

KACHINA

Installation & Operation Guide

505DSP Computer Controlled HF Transceiver

All You Need to Get You Started!

FCC STATEMENT

This device complies with Class B limits, Part 15 of FCC rules. See instructions if interference to radio reception is suspended.

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, it may cause interference to radio and television reception. Please note that all peripherals must be attached with shielded cables to prevent interference. This device has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one of the following measures:

1. Reorient the receiving antenna.
2. Relocate the computer with respect to the receiver.
3. Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.
4. If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user may find further information in the booklet *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is prepared by the Federal Communications Commission and is available from the US Government Printing Office, Washington, DC 20004. Stock Number 004-000-00345-4.

In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables must be used for Connection of any devices external to this product.

The FCC (with its action in General Docket 79- 144, March 13, 1986) has adopted a safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated equipment. Kachina recommends that you observe the following safety standards:

- a DO NOT operate a fixed or mobile radio transmitter when someone is within two feet of the antenna.
- a DO NOT operate any radio transmitter unless all RF connectors are secure and any open connectors are properly terminated.
- m DO NOT operate radio equipment near electrical blasting caps or in an explosive atmosphere.
- e DO NOT press the push-to-talk button except when you intend to transmit.
- e GROUND ALL RADIO EQUIPMENT according to the Kachina's installation instructions.
- a Repair of KACHINA products should be performed only by KACHINA authorized personnel.

Table of Contents

	PAGE #
1. Introduction.....	3
2. Specifications.....	3
3. System Requirements.....	4
4. Unpacking the 505DSP.....	5
5. Location.....	5
General.....	5
Transceiver.....	5
Control Head.....	5
6. Control Head and Hardware Installation.....	6
Installing the Control Head Into Your Computer.....	6
Using the Control Head Outside of Computer.....	7
7. Control Head Front Panel Connections.....	8
Microphone Connector.....	8
Paddle, Morse Key Input jacks.....	8
Speaker jack.....	9
Phone Jack.....	9
8. Rear Panel.....	9
ACC 1 Audio Accessory Connector.....	9
ACC2 External Antenna Tuner Connector.....	9
ACC3 External Power Amplifier Connector.....	10
RJ12 Accessory Connector.....	10
Antenna Ports.....	10
Ground Terminal.....	10
D.C. Power Connector.....	12
Fuse.....	12
9. Control Software Installation.....	12
10. Operation.....	12
Main Power Switch.....	12
Current Settings Window.....	13
Slide Bars.....	13
Volume Control.....	13
Frequency Selection.....	13
Mode Button.....	13
Shortcut Keys.....	13
Snapshot Keys.....	13
Backspace Key.....	14
Numeric Keypad.....	14
Help.....	14
11. Trouble Shooting.....	14
Screen Resolution.....	14
Keyboard Repeat Rate and Mouse Click Speed.....	14
Font Setting.....	15
Computer and Monitor Noise.....	15
Control Problems.....	16

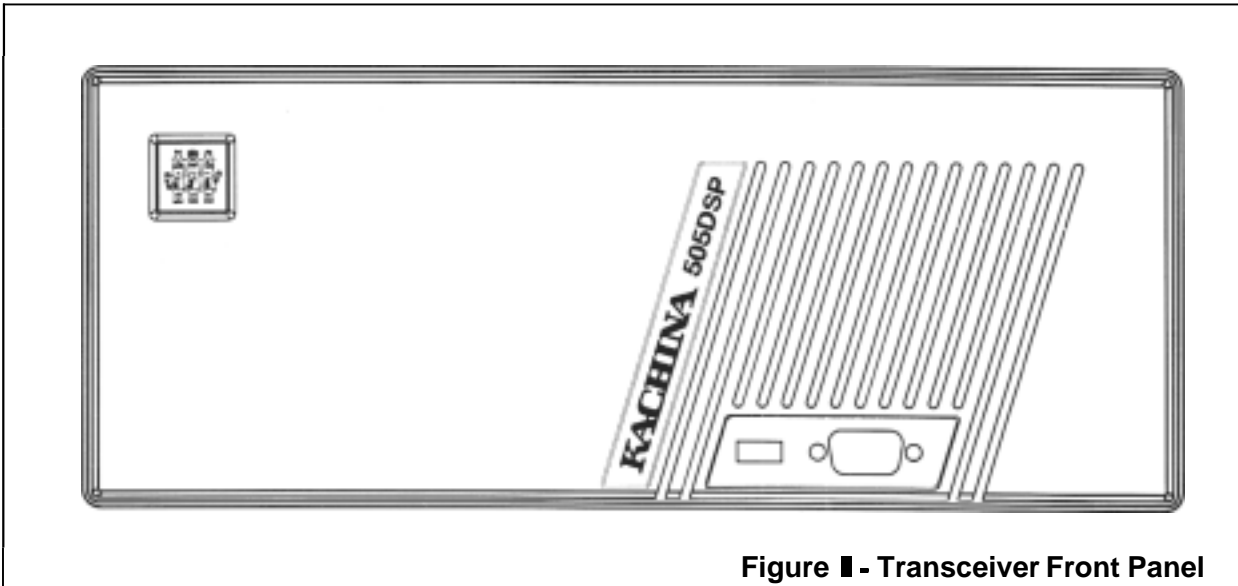


Figure 1 - Transceiver Front Panel

1. Introduction

Congratulations on your purchase of the Kachina 505DSP HF Transceiver. The 505DSP is designed to be controlled entirely from your personal computer. By combining a state-of-the-art DSP transceiver with the processing power and graphics capabilities of your PC, we are able to provide a product with increased performance and features over similarly-priced conventional radios. No more fiddling with multifunction knobs and tiny LCD displays. The 505DSP marks the beginning of an exciting new era in amateur radio.

