Quick Guide to Operating the Yaesu 857D

This *Quick Guide to Operating the Yaesu 857-D*, through a series of five graduated exercises, introduces operating the radio, its controls, and builds up confidence with the rig. There are several references to the 857-D manual that came with the radio, so please have the manual handy and use it when indicated as part of the exercises.

The Yaesu 857D HF/VHF/UHF 100 Watt transceiver is impressively multi-functional but very compact. There is not much front panel real estate for knobs and buttons to control the radio. Therefore many of the knobs and buttons perform multiple functions based on active menus contained within the radio that interact with the display and control the radio.

One basic concept to keep in mind when operating the radio is that the radio has a *VFO mode* and a *Memory mode* and behaves differently depending on the active mode. In VFO mode the radio is very responsive to its full command structure. In Memory mode operator control is inhibited - the radio rightfully assumes that the preset frequencies and operational parameters you have previously stored in each memory location are to be protected from inadvertent tampering. Therefore, one of the first controls the new operator needs to learn is the **V/M** key which toggles the radio between VFO mode or Memory mode. Again, the radio will be fully responsive to commands when either **VFOa** or **VFOb** is indicated in the upper left of the display instead of a **Mnnn**.

Effectively operating the 857-D requires understanding the concept that there are two menu system structures stacked on top of each other, sort of like a 17-story building stacked on top of a broad foundation. The broad foundation is the **MENU** and consists of 91 menu items. I like to think that when Yaesu first designed the 857D the engineers started with this 91-item base as the original plan for operator control. They added some responsiveness by allowing you to place a skip flag on any of the 91 items that might not be used frequently. You can then set *Item #1* so that the items with the skip flag would not be displayed during normal operation.

The designers soon found out they needed even more responsiveness, so they put the **A**, **B**, **C** keys along the bottom of the display, then added a second menu structure, called the *Multi-Function Menu* to assign various functions to these three **A**, **B**, **C** keys. You get to choose from a 17 row list, as to which row will be assigned to the **A**, **B**, **C** keys. Again Yaesu did this to make the radio more operationally agile. Some of the functions assigned to the **A**, **B**, **C**, keys do in fact jump to some of the 91 items in the base **MENU**. Therefore you have to know how to navigate the controls for both menu structures.

The base **MENU** structure of 91 items is entered by pressing and holding the **FUNC** key for one second then using the **Select Knob** to select which of the 91 items to view and/or change. The other menu structure, the *Multi-Function Menu* is entered by briefly pressing the **FUNC** key, then using the **Select Knob** to select which of the 17 rows of the multi-function menu to assign to the **A**, **B**, **C** keys. Both operations sound similar, but there is a profound difference in how they work. When you have entered the **MENU** you have all the time in the world to use the **Select Knob** to pick one of the 91 items. Conversely, when briefly pressing the **FUNC** key to enter the *Multi Function Menu*, if the **Select Knob** is left unturned for five seconds, the radio automatically exits

the *Multi Function Menu* and the **Select Knob** defaults to its previous state. This automatic exit can be confusing and frustrating to the new operator. The knowledgeable operator recognizes what has happened and simply re-presses the **FUNC** key to re-enter the *Multi Function Menu* and continue the selection process.

Embedded in the material on the following pages are lots of hints and tips particularly for operating HF, so be sure to go through each of the pages. Let me know if the material was helpful - feedback is appreciated.

Basic Operation of the Yaesu FT-857D Multi-Band Amateur Radio

The purpose of this document is to "learn by doing". Through a series of simple, graduated tasks the Ham operator will be introduced to key operating concepts and actually operate the FT-857D.

This radio has a built–in speaker. If you wish to use headphones, the headphone mini-jack is located on the left side of the radio about ¾ inch in back of the lower left corner of the front panel. The following instructions expect the radio to have 12V power available, to be connected to appropriate antennas, and to have **MENU** item #080 set to **SQL**, (see **Task #4:** on how to set this **MENU** item).

Task #1

Turn the radio on, place it in **VFO** mode, move it to the 3.5Mhz HF band, and operate SSB at 3987Khz. This frequency is a National EMCOMM Traffic Service (NETS) frequency.)

1. Turn the volume control down - rotate **AF** knob and its outer **SQL/RF** ring full counter-clockwise. (Upr L Fnt Panel)

2. Turn power on – Press & hold **Pwr On/Off** button one second.(Blue button top R Center of Fnt Panel)(

    Note: Note: The radio returns to the state it was in when turned off.

