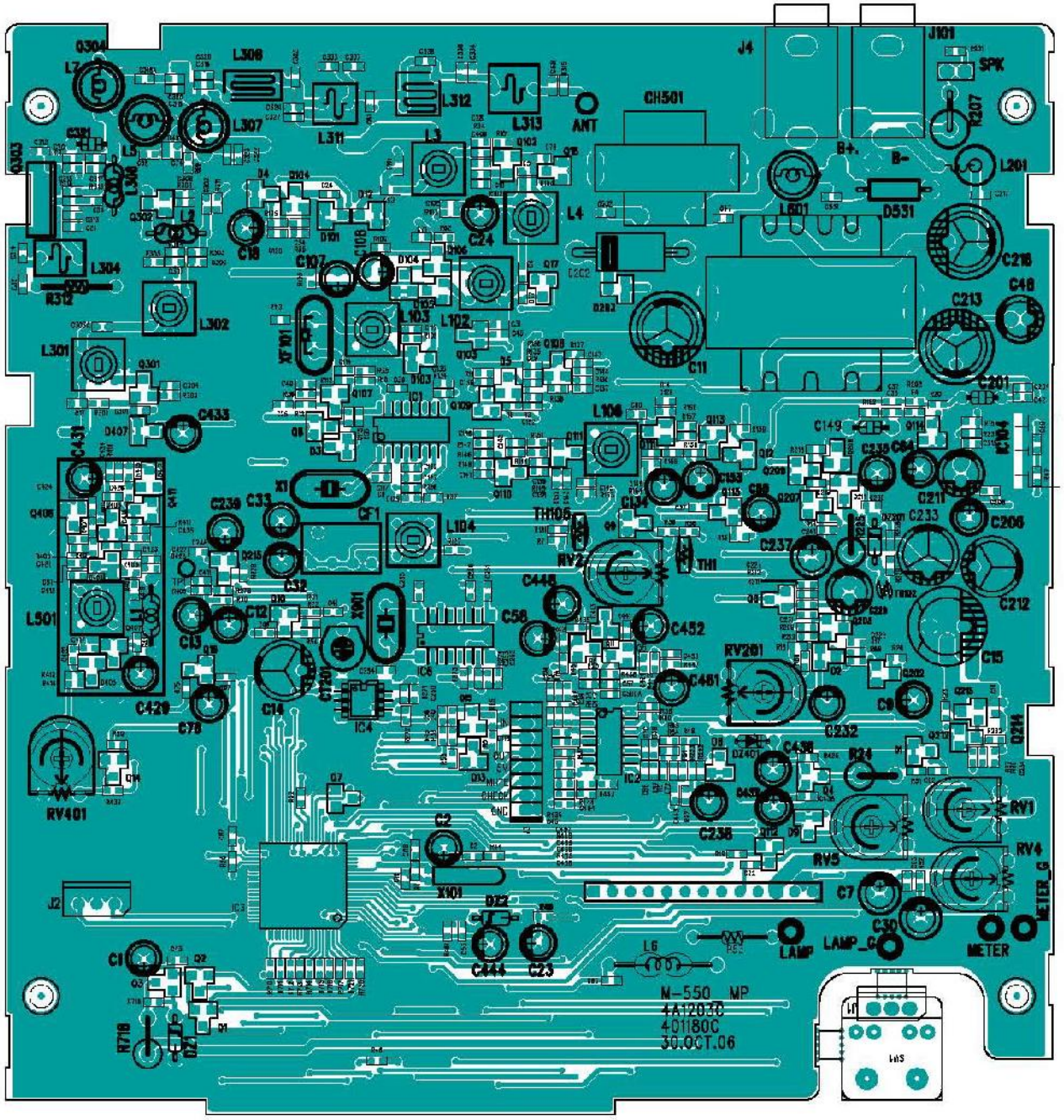
LET : Fo = Crystal oscillator frequency
Fr = Phase detector reference frequency
Fvco = VCO frequency
Ft = Transmit frequency
Then : Fr = Fo/1800
And under locked conditions : Fr = Fvco / N

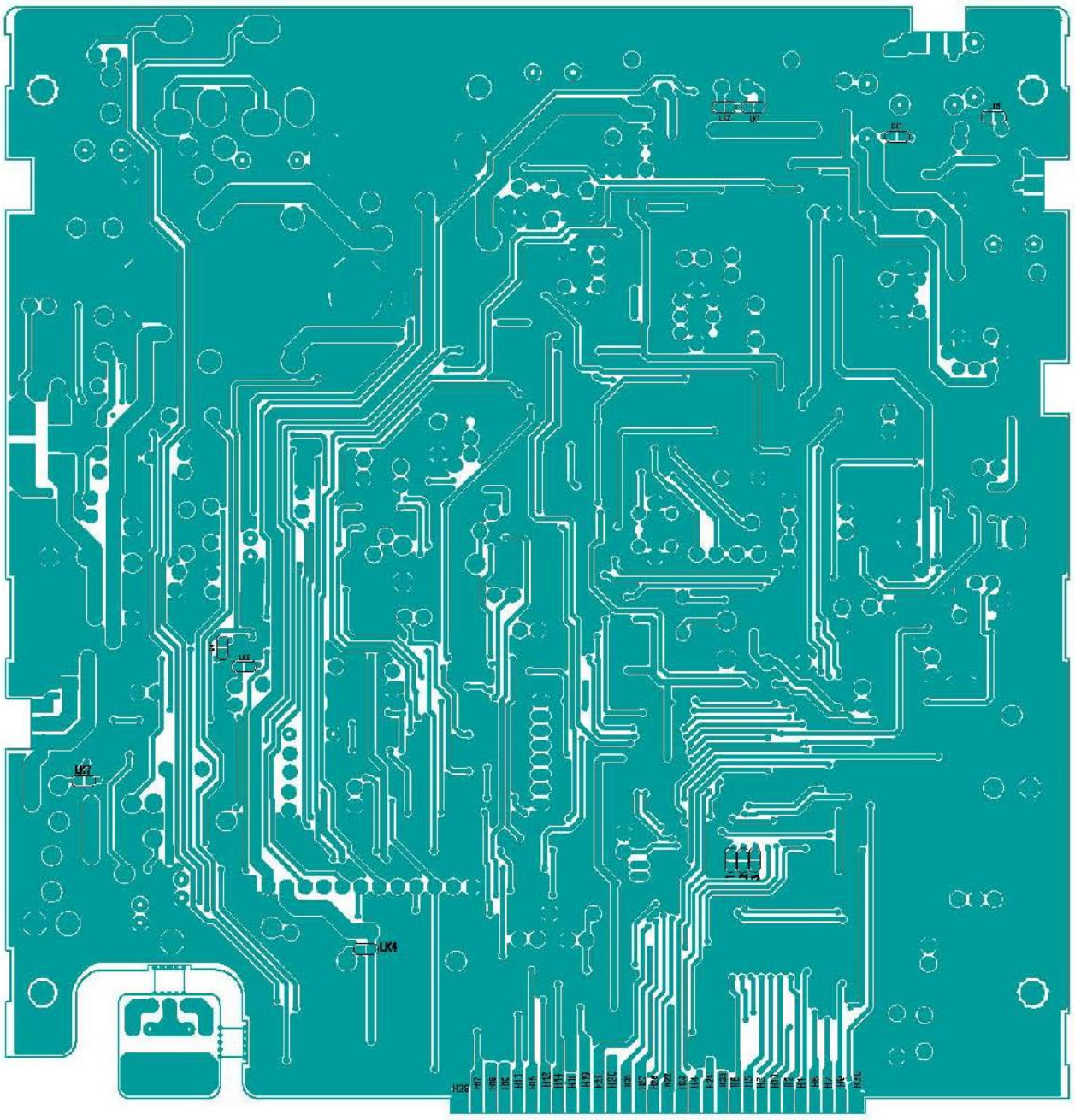
WHERE, “N” is the programmable divider divide ratio.

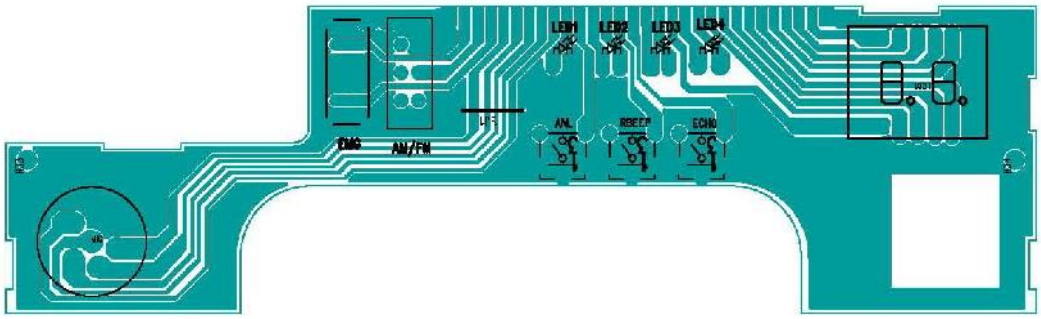
THEN : Fvco = N X Fr

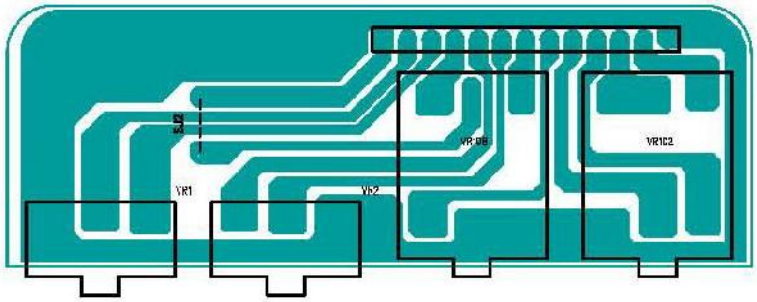
From which it can be seen, the percentage error in Ft is the same as the percentage error in Fo. The stability of the crystal oscillator is determined primarily by the crystal itself and having lesser deviation by the active and passive components of the oscillator. The choice of crystal and component is such that the required frequency stability is maintained over the required voltage
and temperature rang.

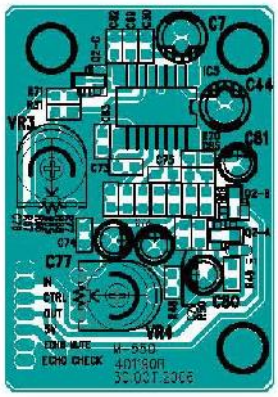
Printed Circuit Board

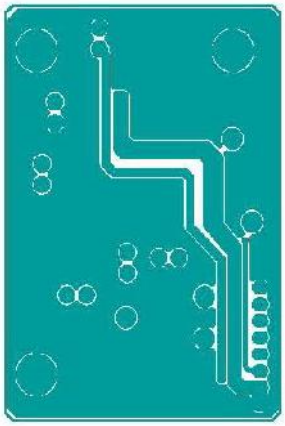





LED1
LED2
LED3
LED4
LIT
ANL
BEEP
ECHO
AM/FM


VR1
VR2
VR3
VR102


C7
C44
C81
C77
C80
VR4
ECHO CHECK



BANDS / FREQUENCY TABLE

Total no. 10 bands are available, as follows :

SPECIFICATION	BAND CODE	BAND
ITALY 40CH AM / FM 4W	01	I
ITALY 36CH AM / FM 4W	02	I2
GERMANY 80CH FM 4W / 12CH AM 1W	03	D
GERMANY 40CH FM 4W / 12CH AM 1W	04	D2
EUROPE 40CH FM 4W / 40CH AM 1W	05	EU
CEPT 40CH FM 4W	06	EC
ENGLAND 40CH FM 4W / UK FREQUENCIES + EC 40CH FM 4W CEPT → display : UK & CE (using AM/FM button)	07	UK
POLAND 40CH AM / FM 4W / POLISH FREQUENCIES – 5KHz	08	PL
SPECIAL BAND A 100CH AM / FM 4W	09	A
SPECIAL BAND B 100CH AM / FM 4W	00	B
SPECIAL BAND C 100CH AM / FM 4W -5KHz	11	C
SPECIAL BAND D 100CH AM / FM 4W -5KHz	12	D
SPECIAL BAND E 100CH AM / FM 4W +15 Private CH	13	E
SPECIAL BAND F 100CH AM / FM 4W +10 Private CH	14	F
SPECIAL BAND G 100CH AM / FM 4W	15	G
SPECIAL BAND H100CH AM / FM 4W	16	H

