

# C.M.A.R.A. Military Tactical Radios HF & VHF

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20 MAR 14



# How this presentation is structured

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- I will only cover U.S. Army radios from WW2.
- Post WW2 era radios are DOD/STANAG standardized (sort of)
- After an overview, there will be a “show and tell” demonstration of radios from the collection of W3DEC.

# Early WW2 Army Nomenclature

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- SCR VS: BC
- SCR: “Set, Complete, Radio” a radio and all its various accessories.
- BC: “Basic Component” a transmitter, receiver or transceiver.
- Thus WW2 Army radios can be referred to by two names.
- Ex: A SCR-300 is also a BC-1000!

# Early WW2 Squad Radios

- SCR-194/195
- (BC-322)



# SCR-194/195

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- SCR-194/ BC-222
- 28-52 MHz AM
- AN-29 HS-22 antenna
- Microphone T-24
- SCR-195/ BC-322
- 52-65 MHz AM
- AN-30 Antenna
- Handset TS-11

The SCR-194 / SCR-195 transmitter and receiver are for AM voice communication only.

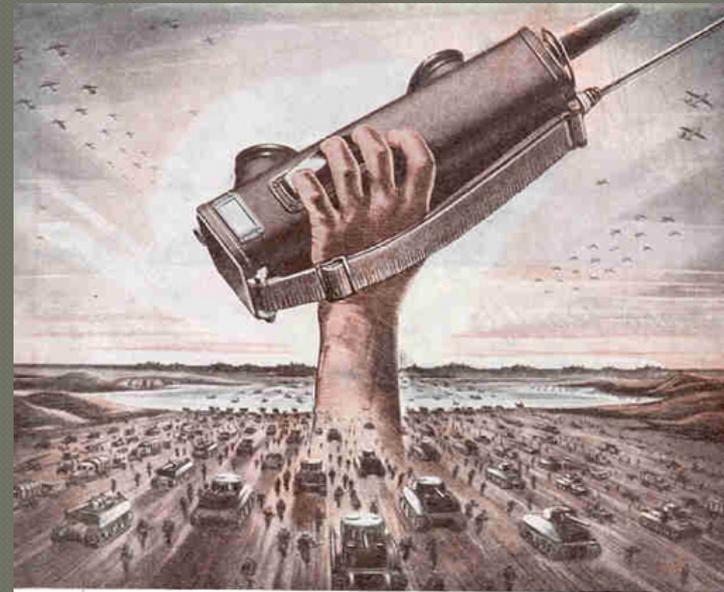
This radio set is designed for point to point communication with a range of approximately 5 miles. (realistically, 2 miles)

Channels 1-25 use coil A, Channels 26-60 use coil B

Obsolete by 1944

# SCR-536/BC-611 "Handie Talkie"

- 80 Meter AM voice
- Single crystal controlled channel
- Weight 5 lbs
- Range: 1 mile (3 miles in glider use)
- One 1.5 Volt and One 95 Volt battery
- It led to universal adoption of SCR-694



**Motorola Radio "Handie Talkie"**  
**co-ordinating our march to Victory**

The story of every great Victory of our armed forces has been a story of teamwork . . . split-second timing and miraculously unified attack. Radio ties all combat arms together . . . makes of them a united, irresistible team.

In close cooperation with the U. S. Army Signal Corps, Motorola Radio Engineers have developed, built and delivered in great quantity such battle-famous radios as the Walkie-Talkie, the "Handie-Talkie," the Cavalry Guidon Set, and the powerful two-way unit that moves on wheels.

Much of this equipment has been of the F-M (Frequency Modulation) type. This is the static-less, noiseless kind of radio that you will enjoy when Victory restores peace and normal living to our America.

