

40 CHANNEL - AUTOMATIC CHANNEL SELECTION MECHANISM
MODEL: BE 900 FA

During the activation of Talk, the Handset receiver scans for free channel from its last linked receiver channel (about 50ms per channel). Once a free channel is found, the Handset transmits the Talk instruction to Base together with the receiver's free channel information for the Base to use this free channel as the Transmit channel.

Likewise, the Base receiver continuously scans each channel (25ms per channel) and stores all free channels into its memory. Once the Base receiver received the instruction from its Handset, it will stop from scanning and transmits its acknowledgement data with the Base receiver free channel information. When the Handset receives this Base free channel information, it will transmit the link command to Base and both will link on the clearest channel. The Handset and Base scan and find their receiver's clearest channel separately. If all transmit channels of Handset and Base are occupied (all busy), Handset and Base will link on the default channel (Channel 20).

BASE UNIT			HANDSET		BASE UNIT			HANDSET	
CH	TX	RX	TX	RX	CH	TX	RX	TX	RX
1	902.12	936.82	926.12	891.42	21	902.72	937.42	926.72	892.02
2	902.15	936.85	926.15	891.45	22	902.75	937.45	926.75	892.05
3	902.18	936.88	926.18	891.48	23	902.78	937.48	926.78	892.08
4	902.21	936.91	926.21	891.51	24	902.81	937.51	926.81	892.11
5	902.24	936.94	926.24	891.54	25	902.84	937.54	926.84	892.14
6	902.27	936.97	926.27	891.57	26	902.87	937.57	926.87	892.17
7	902.30	937.00	926.30	891.60	27	902.90	937.60	926.90	892.20
8	902.33	937.03	926.33	891.63	28	902.93	937.63	926.93	892.23
9	902.36	937.06	926.36	891.66	29	902.96	937.66	926.96	892.26
10	902.39	937.09	926.39	891.69	30	902.99	937.69	926.99	892.29
11	902.42	937.12	926.42	891.72	31	903.02	937.72	927.03	892.32
12	902.45	937.15	926.45	891.75	32	903.05	937.75	927.05	892.35
13	902.48	937.18	926.48	891.78	33	903.08	937.78	927.08	892.38
14	902.51	937.21	926.51	891.81	34	903.11	937.81	927.11	892.41
15	902.54	937.24	926.54	891.84	35	903.14	937.84	927.14	892.44
16	902.57	937.27	926.57	891.87	36	903.17	937.87	927.17	892.47
17	902.60	937.30	926.60	891.90	37	903.20	937.90	927.20	892.50
18	902.63	937.33	926.63	891.93	38	903.23	937.93	927.23	892.53
19	902.66	937.36	926.66	891.96	39	903.26	937.96	927.26	892.56
20	902.69	937.39	926.69	891.99	40	903.29	937.99	927.29	892.59

Re : Descriptions for Computer Applications

Please find here below the descriptions for Internetphone applications :

"If applying uses of the headset phone system with computer for Internet Phone conversation, move the switch on front of the baseset from 'TELEPHONE' to 'COMPUTER' and connect speaker and mic jacks on the back of baseset with respective jacks in sound card of computer by speaker and mic cable. After then, the headset will work as communication tool once Internet Phone Software is activated.

The switch should be moved back from 'COMPUTER' to 'TELEPHONE' for general telephone function."

CONFORMITY ASSESS	
Incoming Date:	8/21/18
SN: 1234567890	
Comments:	

CIRCUIT DESCRIPTION

1. HANDSET

1.1 RECEPTION

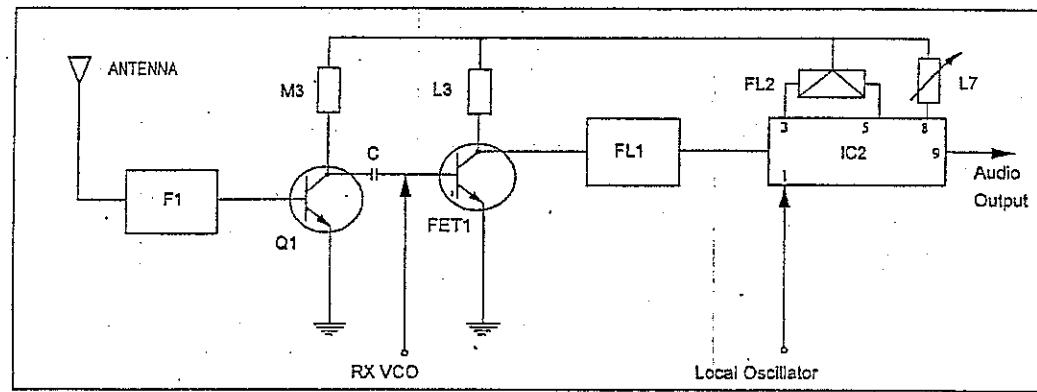


Figure 1

As shown in figure 1, the received signal from the base unit passes through 927 MHz Filter and amplified by RF Amplifier (Q1). The amplified input signal is mixed with RX VCO signal.