BAND 01 ITALY 40CH AM / FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	21	27.215	AM / FM
2	26.975	AM / FM	22	27.225	AM / FM
3	26.985	AM / FM	23	27.255	AM / FM
4	27.005	AM / FM	24	27.235	AM / FM
5	27.015	AM / FM	25	27.245	AM / FM
6	27.025	AM / FM	26	27.265	AM / FM
7	27.035	AM / FM	27	27.275	AM / FM
8	27.055	AM / FM	28	27.285	AM / FM
9	27.065	AM / FM	29	27.295	AM / FM
10	27.075	AM / FM	30	27.305	AM / FM
11	27.085	AM / FM	31	27.315	AM / FM
12	27.105	AM / FM	32	27.325	AM / FM
13	27.115	AM / FM	33	27.335	AM / FM
14	27.125	AM / FM	34	27.345	AM / FM
15	27.135	AM / FM	35	27.355	AM / FM
16	27.155	AM / FM	36	27.365	AM / FM
17	27.165	AM / FM	37	27.375	AM / FM
18	27.175	AM / FM	38	27.385	AM / FM
19	27.185	AM / FM	39	27.395	AM / FM
20	27.205	AM / FM	40	27.405	AM / FM

BAND 02 ITALY 36CH AM / FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	19	27.185	AM / FM
2	26.975	AM / FM	20	27.205	AM / FM
3	26.985	AM / FM	21	27.215	AM / FM
4	27.005	AM / FM	22	27.225	AM / FM
5	27.015	AM / FM	23	27.255	AM / FM
6	27.025	AM / FM	24	27.245	AM / FM
7	27.035	AM / FM	25	27.265	AM / FM
8	27.055	AM / FM	26	26.875	AM / FM
9	27.065	AM / FM	27	26.885	AM / FM
10	27.075	AM / FM	28	26.895	AM / FM
11	27.085	AM / FM	29	26.905	AM / FM
12	27.105	AM / FM	30	26.915	AM / FM
13	27.115	AM / FM	31	26.925	AM / FM
14	27.125	AM / FM	32	26.935	AM / FM
15	27.135	AM / FM	33	26.945	AM / FM
16	27.155	AM / FM	34	26.955	AM / FM
17	27.165	AM / FM	35	26.855	AM / FM
18	27.175	AM / FM	36	26.865	AM / FM

BAND 03 GERMANY 80CH FM 4W / 12CH AM 1W

CH	Frequency (MHz)	Modulation
1	26.965	FM
2	26.975	FM
3	26.985	FM
4	27.005	AM / FM
5	27.015	AM / FM
6	27.025	AM / FM
7	27.035	AM / FM
8	27.055	AM / FM
9	27.065	AM / FM
10	27.075	AM / FM
11	27.085	AM / FM
12	27.105	AM / FM
13	27.115	AM / FM
14	27.125	AM / FM
15	27.135	AM / FM
16	27.155	FM
17	27.165	FM
18	27.175	FM
19	27.185	FM
20	27.205	FM
21	27.215	FM
22	27.225	FM
23	27.255	FM
24	27.235	FM
25	27.245	FM
26	27.265	FM
27	27.275	FM
28	27.285	FM
29	27.295	FM
30	27.305	FM
31	27.315	FM
32	27.325	FM
33	27.335	FM
34	27.345	FM
35	27.355	FM
36	27.365	FM
37	27.375	FM
38	27.385	FM
39	27.395	FM
40	27.405	FM

CH	Frequency (MHz)	Modulation
41	26.565	FM
42	26.575	FM
43	26.585	FM
44	26.595	FM
45	26.605	FM
46	26.615	FM
47	26.625	FM
48	26.635	FM
49	26.645	FM
50	26.655	FM
51	26.665	FM
52	26.675	FM
53	26.685	FM
54	26.695	FM
55	26.705	FM
56	26.715	FM
57	26.725	FM
58	26.735	FM
59	26.745	FM
60	26.755	FM
61	26.765	FM
62	26.775	FM
63	26.785	FM
64	26.795	FM
65	26.805	FM
66	26.815	FM
67	26.825	FM
68	26.835	FM
69	26.845	FM
70	26.855	FM
71	26.865	FM
72	26.875	FM
73	26.885	FM
74	26.895	FM
75	26.905	FM
76	26.915	FM
77	26.925	FM
78	26.935	FM
79	26.945	FM
80	26.955	FM

BAND 04 GERMANY 40CH FM 4W / 12CH AM 1W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	FM	21	27.215	FM
2	26.975	FM	22	27.225	FM
3	26.985	FM	23	27.255	FM
4	27.005	AM / FM	24	27.235	FM
5	27.015	AM / FM	25	27.245	FM
6	27.025	AM / FM	26	27.265	FM
7	27.035	AM / FM	27	27.275	FM
8	27.055	AM / FM	28	27.285	FM
9	27.065	AM / FM	29	27.295	FM
10	27.075	AM / FM	30	27.305	FM
11	27.085	AM / FM	31	27.315	FM
12	27.105	AM / FM	32	27.325	FM
13	27.115	AM / FM	33	27.335	FM
14	27.125	AM / FM	34	27.345	FM
15	27.135	AM / FM	35	27.355	FM
16	27.155	FM	36	27.365	FM
17	27.165	FM	37	27.375	FM
18	27.175	FM	38	27.385	FM
19	27.185	FM	39	27.395	FM
20	27.205	FM	40	27.405	FM

BAND 05 EUROPE 40CH FM 4W / 40CH AM 1W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	21	27.215	AM / FM
2	26.975	AM / FM	22	27.225	AM / FM
3	26.985	AM / FM	23	27.255	AM / FM
4	27.005	AM / FM	24	27.235	AM / FM
5	27.015	AM / FM	25	27.245	AM / FM
6	27.025	AM / FM	26	27.265	AM / FM
7	27.035	AM / FM	27	27.275	AM / FM
8	27.055	AM / FM	28	27.285	AM / FM
9	27.065	AM / FM	29	27.295	AM / FM
10	27.075	AM / FM	30	27.305	AM / FM
11	27.085	AM / FM	31	27.315	AM / FM
12	27.105	AM / FM	32	27.325	AM / FM
13	27.115	AM / FM	33	27.335	AM / FM
14	27.125	AM / FM	34	27.345	AM / FM
15	27.135	AM / FM	35	27.355	AM / FM
16	27.155	AM / FM	36	27.365	AM / FM
17	27.165	AM / FM	37	27.375	AM / FM
18	27.175	AM / FM	38	27.385	AM / FM
19	27.185	AM / FM	39	27.395	AM / FM
20	27.205	AM / FM	40	27.405	AM / FM

BAND 06 CEPT 40CH FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	FM	21	27.215	FM
2	26.975	FM	22	27.225	FM
3	26.985	FM	23	27.255	FM
4	27.005	FM	24	27.235	FM
5	27.015	FM	25	27.245	FM
6	27.025	FM	26	27.265	FM
7	27.035	FM	27	27.275	FM
8	27.055	FM	28	27.285	FM
9	27.065	FM	29	27.295	FM
10	27.075	FM	30	27.305	FM
11	27.085	FM	31	27.315	FM
12	27.105	FM	32	27.325	FM
13	27.115	FM	33	27.335	FM
14	27.125	FM	34	27.345	FM
15	27.135	FM	35	27.355	FM
16	27.155	FM	36	27.365	FM
17	27.165	FM	37	27.375	FM
18	27.175	FM	38	27.385	FM
19	27.185	FM	39	27.395	FM
20	27.205	FM	40	27.405	FM

BAND 07 ENGLAND 40CH FM 4W / UK FREQUENCIES + EC 40CH FM 4W CEPT

CH	Frequency (MHz)	Modulation
1	27.60125	FM
2	27.61125	FM
3	27.62125	FM
4	27.63125	FM
5	27.64125	FM
6	27.65125	FM
7	27.66125	FM
8	27.67125	FM
9	27.68125	FM
10	27.69125	FM
11	27.70125	FM
12	27.71125	FM
13	27.72125	FM
14	27.73125	FM
15	27.74125	FM
16	27.75125	FM
17	27.76125	FM
18	27.77125	FM
19	27.78125	FM
20	27.79125	FM
21	27.80125	FM
22	27.81125	FM
23	27.82125	FM
24	27.83125	FM
25	27.84125	FM
26	27.85125	FM
27	27.86125	FM
28	27.87125	FM
29	27.88125	FM
30	27.89125	FM
31	27.90125	FM
32	27.91125	FM
33	27.92125	FM
34	27.93125	FM
35	27.94125	FM
36	27.95125	FM
37	27.96125	FM
38	27.97125	FM
39	27.98125	FM
40	27.99125	FM

CH	Frequency (MHz)	Modulation
1	26.965	FM
2	26.975	FM
3	26.985	FM
4	27.005	FM
5	27.015	FM
6	27.025	FM
7	27.035	FM
8	27.055	FM
9	27.065	FM
10	27.075	FM
11	27.085	FM
12	27.105	FM
13	27.115	FM
14	27.125	FM
15	27.135	FM
16	27.155	FM
17	27.165	FM
18	27.175	FM
19	27.185	FM
20	27.205	FM
21	27.215	FM
22	27.225	FM
23	27.255	FM
24	27.235	FM
25	27.245	FM
26	27.265	FM
27	27.275	FM
28	27.285	FM
29	27.295	FM
30	27.305	FM
31	27.315	FM
32	27.325	FM
33	27.335	FM
34	27.345	FM
35	27.355	FM
36	27.365	FM
37	27.375	FM
38	27.385	FM
39	27.395	FM
40	27.405	FM

BAND 08 POLAND 40CH AM / FM 4W / POLISH FREQUENCIES –5KHz

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.960	AM / FM	21	27.210	AM / FM
2	26.970	AM / FM	22	27.220	AM / FM
3	26.980	AM / FM	23	27.250	AM / FM
4	27.000	AM / FM	24	27.230	AM / FM
5	27.010	AM / FM	25	27.240	AM / FM
6	27.020	AM / FM	26	27.260	AM / FM
7	27.030	AM / FM	27	27.270	AM / FM
8	27.050	AM / FM	28	27.280	AM / FM
9	27.060	AM / FM	29	27.290	AM / FM
10	27.070	AM / FM	30	27.300	AM / FM
11	27.080	AM / FM	31	27.310	AM / FM
12	27.100	AM / FM	32	27.320	AM / FM
13	27.110	AM / FM	33	27.330	AM / FM
14	27.120	AM / FM	34	27.340	AM / FM
15	27.130	AM / FM	35	27.350	AM / FM
16	27.150	AM / FM	36	27.360	AM / FM
17	27.160	AM / FM	37	27.370	AM / FM
18	27.170	AM / FM	38	27.380	AM / FM
19	27.180	AM / FM	39	27.390	AM / FM
20	27.200	AM / FM	40	27.400	AM / FM

