

① PWR Switch

Press and hold in the **PWR** switch for one second to turn to the transceiver on or off.

② AF Knob

The (inner) **AF** knob adjusts the receiver audio volume level presented to the internal or external speaker. Clockwise rotation increases the volume level.

③ SQL/RF Knob

In the USA version, this (outer) **SQL/RF** knob adjusts the gain of the receiver's RF and IF stages. Using Menu Selection 45, this control may be changed to function as a Squelch control, which may be used to silence background noise when no signal is present. In the other versions, its default setting is set to "Squelch".

④ LOCK Key

Pressing this key locks the front panel keys so as to prevent accidental frequency change.

⑤ V/M Key

Pressing this key switches frequency control between the VFO and Memory Systems.

⑥ TRANSMIT/BUSY Indicator

This LED glows green when the squelch opens, and turns red during transmit.

⑦ MAIN Dial

This is the main tuning dial for the transceiver. It is used both for frequency tuning as well as "Menu" setting in the transceiver.

⑧ F Key

Pressing this key momentarily changes the display to show the operating functions available via the **A**, **B**, **C** keys.

Press and hold this key for one second to activate the "Menu" mode.

⑨ FUNC Keys

These three keys select many of the most important operating features of the transceiver. When pressing the **F** key, the current function of that key appears above each of the **A**, **B**, **C** keys (along the bottom of the LCD); rotating the **SEL** knob scrolls the display through eleven rows of functions available for use via the **A**, **B**, **C** keys.

The available features are shown in chart on the next page.

⑩ BAND(DWN)/BAND(UP) Key

Pressing either of these keys momentarily will cause the frequency to be moved up or down by one frequency band. The selections available are:

1.8 MHz ↔ 3.5 MHz ↔ 5.0 MHz ↔ 7.0 MHz ↔ 10 MHz ↔ 14 MHz ↔ 15 MHz ↔ 18 MHz
↓
430 MHz ↔ 144 MHz ↔ 108 MHz ↔ 88 MHz ↔ 50 MHz ↔ 28 MHz ↔ 24 MHz ↔ 21 MHz

⑪ MODE(◀)/MODE(▶) Key

Pressing either of these keys momentarily will change the operating mode. The selections available are:

→ LSB ↔ USB ↔ CW ↔ CWR ↔ AM ↔ FM ↔ DIG ↔ PKT ←

⑫ HOME Key

Pressing this key momentarily recalls a favorite "HOME" frequency memory.

⑬ SEL Knob

This detented rotary switch is used for tuning, memory selection, and function selection for the **A**, **B**, **C** keys of the transceiver.

⑭ CLAR Key

Press this key momentarily to activate the Receiver Clarifier feature. When this feature is activated, the **SEL** knob may be used to set a tuning offset of up to ±9.99 kHz. The transmitter's frequency is not affected by the setting of the Clarifier.

Press and hold this key for 1/2 second to activate the IF Shift feature, which allows you to use the **SEL** knob to adjust the center frequency of the IF filter's passband response.

⑮ ANT Jack

Connect the supplied 50/144/430 MHz rubber flex antenna (or another antenna presenting a 50Ω impedance) to this BNC connector.

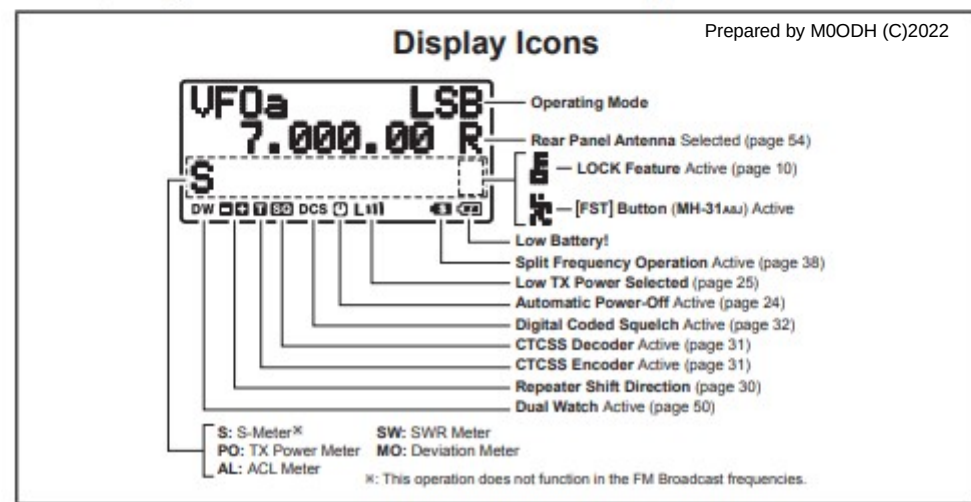
In its default setting, this jack does not function on the HF bands. If you want to enable this jack on the HF bands, recall and change the setting of Menu #07.

