DRS TACTICAL SYSTEMS

DRS TECHNOLOGIES

User's Guide

Hammerhead & Hammerhead X^{treme}

Thank You!

DRS Tactical Systems, Inc. would like to thank you for purchasing a Hammerhead computer. Great care has been taken to provide you with a unique product designed to provide years of reliable service. The Hammerhead rugged tablet computer is now in its eighth generation. Each new generation builds on the strengths of the previous models to provide you with a state-of-the-art product designed to meet the real world needs of mobile users.

This guide provides basic information that you will need to take full advantage of your Hammerhead computer. The Hammerhead is a tool that is often configured to meet the precise needs of a specific application. As a result, there are many configuration options available and often, custom features are provided for large-scale applications. If you do not find illustrations identical to the equipment you have purchased or do not find needed information after having reviewed the User's Guide, please feel free to contact Customer Service toll-free at 888-872-1100. You may also wish to visit our web site at www.drs-ts.com/hammerhead for updated information.

This guide is intended to provide basic information on the features, operation, care, and maintenance of the Hammerhead. It is not offered as a technical resource to deal with larger integration issues. DRS and its many partners will be happy to work closely with you in resolving any challenges that you might face.

Elements of this guide are available electronically for those customers wishing to develop their own training or technical support materials. Requests for electronic copies can be made through the general information request link at the www.drs-ts.com/hammerhead web site.

We thank you for purchasing the Hammerhead rugged Tablet PC and look forward to getting to know you and assisting you in any way we can to make your experience with the Hammerhead as rewarding as possible.

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Chapter 1 Introduction

Your Hammerhead tablet computer gives you the power of a desktop computer, yet it also provides the portability and durability needed to gather and work with information in the field. The Hammerhead is designed for use on foot, in a vehicle, or in an office. It is ideal for highly mobile applications in the most demanding environments.

This chapter describes the basic features of your Hammerhead computer system.

Before you begin

Your Hammerhead tablet computer includes the following items. When the computer is unpacked, confirm that all items are present. Contact your Hammerhead sales representative if any item is missing or damaged.

- Hammerhead or Hammerhead X^{treme} Computer
- Pen or Touch stylus
- Hammerhead or Hammerhead X^{treme} Quick Start Guide
- User's Guide (PDF file on computer desktop)
- The Hammerhead model comes with molded rubber bumpers and carry handle; the Hammerhead X^{treme} model comes with padded, shock absorbing carry case with carry handle and shoulder strap

Most but not all systems will also include these optional items:

- AC adapter with power cord
- Port replicator or docking station

Microsoft Windows XP Tablet PC Edition is installed on Hammerhead pen tablet computers at the factory and registered to you. If you have ordered the optional Microsoft Windows XP Pro operating system, your Computer will also have Calligrapher handwriting recognizer, PenOffice control program and My-T-Pen onscreen keyboard program installed. DRS often pre-installs application software for our customers. In most cases, user access to operating systems or other software is restricted.

Save the Hammerhead packaging; it might be needed for possible return shipments. The serial number will be on the label located on the back of the product. Keep the serial number handy; it will be required should the unit need repairs.

Standard features

Your Hammerhead includes the following features at a minimum:

- Hammerhead Model: Fully sealed magnesium housing with ShutOut™ sealing technology
- Hammerhead X^{treme} model: Fully sealed milled aluminum housing with ShutOut™ sealing technology
- 1.1 GHz Intel® Pentium® M processor
- 512 MB main memory
- 1 MB cache
- Intel® 855GME graphics
- Intel® PRO/Wireless 2715ABG adapter
- Bluetooth wireless technology 1.2
- Integrated 10/100 Ethernet via RJ-45 connector
- USB 2.0 port
- 10.4" 800 x 600 or 1024 x 768 TFT active matrix color display Removable 40 GB or larger hard disk drive (optional flash drives)
- Type III CardBus/PCMCIA expansion slot (for up to two Type II devices)
- Long-lasting Li-Ion battery (dual battery option, hot swappable)
- Built-in light sensor for automatic backlight control
- QuickBack™ hard drive recovery system
- Microsoft Windows XP Tablet PC Edition (Windows XP Pro optional)
- Pen stylus for use with electromagnetic proximity sensing digitizer (touch-screen option includes pointer stylus)
- Chemically strengthened glass
- One year warranty on all parts and labor
- Direct line technical support by DRS Tactical Systems, Inc. technical support staff

Accessories and options available for the Hammerhead

The following accessories and options are available for the Hammerhead:

