OPERATING THE JUPITER IN 'PEGASUS EMULATION MODE'

Your new JUPITER transceiver can be operated from your personal computer using the Pegasus GUI software authored by Ten-Tec. This software will allow operation of the JUPITER much like it's computer controlled-only twin, the PEGASUS transceiver. This manual has been written to assist you with installation and operation of the software should you elect to operate your JUPITER in this manner. We offer technical assistance by telephone at (865) 453-7172 from 8 a.m. to 4 p.m. Eastern time, Monday through Friday, should this become necessary.

CONNECTION FROM RADIO TO COMPUTER

A standard serial port cable with DB-9 connectors at each end (not supplied) is required to connect the JUPITER to your personal computer. You will need an unassigned serial port (COM port) available to connect the transceiver to. The JUPITER will not operate under computer control from direct connection to a USB port; a serial port-to-USB adapter must be employed if needed.

SOFTWARE INSTALLATION SEQUENCE

This is a complete outline of the steps you will take in the following sections to complete installation of the software. Before you start, review the following outline of the recommended sequence.

A) Be certain the JUPITER front panel power switch is OFF.
B) Boot up computer
C) Follow instructions for your PC, whether Windows 3.1 or 95/98.
D) Pegasus software defaults to COM 1 serial port. If you wish to use a different port, make appropriate changes under the SETTINGS: INTERFACE tool bar.
E) Exit Pegasus software
F) Turn on JUPITER front panel power switch.
G) Launch the Pegasus software. You should see the RADIO window (looks like a conventional transceiver front panel) on screen and receiver should be active. You may need to adjust the AF slider control (volume) to a comfortable listening level and the S-meter should be active.

IMPORTANT: If you did not get these results then it is virtually certain you have a COM port conflict on your PC that must be resolved.

WINDOWS 3.1 SOFTWARE INSTALLATION

Make sure the JUPITER power is turned off. Turn on your PC. After the computer is finished booting up, insert the provided floppy disk in your A: floppy disk drive. From the tool bar, select FILE.

In the FILE menu, select RUN. You will now be provided with a command line. Type A:INSTALL on the command line and click 'OK'.

There will be two information boxes that will pop up on the screen. After reading each, click 'NEXT>' with your mouse. The third information box begins the software installation process. You will be asked to enter a default directory on your hard drive for the operating software. The default directory is C:\Pegasus. If you wish to use another

directory, please enter it on the command line and click 'NEXT>' with your mouse. If you want the Pegasus files on the indicated default directory, leave the command line as is and click 'NEXT>' with your mouse.

The installation program will now ask you for a program group to enter the files into. We recommend that you click 'Finish>' without making any changes unless you have a specific need to group the Pegasus files with other software. Clicking 'Finish>' at this point (without making changes) will create an icon on your main Windows screen to allow easy access to the Pegasus program.

Once the Pegasus software has been successfully loaded onto your hard drive, Windows will open the Pegasus directory and show you the files listed. If you are connecting the JUPITER to a serial port other than COM 1, you will need to launch the program at this stage. If you are using COM 1 for the JUPITER, close the directory listed, return to the main Windows icon screen on your PC, and skip the next paragraph of instructions.

There are 6 programs listed in the directory: Pegasus, Flash Loader, PC RADIO Help, Release Notes, Revision History, and UnInstall. Place the mouse pointer on 'Pegasus' and double left click. The Pegasus software will launch. When the radio screen appears, left click SETTINGS at the top of the screen. A menu of items will appear.   Left click on INTERFACE and then click on the appropriate COM port.   Exit the Pegasus software by clicking 'Exit' at the top of the screen.

You are now at the main Windows icon screen on your PC. Now, turn on the power supply connected to your JUPITER and switch the front panel JUPITER power switch to ON.   The JUPITER will automatically switch to Pegasus Mode.

To launch the Pegasus software, double click the 'Ten-Tec Pegasus' icon. All of the files in the 'Ten-Tec Pegasus' directory will now appear. Double click the 'Pegasus' icon to launch the software. You should see the main radio screen appear and the receiver should be active. . When the JUPITER is operating in Pegasus Emulation Mode, the JUPITER display screen will show "Pegasus Emulation" and indicate the version of the Pegasus firmware that it emulates. If you did not get this result, it is likely you have a COM port conflict in your PC that must be resolved.

The Jupiter will automatically switch to Pegasus Emulation mode when controlled by a Pegasus compatible PC program. It will automatically terminate Pegasus Emulation mode when the control program terminates or the serial link is broken.

