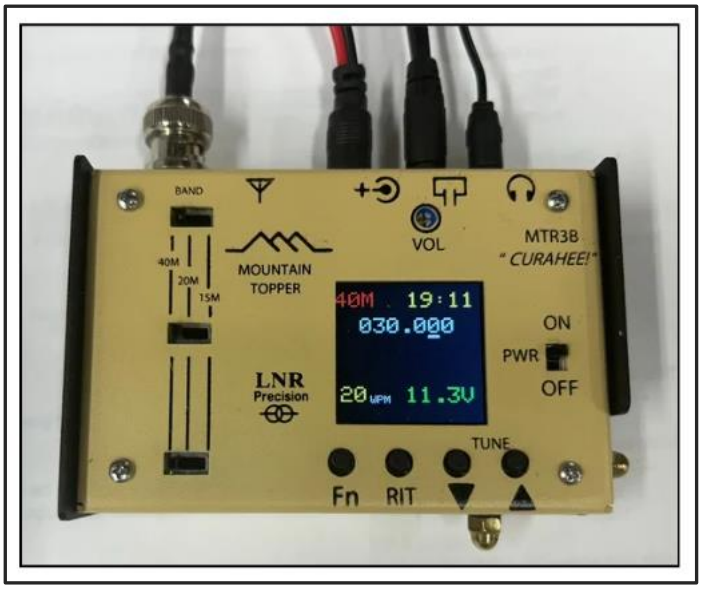
MTR3B V4 Currahee Version

The Mountain Topper

The original Miniature QRP Transceiver



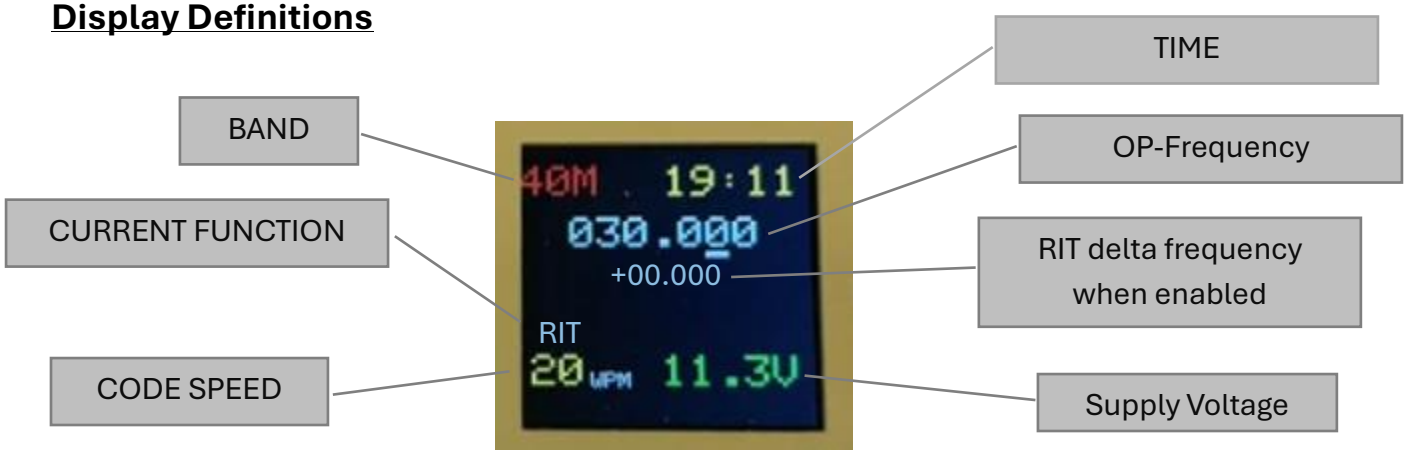
Features

Bands: 40M, 20M, 15M
Power out: 5 typical at 13.8V Supply
Power & SWR Readout
Minimum detectable signal: ~0.1 uV
Push button operation
Color display
Real Time Clock
Five (5) 62 character CW message memories
Nine (9) Frequence memories per band
Adjustable Volume Control
Adjustable Side Tone

Specifications

Unit Weight: 5.72oz (133.8g)
Dimensions: 3.90”L x 2.625”W x 1.09”T (99.88mmL x 66.25mmW x 28.6mmT)
Display Dimensions: 1.06” x 1.04” (27mm x 26.3mm)
Internal Battery: CR2032 (supplied at purchase, replaceable with common brand)

Display Definitions



Display is organized in 5 lines.