BAND 09 SPECIAL BAND A 100CH AM / FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	51	27.535	AM / FM
2	26.975	AM / FM	52	27.555	AM / FM
3	26.985	AM / FM	53	27.565	AM / FM
4	27.005	AM / FM	54	27.575	AM / FM
5	27.015	AM / FM	55	27.585	AM / FM
6	27.025	AM / FM	56	27.605	AM / FM
7	27.035	AM / FM	57	27.615	AM / FM
8	27.055	AM / FM	58	27.625	AM / FM
9	27.065	AM / FM	59	27.635	AM / FM
10	27.075	AM / FM	60	27.655	AM / FM
11	27.085	AM / FM	61	27.665	AM / FM
12	27.105	AM / FM	62	27.675	AM / FM
13	27.115	AM / FM	63	27.705	AM / FM
14	27.125	AM / FM	64	27.685	AM / FM
15	27.135	AM / FM	65	27.695	AM / FM
16	27.155	AM / FM	66	27.715	AM / FM
17	27.165	AM / FM	67	27.725	AM / FM
18	27.175	AM / FM	68	27.735	AM / FM
19	27.185	AM / FM	69	27.745	AM / FM
20	27.205	AM / FM	70	27.755	AM / FM
21	27.215	AM / FM	71	27.765	AM / FM
22	27.225	AM / FM	72	27.775	AM / FM
23	27.255	AM / FM	73	27.785	AM / FM
24	27.235	AM / FM	74	27.795	AM / FM
25	27.245	AM / FM	75	27.805	AM / FM
26	27.265	AM / FM	76	27.815	AM / FM
27	27.275	AM / FM	77	27.825	AM / FM
28	27.285	AM / FM	78	27.835	AM / FM
29	27.295	AM / FM	79	27.845	AM / FM
30	27.305	AM / FM	80	27.855	AM / FM
31	27.315	AM / FM	81	27.865	AM / FM
32	27.325	AM / FM	82	27.875	AM / FM
33	27.335	AM / FM	83	27.885	AM / FM
34	27.345	AM / FM	84	27.905	AM / FM
35	27.355	AM / FM	85	27.915	AM / FM
36	27.365	AM / FM	86	27.925	AM / FM
37	27.375	AM / FM	87	27.935	AM / FM
38	27.385	AM / FM	88	27.955	AM / FM
39	27.395	AM / FM	89	27.965	AM / FM
40	27.405	AM / FM	90	27.975	AM / FM

41	27.415	AM / FM	91	27.985	AM / FM
42	27.425	AM / FM	92	28.005	AM / FM
43	27.435	AM / FM	93	28.015	AM / FM
44	27.455	AM / FM	94	28.025	AM / FM
45	27.465	AM / FM	95	28.035	AM / FM
46	27.475	AM / FM	96	28.055	AM / FM
47	27.485	AM / FM	97	28.065	AM / FM
48	27.505	AM / FM	98	28.075	AM / FM
49	27.515	AM / FM	99	28.085	AM / FM

BAND 00 SPECIAL BAND B 100CH AM / FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	51	26.855	AM / FM
2	26.975	AM / FM	52	26.845	AM / FM
3	26.985	AM / FM	53	26.835	AM / FM
4	27.005	AM / FM	54	26.825	AM / FM
5	27.015	AM / FM	55	26.815	AM / FM
6	27.025	AM / FM	56	26.795	AM / FM
7	27.035	AM / FM	57	26.785	AM / FM
8	27.055	AM / FM	58	26.805	AM / FM
9	27.065	AM / FM	59	26.775	AM / FM
10	27.075	AM / FM	60	26.765	AM / FM
11	27.085	AM / FM	61	26.755	AM / FM
12	27.105	AM / FM	62	26.735	AM / FM
13	27.115	AM / FM	63	26.725	AM / FM
14	27.125	AM / FM	64	26.715	AM / FM
15	27.135	AM / FM	65	26.705	AM / FM
16	27.155	AM / FM	66	26.685	AM / FM
17	27.165	AM / FM	67	26.675	AM / FM
18	27.175	AM / FM	68	26.665	AM / FM
19	27.185	AM / FM	69	26.655	AM / FM
20	27.205	AM / FM	70	26.635	AM / FM
21	27.215	AM / FM	71	26.625	AM / FM
22	27.225	AM / FM	72	26.615	AM / FM
23	27.255	AM / FM	73	26.605	AM / FM
24	27.235	AM / FM	74	26.585	AM / FM
25	27.245	AM / FM	75	26.575	AM / FM
26	27.265	AM / FM	76	26.565	AM / FM
27	27.275	AM / FM	77	26.555	AM / FM
28	27.285	AM / FM	78	26.535	AM / FM
29	27.295	AM / FM	79	26.525	AM / FM

30	27.305	AM / FM	80	26.515	AM / FM
31	27.315	AM / FM	81	26.505	AM / FM
32	27.325	AM / FM	82	26.495	AM / FM
33	27.335	AM / FM	83	26.485	AM / FM
34	27.345	AM / FM	84	26.475	AM / FM
35	27.355	AM / FM	85	26.465	AM / FM
36	27.365	AM / FM	86	26.455	AM / FM
37	27.375	AM / FM	87	26.445	AM / FM
38	27.385	AM / FM	88	26.435	AM / FM
39	27.395	AM / FM	89	26.425	AM / FM
40	27.405	AM / FM	90	26.415	AM / FM
41	26.955	AM / FM	91	26.405	AM / FM
42	26.945	AM / FM	92	26.395	AM / FM
43	26.935	AM / FM	93	26.385	AM / FM
44	26.925	AM / FM	94	26.375	AM / FM
45	26.915	AM / FM	95	26.365	AM / FM
46	26.905	AM / FM	96	26.345	AM / FM
47	26.895	AM / FM	97	26.335	AM / FM
48	26.885	AM / FM	98	26.355	AM / FM
49	26.875	AM / FM	99	26.325	AM / FM
50	26.865	AM / FM	00	26.315	AM / FM

C BAND 11 SPECIAL BAND 100CH AM / FM 4W POLISH FREQUENCIES –5KHz

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.960	AM / FM	51	27.530	AM / FM
2	26.970	AM / FM	52	27.550	AM / FM
3	26.980	AM / FM	53	27.560	AM / FM
4	27.000	AM / FM	54	27.570	AM / FM
5	27.010	AM / FM	55	27.580	AM / FM
6	27.020	AM / FM	56	27.600	AM / FM
7	27.030	AM / FM	57	27.610	AM / FM
8	27.050	AM / FM	58	27.620	AM / FM
9	27.060	AM / FM	59	27.630	AM / FM
10	27.070	AM / FM	60	27.650	AM / FM
11	27.080	AM / FM	61	27.660	AM / FM
12	27.100	AM / FM	62	27.670	AM / FM
13	27.110	AM / FM	63	27.700	AM / FM
14	27.120	AM / FM	64	27.680	AM / FM
15	27.130	AM / FM	65	27.690	AM / FM

16	27.150	AM / FM	66	27.710	AM / FM
17	27.160	AM / FM	67	27.720	AM / FM
18	27.170	AM / FM	68	27.730	AM / FM
19	27.180	AM / FM	69	27.740	AM / FM
20	27.200	AM / FM	70	27.750	AM / FM
21	27.210	AM / FM	71	27.760	AM / FM
22	27.220	AM / FM	72	27.770	AM / FM
23	27.250	AM / FM	73	27.780	AM / FM
24	27.230	AM / FM	74	27.790	AM / FM
25	27.240	AM / FM	75	27.800	AM / FM
26	27.260	AM / FM	76	27.810	AM / FM
27	27.270	AM / FM	77	27.820	AM / FM
28	27.280	AM / FM	78	27.830	AM / FM
29	27.290	AM / FM	79	27.840	AM / FM
30	27.300	AM / FM	80	27.850	AM / FM
31	27.310	AM / FM	81	27.860	AM / FM
32	27.320	AM / FM	82	27.870	AM / FM
33	27.330	AM / FM	83	27.880	AM / FM
34	27.340	AM / FM	84	27.900	AM / FM
35	27.350	AM / FM	85	27.910	AM / FM
36	27.360	AM / FM	86	27.920	AM / FM
37	27.370	AM / FM	87	27.930	AM / FM
38	27.380	AM / FM	88	27.950	AM / FM
39	27.390	AM / FM	89	27.960	AM / FM
40	27.400	AM / FM	90	27.970	AM / FM
41	27.410	AM / FM	91	27.980	AM / FM
42	27.420	AM / FM	92	28.000	AM / FM
43	27.430	AM / FM	93	28.010	AM / FM
44	27.450	AM / FM	94	28.020	AM / FM
45	27.460	AM / FM	95	28.030	AM / FM
46	27.470	AM / FM	96	28.050	AM / FM
47	27.480	AM / FM	97	28.060	AM / FM
48	27.500	AM / FM	98	28.070	AM / FM
49	27.510	AM / FM	99	28.080	AM / FM
50	27.520	AM / FM	00	28.100	AM / FM

D BAND 12 SPECIAL BAND 100CH AM / FM 4W POLISH FREQUENCIES –5KHz

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.960	AM / FM	51	26.850	AM / FM
2	26.970	AM / FM	52	26.840	AM / FM
3	26.980	AM / FM	53	26.830	AM / FM
4	27.000	AM / FM	54	26.820	AM / FM
5	27.010	AM / FM	55	26.810	AM / FM
6	27.020	AM / FM	56	26.790	AM / FM
7	27.030	AM / FM	57	26.780	AM / FM
8	27.050	AM / FM	58	26.800	AM / FM
9	27.060	AM / FM	59	26.770	AM / FM
10	27.070	AM / FM	60	26.760	AM / FM
11	27.080	AM / FM	61	26.750	AM / FM
12	27.100	AM / FM	62	26.730	AM / FM
13	27.110	AM / FM	63	26.720	AM / FM
14	27.120	AM / FM	64	26.710	AM / FM
15	27.130	AM / FM	65	26.700	AM / FM
16	27.150	AM / FM	66	26.680	AM / FM
17	27.160	AM / FM	67	26.670	AM / FM
18	27.170	AM / FM	68	26.660	AM / FM
19	27.180	AM / FM	69	26.650	AM / FM
20	27.200	AM / FM	70	26.630	AM / FM
21	27.210	AM / FM	71	26.620	AM / FM
22	27.220	AM / FM	72	26.610	AM / FM
23	27.250	AM / FM	73	26.600	AM / FM
24	27.230	AM / FM	74	26.580	AM / FM
25	27.240	AM / FM	75	26.570	AM / FM
26	27.260	AM / FM	76	26.560	AM / FM
27	27.270	AM / FM	77	26.550	AM / FM
28	27.280	AM / FM	78	26.530	AM / FM
29	27.290	AM / FM	79	26.520	AM / FM
30	27.300	AM / FM	80	26.510	AM / FM
31	27.310	AM / FM	81	26.500	AM / FM
32	27.320	AM / FM	82	26.490	AM / FM
33	27.330	AM / FM	83	26.480	AM / FM
34	27.340	AM / FM	84	26.470	AM / FM
35	27.350	AM / FM	85	26.460	AM / FM

36	27.360	AM / FM	86	26.450	AM / FM
37	27.370	AM / FM	87	26.440	AM / FM
38	27.380	AM / FM	88	26.430	AM / FM
39	27.390	AM / FM	89	26.420	AM / FM
40	27.400	AM / FM	90	26.410	AM / FM
41	26.950	AM / FM	91	26.400	AM / FM
42	26.940	AM / FM	92	26.390	AM / FM
43	26.930	AM / FM	93	26.380	AM / FM
44	26.920	AM / FM	94	26.370	AM / FM
45	26.910	AM / FM	95	26.360	AM / FM
46	26.900	AM / FM	96	26.340	AM / FM
47	26.890	AM / FM	97	26.330	AM / FM
48	26.880	AM / FM	98	26.350	AM / FM
49	26.870	AM / FM	99	26.320	AM / FM
50	26.860	AM / FM	00	26.310	AM / FM

