DTMF Way Station Equipment

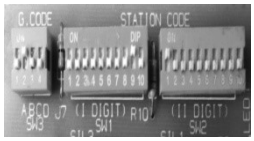
The equipment entire circuitry for DTMF decoder & speech amplifiers is assembled on a single PCB and then it is placed in a wall-mounted metal cabinet. The decoder part of the circuit performs the following functions.

1) Receives 2- digit DTMF station code and decodes it into 2 digit decimal code
2) Compares it with the local code allotted to the station
3) Switches on a piezo buzzer if both codes are matched
4) Sends a ring back tone to the controller when buzzer rings
5) Amplifies speech signal in both directions

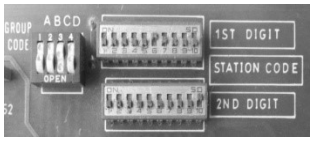
Code Setting

Each way station is assigned a 2-digit code. It is possible to assign station codes from 01 to 99. Two DIP switches FD and SD (containing 10 positions in each) are provided to set the station code. The appropriate switches marked 0 to 9 are to be turned ON. To receive a special group code (ie. A or B or C or D) from controller a separate DIP switch (containing 4 positions) is provided inside the equipment. The desired special group code is selected by setting the corresponding position in the switch.

EPSILON



BENTRON



Test Points of Bentron Equipment

a) Voltage at Buzzer Terminal
   Measure the voltage between BUZZ and GND terminal during ringing, it should be 11 to 12VDC during entire ringing period (4 Secs). If not available check Q1 and Q3 Transistor and associated circuits
b) RBT circuit.
   Adjust TX gain Preset and Check buzzer, TX amplifier circuit and Relay circuit.
c) General Test Points

Between GND and Fuse	-	12VDC
Between GND and lower end of D3	-	11 VDC
Between GND and lower end of R18 and R19	-	5.5 VDC
Between GND and upper end of R5	-	5 VDC
Between GND and Pin 3 of IC 723	-	5 VDC

Speech Circuit

(i). Check the continuity of connecting cords and verify whether 12 V supply is available on the terminals marked + 12V& -12 V on the rosette. If the supply cannot be realized then check any fuse, if provided. After ensuring fuses connection check reception in telephone and Transformer TR2 as well as IC8 in the equipment.

(ii). Short terminal marked PTT to –12 V, check for the action of the relay RL1. If the relay does not operate when PTT is shorted then change the relay after ensuring continuity of telephone cord.

(iii). If no speech is going to controller check Microphone connections, IC9, Relay RL1 and Transformer TR1

(iv). Short the terminal marked Bz to-12 V. Check for the flashing of LED and buzzer sound. If the LED is not flashing check the telephone and the connecting wires.

(v). Check and replace buzzer if not coming ON.

Maintenance of DTMF Way Station Equipment

Weekly Maintenance: The following shall be covered:

i) Proper decoding of the set code of the equipment and actuation of buzzer/ loudspeaker Ring back and LED on the control telephone.
ii) LED indication on telephone shall clear after hand set is lifted of the cradle.
iii) Correct fitting of fuses and their rating.
iv) Cleaning and proper termination of wires on the terminals on rosette and CTB
v) Telephone cord is in good condition and connected properly.
vi) Battery voltage shall be 12 volts - 10%, + 20%.
vii) Cleaning of battery terminals.

Monthly Maintenance: The following shall be covered: Insertion loss shall not exceed the following values

* Current drain on 12V dc side shall be as under: idle: 20 mA Actuated: 100 mA * *Conversation between the controller and way station shall be checked for satisfactory audibility and clarity.

g) Quarterly Maintenance: The following shall be covered:

i) The transmitter inset in telephone should be in good condition and fitted properly inside.
The resistance of inset shall be checked to be between 150 and 200 Ohms.
ii) The receive inset in telephone shall be fitted properly and resistance shall be 150 ohms to 200 Ohms.
iii) Insulation resistance at ambient temperature of inside wiring shall be more than 20 megohms between conductor to earth and more than 10 megohms between conductor to conductor when tested with a 500V megger.