WINDOWS 95/98 SOFTWARE INSTALLATION
Make sure the JUPITER power is turned off. Turn on your PC. After the computer is finished booting up, insert the provided floppy disk in your A: floppy disk drive. From the Windows main screen, click on the START command in the lower left hand corner. Select RUN from the list of commands. Windows will provide you with a command line and ask for a program, folder, or document. On the command line type A:INSTALL and click 'OK'.

There will be two information boxes that will pop up on the screen. After reading each, click 'NEXT>' with your mouse. The third information box begins the software installation process. You will be asked to enter a default directory on your hard drive for the operating software. The default directory is C:\Pegasus. If you wish to use another directory, please enter it on the command line and click 'NEXT>' with your mouse. If

you want the Pegasus files on the indicated default directory, leave the command line as is and click 'NEXT>' with your mouse.

The installation program will ask for file program group. We recommend that you click 'Finish>' without making any changes unless you have a specific need to group the Pegasus files with other software. You will be provided with one more information screen at this point, click 'OK' when done reading.

Once the Pegasus software has been successfully loaded onto your hard drive, Windows will open the Pegasus directory and show you the files listed. If you are connecting the JUPITER to a serial port other than COM 1, you will need to launch the program at this stage. If you are using COM 1 for the JUPITER, close the directory listed, return to the main Windows icon screen on your PC, and skip the next paragraph of instructions.

There are 6 programs listed in the directory: Pegasus, Flash Loader, PC RADIO Help, Release Notes, Revision History, and UnInstall. Place the mouse pointer on 'Pegasus' and double left click. The Pegasus software will launch. When the radio screen appears, left click SETTINGS at the top of the screen. A menu of items will appear. Left click on INTERFACE and then click on the appropriate COM port. Exit the Pegasus software by clicking 'Exit' at the top of the screen.

You are now at the main Windows icon screen on your PC. Now, turn on the power supply connected to your JUPITER and switch the front panel JUPITER power switch to ON. The JUPITER will automatically switch to Pegasus Mode.

To launch the Pegasus software, click 'START' in the lower left corner of your screen. Select 'Programs'. Select 'Ten-Tec Pegasus'. You should see the main radio screen appear and the receiver should be active. When the JUPITER is operating in Pegasus Emulation Mode, the JUPITER display screen will show "Pegasus Emulation" and indicate the version of the Pegasus firmware that it emulates. If you did not get this result, it is likely you have a COM port conflict in your PC that must be resolved.

The Jupiter will automatically switch to Pegasus Emulation mode when controlled by a Pegasus compatible PC program. It will automatically terminate Pegasus Emulation mode when the control program terminates or the serial link is broken.

OPERATION FUNDAMENTALS

One of the most important features about the JUPITER's Pegasus Emulation Mode is that the operation of the JUPITER from your personal computer is independent of operating the transceiver using the front panel. The JUPITER front panel is disabled and will not accept input while the transceiver is in Pegasus Emulation Mode. Also, no data are shared between the two methods of operation. Frequency, mode, memories, etc are not transferrable from the front panel radio to Pegasus Emulation Mode and vice versa.

The JUPITER's Pegasus software GUI radio screen shares similar characteristics with the traditional-style JUPITER front panel transceiver. Most functions on the transceiver are controllable by pointing, clicking, and/or "dragging" with your computer mouse. Keyboard control of several functions is possible.

INITIAL RADIO SETTINGS

As supplied, the Pegasus software is shipped with a number of default settings to allow the operator to quickly start using the transceiver. Please note that we recommend reading ALL of the operation instructions prior to operating the transceiver in Pegasus Emulation Mode.

RECEIVER OPERATION

Main frequency control of the transceiver is accomplished by using the mouse pointer to rotate the main tuning knob clockwise or counterclockwise, by pressing the up or down arrows on your PC keyboard, or via direct frequency entry.

Move the mouse pointer onto the main tuning knob. The mouse pointer will indicate the direction of rotation of the tuning knob. Click the left mouse button to change frequency.

Using the up and down arrows on your computer keyboard will move frequency up and down. Direct frequency entry is accomplished by typing numbers on the keyboard. Press ENTER after entering a direct frequency on the display.

In addition, specific HF amateur band selection can be made by clicking the AMATEUR BANDS tool bar under the main tuning knob. Left click the AMATEUR BANDS tool bar and then left click the appropriate band by using the mouse pointer.

MAIN TUNING STEP SIZE SELECTION

The software is equipped with 12 selectable step sizes for main tuning rate. Left click the STEP button on the radio screen and select desired main tuning rate. The step size menu can also be brought up by right clicking the mouse while the mouse pointer is on the main tuning knob.

MODE SELECTION

To select desired mode, point the mouse pointer to the desired mode and left click. Selected mode is shown on the main display to the left of frequency readout. Modes can also be selected by holding down the 'Alt-' key while simultaneously typing the first letter of the desired mode on the keyboard (i.e. Alt-C for CW).

