Front Panel Controls & Switches

(1) MAIN VOL/SQL Knob

MAIN VOL Knob

The inner **MAIN VOL** knob adjusts the audio volume of the MAIN receiver in the speaker or headphones.

SQL Knob

The outer **SQL** knob sets the signal level threshold at which MAIN receiver audio is muted (and the "**BUSY**" icon in the LCD turns off), in all mode. This is normally kept fully counter clockwise, except when scanning and during FM operation.

(2) SUB VOL/TONE Knob

SUB VOL Knob

This inner **SUB VOL** knob adjusts the audio volume of the SUB receiver in the speaker or headphones.

TONE Knob

The outer **TONE** knob adjusts receiver audio characteristics.

(3) PHONES Jack

This 3-pin ("stereo") miniature jack is used for connection to your headphones. When a plug is inserted into this jack, the internal (or external) speaker will be cut off.

This jack's impedance is optimized for use with 16Ω to 32 Ω headphone type.

(4) PWR Knob

This is a main on/off switch for the **VR-5000**. Press and hold this switch for one second to toggle the receiver's power on and off.

(5) LCD (Liquid Crystal Display)

The upper half of the display consists of dot-matrix display for frequency readout and various icons representing enabled receiver features.

The lower half contains a dot-matrix display for **Band Scope** viewing, menu programming, and alpha numeric name display etc.

(6) Functions Keys

[M/S(SUB SET)] Key

Press this key momentarily, to toggle the operating VFO between MAIN VFO and

SUB VFO.

Press this key *after **[F]** key is pressed*, to toggle the VFO link feature on and off.

[BS(BS SET)] Key

Press this key momentarily, to toggle the **Band Scope** feature on and off.

Press this key *after **[F]** key is pressed* when the **Band Scope** is activated, activate the SUB VFO cursor which enable the SUB VFO tuning.

[WIDTH(BS STEP)] Key

Press this key momentarily, to select the **Band Scope** sweep width.

Press this key *after **[F]** key is pressed* when the **Band Scope** is activated, select the **Band Scope** sweeping step.

[SCAN(M-S SCAN)] Key

Press this key momentarily, to activate the scanning.

Press this key *after **[F]** key is pressed*, to activate the M-S Scanning.

M-S Scan: The scanner activates between the MAIN VFO frequency and SUB VFO frequency.

[PMS(PMS SET)] Key

Press this key momentarily, to activate the Programmable Memory Scan.

Press this key *after **[F]** key is pressed*, to enable the PMS memory programming.

[CLR(PRI CLR)] Key

Press this key momentarily,

Press this key *after **[F]** key is pressed*, to disable the Priority.

[V(DIM)] Key

Press this key momentarily, to enable the display brightness setting.

Press this key *after **[F]** key is pressed*, activates the optional **FVS-1A** Voice Synthesizer Unit which provides announcement of the operating frequency (with resolution to the displayed 100 Hz digit) for operators with vision impairments.

(7) PS Key

Press this key momentarily, to recalls the one of up to five **PS** (**P**re**S**et) memories for operation.

Press and hold this key for one second, to store the operating parameters into consecutive **PS** memories.

(8) Command Keys

[MODE(ADRS)] Key

Press this key momentarily, to select the operating (receiving) mode.

Press this key *after **[F]** key is pressed*, to select the recording field for the voice recorder (required the optional **FVS-1A** Voice Synthesize Unit)

[COPY(REC)] Key

Press this key momentarily, copy the SUB VFO data into the MAIN VFO.

Press this key *after **[F]** key is pressed*, to start the voice recorder.

[STEP(PLAY)] Key

Press this key momentarily, to select the synthesizer steps to be used during VFO operation.

Press this key *after **[F]** key is pressed*, to playback the voice recorder.

[V/M(MW)] Key

Press this key momentarily, to change the frequency control between the VFO and the Memory system.

Press this key *after **[F]** key is pressed*, to store the frequency into memory.

[BANK] Key

Press this key momentarily, to select the memory bank.

(9) τ(θ)/υ(π) Keys

In the VFO mode, pressing either of these keys momentarily step (according to the **DIAL** knob's step) the operating frequency down or up respectively. Pressing either of these keys *after **[F]** key is pressed*, steps down or up 10 MHz.

In the Memory mode, pressing either of these keys momentarily step the Memory Channel down or up respectively.

While the **Band Scope** is engaged, pressing either of these keys to move the Channel Marker.

(10) Keypad

This keypad is used for direct frequency entry during VFO operation.

Secondary functions allow to control the **VR-5000**'s various features.

(11) [F] Key

This key is used to activate the "Alternate" command functions of the panel keys.

If this key is pressed before one of the panel keys is pressed, the "Alternate" functions of the key will be enabled.

(12) DSP Key

Press this key momentarily, activate the optional **DSP-1** Digital Signal Processing

Unit.

(13) DIAL Knob

This is the main tuning dial for the **VR-5000**. It is used for most tuning memory selection, and function setting tasks on the **VR-5000**.

Rear Panel Connections

(1) DC 13.5V Jack

This is the DC power supply connection for the **VR-5000**. Connect the Supplied **PA-4A** AC adapter to this jack.

(2) MUTE Jack

If using the VR-5000 with a transceiver, shorting this jack during transmit will mute receiver output and attenuate RF signal input. Check with information provided with your particular transceiver for proper connection.

(3) ANT B Terminal

Use these spring-loaded terminal connectors to connect a high-impedance antenna.

(4) ANT Switch

This switch selects antenna connected from either the **ANT A** jack or **ANT B** terminal.

(5) ANT A Jack

Connect the 50 Ω coaxial feed line to your low-impedance antenna here using a type-M (PL-259) connector.

(6) EXT SP Jack

This 2-contact mini phone jack provides receiver audio for an external loudspeaker with an impedance of 4 ~ 16 Ω. Inserting a plug in this jack disables the loudspeaker.

(7) REC Jack

This jack provides a constant level (??? mV @ ? Ω) audio output, which is *unaffected* by the **VOL** and **TONE** controls. This audio can be used for recording purposes, and

for connection to data demodulator/decoder equipment.

(8) +8V Jack

This output jack provides 8V DC at up to ??? mA for low power accessories. The center contact is positive.