Front Panel Control & Switches

	A key	B key	C key
1	A/B Press the A key to switch between VFO-A and VFO-B on the display.	A=B Press and hold in the B key for 1/2 second to copy the contents of VFO-A into the VFO-B register, so that the two VFOs' contents will be identical.	SPL Press the C key to activate Split frequency operation between VFO-A and VFO-B.
2	MW Press and hold in the A key for 1/2 second to transfer the contents of the VFO into a Memory register.	MC Press the B key to designate the current Memory channel to be "skipped" during scanning.	TAG Press the C key to select the display type (Frequency or Alpha-numeric Tag) during Memory operation.
3	STO Press the A key to store the contents of the VFO into the QMB (Quick Memory Bank) register.	RCL Press the B key to recall the QMB Memory.	PMS Press the C key to activate the Programmable Memory Scan feature.
4	RPT Press the A key to select the direction of the uplink frequency shift ("−", "+", or Simplex) during FM repeater operation. Press and hold in the A key for 1/2 second to recall Menu #42 (for setting the shift frequency offset).	REV Press the B key to reverse the transmit and receive frequencies while working through a repeater.	TON Press the C key to activate CTCSS or DCS operation. Press and hold in the C key for 1/2 second to recall Menu #48 (for selecting the CTCSS tone frequency).
5	SCN Press the A key to initiate scanning (in the direction of higher frequencies).	PRI Press the B key to activate the Priority Scan feature.	DW Press the C key to activate the Dual Watch system.
6	SSM Press the A key to activate the Spectrum Scope Monitor feature. Press and hold in the A key for 1/2 second to recall Menu #43 (for selecting the SSM sweep mode).	SCH Press the B key to activate Smart Search™ operation.	ART Press the C key to initiate the Auto-Range Transponder mode. Press and hold in the C key for 1/2 second to recall Menu #09 (for selecting the ARTS "Beep" option).
7	IPO Press the A key to bypass the receiver preamplifier, thereby activating Intercept Point Optimization for improved overload characteristics. The IPO feature does not function on 144/430 MHz.	ATT Press the B key to engage the receiver front-end attenuator, which will reduce all signals and noise by approximately 10 dB. The ATT feature does not function on 144/430 MHz.	NAR Press the C key to activate the "Narrow" filter mode in the CW (optional YF-122C or YF-122CN required) mode. On the FM mode, it also selects the low-deviation mode required for HF FM operation on 29 MHz. Press and hold in the C key for 1/2 second to recall Menu #38 (to Enable/Disable the optional filter during installation).

	A key	B key	C key
8	NB Press the A key to activate the receiver's IF Noise Blanker.	AGC Press the B key to select the recovery time (Fast , Slow , Auto , or Off) for the receiver's AGC system.	— No function
9	PWR Press the A key to select the transmitter power output level (Low 1 , Low 2 , Low 3 , or High).	MTR Press the B key to select the display function of the meter in the transmit mode (Power, ALC, SWR, or MOD indication).	— No function
10	VOX Press the A key to enable the VOX (voice-operated transmitter switching system) in the SSB, AM, and FM modes. Press and hold in the A key for 1/2 second to recall Menu #51 (for setting the VOX Gain level).	BK Press the B key to activate CW "Semi" Break-in operation. Press and hold in the B key for 1/2 second to recall Menu #17 (for setting the CW Delay time). At a setting of 10 ms, operation emulates full QSK performance.	KYR Press the C key to activate the built-in Electronic Keyer. Press and hold in the C key for 1/2 second to recall Menu #21 (for setting the Keyer speed).
11	CHG Press the A key to initiate Battery Charging. Press and hold in the A key for 1/2 second to recall Menu #11 (for selecting the Charging period).	VL Press the B key to display the current battery voltage.	DSP Press the C key to switch the display between the <i>Large</i> Character and <i>Small</i> Character modes.
12	TCH Press the A key to initiate Tone Search.	DCH Press the B key to initiate DCS Search.	— No function

* The Operating Function number in this column does not appear on the LCD.

