

YAESU

VXA-100

Operating Manual



Aviator Pilot



Congratulations!

You now have at your fingertips a valuable communications tool—a **YAESU** two-way radio! Rugged, reliable and easy to use, your **YAESU** radio will keep you in constant touch with your colleagues for years to come, with negligible maintenance down-time.

Please take a few minutes to read this manual carefully. The information presented here will allow you to derive maximum performance from your radio, in case questions arise later on.

We're glad you joined the **YAESU** team. Call on us anytime, because communications is our business. Let us help you get your message across.

NOTICE

There are no user-serviceable points inside this transceiver. All service jobs must be referred to your Authorized Service Center.

INTRODUCTION

The Yaesu **VXA-100 Aviator Pilot** is compact, rugged hand-held transceiver providing communication capability on the international Aircraft Communication Band (118 ~ 136.975 MHz); offers transmit and receive capability on the aircraft “**COM**” band, additionally provides VOR and CDI navigation features on the “**NAV**” band (108 ~ 117.975 MHz).

The **VXA-100** includes our exclusive Omni-Glow™ display back-lighting, for minimal degradation of your night vision, NOAA weather band monitoring capability, 8 character Alpha/Numeric Display, 50 Memory Channels and 250 Book Memory Channels.

We recommend that you read this manual in its entirety, so as to understand the many features of the **VXA-100** completely. Keep this manual handy, so you may use it for reference.

Note: The **VXA-100**'s VOR and CDI Navigation features are supplemental aids to navigation only, and are not intended to be a substitute for accurate (primary) VOR/CDI or landing service equipment.

CONTROLS & CONNECTORS

① PWR Switch

This is the main On/Off switch for the transceiver. Press and hold in this switch for ½ second to turn the radio on. When the radio is on, press and hold in this switch for 2 seconds to turn the radio off.

② LAMP Switch

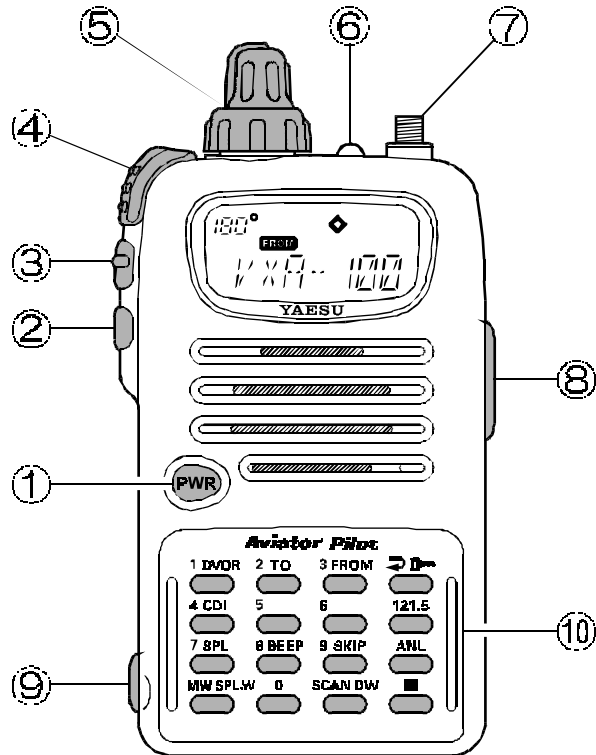
Press this switch momentarily, to activate the back-lighting lamp for the display and keypad keys. Press and hold this switch for 2 seconds, to activate the back-lighting lamp continuously. To turn the lamp off, press this switch again. The **LAMP** switch may be configured in several ways via the Menu; see page 34 for details.

③ MONITOR Switch

This button may be pressed to “open” the squelch manually, allowing you to listen for very weak signals. Press and hold this button for 2 seconds, to “open” the squelch continuously. Press this button again to resume normal (quiet) monitoring. See page 10.

④ PTT (PUSH TO TALK) Switch

Press this button to transmit when you are operating in the **COM** band. Release this button to return to the “RECEIVE” mode. See page 13.



CONTROLS & CONNECTORS

⑤ VOLUME/CHANNEL Selector

This is a dual (concentric) control set.

The (inner) **VOLUME** knob allows you to set the volume level from the speaker or headphones. See page 10.

The outer **CHANNEL** Selector knob is used for selecting channels manually. See page 10.

⑥ BUSY/TX Indicator Lamp

This lamp glows **green** when a signal is being received and **red** when transmitting.

⑦ Antenna Jack

This SMA jack accepts the supplied flexible antenna, or another antenna designed to provide 50 Ω impedance on the Aircraft Communication Band.

⑧ MIC/EAR Jack

You may connect the **CT-60** Headset Cable or the (optional) **MH-44A4B** Speaker/Microphone to this jack.



Never connect the any Speaker/Microphone that is not recommended by the manufacturer. Because these jack connections are unique using a Speaker/Microphone that is not specified by Yaesu will damage the VXA-100.

⑨ EXT DC Jack

When an external 12-Volt DC power source is available, you may connect the **E-DC-5B** External DC Cable here. **Do not connect any wire to this jack if that wire is connected directly to a 28-Volt DC source.** Connecting the **VXA-100** directly to a source which exceeds 15.0 Volts DC will result in damage to the unit.

⑩ Keypad





















Several keys have dual functions. The color of the label determines the way in which you activate the function:

The **white** labels represent the *primary* functions of the keys (activated by simply pressing the key momentarily).

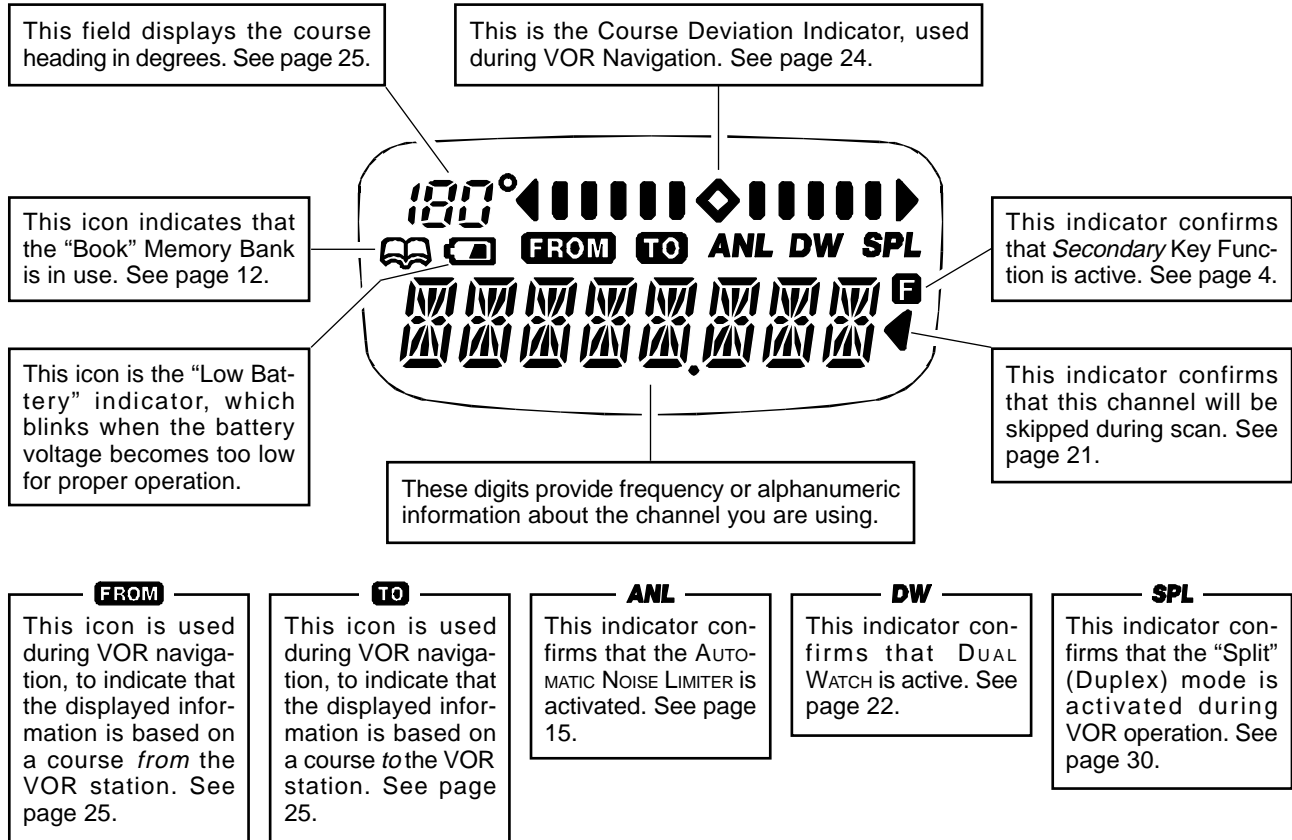
The **yellow** labels represent the *secondary* functions of the keys (activated by pressing the [F] key first, then the indicated key).