* Lines 1 and 2 always display the same information. Operating band, time, and operating frequency.
* Lines 3 and 5 change depending on the currently selected function.

Operation

Band Selection:

- Bands are selected using the (3) three position slide switch to the left of the display
- All three switches must be in the same "column" for proper operation
- The top switch selects the band, which is enunciated by the Morse number 4, 2, or 1 when selected.
- The lower two switches select the proper filters for that band.
- When selecting the 20M band (switches in the middle position), start with all three switches to the right OR left, and then click them to the middle position going from top to bottom.

Button Operation:

The MTR3B is controlled by four push button switches. The switches are used to access various functions depending on how long it is held closed. From right to left, these are:

- ▼[Tune Down] and ▲[Tune Up] – Increment/decrement numerical values
- [RIT] – Activate send CW message mode – toggles RIT mode on/off – access set time and CAL mode
- [Fn] – Function or also referred to as "Keyer Switch" – Change code speed, frequency memory store/recall, enter/store CW message.

Frequency Tuning:

The single step tuning rate is set to 50 Hz per "Tap" of the Tune Up or Tune Down button.

Fast Tuning:

- If the [Tune Up] or [Tune Down] switch is held down for more than 500 ms, fast tune mode will activate. Tuning will now be at a 100 Hz per step rate and auto-advance every 50 ms. The decade cursor will shift to underline the 100 Hz decade.

Really Fast Tuning:

- TAP the [Fn] switch while in fast tuning mode. Tuning rate will change to 1 kHz steps. The decade cursor will shift to underline the 1 kHz decade.

- Release the switch to drop back down to 100 Hz steps.

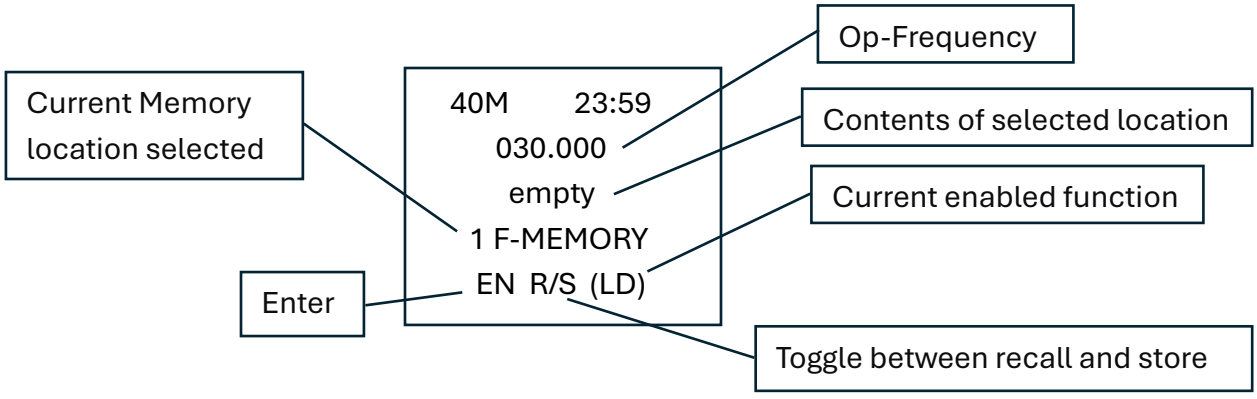
[Fn] Keyer Switch:

To change code speed:

- Tap [Fn]
  - Line 4 [Code Speed]
  - Line 5 [20wmp 13.8V] Code speed value turns RED.
  - Use the Tune Down or Dash paddle to decrease code speed.
  - Use the Tun Up or Dot paddle to increase the code speed.
  - A “beep” sounds as the speed is changed.
  - Range is 5 to 30WPM
  - Tap [Fn] to exit.

