



# TECHNICAL NOTE TN-8

P.O. Box 147,  
ROTORUA,  
New Zealand.  
Telephone: 07-348-7168  
Facsimile: 07-346-2886

## SAFETY-LINK MULTI-MONITOR EMERGENCY ALARM SYSTEMS

### INTRODUCTION

As a further advancement on the original "Safety-Link" buddy system, Talkie Tooter (Canada) Limited have developed a Multi-Monitor base station system with the capacity to monitor up to three portable radio units at once, be computer interfaced and operate a telephone auto-dialer and paging system for immediate accident notification/response.

Extensive investigations have already been undertaken on the original "buddy system" outlining the systems components, functions and operation (O'Sullivan et al, 1990; Ewart, 1990). With this in mind LIRO undertook a general evaluation of the new multi-monitor system in mature radiata pine forest situated on rolling and dissected terrain.

### SPECIFICATIONS

#### Safety Link Portable Radio:

Typical-Range:

(Radio to Radio            500 metres  
Radio to Multi Monitor) 1.5 km  
(Repeater Network)       Unlimited

Frequency:    35 - 45 MHz

Battery Pack: NiCad(Rechargeable)

Battery Life: 10 Hours

Weight:        580 grams (With Battery)

Dimensions: 17 x 9 x 6cm

Operating Temp: -20°C to +60°C



*Safety Link Portable Radio*

### MULTI-MONITOR SYSTEM

The system is made up of a base station and as many as three Safety-Link portable radios. The base station monitors each Safety-Link's status, (i.e. work, rest, off, manual emergency or automatic emergency) and transmits the appropriate signal in return. The Multi-Monitor not only provides the same fail-safe communications features that a portable Safety-Link radio provides, but it is also a versatile link to other systems, such as alarm indicators, computer systems, as well as external communication networks. Alarm indicators can include sirens, automatically dialled telephone messages, pocket pagers, or portable computer terminals. Valuable information can be provided such as name, emergency status, working location and the elapsed time during which the person has been in an emergency.

### **Multi-Monitor Base Station:**

Typical Range:

(Radio to Multi-Monitor) 1.5 km  
(Repeater Network) Unlimited

Frequency: 35 - 45 MHz

Power Supply: 12 - 24 VDC

Weight: 454 grams

Dimensions: 12.5 x 12.5 x 4.7 cm

Operating Temp: -20°C to +60°C

### **APPRAISAL TESTING**

The main features examined were the effect of terrain on range, ability to locate a person with an activated alarm and ability of the wearer to hear the alarm while operating a chainsaw.

Field testing showed that a faller could safely operate in dissected terrain up to 800 metres away from the base station. The main terrain feature having a detrimental effect on the signal strength being small steep and gullies. A straight line-of-sight test from a high point on a ridge through heavily stocked mature radiata pine to the station, gave a safe working distance in excess of 1.5 km.

The ability of searchers to locate a workmate from the audio alarm of the Safety-Link was excellent. First sound of the alarm was heard up to a distance of 220 metres away from the "injured" workmate.

The ability to hear the alarm by the wearer of a portable Safety-Link unit, over the noise of a working chainsaw, was good except when the saw was under full load. This is because chainsaws under load generate a noise level of approximately 104dB, and the Safety-Link alarm only generates a noise level of 90dB. This would also be the case where the portable unit was being paged by the Multi-Monitor.

The Multi-Monitor system base station would normally be located in a loader or skidder where the noise level is not as high as that of operating chainsaws. The base station has colour coded lights that flash and a external very audible alarm which would notify the operator to check the status of the indicator lights.

### **CONCLUSIONS**

The Multi-Monitor Safety-Link system is an effective emergency alarm system for New Zealand fallers.

Workers are secure in the knowledge that if they do get injured, assistance will quickly arrive.

The system offers both fallers and contractors the versatility to work alone while providing the security required under the safety code for forest operations.

### **REFERENCES**

O'Sullivan, P. and Hooker, S. (1990) : "Emergency Alarm Systems For Fallers" LIRA Technical Release, Vol. 12 No. 1 1990.

Ewart, J. (1990) : "Safety Link: An Emergency Alarm System for Tree Fallers". FERIC Technical Note, TN-143.

### **NZ DISTRIBUTOR**

For further information and details regarding either the Safety-Link or Multi-Monitor systems please contact:

Pat O'Sullivan, Taupo Rigging Services,  
P.O.Box 853, Taupo. Telephone and Fax  
: (07) 378 4754.

**Patrick Kirk,**  
**Researcher.**

*August, 1992*