(9) IF OUT Jack

This output jack provides low-level (0.1 Vrms (-6 dBm) @ 50 Ω) 10.7 MHz IF output.

(10) CAT Jack

This 9-pin serial DB-9 jack allows external computer control of the **VR-5000**. Connect a serial cable here and to the RS-232C COM port on your personal computer.

Basic Operation

Turning the Power on/off

Press and hold the orange **PWR** switch for one second to turn the radio on and off.

Adjusting the Volume and Squelch

1. Rotate the **MAIN VOL** knob to adjust the audio volume of the MAIN VFO. Rotate the **SUB VOL** knob to adjust the audio volume of the SUB VFO. Clockwise rotation of these **VOL** knobs increases the volume level. Both **VOL** knobs can be rotated to adjust the relative balance of receiver audio between the two VFO during dual reception.
2. The **VR-5000** squelch system allows you to mute the receiver's audio output when no signals are being received. To set the squelch, turn the **SQL** knob fully counter clockwise, then turn it clockwise just past the point where the background noise is silenced. Do not rotate the **SQL** knob much beyond this threshold point; if you do, the receiver will not respond to weal signals.
3. Rotate the **TONE** knob to adjust the receiver audio characteristics. Clockwise rotation of the **TONE** knob emphasize the high-frequency component. The **TONE** knob effects to the MAIN and SUB VFO audio.

Frequency Navigation

Tuning DIAL

Rotating the **DIAL** knob allows tuning in the pre-programmed steps established for the current receiving band. Clockwise rotation of the **DIAL** knob causes the **VR-5000** to be turned toward a ***higher*** frequency, while counter clockwise rotation will ***lower*** the receiving frequency.

If you press the [**F**] key momentarily, then rotate the **DIAL** knob, frequency steps of 1 MHz will be selected. This feature is extremely useful for making rapid frequency excursions over the wide turning range of the **VR-5000**.

UP(π)/DOWN(θ) Tuning

Pressing the [τ(θ)/υ(π)] keys allows tuning in the pre-programmed steps established for the current receiving band. Pressing the [υ(π)] key causes the **VR-5000** to be turned toward a ***higher*** frequency, while Pressing the [τ(θ)] key will ***lower*** the receiving frequency.

If you press the [**F**] key momentarily, then press the [τ(θ)/υ(π)] keys, frequency steps of 10 MHz will be selected. This feature is extremely useful for making rapid frequency excursions over the wide turning range of the **VR-5000**.

Direct Keypad Frequency Entry

The desired receiving frequency may be entered directly from the keypad.

The receiving mode will automatically be set once the new frequency is entered via the keypad.

To enter a frequency from the keypad:

1. Enter the "MHz" portion of the frequency on which you wish to receive.
2. Enter the decimal point after the "MHz" portion by pressing the [•(**BEEP**)] key.
3. Enter five more digits to complete the frequency.
4. If there are "zeros" at the end of the frequency, you may press the [**ENT**(**SET**)] key after the final non-zero digit.

Examples:

To enter 146.16250 MHz, press [**1**] → [**4**] →[**6**] →[•] →[**1**] →[**6**] →[**2**] →[**5**] →[**0**]

To enter 950 kHz, press [•] →[**9**] →[**5**] →[**0**] →[**0**] →[**0**]

To enter 445.40000 MHz, press [**4**] → [**4**] →[**5**] →[•] →[**4**] →[**ENT**]

MODE Selection

The **VR-5000** automatically selects a default receiving mode according to the frequency band on which you are receiving. However, many bands (especially HF Short-wave) may use a variety of transmission modes in a particular frequency segment.

If you want a change the receiving mode, press the [**MODE**(**ADRS**)] key. The receiving modes available are:

LSB → USB → CW → AM-N → AM → WAM → FM-N → WFM → AUTO → LSB → USB ……

Dual Receive

The **VR-5000** provides the two VFOs (MAIN VFO and SUB VFO) which operate the Dual Receive feature. However, the SUB VFO set only ±20 MHz bandwidth of the MAIN VFO frequency. For example: The MAIN VFO is set to 1280.000 MHz, the SUB VFO can be set to 1260.000 ~ 1300.000 MHz. Also, the SUB VFO set only AM or FM-N modes.

- ❒ Press the [**M/S**(**SUB SET**)] key momentarily, to toggle the operating VFO between the MAIN VFO and SUB VFO.
- ❒ When turning the MAIN VFO frequency, the SUB VFO frequency tracks the MAIN VFO (VFO Tracking feature).
  To disable the VFO Tracking feature, press the [**M/S**(**SUB SET**)] key *after [F] key is pressed*. Repeat the same procedure to enable the VFO Tracking feature again.
- ❒ When you are in the SUB VFO, press the [**CLR**(**PRI CLR**)] key *after [F] key is pressed* to disable the SUB VFO temporarily. Repeat the same procedure to activate the SUB VFO again.
- ❒ When you are in the MAIN VFO, press the [**CLR**(**PRI CLR**)] key *after [F] key is pressed* to disable the SUB VFO. However, in this case, press the [**M/S**(**SUB SET**)] key to activate the SUB VFO.
- ❒ Press the [**COPY**(**REC**)] key to copy the SUB VFO data to the MAIN VFO.

Adjusting the clock

1. Press the [**F**] key momentarily, then press the [**ENT**] key.
2. Rotate the **DIAL** knob to select the cursor to the "**MISC**" menu, then press the [**ENT**] key.
3. Rotate the **DIAL** knob to select the cursor to the "**CLOCK**" menu, then press the [**ENT**] key.
4. Enter the present time via the keypad.
   Example 1: Set to 9:38, Press [**0**] → [**9**] → [**3**] → [**8**].
   Example 2: Set to 13:20, Press [**1**] → [**3**] → [**2**] → [**0**].
5. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**] key.
6. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**] key.
7. Adjusting the clock is now completely.