On the keypad, *primary* functions (white) are labeled to the left, while the *secondary* functions (yellow) are labeled to the right. These functions are described in detail on the next page.

KEYPAD

	1 DVOR 	2 TO 	3 FROM 	
Primary Function (Press Key)	Frequency Entry Digit 1	Frequency Entry Digit 2	Frequency Entry Digit 3	Selects Memory Display Type (page 19)
Secondary Function (Press  +)	Activates DVOR mode (page 25)	Selects "TO" VOR mode	Selects "FROM" VOR mode	Locks the Keypad
	4 CBI 	5 	6 	121.5 
Primary Function (Press Key)	Frequency Entry Digit 4	Frequency Entry Digit 5	Frequency Entry Digit 6	Selects Emergency Channel (121.5 MHz)
Secondary Function (Press  +)	Activates Course Direction Indicator mode	None	None	None
	7 SPL 	8 BEEP 	9 SKIP 	ANL 
Primary Function (Press Key)	Frequency Entry Digit 7	Frequency Entry Digit 8	Frequency Entry Digit 9	Activates Automatic Noise Limiter
Secondary Function (Press  +)	Activates Split (Duplex) mode on VOR	On/Off Switch for Keypad Beeper	Allows Skipping of Channel during Scan	None
	MW SPLW 	0 	SCAN DW 	
Primary Function (Press Key)	Memory "Write" Command	Frequency Entry Digit 0	Activates Scanning	Activates "Secondary" Key mode
Secondary Function (Press  +)	Split-Memory "Write" Command	None	Activates Dual Watch	None

LCD DISPLAY



BEFORE YOU BEGIN

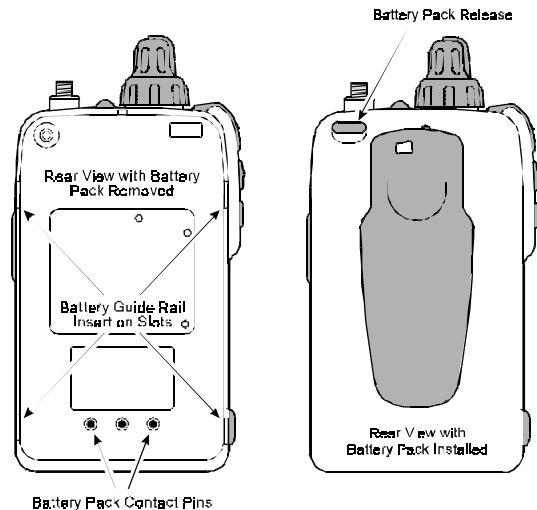
Precautions

- ❑ This apparatus is capable of two-way communication on channels used for critical aviation safety communications. Therefore, it is important that this radio be kept away from children or other unauthorized users at all times.
- ❑ When making DC connections via the **E-DC-5B** DC cable, be absolutely certain to observe the proper voltage level and polarity guidelines. Do not connect this radio directly to any 24 ~ 28 Volt DC source, nor to AC power of any kind. Connecting the **VXA-100** directly to a source which exceeds 15.0 Volts DC will result in damage to the unit.
- ❑ Do not dispose of the Ni-Cd Battery Pack in a fire. Do not carry a Ni-Cd Battery Pack in your pocket, where keys or coins could short the terminals. This could create a serious fire/burn danger, and possibly cause damage to the Ni-Cd pack.
- ❑ Although the **VXA-100** is designed to be water resistant, the enclosure is not “waterproof.” Do not allow the radio to become submersed in water, and do not expose it and/or its Ni-Cd Battery Pack to water spray under pressure.

Battery Installation and Removal

Refer to the illustration below showing the rear panel of the **VXA-100** and its battery pack.

- Lay the battery pack loosely onto the rear panel of the transceiver, and carefully mate the four small alignment tabs on the battery with their corresponding insertion slots on the transceiver case. Proper alignment occurs with the battery pack offset about ½” from the top of the case.



BEFORE YOU BEGIN

- Guide the pack into the slots with a slight inward pressure, then slide the battery pack upward, until it locks in place with a “Click.”
- To remove the battery, turn the radio off and remove any protective cases. Press in the Battery Release button (behind the Antenna jack) while sliding the battery down ½”. Then lift the battery away.

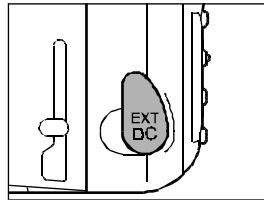


Do not attempt to open any of the rechargeable Ni-Cd packs, as personal injury or damage to the Ni-Cd pack could occur if a cell or cells become accidentally short-circuited.

Battery Charging

It is necessary to fully charge the Ni-Cd battery before it's first use. Follow these procedures:

- Install the supplied **FNB-41** Ni-Cd battery pack onto the transceiver. Ensure that the transceiver is switched off.
- Lift up the rubber cover to expose the **EXT DC** jack. Plug the cable plug from the **NC-60** charger into this jack.
- Plug the **NC-60** into the



AC mains outlet.


- Allow a minimum of 10 hours for the **FNB-41** to reach full charge. Leave the transceiver switched off this entire period.
- Unplug the cable from the **EXT DC** jack. Replace the rubber cover to protect the jack. Switch on the transceiver and begin operation.

Important Notes:

- ❑ Do not leave the charger connected to the transceiver for continuous periods in excess of 24 hours. Long term overcharging can degrade the Ni-Cd battery pack and significantly shorten its useful life.
- ❑ If using a charger other than the **NC-60**, or if using a battery pack other than the **FNB-41**, follow the appropriate instructions provided with the charger/battery. Contact your Dealer if you have any doubts about the appropriateness of the particular charger or battery pack you intend to use.

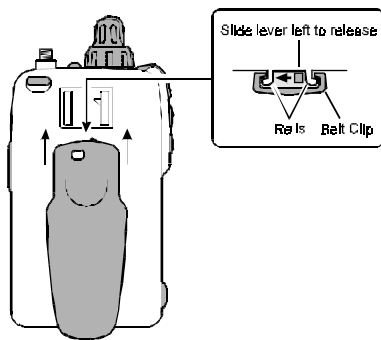
BEFORE YOU BEGIN

Low Battery Indication

- As your battery discharges during use, the voltage will gradually become lower. When the battery voltage reaches 5.0 Volts, the “” icon will blink on the LCD display, indicating that the battery pack must be recharged before further use.
- Avoid recharging Ni-Cd batteries before the “Low Battery” indicator is observed, as this can degrade the charge capacity of your Ni-Cd battery pack. Yaesu recommends that you carry an extra, fully-charged pack with you so you will not lose communications capability due to a depleted Ni-Cd battery.