E BAND 13 SPECIAL BAND 100CH AM / FM 4W +15 Private Channels

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	51	27.535	AM / FM
2	26.975	AM / FM	51A	27.545 51.	AM / FM
3	26.985	AM / FM	52	27.555	AM / FM
3A	26.995 03.	AM / FM	53	27.565	AM / FM
4	27.005	AM / FM	54	27.575	AM / FM
5	27.015	AM / FM	55	27.585	AM / FM
6	27.025	AM / FM	55A	27.595 55.	AM / FM
7	27.035	AM / FM	56	27.605	AM / FM
7A	27.045 07.	AM / FM	57	27.615	AM / FM
8	27.055	AM / FM	58	27.625	AM / FM
9	27.065	AM / FM	59	27.635	AM / FM
10	27.075	AM / FM	59A	27.645 59.	AM / FM
11	27.085	AM / FM	60	27.655	AM / FM
11A	27.095 11.	AM / FM	61	27.665	AM / FM
12	27.105	AM / FM	62	27.675	AM / FM
13	27.115	AM / FM	63	27.705	AM / FM
14	27.125	AM / FM	64	27.685	AM / FM
15	27.135	AM / FM	65	27.695	AM / FM

15A	27.145 15.	AM / FM	66	27.715	AM / FM
16	27.155	AM / FM	67	27.725	AM / FM
17	27.165	AM / FM	68	27.735	AM / FM
18	27.175	AM / FM	69	27.745	AM / FM
19	27.185	AM / FM	70	27.755	AM / FM
19A	27.195 19.	AM / FM	71	27.765	AM / FM
20	27.205	AM / FM	72	27.775	AM / FM
21	27.215	AM / FM	73	27.785	AM / FM
22	27.225	AM / FM	74	27.795	AM / FM
23	27.255	AM / FM	75	27.805	AM / FM
24	27.235	AM / FM	76	27.815	AM / FM
25	27.245	AM / FM	77	27.825	AM / FM
26	27.265	AM / FM	78	27.835	AM / FM
27	27.275	AM / FM	79	27.845	AM / FM
28	27.285	AM / FM	80	27.855	AM / FM
29	27.295	AM / FM	81	27.865	AM / FM
30	27.305	AM / FM	82	27.875	AM / FM
31	27.315	AM / FM	83	27.885	AM / FM
32	27.325	AM / FM	83A	27.895 83.	AM / FM
33	27.335	AM / FM	84	27.905	AM / FM
34	27.345	AM / FM	85	27.915	AM / FM
35	27.355	AM / FM	86	27.925	AM / FM
36	27.365	AM / FM	87	27.935	AM / FM
37	27.375	AM / FM	87A	27.945 87.	AM / FM
38	27.385	AM / FM	88	27.955	AM / FM
39	27.395	AM / FM	89	27.965	AM / FM
40	27.405	AM / FM	90	27.975	AM / FM
41	27.415	AM / FM	91	27.985	AM / FM
42	27.425	AM / FM	91A	27.995 91.	AM / FM
43	27.435	AM / FM	92	28.005	AM / FM
43A	27.445 43.	AM / FM	93	28.015	AM / FM
44	27.455	AM / FM	94	28.025	AM / FM
45	27.465	AM / FM	95	28.035	AM / FM
46	27.475	AM / FM	95A	28.045 95.	AM / FM
47	27.485	AM / FM	96	28.055	AM / FM
47A	27.495 47.	AM / FM	97	28.065	AM / FM
48	27.505	AM / FM	98	28.075	AM / FM
49	27.515	AM / FM	99	28.085	AM / FM
50	27.525	AM / FM	99A	28.095 99.	AM / FM
			00	28.105	AM / FM

F BAND 14 SPECIAL BAND 100CH AM / FM 4W+ 10 Private Channels

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.965	AM / FM	51	26.415	AM / FM
2	26.975	AM / FM	52	26.425	AM / FM
3	26.985	AM / FM	53	26.435	AM / FM
3A	26.995 03.	AM / FM	54	26.445	AM / FM
4	27.005	AM / FM	55	26.455	AM / FM
5	27.015	AM / FM	56	26.465	AM / FM
6	27.025	AM / FM	57	26.475	AM / FM
7	27.035	AM / FM	58	26.485	AM / FM
7A	27.045 07.	AM / FM	59	26.495	AM / FM
8	27.055	AM / FM	60	26.505	AM / FM
9	27.065	AM / FM	61	26.515	AM / FM
10	27.075	AM / FM	62	26.525	AM / FM
11	27.085	AM / FM	63	26.535	AM / FM
11A	27.095 11.	AM / FM	63A	26.545 63.	AM / FM
12	27.105	AM / FM	64	26.555	AM / FM
13	27.115	AM / FM	65	26.565	AM / FM
14	27.125	AM / FM	66	26.575	AM / FM
15	27.135	AM / FM	67	26.585	AM / FM
15A	27.145 15.	AM / FM	67A	26.595 67.	AM / FM
16	27.155	AM / FM	68	26.605	AM / FM
17	27.165	AM / FM	69	26.615	AM / FM
18	27.175	AM / FM	70	26.625	AM / FM
19	27.185	AM / FM	71	26.635	AM / FM
19A	27.195 19.	AM / FM	71A	26.645 71.	AM / FM
20	27.205	AM / FM	72	26.655	AM / FM
21	27.215	AM / FM	73	26.665	AM / FM
22	27.225	AM / FM	74	26.675	AM / FM
23	27.255	AM / FM	75	26.685	AM / FM
24	27.235	AM / FM	75A	26.695 75.	AM / FM
25	27.245	AM / FM	76	26.705	AM / FM
26	27.265	AM / FM	77	26.715	AM / FM
27	27.275	AM / FM	78	26.725	AM / FM
28	27.285	AM / FM	79	26.735	AM / FM
29	27.295	AM / FM	79A	26.745 79.	AM / FM
30	27.305	AM / FM	80	26.755	AM / FM
31	27.315	AM / FM	81	26.765	AM / FM
32	27.325	AM / FM	82	26.775	AM / FM
33	27.335	AM / FM	83	26.805	AM / FM
34	27.345	AM / FM	84	26.785	AM / FM

35	27.355	AM / FM	85	26.795	AM / FM
36	27.365	AM / FM	86	26.815	AM / FM
37	27.375	AM / FM	87	26.825	AM / FM
38	27.385	AM / FM	88	26.835	AM / FM
39	27.395	AM / FM	89	26.845	AM / FM
40	27.405	AM / FM	90	26.855	AM / FM
41	26.315	AM / FM	91	26.865	AM / FM
42	26.325	AM / FM	92	26.875	AM / FM
43	26.355	AM / FM	93	26.885	AM / FM
44	26.335	AM / FM	94	26.895	AM / FM
45	26.345	AM / FM	95	26.905	AM / FM
46	26.365	AM / FM	96	26.915	AM / FM
47	26.375	AM / FM	97	26.925	AM / FM
48	26.385	AM / FM	98	26.935	AM / FM
49	26.395	AM / FM	99	26.945	AM / FM
50	26.405	AM / FM	00	26.955	AM / FM

G BAND 15 SPECIAL BAND 100CH AM / FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	28.115	AM / FM	51	27.615	AM / FM
2	28.125	AM / FM	52	28.625	AM / FM
3	28.135	AM / FM	53	28.635	AM / FM
4	28.145	AM / FM	54	28.645	AM / FM
5	28.155	AM / FM	55	28.655	AM / FM
6	28.165	AM / FM	56	28.665	AM / FM
7	28.175	AM / FM	57	28.675	AM / FM
8	28.185	AM / FM	58	28.685	AM / FM
9	28.195	AM / FM	59	28.695	AM / FM
10	28.205	AM / FM	60	28.705	AM / FM
11	28.215	AM / FM	61	28.715	AM / FM
12	28.225	AM / FM	62	28.725	AM / FM
13	28.235	AM / FM	63	28.735	AM / FM
14	28.245	AM / FM	64	28.745	AM / FM
15	28.255	AM / FM	65	28.755	AM / FM
16	28.265	AM / FM	66	28.765	AM / FM
17	28.275	AM / FM	67	28.775	AM / FM
18	28.285	AM / FM	68	28.785	AM / FM
19	28.295	AM / FM	69	28.795	AM / FM
20	28.305	AM / FM	70	28.805	AM / FM

21	28.315	AM / FM	71	28.815	AM / FM
22	28.325	AM / FM	72	28.825	AM / FM
23	28.335	AM / FM	73	28.835	AM / FM
24	28.345	AM / FM	74	28.845	AM / FM
25	28.355	AM / FM	75	28.855	AM / FM
26	28.365	AM / FM	76	28.865	AM / FM
27	28.375	AM / FM	77	28.875	AM / FM
28	28.385	AM / FM	78	28.885	AM / FM
29	28.395	AM / FM	79	28.895	AM / FM
30	28.405	AM / FM	80	28.905	AM / FM
31	28.415	AM / FM	81	28.915	AM / FM
32	28.425	AM / FM	82	28.925	AM / FM
33	28.435	AM / FM	83	28.935	AM / FM
34	28.445	AM / FM	84	28.945	AM / FM
35	28.455	AM / FM	85	28.955	AM / FM
36	28.465	AM / FM	86	28.965	AM / FM
37	28.475	AM / FM	87	28.975	AM / FM
38	28.485	AM / FM	88	28.985	AM / FM
39	28.495	AM / FM	89	28.995	AM / FM
40	28.505	AM / FM	90	29.005	AM / FM
41	28.515	AM / FM	91	29.015	AM / FM
42	28.525	AM / FM	92	29.025	AM / FM
43	28.535	AM / FM	93	29.035	AM / FM
44	28.545	AM / FM	94	29.045	AM / FM
45	28.555	AM / FM	95	29.055	AM / FM
46	28.565	AM / FM	96	29.065	AM / FM
47	28.575	AM / FM	97	29.075	AM / FM
48	28.585	AM / FM	98	29.085	AM / FM
49	28.595	AM / FM	99	29.095	AM / FM
50	28.605	AM / FM	00	29.105	AM / FM

H BAND 16 SPECIAL BAND 100CH AM / FM 4W

CH	Frequency (MHz)	Modulation	CH	Frequency (MHz)	Modulation
1	26.305	AM / FM	51	25.805	AM / FM
2	26.295	AM / FM	52	25.795	AM / FM
3	26.285	AM / FM	53	25.785	AM / FM
4	26.275	AM / FM	54	25.775	AM / FM
5	26.265	AM / FM	55	25.765	AM / FM
6	26.255	AM / FM	56	25.755	AM / FM
7	26.245	AM / FM	57	25.745	AM / FM
8	26.235	AM / FM	58	25.735	AM / FM
9	26.225	AM / FM	59	25.725	AM / FM
10	26.215	AM / FM	60	25.715	AM / FM
11	26.205	AM / FM	61	25.705	AM / FM
12	26.195	AM / FM	62	25.695	AM / FM
13	26.185	AM / FM	63	25.685	AM / FM
14	26.175	AM / FM	64	25.675	AM / FM
15	26.165	AM / FM	65	25.665	AM / FM
16	26.155	AM / FM	66	26.655	AM / FM
17	26.145	AM / FM	67	25.645	AM / FM
18	26.135	AM / FM	68	25.635	AM / FM
19	26.125	AM / FM	69	25.625	AM / FM
20	26.115	AM / FM	70	25.615	AM / FM
21	26.105	AM / FM	71	25.605	AM / FM
22	26.095	AM / FM	72	25.595	AM / FM
23	26.085	AM / FM	73	25.585	AM / FM
24	26.075	AM / FM	74	25.575	AM / FM
25	26.065	AM / FM	75	25.565	AM / FM
26	26.055	AM / FM	76	25.555	AM / FM
27	26.045	AM / FM	77	25.545	AM / FM
28	26.035	AM / FM	78	25.535	AM / FM
29	26.025	AM / FM	79	25.525	AM / FM
30	26.015	AM / FM	80	25.515	AM / FM
31	26.005	AM / FM	81	25.505	AM / FM
32	25.995	AM / FM	82	25.495	AM / FM
33	25.985	AM / FM	83	25.485	AM / FM
34	25.975	AM / FM	84	25.475	AM / FM
35	25.965	AM / FM	85	25.465	AM / FM
36	25.955	AM / FM	86	25.455	AM / FM
37	25.945	AM / FM	87	25.445	AM / FM
38	25.935	AM / FM	88	25.435	AM / FM
39	25.925	AM / FM	89	25.425	AM / FM
40	25.915	AM / FM	90	25.415	AM / FM