VFO OPERATION

Two "VFO's" are present. VFO "A" is the main frequency display.   VFO "B" is the sub frequency display (smaller, with green digits). To switch VFO's, left click the A/B button on the radio screen. The sub and main displays will now switch places. To have both VFO's on the same frequency and mode, click A=B. The sub display will now read the same information as the main display.   When transmitting, the active transmit VFO will change colors to show you where the radio is transmitting.

SPLIT AND REV

To operate the transceiver in SPLIT mode, left click the SPLIT button. You will be receiving on the main display frequency, and transmitting on the sub display frequency.

For example: a DX station is transmitting on 14.195 and listening for calls on 14.200. Tune the main display frequency to 14.200. Click A=B to equalize both VFO's at

14.200. Tune the main display to the receive frequency of 14.195. Click SPLIT. You will now be listening on the main display frequency of 14.195 and transmitting on the sub display frequency of 14.200.

To prevent confusion over which VFO is being used to transmit, the transmit VFO display will change color when transmitting.

The REV button will allow you to monitor and/or tune the sub VFO. Press and hold the mouse on the REV button. Use the arrow keys on the keyboard to move the sub VFO up or down in frequency. Release the REV button and the radio returns to the main VFO. This can also be controlled from the optional remote encoder/keypad, model 302J.

RECEIVE FILTER SELECTION

The JUPITER is equipped with 34 available receive filtering options. Unlike the front panel operation of the transceiver, Pegasus Emulation allows any 9 of these 34 may be present on the radio screen at one time. Place the mouse pointer on the desired filter bandwidth and left click to select. To change any filter button to another selectable filter, place the mouse pointer on the desired filter button and right click. This will bring the filter button assignments menu onto the screen. Select the desired filter by left clicking it and then left clicking "OK".   All receive filters are selectable independent of mode with the exception of FM, where the selectable filter system is disabled altogether.

PASSBAND TUNING (PBT)

This is perhaps the most useful of all of the receiver controls. It allows you to move the passband back and forth across the desired signal. It can be used to "drop" QRM out of one side or the other of the passband or it can simply be used to improve the quality and intelligibility of a signal. To enable the PBT, left click the PBT button on the radio screen. The button lettering will change from black to blue. There are three methods for implementing the PBT control in Pegasus Emulation Mode.

For quick, large adjustment of PBT range, you can left click on the filter shape factor plot shown directly above the 9 receive filters. Left click, then holding the mouse button down, drag the filter from side to side. Note the PBT offset indicator on the right side of the transceiver tracking the movement of the PBT as you drag it.

You can also make large adjustments to the PBT by moving the mouse pointer into the grey range just above the PBT offset readout. Left click a spot in this range and the blue rectangular indicator will move to that position. Alternatively, you can left click, hold, and drag the blue indicator rectangle for larger, somewhat linear movements.

For smaller movement increments, you can left click, hold and drag on the PBT offset indicator.

To reset the PBT value to zero quickly, place the mouse pointer on the PBT offset indicator and right click.

RIT

"Receive Incremental Tuning" (RIT) allows tuning of the receiver off the main frequency displayed without moving your transmit frequency. To enable RIT, left click the RIT button. When enabled, the RIT lettering on the button changes from black (disabled) to blue (enabled). Tuning in large or small increments is done exactly the

same as described for the PBT control. To reset the RIT value to zero quickly, place the mouse pointer on the RIT offset indicator and right click.

The RIT offset is also displayed as a green digit to the immediate right of the main frequency display.

XIT

"Transmit Incremental Tuning" (XIT) allows tuning of the transmitter off of the main frequency displayed without moving your receive frequency. Operationally the same as RIT.

The XIT offset is also displayed as a red digit to the immediate right of the main frequency display.

SIMULTANEOUS RIT/XIT OPERATION

Unlike front panel operation of the JUPITER, in Pegasus Emulation Mode both XIT and RIT can be activated simultaneously. When both are activated, you are operating receive and transmit on two separate frequencies. The RIT and XIT functions act independently and one does not track with the other if both are selected.

AUDIO (AF) and RF GAIN CONTROLS

Use the AF slider control on the right side of the radio screen to adjust audio level. Left or right click and hold the mouse button down to adjust the slider control.

The JUPITER receiver is provided with good selectivity and dynamic range. Under normal conditions, RF gain is left full up. Should you experience receiver overload, the RF gain control can be used as variable attenuation to limit receiver distortion and/or overload in the presence of extremely strong signals. Left or right click and hold the mouse button down to adjust the RF slider control.

