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Cyber Center of Excellence

**RT-1694D(P)(C)/U AN/PRC-150
December 2019**

U.S. Army Cyber Center of Excellence

**Doctrine Division
Lessons and Best Practices**

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Radio capabilities

- High frequency (HF) single channel (SC), automatic link establishment (ALE), third generation (3G) ALE)
- Upper side band (USB), lower side band (LSB)
- Frequency modulated (FM) line of site (LOS)
- Continuous wave (CW)
- Amplitude modulation equivalent (AME)

Frequency, channel program ranges, and antenna

- HF: 1.6 MHz - 29.9999 MHz//Power in Watts 1, 5, 20
- VHF FM: 30 MHz - 59.9999 MHz//Power in Watts 1, 5, 20
- Fixed Mode Channels: 000 - 200
- ALE Channels: 000 - 999
- 3G ALE Channels: 100 - 162
- OE-505 (3 meter) whip, (1.6 MHz - 60 MHz)
- OE-254 antenna, (30 MHz - 88 MHz)
- NVIS AS-2259, (2 MHz - 88 MHz)
- RF1944 antenna, (1.6 MHz - 29.9999 MHz)

Program single channel using "SCRATCH PAD" 000

Press 3 **MODE** button on radio face

- Press the 0 **ZERO** button
- Use arrow buttons to highlight the receive frequency: press **ENT**
- Use key pad to enter frequency: press **ENT**
- The transmit frequency becomes highlighted
- Enter transmit frequency: press **ENT**
- Use the arrows to highlight KEY on the screen
- Use the up and down arrows to change key type: press **ENT**
- Press **CLR** to return to original screen

Identify COMSEC keys loaded in RT

- Press 8 **PGM** key on radio face
- Select **COMSEC** on screen: press **ENT**
- Select **KEYS**: press **ENT**
- Select **Type I**: press **ENT**
- Press **CLR**

Preset channels frequency

- Press 8 **PGM** on radio face
- Use arrows to select **MODE**: press **ENT**
- Select **PRESET**: press **ENT**
- Select **CHANNEL**: press **ENT**
- Enter channel position (example 123): press **ENT**
- In RX screen enter receive frequency: press **ENT**
- In TX screen enter transmit frequency: press **ENT**
- Put receive frequency in RX FREQ screen: press **ENT**
- Put transmit frequency in TX FREQ: press **ENT**
- Select modulation: press **ENT**
- AGC screen select OFF: press **ENT**
- RX ONLY screen select **NO**: press **ENT** (unless directed to remain in receive only mode)
- At "LIMIT MAX TX POWER?" screen select **NO**: press **ENT**
- ENABLE SSB SCAN select **NO**: press **ENT**
- Exit out to original home screen

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Warning: Ensure proper grounding of radio and antenna systems prior to use. Serious harm to personnel or equipment may occur if proper grounding techniques are not followed.

Built-In test (BIT)

- Press 7 **OPT** key on radio face
- Select **TEST**: press **ENT**
- Highlight **BIT** on screen: press **ENT**
- Use arrow buttons to highlight **SYSTEM**: press **ENT** (A clicking sound is heard while test runs)
- Once results are received: press **CLR** to get back to main screen
- The radio will show PASSED once test is complete

Place radio into operational configuration

- Open battery box on bottom of radio to insert batteries
- Close battery box and secure latches
- Connect hand mic to audio connector J1 port
- Connect the OE-505 3 meter whip antenna base to HF antenna connector J7

Connect grounding wire to post on radio before **attempting** calls on system

Load single COMSEC key

- On radio, move function switch to **LD** position
- In FILL device screen, use arrows to select **KYK-13** when using an SKL: press **ENT**
- In CRYPTO TYPE, select correct type of encryption: press **ENT**
- In KEY TYPE and KEY NUMNER screen, enter correct crypto set: press **ENT**
- From SKL screen select key: press **LOAD** icon at top of SKL screen (it appears as a small laptop)
- In KEY LOAD SETTINGS, select **DS-102**
- In the SKL PROTOCOL and ACTIVATE MODE screen: press **OK**
- In Ready to Send screen in SKL: press **OK**
- On radio face press **ENT**
- On radio screen look for FILL DONE
- SKL screen will display Operation Successful

Program single channel preset

- Press 8 **PGM** on radio face
- Use arrows and highlight MODE on screen menu: press **ENT**
- Highlight **PRESET** on screen: press **ENT**
- Select CHANNEL: press **ENT**
- Enter desired channel preset location: press **ENT**
- In RX screen put desired frequency: press **ENT**
- In TX screen put transmission frequency (it should be the same as the RX frequency): press **ENT**
- In MODULATION screen select **FM**: press **ENT**
- In RX ONLY screen use up and down arrows to select **NO**: press **ENT**
- In LIMIT MAX TX POWER select **NO**: press **ENT**
- In ENABLE USB SCAN select **NO**: press **ENT**

Setting time of day

- Press 7 **OPT** button on radio face
- Select **TOD**: press **ENT**
- Enter **TOD** in 24-hour format: press **ENT**
- Enter date and press enter, example of date format
 (2018-12-27)
- Press 7 **OPT** button to return to main screen

Self-addressing

- Press 8 **PGM** button on radio face
- Highlight **MODE**: press **ENT**
- Select **ALE**: press **ENT**
- Select **SELF**: press **ENT**
- Select **Add**: press **ENT**

Make a call in ALE mode

- Press 1 CALL button on radio face
- In CALL TYPE screen use arrows to select AUTO: press ENT
- In ADDRESS TYPE select from the list using arrows: press ENT once proper address has been identified
- In INDIV ADDR screen use arrows to select desired address: press ENT
- Begin call

NOTES:

- When using preset buttons to go to a new preset, quickly
    squeeze the hand mic once to engage the internal
    coupler. This forces the radio to adjust to the new preset.

- There is a slight time delay when keying the radio for transmission. Wait for side tone before sending traffic. Speak clear and concise during transmissions to ensure proper understanding by the distant station.

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Set radio operations

- Press 7 **OPT** button on radio face
- Highlight **RADIO** on screen: press **ENT**
- Scroll through radio TX POWER to select correct transmit power
- In SQUELCH LEVEL select appropriate squelch:
    press **ENT** (MED should suffice for most operations)
- FM SQUELCH TYPE select appropriate squelch: press **ENT**
- FM SQUELCH TYPE screen select **ENABLE** using arrows: press **ENT**
- COUPLER screen select **ENABLE** using arrows: press **ENT**
- RADIO SILENCE screen select OFF: press **ENT**
- BFO screen consult COMM sheet (typically should be 0 Hz): press **ENT**
- RX NOISE BLANKING select **OFF**: press **ENT**
- In RADIO NAME screen: press **ENT**

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Lessons and Best Practices Branch

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