- Universal AC power adapter 110-250 volts, 50-60 Hz
- Port replicator, standard, flat or custom cable sets
- Vehicle cradles and mounting solutions
- Desktop docking station with communications options
- Additional batteries
- Battery charger, battery charger with automatic calibration, cigarette lighter adaptor for battery charger
- Wireless PCMCIA cards with sealed door solutions (WLAN, Bluetooth, CDMA, GPRS)
- Integrated GPS*, GPRS (see note 1)
- Heater package
- External CD ROM (USB)
- External 1.44 MB 3.5”bootable floppy disk drive (USB)
- Keyboard(s)
- Extended warranty
- Custom integration of components upon request

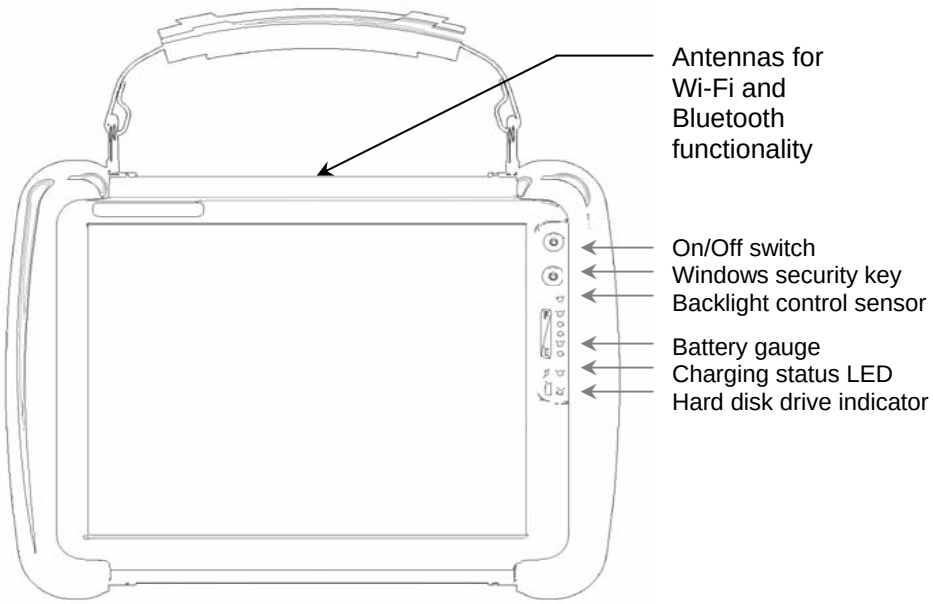
Note 1: The only antennas supported for these options are those provided by DRS. Attaching anything other than a DRS supported antenna will constitute an invalid configuration and may void the FCC (CISPR), and/or CE certifications

*GPS option is sold for the sole purpose of providing an accurate and easily obtainable signal for location of equipment for time or signal synchronization.

Exterior features

Front view of the Hammerhead

(Note: Hammerhead X^{treme} model has the same features with the exception of the rubber bumpers and handle depicted below)



On/Off switch:

Turn the computer on by depressing the yellow on/off button on the upper right-hand side of the computer (approximately 1-2 seconds). Holding the on/off button down for a longer period of time (5+ seconds) causes an emergency forced shut down of the computer.

To turn the computer off, press the on/off switch again and the unit will automatically follow proper Windows shutdown procedures.

Windows Security Key:

Pressing the light gray Windows Security Key button for approximately 2 seconds will perform the CTRL-ALT-DEL function.

Backlight control sensor:

The backlight control sensor automatically turns the backlight off when adequate external light is available. Make sure you keep this sensor uncovered.

Battery gauge:

The battery gauge consists of five LEDs, which indicate the approximate charge remaining on your computer. When all five lights are lit, the battery is fully charged. As you use the battery, the lights will turn off from top to bottom, indicating the amount of charge that remains. Each light represents approximately 20% of the full charge. See Chapter 2 “Batteries and Charging Procedures” for more detailed information on the battery gauge.

Hard disk drive indicator:

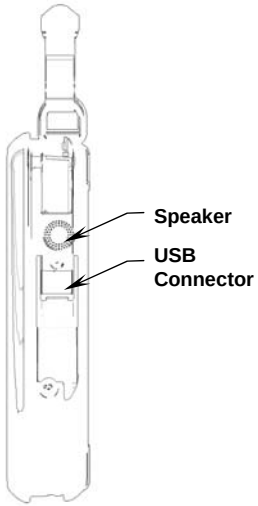
The indicator flashes as the internal hard disk drive is accessed.