AUTOMATIC GAIN CONTROL (AGC)

The AGC button selects the decay time constant of the AGC circuit. It is selectable FAST, MEDIUM, or SLOW by left clicking the AGC button and then selecting desired setting. The selected AGC setting is shown just above and to the right of the main frequency readout**.**

DSP NOISE REDUCTION

The DSP noise reduction is activated by left clicking the noise reduction bar. This noise reduction system mathematically identifies desired signals and tracks them with a set of adaptive filters. Broadband noise is attenuated by as much as 15 dB depending upon conditions.

AUTOMATIC NOTCH

The automatic notch is implemented with a special digital algorithm in the DSP system. Left clicking the AUTOMATIC NOTCH bar enables this function. There is no frequency adjustment for the automatic notch. It will seek out and null all constant carriers in the receiver passband. This notch works well for SSB mode but is **not** useful in CW or digital modes as it also tends to notch out the desired signal.

METER

In receive mode, the meter shown to the left of the frequency display will show received signal strength. Each S-unit is 6 dB. S9 is calibrated at 50 uV.

In receive mode, the meter has two indicators that are used for gauging signal strength. The red indicator bar on the S-meter is an instantaneous reading of signal strength. The green indicator bar on the S-meter is a peak and hold indication that updates approximately once a second.

In transmit mode, you have the option of metering forward power (FWD), reflected power (REF), or standing wave ratio (SWR). To select transmit metering, left click the button just above the VOX button to the left of the meter.

The meter reads with both an analog scale and has a small digital readout for accurate monitoring of power output.

SQUELCH

This control is operational in all modes. To adjust, left or right click and hold mouse button to adjust the SQ slider control. To set properly, tune to a clear frequency and adjust the squelch control just into the threshold for receiver quieting.

MUTE

This control is not present on the JUPITER physical front panel. This button automatically mutes receiver audio. There are three ways to mute receiver audio.

(A) Left click the MUTE button on the far right side of the radio screen. When enabled, the MUTE button lettering will change from black (disabled) to blue (enabled).

(B) Left click the MUTE button on the radio screen tool bar. Note that the MUTE button lettering on the right side radio control changes color for enabled or disabled, but the tool bar lettering does not change.

(C) The MUTE button can also be controlled from the keyboard by holding down the 'Alt-' key while simultaneously pressing the 'M' key.

–20 dB RECEIVER ATTENUATOR

Pushbutton receiver attenuation of –20 dB. To enable the attenuator, left click the ATTN button. When enabled, the ATTN button lettering will change from black (disabled) to blue (enabled).

LOCK

The LOCK function on the front panel will lock the main tuning knob and will not allow main tuning when enabled. If the optional model 302J has been added, it will also lock out the 302J's tuning knob as well. Even with LOCK enabled, the operator will be able to use other Pegasus Emulation Mode functions, including direct frequency entry from the computer keyboard or model 302J keypad.

MEMORY STORE AND RECALL

Left clicking the 'Store' button on the lower left side of the radio screen will bring up the Station Information Sheet for storage of memory information.

To bring a given memory up to the main radio screen, click the 'Recall' button. The storage and retrieval of memory information is described in detail in a later section of this document.

Please note that the memory store and recall functions in Pegasus Emulation Mode are separate from those used in front panel mode and no information is shared between the two.

WWV/CHU MONITORING

A provision has been made in the software for instant monitoring of WWV or CHU. On your Windows™ toolbar, click View. Left click the 'UTC/Time' selection. You will given the choice of selecting WWV at 2.5, 5, 10, 15, or 20 MHz, or CHU at 3.330, 7.335, or 14.670 MHz. Left click the desired frequency. The radio will automatically switch to that frequency, AM mode, 8.0 kHz filter. When finished, you have the option of returning to the main radio screen at your previous filter and mode settings, or having the transceiver now be operational in VFO mode on the selected time frequency.

Note: When the 'UTC/Time' is selected, the radio immediately changes to AM mode, 8.0 kHz filter, even if you have not selected a time frequency to monitor. To return to the radio screen at your previous frequency and filter settings, left click the appropriate selector in the Time/UTC window.

TRANSMITTER AND TRANSCEIVE OPERATION

Embedded in the graphical user interface are a number of functions that affect transceive operation that you will need to be aware of prior to transmitting.

A provision has been made for proper monitoring of transmitting VFO. As you transmit, the active transmit VFO will change display color. This is especially useful in SPLIT mode to be sure where you are transmitting.

TUNE

The TUNE button keys the transmitter "key-down" in CW mode, regardless of the selected operating mode. Left click the TUNE button to activate or deactivate. When activated, the TUNE button lettering will change to red, the S-meter reading will change to read forward power, reflected power, or SWR.