To access Frequency Memory:

- HOLD [Fn] for 1 second
  - There are 9 memory locations available for each band.

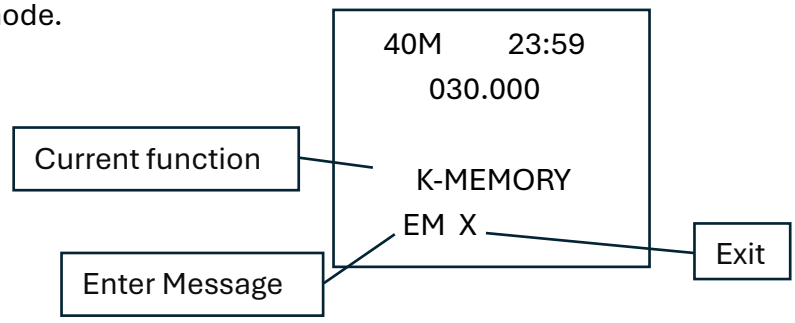


- Line 3 indicates the contents of the selected memory location. If the location is blank, “empty” is displayed.
- Line 4 indicates the currently selected memory location 1 to 9.
  - Use [Tune Up] and [Tune Down] to select the desired location.
  - Tune Up will roll over from 9 to 1, but Tune Down stops at 1.
- Line 5 switch function labels:
  - EN (Fn)– performs the currently selected function.
  - R/S (RIT) – toggles between Load memory [LD] and Store Memory [SR].

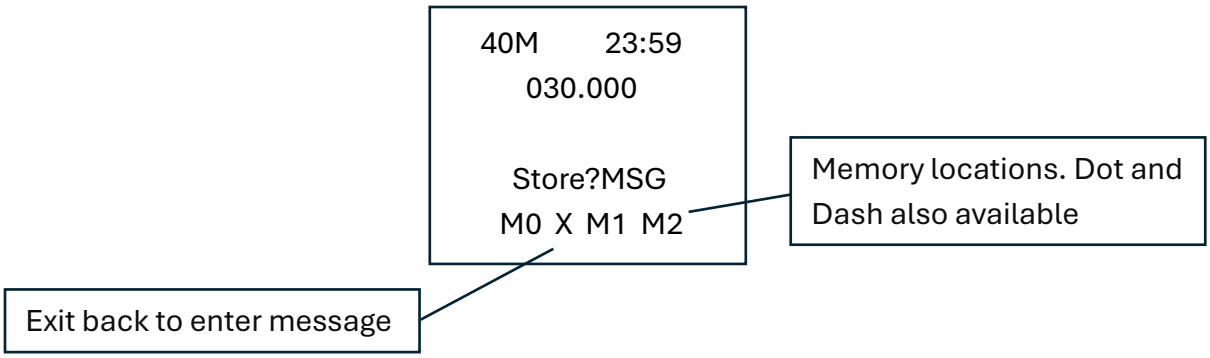
- Loading an empty location returns to current frequency.
- A frequency stored in location 1 will become the default power on frequency.

To access Message Memory Mode:

- HOLD [Fn] for 3 seconds. Note: This mode is NOT available while in straight-key mode.