The VCO oscillation is controlled by error signals from PLL IC (IC1) pin no. 14. The channel information to PLL IC is provided by Microprocessor IC (IC1) pin nos. 25, 26 and 30. (Serial data outputs).

The Mixer output from FET1 passes through 10.7 MHz Ceramic Filter (FL1) and enters to FM Demodulator IC (IC2A) pin no. 16. This signal mixes with 11.150 MHz signal from PLL IC pin no. 11, which is connected to IC2 IF detector pin no.1. The mixed signal is filtered by 450 KHz Filter (FL2).

1.2 RINGER OUTPUT

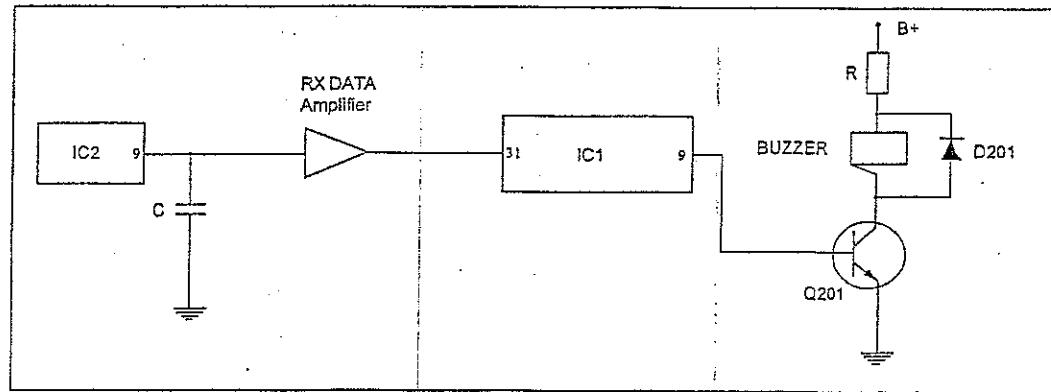


Figure 2

After detection of ring signal, the base unit will transmit the data code signal including security code to handset.

As shown in figure 2, the demodulated ring signal from pin no. 9 of FM Demodulator IC1 is fed to low pass filter and amplified by RX Data Amplifier and its output is connected to RX Data port of Microprocessor IC (IC1).

The ring signal output from pin no. 9 of Microprocessor IC (IC1) goes to buzzer driver Q201 to activate the buzzer.

1.3 VOICE OUTPUT

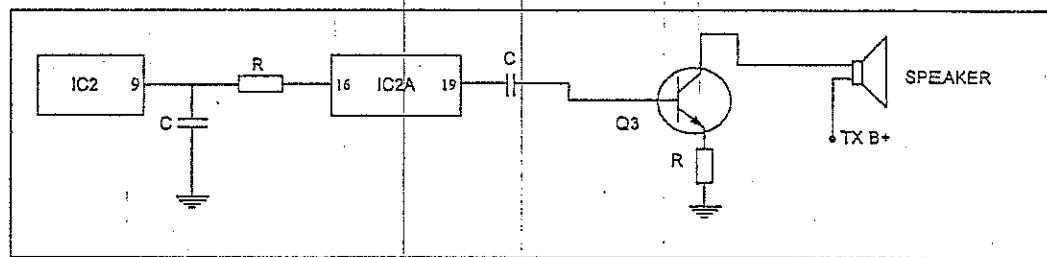


Figure 3

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output pin no. 9 of IC1 is connected to pin no. 16 Expander input of Comander IC (IC2A) for expansion. The expanded audio output from IC2A pin no. 19 is finally amplified by Q3 and A.C. coupled to the receiver unit with Hearing Aid Compatibility (HAC).