Receiving the World Broadcast Stations

1. Press the [**F**] key momentarily, then press the [**4**(**SPL**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**STATION CALL**" menu, then press the [**ENT**] key to recall the representation World Broadcast Station (refer to the following list). Blink the small dot on the world atlas which means the (approximately) location of its Broadcast Station.
3. Press the [**BANK**] key to select the desired Broadcast Station.
4. Rotate the **DIAL** knob or press the [τ(θ)/υ(π)] keys to select the Broadcast Station's frequency.
5. To disable the World Broadcast Station Receiving, press the [**CLR**(**PRI CLR**)] key, then press the [**ENT**] key.

World Broadcast Stations List

Bank	Display	Station's Name	Frequency (MHz)
01	VOA	Voice Of America	6.030/6.160/9.760/11.930
02	R-CANADA	Radio Canada International	5.995/7.235/9.735/11.705
03	R-PORTUG	Radio Portugal	9.780/11.960/15.555/21.655
04	SPAIN	Radio Exterior de Espana	7.270/9.520/11.920/15.585
05	BBC	British Broadcasting Corporation	6.195/9.410/12.095/15.310
06	R-FRANCE	Radio France International	6.045/9.790/11.670/15.525
07	BELGIUM	Radio Vlaanderen International	5.985/9.925/13.74/11.780
08	R-NEDERL	Radio Nederland	5.955/6.020/9.620/11.655
09	R-LUXEMB	Radio Luxembourg	6.090
10	D-WELLE	Deutsche Welle	6.075/9.545/9.735
11	SWISS-R	Swiss Radio International	3.985/6.165/9.885/15.220
12	R-NORWAY	Radio Norway International	7.485/9.590/9.985/13.800
13	ITARY	Italian Radio International (RAI)	6.060/7.175/9.515/17.710
14	R-DENMAR	Radio Denmark	9.590/9.985/13.800/15.735
15	R-SWEDEN	Radio Sweden	6.065/9.490/13.625/17.600
16	R-FINLAN	Radio Finland	6.120/9.560/11.755/21.670
17	ISRAEL	Israel Broadcasting Authority	9.435/11.585/15.340/17.535
18	RUSSIA	Voice of Russia	5.905/5.920/7.205/12.030
19	INDIA	All India Radio (AIR)	7.410/9.595/11.620/15.020
20	CHINA-R	China Radio International (CRI)	7.190/9.535/9.855/11.945
21	R-KOREA	Radio Korea	5.795/7.275/5.970/13.670
22	R-JAPAN	Radio Japan	6.145/6.180/9.750/11.850

23 R-AUSTRA Radio Australia 5.995/9.680/12.080/15.415

Memory Operation

The **VR-5000** provides a wide variety of memory system resources. These include:

- ❒ 2000 main memory channels into 100 memory groups.
- ❒ 50 sets of band-edge memories also known as "Programmable Memory Scan" channels.
- ❒ Five PS (PreSet) memory channels, providing one-touch storage and recall of prime receiving frequencies.

Main Memory System

Memory Storage

1. Select the desired frequency, while receiving on the MAIN VFO. Be sure to set up any desired features described later, if you wish to store them.
2. Press the [**F**] key momentarily, then press the [**V/M**(**MW**)] key to enable the memory storage.
3. To designate the memory group, proceed to the next step; otherwise press the [**COPY**(**REC**)] key *twice* to save the entry and exit to the VFO mode.
4. Confirm that the cursor is on the "**Channel**" menu, then press the [**ENT**] key.
5. Press the [τ(θ)/υ(π)] keys to select the desired memory group to be stored, then press the [**ENT**] key.
6. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**] key.
7. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**] key to save the entry and exit to the VFO mode.

Memory Recall

1. While operating the VFO mode, press the [**V/M**(**MW**)] key to switch to the memory mode.
2. Press the [τ(θ)/υ(π)] keys to select the desired memory group or press the desired memory group number from the keypad, then rotate the **DIAL** knob to select the desired memory channel.
3. To return to the VFO mode, press the [**V/M**(**MW**)] key again.

You can recall the all memories by only rotating the **DIAL** knob (Memory Bank less). To

do this:

(1) Press the [**F**] key momentarily, then press the [**ENT**(**SET**)] key.

(2) Rotate the **DIAL** knob to select the cursor to the "**MR**" menu, then press the [**ENT**] key.

(3) Confirm the cursor is on the "**MR BANK**" menu, then press the [**•**(**BEEP**)] key to change its setting to "**All Mem**."

(4) Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**] key.

(5) Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**] key to save the entry and exit.

If you select the "**MR BANK**" menu to "**In BANK**" in step (3), retune the selecting method to select the memory group by [τ(θ)/υ(π)] keys and select the memory channel by the **DIAL** knob.

Enhanced Memory Channel Operation

Memory Offset Tuning

Once you have recalled a particular memory channel, you may easily tune off that channel, as through you were in the "VFO" mode.

1. With the **VR-5000** in the "MR" (Memory Recall) mode, select the desired memory channel.
2. Press the [**BS**(**BS SET**)**MT**] key momentarily.
3. Rotate the **DIAL** knob or press the [τ(θ)/υ(π)] keys, as desired, to tune a new frequency.
4. If you wish to return to the *original* memory frequency, press the [**V/M**(**MW**)] key momentarily.
5. Press the [**COPY**(**REC**)] key to return to the VFO with a new frequency set during Memory Tuning.

Naming Memories

You may wish to append an alpha-numeric "Tag" (label) to a memory or memories, to aid in recollection of the channel's use (such as the Broadcasting station name, etc.).

1. Recall the memory channel on which you wish to append a label.
2. Press the [**F**] key momentarily, then press the [**V/M**(**MW**)] key.
3. Rotate the **DIAL** knob to select the cursor to "**CH TAG**" menu, then press the [**ENT**(**SET**)] key to enable the programming of the name tag to the memory.
4. Press the keypad to select the first digit of the desired label, according to the key

entered rule described below. When you have made your selection, rotate the **DIAL** knob clockwise one click to move to the next character.

5. Repeat the previous step to program the remaining letters, numbers, or symbols of the desired label. A total of 74 characters may be used in the creation of label.
6. When you have complete the creation of the label, press the [**ENT**(**SET**)] key.
7. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
8. Confirm that the cursor is on the "**WRITE**" menu, press the [**ENT**] key.
9. The memory naming is now completely.