This “deep cycling” practice will help to maintain longer overall battery life after many recharging cycles.

Belt Clip Installation



Installing the FBA-21 (option) Alkaline Battery Case

The optional **FBA-21** Battery Case allows operation of the **VXA-100** using six “AA” size Alkaline batteries.

To open the **FBA-21** Battery Case, hold it in your left hand, and slide the release catch downward with your right index finger.

When installing batteries, insert the (–) end first, then press in the (+) end so the battery snaps into place. Always replace all six batteries at the same time, paying attention to the polarity indicated inside the case.

The batteries can be ejected by pulling upward on the strip.

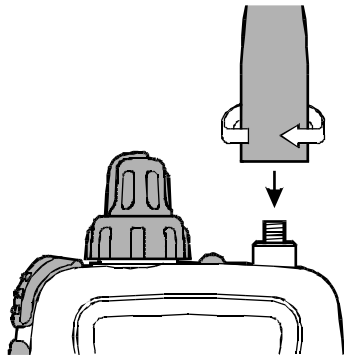


The FBA-21 must not be used with rechargeable cells. The FBA-21 does not contain the thermal and over-current protection circuits (provided in the “FNB” series of Ni-Cd Battery Packs) required when utilizing Ni-Cd cells.

OPERATION

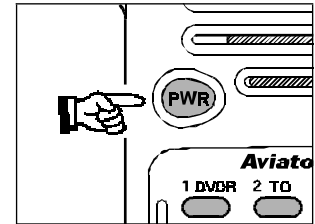
Preliminary Steps

- Install a charged battery pack onto the transceiver, as described previously.
- Screw the supplied antenna onto the Antenna jack. Never operate this transceiver without an antenna connected.
- If you have an optional Speaker/Microphone or headset, we recommend that it not be connected until you are familiar with the basic operation of the **VXA-100**.

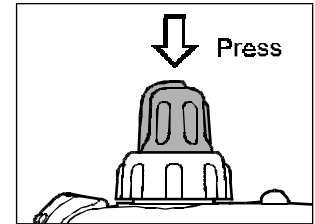


Operation Quick Start

- To turn the radio on, press and hold the **PWR** switch for ½ second.



- After three “initialization” beeps are heard, a channel frequency should appear on the display. If not, press downward (momentarily) on the (inner) **VOLUME** knob (repeatedly, if necessary) so that “- / F -” appears on the display, followed by a channel frequency.
- Directly entering frequencies from the Keypad is the easiest method if you know the frequency on which you wish to operate. Just enter the five digits of the frequency to move to that frequency. *For example*, to set 134.35 MHz, press [1] → [3] → [4] → [3] → [5].

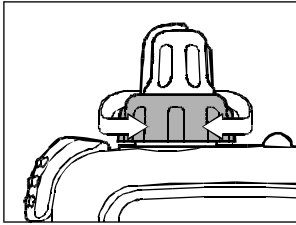


OPERATION

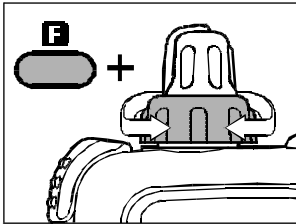
To set 118.275 MHz, you do not need to press the final “5” in the frequency:

[1] → [1] → [8] → [2] → [7].

- ❑ You may also turn the top panel’s (outer ring) **CHANNEL** selector knob to choose the desired operating frequency. The channel frequency will appear on the LCD.



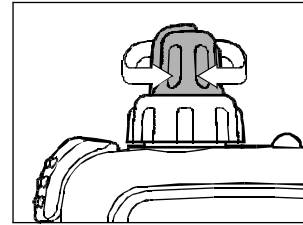
- ❑ To change frequency in 1 MHz steps, press the [F] key momentarily, then rotate the **CHANNEL** selector knob to select the MHz digit desired.



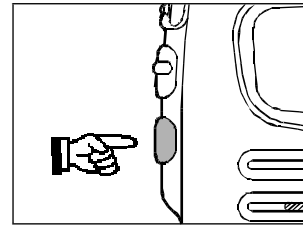
Press [F] once more to resume normal channel selection in 25-kHz steps.

- ❑ If you enter a frequency in the “NAV” band (108-117.975 MHz), the “VOR” operating mode will be selected.

- ❑ Rotate the **VOLUME** knob to set the volume level. If no signal is present, press and hold the **MONITOR** button for 2 seconds; background noise will now be heard, and you may use this noise to set the **VOLUME** knob for the desired audio level. Press the **MONITOR** button momentarily, to silence the noise and resume normal (quiet) monitoring.



- ❑ Press and hold the **LAMP** button for 2 seconds, to illuminate the display and keypad continuously. To disable the illumination, press the **LAMP** button momentarily.



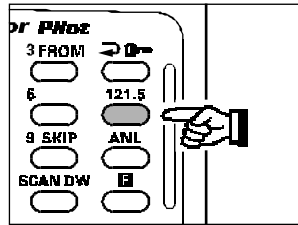
- ❑ To turn the radio off, press and hold in the **PWR** switch for 2 seconds.

OPERATION

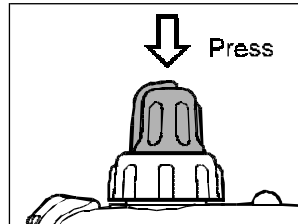
Accessing the 121.5 MHz Emergency Frequency

The **VXA-100** can quickly access the 121.500 MHz Emergency Frequency. This function can be activated even when the keypad lock function is in use.

- ❑ To access the Emergency Frequency, press the **[121.5]** key momentarily.



- ❑ To exit the Emergency Frequency, press the (inner) **VOLUME** knob.



OPERATION

Tuning Methods

Throughout this manual, you will see references to several different frequency setting methods. Each will be particularly useful in a particular operating situation, and they are described below:

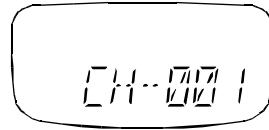
- **VFO** (Variable Frequency Oscillator)

The VFO is a “tuning dial” system which allows you to tune through the **NAV** or **COM** bands in 25-kHz steps using the **CHANNEL** selector, the Keypad, or the scanner.



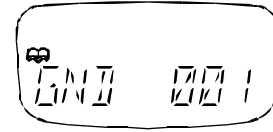
- **MR** (Memory Recall)

The MR (Memory Recall) mode of the VXA-100 provides the user with the ability to store and recall as many as 50 channels in the radio’s main memory bank. These memory channels may also be labeled by you with an alpha/numeric name of up to 8 characters in length, to aid in quick identification of the channel. See page 18 for details on creating alpha/numeric labels.



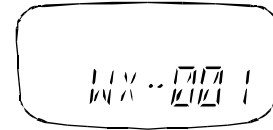
- **BOOK** (Pre-Programmed) Memories

The BOOK memories are pre-programmed, either at the factory or by your Dealer (depending on your country’s requirements), typically including the major **COM** and **NAV** band station frequencies used in your area. The BOOK memories may not be changed by the user, but they *can* be transferred to the Main Memory (MR) bank by the user. See page 18.



- **WX** (Weather Channel) Memories

Ten Weather Channels are pre-programmed at the factory as appropriate for your country, and the **VXA-100** will automatically scan this special bank when it is selected by the user.