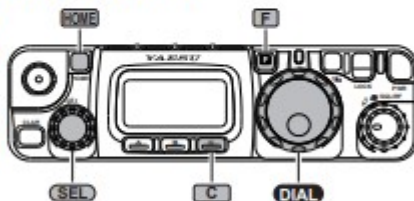


Menu Operation

The Menu System allows you to customize a wide variety of transceiver performance aspects and operating characteristics. Once you have gone through the various Menu customization procedures initially, you will find that you will not have to resort to them frequently during everyday operation.

Menu Operation

1. Press and hold in the **[F]** key for one second. The Menu Item number and a brief title for the Menu Item will appear in the display.
2. Rotate the **[SEL]** knob to select the Menu Item you wish to work on.
3. When you have chosen the desired Menu Item number, rotate the **[DIAL]** knob to change the value or condition for the Menu Item.
4. When you have made your selection, press and hold in the **[F]** key for one second to save the new setting and exit to the normal operation.



- In step (3) above, if you press the **[HOME]** key momentarily, it will reset the setting of that Menu Item to its factory-default value.
- In step (4) above, if you press the **[C]** key momentarily, you will exit to normal operation without saving the new setting.

Menu Item	Function	Available Values	Default
01 144 ARS	Activate/deactivate the Automatic Repeater Shift when operating on the 144 MHz band	OFF/ON	×1
02 430 ARS	Activate/deactivate the Automatic Repeater Shift when operating on the 430 MHz band	OFF/ON	×1
03 9600 MIC	Adjust the audio input level from the TNC during 9600 bps Packet operation	0 ~ 100	50
04 AM&FM DL	Enabling/disabling the [DIAL] knob on the AM and FM modes	ENABLE/DISABLE	DISABLE
05 AM MIC	Adjust the microphone gain level for the AM mode	0 ~ 100	50
06 AM STEP	Select the tuning steps for the [SEL] knob on the AM mode	2.5/5/9/10/12.5/25kHz	×1
07 ANTENNA	Select the antenna connector to be used on each operating band (HF/50/144/430 MHz)	FRONT/REAR	×1
08 APO TIME	Select the Auto Power Off time (time before power goes off)	OFF/1h ~ 6h	OFF
09 ARTS BEEP	Select the ARTS beep mode	OFF/RANGE/ALL	RANGE
10 BACKLIGHT	Select the LCD lamp mode	OFF/ON/AUTO	AUTO
11 BATT-CHG	Select the battery charging time	6/8/10 h (hours)	10
12 BEEP FREQ	Select the beep frequency	440/880 Hz	880 Hz
13 BEEP VOL	Select the beep volume	0 ~ 100	50
14 CAT RATE	Set the transceiver's circuitry for the CAT baud rate	4800/9600/38400 bps	4800 bps
15 COLOR	Select the illumination color for the LCD illumination	COLOR1 (Blue)/ COLOR2 (Amber)/ COLOR3 (Violet)	COLOR1
16 CONTRAST	Setting of the display contrast level	1 ~ 12	5
17 CW DELAY	Set the receiver recovery time during pseudo-VOX CW semi-break-in operation	10 ~ 2500 msec	250 msec
18 CW ID	Enables/disables the CW identifier during ARTS operation	OFF/ON	OFF
19 CW PADDLE	Select the keyer paddle's wiring configuration	NORMAL/REVERSE	NORMAL