Keypad Sequence

❒ Press the [**1**(**ATT**)] key repeatedly to toggle between the two available characters:
"1" → "Space" → "1" ……

❒ Press the [**2**(**LOCK**)] key repeatedly to toggle among the seven available characters:
"2" → "A" → "B" → "C" → "a" → "b" → "c" → "2" → "A" …..

❒ Press the [**3**(**S.SCH**)] key repeatedly to toggle among the seven available characters:
"3" → "D" → "E" → "F" → "d" → "e" → "f" → "3" → "D" ……

❒ Press the [**4**(**SPL**)] key repeatedly to toggle among the seven available characters:
"4" → "G" → "H" → "I" → "g" → "h" → "i" → "4" → "G" …..

❒ Press the [**5**(**PRI**)] key repeatedly to toggle among the seven available characters:
"5" → "J" → "K" → "L" → "j → "k" → "l" → "5" → "K" ……

❒ Press the [**6**(**S.CALL**)] key repeatedly to toggle among the seven available characters:
"5" → "M" → "N" → "O" → "m" → "n" → "o" → "6" → "M" ……

❒ Press the [**7**(**VCS**)] key repeatedly to toggle among the seven available characters:
"7" → "P" → "Q" → "R" → "p" → "q" → "r" → "7" → "P" ……

❒ Press the [**8**(**RF TUNE**)] key repeatedly to toggle among the seven available characters:
"8" → "S" → "T" → "U" → "s" → "t" → "u" → "8" → "S" ……

❒ Press the [**9**(**TIMER**)] key repeatedly to toggle among the seven available characters:
"9" → "V" → "W" → "X" → "v" → "w" → "x" → "9" → "V" ……

❒ Press the [**0**(**NB**)] key repeatedly to toggle among the five available characters:
"0" → "Y" → "Z" → "y" → "z" → "0" → "Y" ……

❒ Press the [**DSP**] key repeatedly to toggle among the 11 available symbols:
"!" → " " → "$" → "%" → "&" → " ' " → "(" → ")" → "*" → "+" → ":" → "!"……

❒ Press the [**BS**] key to delete the character before the cursor.

❒ Press the [τ(θ)] key to move the cursor to the left.

❒ Press the [υ(π)] key to move the cursor to the right.

❒ Press the [**CLR**(**PRI CLR**)] key to cancel the creation of the label.

❒ Press the [**CLR**(**PRI CLR**)] key *after [F] key is pressed*, to cancel the all characters.

Naming Memory Groups

1. Press the [**V/M**(**MW**)] key, if needed, to enter the "MR" (Memory Recall) mode.
2. Recall the memory group on which you wish to append a label, then press the [**BANK**] key.
3. Confirm that the cursor is on the "**BANK TAG**" menu, press the [**ENT**(**SET**)] key.
4. Program the alpha-numeric "label" which you wish to recall using the **DIAL** knob and keypad, as described previously.
5. When you have complete the creation of the label, press the [**ENT**(**SET**)] key.
6. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
7. Confirm that the cursor is on the "**WRITE**" menu, press the [**ENT**(**SET**)] key.
8. The memory group naming is now completely.

Protecting Memory (Inhibit the Edit)

You may wish to "Protect" a certain Memory Channel's data to prevent accidental data change.

To Protect a channel's data:

1. Recall the Memory Channel to be protected.
2. Press the [**F**] key momentarily, then press the [**V/M**(**MW**)] key.
3. Rotate the **DIAL** knob to select the cursor to "**END**" menu, then press the [**ENT**(**SET**)] key.
4. Rotate the **DIAL** knob to select the cursor to "**PROTECT**" menu, then press the [•(**BEEP**)] key to change its setting to "**PROTECT**."
5. Rotate the **DIAL** knob to select the cursor to "**WRITE**" menu, then press the [**ENT**(**SET**)] key to protect the channel's data.

If you select the "**PROTECT**" menu to "**FREE**" in step 4, disable the memory protect feature.

Masking Memory

You may wish to "Mask" a certain Memory Channel's data, when you no longer have a reason to recall that channel.

To Mask a channel's data:

1. Recall the Memory Channel to be masked.
2. Press the [**F**] key momentarily, then press the [**V/M**(**MW**)] key.
3. Rotate the **DIAL** knob to select the cursor to "**Channel**" menu, then press the [**ENT**(**SET**)] key.
4. Press the [**F**] key momentarily, then press the [**CLR**(**PRI CLR**)] key.
5. Confirm that the cursor is on the "**DELETE**" menu, then press the [**ENT**(**SET**)] key.
6. Press the [**CLR**(**PRI CLR**)] key.
7. Confirm that the cursor is on the "**CANCEL**" menu, then press the [**ENT**(**SET**)] key to mask the channel's data.

To unmask a channel's data:

1. Press the [**F**] key momentarily, then press the [**V/M**(**MW**)] key.
2. Rotate the **DIAL** knob to select the cursor to "**Channel**" menu, then press the [**ENT**(**SET**)] key.
3. Select the masked memory using the [τ(θ)/υ(π)] keys and **DIAL** knob. The masked memory appears "■" icon in the lower left corner of the LCD.
4. Press the [**F**] key momentarily, then press the [**CLR**(**PRI CLR**)] key.
5. Rotate the **DIAL** knob to select the cursor to "**OLD READ**" menu, then press the [**ENT**(**SET**)] key.
6. Rotate the **DIAL** knob to select the cursor to "**END**" menu, then press the [**ENT**(**SET**)] key.
7. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key to unmask the channel.

Alpha-Numeric Memory Recall

You can use the **VR-5000**'s powerful microprocessor system to search for Memory Channels according to their alpha-numeric label. In the example below, we shall set up the **VR-5000** to find all channels programmed with "POLICE" as an alpha-numeric label (e.g. POLICE 1, POLICE 2, etc.).

1. Press the [**V/M**(**MW**)] key, if needed, to enter the "MR" (Memory Recall) mode.
2. Press the [**WIDTH**(**BS STEP**)] key to enable setup of Alpha-Numeric Memory Recall.
3. Program the alpha-numeric "label" which you wish to recall using the **DIAL** knob and keypad, as described previously. In this case, program "POLICE" as the label.
4. Press the [**M/S**(**SUB SET**)**SORT**] key, recall the memory channel beginning with "POLICE."
5. Press the [**M/S**(**SUB SET**)**SORT**] key, you will observe that only channels beginning with "POLICE" are appearing on the display.