Considerable time has been spent designing the radio control software to be user-friendly and to accommodate both mouse and keyboard users. Even frequency tuning, a function that some believe will always require a knob, has been resolved to the satisfaction of most diehard knob fans.

In the following pages, we will provide information to help you select a location for your radio, connect the radio and control head to your computer and install the control software into your computer.

2. Specifications

General:

Frequency Coverage, Tx:	1.8-2.0, 3.5-4.0, 7.0-7.3, 10.1-10.15, 14.0-14.35, 18.068-18.168, 21.0-21.45, 24.895-24.995, 28.0-29.7 MHz.
Frequency Coverage, Rx:	0.1-30 MHz
Frequency Stability, short term:	Can be automatically calibrated to within +/- 10 Hz of or other external standard.
Modes:	USB, LSB, AM, CW
Power Requirements:	+ 13.8 VDC nominal, 25A maximum (TX) 2A maximum (Rx)

Operating Temperature Range: -10 to +50° C
 Transceiver Dimensions/Weight: Length: 32 cm, height: 29.5 cm, width: 11.5 cm
 (12.5 x 11.5 x 4.5 inches), weight: 5.27 kg (11.6 lbs.)
 Control Head Dimensions/Weight: Length: 17.5 cm, height: 4.5 cm, width: 15.0 cm
 (6.8 x 1.75 x 5.85 inches), weight: .58 kg (.26 lbs.)

Receiver:

SSB Sensitivity: 0.18 uV (2.4 kHz filter, 10 dB SINAD, pre-amp on)
 0.35 uV typical (2.4 kHz filter, 10 dB SINAD, pre-amp off)
 AM Sensitivity: 0.6 uV (pre-amp on), 1.0 uV typical (pre-amp off)
 Audio Power (5 uV input): >2 Watts into 8 Ohms, >4 Watts into 4 Ohms
 Spurious Rejection: >80 dB
 Image Rejection: >80 dB
 IF Rejection: >80 dB
 3rd-order Intercept Point: +18 dBm typical @ 20 kHz (pre-amp off)
 3rd-order IMD Dynamic Range: 96 dB typical (pre-amp off)
 2nd-order Intercept Point: +49 dBm typical
 Blocking Dynamic Range: 115 dB typical @ 20 kHz (pre-amp off). 118 dB typical @
 50 kHz
 Audio THD: <5% @ 2 Watts into 4 Ohms
 Manual Notch Depth: > -50 dB

Transmitter:

Output Power: SSB: 100 Watts +/- 1 dB into 50 Ohms
 AM: 25 Watts carrier nominal
 Spurious, Harmonics: <60 dBc @ 100 Watts into 50 Ohms
 Carrier, Opposite Sideband SSB: <-55 dBc
 Suppression:
 C W Keyer Speed: 5-80 WPM adjustable

- Note: Above specifications are subject to change without notice.

3. System Requirements

The 505DSP transceiver is controlled by software residing on your PC. The software will operate with any computer running Windows™ 3.1, Windows™ 95 or Windows™ NT. Microsoft requires a 386DX or higher processor and 4 MB of memory (8 MB recommended) for Windows 95. Your computer must have at least 2 MB of free hard drive space, to store the 505DSP control software, and a spare serial port. You will also need a 4- or 8-Ohm external speaker unless your computer is equipped with a sound card and speakers.

The 505DSP Transceiver operates from 12 Volts D.C. Your power supply must be capable of delivering at least 25 amps continuous duty. Use of small power supplies may result in distorted audio, low power output, erratic operation or all of the above.

4. Unpacking the 505DSP

The carton contains the following items:

- 505DSP Transceiver
- 505CH Control Head
- Control Head Cable, 2.5 m. (8 ft.) length
- Power Cable, 2.5 m. (8 ft.) length
- Jumper Cable, 76 cm (2.5 ft.) length
- 2-port Junction Panel containing one HDE15 and one DE9 connector w/61 cm (2 ft.) cable
- 3.5" Installation Diskette
- Quick Reference Chart
- Dynamic Microphone
- 3.5 mm (1/8") Phone Jacks (3)
- Self-adhesive Rubber Feet (4)
- Spare Kachina Logo
- Control Head Mounting Screws (4)

If your carton is missing any of the above items when received, notify your Dealer immediately.

5. Location

General - The 505DSP must be used indoors or in an enclosed vehicle. The transceiver and control head are not weatherproof and must not be exposed to the elements or to temperatures exceeding -10 to +50°C.

Transceiver - The transceiver may be mounted up to 23m (75 ft.) away from the computer. Control cables approximately 2.5m (8 ft.) in length are supplied standard with the transceiver while 7.6m and 23m (25 and 75 ft.) cable lengths may be purchased from Kachina.

For bench or desk top use, the 505DSP transceiver is designed to stand vertically or horizontally. Self-adhesive rubber feet are supplied and may be attached to either the side or bottom of the cabinet. A spare Kachina logo is provided in case you wish to pivot the logo from the factory-supplied position.

An accessory mounting bracket is available from Kachina in the event you wish to secure the transceiver to a desk or wall or install in a vehicle. If installing the transceiver in a vehicle, care should be taken to ensure that the radio is protected from the elements and not exposed to excessive shock or vibration. Rubber shock mounts are available from Kachina. Shock mounts should be considered mandatory if you have a harsh riding vehicle or expect to travel on rough roads, and are recommended for mobile installations in all cases.