1.4 DATA TRANSMISSION

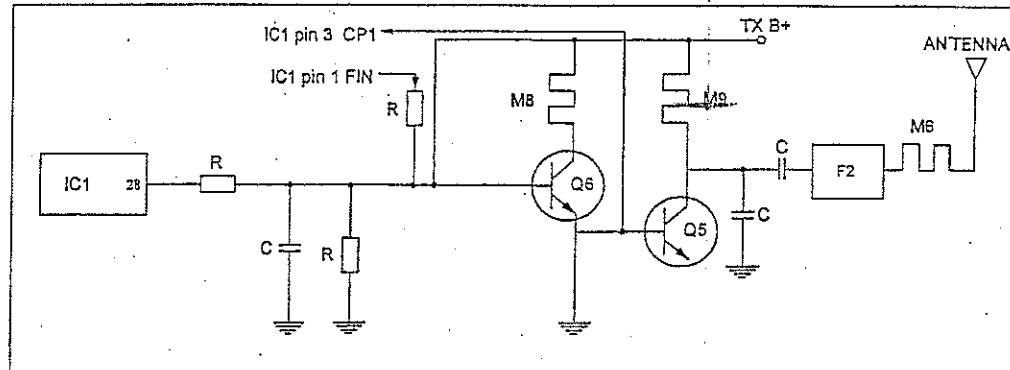


Figure 4

As shown in figure 4, the TX data code output including security code from IC1 pin no. 28 is connected to TX VCO for modulation. The data code signal is modulated with the carrier frequency generated by the RF oscillator (Q1). The oscillator frequency is controlled by the error signal from pin no.3 of PLL IC (IC1). The modulated signal is amplified by RF amplifier stage (Q5) and then passes through 927MHz filter stage (F2). The FM modulated signal is radiated by the handset Rubberized Antenna.

1.5 VOICE TRANSMISSION

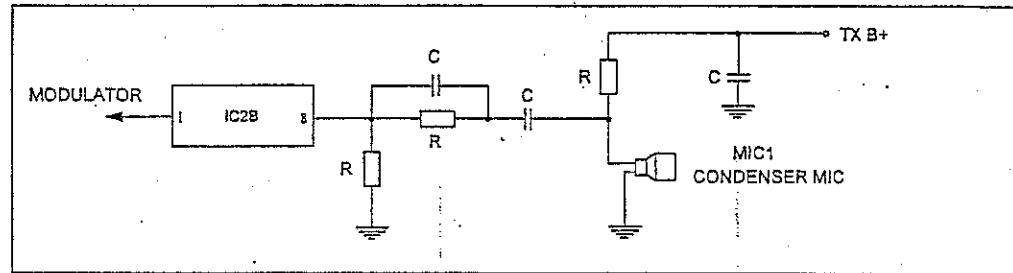


Figure 5

Voice signal from condenser mic is coupled to pin no. 8 of Comander IC (IC2B). The voice signal is compressed by IC2B and then connected to TX VCO stage for modulation.

1.6 RECEIVER POWER CONTROL

- When at STANDBY mode and RING ON mode the handset has 50 ms power on and 800ms power off on receiver section.
- When at STANDBY mode and SAVE ON mode, the handset have no power on receiver section.
- The power saving is controlled by Microprocessor IC (IC1) pin no. 18 (RX power control) and Q1.

1.7 TRANSMIT POWER CONTROL

- When at TALK mode, the handset transmitter should be working.
- The transmitter power is controlled by Microprocessor IC (IC1) pin no. 17 (TX power control) and Q5.

1.8 BATTERY LOW DETECTOR

- When the battery voltage goes down until 3.3 to 0.1 Vdc, the LED1 will flash with warning sound "Bi, Bi".