3. Place in VFO mode – Press the **V/M** button until **VFOa** or **VFOb** shows in lit display (Outer R Side Base of Main Tuning Knob)

    Note: If in memory mode and the tuning knob is touched, the radio will go up a level to **Memory Tuning** mode. Therefore you may need to press the **V/M** button twice to toggle the display back from **MTUNE** to **M-nnn** to **VFO***x*.

4. Move to the 3.5Mhz Band – Press either the Band(Up) or Band(Dwn buttons repeatedly until Display shows frequency between 3.000 and 4.000.– (Top base of main Tuning Knob)

5. Place in **LSB** (Lower SideBand) Mode – Press the M**ode(<)** or **Mode(>)** buttons repeatedly until Display shows **LSB**. (Top L Center of Fnt Panel above display)

6. Adjust the volume control – Rotate the **AF** knob, (but not its **SQL/RF** outer ring) clockwise about ¼ turn – adjust as needed. (Upr L Fnt Panel)

7. Tune to 3987Khz – Rotate Main Tuning Knob until 3.987.00 is in Display.(Large Knob R Fnt Panel**)**

   Note: Press the **Pwr On/Off** button briefly to place the large Tuning Knob into *Rapid Tuning Mode* with a small running stick-figure showing in the lower Right of the display. Briefly press the same button again to return to normal tuning. If you plan to operate at this frequency for some time the tuning knob can be disabled by pressing the *Lock* button located below the V/M button on the outer R side of the main tuning knob. The display will show a small lock in the lower R of the screen. Press the lock button again to re-enable tuning.**)** Please try these out now.

8. Turn the Radio Off – Press and hold the **Pwr On/Off** button for one second.(Blue button top R Center of Fnt Panel)

Congratulations, you have made an excellent start at learning how the FT-857D operates. Now quickly build confidence by trying other (NETS) frequencies - LSB at 7232Khz and USB at 14.280Mhz. (Amateur Radio convention for SSB uses LSB below 10Mhz, and USB above.) Also try listening to WWV, the National Bureau of Standards, broadcasting UTC time on 10Mhz AM.

Task #2:

We learned in Task #1 the basic controls to operate the radio in VFO mode as a simple HF transceiver. We will learn in Task #2 that operating the FT-857 can be even easier in *Memory mode*. Pre-loading a local repeater's frequency, offset, PL tone, etc. into one of the memory locations can greatly simplify VHF/UHF operation. HF frequencies/modes can also be pre-loaded.

This task introduces *Memory Mode* and the use of the **Select Knob** located at the lower left of the front panel. Rotating the **Select knob** in *Memory mode* selects the memory location you wish to use.

Turn the radio on and operate it on a local VHF/UHF repeater stored in memory location M-003. To perform this task the radio should have some local repeaters pre-stored in memory locations M-001 thru M-003. If not, still perform this task using factory stored 60M channels in memory locations M-601 thru M-605.

1. Turn the volume control down - rotate **AF** knob and its outer **SQL/RF** ring full counter-clockwise.(Upr L Fnt Panel)

2. Turn Pwr On – Press and hold **Pwr On/Off** button 1one second.(Blue button top R Center of Fnt Panel)

   Note: The radio returns to the state it was in when turned off).

3. Place in *Memory mode* – Press the **V/M** button until **M-*xxx*** shows in lit display (Outer R Side Base of Main Tuning Knob)

Note: If in *Memory mode* and the tuning knob is touched, the radio will go up a level to *Memory Tuning mode*. Therefore you may need to press the **V/M** button to toggle the display back from **MTUNE** to **M-*nnn*.**)

4. Move to memory location M-003 – Rotate the **Select Knob** either way until M-003 shows in the display.– (Lwr L corner of Fnt Panel)

5. Adjust the volume control – Rotate the **AF** Knob, (but not its **SQL/RF** outer ring) clockwise about ¼ turn – adjust as needed. (Upr L Fnt Panel)

6. Adjust the *Squelch* threshold – Rotate the S**QL/RF** ring clockwise just to the point the VHF/ UHF background noise suddenly is quiet. (Outer Ring Top L Fnt Panel)

   Note: When a signal is received that breaks above the noise threshold it will be heard. This is much less fatiguing than listening to background noise all the time.

