- CHANNEL SPACE : 30KHz
- 1'ST I.F : 10.7MHz
- 2'ND I.F : 450KHz
- TCXO(X-TAL) : 11.15MHz

FREQUENCY TABLE FOR 9920. SAME AS OUR 9040. FOR YOUR REFERENCE USE.

Regards, Orie

CH	BASE(MHZ)		PORTABLE(MHZ)	
	TX	LOCAL(10.7)	TX	LOCAL(10.7)
1	902.12	936.82	926.12	891.42
2	902.15	936.85	926.15	891.45
3	902.18	936.88	926.18	891.48
4	902.21	936.91	926.21	891.51
5	902.24	936.94	926.24	891.54
6	902.27	936.97	926.27	891.57
7	902.30	937.00	926.30	891.60
8	902.33	937.03	926.33	891.63
9	902.36	937.06	926.36	891.66
10	902.39	937.09	926.39	891.69
11	902.42	937.12	926.42	891.72
12	902.45	937.15	926.45	891.75
13	902.48	937.18	926.48	891.78
14	902.51	937.21	926.51	891.81
15	902.54	937.24	926.54	891.84
16	902.57	937.27	926.57	891.87
17	902.60	937.30	926.60	891.90
18	902.63	937.33	926.63	891.93
19	902.66	937.36	926.66	891.96
20	902.69	937.39	926.69	891.99
21	902.72	937.42	926.72	892.02
22	902.75	937.45	926.75	892.05
23	902.78	937.48	926.78	892.08
24	902.81	937.51	926.81	892.11
25	902.84	937.54	926.84	892.14
26	902.87	937.57	926.87	892.17
27	902.90	937.60	926.90	892.20
28	902.93	937.63	926.93	892.23
29	902.96	937.66	926.96	892.26
30	903.99	937.69	926.99	892.29
31	903.02	937.72	927.02	892.32
32	903.05	937.75	927.05	892.35
33	903.08	937.78	927.08	892.38
34	903.11	937.81	927.11	892.41
35	903.14	937.84	927.14	892.44
36	903.17	937.87	927.17	892.47
37	903.20	93790	927.20	892.50
38	903.23	937.93	927.23	892.53
39	903.26	937.96	927.26	892.56
40	903.29	937.99	927.29	892.59

FCC ID: NQL9840

MODEL NUMBER ALLOCATION

Presently, we have a large number of models within each of our various model number series of cordless telephones.

Our clients continually request slightly different cosmetic variations of each registered model such as a different case color .

In order to control all of these permutations, it is constantly necessary to assign and file, with the FCC, new model numbers to cover these cosmetic variations.

Since all models, within a series of cordless telephones, are electrically and functionally identical, varying only in cosmetic detail and to avoid the need to constantly file, with the FCC, to register additional model numbers for cosmetic purposes, we request to register our models as listed tradenames and model numbers:

	TRADENAMES	MODEL NUMBERS	
	BELLSOUTH	**MH9930(0)(Y)**	**MH9935(0)(Y)**
	AMERITECH	**MH9931(0)(Y)**	**MH9936(0)(Y)**
	BELL ATLANTIC	**MH9932(0)(Y)**	**MH9937(0)(Y)**
	PACIFIC BELL	**MH9933(0)(Y)**	**MH9938(0)(Y)**
	UNISONIC	**MH9934(0)(Y)**	**MH9939(0)(Y)**

MH9930 series are 900Mhz Cordless Telephone , Caller ID with Digital Answering Machine

NOTE: (0) Zero   =   Additional charger base
suffix "Y" can be added to the model number to represent color variation, can be any letter/s of the alphabet as follows (but not limited to this list) such as :

"No suffix"	=	Gray case
B/BK	=	Black case
HG/VHG	=	Green case
W	=	White case
R	=	Red case
RB	=	Red/Black case
PL	=	Pearl white case

such that :

MH9932	-	Model MH9932 is the standard model in gray case
MH9932B	-	Model MH9932 in black case
MH9932HG	-	Model MH9932 in green case

CIRCUIT DESCRIPTION OF 9932

1. H/S RF MODULE

1) RX PART

The receiver front-end contains a band pass filter, an RF low noise amplifier, a BPF, a active transistor mixer, a monolithic crystal filter and 10.7MHz IF amplifier.

Also it includes buffer amplifiers for the generation of local oscillator power.

This front-end receivers an RF signal from the antenna. And RF signals within this frequency range is 902.12MHz ~ 903.29MHz pass through RF AMP (Q303) and band pass filter.

After passing through the band pass filter, the signal is mixed within 1st local frequency from voltage controlled oscillator, The signal is amplified on the IF AMP transistor (Q301) and the signal pass through the monolithic crystal filter (10.7MHz) after the IF signal pass the MCF filter, the signal enter by the FM IF (intermediate frequency) IC. And the signal is mixed in the FM IF IC (MC3361). The signal pass through the ceramic filter (450KHz). The output signal in the FM IF IC streams from the AF-OUT terminal of the connector 1 to the base.

2) TX PART

The signal is made to the portable, enter by the AF-IN terminal of the connector.

The signal send the MOD terminal of the TX VCO.

The signal is mixed in the TX VCO mixing the RF signal, the RF signal adjust the trimmer capacitor (VC301).

The RF signal enter by the transmission power AMP transistor (Q304, Q305). The signal is amplitude in the Q304, Q305. Enter by the band pass filter.

The RF signal pass through the band pass filter, towards the ANT. The last transmission RF signal is 926.12MHz ~ 927.29MHz.