Menu Item	Function	Available Values	Default
20 CW PITCH	Setting of the pitch of the CW sidetone, BFO offset, and CW filter center frequencies	300 ~ 1000 Hz	700 Hz
21 CW SPEED	Set the sending speed for the built-in Electronic keyer	4 wpm ~ 60 wpm/ 20 cpm ~ 300 cpm	12 wpm (60 cpm)
22 CW WEIGHT	Set the Dot-Dash ratio for the built-in electronic keyer	1:2.5 ~ 1:4.5	1:3.0
23 DCS CODE	Setting the DCS code	104 Std DCS codes	023
24 DIG DISP	Define the displayed frequency offset during DIG (USER-L or USER-U) mode operation	-3000 ~ +3000 Hz	0 Hz
25 DIG MIC	Adjust the audio input level from terminal equipment (such as a TNC or PSK-31 sound card) during DIG (Digital) mode operation	0 ~ 100	50
26 DIG MODE	Select the mode and sideband (if applicable) in the DIG (Digital) mode	RTTY/ PSK31-L/PSK31-U/ USER-L/USER-U	RTTY
27 DIG SHIFT	Define the carrier frequency offset during DIG (USER-L or USER-U) mode operation	-3000 ~ +3000 Hz	0 Hz
28 EMERGENCY	Enable Tx/Rx operation on the Alaska Emergency Channel, 5167.5 kHz (USA Version only)	OFF/ON	OFF
29 FM MIC	Adjust the microphone gain level for the FM mode	0 ~ 100	50
30 FM STEP	Select the tuning steps for the [SEL] knob on the FM mode	5/6.25/10/12.5/15/ 20/25/50 kHz	×2
31 ID	Store your call sign into the CW identifier	—	YAESU
32 LOCK MODE	Select the operation of the front panel's [LOCK] key	DIAL/FREQ/PANEL	DIAL
33 MAIN STEP	Setting of the [DIAL] 's tuning speed	FINE/COARSE	FINE
34 MEM GROUP	Enable/disable the memory grouping feature	OFF/ON	OFF
35 MEM TAG	Store Alpha-Numeric "Tags" for the memory channels	—	—
36 MIC KEY	Enable/disable CW keying by the microphone's [UP]/[DOWN] keys	OFF/ON	OFF
37 MIC SCAN	Enable/disable scanning access	OFF/ON	ON
38 OP FILTER	Enable the optional filter (CW or SSB)	OFF/SSB/CW	OFF
39 PKT MIC	Adjust the audio input level from the TNC during 1200 bps Packet operation	0 ~ 100	50
40 PKT RATE	Set the transceiver's circuitry for the Packet baud rate	1200/9600 bps	1200 bps
41 RESUME	Set the delay time for scanning resumption	OFF/3/5/10 seconds	5 sec
42 RPT SHIFT	Set the magnitude of the Repeater Shift	0 ~ 99.99 MHz	×2
43 SCOPE	Select the Spectrum Scope mode	CONT/CHK	CONT
44 SIDETONE	Adjust the CW sidetone volume level	0 ~ 100	50
45 SQL/RF-G	Select the configuration of the front panel's [SQL/RF] knob	RF-GAIN/SQL	×1
46 SSB MIC	Adjust the microphone gain level for the SSB mode	0 ~ 100	50
47 SSB STEP	Select the tuning steps for the [SEL] knob on the SSB mode	1/2.5/5 kHz	2.5 kHz
48 TONE FREQ	Setting the CTCSS Tone Frequency	50 Std CTCSS tones	88.5 Hz
49 TOT TIME	Select the Time-Out-Timer time	OFF/1 ~ 20 min	OFF
50 VOX DELAY	Set the "hang time" for the VOX circuitry	100 ~ 2500 msec	500 msec
51 VOX GAIN	Set the gain of the VOX circuitry's input audio detector	1 ~ 100	50
52 EXTEND	Enable/disable the extended Menu Items (#53 ~ #57)	OFF/ON	OFF
53 DCS INV	Select "Normal" or "Inverted" DCS coding	Tn-Rn/Tn-Riv/ Tiv-Rn/Tiv-Riv	Tn-Rn
54 R LSB CAR	Set the Rx Carrier Point for LSB	-300 ~ +300 Hz	0 Hz
55 R USB CAR	Set the Rx Carrier Point for USB	-300 ~ +300 Hz	0 Hz
56 T LSB CAR	Set the Tx Carrier Point for LSB	-300 ~ +300 Hz	0 Hz
57 T USB CAR	Set the Tx Carrier Point for USB	-300 ~ +300 Hz	0 Hz

*1: Depends on transceiver version.

*2: Depends on operating band and transceiver version.

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Operation

Operating Band Selection

This transceiver covers an incredibly wide frequency range, over which a number of different operating modes are used. Therefore, this transceiver's frequency coverage has been divided into different operating bands, each of which has its own preset channel steps and operating modes. You can change the channel steps and operating mode once you get started, of course, per the next section.

To change the frequency band, press either the **[BAND/DWN]** or **[BAND/UP]** key to move to the next lower or higher operating band, respectively.

