

# **SECTION ONE**

## **COMMUNICATIONS SYSTEMS AND METHODS**

EMERGENCY SERVICE PERSONNEL NEED TO HAVE SOME KNOWLEDGE OF COMMUNICATIONS SYSTEMS AND METHODS. WITHOUT THIS KNOWLEDGE EMERGENCY COUNTER-DISASTER OPERATIONS MAY BE ADVERSELY AFFECTED. THIS SECTION CONTAINS AN INTRODUCTORY OVERVIEW OF SIGNIFICANT COMMUNICATIONS METHODS AND PROVIDES A BASIC DESCRIPTION OF OPERATION OF EACH, LISTING ADVANTAGES AND DISADVANTAGES. IT IS ESSENTIAL THAT THIS SECTION IS UNDERSTOOD BEFORE REFERING TO OTHER SECTIONS OF THE MANUAL.

# CHAPTER ONE

## TELECOMMUNICATIONS NETWORKS

### TELECOM

#### 1.01 PRIMARY SYSTEM

Australia's primary communication system is the responsibility of Telecom Australia. This system comprises a vast line and relay network, including a variety of complex electronic switching systems.

#### 1.02 Emergency service organisations should make the fullest use of the total telecom network before considering alternative communications.

#### 1.03 SPECIAL DISASTER SERVICES

Telecom Australia can provide specialised services to disaster-affected areas at relatively short notice. These services extend beyond the normal range of Telecom facilities and can be arranged through a Telecom Disaster Emergency Liaison Officer. This Officer should be identified in every Disaster Plan

#### 1.04 CHECKS AND TESTS

Before assuming that the Telecom system has failed, complete checks and tests of neighbouring Telecom facilities should be performed.

#### 1.05 TELEPHONE SYSTEM

##### Advantages

Already in place  
Versatile  
Public access  
Reliable  
High traffic density  
Two way conversations  
User friendly  
Privacy

##### Disadvantages

Usually in a fixed location  
Can be disrupted  
Priority to larger users  
Vulnerable  
Saturates congests overloads  
Not always available  
Point-to-point only

#### 1.06 TELECOM NETWORK FEATURES

The most accurate and expedient method of 'extending the spoken word' in Australia is by the existing Telecom network. The majority of Australian premises are serviced by this network and most people are familiar with its operation. For reasons of economy this network is designed to cope with 'normal' traffic loads. It is engineered in advance to cope with fault-tolerance by using alternative circuits. However disruption to the network can occur due to congestion or physical interruption especially in disaster affected areas.

## TELEPHONE SYSTEMS

### 1.07 TELEPHONE EQUIPMENT

There is a variety of telephone equipment in use throughout Australia from the aged magneto telephone to the sophisticated multi-function handsets.

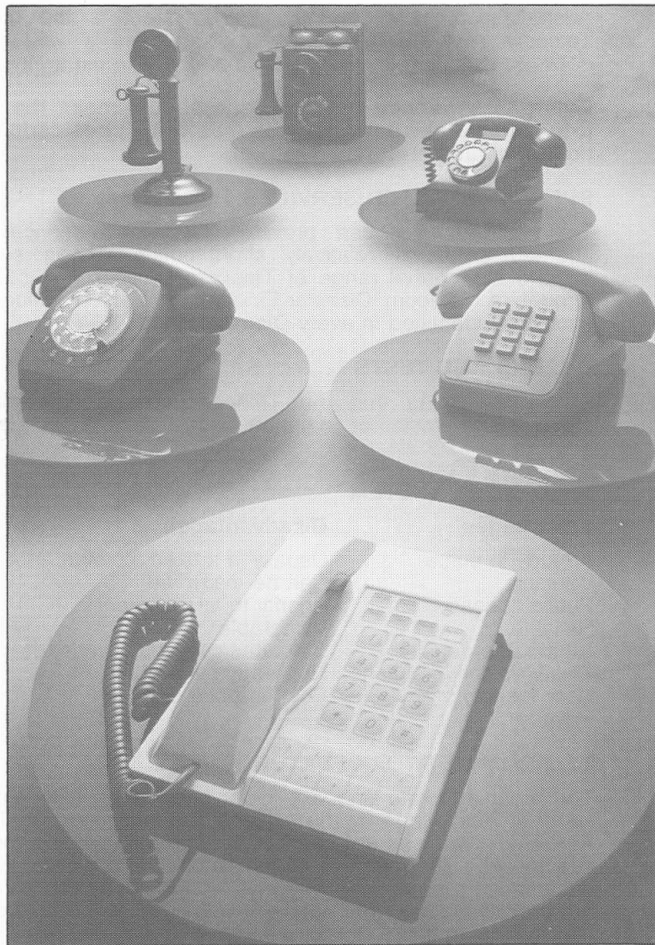


Figure 1:1  
Evolution of the Telephone

## 1.08

### FIELD TELEPHONES

Military type field telephones or domestic intercom systems are an effective alternative for point to point communications.

#### Advantages

Can be used to reduce congestion on radio networks.

May be installed by non-Telecom staff.

Not connected to the Telecom public switched network.

Long battery life compared to portable radios.

Relatively private.

Inexpensive intercom systems are available from numerous retail outlets.