Control Head - The 505DSP is supplied with a control head containing the main power switch and microphone, speaker, Morse key and phone jacks. Cables are provided to install it in an

6. Control Head and Hardware Installation

Installing the Control Head Into Your Computer - Follow the steps below to install the control head and junction panel into your computer and to connect the transceiver and control head.

1. Disconnect your computer's A.C. power cord from the power outlet before installing the control head.
2. Remove the cabinet from the PC.
3. Select an empty drive bay and install the control head into the bay using the hardware supplied. The threaded mounting holes on the side of the control head chassis will usually align with equivalent holes in the PC chassis. However, since there is not a universal standard for the spacing of these holes, you may find there is no way to adequately secure the control head to the computer chassis. You may wish to consider situating the control head on a desk-top in such cases.
4. Install the 2-port junction panel into an empty slot on the rear panel of your computer and plug the cable into the connector on the rear panel of the control head.
5. Connect the 2.5m (8 ft.) control head cable from the front panel of the 505DSP transceiver to the HDE 15 connector on the junction panel. **NOTE:** If you use your own cable, it **MUST** be 100% shielded and not longer than 23 meters (75 ft.).
6. Connect the 76 cm (2.5 ft.) jumper cable from the DE9 socket on the junction panel to your computer's serial port.

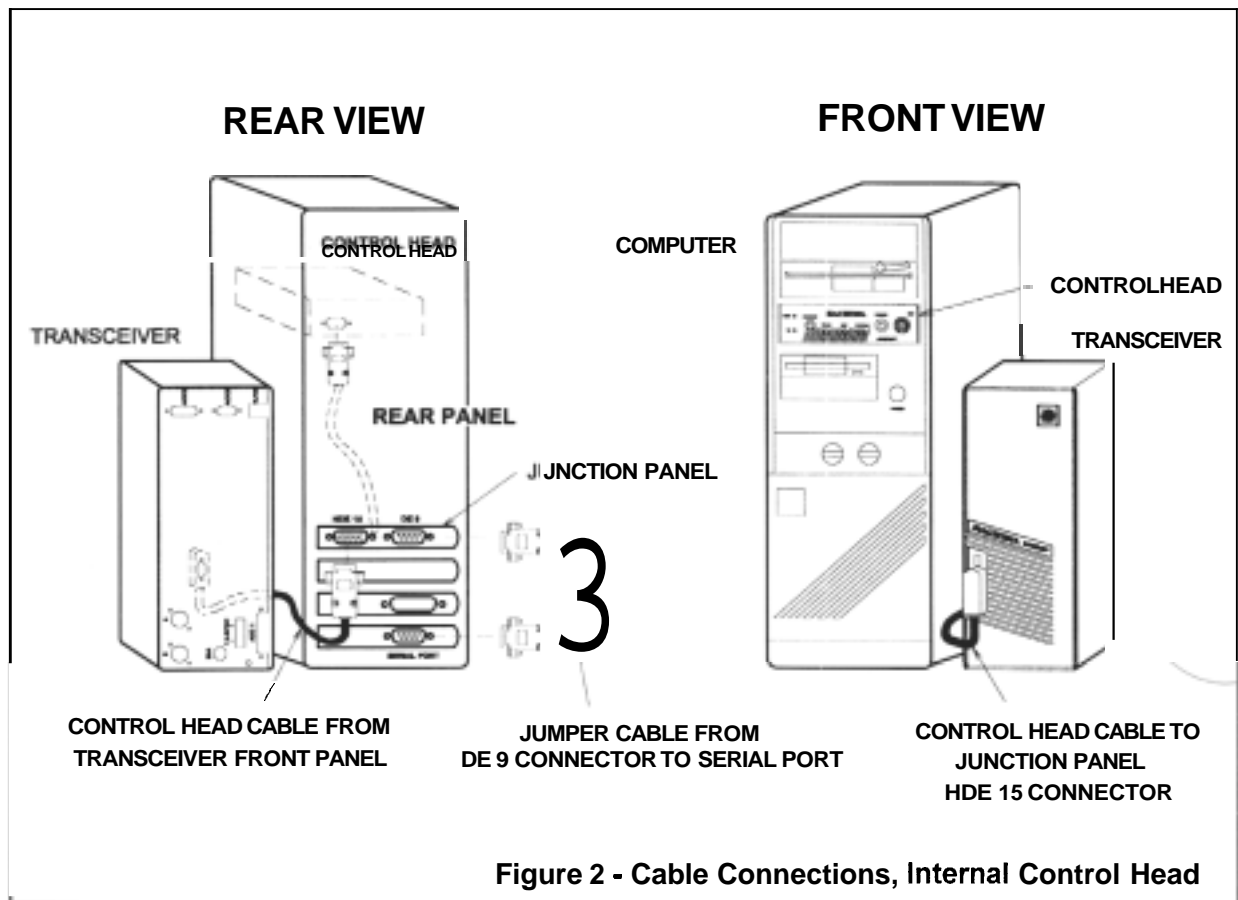
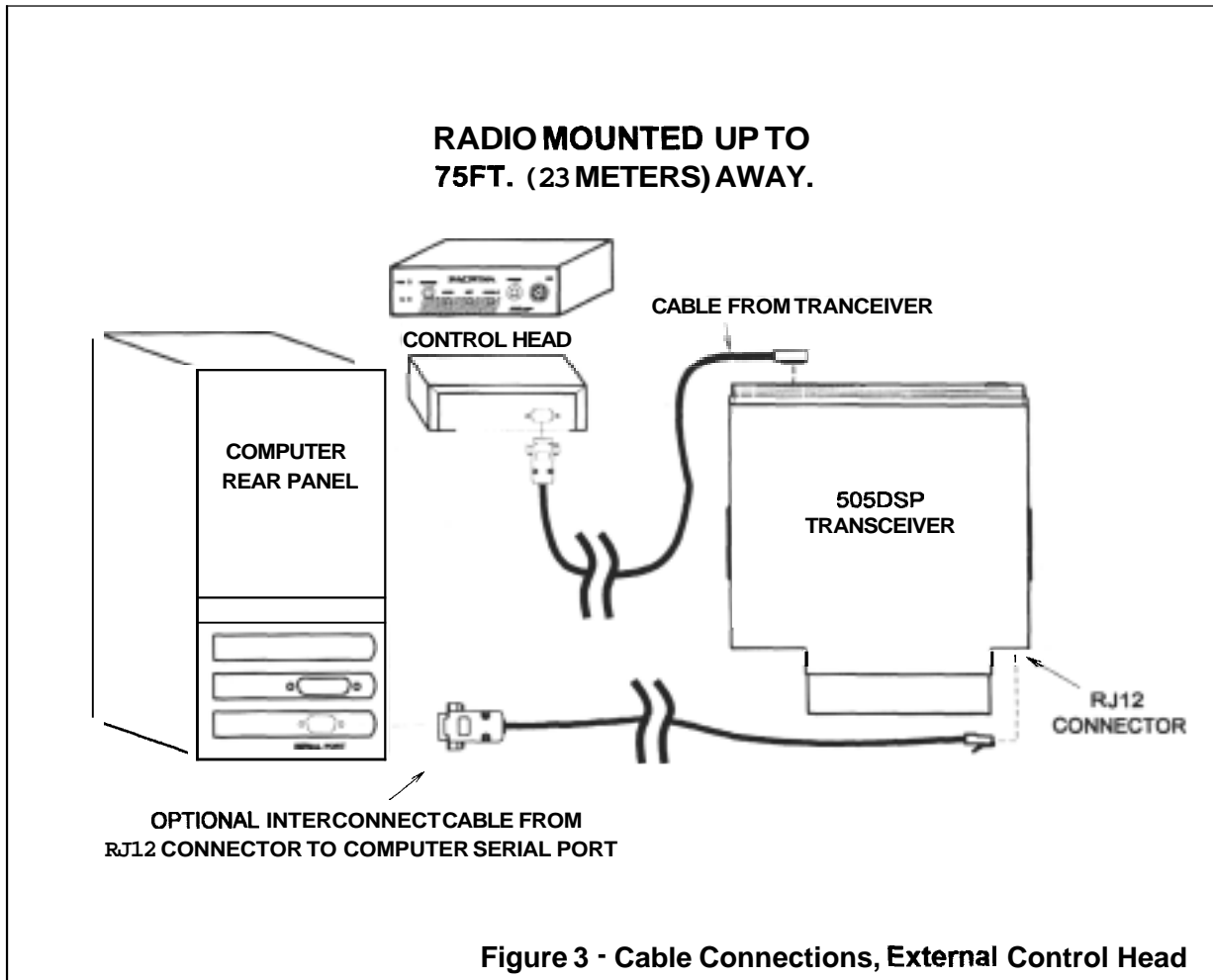