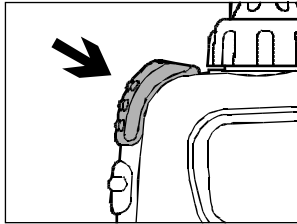


OPERATION

Transmission

To transmit, press and hold the **PTT** switch. Speak into the microphone area of the front panel grille in a normal voice level.

To return to the receive mode, release the **PTT** switch.

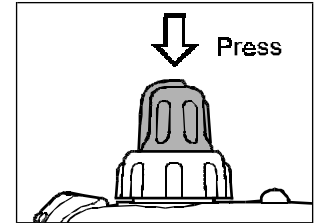


Important Note- The **PTT** switch should be pressed inward and in a slightly downward direction for proper operation. Do not press the **PTT** switch in an *upward* direction, as this will cause unreliable closure of the **PTT** switch, and it may damage the rubber boot. This angle of **PTT** switch actuation is designed to be ergonomically optimum when the radio is being held in the palm of your hand.

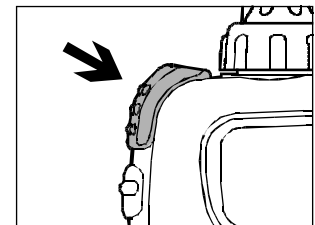
Reception of Weather Channel Broadcasts

The **VXA-100** can receive VHF Weather Channel broadcasts, which may assist your flight planning. The **VXA-100** includes a ten-channel auto-search feature, which simplifies access to Weather Channels when you are in an unfamiliar location.

- To receive Weather Channels, press the **VOLUME** knob (repeatedly, if necessary) to select the Weather Channel mode. In the Weather Channel mode, “- W X -” will appear on the display.



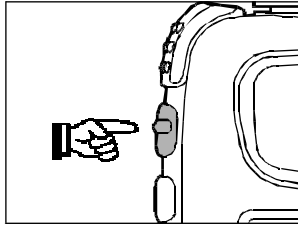
- The **VXA-100** will now scan quickly through the ten standard Weather Channels, and will stop on the first active station found.
- If there are two or more weather channels audible in your area, you may select the alternate channel(s) by pressing the **PTT** switch. Pressing



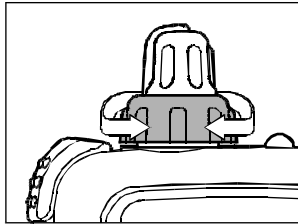
OPERATION

the **PTT** switch re-initiates the scanning process.

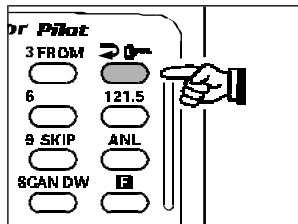
- ❑ If there are no Weather Channels in your area, the scanner will not stop. Press the **MONITOR** button to stop the scanner.



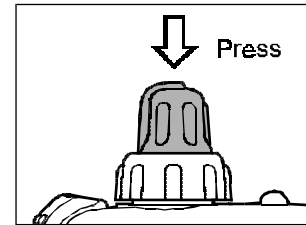
- ❑ You can also select Weather Channels manually by rotating the **CHANNEL** selector knob.



- ❑ To confirm the current Weather Channel frequency, press the [↔ (🔑)] key momentarily. The display changes to *frequency indication*. Press the [↔ (🔑)] key again to return to normal display.



- ❑ To exit the Weather Channel mode, press the **VOLUME** knob momentarily to return to the VFO mode.



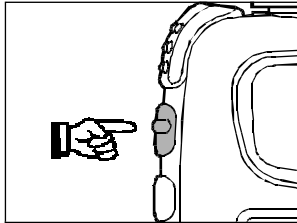
Note: The Weather Channel mode memorizes the last Weather Channel you have used, and will retain this information until the radio is turned off.

OPERATION

Monitor Key

When listening to a very weak signal from an aircraft or ground station, you may observe the signal disappearing periodically as the incoming signal strength becomes too weak to override the squelch threshold setting.

To disable the squelch temporarily, press and hold the **MONITOR** key for 2 seconds on the left side of the radio, just below the **PTT** button. The squelch will remain open and you should have a better chance of hearing weak signals.

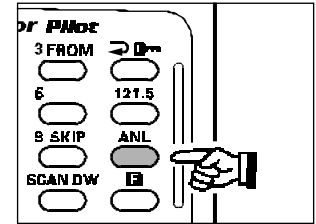


To return to normal operation, press the **MONITOR** key momentarily.

ANL (Automatic Noise Limiter) Feature

For reduction of impulse noise, such as that produced by an engine's ignition system, the ANL feature may prove helpful.

- To activate the ANL feature, press the [ANL] key momentarily. The “**ANL**” icon will appear on the display, and you should observe a reduction in the ignition noise.
- To turn the ANL feature off, repeat the above step; the “**ANL**” icon will disappear from the display.

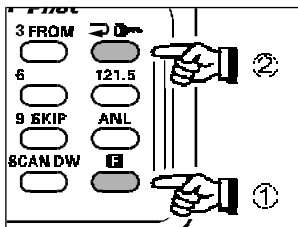


OPERATION

LOCK Function

The lock function prevents accidental changes to the frequency setting and the keypad controls.

- ❑ To activate the lock feature, press [F] → [↩ (🔑)] key.
- ❑ In the LOCK mode, the display will show “.. LOCK ..” when you rotate the CHANNEL selector knob, press the (inner) VOLUME knob, or touch a key on the keypad.
- ❑ To turn the lock feature off, press [F] → [↩ (🔑)] again.
- ❑ You can still access the 121.500 MHz Emergency Frequency when the LOCK function is on. Simply press the [121.5] key momentarily (this key *never* locks). Pressing this key also unlocks the radio.

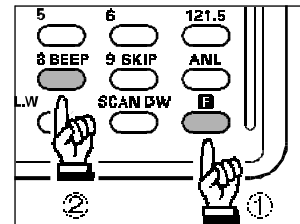


Beep On/Off

The **VXA-100**'s key/button beeper provides convenient audible feedback whenever a button is pressed. Each key and button has a different beep pitch, and each function has a unique beep combination.


When you are scanning, the beeper will be heard each time the scanner halts on a busy channel. This may be distracting in some environments; if you want to turn the beeper *off* (or back on again):

- ❑ Press [F] → [8 (BEEP)] key; “BEEP ON” will appear on the LCD.
- ❑ Rotate the CHANNEL selector knob one click to change the display to “BEEP OFF.”
- ❑ Press the [8 (BEEP)] key again to save your new setting and exit to normal operation.



NOTE

MEMORY OPERATION

The **VXA-100** provides 50 user-programmable “Main” memories, labeled “**[F]H- 001**” through “**[F]H- 050**,” and up to 250 pre-programmed memories, designated “Book” Memories. The “” icon appears when “Book” Memory Mode is activated.

The Main memories can store frequency as well as various status indicators such as those used with VOR. The Main memories also can be assigned alpha-numeric names of up to eight characters.

Memory System Operation

The **VXA-100**’s Main Memory system allows the user to store, label, and recall channel frequencies which you may want to use frequently. You may store VFO frequencies, Book Memory frequencies, and/or Weather Channel frequencies into the Main Memory system.

MEMORY STORAGE

- Select the desired frequency in the VFO mode, or recall the Book Memory channel or Weather channel to be stored in the Main Memory.
- Press and hold the [**MW (SPL.W)**] key for 2 seconds. The display will indicate “**[F]H-**” and a channel number will blink on the LCD.
- Within five seconds of pressing the [**MW (SPL.W)**] key, rotate the **CHANNEL** selector knob to select the desired memory channel number for storage.