41	25.905	AM / FM	91	25.405	AM / FM
42	25.895	AM / FM	92	25.395	AM / FM
43	25.885	AM / FM	93	25.385	AM / FM
44	25.875	AM / FM	94	25.375	AM / FM
45	25.865	AM / FM	95	25.365	AM / FM
46	25.855	AM / FM	96	25.355	AM / FM
47	25.845	AM / FM	97	25.345	AM / FM
48	25.835	AM / FM	98	25.335	AM / FM
49	25.825	AM / FM	99	25.325	AM / FM
50	25.815	AM / FM	00	25.315	AM / FM

PARTS LIST

	PART-NO.	NAME & DESCRIPTION	ICP	Q'TY	REFERENCE-NO	REMARK
1	420-113-6	SPEAKER 8 OHM 3.0W 77MM P-302RM-A	ICP	1	SPK	
2	533-99E-A	ESCUTCHEON ASS'Y		1		
3	251-027-7W	LED LAMP L-314GD		3	LED2.3.4	
4	251-052-9Z	LED LAMP LTL-16KE RED 5V 100MW	ICP	1	LED1	
5	252-289-2	LCD DISPLAY DA04-14GWB-C-15.0	ICP	1	LCD1	
6	420-020-8X	METER E.I H321-9028A	ICP	1	M1	
7	430-049-8Y	SW ROTARY YPS210120SK	ICP	1	SW7	
8	436-059-7Z	SW TACT TM115AP	ICP	3	SW1.2.8	
9	533-99F-A	FRONT BODY ASS'Y		1		
10	131-510-9X	DISK CERAMIC 150PF NPO K% 50	ICP	1	C335	
11	133-303-9Y	DISK CERAMIC 33PF NPO330K 50	ICP	1	C7	
12	133-311-0	DISK CERAMIC 330PF NPO331K 50	ICP	1	C339	
13	200-345-3	MOS FET PA RD16HHF1		1	Q304	
14	202-066-2	TRANSISTOR KTB1367	ICP	1	Q214	

15	221-889-8	AUDIO POWER AMPLIFIEUTC TDA2003(V)(TO-220-5	ICP	1	IC104
16	421-046-7	CONNECTOR CH-239(A) SW-1229	ICP	1	J103
17	421-643-6A	CONNECTOR SOCKET SCN-16-6(M1)R PCB TYPE	ICP	1	J3
18	429-070-9B	FLAT WIRE 06P 60MM 2.5PITCH	ICP	1	
19	429-078-6B	FLAT WIRE 07P 88MM 2.5PITCH	ICP	1	
20	429-266-9Z	FLAT CABLE 03P 80MM 2.5PITCH (HH-3		1	
21	440-020-4	MICA 0.1T:15X13 MICA FOR TR	ICP	1	MICA
22	509-110-Z	COIL SPRING 0.55X3.4RX6.5T		1	L314
23	533-99L-PA	LCD PCB ASS'Y		1	
24	533-99M-A	MIC ASS'Y		1	
25	002-104-1Z	FILM RESISTOR 100K 1/ 8W 5% ST	ICP	1	R49
26	002-154-6Z	FILM RESISTOR 150K 1/ 8W 5% ST	ICP	1	R50
27	002-473-4Z	FILM RESISTOR 47K 1/ 8W 5% ST	ICP	1	R48
28	130-A17-6Y	CHIP CERAMIC 0.001UF GRM40 X7R102K 50	ICP	1	C44
29	411-803-A	P.C.B MIC 16.9 X33.5 X1.6 XPC-94HB	ICP	1	
30	420-205-9W	MIC CONDENSER YCM9765-W-005	ICP	1	C-MIC
31	420-340-7Y	CORD CURLED STHK-23063	ICP	1	MIC CORD
32	421-069-8	MIC CONNECTOR MIC-6PIN(P) SW-1561	ICP	1	J2
33	432-003-6Y	SW PUSH CPS-2210C (77-0	ICP	1	SW102
34	432-040-6	SW PUSH SPPH221AP011	ICP	1	SW900
35	436-059-7Z	SW TACT TM115AP	ICP	2	SW901.902
36	533-99M-BA	MAIN BODY ASS'Y		1	
37	504-892	MOLEX PLUG ASS'Y	ICP	1	
38	533-99M-PA	MAIN PCB AUTO ASS'Y		1	
39	05B-000-5Z	CHIP RESISTOR 0 1/16W 5% T 1608	ICP	2	R9.38
40	05B-101-3Z	CHIP RESISTOR 100 1/16W 5% T 1608	ICP	4	R127.139.152.447
41	05B-102-4Z	CHIP RESISTOR 1K 1/16W 5% T 1608	ICP	20	R7.7A.16.18.32.34.37.46.49.62. 102.105.106.112.125.226.412. + 416.425.719

42	05B-103-5Z	CHIP RESISTOR	10K 1/16W 5% T 1608	ICP	8	R19.44.59.134.221.305.444.446
43	05B-104-6Z	CHIP RESISTOR	100K 1/16W 5% T 1608	ICP	9	R8.29.57.157.406.409.411.415. 438
44	05B-105-7Z	CHIP RESISTOR	1M 1/16W 5% T 1608	ICP	2	R135.434
45	05B-106-8Z	CHIP RESISTOR	10M 1/16W 5% T 1608	ICP	1	R58
46	05B-123-3Z	CHIP RESISTOR	12K 1/16W 5% T 1608	ICP	2	R3.445
47	05B-151-8Z	CHIP RESISTOR	150 1/16W 5% T 1608	ICP	1	R229
48	05B-152-9Z	CHIP RESISTOR	1.5K 1/16W 5% T 1608	ICP	4	R54.211.218.421
49	05B-153-0Z	CHIP RESISTOR	15K 1/16W 5% T 1608	ICP	4	R35.55.212.223
50	05B-154-1Z	CHIP RESISTOR	150K 1/16W 5% T 1608	ICP	2	R26.301
51	05B-181-5Z	CHIP RESISTOR	180 1/16W 5% T 1608	ICP	1	R12
52	05B-183-7Z	CHIP RESISTOR	18K 1/16W 5% T 1608	ICP	1	R208
53	05B-184-8Z	CHIP RESISTOR	180K 1/16W 5% T 1608	ICP	1	R14
54	05B-221-8Z	CHIP RESISTOR	220 1/16W 5% T 1608	ICP	11	R103.153.302.710.711.712.713. 714.715.716.717
55	05B-222-9Z	CHIP RESISTOR	2.2K 1/16W 5% T 1608	ICP	12	R28.56.66.113.201.213.219.232. 408.439.720.721
56	05B-223-0Z	CHIP RESISTOR	22K 1/16W 5% T 1608	ICP	5	R10.65.126.145.162
57	05B-224-1Z	CHIP RESISTOR	220K 1/16W 5% T 1608	ICP	5	R22.39.60.156.159
58	05B-272-4Z	CHIP RESISTOR	2.7K 1/16W 5% T 1608	ICP	2	R17.151
59	05B-273-5Z	CHIP RESISTOR	27K 1/16W 5% T 1608	ICP	3	R154.405.442
60	05B-332-5Z	CHIP RESISTOR	3.3K 1/16W 5% T 1608	ICP	3	R51.64.202
61	05B-333-6Z	CHIP RESISTOR	33K 1/16W 5% T 1608	ICP	6	R43.147.149.158.414.436
62	05B-392-9Z	CHIP RESISTOR	3.9K 1/16W 5% T 1608	ICP	1	R278
63	05B-393-0Z	CHIP RESISTOR	39K 1/16W 5% T 1608	ICP	3	R4.155.407
64	05B-470-6Z	CHIP RESISTOR	47 1/16W 5% T 1608	ICP	2	R52.306
65	05B-471-7Z	CHIP RESISTOR	470 1/16W 5% T 1608	ICP	4	R27.36.109.311

66	05B-472-8Z	CHIP RESISTOR	4.7K 1/16W 5% T 1608 ICP	7	R41.42.67.144.303.304.315
67	05B-473-9Z	CHIP RESISTOR	47K 1/16W 5% T 1608 ICP	17	R2.11.21.23.25.40.101.146.271. 272.273.274.435.437.443.461.13
68	05B-474-0Z	CHIP RESISTOR	470K 1/16W 5% T 1608 ICP	2	R48.138
69	05B-561-5Z	CHIP RESISTOR	560 1/16W 5% T 1608 ICP	3	R47.68.148
70	05B-563-7Z	CHIP RESISTOR	56K 1/16W 5% T 1608 ICP	2	R61.413
71	05B-569-3Z	CHIP RESISTOR	5.6 1/16W 5% T 1608 ICP	1	R15
72	05B-681-0Z	CHIP RESISTOR	680 1/16W 5% T 1608 ICP	1	R136
73	05B-682-1Z	CHIP RESISTOR	6.8K 1/16W 5% T 1608 ICP	2	R30.137
74	05B-683-2Z	CHIP RESISTOR	68K 1/16W 5% T 1608 ICP	2.1	R181.441
75	05B-822-1Z	CHIP RESISTOR	8.2K 1/16W 5% T 1608 ICP	2	R20.33
76	05B-823-2Z	CHIP RESISTOR	82K 1/16W 5% T 1608 ICP	1	R236
77	05B-824-3Z	CHIP RESISTOR	820K 1/16W 5% T 1608 ICP	1	R45
78	130-A01-8Y	CHIP CERAMIC	0.018UF GRM39 X7R183K 25 ICP	1	C152
79	130-A73-6Y	CHIP CERAMIC	0.01UF GRM39 X7R103K 25 ICP	40	C10.22.25.26.38.39.40.43.47.49 .50.56.63.71.102.112.120.129.+ 137.138.139.147.217.227.231. 234.236.241.256.302.304.308. 409.424.427.434.438.443.531.532
80	130-A75-8Y	CHIP CERAMIC	0.001UF GRM39 X7R102K 50 ICP	7	C54.67.115.144.221.226.446
81	130-B09-9Y	CHIP CERAMIC	0.1UF GRM39 X7R104K 16 ICP	15	C8.29.36.53.57.72.74.122.127. 128.142.451.453.458.R5
82	130-261-9Y	CHIP CERAMIC	0.022UF GRM39 X7R223K 50 ICP	4	C27.37.59.306
83	130-292-7Y	CHIP CERAMIC	0.22UF GRM39 X7R224K ICP	2	C215.500A
84	130-341-8Y	CHIP CERAMIC	0.033UF GRM39 X7R333K 16 ICP	1	C136
85	130-432-7Y	CHIP CERAMIC	0.0047UF GRM39 X7R472K 50 ICP	4	C65.146.315.316
86	130-440-4Y	CHIP CERAMIC	0.047UF GRM39 Y5V473Z 25 ICP	13	C19.35.62.70.135.141.143.145. 222.248.314.322.323