Figure 2 - Cable Connections, Internal Control Head

Using the Control Head Outside of Computer - If you prefer not to install the control head into your computer, if you don't have any spare drive bays for example, an accessory kit (P/N 505ECH) is available that allows the control head to sit on a desk top. This kit includes a finished (painted) cover for the control head, rubber mounting feet and a cable that connects the RJ-12 port on the rear panel of the transceiver to your computer's serial port. When this RJ-12 cable is used, the 2-port junction panel and jumper cable described on the previous page are not used.

- *Note: The cables supplied with the 505DSP allow for mounting the control head inside the computer drive bay only. Order the 505ECH kit for external (desk top) mounting of the control head.*

For external use of the control head, connect the 2.5m (8 ft.) control head cable (included with the 505DSP) and the optional RJ12 cable (supplied with the 505ECH kit) according to the diagram below:



7. Control Head Front Panel Connections

The control head contains the main power switch and microphone, speaker, Morse key and phone jacks.

The following connectors/jacks are located in the control head:

Microphone Connector - The 505DSP's microphone uses an 8-pin DIN connector. The microphone input impedance is approximately 2000 ohms. The microphone amplifier will accommodate low- or medium-impedance dynamic microphones providing 5 to 20 millivolts of output. The microphone supplied with the 505DSP is prewired. Wire your microphone according to Figure 5 if using another brand of microphone.

Paddle, Morse Key Input Jacks - The PADDLE input jack allows Connection of a CW paddle (not supplied) having two switches, a "dit" and a "dah." The common wire is grounded. Wire the paddle to one of the included 3.5 mm stereo phone plugs, connecting the tip to the right side of the key and the ring to the left. The outer part of the jack is the switch common. Left-handed operators should use the same wiring Connection, then select "left-hand" from the CW menu, CW Keyer Mode sub-menu in the control software.

The Morse KEY input jack allows the separate Connection of a "straight" key. Connect the key between the tip and outer portions of the included 3.5 mm stereo phone plug. Select "straight" from the CW Keyer Mode sub-menu. Note that the "straight" key May remain connected to the control head at the same time as the paddle, but that the straight key is always "alive," in left-hand or right-hand iambic keyer modes.