Charging status LED:

The charge status indicator is lit whenever external power is available. It blinks as the battery charges and remains a constant green when the batteries are fully charged. The indicator identifies a positive connection when the Hammerhead is in the docking station with an external power source. The indicator will be green when external power is connected.

Antennas:

The antennas for the integrated Wireless LAN and integrated Bluetooth are built into the top of the housing. No additional or external antennas are required to support this functionality. For optimal range with wireless interfaces, keep this area exposed and away from external metal objects.



Right side view

USB connector:

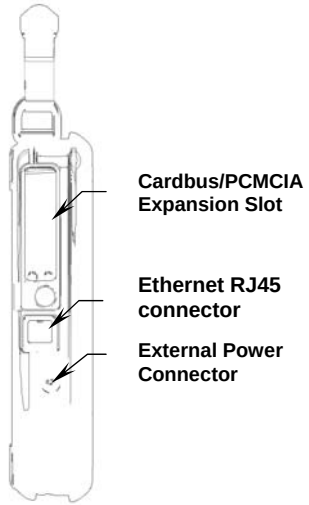
The Universal Serial Bus is a hot swappable, daisy chainable serial port. It can be used for devices like keyboards, mice, floppy drives, CD-ROM or DVD drives, cameras, modems, scanners, etc. Devices

can be connected to the Hammerhead with the computer turned on, without requiring a reboot. There is a limit of 128 concurrent devices per USB port. Per the USB 2.0 Standard, the Hammerhead can supply up to 0.5 amps of current through the USB port. External USB hubs are available that will supply power to external devices without using the Hammerhead’s power supply.

Speaker:

There is a monaural speaker in the right side of the housing. The speaker will play Windows sounds as well as PC audio information.

Left side view



CardBus/PCMCIA expansion slot:

The CardBus/PCMCIA expansion slot is sealed behind a door held in place by two Phillips head screws. The door must be removed to access the slot. Several doors are available that will accommodate various CardBus/PCMCIA devices with features that extend beyond the housing of the computer. These doors keep the unit sealed.

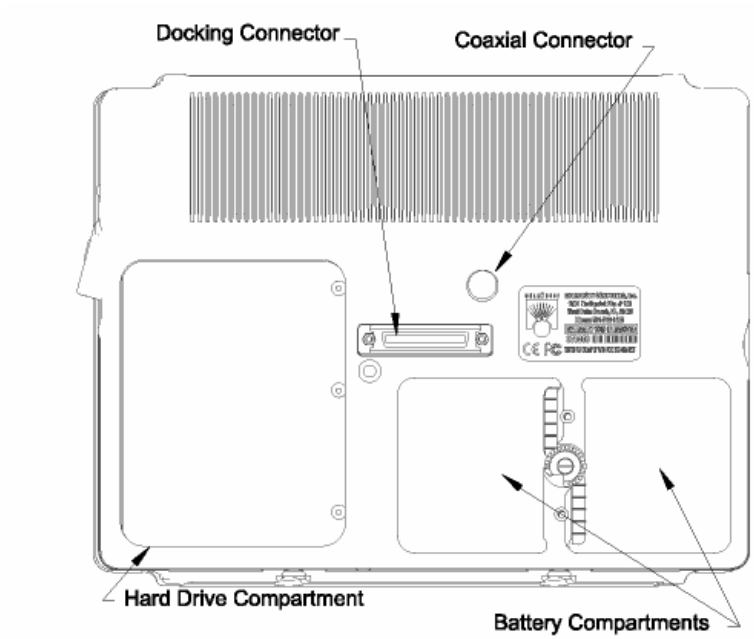
External power connector:

This connector allows the user to plug the Hammerhead AC power supply directly into the computer to charge and operate the unit. The unit may also be charged through a port replicator or docking station. **Do not plug a battery charger directly into the Hammerhead and do not connect to more than one power source at a time when charging the unit or permanent damage may occur.**

Ethernet RJ45 Connector:

Built-in Ethernet is standard on both Hammerhead Tablet PCs. The RJ45 jack allows the user to connect their Hammerhead computer to their network via a standard Ethernet cable.

Back view



Coaxial connector:

This optional antenna connection near the center of the housing allows the computer to connect an external antenna to an internal radio or GPS solution.

Docking connector:

The docking connector provides for all external communications with the unit. It connects to a port replicator or docking station.

Battery compartments:

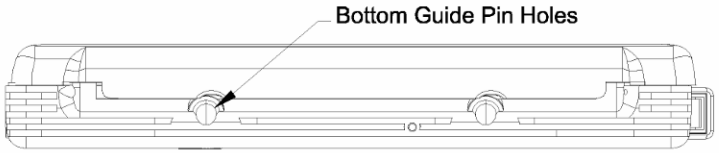
There are two battery compartments designed for convenient, hot swappable battery replacement while in the field. See the Batteries and Charging Procedures section of Chapter 2: Hardware Operation for instructions on changing batteries.