T-X

Provided for new modes such as PSK31. With the radio in LSB or USB mode, this button will place the radio in transmit but without carrier or power output. In CW mode it operates identical to TUNE feature. This feature is not available in front panel transceiver operation mode.

CW OPERATION

Attach an appropriate CW keying device to the front panel KEY jack. Select CW mode. The default value of the software is to accept input from a straight key, bug, or external keyer through the key jack. The CW keying of the JUPITER is full break-in. While transmitting CW, the red TX and red ALC lights on the front panel of the JUPITER will light. See detailed operating instructions later in this document for information on enabling the internal keyer and making speed adjustments.

USB/LSB OPERATION

Select either USB or LSB and key the transceiver by pressing the microphone's PTT (push-to-talk) button. The red TX LED on the JUPITER front panel will light to indicate you are now transmitting. While speaking into the microphone, advance the MIC GAIN control until the red ALC LED on the front panel of the JUPITER begins to flash. The ALC LED indicates that the transceiver is generating full output power relative to the setting of the OUTPUT POWER control.

The MIC GAIN control is a slider control that can be dragged with your mouse. To adjust, left click 'Settings' on the tool bar. When the 'Settings' menu comes up, left click on 'SSB Settings'. This will bring up the MIC GAIN control. Left click, hold, and drag the slider bar to adjust.

There are 18 different DSP generated transmit bandwidths available for use. To select a transmit bandwidth, click 'Settings' on the tool bar. A menu titled "Transceiver Settings" will appear. Select 'SSB Settings'. There is a pull-down menu that will allow you to select an appropriate SSB transmit bandwidth.

MONITOR

A provision has been made for monitoring SSB transmit audio. By left clicking the MON button on the upper right of the radio screen, you will be able to monitor your SSB transmit audio. To adjust the monitor volume, click 'Settings' on the tool bar. Then select 'SSB Settings' in the "Transceiver Settings" menu. There will be a slider bar for monitor volume. Left click, hold, and drag the slider bar. This setting is independent of main AF gain volume.

FM OPERATION

Select the FM mode on the radio screen. (NOTE: This mode is currently authorized by the FCC for use between 29.0 and 29.7 MHz only). Press the microphone PTT button to transmit. The receive filters and PBT control are disabled in FM mode. The MIC GAIN control acts as a deviation control in FM mode.

DIGITAL MODE OPERATION

Direct connection for digital mode operation has been provided for on the JUPITER rear panel ACC 1 jack. The 5 pin DIN connector used on the JUPITER has connections for audio in, audio out, PTT, and ground. The fifth pin on the ACC 1 jack has been left unconnected for future assignment. You should be able to easily interface a TNC to the JUPITER by using the supplied multi conductor ribbon cable (#46176). See the JUPITER operation manual for the proper DIN plug pin out. To accept input from the ACC 1 jack, you must enable input to the jack in the SETTINGS: TRANSMITTER section of software. Select 'Settings' from the tool bar. Under the "Transceiver Settings" window, select 'Transmitter'. There will be a pair of choices under the heading 'Transmit Audio Source'. Select the microphone jack or ACC 1 jack for choice of audio input.

DETAILED OPERATING INSTRUCTIONS

INTRODUCTION

This section provides detailed operating instructions to enable the operator to take full advantage of the JUPITER's capabilities in Pegasus Emulation Mode.

RADIO SCREEN TOOL BAR

Above the radio screen is a tool bar. There are 7 selectable tool bar choices: RADIO, SWEEP, MEMORY, SETTINGS, MUTE, CALL, and EXIT. You can have any, all, or none of these functions active at one time.

TOOL BAR: RADIO

This places or removes the main radio screen on your monitor. Left click the RADIO button on the tool bar to toggle between visible and non-visible.

NOTE: Even if the radio screen is not visible, all settings and operation functions are retained. You can continue to transmit, receive and tune the band with the model 302J optional remote tuning knob/keypad even if the radio screen is not visible.

TOOL BAR: SWEEP

The SWEEP tool bar is used to enable the SweepPanel window. This window provides a way to view active frequencies in a visual format. It can help locate activity (or inactivity) on a given range of frequencies. The operation of the SWEEP function in Pegasus Emulation Mode is greatly expanded from its' capabilities in front panel mode.

To enable the SweepPanel window, left click SCREEN on the radio screen tool bar. You will now see the blank SweepPanel grid. To start a sweep across a given range of frequencies, left click the SWEEP button on the SweepPanel screen. Receiver audio is automatically muted during a sweep. You can over-ride the muting during a sweep by clicking the volume slider control while the sweep is in progress.