87	130-620-1	CHIP CERAMIC	0.0068UF GRM39 X7R682K 50 ICP	1	C454
88	130-630-9Y	CHIP CERAMIC	0.068UF GRM39 X7R683K 16 ICP	2	C411.455
89	131-092-8Y	CHIP CERAMIC	10PF GRM39 COG100D 50 ICP	6	C4.20.28.31.114.425
90	131-093-9Y	CHIP CERAMIC	100PF GRM39 COG101J 50 ICP	14	C6.34.41.46.66.250.251.252.253 .307.318.414.418.423
91	131-149-7Y	CHIP CERAMIC	1UF GRM39 Y5V105Z 50	1	C17
92	131-240-5Y	CHIP CERAMIC	12PF GRM39 COG120J 50 ICP	1	C75
93	131-510-9X	DISK CERAMIC	150PF NPO K% 50 ICP	1	C321
94	131-564-8Y	CHIP CERAMIC	15PF GRM39 COG150J 50 ICP	1	C45
95	131-575-8Y	CHIP CERAMIC	150PF GRM39 COG151J 50 ICP	2.1	C317.337
96	131-834-2Y	CHIP CERAMIC	18PF GRM39 COG180J 50 ICP	2	C5.417
97	132-259-8Y	CHIP CERAMIC	22PF GRM39 COG220J 50 ICP	3.1	C254.255.413
98	132-260-8Y	CHIP CERAMIC	220PF GRM39 COG221J 50 ICP	2	C313.338
99	132-704-3	DISK CERAMIC	270PF NPO271K 50 ICP	1	C327
100	132-734-0Y	CHIP CERAMIC	27PF GRM39 COG270J 50 ICP	1	C117
101	132-735-1Y	CHIP CERAMIC	270PF GRM39 COG271J 50 ICP	2	C325.412
102	133-350-1Y	CHIP CERAMIC	330PF GRM39 COG331J 50 ICP	2	C313.334
103	133-616-2Y	CHIP CERAMIC	36PF GRM39 COG360J 50 ICP	1	C421
104	133-930-5Y	CHIP CERAMIC	39PF GRM39 COG390J 50 ICP	3	C301.303A.428
105	134-757-1Y	CHIP CERAMIC	47PF GRM39 COG470J 50 ICP	2	C52.326
106	134-770-2Y	CHIP CERAMIC	470PF GRM39 X7R471K 50 ICP	1	C324.333
107	135-021-4Y	CHIP CERAMIC	5PF GRM39 COG050C 50 ICP	2	C51.61
108	135-632-6Y	CHIP CERAMIC	56PF GRM39 COG560J 50 ICP	2	C78.101
109	136-014-3Y	CHIP CERAMIC	6PF GRM39 COG060D 50 ICP	2	C422.426
110	136-839-2Y	CHIP CERAMIC	68PF GRM39 COG680J 50 ICP	1	C21
111	136-840-2Y	CHIP CERAMIC	680PF GRM39 X7R681K 50 ICP	2	C3.457
112	138-011-0Y	CHIP CERAMIC	8PF GRM39 COG080D 50 ICP	2	C60.77
113	138-232-3Y	CHIP CERAMIC	82PF GRM39 COG820J 50 ICP	1	C447
114	139-103-5Y	CHIP CERAMIC	91PF GRM39 COG910J 50 ICP	1	C328

115	200-082-8	TRANSISTOR	KRA226S (SOT-23)	ICP	1	Q15
116	202-085-9	TRANSISTOR	KRC101S	ICP	5	Q16.17.103.406.407
117	202-092-5	BRT	KRA110SPK	ICP	1	Q12
118	202-095-8Z	TRANSISTOR	KRC104SND	ICP	7	Q5.11.13.109.202.209.212
119	202-106-5	TRANSISTOR	KTA1504SY	ICP	7	Q1.2.9.113.205.208.213
120	202-112-0Y	TRANSISTOR	STC2412G		14	Q3.4.6.7.8.18.104.108.112.114. 115.207.211.215
121	202-153-7	TRANSISTOR	KTC3880SY	ICP	9	Q10.107.111.110.301.302.408. 411.412
122	202-183-4	FET	KTK211GR	ICP	3	Q102.105.106
123	221-460-5	I.C PLL(DUAL)	BU2630F	ICP	1	IC6
124	221-531-6	I.C CPU(OTP)	S3P8249XZZ-TWR9	ICP	1	IC3
125	221-854-8	I.C EEPROM	24LLC02-A	ICP	1	IC4
126	222-018-5A	I.C	KIA324F-EL	ICP	1	IC2
127	223-917-1	I.C FM IF	UTC MC3361BP		1	IC1
128	242-024-6	DIODE VARIVAP CHIP	KDV251S	ICP	2	D402.403
129	243-049-4	DIODE SI CHIP	KDS226	ICP	2	D101.111
130	243-051-5	DIODE SI CHIP	KDS184S	ICP	12	D1.2.3.4.5.8.9.12.103.104.203. 407
131	243-063-6	DIODE SWITCHING	KDS181S A3	ICP	1	D413
132	4A1-203-B	P.C.B ASS'Y	163 X 152 X 1.6T FR-4 1/		1	
133	401-180-B	P.C.B MAIN	146 X 152 X 1.6T FR4 1/1		1	
134	401-220-B	P.C.B ROTARY	13.9 X 14.4 X 1.6T FR4 1/		1	
135	4A1-205-A	P.C.B SUB ASS'Y	163 X 147 X 1.6T XPC-94H		1	
136	401-182-A	P.C.B VOLUME	80 X 28 X 1.6T XPC-94HB		1	
137	401-183-A	P.C.B LCD	148.2 X 44 X 1.6T XPC-94H		1	

138	533-99M-PM	MP MANUAL ASS'Y	1	
139	019-479-8W	METAL OXIDE RESISTOR4.7 2W 5% ST ICP	2	R207.207A
140	030-100-6Z	FILM RESISTOR 10 1/ 2W 5% ST MINI ICP	1	R225
141	030-101-7Z	FILM RESISTOR 100 1/ 2W 5% ST MINI ICP	2	R24.178
142	030-181-9Z	FILM RESISTOR 180 1/ 2W 5% ST MINI ICP	1	R53
143	030-479-3Z	FILM RESISTOR 4.7 1/ 2W 5% ST MINI ICP	1	R312
144	061-109-9	RESISTOR SEMIFIXED 10KB PC805M H 8DIA	2	RV1.4
145	061-205-2	RESISTOR SEMIFIXED 2KB PC805M H 8DIA	3	RV5.201.401
146	061-508-8	RESISTOR SEMIFIXED 50KB PC805M H 8DIA	1	RV2
147	098-201-2	THERMISTOR DISK 200 OHM 15%:KC5B120L ICP	1	TH102
148	100-101-9T	ELECT CAPACITOR 0.1UF 50V 20% 5X11 ICP	2	C13.433
149	100-405-4T	ELECT CAPACITOR 0.47UF 50V 20% 5X11 ICP	1	C2
150	101-007-3T	ELECT CAPACITOR 1UF 50V 20% 4X7 ICP	3	C12.153.448
151	101-007-3T	ELECT CAPACITOR 1UF 50V 20% 4X7 ICP	1	C452
152	101-012-7T	ELECT CAPACITOR 10UF 16V 20% 5X11 ICP	11	C9.32.33.55.64.134.206.235.238 .239.436
153	101-012-7T	ELECT CAPACITOR 10UF 16V 20% 5X11 ICP	3	C232.431.461
154	101-117-9	ELECT CAPACITOR 1000UF 16V 20% 10X16 ICP	2	C11.15
155	101-119-1	ELECT CAPACITOR 100UF 16V 20% 6.3X7 ICP	2	C228.237
156	102-207-2T	ELECT CAPACITOR 2.2UF 50V 20% 5X11 ICP	1	C24
157	102-210-4T	ELECT CAPACITOR 22UF 16V 20% 5X11 ICP	1	C429
158	102-273-1Z	ELECT CAPACITOR 220UF 25V 20% 10X16 ICP	1	C213
159	102-299-5	ELECT CAPACITOR 220UF 16V 20% 6.3X11 ICP	5	C14.30.212.216.233
160	103-339-3T	ELECT CAPACITOR 3.3UF 50V 20% 4X7 ICP	1	C108
161	103-339-3T	ELECT CAPACITOR 3.3UF 50V 20% 4X7 ICP	1	C107
162	104-771-4T	ELECT CAPACITOR 47UF 16V 20% 5X11 ICP	3	C1.48.437
163	104-771-4T	ELECT CAPACITOR 47UF 16V 20% 5X11 ICP	2	C18.58

164	130-188-8Z	AXIAL CERAMIC	0.01UF EP050Y103MN 16 ICP	1	C149
165	130-227-9	AXIAL CERAMIC	0.022UF RH050F 223Z 50 ICP	1	C201
166	131-510-9X	DISK CERAMIC	150PF NPO K% 50 ICP	1	C321
167	172-015-6W	DIP TRIMMER	20PF CVN620 ICP	1	CT201
168	204-016-7	TRANSISTOR	2SC2314(E) ICP	1	Q303
169	241-004-3X	DIODE ZENER	1N5237BST ICP	1	DZ201
170	241-046-1Z	DIODE ZENER	1N5231B 5.1V1/2W ICP	1	DZ1
171	241-263-0	DIODE ZENER	1N5232BST ICP	2	DZ2.401
172	245-008-7X	DIODE RECTIFIER	1N5404 ICP	1	D202
173	245-015-3X	DIODE RECTIFIER	1N4004 ICP	1	D531
174	260-485-5V	CRYSTAL HC49U	10.240M -30 30PM 32P ICP	1	X1
175	262-043-9Y	CRYSTAL(HC-49U)	4.5MHZ -30 30PM 16P ICP	1	X901
176	270-007-0W	FILTER CERAMIC	LTW455HT ICP	1	CF1
177	271-030-5Z	FILTER CRYSTAL	HC49/T (10.695M) ICP	1	XF101
178	300-116-5	TRASNFORMER	CHOKE EI-19 ICP	1	CH501
179	300-255-7Z	TRANSFORMER	EI-28 ICP	1	T201
180	310-022-6Y	COIL RF CHOKE	0.6X5.0X23.5 TR 10UH	1	L601
181	310-291-2Z	COIL AXIAL	6.8UH:TCEC-6R8K ICP	2	L1.306
182	310-297-8Y	COIL SPRING	0.8X2.5X7TR	1	L304
183	310-301-8Z	COIL CHOKE	6UH BOBBIN CORE +-20%	1	L201
184	310-302-9Z	COIL CHOKE	5.5UH PEAKING COIL(CWR3-8 ICP	1	L6
185	310-316-6	COIL AXIAL	0.47UH:LAL03TBR47K ICP	1	L2
186	310-407-1Z	COIL SPRING	0.6X5.0X13.5TR	3	L5.7.307
187	310-588-1	COIL SPRING	4.1X0.5X9T:R ICP	1	L303
188	310-924-1	COIL SPRING	0.8X6.0RX2.5T-P6-FREE	1	L308
189	310-925-2	COIL SPRING	0.55X3.4RX6.5T-P6-FREE	1	L312
190	310-926-3	COIL SPRING	0.5X4.0RX6T-P6-FREE	1	L311

191	320-276-2Y	COIL IFT DET	R4251-AHK7-854462 ICP	1	L104
192	320-318-7Z	COIL IFT	Z73C-359 ICP	2	L301.302
193	320-380-2Y	COIL IFT	27MHZ LKSZ73DO-X000205-0 ICP	1	L4
194	320-576-3U	COIL IFT	10.7MHZ MAX RX ICP	1	L103
195	320-580-6X	COIL IFT	16.5MHZ 82PF COIL VCO ICP	1	L501
196	320-584-0Z	COIL IFT	R4251-AHK7-854461 ICP	1	L106
197	320-585-1Z	COIL IFT	27MHZ Z073I-1 ICP	1	L3
198	321-095-2	COIL IFT	27MHZ RX (7RC) ICP	1	L102
199	420-705-1Z	JACK DC	TC38-078-01 ICP	2	J4.101
200	431-249-7	SW SLIDE	SKS-2301U ICP	1	SW4
201	431-253-0	SLIDE SWITCH	SKS-2201U ICP	1	SW3
202	450-609-0	VR	50KA:K161110-5M1112 PCB T ICP	2	VR102.108
203	450-621-0Y	VR (B50K)	RV16AF-20-25K-B50K-3 ICP	2	VR1.2
204	504-629	MOLEX RECEPTACLE ASS900MM	ICP	1	