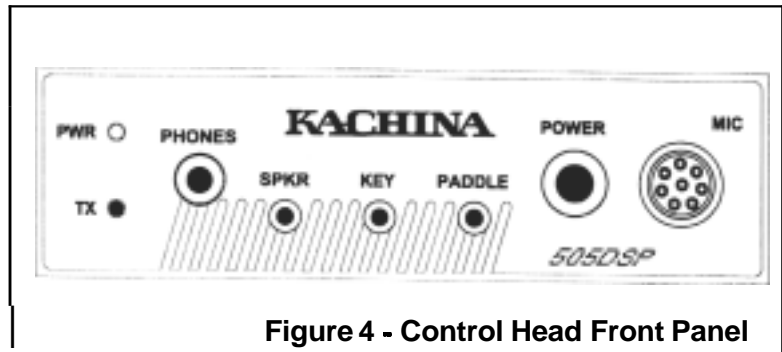


Figure 4 - Control Head Front Panel

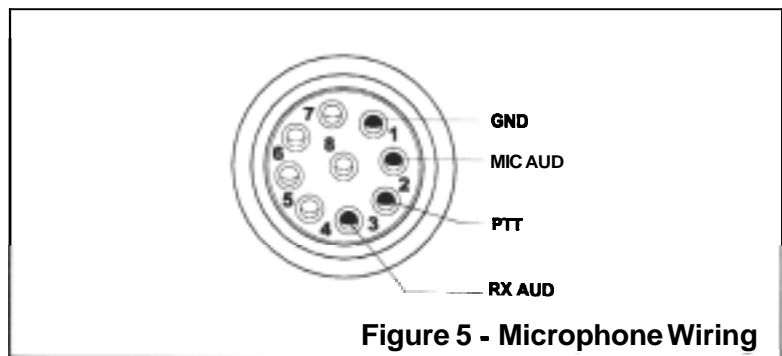


Figure 5 - Microphone Wiring

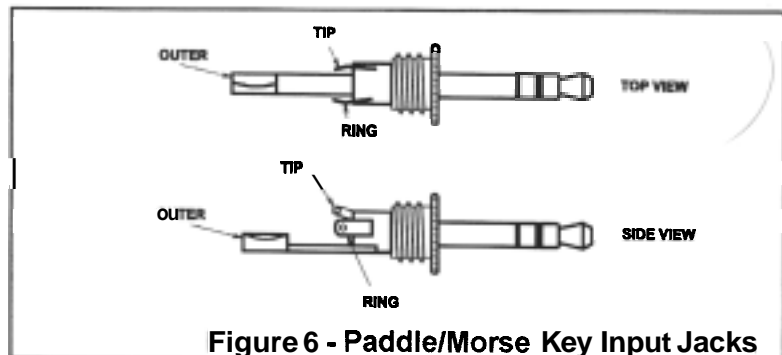


Figure 6 - Paddle/Morse Key Input Jacks

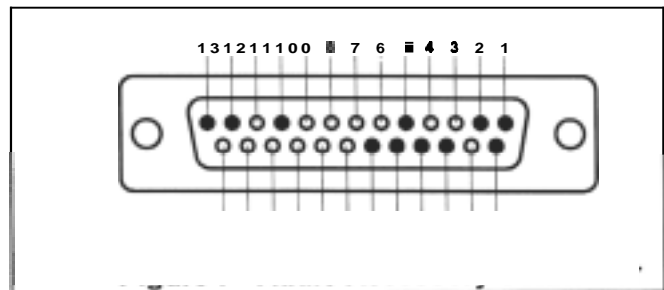
Speaker Jack - To connect to the control head, your external speaker must be wired to the tip and outer portions of a 3.5 mm stereo phone jack. The speaker amplifier is designed to accommodate 4- or 8-Ohm speakers. The 4-Ohm speaker will give twice the audio output, assuming both speakers are equally efficient. If you want to route the audio through your computer's sound card, you will need to run a cable (not supplied) from the control head's speaker jack to the audio input jack on your sound card. You must then connect the speaker to your sound card's audio output jack.

Phone Jack - Headphones in the 4- to 2000-Ohm impedance range may be plugged into the phone jack. A series resistor automatically compensates for various impedance levels. The external speaker is disabled when the phones are plugged into the control head.

8. RearPanel

Three rear panel connectors are provided to allow the use of power amplifiers, antenna tuners, and audio accessories. Use subminiature "D" connectors of the appropriate size, and refer to Figure 10 for the pin assignments.

ACC1. Audio Accessory Connector -
(See Figures 7 and 10) This 25-pin sub-D connector is for use with audio accessories such as an external modem or telephone



The PTT line must be grounded to activate the transmitter. The line will source approximately 12 mA of current. A switched +12 VDC output is provided on pin 13 for accessories that draw less than 2 A.

ACC2. External Antenna Tuner Connector - (See Figures 8 and 10) A 9-pin sub-D connector provides connections to an external automatic antenna tuner. ATUINIT is a 5-Volt logic signal toggled by the transceiver's microprocessor when the TUNE control is activated. ATUKEY is a signal to be grounded by the tuner when 20 Watts of CW carrier is desired to tune the antenna tuner. The tuner must sink approximately 12mA of current to activate this function. A source of +12 VDC at up to 2 A is provided.