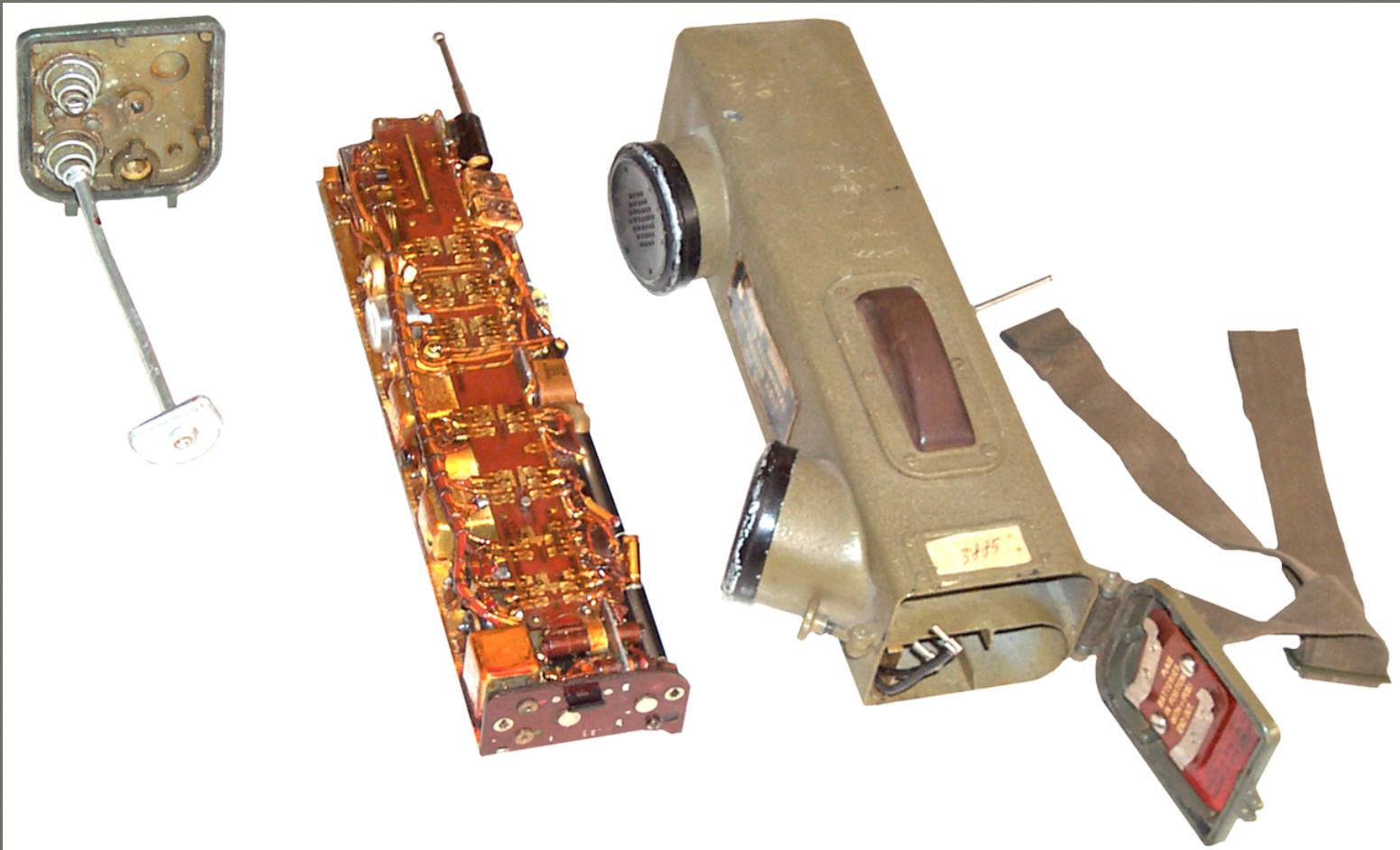
There will be fine music once again in the Post War Motorola Radios for your Home and Car. F-M, Television, other Electronic developments? You bet! Motorola will have them all! Meanwhile, buy more war bonds!

**GALVIN** MFG. CORPORATION - CHICAGO 51

THE "HANDIE-TALKIE" IS ANOTHER MOTOROLA RADIO FIRST!