In order to prevent writing over memory channels, a bar will appear under the hyphen (located between “**[F]H-**” and the channel number) to indicate a vacant memory channel.

- Now press and hold in the [**MW (SPL.W)**] key for 2 seconds; you will now see “**_**” on the LCD. To attach an alpha/numeric name (label) to the memory, proceed to the next step; otherwise press and hold [**MW (SPL.W)**] for 2 seconds to save the entry and exit.
- To label a memory with an alpha/numeric name, the next step is to use the **CHANNEL** selector knob to select any of the 48 available characters (including letters, numbers, and special symbols).

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When the desired first character appears, press the **VOLUME** knob momentarily to move on to the next character.

- ❑ Select succeeding characters in the same manner, pressing the **VOLUME** key momentarily after each selection.
- ❑ After entering the entire name (eight characters maximum), press the [MW (SPL.W)] key for 2 seconds to save all data for the channel and exit.

Note: If you have stored a Weather Channel, the “WX-001 ~ WX-010” labels utilize the alphanumeric memory, and other labels may not be stored.

Alpha-tag Character											
0	1	2	3	4	5	6	7	8	9	A	B
C	D	E	F	G	H	I	J	K	L	M	N
O	P	Q	R	S	T	U	V	W	X	Y	Z
	()	+	=	*	/	Δ	∇	Σ	∫	..

RECALLING THE MEMORIES

- ❑ Press the **VOLUME** knob, repeatedly if necessary, until “MR” (Memory Recall) appears on the display. In the MR mode, you will see “CH..” and the previously selected channel number appearing on the LCD.
- ❑ Rotate the **CHANNEL** selector knob to select the desired memory channel.
- ❑ You may change the title structure of the Memory display type among:
 1. Channel Indication (sequential Channel Number, e.g. CH-001, CH-002, etc.);
 2. Frequency Indication (e.g. 134.350); or
 3. Alphanumeric Label (e.g. LAX TR).
- ❑ To change the Memory display title, press the [↔ (←)] key repeatedly, if necessary, until you get the desired display title structure.
- ❑ To exit the Memory mode, press the **VOLUME** knob momentarily to return to the VFO mode.

Note: In the “Book” Memory mode, you can change the memory channel in 10 channel steps, press the [F] key momentarily, then rotate the **CHANNEL** selector knob. The “E” icon will show at the right edge of the display when the 10 channel step tuning mode is active. Press the [F] key once more to resume normal channel selection in 1 channel step.

SCANNING OPERATION

The **VXA-100** allows you to scan automatically in the VFO*, Main Memory, “Book” Memory, or Weather Channel modes. It pauses on signals encountered, so you can talk to the station(s) on that frequency, if you like.

* In the VFO mode, the *automatic* scanner is only available in the **COM** band (118.000 - 136.975 MHz); when the scanner reaches the uppermost frequency in the **COM** band, it will revert to the bottom end of the **COM** band and repeat the scanning process until you cancel the scanning process.

If you wish to scan in the **NAV** band (108.000 - 136.975 MHz), you can do so manually, as described at the right.

Scanning operation is basically the same in each of the above modes.

- Press the [**SCAN (DW)**] key momentarily to start the automatic scanner *upward* (toward a higher frequency or a higher channel number).
- When the scanner encounters a signal, scanning pauses and the radio remains on that channel until one second after the signal disappears, after which scanning will resume.

- While the scanner remains paused on a frequency, the decimal point of the frequency display blinks. The display and keypad will be illuminated unless the Scan Lamp Feature is turned off.
- To change the scan direction, turn the **CHANNEL** selector knob *one click* in the opposite direction.
- To stop the automatic scanner, press the **PTT** switch or the **VOLUME** knob momentarily. You may also press [**SCAN (DW)**] key again.

The **VXA-100**'s automatic scanner is not operational in the **NAV** band (108.000 - 117.975 MHz), because the **NAV** stations (ILS, etc.) transmit constantly (thereby causing the scanner to stop repeatedly). However, you *can* scan manually in the **NAV** band, per the following procedure:

- Press and hold the [**SCAN (DW)**] key to start the manual scanner. Scanning will continue as long as the key is depressed.
- Release the [**SCAN (DW)**] key to stop the manual scanner immediately.

Note: When scanning upward in frequency, when the frequency reaches the **COM** Band (118.000 - 136.975 MHz) via manual scanning, the **VXA-100** will switch to the *automatic* scanner mode.

SCANNING OPERATION

Channel-Skip Scanning

Continuous-carrier stations like ATIS (Automatic Terminal Information Service) or Weather Broadcast stations inhibit scanner operation. Since these stations are always active, the scanner will be halted repeatedly on their channels. Such channels can be set to be “skipped” during scanning, if you like, so as not to interfere with automatic channel scanning:

- Recall the Memory Channel to be skipped during scanning.
- Press [F] → [9 (SKIP)] key. The “◀” icon will appear in the lower right corner, indicating that the channel is to be ignored during scanning.

- You can also designate a channel to be skipped while scanning. When the receiver is halted on a channel that you wish to skip, press and hold the [SCAN (DW)] key for 2 seconds (the “◀” icon will appear next to the channel to be skipped).
- Later, to re-enable the memory channel for scanning, repeat the first two steps. The “◀” icon will disappear by the channel you have just re-enabled.

Note: A memory set to be “skipped” is still accessible for *manual* memory selection using the **CHANNEL** selector knob.

DUAL WATCH OPERATION

The Dual Watch feature automatically checks for activity on a “priority” channel* while you are operating on another channel. During Dual Watch operation, the current channel and the Priority channel will each be polled for a 500 ms interval, as the **VXA-100** looks for activity on each channel.

- ❑ To start Dual Watch, press [F] → [SCAN (DW)]. The “DW” icon will appear on the display.
- ❑ While receiving on the “current” channel (not the Priority channel), you may push the **PTT** switch at any time to transmit on that channel.
- ❑ When a signal is received on the Priority channel, operation immediately shifts to the Priority channel, the “DW” icon will blink, and the display and keypad will become illuminated.

While receiving on the priority channel, if you momentarily press the **PTT** switch, Dual Watch will be disabled. You may then transmit on the Priority Channel.

- ❑ To stop Dual Watch, press [F] → [SCAN (DW)] key.
- ❑ If you wish, you may use both the Dual Watch and Scan features simultaneously. To do this, start the Dual Watch first, then start the Scanner.

* The “Priority” Channel is defined as the *last-used Memory Channel* (when using the VFO mode) or *Memory Channel 1* (when using the Main Memory or Book Memory modes).

PRIORITY DUAL WATCH OPERATION

Similar to Dual Watch operation (described above), Priority Dual Watch is an enhanced version which includes the following additional features:

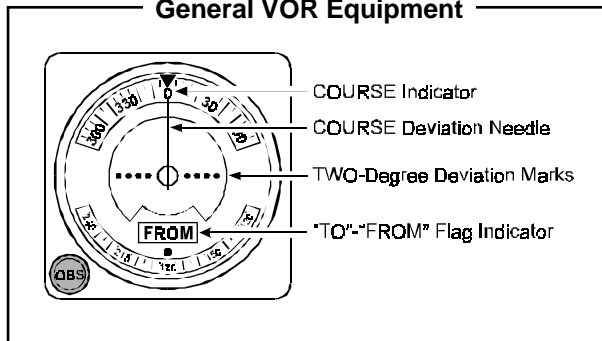
- The receiving time interval (ratio) between the current channel and the Priority channel may be customized via the Menu mode, item #9. See page 34 for details.
- Irrespective of which channel is currently being received, when the **PTT** button is pushed transmission will *always* occur on the Priority channel.