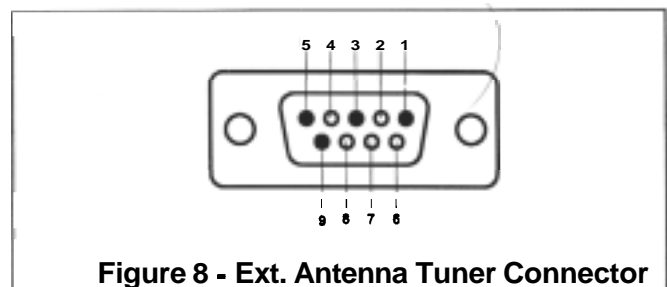
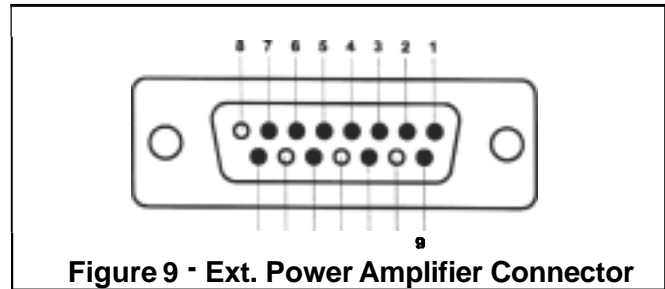


Figure 8 - Ext. Antenna Tuner Connector

ACC3. External



filters in external solid-state amplifiers. These lines will sink a maximum of 80 mA when activated. A 20-millisecond delay is provided to allow closure of the external relays prior to the output of RF.

The AMP PTT line sinks up to 250 mA of current to activate the external amplifier. This output may be disabled using the Amplifier Off selection in the TX menu.

EXTALC accepts a signal from an external output power detector to control the output power of the transceiver-amplifier system. An increasing voltage on this line will result in a decreasing transceiver power output. The detector output needs to have a positive “sense.” The gain of the detector is dependent upon the drive requirement of the amplifier.

VR accepts a DC input signal provided by an external directional coupler. This signal will direct the transceiver to reduce the transmitter power output during conditions of antenna mismatch. The sense of the signal is similar to the EXTALC signal above. If the reflected power is greater than 10 Watts, the forward power will be reduced by whatever amount necessary until the reflected power is 10 Watts.

The following are also located on the transceiver rear panel.

RJ12 Accessory Connector - The RJ12 connector provided on the rear panel of the transceiver provides connection to the computer serial port when the control head is mounted outside of the computer (see Figure 3). The mating cable to this connector is not supplied standard with the transceiver but is available from Kachina as part of the 505ECH kit.

Antenna Ports - Two antenna ports, labeled A and B, are located on the rear panel of the transceiver. The active port is determined by the software setting within the KC505 control software. Antenna port data is stored with the memory channel and “snapshot” key settings (see “Operation” below). The antenna port that was active when the channel or set-up was stored will be reselected whenever the same channel/set-up is recalled.

Ground Terminal - The transceiver should be properly grounded to a water pipe or buried ground rod. This is especially important if the transceiver is equipped with the automatic antenna tuner module. The system may perform poorly unless the transceiver is properly grounded.

▀ *Caution: Due to risk of explosion, NEVER use natural or L.P. gas pipelines for grounding purposes.*

ACC I-AUDIO ACCESSORY CONNECTOR			
PIN #	FUNCTION	PIN #	FUNCTION
1	GND	14	GND
2	EXTALC	15	NC
3	NC	16	RXAUD
4	NC	17	TX AUD (BAL +)
5	TX AUD (BAL -)	18	PTT
6	NC	19	SPKR
7	NC	20	NC
8	NC	21	NC
9	NC	22	NC
10	CONT	23	NC
11	NC	24	NC
12	SCAN STOP	25	NC
13	+12v		

ACC 2- EXTERNAL ANTENNA TUNER CONNECTOR			
PIN #	FUNCTION	PIN #	FUNCTION
1	GND	6	NC
2	NC	7	NC
3	ATU INIT	8	NC
4	NC	9	+12v
5	ATU KEY		

ACC 3-EXTERNAL POWER AMPLIFIER CONNECTOR			
PIN #	FUNCTION	PIN #	FUNCTION
1	GND	9	EXTALC
2	F	10	NC
3	E	11	AMP, PTT
4	D	12	NC
5	C	13	VR
6	B	14	NC
7	A	15	+12v
8	NC		

FIGURE 10- TABLE,
ACCESSORY CONNECTOR PIN FUNCTIONS

D.C. Power Connector - The 505DSP transceiver operates from 11-15 Volts D.C. Connect the 4-conductor D.C. power cable to the D.C. power connector on one end and to your power supply on the other, making sure to connect both red conductors to the "+" side of your power supply and both black conductors to the "-" side. Distorted audio or low power output may result unless all four conductors are used.

Fuse - The transceiver is fuse-protected against short circuits or reversed DC power polarity. In the event the fuse blows, it should be replaced only with a type SFE 25 Amp. Use of larger fuses may void the factory warranty. Continual fuse failure indicates a fault within the transceiver, D.C. power cable or power supply.

9. Control Software Installation

Install the new software by placing the 3.5" disk in drive **A** (or B). From Windows select **RUN**. Enter A:install (or B:install). Follow the on-screen installation instructions. **A** new group called Kachina Communications will be created. We do **NOT** recommend installing the Kachina software into an existing directory or program group, since that software or group could be deleted if and when you run the uninstall command. The installation software will install three programs in the Kachina Communications Group. These include the 505DSP radio control program (KC505), a radio call-sign logging program (KCLOG), and an uninstall program, should you later decide to remove the Kachina software from your computer.

KC505 and KCLOG are started by selecting the Kachina Communications Group. Then select KC505 or KCLOG. Or choose **RUN** and enter the path to KC505.EXE or KCLOG.EXE. The first time the control program runs, a prompt will request the port number connecting your PC to the radio. The port number is stored in file KC505.CFG with other configuration data.

If an older version of the KC505 software resides on your PC and you plan to install the new software in the same directory or use the same program group, you must uninstall the older version first. Remove the older software using the uninstall program supplied with the original version.