1.9 BATTERY CHARGING

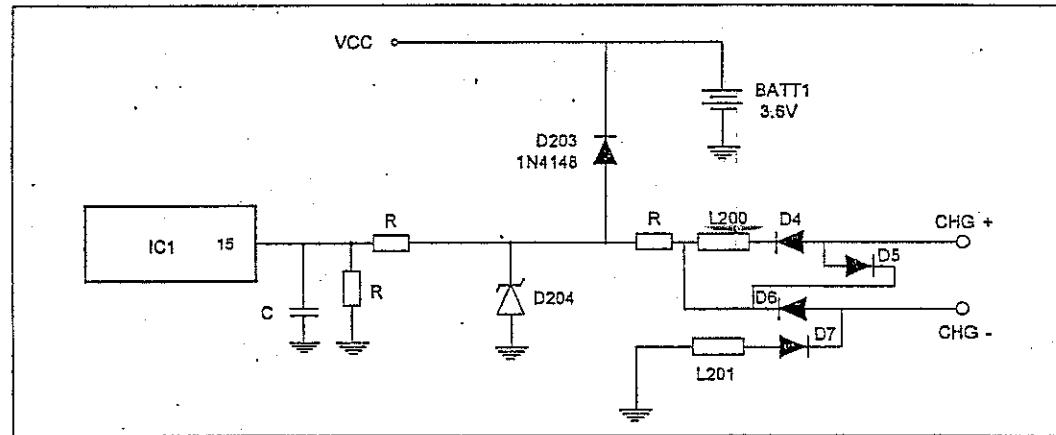


Figure 6

- When the handset is placed on the base unit cradle, the battery will be charging and will be detected by Microprocessor IC (IC1) pin no.15.
- Microprocessor IC will exchange security code randomly.

1.10 SQUELCH

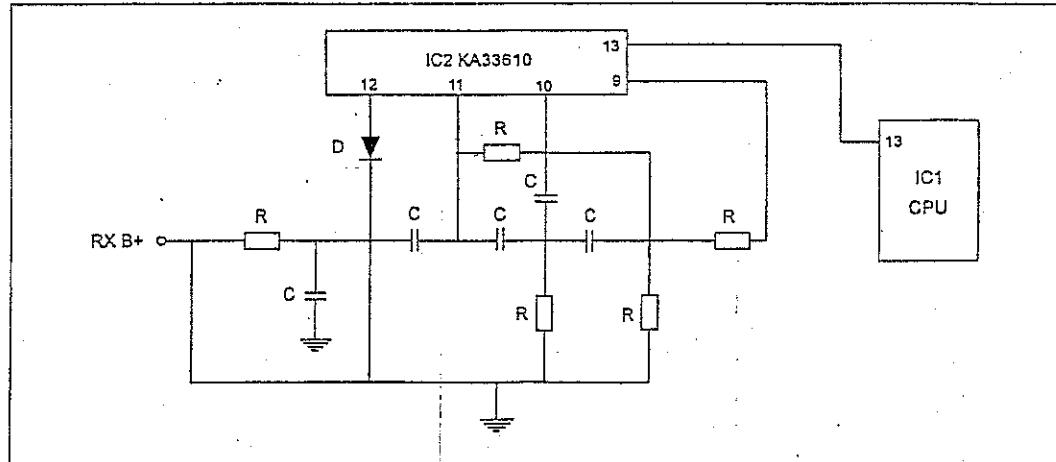


Figure 7

As shown in figure 7, the audio output (noise output) from FM Demodulator IC (IC2) pin no. 9 goes to pin no. 10 (Noise filter input) and the output from pin no. 11 will enter to pin no. 12 to activate the squelch control of IC1. The output from pin no. 13 is connected to the Microprocessor IC (IC1) for RSSI Detection.

NOTE :

- When the handset is far away from the base unit, squelch circuit of IC2 operates and pin no. 13 of IC2 goes 'Hi'. This will be detected by Microprocessor and after 10 seconds, it goes to standby mode.

2. BASE UNIT

2.1 RECEPTION

Base receiver circuit is similar to handset receiver circuit description as shown in figure 1. The difference with section 1.1 are local frequency and receiving frequency as describe below.

The received signal from the handset unit passes through 927 MHz filter and amplified by RF Amplifier (Q1). The amplified signal is mixed with RX VCO (Q1, M2, D1).

The mixer output from FET1 passes through 10.7 MHz filter and enters to FM Demodulator IC (IC2) pin no. 16. This signal is mixed with 11.150 MHz signal from PLL IC (IC1) pin no. 9, which is connected to IC2 pin no. 1. The mixed signal is filtered by 450 KHz Filter (FL2).

2.2 DATA INPUT

The demodulated data code from FM Demodulator IC (IC2) pin no. 9 is fed to Lowpass filter and its output is connected to code input of Microprocessor IC (IC1).

2.3 AUDIO OUTPUT

As shown in figure 8, the demodulated signal which appears at output pin of FM Demodulator IC (IC2) pin no. 9 is sent through lowpass filter to Comander IC (IC2A) pin no. 16 (Expander input) for expansion. The expanded audio signal output from IC2A pin no. 19 is coupled to Buffer Amplifier (Q2, Q9) after the CONVERSATION mode. The audio is sent to telephone line via Hybrid x'former (HYB1).