1.8 MHz ↔ 3.5 MHz ↔ 5.0 MHz ↔ 7.0 MHz ↔ 10 MHz ↔ 14 MHz ↔ 15 MHz ↔ 18 MHz
430 MHz ↔ 144 MHz ↔ 108 MHz ↔ 88 MHz ↔ 50 MHz ↔ 28 MHz ↔ 24 MHz ↔ 21 MHz

- 1) **Recalling the 5 MHz band (U.S. model) requires different procedure. See page 20 for details.**
- 2) **VFOa and VFOb are independent VFOs, so they may be set to different bands. See the "Stacked VFO System" discussion on page 19 for details.**

Mode Selection

Press either the **[MODE/L]** or **[MODE/R]** key to move among the eight settings for the operating modes, respectively.

→ LSB ↔ USB ↔ CW ↔ CWR
→ AM ↔ FM ↔ DIG ↔ PKT

You can also set VFOa and VFOb to different modes in the same band, allowing you to have a "Phone" VFO and a "CW" VFO, for example.

Adjusting the Audio Volume Level

Rotate the **[AF]** knob to set a comfortable listening level.

When operating in the "DIG" or "PKT" modes, you may set the **[AF]** knob to any comfortable setting, or even all the way off, because the output from the **DATA** jack is a fixed-level audio signal.

Start with the **[AF] knob set fully counter-clockwise, especially when using FM (the background noise on FM can be surprisingly loud)!**

Adjusting the RF Gain and Squelch

The **[SQL/RF]** control is configured differently, depending on the country to which the **FT-818** has been exported. In the U.S. version, the default function of this control is "**RF Gain**". The configuration of the **[SQL/RF]** control is set via Menu #45; see page 61 for details.

If your transceiver is configured for "RF Gain" use, rotating this control fully clockwise in the SSB/CW/Digital modes will provide best sensitivity. To reduce the receiver's RF Gain somewhat, rotate this control counter-clockwise slightly. You will observe an increasing number of bars on the S-meter as you rotate the **[SQL/RF]** control counter-clockwise; this indicates increasing AGC voltage, which is causing the front-end gain to be reduced. In the FM and Packet modes, this control will automatically be set to an "**Auto-Squelch**" mode, wherein the FM/Package squelch threshold is preset at the factory; the **[SQL/RF]** control still acts as an "**RF Gain**" control, however, and it normally should be set fully clockwise.

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AGC (Automatic Gain Control)

The receiver recovery time constant of the AGC system may be modified to match your operating needs.

1. Press the **[F]** key momentarily, then rotate the **[SEL]** knob, as needed, until Operating Function Row 8 [NB, AGC] appears on the display.
2. Press the **[B]** (AGC) key to toggle the AGC recovery time constant among the following selections:
"AGCauto" → "AGCfast" → "AGCslow" → "AGCoff" → "AGCauto"
where "AGCauto" represents "AGCfast" on CW and DIG(AFSK), and "AGCslow" on the voice modes.

If "AGCoff" selected, the S-meter (which monitors AGC voltage) will cease to function.

Clarifier (Receiver Incremental Tuning)

The Clarifier allows you to set an offset of up to ±9.99 kHz of the receive frequency relative to your transmit frequency. To achieve a wider offset than this, you may use the "Split" operating mode, described later.

1. Press the **[CLAR]** switch momentarily to activate the Clarifier function.
2. Turn the **[SEL]** knob, which allows the receiver frequency to be varied over a range of 9.99 kHz.
3. When the receiving frequency is higher than transmit frequency, the "↑" icon will appear at the right of the frequency display. Similarly, when the receiving frequency is lower than transmit frequency, the "↓" icon will appear at the right of the frequency display.
4. When the receiving frequency is equal to transmit frequency (Clarifier offset is zero) while the Clarifier is activated, the "—" icon will appear at the right of the frequency display.
5. To turn the Clarifier off, again press the **[CLAR]** switch momentarily. When you turn the Clarifier back on, the offset previously stored will still be applied.
6. To reset the Clarifier offset to zero, turn the Clarifier off, then turn the **[DIAL]** knob by any amount. The Clarifier will reset to zero after the first "step" of the **[DIAL]** knob.

If you leave the Clarifier on, moving the **[DIAL] knob will not cause the offset to be cancelled.**

IF SHIFT

The receiver's IF SHIFT feature is an effective interference-reduction tool, which allows you to shift the passband response higher or lower without changing the pitch of the incoming signal.