At the end of a sweep, you can tune the radio to a desired frequency on the SweepPanel by moving the mouse pointer onto the desired signal and left clicking. The radio screen will automatically move to where you have clicked with the mouse.

Unless specified, the center of the frequency range swept will be the last frequency the transceiver was tuned to prior to the SweepPanel window being enabled. You can specify an alternate center frequency if desired. Left click the down arrow under CENTER FREQUENCY, then left click on the frequency shown in the box to place the cursor. Backspace and then type your desired center frequency. When ready to sweep, left click SWEEP on the SweepPanel. After the sweep, the transceiver will return to the last frequency shown on the main tuning display.

The RANGE setting is used to determine the amount of frequency coverage a given sweep will check for activity. There are 7 selectable sweep ranges.

The FILTER setting can be used to select a filter to be used only for the duration of the sweep. At the end of the sweep, the radio will return to the filter last selected on the main radio screen. The 'Auto' selection allows the transceiver to determine the most appropriate filter to be used, based on the RANGE setting.

The LOG and LINEAR scales are relative indicators of received signal strength (not actual signal strength). The LINEAR scale is a signal graph scale from 0 to 1. The LOG scale measures signal strength relative to other received signals and noise present on the frequency band you are receiving.

The STYLE setting will allow you to toggle between a solid line and single line display on the sweep graph.

Unlike front panel operation, Pegasus Emulation Mode does not incorporate the AUTOSWEEP feature to automatically enable another sweep once the radio has been tuned outside the range of the original sweep with the main tuning knob.

TOOL BAR: MEMORY

The quantity of Pegasus Emulation Mode memories are only limited by the available RAM in your PC. A typical PC has enough RAM capability to allow for thousands of memories. Any memory information entered in this mode is not shared with front panel operation of the JUPITER, and vice versa.

Left clicking the MEMORY button on the tool bar will bring up the Radio Memory window. To add a memory, left click the ADD button. The 'Station Information Sheet' window will come up. The 'Station Name or Identifier' command line is for the name of the station you want to put in memory (i.e. Radio Canada International). Use the TAB button on your computer keyboard to scroll through the different command lines on this window. Enter frequency in MHz (with decimal point). Select mode and filter. Enter country and language information (this is primarily for international shortwave broadcast use). You are not required to fill in all blanks; any can be left blank. 'Notes' is for use for any additional information you may want to store about a given memory.

There are three methods for sorting stored memories: alphabetically by country, alphabetically/numerically by station information, or numerically by frequency. To sort, left click the appropriate word at the bottom of the Radio Memory window. If station information begins with a number rather than a letter, these memories will be sorted by number and placed ahead of the alphabetical listings.

The TUNE button in the Radio Memory window transfers the memory you have selected onto the main radio screen. Left click a given memory to highlight it. Left click the TUNE button. The transceiver will now have moved frequency to your selected memory. You can also tune to a selected memory by double left clicking it with the mouse.

The EDIT command allows you to edit information stored in a previously entered memory. Left click the desired memory, then left click EDIT to change stored information.

The DELETE command allows removal of stored memories. Highlight the desired memory with the mouse, then left click DELETE to remove it.

The CLOSE command removes the Radio Memory window from the screen.

TOOL BAR: SETTINGS

The 'Settings' selection on the toolbar allows for detailed control of the transceiver. Most of these are 'set and forget'.

To bring up the Transceiver Settings menu, left click the 'Settings' button on the radio screen tool bar. You will be presented with seven options: PREFERENCES, TRANSMITTER, CW SETTINGS, SSB SETTINGS, VOX CONTROLS, REMOTE POD, and INTERFACE.

PREFERENCES

This window always appears when the 'Settings' button is selected on the radio screen tool bar. The "Local/UTC" correction allows you to display both local and UTC time on your computer, providing you with the choice to have the master clock in your computer set to whichever you prefer.

The "Mute Radio On Exit" command will allow you to always mute the radio on exiting the software (default), never mute the radio on exiting, or to bring up a window to ask if you want the radio muted each time you exit the software.

The "Ham Call Path" command line is to instruct the software to know where to look for the Buckmaster Publishing HamCall CD-ROM (if installed). If your CD-ROM is drive D: the correct path name to be inserted here is D:\HAM0\

TRANSMITTER

ENABLE KEYING LOOP: The JUPITER is equipped with a full break-in keying loop to enable keying of a full break-in linear amplifier with proper T/R sequencing. The loop connectors on the JUPITER rear panel are TX EN and TX OUT. This loop must be enabled to use a Ten-Tec (or similar) amplifier. You can connect these connectors to corresponding input and output jacks on a Ten-Tec linear amplifier or other linear amplifier employing a similar keying sequence. See connection diagrams in the JUPITER operator's manual for hookup information. To enable the keying loop, left click the Enable Keying Loop box.