**Motorola Radio** FOR HOME & CAR

# B-611 Internal Parts



# SCR-694/BC-1306



- Designed for Mountain and Airborne units
- Became Army standard at the Battalion level
- Served NATO wide in Korea and beyond as the AN/GRC-9 or “Angry 9”

# SCR-694/BC-1306/ AN-GRC-9

- 3.8-6.5 MHZ AM, CW, MCW
- Max power 25 W (CW)
- Voice Range: 15 Miles  
CW Range: 30 Miles+
- Weight 19.5 lbs
- Crystal controlled, frequency doubling VFO



# GN-58 Hand Cranked Generator for SCR-694

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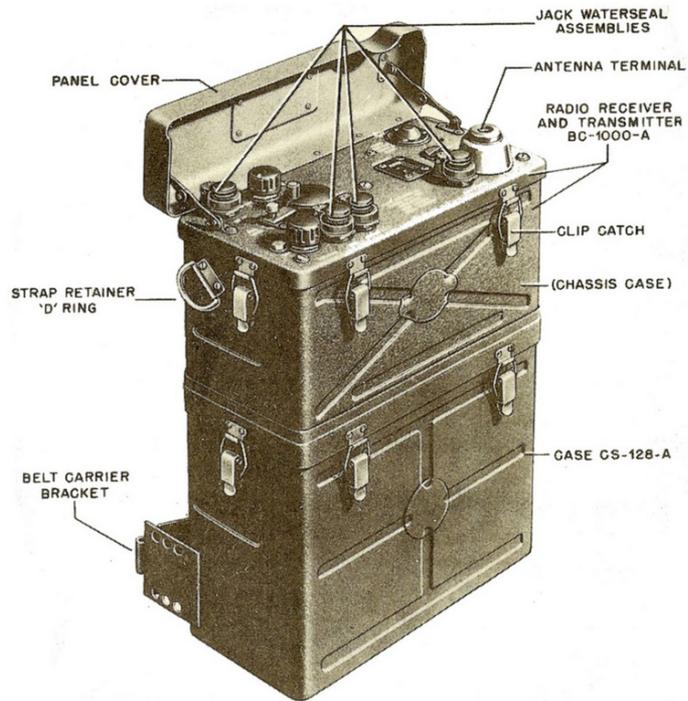
# SCR-694/AN-GRC-9

- All SCR-694 accessories interchangeable with AN-GRC-9 accessories.
- Widely used throughout NATO up to the 1970's



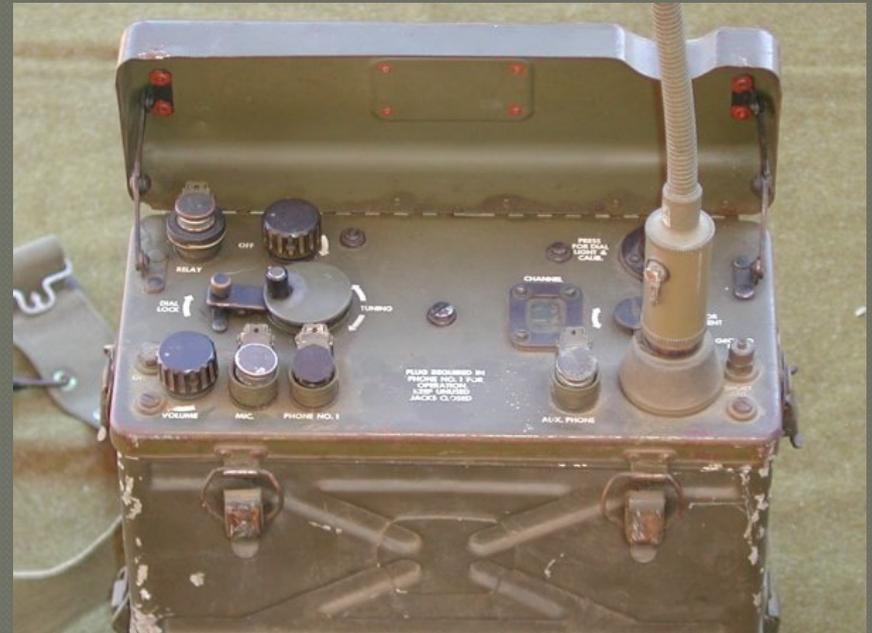
DY-88 Dyno-generator

# SCR-300/BC-1000 "Walkie-Talkie"



TL13003

*Radio Receiver and Transmitter BC-1000-A, with Case CS-128-A attached.*



# AN-SCR-300/BC-1000

- 40-48 MHz FM
- 0.3 Watts
- 18 tubes
- Range: 3 Miles
- Weight 32-38 lbs
- First VHF “Fox Mike”
- Widely adopted by NATO thru 1970s



# Post WW2 STANAG Nomenclature

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- All Army and Navy nomenclature standardized by late WW2 “AN” an “Army-Navy” accepted item.
- First Letter:
  - “P” Man-portable
  - “V” Vehicular
  - “G” Ground or fixed-site
- Second Letter “R”: Radio
- Third Letter “C”: Communications
- Thus a AN-GRC-9 is a ground communications radio, model 9 used by all services.

