



**MOTOROLA**

# Portable Repeater

136-174 MHz  
30/1.7 Watts

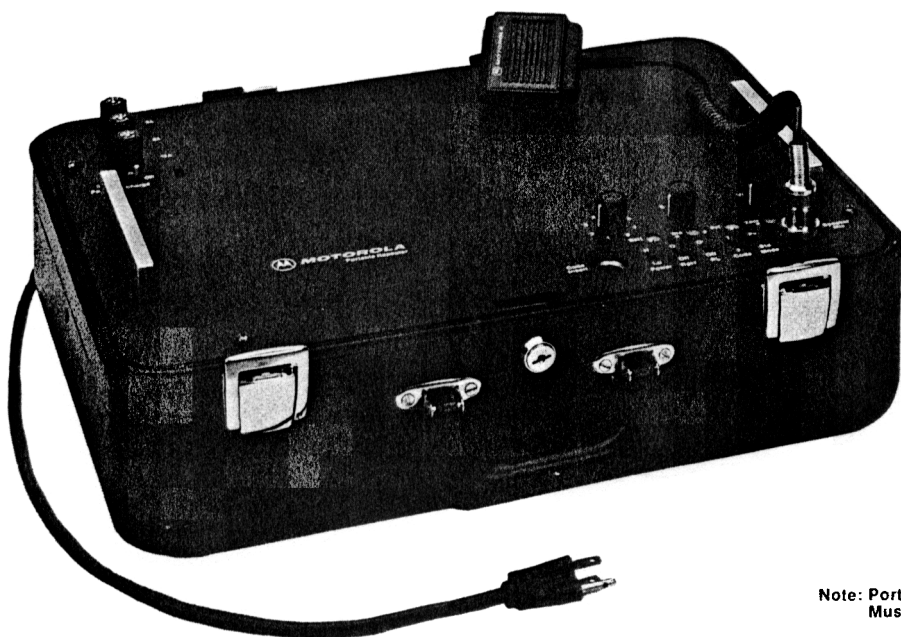
406-420; 450-512 MHz  
20/1 Watt

DVP Coded/Clear  
Clear Only

The Motorola Portable Repeater is designed to meet the needs of radio users who have unique coverage requirements. When highly mobile teams cannot be effectively serviced by fixed repeaters or voting systems, the Portable Repeater provides a new alternative in system design. As these teams move within a city, country or between continents, they can carry this compact "Briefcase" repeater with them. When they reach their assignment, the unit can be set up quickly and easily, establishing a base/repeater site within minutes. The effectiveness of these teams can be increased through improved communications with extended range. The limited coverage of a direct portable to portable system can be expanded to that of a full repeater system. When the job is done, the Portable Repeater will move with the team to the next assignment.

## Features

- Completely self contained in "Briefcase"
- 33 lbs.—18" x 13" x 6½"
- Scrambled (DVP) or Clear Models
- Low and High Power modes (up to 30 watts VHF, 20 watts UHF)
- Local Speaker/microphone for Base Station operation
- Closed case operation for exposed installations
- 12 VDC, 120 VAC 50-60 Hz (120/240 VAC optional) power supplies
- Internal backup battery in case of power failure
- Panel lights indicate status of operation
- Transparent and Auto Coded/Clear DVP operation
- Up to 8 channel capability
- Carrier or PRIVATE-LINE (clear mode only) squelch compatibility
- Optional Simplex/Base Station operation



Note: Portable radio shown for size comparison only.  
Must be ordered separately.

# Portable Repeater

STANDARD		
Feature	Description	Benefit
Completely Self Contained Portable Unit	The complete repeater and all its accessories are contained in a single "Briefcase" measuring only 18" x 13" x 6½".	This nondescript black metal case can be easily carried by one man and set up in a matter of minutes.
Scrambled (DVP) or Clear Models	The Portable Repeater family includes clear only models and DVP coded/clear modes.	There are models available to satisfy either standard voice communications needs or those applications requiring voice security.
Low and High Power Modes	RF power output is switchable between low or high power modes (VHF 1.7 and 30 watts, UHF 1.0 and 20 watts). Full VSWR protection is provided in all models.	You can choose the power level which best meets your needs.
Universal Power Supply Capabilities	The Portable Repeater can be operated from 12 VDC, 120 VAC; 50-60 Hz (120/240 VAC optional).	Multiple power supply inputs permit this repeater to be adapted to a variety of field situations with differing power sources.
Emergency Internal Battery Backup	In the event of power main failure, the Portable Repeater will revert automatically to low power operation using its internal battery. On return to primary power, it will revert back to high Power RF output and begin charging its battery.	Communications are maintained in the event of power failure.
Local Speaker Microphone	Permits local control of the repeater for dispatch operation. Local control has priority over the repeater path.	Communications flexibility is increased.
Closed Case, Weather Resistant Operation	Permits the Portable Repeater to operate from rooftops or other exposed sites.	Flexibility is provided in meeting unique site environments.
Transparent and Encode/Decode DVP Operation	The DVP Portable Repeater provides transparent repeater (Automatic repeat of coded or clear signals) plus encode/decode capability for the local speaker microphone.	In stand alone applications the DVP Repeater model will handle signals from both coded and clear field units without operator intervention. When base dispatch operation is required, the user can choose the DVP coded or the clear voice mode of operation.
Up to 8 Channels	Any combination of eight repeater or optional simplex/base channels can be provided.	Maximum system flexibility is available through multi-frequency and repeater/base modes of operations.

