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BELL® Phones
BY NORTHWESTERN BELL PHONES

CIRCUIT DESCRIPTION OF 39765 ,39705 ,39605 ,39626

1. RF MODULE

1) RX PART

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

The font-end receivers RF signal from the antenna. The RF signal frequency range is 902.025—903.975MHz for Handset and 926.025—927.975MHz for Base unit and then passes through RF AMP (Q301, Q801).

After mixed with the first local frequency from voltage controlled oscillator, the signal become IF signal and is amplified on the IF AMP transistor (Q803, Q303), and then pass through the ceramic filter (10.7MHz), finally enter by the FM IF (intermediate frequency) IC. The IF signal is mixed in the FM IF IC (MC3361) again, and then pass through the ceramic filter (455KHz). Finally the output signal in the FM IF IC streams from the AF-OUT terminal of the connector.

2) TX PART

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

The signal sends the MOD terminal of the TX VCO.

The signal is mixed in the TX VCO mixing the RF signal, the RF signal adjust by the VC301, VC801.

The RF signal enters by the transmission power AMP transistor.

Enter by the band pass filter.

RF signal passes through the band pass filter, towards the ANT. The last transmission RF signal is 926.025—927.975MHz for Handset and 902.025—903.975MHz for Base Unit.

2 HANDSET MAIN

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin No.9 of IC802 (MC3361) is connected to Pin No.16 of IC504 (KA8507). The audio output from Pin No.19 of u802 is finally amplified by IC507 (KA8602B) and ac coupled to the receiver unit the HAC compatibility.

The demodulated date code from Pin No. 9 of IC802 and it is connected to (DATA IN) Pin No. 13 of IC506 (MCU).

Voice signal from C-MIC is coupled to Pin No.8 of IC504(8507). The voice signal is compressed by IC504, and output Pin No.1 is connected to RF board for modulation.

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Pin No.12 of IC506 (MCU) is the output part for data code that should be transmitted to due base unit.

During the charging, it is detected by Pin No.11 of IC506.

Key board, operation is monitored by Pin No.14, 24-26, 52-57, of IC506.

Key Tone and the ringing from Pin No.31 of IC506 drives the BUZZER.

3. BASE MAIN

The demodulated signal from Pin No.9 of IC802 (MC3361) is sent to IC3 (8507) Pin No.15 to expansion, The expanded signal amplified by IC8A and sent to the telephone line.

Relay controlling is done by Pin No.43 of IC6 (MCU).
Ring signal is detected by IC6 of Pin No.20, and result from a data code to the handset.

Dial of DTMF is generated by IC3 of Pin No.11. This signal output through the base of IC8A to tel-line.

When the handset is placed on the base cradle, the charging is detected by Pin No.13 of IC6 sends data codes to handset for security code setting.

The power to the base unit is supplied by IC4 (5V REGULATOR IC).

AUTOMATIC CHANNEL SELECTION MECHANISM
MODEL 39605/39626/39765/39705/39708

During the activation of Talk, the Handset receiver scans for free channels from its Default channel (about 80ms for channel) and stores the status to its memory. Once a free channel is found, the Handset transmits the Talk instruction to Base.

Likewise, the Base receiver continuously scans for free channels from its Default channel (about 120ms per channel) and stores the status to its memory. Once the Base receiver received the instruction from the Handset, it will stop from scanning and transmits the acknowledgement data.

Each unit has a different Default Channel . it is generated from the unit's ID.

If all of transmit channels of Handset and Base are occupied (all busy), Handset and Base will link on the Default channel.

BASE			HANDSET		BASE			HANDSET	
CH	TX	RX	TX	RX	CH	TX	RX	TX	RX
1	902.025	926.025	926.025	902.025	21	903.025	927 025	927.025	903.025
2	902.075	926.075	926.075	902.075	22	903.075	927.075	927.075	903.075
3	902.125	926.125	926.125	902.125	23	903.125	927.125	927.125	903.125
4	902.175	926.175	926.175	902.175	24	903.175	927.175	927.175	903.175
5	902.225	926.225	926.225	902.225	25	903.225	927.225	927.225	903.225
6	902.275	926.275	926.275	902.275	26	903.275	927.275	927.275	903.275
7	902.325	926.325	926.325	902.325	27	903.325	927.325	927.325	903.325
8	902.375	926.375	926.375	902.375	28	903.375	927.375	927.375	903.375
9	902.425	926.425	926.425	902.425	29	903.425	927.425	927.425	903.425
10	902.475	926.475	926.475	902.475	30	903.475	927.475	927.475	903.475
11	902.525	926.525	926.525	902.525	31	903.525	927.525	927.525	903.525
12	902.575	926.575	926.575	902.575	32	903.575	927.575	927.575	903.575
13	902.625	926.625	926.625	902.625	33	903.625	927.625	927.625	903.625
14	902.675	926.675	926.675	902.675	34	903.675	927.675	927.675	903.675
15	902.725	926.725	926.725	902.725	35	903.725	927.725	927.725	903.725
16	902.775	926.775	926.775	902.775	36	903.775	927.775	927.775	903.775
17	902.825	926.825	926.825	902.825	37	903.825	927.825	927.825	903.825
18	902.875	926.875	926.875	902.875	38	903.875	927.875	927.875	903.875
19	902.925	926.925	926.925	902.925	39	903.925	927.925	927.925	903.925
20	902.975	926.975	926.975	902.975	40	903.975	927.975	927.975	903.975

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