10. Operation

In lieu of knobs, the radio's many functions are operated from either the keyboard or the mouse. You may find the mouse easier to use until you become familiar with the various features and functions. Menu selection is accomplished by clicking the left mouse button on the highlighted item. Full details of all radio functions are provided in an on-screen User Guide. Below are some of the basic features needed to get you started.

Main Power Switch - The transceiver power switch is located on the front panel of the control head. The LED located on the front panel of the transceiver will illuminate when the transceiver is switched on. The meters on the on-screen control panel will read "OFF LINE" if the radio is switched off or if for any reason the control software is unable to communicate with the radio, such as a loose or faulty control cable.

Current Settings Window - When in the KC505 control program, a window showing the current transceiver settings is always displayed. This window serves only to display current settings. You cannot change settings by clicking your mouse in this window.

Slide Bars - Two horizontal slide bars are provided on-screen to control various transceiver functions. Only one slider at a time is active, as indicated by a flashing display. Clicking the left mouse button on the inactive slider will cause it to become active and the other slide bar to become inactive. Since there are many functions that use slide bars, but only two slide bars on-screen, slide bars are displayed for only the two most recently selected functions. For example, if you select Tx Power Out, one of the slide bars will become active for this function, while the last function selected will become the inactive slide bar. A third, previously selected function, will be dropped from the slide bar until called up again. Slide bar adjustments are made by clicking the left mouse button and dragging the mouse, or using the less than/greater than keys (< >). When using the < > keys, the <shift >key is optional. Use of the <shift >key will increase the speed of the slide bar by a factor of 5.

Volume Control - A vertical slide bar is dedicated full-time for controlling receiver volume. Volume is adjusted by clicking the left mouse button on the slide bar and dragging the mouse up or down. Volume may also be changed using the numeric keypad + or - keys. Volume setting has no effect on the transmitted signal.

Frequency Selection - The Rx and Tx operating frequencies are displayed in separate windows. The top window displays the Rx frequency while the bottom window displays Tx. Frequencies may be changed using either the mouse or the arrow keys. Clicking the left mouse button on a digit in the frequency window will cause "up/down" boxes to appear above and below the selected digit. You may then click the left mouse button on one of these boxes to move the frequency up or down. Using the arrow keys, the left and right arrows are used to select the digit, while the up/down arrow keys are used to move the selected digit up or down. Note that when operating Simplex, the Rx and Tx frequencies will always track each other.

Mode Button - Clicking on the mode button will toggle the transceiver between USB, LSB, AM, and CW modes.

Shortcut Keys - After becoming familiar with the 505DSP, many users prefer to use the keyboard "shortcut" keys instead of the mouse. Shortcut keys are keys that are permanently assigned to specific functions.

Example: Upper sideband = U

Most shortcut keys are similarly intuitive. The functions of the shortcut keys cannot be changed from the factory settings. A menu of shortcut keys can be displayed on screen by selecting Shortcut key legend ON from the Help menu

Snapshot Keys - Keys F1 through F8 are the "snapshot" keys, so named because pressing <shift>plus one of these keys stores all of your current radio settings into memory, i.e., like taking a snapshot of your current set up. You may then change mode, frequency, bandpass filter

width, etc. and return to your previous settings simply by pressing the same snapshot key again. You will soon find many uses for these keys. For example, you might use the F1 key for 20 meters, F2 for 40 meters and so on, to quickly change between bands.

Remember: Press <shift> key plus snapshot key to save.
Snapshot key only (no <shift>) to retrieve.

Eight additional snapshot memories are available by simultaneously pressing the ctrl key while storing or recalling.

Backspace Key - The backspace key functions as an “undo” key. Pressing it will revert the radio settings to those in effect prior to the last key stroke (or mouse click.)

Numeric Keypad - The numeric keypad (the block of keys to the right of the keyboard) are dedicated to the selection of DSP bandpass filters. The NUM LOCK key, however, MUST be on for the numeric keypad to function properly. By pressing 0 on the numeric keypad, a selection of DSP bandpass filters will be displayed. Press the keypad number corresponding to the desired filter. (The number keys on the keyboard may also be used), You will find you can very quickly call up the filter menu and select a filter this way.

Help - The 505DSP User Guide is provided on-screen. To view the User Guide or help files on the radio's features, select Help from the main menu.

11. Troubleshooting

Screen Resolution - The size of the radio display on the computer screen is determined by Windows and may be altered. If the display resolution is set too small (or large), the text in KC505 or KCLOG windows may overrun other text. To change the screen resolution proceed as follows:

Windows 3.1. Select Windows Setup from Main under the Program Manager. Choose Options Menu and then select Change System Settings. A window will appear and the first item will be Display. Click the down arrow button on the right side of the display line to see your choices. Pick a desirable screen resolution with 256 color and small font. Click the OK button to accept these settings, then click the Current button to use the currently installed driver. Click the Restart Windows button for the changes to take effect.

Windows 95. Select Settings, then Control Panel, then Display. A Display Properties Window will appear. Click on the tab labeled Settings. Choose Small Fonts, 256 Colors, and a desirable resolution for the desktop area. Click the OK button to accept settings.

Keyboard Repeat Rate & Mouse Click Speed - The keyboard arrow keys, or the mouse, are used to tune the radio. The keyboard repeat rate, or the mouse double-click rate, if set too slow, may be readjusted under Windows. To change the mouse click speed in Windows, proceed as follows:

Windows 3.1. Select Control Panel from Main under Program Manager, then select Mouse. A window Will appear with sliders for changing the mouse tracking speed and double-click speed. Increase the setting on the double-click speed slider and then press **OK**.