# Post War Audio Connections

U-77 “Old Family” Audio Connector “witch’s hat”



U-299 “New Family” Audio “Barrel connector”



# AN-PRC-6

- VHF FM 47-55.4 MHz
- Single channel, crystal controlled
- 13 tubes
- 250 mW
- Range: 1 Mile

Used by NATO, Israel,  
USMC into 1970s

Late Korea, widely used in  
Vietnam.

Introduced “old family”  
audio jacks



# AN/PRC-8,9, 10

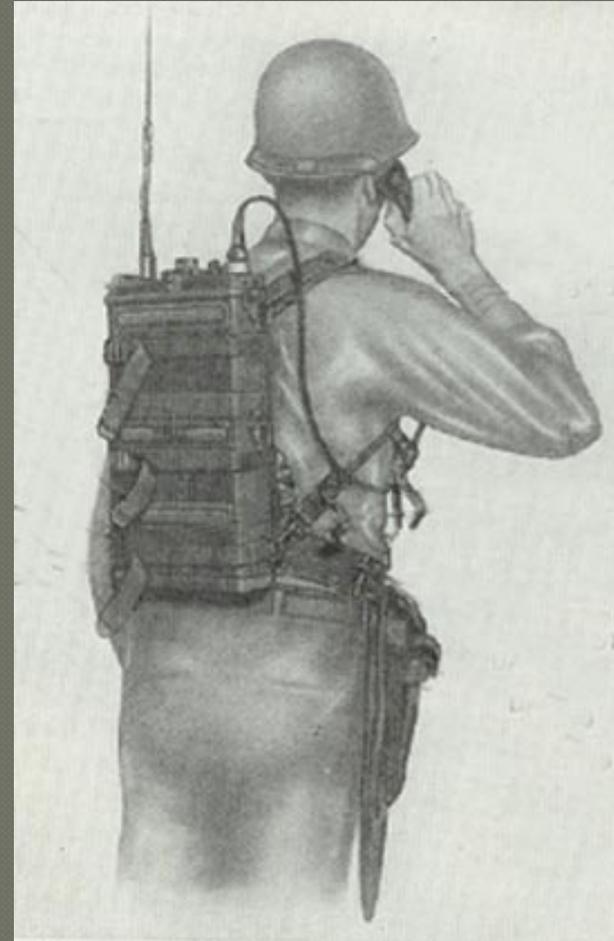
## VHF FM Squad Backpack Radios

Radio Set	Frequency Band
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AN/PRC-8	20.0 to 27.9 MHZ
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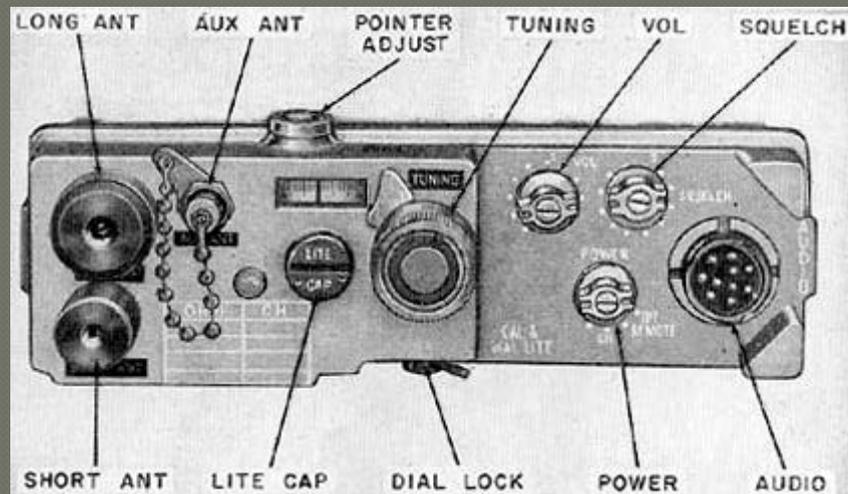
AN/PRC-9	27.0 to 38.9 MHZ
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AN/PRC-10	38.0 to 54.9 MHZ
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# AN-PRC-8, 9, 10

