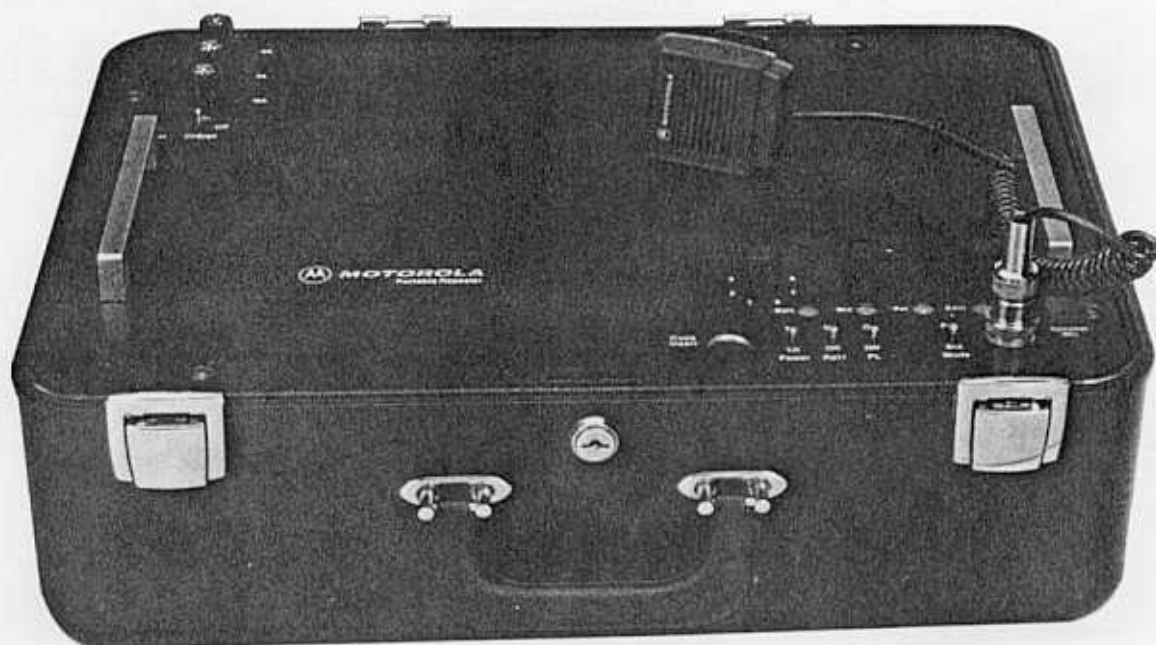




**MOTOROLA**

# **SECURENET**

**Digital Voice Protection System  
Portable Repeater**



The Portable Repeater is designed to help meet the communications needs of users who cannot be effectively serviced by a fixed repeater network. This Portable Repeater allows you to set up a base/repeater site in minutes, almost anywhere you need to, extending the coverage area of your portable-to-portable system. The Portable Repeater is dismantled just as quickly, so that you can move on to the next assignment.



## **Features**

- Self contained "briefcase" style
- Available in 2 modes
  - Coded/clear
  - Clear only
- Closed case operation
- Internal backup battery