PARTS LIST ECHO MODUL

	PART-NO.	NAME & DESCRIPTION	Q'TY	REFERENCE-NO	REMARK
	594-514	ECHO MODULE ASS'Y	1		
1	060-103-8Z	CHIP RESISTOR 10K 1/10W 5% T 2012	5	R66.67.69.71.77	
2	060-104-9Z	CHIP RESISTOR 100K 1/10W 5% T 2012	1	R49	
3	060-153-3Z	CHIP RESISTOR 15K 1/10W 5% T 2012	2	R31.65	
4	060-183-0Z	CHIP RESISTOR 18K 1/10W 5% T 2012	1	R48	
5	060-222-2Z	CHIP RESISTOR 2.2K 1/10W 5% T 2012	1	R50	
6	060-472-1Z	CHIP RESISTOR 4.7K 1/10W 5% T 2012	1	R70	
7	060-562-9Z	CHIP RESISTOR 5.6K 1/10W 5% T 2012	1	R68	
8	061-206-3	RESISTOR SEMIFIXED 20KB PC805M	1	RV3	
9	061-508-8	RESISTOR SEMIFIXED 50KB PC805M	1	RV4	
10	101-012-7Z	ELECT CAPACITOR 10UF 16V 20% 5X11	2	C77.81	
11	101-119-1	ELECT CAPACITOR 100UF 16V 20% 6.3X7	1	C7	
12	104-707-7Y	ELECT CAPACITOR 4.7UF 50V 20% 5X11	2	C78.80	
13	104-771-4X	ELECT CAPACITOR 47UF 16V 20% 5X11	1	C44	
14	130-170-0Y	CHIP CERAMIC 0.1UF GRM40 Y5V104Z 25	5	C30.69.73.82.83	
15	130-172-2Y	CHIP CERAMIC 0.01UF GRM40 X7R103K 50	1	C74	

16	130-315-6Y	CHIP CERAMIC 0.0033UF GRM40 X7R332K	1	C76
17	130-329-8Y	CHIP CERAMIC 0.0039UF GRM40 X7R392K	1	C79
18	135-626-1Y	CHIP CERAMIC 560PF GRM40 COG561J	2	C85.75
19	202-112-0Y	TRANSISTOR STC2412G	2	Q2B.2C
20	221-884-6	I.C VOICE ECHO HT8970	1	IC5
21	401-190-A	P.C.B ECHO 50 X 35 X 1.6T XPC-94HB	1	
22	422-413-0	CONNECTOR WAFER CONNECTOR 8PIN	1	
23	539-04P-A	PACKING ASS'Y	1	

VOLTAGE CHART

TRANSISTOR

REF	PIN	TX	RX	REF	PIN	TX	RX
Q1	E	4.4	4.4	Q13	E	0	0
KTA1504	C	2.4	2.40	KKRC104	C	0	0
	B	0	0		B	5	5
Q2	E	4.4	4.4	Q15	E	2	2
KTA1504	C	2.4	2.4	KRA226	C	2	2
	B	4.3	4.3		B	1.1	1.1
Q3	E	4.4	4.4	Q16	E	0	0
STC2412	C	8.5	8.5	KRC101	C	0	0
	B	5	5.		B	2.8	2.8
Q4	E	5	5.	Q17	E	0	0
STC2412	C	11	11	KRC101	C	0	0
	B	5.7	5.70		B	4.7	4.7
Q5	E	0	0	Q18	E	0	0
KRC104	C	0	0	STC2412	C	0	0
	B	4.6	4.6		B	0.6	0.3
Q6	E	0	0	Q102	G	0	0
STC2412	C	0	0	KTK211	S	0	0.9
	B	0	0		D	0	6.9
Q7	E	0	0	Q103	E	0	0
STC2412	C	6.4	6.4	KRC101	C	0	0
	B	0	0		B	0	0
Q8	E	0	0	Q104	E	0	0
Stc2412	C	0	0	STC2412	C	0	0
	B	0.6	0.3		B	0.7	0.3

Q9	E	0	0	Q105	G	0	0
KTA1504	C	0	0	KTK211	S	0	1.2
	B	4.6	4.6		D	0	5.4
Q10	E	0	0	Q106	G	0	0
KTC3880	C	1.1	1.1	KTK211	S	0	1.2
	B	0.7	0.7		D	0	5.4
Q11	E	0	0	Q107	E	0	0
KRC104	C	0	0	KTC3880	C	0	7.1
	B	3	0		B	0	0.7
Q12	E	0	0.9	Q108	E	0	0
KRA110	C	0	0.9	STC2412	C	0	6.3
	B	6.4	6.4		B	0	0.7
Q109	E	0	0	Q211	E	7.9	7.9
KRC104	C	0	0	STC2412	C	12.8	12.8
	B	4.6	4.6		B	8.6	8.6
Q110	E	0	0	Q212	E	6.5	0
KTC3880	C	0	4.5	KRC104	C	11.6	12.7
	B	0	0.90		B	7.8	0
Q111	E	0	0	Q213	E	12.3	12.7
KTC3880	C	0	6.8	KTA1504	C	10.9	0
	B	0	0.7		B	11.6	12.7
Q112	E	0	0	Q215	E	5	5
STC2412	C	0	0	STC2412	C	8	8
	B	0.6	0		B	5.7	5.7
Q113	E	0	0.8	Q301	E	1.1	0
KTA1504	C	0	0.8	KTC3880	C	7.7	0
	B	0	0.3		B	1.8	0
Q114	E	0	0	Q302	E	0.9	0
STC2412	C	0	0	KTC3880	C	5	0
	B	0	0		B	1.5	0
Q115	E	0	0	Q406	E	0	0
STC2412	C	0	0	KRC101	C	0	0
	B	0	0.6		B	7.8	0
Q202	E	0	0	Q407	E	0	0
KRC104	C	0	0	KRC101	C	0.3	0.3
	B	5	5		B	0	0
Q205	E	3.6	0	Q408	E	2.8	2.8
KTA1504	C	0	0	KTC408	C	5	5
	B	3	0		B	3.4	3.4

Q207	E	0	7	Q411	E	0	0
STC2412	C	7.8	7.8	KTC3880	C	2.4	2.4
	B	0	7.8		B	0.7	0.7
Q208	E	7.8	7.7	Q412	E	0	0
KTA1504	C	7.8	0	KTC3880	C	2.5	2.5
	B	7.1	7.8		B	0.7	0.7
Q209	E	0	0	Q303	E	0	0
KRC104	C	0	7.8	2SC2314	C	5.8	0
	B	5	0		B	0	0
Q304	G	0	0	Q214	E	13.1	13.1
RD16HHF1	S	11	0	KTB1367	C	10.8	0
	D	0	0		B	12.3	12.6
Q2-B	E	4.4	4.4	Q2-C	E	0.1	0
STC2412	C	4.4	4.4	STC2412	C	0.7	0
	B	5	4.9		B	0.2	0.7

HT8970

PIN	TX	RX	PIN	TX	RX
1	5.1	5	9	2.6	2.5
2	2.6	2.5	10	2.6	2.5
3	0.1	0	11	2.6	2.5
4	0.1	0	12	2.6	2.5
5	2.8	2.8	13	2.6	2.5
6	2.6	2.5	14	2.6	2.5
7	0.7	0	15	2.6	2.5
8	0.8	0.6	16	2.6	2.5

IC6 BU2630

PIN	TX	RX	PIN	TX	RX
1	2	2	9	0	0
2	0	0	10	0	0
3	0	0	11	2.3	2.3
4	0	0	12	0	0
5	0	0	13	0	0
6	2.3	2.3	14	1.3	1.8
7	0	0	15	5	5
8	0	0	16	2.2	2.2

IC4 24LLC02A

PIN	TX	RX	PIN	TX	RX
1	0	0	5	0	0
2	0	0	6	5	5
3	0	0	7	0	0
4	0	0	8	5	5

IC2 KIA324

PIN	TX	RX	PIN	TX	RX
1	2	2	8	0	0.8
2	2	2	9	0	0.8
3	2	2	10	0	0.8
4	5	5	11	0	0
5	2.6	2.6	12	0	0
6	2.6	2.6	13	0	0
7	2.6	2.6	14	0	0

IC1 MC3361

PIN	TX	RX	PIN	TX	RX
1	0	6.4	9	0	3
2	0	6.1	10	0	0
3	0	6.1	11	0	6.3
4	0	6.4	12	0	0
5	0	5.2	13	0	6.2
6	0	5.2	14	0	0
7	0	5.2	15	0	0
8	0	6.4	16	0	1.7

IC3 EFHP5830AD

PIN	TX	RX	PIN	TX	RX
1	5	5	41	5	5
2	5	5	42	5	5
3	0	5	43	5	5
4	5	5	44	5	5
5	5	5	45	0	0
6	5	5	46	0	0
7	0	0	47	2.5	2.5
8	0	0	48	2.4	2.4
9	0	0	49	2.4	2.4
10	0	0	50	2.4	2.4
11	5	5	51	0	0
12	5	5	52	0	0
13	0	0	53	0	0
14	2.5	2.5	54	0	0
15	2.5	2.5	55	0	0
16	0	0	56	0	0
17	0	0	57	0	0
18	5	5	58	0	0
19	5	5	59	0	0
20	5	5	60	0	0
21	5	0	61	0	0
22	5	5	62	0	0
23	0	0	63	0	0
24	5	5	64	0	0
25	4.8	4.8	65	0	0
26	5	0	66	0	0
27	5	0	67	0	0
28	0	0	68	0	0
29	5	5	69	0	0
30	0	0	70	0	0
31	5	5	71	0.5	0.5
32	5	5	72	0.5	0.5
33	0	5	73	2.8	2.8
34	5	5	74	0.5	0.5
35	0	0	75	0.5	0.5
36	0	0	76	2.8	2.8
37	0	0	77	2.8	2.8
38	0	0	78	5	5
39	5	0	79	2.6	2.6
40	5	0	80	2.6	2.6

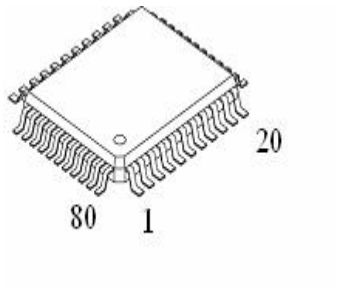
DIODE

REF	PIN	TX	RX	REF	PIN	TX	RX
D1	A	0	0	D103	A	0	6
KDS184	K	1	0	KDS184	K	0	5.4
D2	A	3.6	0	D104	A	0	6
KDS184	K	5	5	KDS184	K	0	5.4
D3	A	.	0.7	D111	A	0	-0.4
KDS184	K	0.6	0.3	KDS226	K	0	0
D4	A	1.5	0	D203	A	3	0
KDS184	K	0.7	0.3	KDS184	K	10	2.7
D5	A	0 / 0.8	0 / 0.8	D402	A	0	0
KDS184	K	0.4	0.4	KDV251	K	5	5
D8	A	0	0	D403	A	0	0
KDS184	K	0.4	0.4	KDV251	K	0	0
D9	A	0	0.3	D407	A	1.7	0
KDS184	K	0	0.8	KDS184	K	5	0
D12	A	0	0	D413	A	0	0
KDS184	K	0	0	KDS181	K	0	0
D101	A	0	0	DZ201	A	0.3	0.3
KDS226	K	0	0	1N5237	K	8.6	8.6
DZ1	A	0	0	DZ2	A	0	0
1N5231	K	5.1	5.1	1N5232	K	0	5
DZ401	A	0	0	D202	A	10.6	0
1N5232	K	5.6	5.6	1N5404	K	9.8	0
D531	A	0	0		A		
1N4004	K	13.2	13.2		K		

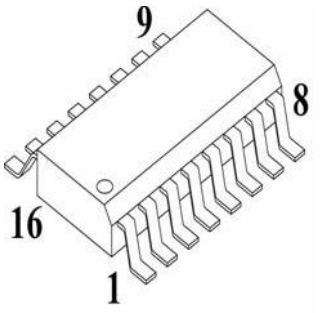
SEMICONDUCTOR LEAD IDENTIFICATION AND IC INTERNAL CONNECTIONS

INTERATED CIRCUITS

IC3 EFHP5830AD



BU2630F MC 3361



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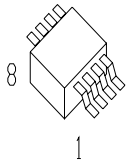
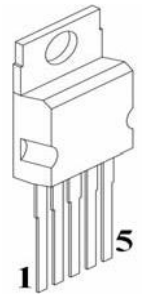
8 PIN

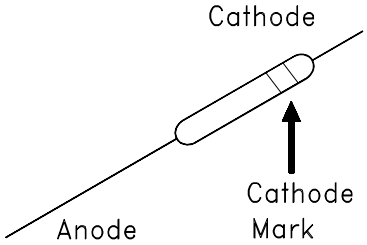


IC104 : UTC TDA2003

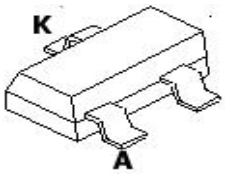


DIODES

1N4004 .1N4148 .1N5232
1N5404 .1N5237 .