6. When you find the desired memory channel, press the [**ENT**(**SET**)] key to be recalled.

Important Note: You can recall Memory Channels alpha-numerically using just one or tow letters of a label within above steps. In the above example, if you programmed "PO" instead of "POLICE," you could then recall channels such as "PONTIAC," "PORTER," "PORTLAND," and "POWER" in addition to "POLICE." But if you set "POR," only "PORTER" and PORTLAND" would be recalled.

PS (PreSet) Memory Channels

A convenient PS memories are desired for the favorite channel (such as the local broadcast station) where very simple storage and recall procedures are desired.

PS Memory Channel Storage

1. Tune the radio to the desired frequency.
2. Press and hold the [**PS**] key for one second.
3. Press the [**PS**] key to select the PS channel which you wish to store the current frequency data.
4. Press and hold the [**PS**] key for one second, to enable the programming of the name tag to the PS memory. To attach an alpha/numeric name to the PS memory, proceed the programming of the name tag previously; otherwise press the [**ENT**(**SET**)] key again.
5. Press the [**ENT**(**SET**)] key to finish the PS Memory Channel storage.

PS Memory Channel Recall

1. Press the [**PS**] key to recall the currently active PS Memory Channel.
2. Press the [**PS**] key repeatedly to cycle through the PS Memory Channels.
3. Rotate the **DIAL** knob to exit the PS memory Channel and return to VFO mode.

Scanning

The **VR-5000** allows you to scan just memory channels, the entire operating band, or a portion of that band. It will halt on signals encountered, so you can hear the station(s) on that frequency, if you like.

Scanning operation is basically the same in each of the above modes. Before you begin, take a moment to select the way in which you would like the scanner to *stop scanning* for halts on a signal and *resume scanning* after it halts on a signal.

Setting the Scan-Stop Technique

Three options for the Scan-Stop mode are available:

NORMAL: In this mode, the scanner will stop on a signal it encounters.

TONE: In this mode, the scanner will stop when the radio detects the correct CTCSS tone.

TONE: In this mode, the scanner will stop on a signal matching a prescribed CTCSS tone will open the squelch.

S-METER: In this mode, the scanner will stop on a signal exceeding a prescribed S-meter level will open the squelch.

VOICE: In this mode, the scanner will stop on a signal with a voice signal.

VOICE: In this mode, the scanner will stop on a signal which have a voice signal.

Setting the Scan-Resume Technique

Three options for the Scan-Resume mode are available:

DELAY: In this mode, the scanner will halt on a signal it encounters, and will hold until the signal disappears. Two after the squelch closes, scanner resumes automatically

PAUSE: In this mode, the scanner will halt on a signal it encounters. 2 seconds after the carrier has dropped because the other station(s) ceased transmission, the scanner will resume. In the case of constant-carrier signals like Weather Station broadcasts, the scanner will likely remain on this frequency indefinitely.

HOLD: In this mode, the scanner will halt on a signal it encounters. It will not restart automatically; you must manually re-initiate scanning if you wish to resume.

Here is the procedure for setting up the Scan-Resume mode:

1. Press the [**F**] key momentarily, then press the [**ENT**(**SET**)] key.
2. Confirm that the cursor is on the "**VFO**" menu, then press the [**ENT**(**SET**)] key.
3. If you set the Scan-Resume mode for the MAIN VFO, rotate the Confirm that the cursor is on the "**MainScan**" menu.
4. Press the [•(**BEEP**)] key to select the desired Scan-Resume mode among the "DELAY," "PAUSE," and "HOLD."
5. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
6. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key to save a new setting and exit the Set mode.

VFO Scanning

1. Press the [**V/M**(**MW**)] key to recall the VFO mode, if needed.
2. Press the [**SCAN**(**M-S SCAN**)] key to initiate scanning in an upward direction.
3. If the scanner encounters a signal strong enough to open the squelch, the scanner will halt and pause on that frequency.
4. To reverse the direction of the scan (i.e. toward a *lower* frequency, instead of a higher frequency), turn the **DIAL** knob one click in the counter-clock direction or press the [τ(θ)] key momentarily while the **VR-5000** is scanning. To revert to scanning toward a higher frequency once more, rotate the **DIAL** knob one click clockwise or press the [υ(π)] key momentarily.
5. Press the [**V/M**(**MW**)] key to disable the scanner.

Programmable (Band Limit) Memory Scan (PMS)

This feature allows you to sub-band limits scanning.

Programming

1. Press the [**F**] key momentarily, then press the [**PMS**(**PMS SET**)] key to enable the storing the frequency pair into the PMS memory.
2. Rotate the **DIAL** knob to select the cursor to the "**PMS TAG**" menu.
3. Press the [**ENT**(**SET**)] key to enable the programming of the name tag to the PMS memory. To attach an alpha/numeric name to the PMS memory, program the alpha-numeric "label" using the **DIAL** knob and keypad, as described previously; otherwise press the [**ENT**(**SET**)] key again.
4. When you have complete the creation of the label, press the [**ENT**(**SET**)] key.
5. Rotate the **DIAL** knob to select the cursor to the "ST**ART F**" menu, then press the [**ENT**(**SET**)] key.
6. Select the VFO frequency to the Low sub-band limit, then press the [**ENT**(**SET**)] key.
7. Confirm that the cursor is on the "**END F**" menu, press the [**ENT**] key.
8. Select the VFO frequency to the Upper sub-band limit, then press the [**ENT**(**SET**)] key.
9. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
10. Confirm that the cursor is on the "**WRITE**" menu, press the [**ENT**] key.
11. The PMS memory programming is now completely.

Note: 50 PMS memories are available. You therefore can set upper and lower operation limits on a number of bands, if you like.