ENABLE TRANSMITTER: The transmitter can be intentionally disabled in software to prevent accidental transmissions. To disable or enable the transmitter, left click the Enable Transmitter box.

MICROPHONE INPUT AND ACCESSORY INPUT: By selecting either of these, you are instructing the JUPITER to accept transmit audio input from either the microphone jack or the ACC 1 connector located on the rear panel of the radio.

TUNE: This is a duplicate of the TUNE button on the virtual front panel. Click TUNE to transmit "key-down" in CW mode. Additionally, a digital readout for RF power output will appear directly under the TUNE button when it is selected. This will allow easy setting of output power.

OUTPUT POWER: This slider is used to control the transmitter output power. Left click, hold and drag the slider control to adjust forward output power from approximately 5 to 100 watts. The control is somewhat linear.

EXT T/R HANG: This slider is used to control the hang time on the EXT T/R output, used for keying a non-QSK external linear amplifier.

CW SETTINGS

ENABLE KEYER: This button is used to accept direct connection of keyer paddles to the front panel KEY jack. The default value is to accept a mono key input from a straight key, bug, or external keyer. To enable the internal keyer, left click the box by Enable Keyer. Proper wiring of keyer paddles for use with the internal keyer is shown in the JUPITER operator's manual.

KEY SPD: This slider control is to control internal keyer speed (words per minute). Left click, hold and drag to adjust. The minimum value is approximately 7 WPM, maximum value is approximately 55 WPM.

SIDETONE (HZ): This slider control determines both the audio pitch of the CW sidetone and the carrier transmit offset in CW mode. The default value is 700 Hz. The offset can be set anywhere between 400 and 990 Hz.

S.T. VOL: This slider control is for sidetone volume.   Sidetone volume has a separate adjustment from the main radio volume control. These two controls do interact and as main radio volume is increased, sidetone volume will increase.   Some experimentation will be required with sidetone volume vs. main volume to determine what sidetone volume is comfortable.

SSB SETTINGS

IMPORTANT: The JUPITER transceiver is capable of transmitting in SSB mode with a variety of transmit bandwidths. The default value as shipped from the factory is 2.55 kHz. An operator of the JUPITER should be aware of the implications of using wide SSB filtering while transmitting.

Audio fidelity generally improves with the use of wider SSB transmit filtering. Using a 3.0 kHz transmit bandwidth will have a more "well-rounded" audio response than a narrower bandwidth.   As transmit bandwidth widens, so does the potential for interference with stations using adjacent frequencies.   In practice, amateur radio transceivers typically utilize a SSB transmit bandwidth of between 2.4 and 2.8 kHz, and this range has come to be a de facto standard for a communications-grade SSB transmit signal.

Part 97 of the FCC regulations governing amateur radio operation does not specify a maximum transmit bandwidth usable by amateurs for SSB communication.   However, FCC regulation 97.307(a) requires amateur stations to not occupy more bandwidth than is necessary for the emission type being transmitted in accordance with good amateur practice. Regulation 97.307(b) requires that emissions outside the necessary bandwidth must not cause splatter interference to operations on adjacent frequencies.

While these are broad regulations subject to interpretation, the responsibility for complying with the regulations rests with the operator. Using a SSB transmit bandwidth wider than necessary for communications and causing interference to adjacent stations while doing so is specifically what these regulations are addressing. In summary, what may be an acceptable bandwidth on a given band at a given time may not be on another band at another time.

TRANSMIT FILTER: SSB transmission on the JUPITER is DSP generated. There are 18 available transmit bandwidth filters to suit your individual taste for transmit audio. In general, the wider the bandwidth audio, the more "well-rounded" the audio fidelity, though this will vary with microphone and individual voice characteristics. The default value, as supplied from the factory is 2.55 kHz.

MONITOR VOLUME: The transceiver is equipped with a monitor for monitoring the sound of your transmitted SSB signal. To adjust the monitor volume (independent of the main radio AF control) left click, hold, and drag the slider bar.   The MON button on the virtual front panel must be activated to use this feature.

MIC GAIN: MIC gain is adjustable with this slider bar. While speaking into the microphone, advance the MIC GAIN slider bar until the ALC LED on the physical front panel of the JUPITER begins to flash.   The LED indicates that the transceiver is

generating full output power relative to the setting of the OUTPUT POWER slider bar under TRANSMITTER SETTINGS.

This slider provides approximately 22 dB of adjustment which should accommodate most microphones. In the unlikely event your microphone requires more or less gain, there is a potentiometer on the logic board to provide further adjustment.