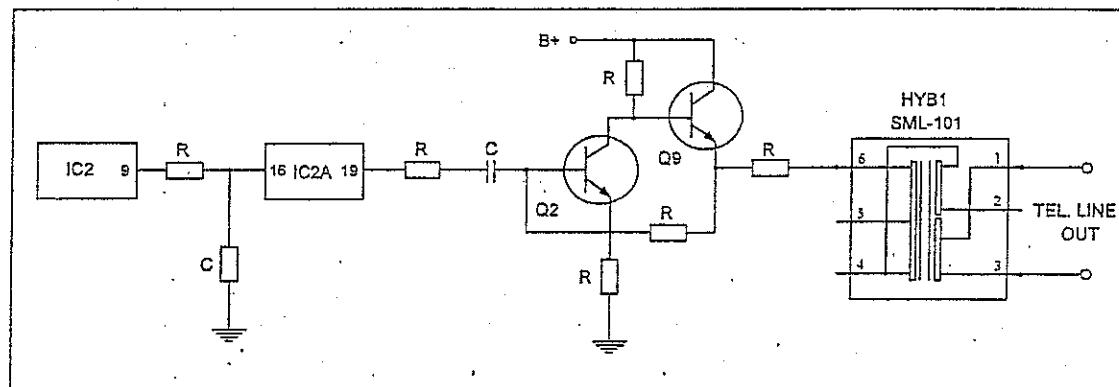


Figure 8

2.4 DATA TRANSMISSION

Refer to figure 4., the difference is that the TX Data is transmitted from pin 29 of Microprocessor IC (IC3).

2.5 VOICE TRANSMISSION

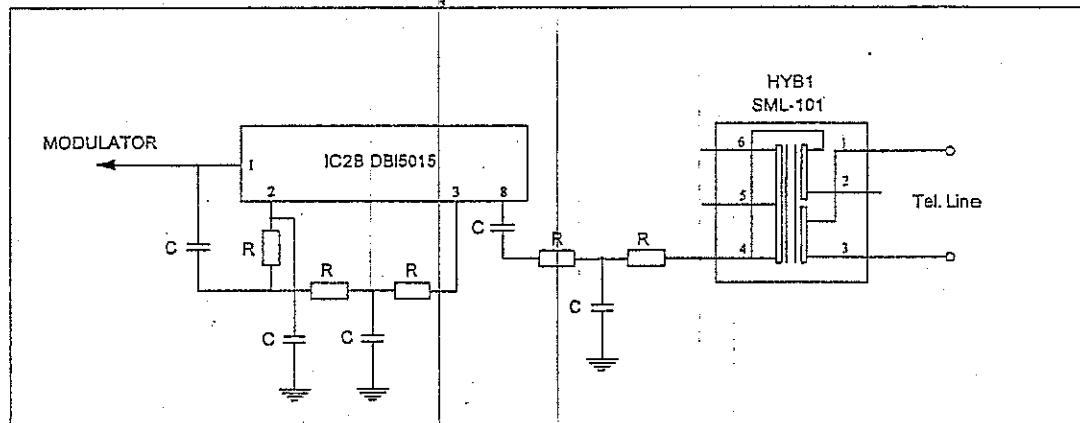


Figure 9

The audio signal receiving from telephone line is input to Comander IC (IC2B) pin no. 8 for compression. The compressed audio signal from pin no.1of IC2B is connected to TX VCO for modulation. The signal is modulated with the carrier frequency of the oscillator (Q1), the oscillator frequency is controlled by the error signal from pin 3 of PLL IC. The modulated signal is amplified by RF Amplifier stage (Q5) and then passes through 903 MHz filter stage (F2). The FM modulated signal is radiated by the base unit antenna.