- 13 tube superhetrodyne TX
- 0.9 Watts
- Range 5 Miles (1-3 in practice)
- Weight: 24 lbs
- “Old Family” audio connectors
- Korea-Early Vietnam
- Only PRC-10 survived to Vietnam



# Collins AN/PRC-47



# Collins AN/PRC-47

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- 2-12 MHZ USB (or LSB) CW, FSK RTTY
- 20 and 100 Watts
- 24 volt or 110VAC/400 cycle AC
- First used AS-2559 NVIS antenna

# Hughes AN/PRC-74

- Introduced: 1965 for Special OPS
- 2.0 – 18.0 MHz
- USB phone/CW
- Power: 15 Watt
- 1 KHZ Spacing
- Solid State
- Synthesized tuner
- “New Family” connector



# AN/PRC-25/77

- VHF Low Band FM squad radio covering 30.00 to 75.95 MHz in 50 kHz steps.
- PRC-77 first all discrete solid state FM squad radio (PRC-25 has one TX tube)
- 1.5 W, 1-5 mile range
- 12 VDC battery
- Replaced PRC-10 in Vietnam in 1965 per Gen. Creighton Abrams
- Issued NATO wide and to Afghan Army



# AN/PRC-68

- IOC late 1970s, USMC as an alternate to PRT-4/PRR-9 Army scheme
- PRC-68 : 30-79 MHZ FM.
- PRC-128/136 1990s U.S. Army:  
30-79 MHZ 130-179 MHZ FM.
- 1 W, Range: 300 yrds to 1 mile
- Simplex or duplex (PRC-68B>)
- Frequency steps: 25 KHZ
- Cloneable EPROM (PRC-68B>)
- 15 VDC batteries (various chemistry)
- 8-12 hour battery life (in CAIS mode)
- PRC-128/136 Designed to interface with civilian public safety radios (simplex only, no CTCSS) as well as military “Fox Mike”



# Squelch Capture

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- All Post-war VHF “Fox Mike” radios transmit a default 150 HZ tone for use in “Receive Squelch” and crypto modes.
- Military “Squelch Mode” is “RX squelch”
- Radio doesn’t open up unless it hears the 150 HZ tone. (Filtered out of RX audio)
- An enemy 100 W noise jammer operating above the 150 HZ frequency can jam PRC-77 and equivalent VRC/GRCs over a wide area.

# Harris AN/PRC-117-A



# Harris AN/PRC-117-A

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- IOC mid 1980's first combat "Desert Shield"
- 27-80 MHz FM in 25 KHZ steps
- First squad radio with "frequency hopping"
- External crypto fill (A model only)
- Duplex capable
- 1 to 5 Watt
- All IC/surface mount
- Internal ANT auto-tuner
- "The last surplus radio you will ever have"

# Harris AN/VRC-94-A

- Vehicular mount for PRC-117
- 5-50 Watts
- Audio amp for ext speaker
- Converts 24 VDC to 12 VDC



# AN/PRC-117-D/F SinCGARS “Falcon II”

- “Single Channel Air/  
Ground Radio System”
- VHF Low FM Range:  
5-10 SM
- VHF Hi AM
- UHF AM,
- SATCOM, range: 300 SM
- Internal crypto (CCM)
- Weight w/ Bat 16.7 Lbs
- IOC: 2000



# Online Military Radio Resources

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- ◉ PR-68.com Brooke Clarke  
<http://www.prc68.com/>
- ◉ Army Radio Sales  
<http://www.armyradio.co.uk>
- ◉ Olive-Drab.com

# QUESTIONS?

- ⦿ A quick break then...
- ⦿ “Fox Mike” radio DEMO