Operation

1. Press the [**PMS**(**PMS SET**)] key to initiate PMS scanning in an upward direction.
2. If the scanner encounters a signal strong enough to open the squelch, the scanner will halt and pause on that frequency.
3. To reverse the direction of the scan (i.e. toward a *lower* frequency, instead of a higher frequency), turn the **DIAL** knob one click in the counter-clock direction or press the [τ(θ)] key momentarily while the **VR-5000** is scanning. To revert to scanning toward a higher frequency once more, rotate the **DIAL** knob one click clockwise or press the [υ(π)] key momentarily.
4. Press the [**V/M**(**MW**)] key to disable the PMS scanner, and return to VFO mode.

Adjusting the PMS scanner

1. Press the [**F**] key momentarily, then press the [**PMS**(**PMS SET**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**MISC**" menu, then press the [**ENT**(**SET**)] key.
3. Rotate the **DIAL** knob to select the cursor to the desired menu from the following list to be you wish adjusting.

   ScanStop: Select the Scan Resume mode among "HOLD," "DELAY," and "PAUSE" via pressing the [•(**BEEP**)] key.

   (1) In the "HOLD" mode, when a signal is received the scanner will hold for 2 second, then the scanner will stop.

   (2) In the "DELAY" mode, when a signal is received the scanner will hold until the signal disappears, then the scanner will resume after 2 seconds.

   (3) In the "PAUSE" mode, when a signal is received the scanner will hold for 2 second, then scanner will resume after 2 seconds.

   S-LvlScan: The scanner will halt and pause on the frequency when the is a signal strong enough to stops on

   VCS: Enable/disable the VCS (Voice Channel Scan) feature via pressing the [•(**BEEP**)] key. When enable the VCS feature enabled, the scanner will only halt and pause on the frequency that is having the voice signal.

   ATT: Enable/disable the RF signal Attenuator via pressing the [•(**BEEP**)] key.

   RF-TUNE: Enable/disable the RF-TUNE circuit via pressing the [•(**BEEP**)] key.

   SKIP:

   DSP:

   M-DCS:

M-CTCSS:

LINK:

4.

5.

M-S Scan

This feature allows you to sub-band limits scanning between the MAIN VFO frequency and SUB VFO frequency.

1. Press the [**V/M**(**MW**)] key to recall the VFO mode, if necessary.
2. Press the [**F**] key momentarily, then press the [**SCAN**(**M-S SCAN**)] key to initiate scanning in an upward direction between the MAIN VFO frequency and SUB VFO frequency.
3. If the scanner encounters a signal strong enough to open the squelch, the scanner will halt and pause on that frequency.
4. To reverse the direction of the scan (i.e. toward a *lower* frequency, instead of a higher frequency), turn the **DIAL** knob one click in the counter-clock direction or press the [τ(θ)] key momentarily while the **VR-5000** is scanning. To revert to scanning toward a higher frequency once more, rotate the **DIAL** knob one click clockwise or press the [υ(π)] key momentarily.
5. Press the [**SCAN**(**M-S SCAN**)] key to disable the M-S Scan, and return to the VFO mode.

Memory Scanning

1. Press the [**V/M**(**MW**)] key, if needed, to enter the "MR" (Memory Recall) mode.
2. Press the [τ(θ)/υ(π)] keys to select the memory bank on which you wish to memory channel scanning.
3. Press the [**SCAN**(**M-S SCAN**)] key to initiate memory channel scanning in an upward direction in the current memory bank.
4. If the scanner encounters a signal strong enough to open the squelch, the scanner will halt and pause on that channel.
5. To reverse the direction of the scan (i.e. toward a *lower* memory channel, instead of a higher memory channel), turn the **DIAL** knob one click in the counter-clock direction or press the [τ(θ)] key momentarily while the **VR-5000** is scanning. To revert to scanning toward a higher memory channel once more, rotate the **DIAL** knob one click clockwise or press the [υ(π)] key momentarily.
6. Press the [**SCAN**(**M-S SCAN**)] key to disable the memory channel scanner.

If you wish to memory channel scanner activates the all memories in the all memory bank;

(1) Press the [**F**] key momentarily, then press the [**ENT**(**SET**)] key.
(2) Rotate the **DIAL** knob to select the cursor to the "**MR**" menu, then press the [**ENT**(**SET**)] key.
(3) Confirm the cursor is on the "**MR BANK**" menu, then press the [**•**(**BEEP**)] key to change its setting to "**All Mem**."
(4) Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**] key.
(5) Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**] key to save the entry and exit.
(6) Press the [**SCAN**(**M-S SCAN**)] key to initiate memory channel scanning in an upward direction on the all memories in the all memory bank.

If you select the "**MR BANK**" menu to "**In BANK**" in step (3), retune the memory channel scanner to activates the current memory bank only.

Memory Channel Skip

As mentioned previously, some continuous-carrier stations like a Broadcast station will serious impede scanner operation if you are using the "PAUSE" Scan-resume mode, as the incoming signal will not pause long enough for the receiver to resume scanning. Such channel may be "skipped" during scanning, if you like.

1. Recall the Memory Channel to be skipped during scanning.
2. Press the [**CLR**(**PRI CLR**)] key. The "**SKIP**" icon appears in place of the "**SEL**" icon.

To cancel the memory channel skip, repeat the above steps to appears "**SEL**" icon in place of "**SKIP**" icon.

Band Scope Operation

The Band Scope allows viewing of operating activity on channels above or below the current operating channel in the VFO mode.

The display will indicate the relative signal strengths of signals on channels immediately adjacent to the current operating frequency. A convenient "Channel marker" can be used to zero in on one of the stations displayed; when you turn off the Band Scope, the **VR-5000** will be set to the frequency set by the Channel Marker.