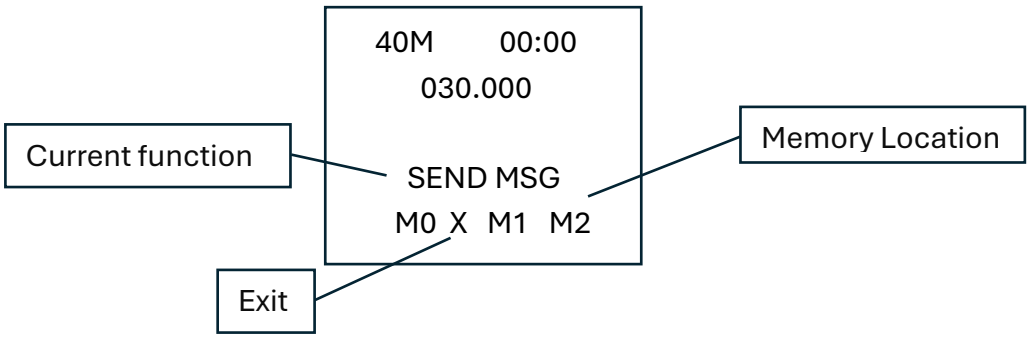
- Tap [EM](Fn) to start the enter message mode.
- Tap [X](RIT) to exit the mode.
- Enter message mode:
  - Line 5 [CK X]
  - Key in your message, up to 62 characters, word spaces count as characters.
  - Ideal timing is used to determine character and word spaces. The most critical is the letter space timing. There needs to be between 3 to 7 dot time lengths between elements to capture a letter. After a 7 dot length pause, a word space is inserted. The most common mistake is to not leave enough time at the end of a letter group, so it runs into the next letter elements and becomes very confusing. But pausing too long inserts a word space. It can take some practice.
  - If while entering the message you know you made a mistake, tap [X](RIT) to restart entering the message. A “beep” will sound to acknowledge the switch press.
  - When the message has finished being keyed in, tap [CK](Fn) to review the message.
  - You can now either store the message in one of the memory locations or exit back to the enter message mode and start again.
  - Storing a message returns you to the enter message mode. This allows you to enter another message before exiting for good.



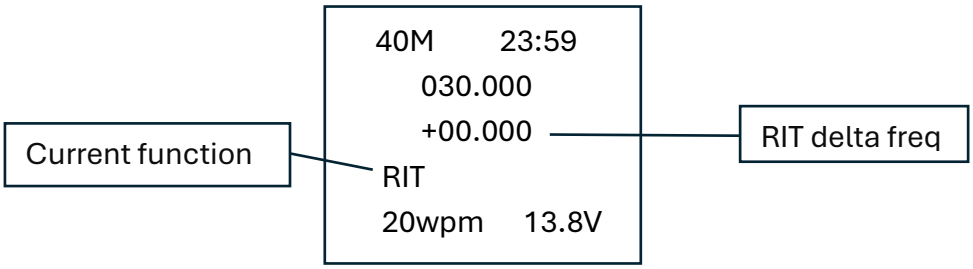
RIT:

This switch has five timed functions. TAP and hold until the desired function is displayed.

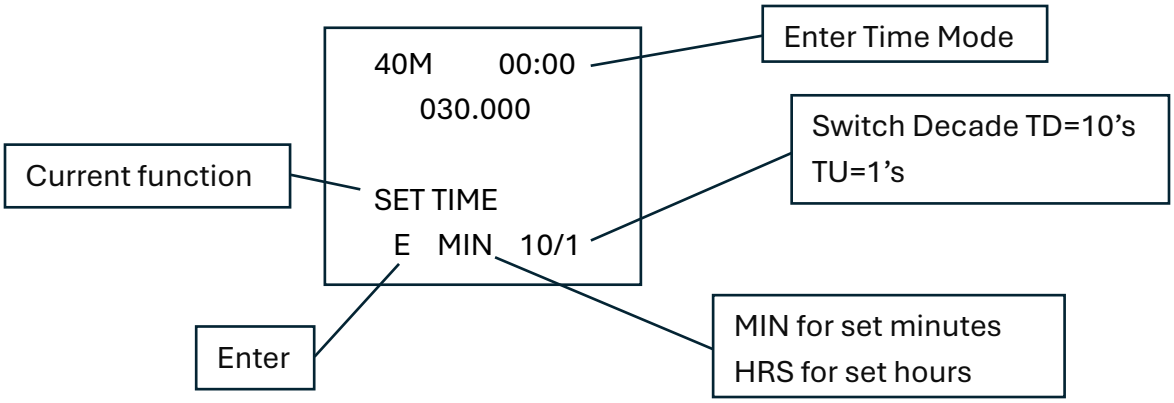
- Tap – activate Send CW Message location selection.
  - TAP [RIT (X)] to escape.
  - TAP M0, M1, M2 or tap Dot or Dash paddle to Exit or Pause the message stored there.
  - If the location selected is empty, the mode is exited.
  - Paddle memories are not available in straight key mode.
- While a message is being sent, it can be paused or terminated by using the paddle.
  - To Pause, close the Dash paddle. Receive will be restored as long as the paddle is held closed.
  - The paddle state is detected between letters.