#### Disadvantages

Requires the installation of cable between operating points.

Prone to failure due to cable damage.

Military type field telephone equipment can be difficult to obtain.

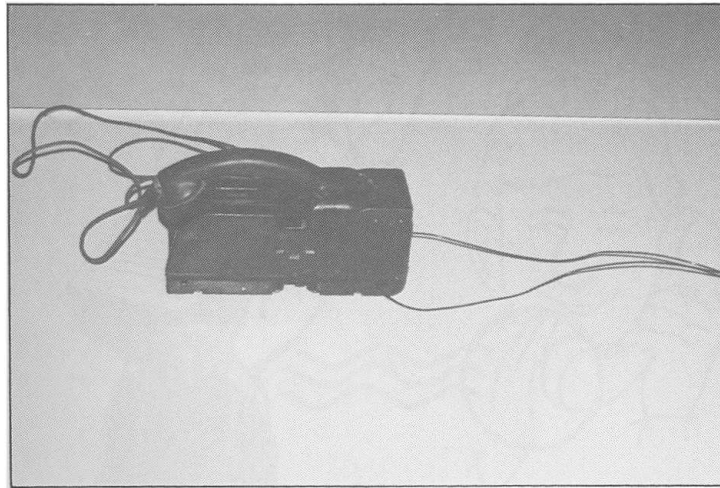


Figure 1:2  
Field Telephone

**CELLULAR TELEPHONES**

The cellular telephone is a mobile or portable telephone restricted to locations where required infrastructure exists. It provides full access to the Telecom Australia telephone network and is growing at a rapid rate, both in terms of telephones in use and the area coverage. There are basically three types of cellular telephones available.

- a. Hand-held personal portable - 0.8 watts, low gain antenna (rechargeable battery, 8 hours maximum use).
- b. Transportable carry pack - 3.0 watts, low gain antenna (rechargeable battery, 8 hours maximum use).
- c. Vehicle-mounted 3.0 watts high gain antenna.

**Note.** Cellular telephones are subject to congestion in the same manner as the normal telephone network.



Figure 1.3  
Handheld Portable Cellular Telephone

## TELEPHONE PROCEDURE

### 1.10 ANSWERING

**Answer the telephone promptly** When answering a call, identify yourself and your station or position. Do not say 'HELLO', as it is meaningless and wastes time.

### 1.11 CALLING

When making a call, identify yourself, your station and state the purpose of your call. **Clear speech and precise diction is essential.**

### 1.12 BACKGROUND NOISE

When using a telephone in a noisy environment, a hand cupped over the mouthpiece as shown in the diagram below will reduce extraneous noise

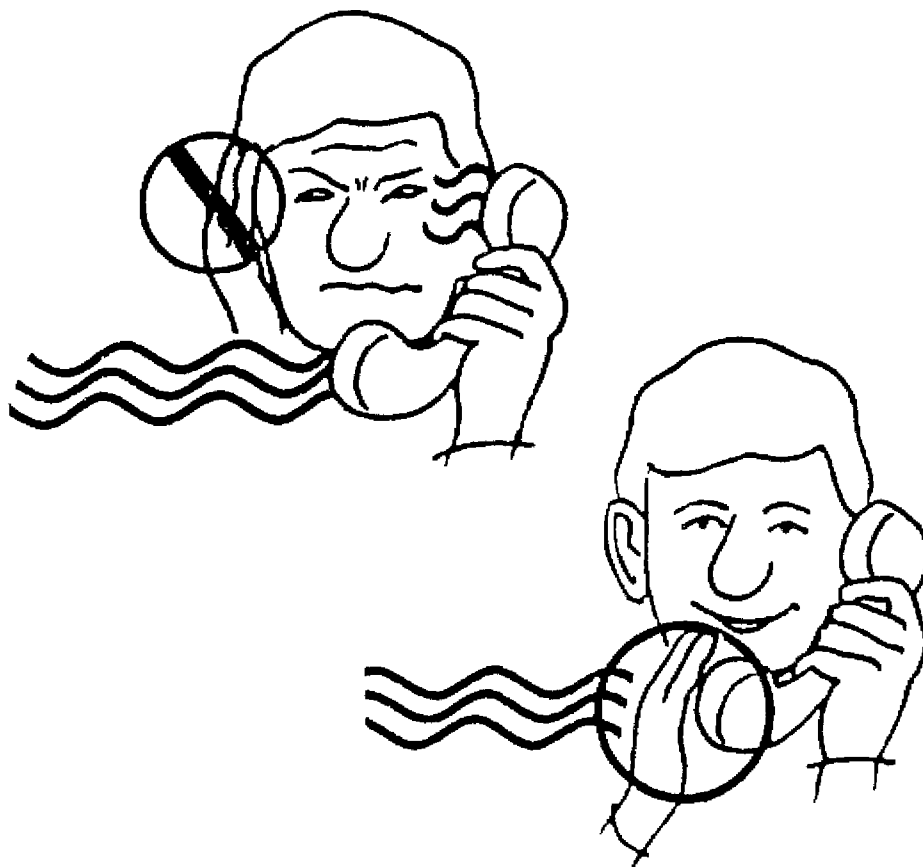


Figure 1 4