# Portable Repeater

## STANDARD

Feature	Description	Advantages
<b>Completely Self Contained Portable Unit</b>	The complete repeater and all its accessories are contained in a compact brief-case style carrying case measuring only 18" x 13" x 6½".	This inconspicuous black metal case can be easily carried by one person and set up in a matter of minutes.
<b>Choice of Models</b>	The Portable Repeater family includes units for SECURENET operation, as well as conventional two-way radio systems. SECURENET models operate in both the coded and clear modes.	There are models available to satisfy either standard voice communications needs or those applications requiring SECURENET voice security.
<b>Up to 8 Channels</b>	Any combination of eight repeater or optional simplex/base channels can be provided.	Maximum system flexibility is available through multi-frequency variable power and repeater/base modes of operations.
<b>Low and High Power Modes</b>	RF power output is switchable between low or high power modes. Full VSWR protection is provided in all models.	You can choose the power level which best meets your needs.
<b>Emergency Internal Battery Backup</b>	In the event of power main failure, the Portable Repeater will automatically revert to low power operation using its internal battery. On return to primary power, it will revert back to high power output and begin recharging its battery.	Communications are maintained in the event of power failure.
<b>Local Speaker Microphone</b>	Permits control of the repeater for dispatch operation. Local control has priority over the repeater path.	Communications flexibility is increased.
<b>Closed Case, Weather Resistant Operation</b>	Permits the Portable Repeater to operate from the rooftops or other exposed sites.	Flexibility is provided in meeting your unique environmental requirements.
<b>Optional Control Station Operation</b>	The Portable Repeater may operate as a base station on simplex frequencies or "flip" its repeater frequencies around and act as a control station for a second repeater.	With flexible repeater/base operation, the Portable Repeater can talk to field units on simplex channels, act as a control station for a fixed repeater, or stand alone as the center of its own localized repeater system, providing you with a variety of system design alternatives.
<b>Magnetic Mount Antenna</b>	The antenna with its 12' cable can be mounted on the removable case lid and located at a remote site from the repeater (i.e., a hotel window or roof).	With the external "lid-mounted" antenna you can position the antenna where necessary for the best coverage under different site environments. (External vehicle and fixed antennas may also be used where available).

## SECURENET SYSTEM FEATURES

<b>Automatic Receiver Mode Select</b>	Lets you receive coded or clear messages without having to change to the appropriate receive mode.	Incoming messages are automatically switched to the proper mode without operator involvement. This reduces the possibility of missed messages due to the radio not being in the correct mode.
<b>Clear Mode Alert Tone</b>	When in the clear mode, an alert tone sounds when you depress the PTT switch.	This tone warns you that you are about to transmit information in a non-protected mode. Greatly reduces the possibility that private information could be transmitted on an unsecured channel.



## SECURENET SYSTEM OPTIONS

### Feature

### Description

### Advantages

#### Proper Code Detect

Mutes the speaker if the received code does not match the code programmed into the radio.

You hear only those transmissions encrypted with your individual coding. Eliminates annoying noises typically heard when operating on a multi-coded channel or system.

#### Dual Code

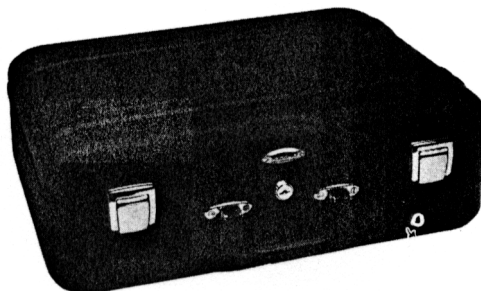
An internally generated variation of the programmed code is used to allow a subgroup of SECURENET users in the system.

Subgrouping lets you communicate privately with preassigned individuals within your system. For example, the chief can now talk to all captains, without all SECURENET system users overhearing the call.

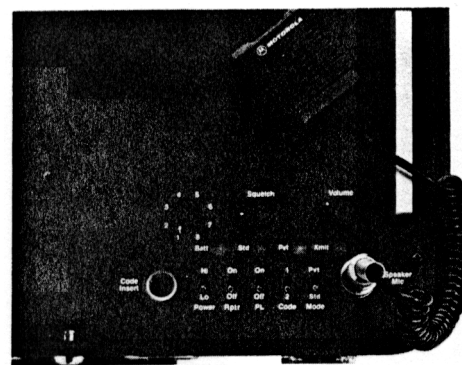
#### Transparent Operation

The SECURENET portable repeater provides transparent repeater operation—automatic repeat of coded signals.