To activate the Band Scope

1. Set the radio to the VFO mode by pressing the [**V/M**(**MW**)] key, if necessary.
2. Press the [**BS**(**BS SET**)] key momentarily to activate the Band Scope.
3. When the Band Scope is activated, rotate the **DIAL** knob or press the [τ(θ)/υ(π)] keys to move the Channel Marker.
4. When the Band Scope is activated, you can change the Sweep steps. may be adjusted by the front panel keys. To do this, press the [**F**] key momentarily, then press the [**WIDTH**(**BS STEP**)] key to select the sweep step as follows:

MODE	Steps
LSB/USB/CW	1.0 kHz (fixed)
AM-N/AM	1.0/5.0/9.0/10.0/20.0/25.0/50.0 kHz
WAM	1.0/5.0/9.0/10.0/20.0/25.0/50.0/100.0 kHz
FM-N	5.0/6.25/10.0/12.5/20.0/25.0/50.0/100 kHz
WFM	10.0/50.0/100/500 kHz

5. The Sweep range is can be changes as well. To do this, press the [**WIDTH**(**BS STEP**)] key to select the sweep step as follows:

MODE	Sweep range
LSB/USB/CW	100/300/500 kHz
AM-N/AM	0.1/0.2/0.3/0.5/1.0/2.0/2.5/5.0/10.0 MHz
WAM /FM-N	0.5/1.0/2.0/2.5/5.0/10.0 MHz
WFM	1.0/2.0/5.0/10.0 MHz

6.

Smart Search Operation

The Smart Search feature allows you to load frequencies automatically according to where activity is encountered by your radio.

To set up Smart Search operation:

1. Press the [**F**] key momentarily, then press the [**ENT**(**SET**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**PMS**" menu, then press the [**ENT**(**SET**)] key.
3. Confirm that the cursor is on the "**S.SCH Bank**" menu, then press the [**ENT**(**SET**)] key.
4. Rotate the **DIAL** knob to select the memory bank which you wish to store the active frequencies, then press the [**ENT**(**SET**)] key.
5. Confirm that the cursor is on the "**S.SCH Full**" menu, press the [•(**BEEP**)] key to select the desired Smart Search mode between the "**FIFO**" and "**STOP**," then press

the [**ENT**(**SET**)] key.

"**FIFO**":

"**STOP**": The Smart Search stops when the memory bank is full.

1.

Priority Operation

The priority feature, which is somewhat similar to Dual Watch, allow you to monitor a memory channel while checking a "Priority Memory" channel every five seconds for activity. If the Priority Memory channel becomes active with a signal strong enough to open the Squelch, the radio will halt on that frequency and will hold there in accordance with the setting of the "RESUME" mode described previously.

To setup the Priority Monitoring:

1. Press the [**F**] key momentarily, then press the [**V/M**(**MW**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**Channel**" menu, then press the [**ENT**(**SET**)] key.
3. Press the [**F**] key momentarily, then press the [**5**(**PRI**)] key. A "**PRI**υ" icon appears on left of the memory channel number in the LCD. Then press the [**ENT**(**SET**)] key.
4. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
5. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key.

To initiate the Priority:

Press the [**F**] key momentarily, then press the [**5**(**PRI**)] key to initiate the Priority.

To disable the priority, repeat the above step.

The VR-5000 can be changes the checking time (five seconds) among. To do this:

1. Press the [**F**] key momentarily, then press the [**ENT**(**SET**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**MISC**" menu, then press the [**ENT**(**SET**)] key.
3. Rotate the **DIAL** knob to select the cursor to the "**PRI WATCH**" menu, then press the [**ENT**(**SET**)] key.
4. Rotate the **DIAL** knob to select the checking time among "1 sec," "2 sec," "5 sec," and "10 sec," then press the [**ENT**(**SET**)] key.
5. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.

6. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key.

World Clock

The VR-5000 has a World Clock on the 66 areas.

1. Press the [**F**]key momentarily, then press the press the [**4**(**SPL**)] key.
2. Confirm that the cursor is on the "**WORLD TIME**" menu, then press the [**ENT**(**SET**)] key. Appear the World Clock and the World Atlas.
3. Rotate the **DIAL** knob to select the desired area.
4. Press the [•(**BEEP**)] key, display the World Clock to Summer Time, if current area has a Summer Time system. Press the [•(**BEEP**)] key again to return to normal.
5. To disable the World Clock, press the [**CLR**(**PMS CLR**)] key then press the [**ENT**(**SET**)] key.

You can change the area name to be desired name (i.e. "LOS ANGL" change to "Cerritos"). To do this:

1. Recall the area which you wish change the area name, as descried previously.
2. Press the [**ENT**(**SET**)] key to enable the programming of the area name.
3. Program the area mane (max 8 characters) using the **DIAL** knob and keypad, as descried previously then press the [**ENT**(**SET**)] key. In this case "Cerritos."
4. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key.

Timer Operation

On/Off Timer

The On/Off timer can be automatically turn on and off at present time. This is convenient if you want to tape record a broadcast while you are out.

Programming:

1. Press the [**F**] key momentarily then press the [**9**(**TIMER**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**TM PROG.**" Menu, then press the [**ENT**(**SET**)] key.
3. Press [**ENT**(**SET**)] key again to enable the programming the On/Off timer.
4. Rotate the **DIAL** knob to adjust the time you want the radio to turn *on*, then press the [**ENT**(**SET**)] key.
5. Rotate the **DIAL** knob to adjust the time you want the radio to turn *off*, then press the [**ENT**(**SET**)] key.
6. If you attach an alpha/numeric name to the On/Off timer, program the alpha-

numeric "label" using the **DIAL** knob and keypad, as described previously; otherwise press the [**CLR**(**PRI CLR**)] key.

7. Rotate the **DIAL** knob to select the cursor to the "**WRITE**" menu, then press the [**ENT**(**SET**)] key.

Operation:

1. Press the [**F**] key momentarily then press the [**9**(**TIMER**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**TM PROG.**" Menu, then press the [**ENT**(**SET**)] key to select to "ON" which enable the On/Off timer.
3. Rotate the **DIAL** knob to select the cursor to the "**TM PROG.**" Menu, then press the [**ENT**(**SET**)] key.

If you disable the On/Off timer, select the **TM PROG.**" Menu to "OFF" in step 2.

When activate the On/OFF Timer, appear the "**PROG**" icon above the MAIN frequency display in the LCD.

Sleep Timer

The Sleep Timer can be automatically turn off the radio. This is convenient if you want to doze off listening to the radio.

1. Press the [**F**] key momentarily then press the [**9**(**TIMER**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**APO**" Menu, then press the [**ENT**(**SET**)] key to enable the programming of the Sleep Timer.
3. Rotate the **DIAL** knob to select the desired sleep time among "30 min," "60 min," "90 min," "120 min," and "OFF," then press the [**ENT**(**SET**)] key.
4. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
5. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key.