Windows 95. Select settings, then control panel, then mouse. A window Will appear with tabs for various settings. Select the tab labeled Buttons. A window Will appear with a slide bar for changing the mouse double-click speed. Increase the setting on the double-click speed slider and then press **OK**.

Font Setting - If KC505 test or KCLOG text overrun other text, you may wish to change the computer's font setting as follows:

Windows 3.1. Select Windows Setup from Main under Program Manager. Select Options Menu, then change System Settings. A Change System Settings window Will appear. The first item Will be Display. Click the down arrow button on the right side of the Display line. Select a screen resolution with 256 colors and small font. Click the **OK** button. Click the Current button to use the currently installed driver. Click the Restart Windows button.

Windows 95. Select Settings. Select Control Panel. Select Display. Display Properties Will appear. Click on Settings. Select Small Fonts, 256 colors, and a desirable resolution for the Desktop area. Click the **OK** button.

Computer and Monitor Noise - The 505DSP radio is well shielded. However, like any other radio operated near a computer, it may pick up computer or monitor noise via the antenna. To see whether the noise is entering the radio through the antenna, disconnect the antenna from the rear panel of the radio. Experience has shown that most radiated noise is emitted by the monitor. To see whether the monitor is the cause, disconnect the monitor power cable from its source of voltage (it is not sufficient to just turn the on/off switch off), and unplug the monitor data cable from the computer. These checks should be made at different bands and different frequencies, and with one or the other, or both, of the cables disconnected. Often the power cable may cause one noise, the data cable another. Most monitors come with ferrite beads on the data cable where the cable exits the monitor. However, a considerable length of cable may remain between the bead and the printed circuit board assembly. In such cases it may be necessary to take the monitor from its case and fit a clip-on ferrite bead over the cable where it enters the pc board.

If the power cable is the culprit and a clip-on ferrite bead does not cure the problem, noise may be entering the house wiring system via the power cable, which then acts as an antenna. In which case it may be necessary to filter the noise from the power cable. First try a shielded power cable.

Line filters may be purchased from many electronics outlets. The same filter may be used to suppress noise conducted via the power cable from the computer to the power lines. Leads to printers and auxiliary equipment should be fitted with clip-on beads as a matter of course.

In some cases, particularly when using the 505DSP with portable computers, the transceiver may need to be physically separated from the computer and/or monitor. The 505DSP is provided with control cables approximately 2.5m (8 ft.) long, but 7.6m (25 ft.) and 23m (75 ft.) cables are available optionally from Kachina. If using your own cables, they must be 100% shielded and not longer than 23m (75 R.).

Control Problems -

Problem: The control software is unable to control the radio.

Solution:

- The wrong communication port may have been selected during installation. The first time the KC505 control program runs, you will be asked which port will be used to connect your PC to the transceiver. Most computers have two serial ports, some have four. The mouse will use one of these ports. You must select a previously unused port for the transceiver. This data is stored in the file KC505.CFG along with other configuration data. To change the port you must quit the KC505 control program, then delete the KC505.CFG file. When you restart the KC505 control program, a new port will be requested.
- Demo mode is on. When demo mode is on the word "DEMO" will appear in the upper right corner of the Current Settings display area of the KC505 control program. This option inhibits commanding and thus enables you to operate the software without a radio. Turn demo mode off by selecting *Demonstration Mode* from the Special menu and then choosing *off*.
- You have a bad RS-232 cable or improperly wired connector.

Problem: Some keyboard "shortcut" keys do not work.

Solution:

- Enable the keypad Num Lock. The keypad shortcut keys will not work unless Num Lock is on.
- The control panel is not the currently selected window. If you have several windows open simultaneously, remember that under Windows™, only one window at a time is active. Click the left mouse button anywhere in the control panel window to activate it.

Problem: Mouse single clicks are being missed.

Solution:

- Increase the mouse click speed under Windows. Note that increasing the click speed too much will make it difficult to double-click the mouse. See page 14 for information about changing the mouse click speed under Windows 3.1 and Windows 95.

Problem: After decreasing the computer display resolution, some of the control software's pop-up windows do not appear on the screen.

Solution:

- The control software remembers the screen location of the Band Sweep Display, Smith Chart, Log Call sign and User Guide pop-up windows. This data is stored in the file KC505.CFG. If these windows last appeared on the right or bottom of the screen and you change the screen resolution from large, say 1024 x 768, to small, say 640 x 480, these windows Will be off the right or bottom of the screen. To prevent this problem, move these windows left and up before decreasing the screen resolution. If the problem has already occurred, restore the screen resolution to the previous setting, move the windows, and then decrease the resolution again. **As** a last resort, quit the KC505 program, delete the KC505.CFG file, then restart the KC505 program. The window positions Will return to the default locations.

Problem: How do I reset the radio to factory settings?

Solution:

- If the radio settings are in a questionable state, click the RESET button while in the KC505 control program. This Will restore the following parameters to factory default settings.

AGC speed	Notch frequency
Amplifier	Noise reduction off/on
Audio volume	Noise reduction level
Bandpass filter	Preamplifier off/on
CW offset frequency	RX attenuator
CW filter default	RX frequency tune
CW keyer dynamics	RX incremental tuning (RIT) offset
CW keyer mode	Speech compression
CW keyer speed	Speech monitorSpeech processor off/on
CW keyer side tone	Squelch on/off
CW keyer QSK	TX equalization frequency
CW keyer weight	TX frequency tune
IF shift frequency	TX power output
Level sensitive squelch	VFO
Mode	VOX delay
MIC gain	VOX level
Notch width	Antivox level

Note that memory functions, such as memory channels, snapshot keys call sign data Will not be lost if you click the RESET button.

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