## Feature

## Description

## Benefit

### Optional Simplex or Control Base Station Operation

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.

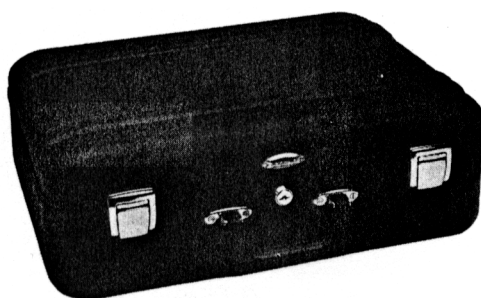
With flexible repeater/base operation, the Portable Repeater can talk to field units on their simplex channels, act as a control station for a fixed repeater, or stand alone as the center of its own localized repeater system, thus providing the user with a variety of system design alternatives in the same unit.

### Magnetic Mount Antenna

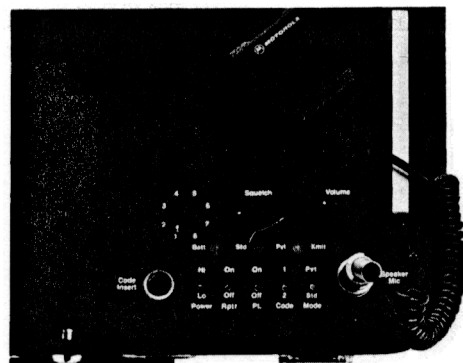
This antenna with its 12' cable can be mounted on the removable case lid and located at a remote site from the Repeater (i.e., a hotel window or roof).

With the external "lid-mounted" antenna the user can position his antenna for the best coverage under different site environments. (External vehicle and fixed antennas may also be used where available).

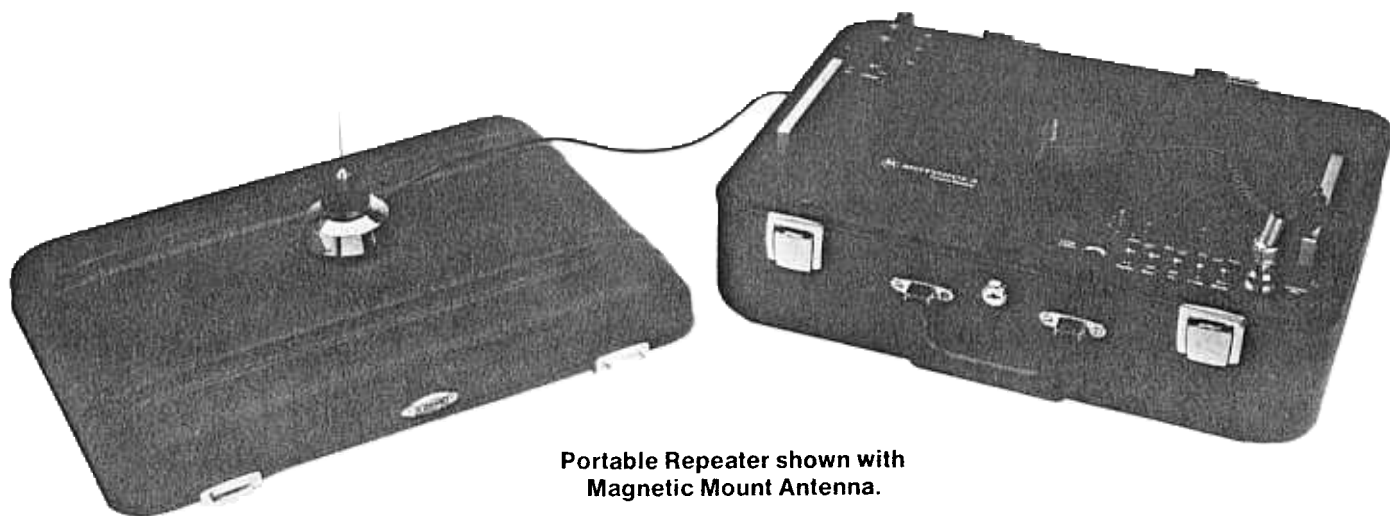
Proper Code Detect and Dual Code DVP options are also available.



Portable Repeater closed for transportation.



Close-up of Coded (DVP) Control Panel.



Portable Repeater shown with Magnetic Mount Antenna.