When activate the Sleep Timer, appear the "**SLEEP**" icon above the MAIN frequency display in the LCD.

Alarm Timer

The Alarm Timer can be automatically turn on the radio. This is convenient if you wake up to your favorite station (or beep sound) every morning.

1. Press the [**F**] key momentarily then press the [**9**(**TIMER**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**ALARM**" Menu, then press the [**ENT**(**SET**)] key to enable the programming of the Alarm Timer.
3. Press the key to select the Alarm sound between the "Radio" or "Beep," then press

the [**ENT**(**SET**)] key.

4. Enter the time you want the radio turn on using the keypad, as descried previously, then press the [**ENT**(**SET**)] key.
5. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
6. Confirm that the cursor is on the "**WRITE**" menu, then press the [**ENT**(**SET**)] key.

When activate the Alarm Timer, appear the "**ON**" icon above the MAIN frequency display in the LCD.

Miscellaneous Operations

ATT (RF Attenuator)

For situations where extremely high signal levels are present, the receiver's input ATTenuator may be activated, to reduce the sensitivity and total gain of the receiver system.

1. To activate the Attenuator, press the [**F**] key momentarily, then press the [**1**(**ATT**)] key. The "**ATT**" icon will appear on the display. You should also hear a decrease in the incoming signal strength (and background noise) with the Attenuator.
2. To switch the Attenuator off, press the [**F**] key momentarily, then press the [**1**(**ATT**)] key; the "**ATT**" icon will disappear from the display.

NB (Noise Blanker)

For reduction of impulse noise, such as that produced by automotive ignition systems, the noise blanker feature may prove helpful.

1. To activate the Noise Blanker, press the [**F**] key momentarily, then press the [**0**(**NB**)] key. The "**NB**" icon will appear on the display. You should observe a reduction in the ignition noise
2. To switch the Noise Blanker off, press the [**F**] key momentarily, then press the [**0**(**NB**)] key; the "**NB**" icon will disappear from the display.

RF TUNE

This feature allows you to shift the RF passband to reduce the interference.

1. Press the [**F**] key momentarily, then press the [**8**(**RF TUNE**)] key to activate the RF TUNE feature.
2. Rotate the **DIAL** knob to the position where the interference is eliminated, the press the [**ENT**(**SET**)] key

3. To disable the RF TUNE feature,

Display Dimmer

The LCD's illumination level may be adjusted by the front panel keys.

1. To adjust the LCD illumination level, press the [**V**(**DIM**)] key momentarily to enable the LCD illumination level.
2. Rotate the **DIAL** knob to adjust the illumination level "0 (dim) ~ 7 (bright)." As you make the adjustment, you will be able to see the effects of your changes.
3. When you have completed the adjustment, press the [**ENT**(**SET**)] key to save the new setting and exit to normal operation.

Display Contrast

The display contrast may be adjustable, as well.

1. Press the [**F**] key momentarily, then press the [**ENT**(**SET**)] key.
2. Rotate the **DIAL** knob to select the cursor to the "**MISC**" menu, then press the [**ENT**(**SET**)] key.
3. Rotate the **DIAL** knob to select the cursor to the "**LCD CONT**" menu, then press the [**ENT**(**SET**)] key.
4. Rotate the **DIAL** knob to adjust the comfortable contrast level "0 (weak) ~ 15 (thick)."
5. Rotate the **DIAL** knob to select the cursor to the "**END**" menu, then press the [**ENT**(**SET**)] key.
6. Confirm that the cursor is on the "**WRITE**" menu, press the [**ENT**] key to save the new setting and exit to normal operation.

Keypad Locking

In order to prevent accidental frequency change, the **VR-5000**'s keys and switches may be locked out.

1. To lock out the keys and switches, press the [**F**] key momentarily, then press the [**2**(**LOCK**)] key. The "KEY" icon will appear on the display.
2. To cancel locking, press the [**F**] key momentarily, then press the [**2**(**LOCK**)] key; the "KEY" icon will disappear from the display.

Keypad Beeper

If the keypad's beeper creates an inconvenience (particularly when operating at the midnight, it may easily be disable.

1. To disable the keypad beeper, press the [**F**] key momentarily, then press the [•(**BEEP**)] key.
2. If you wish to re-enable the keypad beeper, press the [**F**] key momentarily, then press the [•(**BEEP**)] key.

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The following statement will be placed in a prominent place in the text of the Manual.

INFORMATION TO THE USER:

NOTE: This equipment has been tested and found to comply with the limits for a Class A Digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the User will be required to correct the interference at his own expense.

September 11, 2000

Rear Panel Connections

(1) DC 13.5V Jack

This is the DC power supply connection for the **VR-5000**. Connect the Supplied **PA-4A** AC adapter to this jack.

(2) MUTE Jack

If using the VR-5000 with a transceiver, shorting this jack during transmit will mute receiver output and attenuate RF signal input. Check with information provided with your particular transceiver for proper connection.

(3) ANT B Terminal

Use these spring-loaded terminal connectors to connect a high-impedance antenna.

(4) ANT Switch

This switch selects antenna connected from either the **ANT A** jack or **ANT B** terminal.

(5) ANT A Jack

Connect the 50 Ω coaxial feed line to your low-impedance antenna here using a type-M (PL-259) connector.

(6) EXT SP Jack

This 2-contact mini phone jack provides receiver audio for an external loudspeaker with an impedance of 4 ~ 16 Ω. Inserting a plug in this jack disables the loudspeaker.

(7) REC Jack

This jack provides a constant level (??? mV @ ? Ω) audio output, which is *unaffected* by the **VOL** and **TONE** controls. This audio can be used for recording purposes, and for connection to data demodulator/decoder equipment.

(8) +8V Jack

This output jack provides 8V DC at up to ??? mA for low power accessories. The center contact is positive.

(9) IF OUT Jack

This output jack provides low-level (0.1 Vrms (-6 dBm) @ 50 Ω) 10.7 MHz IF output.

(10) CAT Jack

This 9-pin serial DB-9 jack allows external computer control of the **VR-5000**. Connect a serial cable here and to the RS-232C COM port on your personal computer.