7. Listen first, and if you wish to transmit, press the **PTT** (Push-To-Talk) button on the side of the microphone. (Be sure your FCC license permits you to operate at this frequency)

8. Turn the Radio Off – Press and hold the *Pwr On/Off* button for one second.(Blue button top R Center of Fnt Panel)

The **Select Knob** performs many functions on the FT-857D. We just learned in *Memory Mode* it selects the memory location to access. In **VFO** or **MTUNE** modes, the **SelectKnob** performs rapid tuning in two different ways. Simply rotating the **Select Knob** will increment the frequency display at a faster rate than the main tuning dial. Alternately, a brief press of the **Select Knob** inward will engage the **Select Knob** to slew the radio in 1-Mhz increments. This is particularly useful for VHF/UHF when there is a need to move to a frequency at the other end of the band. Press the **Select Knob** inward again to return it to the normal rapid tuning rate. Try these now to get familiar with them.

Task#1 covered basic controls, and Task#2 covered operating from pre-stored memory locations. Task#3 will intro the *Multi Function Key Menu* and Task#4 will intro the **MENU**.

Task #3:

There are two distinct menus: one is called the *Multi-Function Key Menu*, the other is just called the **MENU**. The *Multi-Function Key Menu* determines what functions the **A**, **B**, **C** keys (found just below the display.) will perform. It is a list of frequently used functions that is three columns wide and 17 rows long, labeled **MFa** through **MFq**. The current row that is selected is indicated in the lower portion of the display just above the **A**, **B**, **C** keys. The **A**, **B**, **C** keys are always "hot" in that they will perform their currently assigned function when one of them is pressed. Changing the **A**, **B**, **C** keys, i.e.- selecting another row, requires you to briefly press the **FUNC** key at the lower left of the display to engage the **Select Knob**. Once engaged, rotating the **Select Knob** will step thru the *Multi-Function Key Menu* rows. The **Select Knob** will automatically disengage within five seconds of non-use and revert to its previous state, (e.g.- rapid tuning).

The **MENU** on the other hand is a list of 91 single items that you may need to access less frequently. It is accessed by pressing and holding the **FUNC** key for one second Also, some *Multi Function Keys* will jump to a MENU item.

Place the radio in operation and use the *Multi Function Keys*.

1. Place the radio in operation – Do steps 1 to 7 from Task#1

    Note: Display should show **VFOa** or **VFOb**.

2. Enable Multi function Key Menu Row Selection – Briefly Press and release the **FUNC** key and within five seconds begin rotating the **Select Knob** (Near lwr L corner of display)

Change **A**, **B**, **C** key assignments to enable switching VFOs – Rotate the **Select Knob** either way until Mfa [**A/B**, **A=B**, **SPL**] shows in the display.– (**Select Knob** -Lwr L corner of Fnt Panel)(

    Note: **Select Knob** must be rotated within five seconds of pressing **FUNC** key or the **Select Knob** will revert back to its previous operation, e.g. – rapid tuning. If this happens, press the **FUNC** key again before doing this step)

1. Copy the contents of the current VFO to the VFO not being displayed – Press the **B [A=B]** key. (Below display center)

    Note: The radio remembers the VFO settings last used for each band and will return to the last active VFO on that band. Some operators will set one VFO for CW and the other for SSB.

2. Verify both VFOs are now the same & leave VFOa on display – Press the **A [A/B]** key to toggle between VFOs and make VFOa the current VFO.

    Note: The above 2 steps should make you ready to try the next step

3. Now try *Split Frequency Operation* described in FT-857 manual pg# 67. (When done, be sure to exit split frequency mode by pressing the C key)

The **DNS** button (next to **Pwr ON/OFF**) is a convenience key to instantly set the **A**, **B**, **C** keys to Multi Function row *p*. Pressing the **DNS** button a second time will return the , **B**, **C** keys to their previous row. Try this a few times to become familiar with it.

A handy reference for *Multi Function Key Menu* rows and item detail can be found in Pages 24-30 of the FT-857 manual. Some *Multi Function* keys will jump to the **MENU**, so be sure to go on to Task#4 and cover entering and exiting the **MENU**.

The **MENU** is a list of 91 single items that you may need to access to adjust operational parameters or to customize the radio. It is accessed by pressing and holding the **FUNC** key for one second We learned in Task#3 that some *Multi Function Keys* will jump to a **MENU** item. Recognizing how the display looks when in the **MENU** and how to exit with or without changing the setting is a helpful skill that is introduced in Task#4.

Task #4:

Place the radio in operation & reduce HF power from 100W to 50W.