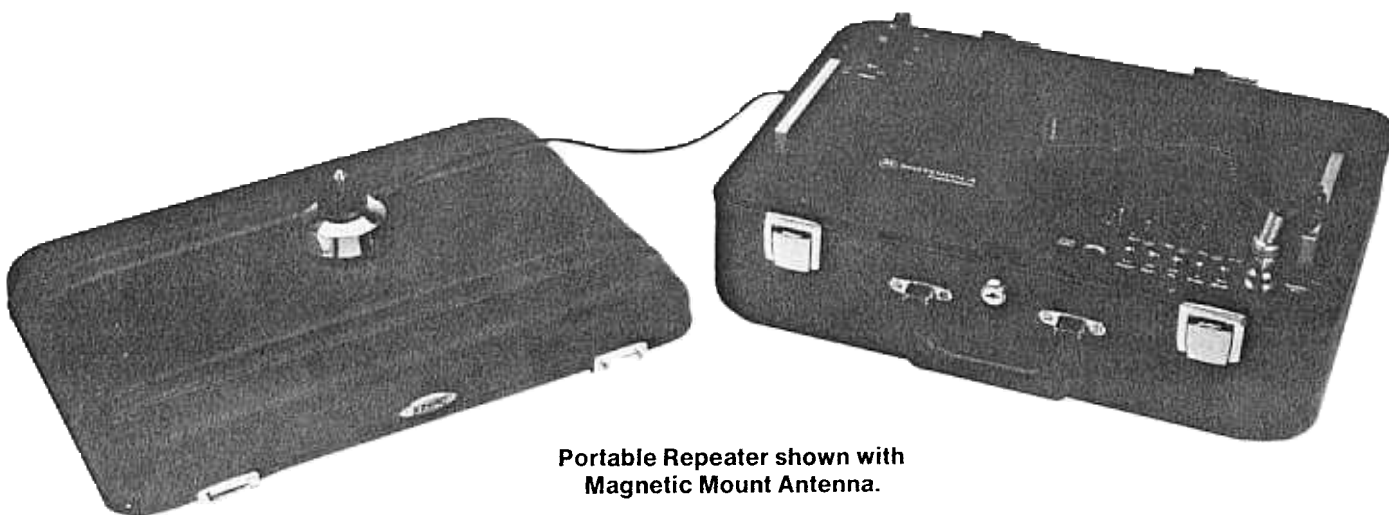
In a stand alone application the SECURENET repeater will handle signals from both coded and clear units without operator intervention.



Portable Repeater  
closed for transportation.



Close-up of SECURENET  
Coded Control Panel.



Portable Repeater shown with  
Magnetic Mount Antenna.