2. HAND SET MAIN

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.5 of CN1 is connected to Pin no.15 Expander input. The audio output from Pin no.19 is finally amplified by Q3 and a.c coupled to the receiver unit the HAC compatibility.

The demodulated data code from CN1 Pin no.5 is fed to IC7B. Pin no.7 of IC7B is connected to (DATA IN) Pin no.54 of IC1.

Voice signal from C-MIC is coupled to Pin no.8 of IC4A. The voice signal is compressed by IC4 & output Pin no.1 is connected to Pin no.11 of CN1 for modulation.

Pin no.57 of IC1 is the output port for data code that should be transmitted to the base unit. This data code is connected to the Pin no.11 of CN1 for modulation.

LCD display operation is monitored by Pin no.1~34, 62~77, 95~100 of IC1.

During the charging, it is detected by Pin no.51 of IC1.

Key board operation is monitored by Pin no.78~85 of IC1.

Key Tone and the ringing from Pin no.89,90 of IC1 drives the BUZZER.

3. BASE RF MODULE

1) RX PART

The receiver front-end contains a band pass filter, an RF low noise amplifier, a band pass filter, a active transistor mixer, a monolithic crystal filter and 10.7MHz IF amplifier.

Also it includes buffer amplifiers for the generation of local oscillator power.

This front-end receivers an RF signal from the antenna. And RF signals within this frequency range is 926.12MHz ~ 927.29MHz pass through RF AMP (Q303) and band pass filter, saw filter..

After passing through the band pass filter and saw filter, the signal is mixed within 1st local frequency from voltage controlled oscillator, The signal is amplified on the IF AMP transistor (Q305) and the signal pass through the monolithic crystal filter (10.7MHz) after the IF signal pass the MCF filter, the signal enter by the FM IF (intermediate frequency) IC. And the signal is mixed in the FM IF IC (MC3361). The signal pass through the ceramic filter (450KHz). The output signal in the FM IF IC streams from the AF-OUT terminal of the connector to the base.

2) TX PART

The signal is made to the portable, enter by the AF-IN terminal of the connector.

The signal send the MOD terminal of the TX VCO.

The signal is mixed in the TX VCO mixing the RF signal, the RF signal adjust the trimmer capacitor (VC301).

The RF signal enter by the transmission power AMP transistor (Q301, Q302). Enter by the band pass filter.

The RF signal pass through the band pass filter, towards the ANT. The last transmission RF signal is 902.12MHz ~ 903.29MHz.

4. BASE MAIN

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.5 of CN5 is sent to IC103 Pin no.15 Expansion. The expended audio signal is sent to the telephone line via hybrid Transformer HY1.

The demodulated data code from CN1 Pin no.5 is generated by IC101A. It is output is connected to code input Pin no.4 of IC8.

The audio signal receiving from TEL-LINE is input to IC103 Pin no.2 form compression. The compressed audio signal from Pin no.3 of IC103 is connected to CN5 Pin no.11 for modulation.

Pin no.48 of IC8 is the output port for data codes that should be transmitted to the handset. The data code is connected to the Pin no.11 of CN5 for modulation.

CAS signals from tel-line fed to codec IC6 Pin no.17 for decoding and them, converted digital signal transmit to DSP chip IC5. Comparing the code is correct, DSP send CAS detection code to CPU(IC8).
After that, ack code from CPU transmit to CO (central office) through tel-line and, CO. send FSK signal to Base tel-line for final confirmation of Caller ID. FSK is AMP & filtered by IC104A and fed to codec IC6, next routines for FSK are same as CAS routine. After detection FSK, CPU generates information command (including name, address, telephone number, time, date) and transmit the data to Handset through RF section.

Stand-by mode : FSK signal detected by IC104A after ringing is fed to codec (IC6) Pin no.17 and next routines and operations are the same as FSK detection at TALK-mode.

Ext-inuse : In case branch phone is used IC104C,D detect using the branch phone and send the logic-hi signal to CPU.
At the moment, Base LED start blinking and Handset LCD displays EXT-INUSE.

Relay controlling is done by Pin no.43 of IC8.

Ring signal monitored by PC102 (PHOTO COUPLER IC) is detected by Pin no.61 of IC8 resulting a data code to the handset.

DTMF dialing is generated by IC8 Pin no.24 this signal output through the base of Q104 to tel-line.

When the handset is placed on the base cradle, the charging is detected by Pin no.41 of IC8 sends data codes to handset for security code setting.

When the handset is far away from base unit, squelch circuit of IC101B operates and Pin no.7 of IC101B goes ◻HI◻. This will be detected by the micro processor and after 20 sec. go to Stand by mode.

The power to the base unit is supplied by IC10 (5V REGULATOR IC).

The power to the base RF module is supplied by IC102 (5V LOW CURRENT REGULATOR IC).

Key buttons of answering system are controlled by Pin no.50~56 of IC8.

LED display is controlled by Pin no.8, 38, 51 of IC8.

Mail box INDICATORS are controlled by Pin no.36, 37, 40 of IC8.

Answering system is controlled by Pin no.9~16 of IC8.

ICM signal from tel-line is coupled to Pin no.17 of IC6 through IC1B.

OGM signal from Pin no.20 of IC6 is transmitted to tel-line through HY1.

Recording voice from MIC (OGM, MEMO) is applied to Pin no.4 of IC6 through IC1A.

The voice is played form Pin no.2 of IC6 is generated at speaker through IC3.