1. Place the radio in operation – Do steps 1 to 7 from Task#1.

   Note: HF, VHF, and UHF power levels (100W, 50W, 20W), are set independently. The current band needs to be an HF band to start this training task.

2. Enter **MENU** operation - Press and hold the FUNC key for one second (Near lwr L corner of display)(

   Note: No need to rush - no auto five second action will follow)

3. Move to Menu item #001 -Extended Menu, - Rotate the **Select Knob** either way until "MENU MODE No-001 EXT MENU" shows in the top of the display. The current setting of this item, ON or OFF, will be in large text on the display. (**Select Knob** -Lwr L corner of Fnt Panel)

4. Ensure *Extended Menu* is ON – Rotate the Large Main Tuning Knob L or Rt. to change the current setting to **ON**. (R side of Fnt Panel)

5. Save the new setting and exit to normal operation- Press and hold the **FUNC** key for one second (Near Lwr L corner of display)

6. Re-enter Menu operation and Move to MENU item #075, – Press the **FUNC** key for one second and rotate the **Select Knob** either way until "MENU MODE No-075 RF Power Set" shows in the top of the display. The current value of this item, between 5 – 100, will be in large text on the display. (**Select Knob** -Lwr L corner of Fnt Panel)

7. Adjust the HF power level – Rotate the large main tuning knob to change the large text display value to 50. (R side of Fnt Panel)

8. Save the new setting and exit to normal operation - Press and hold the **FUNC** key for one second (Near Lwr L corner of display)

   Note: Press and hold the **C** key for one second to exit without saving the new setting.) (Additional details on exiting **MENU** mode and general operation can be found starting on FT-857 Manual page 94.)

The sequence of: **FUNC** key for one second, **Select Knob** to select item, Large Main Tuning knob to adjust the item, followed by **FUNC** key for ne second to save the change, (or **C** key for ne second to exit without changing) is the key to operating "The Menu".

Task #5: Using the CLAR button

Task #5 introduces the **CLAR** (Clarifier) knob. The **CLAR** knob is particularly useful when operating HF to try to improve weak station reception when there is strong adjacent noise. Operators familiar with RIT, Receiver Incremental Tuning, and PBT, Pass Band Tuning already understand the two primary concepts associated with the **CLAR** knob.

Pressing the **CLAR** button in momentarily, (less than one second) activates RIT and engages the **Select Knob** for adjusting RIT. Depressing the **CLAR** button momentarily again disengages RIT and the **Select Knob** from RIT.

Pressing the **CLAR** button for more than one second engages PBT and engages the **Select Knob** to adjust IF shift for PBT. Pressing the **CLAR** button again for more than one second disengages PBT.

> **Note:** Engaging one of these functions while the other is active will not deactivate the first function. The **Select Knob** will switch to the new function, and the display will change to allow adjustment of the new function, but the first function will remain active at the setting it was at. Each function has to be specifically deactivated with the appropriate press of the **CLAR** button.

1. Place the radio in operation – do steps 1 to 7 from Task#1 to place the radio in HF mode.

> **Note:** The current band should be an HF band to start this training task.

2. Do Steps 1 thru 5 on Page 40, *Clarifier – Receiver Incremental Tuning* of the FT-857D manual to introduce using RIT.

3. Go to the next page and do Steps 1 thru 3 *IF Shift* to introduce PBT.

> **Note:** Leaving PBT or RIT engaged when tuning the HF bands can be very useful. It keeps the **Select Knob** defaulted to one of these functions. Recall that when switching Multi Function Keys, e.g. to engage noise reduction or enable switching VFOs, the **Select Knob** will after 5 seconds resume its previous default setting of rapid tuning. An inadvertent turn of the **Select Knob** could cause the HF operator to jump away from and lose a weak station. The annoyance of the **Select Knob** tuning/jumping away from an HF contact won't happen if the **Select Knob** is left engaged to RIT or PBT. Also for HF, Menu Item #80 should be set to make the SQL/RF knob an RF gain knob, especially in noisy conditions. Ops should reduce RF gain and use the AF gain to try to find a balance that achieves a "sweet spot" for best signal reception under the current noise conditions.

Congratulations again – Understanding the concepts and completing the Tasks on the previous pages has given you a basic introduction to operating the FT-857D and will make it much easier to use the instruction manual that came with the radio.

Please forward comments or suggestions for improvements. 73 and good DX, Roger K6OU.