# Portable Repeater

## Performance Specifications Security (DVP Models Only)

<b>Scrambler Type:</b>	Digital
<b>Coding Method:</b>	Multi-Register Non-Linear Combiner
<b>Number of Codes:</b>	$2.36 \times 10^{21}$ orthogonal (unique) codes
<b>Synchronization:</b>	Self synchronizing (no preamble required)
<b>Code Key Initialization:</b>	Random
<b>Code Key Generation:</b>	External hand held microprocessor controlled code inserter (Cat. #P1001___X)
<b>Code Storage:</b>	Volatile Electronic Memory
<b>Number of Codes Per Radio:</b>	One (2nd Related Code Optional)
<b>Analog to Digital Conversion:</b>	Continuously Variable Slope Delta Modulation (CVSD)
<b>Voice Sample Rate:</b>	12 Kilo Bits/Sec

General Radio (All Models)	VHF	UHF
<b>Coded/Clear Model Series:</b>	P43SXS	P44SXS
<b>Clear Only Model Series:</b>	P43SYS	P44SYS
<b>Channel Spacing:</b>	30 kHz	25 kHz
<b>Squelch:</b>	Carrier, Private Line	
<b>Number of Frequencies:</b>	8 Freq.	
<b>Size (Excluding Handle and Feet):</b>	13" (33.02 cm) x 18" (45.72 cm) x 6 1/2" (16.51 cm) (470-512 MHz Models with 3 MHz separation 13" x 18" x 7 1/4" [18.42 cm])	
<b>Weight (including accessories):</b>	33 lbs. (14.97 kgs.)	
<b>Operating Range:</b>	-30°C, +60°C	
<b>Power Supply:</b>	120 $\pm$ 20% V ac (50-60 Hz), 13.8 $\pm$ 20% V dc, Internal backup battery, (120/240V ac, 50-60 Hz Optional)	
<b>Current Drain* (13.8V dc)</b>		
<b>High Power Tx:</b>	9.0 AMP	
<b>Low Power Tx:</b>	1.5 AMP	
<b>Rcv. Only (500 mW Audio):</b>	.4 AMP	
<b>Standby:</b>	.2 AMP	

\*For Non-Repeater Channel Add .3 AMP

<b>Internal Emergency Battery Capacity @ 25°C:</b>	Up to 1 hour low power transmit time, up to 8 hours standby		
<b>Charge time:</b>	14 hours max.		
<b>Frequency Range:</b>	<b>VHF</b>	<b>UHF</b>	<b>UHF</b>
	136-150.8	406-420	470-512 MHz
	150.8-162, 162-174 MHz	450-470 MHz	
<b>Repeat Freq. Separation (R-T):</b>	3 MHz Min.	5 MHz Min.	3 MHz Min.
<b>Repeat Freq. Spread Rcvr.:</b>	300 kHz Max.	300 kHz Max.	300 kHz Max.
<b>Repeat Freq. Spread Tx:</b>	300 kHz Max.	300 kHz Max.	300 kHz Max.
<b>Non-Repeat Freq. Spread Tx:</b>	12 MHz Max.	6 MHz Max.	6 MHz Max.
<b>Non-Repeat Freq. Spread Rcvr.:</b>	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

Transmitter	VHF	UHF
<b>RF Power Output (High/Low)</b>		
<b>At Power Amplifier:</b>	30 watt/1.7 watt	20 watt/1.0 watt
<b>At Duplexer (Antenna port):</b>	20 watt/1.4 watt	12 watt/.8 watt
<b>Spurious and Harmonics:</b>	-71 dB	-59 dB
<b>RF Frequency Stability (-30°C to +60°C, 25°C Ref.):</b>	$\pm$ .0005%	$\pm$ .0005%
<b>Modulation:</b>		
Clear		
Coded		
	+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.
	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.

Receiver	VHF	UHF
<b>Modulation Acceptance:</b>	$\pm$ 7.5 kHz	$\pm$ 7.5 kHz
<b>Sensitivity<sup>2</sup></b>		
20 dB Quieting Rptr.:	.75 $\mu$ V	.75 $\mu$ V
12 dB SINAD Rptr.:	.525 $\mu$ V	.525 $\mu$ V
<b>Selectivity (EIA SINAD):</b>	90 dB	85 dB
<b>Intermodulation (EIA SINAD):</b>	80 dB	
<b>Freq. Stability (-30°C to +60°C, +25°C Ref.):</b>	$\pm$ .0005%	
<b>Spurious and Image Rejection:</b>		

	VHF	UHF
<b>Transmitter:</b>	CC3367	CC4325
<b>Receiver:</b>	RC0280	RC0282

\*DVP 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 D.V.P. models.



**MOTOROLA**  
**Communications and Electronics Inc.**

A Subsidiary of Motorola, Inc.  
1301 East Algonquin Rd., Schaumburg, Illinois 60196 (312) 397-1000

Specifications subject to change without notice.

® , Motorola and PRIVATE-LINE are trademarks of Motorola Inc. •  
© 1980 Motorola Inc. • Printed in U.S.A. (8006) Merit.

R3-17.1-07B