1. Press the **[CLAR]** switch for one second to activate the IF SHIFT feature. A "↓", "•", or "↑" icon will appear at the right of the frequency display to indicate the IF SHIFT's current position.
2. Rotate the **[SEL]** knob, as needed, to reduce or eliminate the interference.
3. To turn the IF SHIFT feature off, again press the **[CLAR]** switch for one second. The last setting of the IF SHIFT control will be retained until you change it again.
4. If you wish to make a more permanent shift in the receiver's IF passband, use Menu #54 (LSB) or #55 (USB) in the "Extended Menu". This allows you to set up a higher or lower listening pitch, if you prefer such as compared to the default passband response. See page 62.

Engaging of the IF Shift feature does not disable the setting of the Clarifier control. With the IF Shift activated, press the **[CLAR] switch momentarily to switch to Clarifier operation.**

SSB Transmission

Basic Setup/Operation

1. Press the **[MODE/L]** / **[MODE/R]** key so as to select either SSB (LSB/USB) mode. If you are operating on the 7 MHz or lower bands, select the LSB mode. If you are operating on the 14 MHz or higher bands, select the USB mode.
2. Press the **[F]** key momentarily, then rotate the **[SEL]** knob, as needed, until Operating Function Row 9 [PWR, MTR] appears on the display, then press the **[B]** (MTR) key to select the "ALC" meter function ("alc" will appear at the right side of the "MTR" icon).
3. Press the microphone's **PTT** switch, and speak into the microphone in a normal voice while watching the meter. The ideal audio input level to the transmitter from the microphone will cause a few "segments" of indication on the ALC meter. Release the **PTT** switch to return to receive mode.
4. If the ALC meter is too high, or too low, you may need to reset the Microphone Gain:
 - ① Press and hold in the **[F]** key for one second to enter the Menu mode.
 - ② Rotate the **[SEL]** knob to recall Menu #46 (SSB MIC).
 - ③ Close the **PTT** switch, and while speaking into the microphone rotate the **[DIAL]** knob until the proper ALC indication is achieved on voice peaks.
 - ④ When done, press and hold in the **[F]** key to save the new setting for the Microphone Gain.

Adjusting the Transmitter Power Output

Four power levels are available on the **FT-818**: 6 Watts, 5 Watts, 2.5 Watt, and 1.0 Watt.

The power level is easy to change:

1. Press the **[F]** key momentarily, then rotate the **[DIAL]** knob to select Operating Function Row 9 [PWR, MTR].
2. Press the **[A]** (PWR) key, as needed, to set the desired power level. The icon will change, based on the power level you have set.

High	Low 3	Low 2	Low 1
-	LII	LII	LI
6 W (AM: 2 W)	5 W (AM: 1.7 W)	2.5 W (AM: 1 W)	1 W (AM: 0.7 W)

•When using the SBR-32MH Ni-MH Battery Pack or Alkaline Battery Holder*

High	Low 3	Low 2	Low 1
LII (Blinks)	LII (Blinks)	LII	LI
2.5 W (AM: 1 W) or more	2.5 W (AM: 1 W) or more	2.5 W (AM: 1 W)	1 W (AM: 0.7 W)

*(The same performance is expected when the supplied voltage to the DC jack is about 12V or less.)

IPO (Intercept Point Optimization)

The IPO feature bypasses the receiver RF preamplifier, thereby eliminating the preamp's gain. This feature is not available on the 144 MHz and 430 MHz.

1. Press the **[F]** key momentarily, then rotate the **[SEL]** knob, as needed, until Operating Function Row 7 [IPO, ATT, NAR] appears on the display.
2. Press the **[A]** (IPO) key to bypass the receiver input preamplifier. The "►" icon will appear at the right of the "IPO" indication.
3. Press the **[A]** (IPO) key once more to re-activate the preamp.

On the bands below 14 MHz, the input preamplifier is rarely necessary, and activation of the IPO feature will provide substantial protection against intermodulation and other problems associated with strong signal input to the receiver. Rule of thumb: so long as the S-meter is moving on background noise, additional front-end gain is not necessary.

ATT (Front End Attenuator)

The Attenuator will reduce all signals (and noise) by 10 dB, and it may be used to make reception more pleasant under extremely noisy conditions. This feature is not available on the 144 MHz and 430 MHz.

1. Press the **[F]** key momentarily, then rotate the **[SEL]** knob, as needed, until Operating Function Row 7 [IPO, ATT, NAR] appears on the display.
2. Press the **[B]** (ATT) key to activate the Attenuator. The "►" icon will appear at the right of the "ATT" indication.
3. Press the **[B]** (ATT) key once more to switch the Attenuator out of the receiver front end circuit.