2.6 DTMF OUT

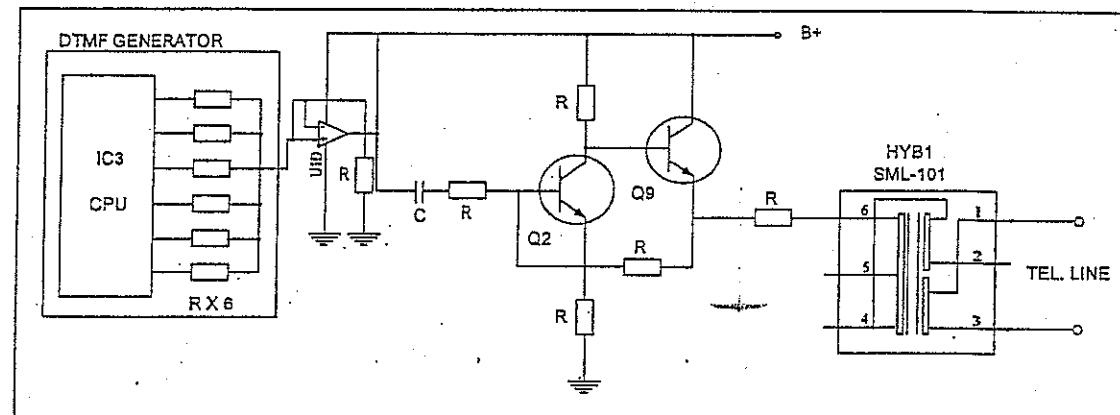


Figure 10

DTMF dialing is generated in pin nos. 18, 19, 20, 21, 22 and 23 of Microprocessor IC (IC3) and Resistors R64-R69. The DTMF signal from these ladder circuit is filtered by U1D. The output will be on the Q9 emitter (buffer amplifier).

2.7 TRANSMITTER POWER CONTROL

Transmit power is controlled by IC3 pin 24 and Q8.

2.8 RINGER DETECT

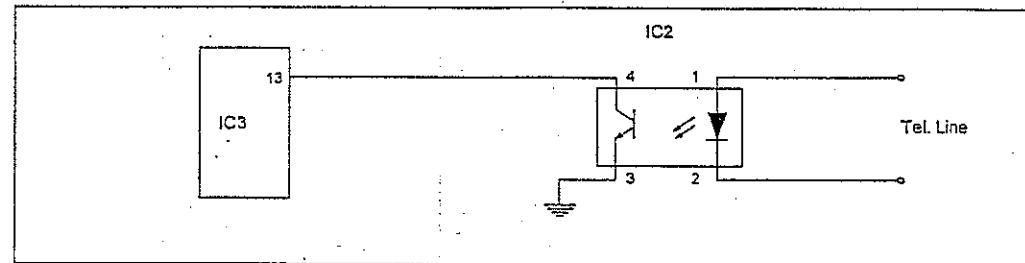


Figure 11

The ring signal from the telephone line is detected by Photocoupler (IC2) and the output from IC2 will be coupled to Microprocessor IC (IC3) pin no.13. After detection of ring signal, the microprocessor will send the data code to handset.

9 PULSE DIAL

During pulse dialing, IC3 CPU pin 17 will be sending pulse dial signal to Relay trigger (Q10) then goes to telephone line.

2.10 CHARGE DETECT

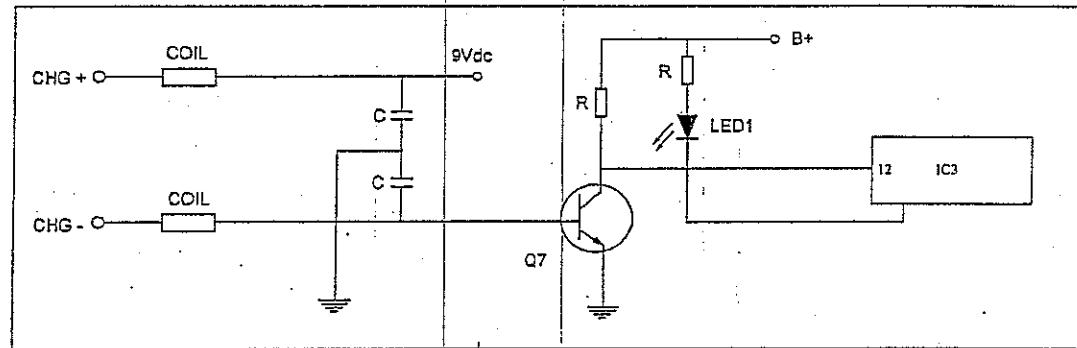


Figure 12

When the handset is on cradle, Q7 is activated and Microprocessor IC (IC3) pin 12 will detect the charging then it will exchange security code randomly.

2.11 SQUELCH

Refer to section 1.10. Squelch operation is same as handset as shown in figure 7.

2.12 PAGE FUNCTION

The Microprocessor IC (IC3) will detect page signal when IC3 pin no. 5 goes low (press SW1), IC3 will transmit paging signal from pin no. 29 (TX Data port).

2.13 RESET

When handset is place on cradle (charge) or insert the power plug into the socket, Base will reset automatically.