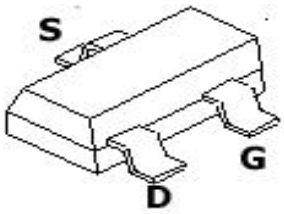


KDV251

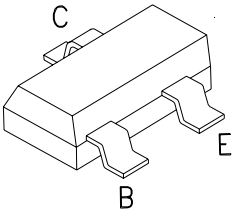


TRANSISTORS

KTK211



KRC101S, KRC110,
KTC3876, KTC3880
KTC3875,3880
KRC101~104
STG2412G



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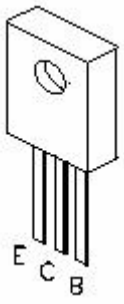

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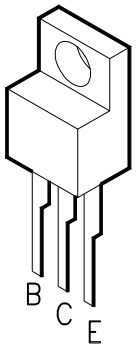
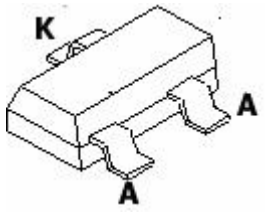


KDS184



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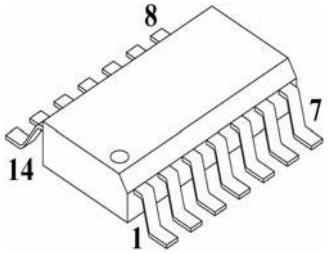

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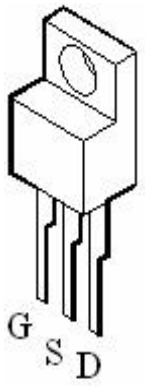
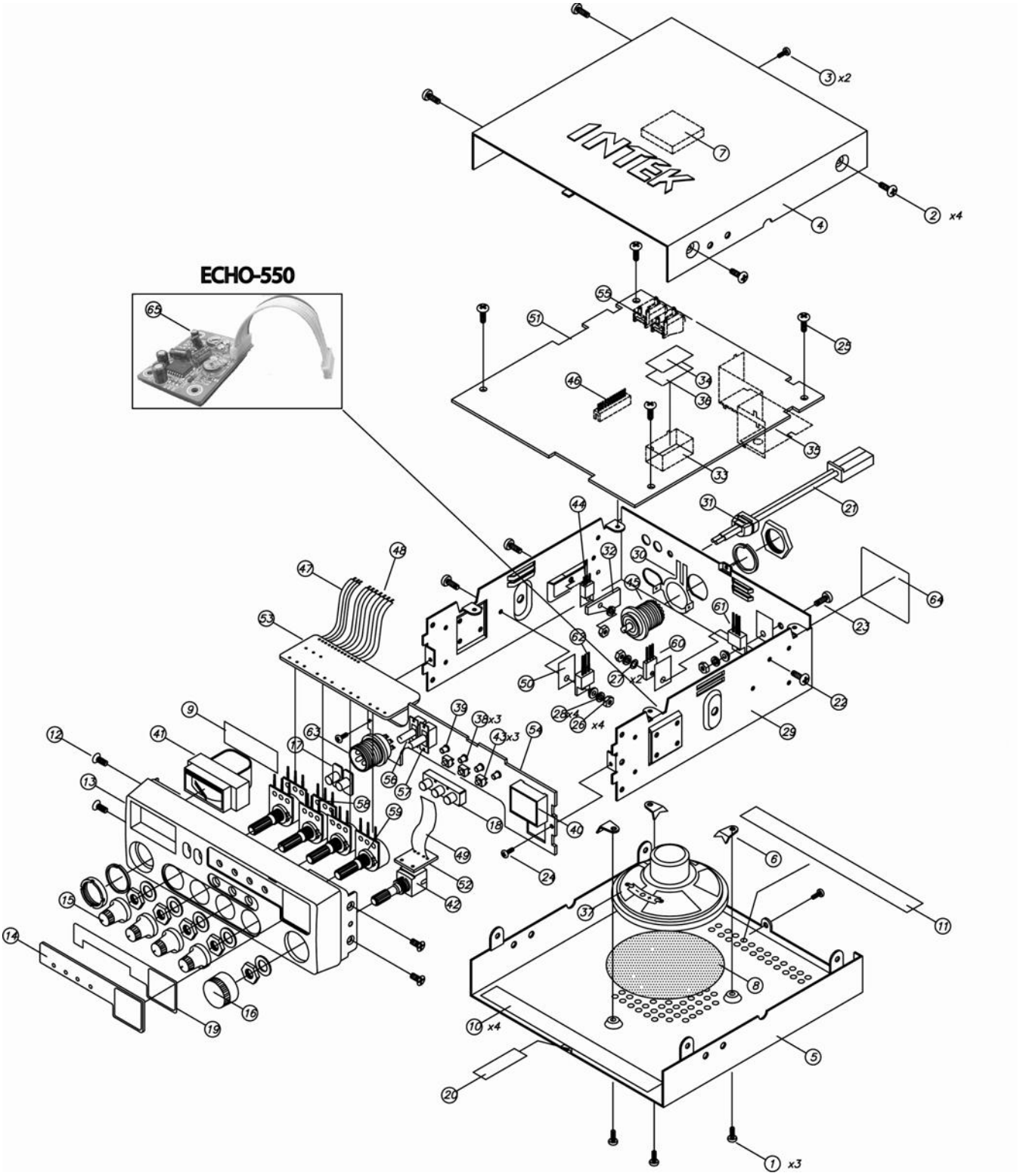


M-550 Power Explode view Part list

NO.	PART-NO.	NAME & DESCRIPTION	Q'TY	REMARK
1.	623-344	(+)TAPPING SCREW(BH)3X8-2S BLK	3	SPK MTG
2.	633-082	(+)TAP TITE SCREW BH3X6 BLK	4	Cover MTG
3.	633-152	(+)TAP TITE SCREW BH3X4-3S BLK	2	Cover MTG
4.	719-072-G	UPPER COVER SECC+PVC T=0.75	1	
5.	719-073-B	COVER BOTTOM SPC+VIN.SHT.T0.75	1	
6.	730-015-A	HOLDER(SPK) EGI T1 USCOATING	3	
7.	891-590	CUSHION 25X25XT5 RUBB.SP0.BLK STI	1	
8.	900-708	FELT &77XT0.3 FELT	1	
9.	901-794-A	FELT 8X45XT0.3 FELT STIC.ALAN4	1	
10.	905-505	FELT 10X130XT0.5 FELT STIC.	4	
11.	907-546	FELT T0.3 BLACK 15X120	1	
12.	611-095	(+)MACHINE SCREW(FH)2.6X5 ZN-PLAT	4	PCB MTG
13.	801-822	E.S.C ABS 94HB BLACK	1	
14.	814-552-A	WINDOW ACRYL CLEAR	1	
15.	826-143	KNOB VOL ABS 94HB BLK	4	
16.	826-144	KNOB CH ABS 94HB BLK	1	
17.	826-459	KNOB ABS 94HB BLK	2	
18.	896-414	KEY PAD "B" SILI RUBB RED/GRAY/BLUE	1	
19.	907-565	DOUBLE TAPE 3M 9448HK T0.16	1	
20.	901-794-A	FELT 8X45XT0.3 FELT STIC.ALAN4	1	
21.	504-892	MOLEX PLUG ASS'Y	1	
22.	613-305	(+)MACHINE SCREW(BH)3X8 ZN-PLAT	1	
23.	613-332	(+)MACHINE SCREW(BH)3X10 ZN-PLAT	3	
24.	621-420	(+)TAPPING SCREW(PH)2.6X8-2S ZN-PLAT	2	
25.	623-265	(+)TAPPING SCREW(BH)3X6-2S ZN-PLAT	4	
26.	651-024	NUT SS41 M3-1S ZN-PLAT	4	
27.	660-590	WASHER FIBER 7&X3.2& 1T RED	2	
28.	662-305	WASHER (SPRING) M3 ZN-PLAT	4	
29.	702-426-E	MAIN BODY EGI T1.0 US COATING	1	
30.	732-560	HOLDER(ANT MTG) SPTE T0.3	1	
31.	750-766	CORD STOPPER PP	1	
32.	760-704	HEAT SINK(IC MTG) ALP 30X18XT2	1	
33.	771-525	SHIELD HOUSHING SPTE T0.3	1	
34.	771-530	SHIELD PLATE SPTE T0.3	1	
35.	772-238	SHIELD HOUSING SPTE T0.3	1	
36.	905-685-A	INSULATION PLATE INSULATION PAPER T0.25	1	
37.	420-113-6	SPEAKER 8 OHM 3.0W 77MM P-302RM-A	1	SPK
38.	251-027-7W	LED LAMP L-314GD	3	LED2.3.4
39.	251-052-9Z	LED LAMP LTL-16KE RED 5V 100MW	1	LED1
40.	252-289-2	LCD DISPLAY DA04-14GWB-C-15.0	1	LCD1
41.	420-020-8X	METER E.I H321-9028A	1	M1
42.	430-049-8Y	SW ROTARY YPS210120SK	1	SW7
43.	436-059-7Z	SW TACT TM115AP	3	SW1.2.8
44.	221-889-8	AUDIO POWER AMPLIFIEUTC TDA2003	1	IC104
45.	421-046-7	CONNECTOR CH-239(A) SW-1229	1	J103
46.	421-643-6A	CONNECTOR SOCKET SCN-16-6(M1)R PCB TYPE	1	J3
47.	429-070-9B	FLAT WIRE 06P 60MM 2.5PITCH	1	
48.	429-078-6B	FLAT WIRE 07P 88MM 2.5PITCH I	1	
49.	429-266-9Z	FLAT CABLE 03P 80MM 2.5PITCH (HH-3	1	
50.	440-020-4	MICA 0.1T:15X13 MICA FOR TR I	1	MICA
51.	401-180-B	P.C.B MAIN 146 X 152 X 1.6T FR4 1/1	1	
52.	401-220-B	P.C.B ROTARY 13.9 X 14.4 X 1.6T FR4 1/	1	
53.	401-182-A	P.C.B VOLUME 80 X 28 X 1.6T XPC-94HB	1	
54.	401-183-A	P.C.B LCD 148.2 X 44 X 1.6T XPC-94H	1	
55.	420-705-1Z	JACK DC TC38-078-01	2	J4.101
56.	431-249-7	SW SLIDE SKS-2301U	1	SW4
57.	431-253-0	SLIDE SWITCH SKS-2201U	1	SW3
58.	450-609-0	VR 50KA:K161110-5M1112 PCB T	2	VR102.108
59.	450-621-0Y	VR (B50K) RV16AF-20-25K-B50K-3	2	VR1.2
60.	204-016-7	TRANSISTOR 2SC2314(E) ICP	1	Q303
61.	200-345-3	MOS FET PA RD16HHF1	1	Q304
62.	202-066-2	TRANSISTOR KTB1367 ICP	1	Q214
63.	421-069-8	MIC CONNECTOR MIC-6PIN(P) SW-1561 ICP	1	J2
64.	95B-009-G	NAME LABEL POLYESTER 40 X 27	1	95B-009-G
65.		ECHO CARD (Option)		


ECHO-550
INTEK