Before initiating Priority Dual Watch, Menu item #10 must be set to the “Priority” mode (instead of “Dual Watch”). See page 35 for details.

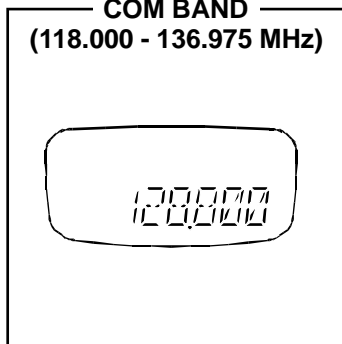
- ❑ To start Priority Dual Watch, press [F] → [SCAN (DW)].
The “DW” icon will appear on the display.
- ❑ While receiving on the “current” (non-Priority) channel, pressing the **PTT** button once causes the radio to switch to the Priority channel and cancels Dual Watch. Press the **PTT** button again to transmit on the Priority channel.
- ❑ When a signal is received on the Priority channel, reception immediately shifts to the Priority channel, “DW” icon will blink, and the display and keypad will become illuminated unless the Scan Lamp Feature is turned off.
While receiving on the priority channel, if you momentarily press the **PTT** switch, Priority Dual Watch will be disabled. You may then transmit on the Priority Channel.
- ❑ To stop Priority Dual Watch, press [F] → [SCAN (DW)] key.

VOR NAVIGATION

General VOR Equipment



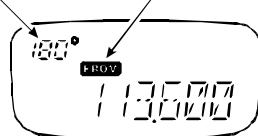
COM BAND (118.000 - 136.975 MHz)



NAV BAND (108.000 - 117.975 MHz)

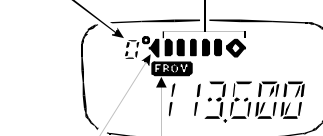
DVOR MODE

COURSE Indicator "TO"-"FROM" Flag Indicator



CDI MODE

COURSE Indicator COURSE Deviation Needle



"TO"-"FROM" Flag Indicator
OVERFLOW Indicator

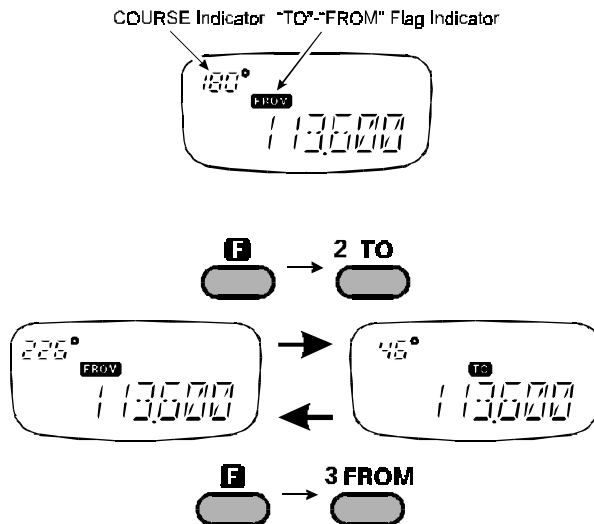
VOR NAVIGATION

To Select the DVOR Mode

- When entering the NAV band (108.000 - 117.975 MHz), the **VXA-100** selects the DVOR mode automatically. The “**COURSE DEVIATION INDICATOR**” field will appear at the upper left corner on the display, and the “**TO**” or “**FROM**” indicator will appear above the frequency display on the display.

Note: The “**COURSE DEVIATION INDICATOR**” indicates “- - -” when either your aircraft is too far away from the VOR station or the frequency is not correctly set to that of the VOR station. Conversely, the “**COURSE DEVIATION INDICATOR**” will indicate “**LOC**” when a localizer signal is being received.

- The “**TO**” or “**FROM**” flag indicators indicate whether the VOR navigation information is based on a course leading to the VOR station or leading away from the VOR station.
- To change the flag from “**TO**” to “**FROM**” or vice versa, press the [F] → [3 (FROM)] or [2 (TO)] key, respectively.



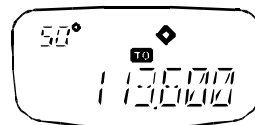
VOR NAVIGATION

Flying to a VOR Station

The **VXA-100** can indicate the deviation from the direct course to a VOR station.

- ❑ Select a VOR station on your aeronautical chart and turn the **CHANNEL** selector knob (or enter the frequency directly with the keypad) to the frequency of the VOR station.
- ❑ To indicate the deviation between your current flight path and the desired course, press **[F] → [4 (CDI)]** to change to the CDI (Course Deviation Indicator) mode. The “**COURSE DEVIATION ARROW**” will appear above the frequency field on the display when your aircraft is off the direct course to the VOR station.
- ❑ When your aircraft is off course to the *right*, the Course Deviation Arrow display will show bars to the left side of the diamond (“**||◇**”). When your aircraft is off course to the *left*, the Course Deviation Arrow display will show bars to the right side of the diamond (“**◇||**”). Correct your course until no bars appear on either side of the CDI “diamond” (only “**◇**” will be visible when the heading is correct).
- ❑ To return to the DVOR mode, press **[F] → [1 (DVOR)]**.

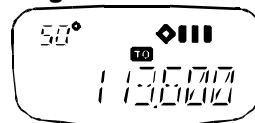
The Aircraft is “ON COURSE”



OFF COURSE to the “right” 6 degrees



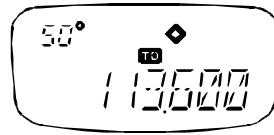
OFF COURSE to the “left” 6 degrees



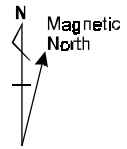
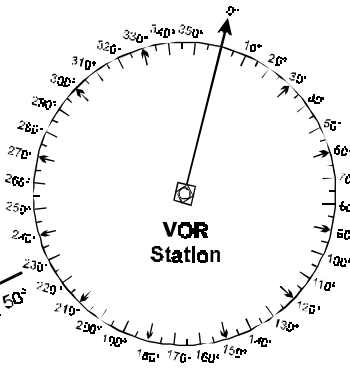
VOR NAVIGATION

The Aircraft is "ON COURSE"

VOR (TAC)
Los Angeles
LAX - 113.600MHz



Desired Course
Aircraft Heading 50°



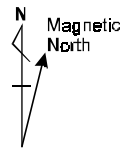
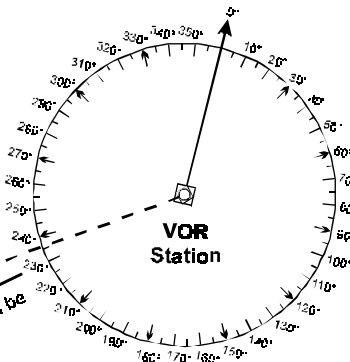
The Aircraft is "OFF COURSE"

VOR (TAC)
Los Angeles
LAX - 113.600MHz



Aircraft Heading 56°
(6° off course)
Flown course

Aircraft should be heading 50°



VOR NAVIGATION

Entering a Desired Course

The **VXA-100** can also be configured to indicate the deviation from the desired course, not only the deviation from the path to the VOR station.

- Set the frequency to the desired VOR station.
- To change the “**TO**” or “**FROM**” flag to “**TO**”, if it is not in that mode already.
- Press [**F**] → [**4 (CDI)**] key to change to the CDI mode.
- Set the desired course to the VOR station using the **CHANNEL** selector knob or keypad (three digits input; e.g. 47°, press [**0**] → [**4**] → [**7**]).

Note 1: The (“||◇”) or (“◇||”) indication will appear on the display when your aircraft is off the desired course.