VOX CONTROLS

To use the VOX (voice activated transmit) mode, left click the VOX button. The lettering on the VOX button will change from black (disabled) to blue (enabled). To adjust the VOX GAIN, VOX DELAY, and ANTI VOX controls, select 'Settings' from the tool bar. In the 'Settings' menu, left click VOX CONTROLS. Adjust any of the three controls by left or right clicking, holding, and dragging the slider controls.

Adjust the VOX GAIN for desired transmitter action while speaking into the microphone. Once set, adjust VOX DELAY for desired transmitter hang time.   Adjust ANTI VOX to a level where the receiver audio does not trip the transmitter.

REMOTE POD

The optional model 302J remote encoder/keypad is equipped with three function buttons (labeled F1, F2, F3) that can be assigned specific radio functions.

Each function button has a pull down menu with five available choices: Tuning Steps, Tuning Selections, Mode Selections, Split Reverse, and A/B Toggle.

To assign a specific function, left click the arrow on each command line and then click on the desired feature to be assigned to a particular function key.

"Tuning Steps" allows you to scroll through all the available main knob tuning rates. Pressing the function key will scroll through all available tuning rates.

"Tuning Selections" allows control of frequency-specific functions with the remote knob. In the radio screen tool bar area there is an indicator with a default value of Remote: VFO. By pressing the function button, you can assign tuning of VFO, PBT, RIT or XIT to the remote knob. Note that PBT, RIT and XIT can be tuned even if that particular control is not selected on the front panel. To use each, click each function with the mouse. If you think you may potentially use any or all of them while operating the radio, click RIT, XIT, and PBT when you begin to operate. You can then assign the knob to a tuning selection when needed and not have to turn them on and off on the radio screen.

"Mode Selections" is used to scroll through all available modes of operation.

"Split Reverse" is to allow monitoring and movement of the opposite VFO when in SPLIT mode. If one VFO is set at 14.195 for 'DX receive', and the other at 14.200 for 'your transmit' and SPLIT is enabled, you can press and hold this function button to instantly monitor your transmit frequency. While holding the function button, you can also tune the transmit frequency VFO with the tuning knob. Release the function button and the radio returns to the 'DX receive' frequency.

"A/B Toggle" allows toggling between VFO A and VFO B.

INTERFACE

This is for assignment of the transceiver to a particular COM port on your PC.

TOOL BAR: MUTE
   This tool bar button mutes receiver audio.

TOOL BAR: CALL
   The software has an interface for use with the Buckmaster Publishing HamCall™ CD-ROM.   You can look up callsign information with the CD-ROM while using the transceiver.
   Insert the provided HamCall™ CD into your PC's compact disc player. To look up callsign data, left click the 'Call' button on the tool bar. Place the mouse pointer in the callsign area and click. The cursor will now appear in the callsign window. Type the callsign you wish to look up and click 'Find'. Name and address information will be shown.
   The Buckmaster HamCall CD-ROM has many additional functions that are not accessible from the Pegasus Emulation Mode software.

TOOL BAR: EXIT
   This tool bar button will exit you from the Pegasus software. Depending upon the setting you have selected under TRANSCEIVER SETTINGS: PREFERENCES, the software will either automatically mute receiver audio, will not mute audio, or will ask you to choose before exiting.

TOOL BAR: REMOTE
   If the optional model 302J remote encoder is installed, this indicator tells the operator what tuning function the remote knob has been assigned to.

GLOSSARY

INTRODUCTION
   There are a number of "computer lingo" terms that are accepted in common language used in this manual. In case you may not be familiar with some or all of them, a glossary is provided to define some of the terms used.

DRAG, DRAGGING: Clicking a mouse button, holding it down, and moving the mouse while still keeping the button depressed (see HOLD, HOLDING)

FRONT PANEL: The physical front panel of the JUPITER transceiver unit (not the operating software).

GRAPHICAL USER INTERFACE (GUI): The actual software used to control the transceiver, in its' entirety.

HOLD, HOLDING: As related to mouse clicking, "holding" is keeping the mouse button pressed down rather than momentarily clicking a mouse button.

LEFT CLICK, LEFT CLICKING: Press and release the left button on

your computer mouse.

MOUSE POINTER: The arrow you see on your computer screen that moves in conjuction with movements of the mouse, to allow mouse selection of items on the screen.

RADIO SCREEN: The display of the "virtual front panel" of the transceiver on your computer monitor.

RIGHT CLICK, RIGHT CLICKING: Press and release the right button on your computer mouse.

TOOL BAR: A button or series of buttons that control single or multiple software functions.

VIRTUAL FRONT PANEL: The transceiver front panel as presented on your computer screen, not the physical front panel of the JUPITER transceiver.