- **Hold for (1) one second: RIT mode activated.**
  - Display – Line 3 – [+00.000] the difference between transmit and receive frequencies.
  - Range: +99,000 kHz, -60,000 kHz
  - HOLD [RIT] to exit mode



- **Hold for (4) four seconds: Set time mode:**



- The clock numbers turn Red to indicate set minutes mode.
- Set Minutes:
    - Set the minutes to current time +1 minute.
        - [Tune Down] increments the 10's digit. [Tune Up] increments the 1's digit.
    - Tap [E] (Fn/Keyer)
    - Set Hours:
        - Clock numbers turn Blue to indicate set hours mode.
        - [Tune Down] – increments the 10's digit, 0-1-2 [Tune Up] – increments the 1's digit, 0 to 9.
    - Tap [E] (Fn/Keyer)
        - TAP the [E] switch when the reference time rolls over to the time you set. Reference a clock with seconds displayed.
        - Clock numbers turn Yellow for normal display.

- **Hold for (8) eight seconds: CAL mode**

    - This mode calibrates the Local Oscillator and for adjusting the BFO frequency.
    - This modes should only be used if you have the proper test equipment, an accurate frequency meter and an oscilloscope.
- Display [CAL 10MHz]
    - A 10 MHz signal is produced at TP3, located between U7 and U6 and above the Ferrite PA choke coil.
    - Use the [Tune Up] or [Tune Down] switches to adjust the frequency to exactly 10.000.000 MHz.
    - TAP [Fn/Keyer] to advance.
    - Display [ADJ BFO]
    - The audio is un-muted. With an oscilloscope on TP3, peak the signal with the BFO trimmer cap located on top of the board.
    - TAP [Fn/Keyer] to store and exit the Calibration routine.
        - Display [Done...]
        - Program reset to the currently selected band.

Straight key mode:

- SWR and power output is shown on the bottom line of the display while transmitting in straight key mode [1.0 SWR 5.0 W]
- Straight key mode can be enabled two ways:
    - Automatic – use a MONO plug in the key jack (ground Dash input). This must be inserted when the power is off.
    - Manual – TAP RIT switch while in "speed adjust mode". Speed readout will change to [SK] in red.

Tune Mode – Measure Power out and SWR:

- TAP and HOLD [Fn] switch until TUNE is show on the 3rd line of the display. Bottom line will display Power Out and SWR.

Voltage Display:

- The voltage is displayed in Green while in safe range.
- The voltage display turns Red if the voltage is below 9.0 volts or above 14.0 volts.
- Accuracy is +/- 0.2V

Side Tone Volume:

- A trimmer resistor is accessed through a hole in the battery/jack inside the case.

Audio output level:

- A trimmer resistor accessed through a hole in the front of the case allows setting the base volume for headphone or external speaker use. The audio AGC limits the maximum audio output to about 350 mV RMS.

Paddle Jack Wiring: Tip = Dot, RING = Dash

Headphone: 3.5mm Stereo wired for mono. Tip/Ring connected.

Power Jack: 5.5mm/2.1mm

Antenna: BNC