Note 2: When your heading is correct, the **ABCS** function may be more useful than the course input option.

- The **COURSE DEVIATION ARROW** points to the *right* when your aircraft is off course to the *left*, and it points to the *left* when your aircraft is off course to the *right*.

Note 1: To get back on course, fly right more than the number of degrees indicated by the **COURSE DEVIATION ARROW**.

Note 2: If the overflow indicator “▶” appears on the right side, select a heading plus 10 degrees to the desired course; if the overflow indicator “◀” appears on the left side, select a heading minus 10 degrees.

ABCS Mode

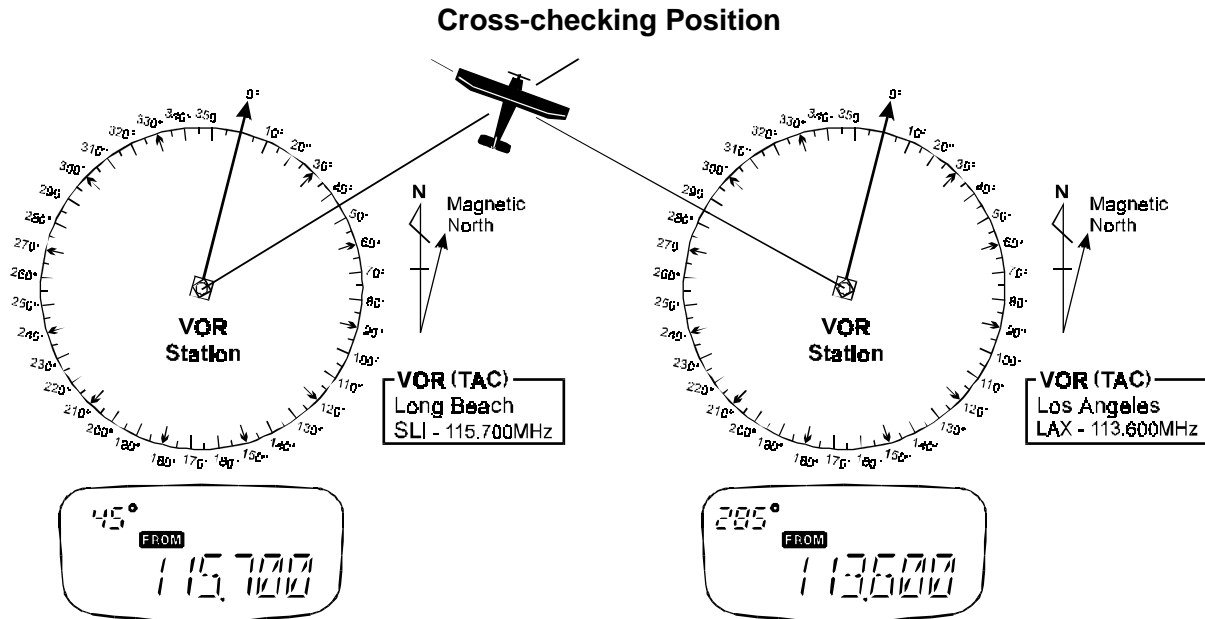
In the CDI mode, the Auto Bearing Center System (**ABCS**) adds or subtracts the number of degrees indicated by the CDI from the Omni Bearing Selector (OBS).

VOR NAVIGATION

Position Cross-checking

- Select two VOR stations on your aeronautical chart.
- Set the frequency of one of the VOR stations in the DVOR mode. The course indicator will show the course deviation from the VOR radial. Note the radial you currently are on.

- Now set the frequency of the other VOR station in the DVOR mode. Note the radial from the station you are on.
- Extend the radials from each VOR station on the chart. Your aircraft is located at the point where the lines intersect.



VOR NAVIGATION

Split Operation

The split operation feature allows you to transmit a call to a Flight Service Station using the COM band frequencies, while receiving a VOR station (in the NAV band). VOR stations equipped with this capability typically are shown, on navigation charts, with the voice calling frequency in parenthesis above the navigation frequency.

PROGRAMMING A TRANSMIT FREQUENCY

- ❑ Press the **VOLUME** knob, repeatedly if necessary, to select the VFO mode.
- ❑ Set a **NAV** band (108.000 - 117.975 MHz) frequency using the **CHANNEL** selector knob or keypad.
- ❑ Press **[F] → [MW (SPL.W)]** key. The “**SPL**” icon will blink, and the transmit frequency will appear on the display.
- ❑ Now set your radio’s transmit frequency, where the Flight Service Station will be listening for calls, using the **CHANNEL** selector knob or keypad.
- ❑ Press and hold in the **[MW (SPL.W)]** key for 2 seconds to save the transmit frequency and return to the **NAV** band frequency.

Note: You have now **stored** the separate transmit frequency, but you have not yet **activated** the *split-frequency function*; go on to the next section.

OPERATING IN THE SPLIT MODE

- ❑ It is assumed that you have already set the desired VOR station’s frequencies (in the NAV band) per the above instructions.
- ❑ Press **[F] → [7 (SPL)]** to turn on the **SPLIT** function. The “**SPL**” icon will appear on the display.
- ❑ Press and hold in the **PTT** switch to transmit on the split transmit frequency.
- ❑ Release the **PTT** switch to return to the receive mode.
- ❑ To disable the Split function, press **[F] → [7 (SPL)]** again.

Note: A split frequency can be programmed into each memory channel independently. Set a transmit frequency before programming the memory channel, if desired. The split function on/off setting can also be programmed into a memory channel.

FIELD PROGRAMMING MODE

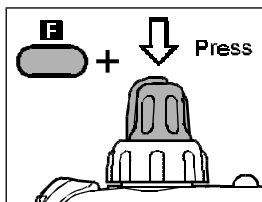
Memory Storage into the BOOK Memory

- Press and hold the **PTT** and **LAMP** switch while turning the radio on, to activate the Field Programming Mode.
- Select the desired frequency to be stored in the BOOK Memory.
- Press and hold the **[MW(SPL.W)]** key for ½ second. The display will indicate “**BOOK**” and a channel number will blink on the LCD.
- Within five seconds of pressing the **[MW(SPL.W)]** key, rotate the **CHANNEL** selector knob to select the desired memory channel number for storage.
- Now press and hold in the **[MW(SPL.W)]** key for ½ second; you will now see “**00000000**” on the LCD. To attach an alpha/numeric name (label) to the memory, proceed to the next step; otherwise press and hold the **[MW(SPL.W)]** key for ½ second to save the entry and exit.
- To label a memory with an alpha/numeric name, the next step is to use the **CHANNEL** selector knob to select any of the 48 available characters (including letters, numbers, and special symbols). When the desired first character appears, press down on the **VOLUME** knob momentarily to move on to the next character.
- Select succeeding characters in the same manner, pressing down on the **VOLUME** knob momentarily after each selection.
- After entering the entire name (eight characters maximum), press the **[MW(SPL.W)]** key for ½ second to save all data for the channel.

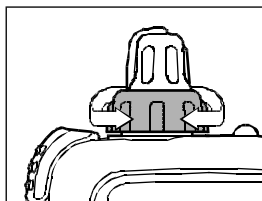
MENU (“SET”) MODE

The Menu system allows certain aspects of your radio’s configuration to be customized for your personal operating convenience. We do not recommend that any of the default settings be changed, however, until you are thoroughly familiar with the operation of the **VXA-100**.

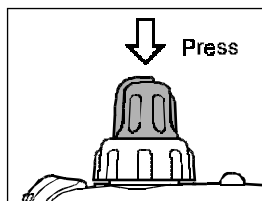
1. Press the [**F**] key, then press the **VOLUME** knob to activate the Menu (“SET”) mode.