# Portable Repeater

## Performance Specification Security

Encryption Type:	Digital		
Coding Method:	Multi-register non-linear combiner		
Number of Codes:	2.36 x 10 <sup>21</sup> orthogonal (unique) codes		
Synchronization:	Self synchronizing (no preamble required)		
Code Key Initialization:	Random		
Code Key Generation:	External hand held microprocessor controlled code inserter (#T3010_X)		
Code Storage:	Volatile electronic memory		
Number of Codes Per Radio:	One (2nd Related Code Optional)		
Analog to Digital Conversion:	Continuously Variable Slope Delta Modulation (CVSD)		
Voice Sample Rate:	12 k Bit/Sec		
<b>General Radio (All Models)</b>			
	VHF	UHF	
SECURENET Model Series:	P43SXS	P44SXS	
Clear Only Model Series:	P43SYS	P44SYS	
Channel Spacing:	30 kHz	25 kHz	
Squelch:	Carrier, Private-Line Squelch		
Number of Frequencies:	8		
Size (Excluding Handle and Feet):	13" (33.02 cm) x 18" (45.72 cm) x 6½" (16.51 cm) (470-512 MHz models with 3 MHz separation 13" x 18" x 7¼" [18.42 cm])		
Weight (Including accessories):	33 lbs. (14.97 kgs.)		
Operating Range:	- 30°C to + 60°C		
Power Supply:	120 ±20% V ac (50-60 Hz), 13.8 ±20% V dc, Internal backup battery, (120/240V ac, 50-60 Hz Optional)		
Current Drain* (13.8V dc)			
High Power Tx:	9.0 AMP		
Low Power Tx:	1.5 AMP		
Rcv. Only (500 mW Audio):	.4 AMP		
Standby:	.2 AMP		
*For Non-Repeater Channel Add .3 AMP			
Internal Emergency Battery			
Capacity @ 25°C:	Up to 1 hour low power transmit time, up to 8 hours standby		
Charge time:	14 hours max.		
Frequency Range:	VHF	UHF	UHF
	136-150.8 150.8-162, 162-174 MHz	406-420 450-470 MHz	470-512 MHz
Repeat Freq. Separation (R-T):	3 MHz Min.	5 MHz Min.	3 MHz Min.
Repeat Freq. Spread Rcvr.:	300 kHz Max.	300 kHz Max.	300 kHz Max.
Repeat Freq. Spread Tx:	300 kHz Max.	300 kHz Max.	300 kHz Max.
Non-Repeat Freq. Spread Tx:	12 MHz Max.	6 MHz Max.	6 MHz Max.
Non-Repeat Freq. Spread Rcvr.:	2 MHz Max. <sup>1</sup>	1 MHz Max. <sup>1</sup>	1 MHz Max. <sup>1</sup>
<sup>1</sup> Receive Freq. spreads of up to 5 MHz possible with following degradation.			
	VHF Receiver spread 3 MHz - 1 dB degradation 4 MHz - 3 dB degradation	UHF Receiver spread 3 MHz - 1 dB degradation 5 MHz - 3 dB degradation	
<b>Transmitter</b>			
	VHF	UHF	
RF Power Output (High/Low)			
At Power Amplifier:	30 watt/1.7 watt	20 watt/1.0 watt	
At Duplexer (Antenna port):	20 watt/1.4 watt	12 watt/.8 watt	
Spurious and Harmonics:	-71 dB	-59 dB	
RF Frequency Stability (-30°C to +60°C, 25°C Ref.):	±.0005%	±.0005%	
Modulation:			
Clear	16F3, 15F2, 16F9	16F3, 15F2, 16F9	
Coded	20F3Y	20F3Y	
FM Noise	50 dB	50 dB	
Audio Response <sup>2</sup> :	+1, -3 dB from 6 dB/Octave Pre-emphasis, 300 Hz to 3 kHz, referenced to 1000 Hz.	+1, -3 dB from 6 dB/Octave Pre-emphasis, 300 Hz to 3 kHz, referenced to 1000 Hz.	
Audio Distortion <sup>2</sup> :	5%	5%	
<sup>2</sup> Specification applies to clear mode only. Performance in the coded mode has been tailored to deliver optimum intelligibility and voice recognition.			
<b>Receiver</b>			
	VHF	UHF	
Modulation Acceptance:	±7.5 kHz	±7.5 kHz	
Sensitivity <sup>2</sup>			
20 dB Quieting Rptr.:	.75 µV	.75 µV	
12 dB SINAD Rptr.:	.525 µV	.525 µV	
Selectivity (EIA SINAD):	90 dB	85 dB	
Intermodulation (EIA SINAD):	80 dB	75 dB	
Freq. Stability (-30°C to +60°C, +25°C Ref.):	±.0005%	±.0005%	
Spurious and Image Rejection:	80 dB	80 dB	
Audio Output:	500 mW	500 mW	
<b>FCC Designation*</b>			
	VHF	UHF	
Transmitter:	CC3367	CC4325	
Receiver:	RC0280	RC0282	
SECURENET models licensable under FCC Rules and Regulations Part 90 for police and fire services.			
Clear only models licensable under FCC Rules and Regulations Parts 21, 74, 90, 95.			
For International usage, local PTT regulations apply, and U.S. State Dept. Munitions License is required for SECURENET models.			



**MOTOROLA**

1301 E. Algonquin Road, Schaumburg, Illinois 60196  
Telephone (312) 397-1000

Specifications subject to change without notice.

© Motorola, SECURENET, PRIVATE-LINE are trademarks of Motorola Inc. ■ © 1980 by Motorola Inc. ■ Printed in U.S.A. (8503) Merit.

R3-17.1-07C