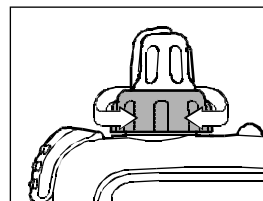
2. Rotate the **CHANNEL** selector knob to select the Menu item (feature) you wish to view and/or modify.



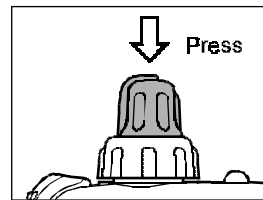
3. Once you have selected the desired Menu Item, press the **VOLUME** knob once to view the current setting for the item.



4. Rotate the **CHANNEL** selector knob to change the setting of the item (ON to OFF, etc.).

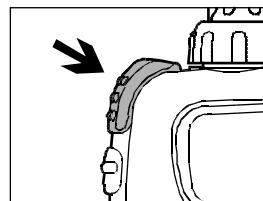


5. Press the **VOLUME** knob to save your new setting.



6. If you need to change more than one Menu item, repeat steps 2 - 5.

7. Press the **PTT** switch to exit the SET (Menu) mode.



MENU (“SET”) MODE

MENU Listing

A listing of the Menu items available via the SET mode may be found below.

SQL

Function: Squelch Level Setting

Available Values: 0 ~ 8

Default Setting: 6

Select a setting for this Menu item which just silences the receiver when no signal is present. Use the lowest setting which will keep the receiver quiet between incoming transmissions.

MCLR

Function: Memory Channel Clear

To Clear a Memory channel:

1. Recall the Memory channel (MR mode) which you wish to clear.
2. Select the Menu Item **MCLR**.
3. Press the **VOLUME** knob, then rotate the **CHANNEL** selector knob to recall the memory channel to be erased (“**SET xx**” will appear on the display).
4. Press the **VOLUME** knob, then turn the **CHANNEL** selector knob one click to change the display to “**CLR xx**”.

5. Press and hold the (inner) **VOLUME** knob for 2 seconds to exit.

Important Notice: An “erased” channel cannot be restored, and “**CH-001**” cannot be erased, as it is used for “Priority Channel” operation.

RESM

Function: Scan-Resume Mode Setting

Available Values: CAR/5

Default Setting: CAR

In the “CAR” (Carrier Drop) mode, the scanner will remain halted for as long as there is a carrier present on the channel; after the carrier drops at the end of the other station’s transmission, the scanning will resume.

In the “5” (5-Second Pause) mode, the scanner will halt for five seconds only, after which scanning will resume (whether or not the other station is still transmitting).

MENU (“SET”) MODE

SCNL

Function: Scan Lamp On/Off (while paused)

Available Values: ON/OFF

Default Setting: ON

If you set this function to “ON,” the lamp will be illuminated whenever the scanner stops.

BEEP

Function: Keypad Beeper on/off

Available Values: ON/OFF

Default Setting: ON

If you do a lot of scanning, you may wish to set this Menu item to “Off,” as the Beeper will be heard each time the scanner halts.

RSAV

Function: Receive Battery Saver

Available Values: ABS/1:1 ~ 1:10

Default Setting: ABS (Automatic Battery Saver, based on activity on receiver)

The setting of 1:10 will promote the greatest conservation of battery capacity, but the receiver’s response time to incoming calls will be slowed somewhat.

Note: This feature does not operate during Scan or Dual Watch.

LAMP

Function: LCD Illumination Mode

Available Values: KEY/TGL/5

Default Setting: 5

In the “KEY” mode, the lamp will be activated for 5 seconds when a front panel key is pressed.

In the “TGL” mode, the **LAMP** switch toggles the lamp on and off.

In the “5” mode, the **LAMP** switch activates the lamp for 5 seconds.

SFT

Function: CPU clock shift

Available Values: ON/OFF

This is used only at the factory. **Do not change this Menu item’s setting!**

PRTM

Function: Priority Checking Time

Available Values: 05/10/15/20/25/30 (x0.1 sec)

Default Setting: 20 (2 seconds)

This Menu item allows you to define how often the Priority Channel will be checked for activity.

Note: The Dual Watch Polling time is 500 mS (fixed).

MENU (“SET”) MODE

DWMD

Function: Select the Dual Watch/Priority function

Available Values: DW/PRI

Default Setting: DW

In the DW mode, the **VXA-100** will activate the Dual Watch feature when you press [F] → [**SCAN (DW)**].

In the PRI mode, the **VXA-100** will activate the Priority feature when you press [F] → [**SCAN (DW)**].

SPECIFICATIONS

General

Frequency Range: TX 118.000 - 136.975 MHz(COM Band)
RX 108.000 - 117.975 MHz (NAV Band)
118.000 - 136.975 MHz(COM Band)
Weather Channels (WX-01 - WX-10)

Channel Spacing: 25 kHz

Emission Type: TX AM
RX AM & FM

Supply Voltage: 6.0 - 15.0 VDC

Current Consumption: 53 mA (squelch off)
175 mA (receive)
840 mA (transmit 1.5 W)

Temperature Range: -10° to +60° C

Case Size (WxHxD): 57 x 99 x 39 mm w/FNB-41

Weight (approx.): 365 grams
with FNB-41, antenna, and belt clip

Receiver

Circuit Type: Double-conversion superheterodyne

IFs: 35.4 MHz & 450 kHz

Sensitivity: <1 μ V
(for 6 dB S/N with 1 kHz, 30 % modulation)

Selectivity: <8 kHz/-6 dB

Adjacent CH. Selectivity: <25 kHz/-60 dB

AF Output (@13.8 V): 0.5 W @ 8 Ohms, 10 % THD

Specifications are subject to change without notice or obligation.

Transmitter

Power Output (@ 9.6 V): 5.0 W (PEP), 1.5 W (Carrier Power)

Frequency Stability: Better than ± 5 ppm (-10 °C to +60 °C)

Modulation System: Low Level Amplitude Modulation

Spurious Emission: > 60 dB below carrier

Int. Microphone Type: Condenser

Ext. Mic. Impedance: 150 Ohms

ACCESSORIES & OPTIONS

Supplied Accessories

Ni-Cd Battery Pack **FNB-41**

Wall Charger **NC-60B**

Belt Clip **CLIP-6**

Headset Cable **CT-60**

Helical Antenna **ATV-7**

Operating Manual

Available Options

MH-44A4B Speaker Microphone

CN-3 Antenna Adapter

FBA-21 Alkaline Battery Case

CLIP-6 Belt Clip

NC-60C 220 VAC Wall Charger

CD-14 Rapid Charger

E-DC-5B External Power Cable

CSC-68 Soft Case

This device complies with Part 15 of the FCC rules.
Operation is subject to the condition that this device
does not cause harmful interference.

YAESU

... leading the way.SM

YAESU MUSEN CO., LTD.

1-20-2 Shimomaruko, Ota-Ku, Tokyo 146-8649, Japan

YAESU U.S.A.

17210 Edwards Rd., Cerritos, CA 90703, U.S.A.

YAESU EUROPE B.V.

Snipweg 3, 1118DN Schiphol, The Netherlands

YAESU UK LTD.

Unit 12, Sun Valley Business Park, Winnall Trading Estate
Winchester, Hampshire, SO23 0LB, U.K.

YAESU GERMANY GmbH

Am Kronberger Hang 2, D-65824 Schwalbach, Germany

YAESU HK LTD.

11th Floor Tsim Sha Tsui Centre, 66 Mody Rd.,
Tsim Sha Tsui East, Kowloon, Hong Kong

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