Hard drive compartment:

The Hammerhead hard drive compartment houses a rugged 1.8" hard drive in addition to integrated Wi-Fi and Bluetooth features. The hard drive compartment allows some field upgrades or repairs without opening the Hammerhead. Some customers may have IT Departments that will be trained to replace hard drives at the customer location. **You should not open the hard**

drive compartment without the proper training from DRS Tactical Systems, Inc. Any tampering of the hard drive will result in a void warranty.

Bottom view



Bottom guide pin holes:

The bottom guide pin holes are used to align the computer when placed in a vehicle, desktop, or wall-mount docking station. Simply insert the computer onto the gauge ball guide pins and tilt the computer back until the docking connectors engage. If power is applied to the docking station, a positive docking indication will result by the illumination of the charging status icon on the Hammerhead.

Tips for proper use and care of your computer

The Hammerhead is a rugged field computer, but it is an electronic device and reasonable precautions should be taken:

- Don't subject the computer to extreme heat by placing it on the dashboard of a vehicle with the display facing the sun.
- Don't store the computer in temperatures below -40°C.
- Don't pile tools or heavy objects on top of the computer.
- Avoid severe impacts, especially on the display glass.
- Don't try to take the computer apart. Special tools are required to disassemble the computer. Disassembly of the unit by unauthorized personnel may void the warranty.
- Don't use excessive force when inserting PC Cards into the CardBus slots, as they are keyed to go in only one way.

Chapter 2 Hardware Operation

Turning on the unit

Turn the computer on by quickly depressing the yellow on/off button on the upper right-hand side of the computer (press for 1-2 seconds).

> *Note: Holding the on/off button down for a longer period of time (5+ seconds) causes an emergency forced shut down of the computer.*

The Hammerhead will perform self-checking routines during the start-up process. All units are configured at the factory to automatically boot to the Microsoft Windows Desktop unless a custom configuration has been requested.

Pen operations

(For Pen Based Computers only. If you have a Computer with Touch Screen, see page 14 for Touch Operations)

The pen is the primary screen navigation and data entry tool for the Hammerhead. ***Without a keyboard attached, the pen is the only means of communicating with the computer. Do not lose or misplace the pen***. The pen is usually tethered to the unit or its carrying case. All users are encouraged to purchase a spare pen as a backup.

The pen functions like a two-button mouse. There are two switches in the pen, one in the pen tip and another on the barrel of the pen. The tip switch performs the same functions as the left button on a mouse and the barrel switch performs like the right mouse button. Very few

applications require the use of the pen's barrel button. *Do not depress the barrel switch when writing on the display; it will adversely affect handwriting recognition*.

To activate the tip switch, simply press the tip of the pen against the display. This is similar to clicking the left button of a mouse. Double clicking is accomplished by double tapping with the pen. Move an icon by pressing the pen directly overhead and dragging the icon to the desired destination, keeping the pen in constant contact with the display. For right click functions, just depress the switch on the side of the pen. In addition, XP Tablet PC Edition allows right click via pressing and holding the stylus on the screen for 1+ seconds. Press and hold is an optional feature. You can turn the feature on or off by going to Control Panel, and then Tablet and Pen Settings.

Tapping the pen requires only light to moderate pressure. It is possible to damage the pen by pounding the tip against the display with force. Most problems using the pen are related to tapping speed and the tapping area size. When using XP Tablet PC Edition, attributes related to use of the pen (e.g. tap speed) can be adjusted by clicking on Control Panel, Tablet and Pen Settings, and then the Pen Options tab. You can also improve handwriting recognition accuracy by indicating if you are right or left handed on the Settings tab. For Windows XP Pro operating systems, look in the PenOffice tools folder found in the Windows Program list.

The Hammerhead utilizes a proximity-sensing electromagnetic digitizer. This component tells the computer the pen's exact position. The computer senses the pen as it nears the display and the cursor appears when the pen is approximately an inch away. This allows visibility of the exact location of input before making actual contact with the display.

The location of the cursor on the display is the location of input regardless of the location of the pen tip. The cursor and the pen tip should be closely aligned when the pen is in contact with the display. If the pen and the cursor are out of alignment, click on Control Panel, Tablet and Pen Settings and go to the Settings tab where you can calibrate the screen for both landscape and portrait orientations. If you are using Windows XP Pro, follow the instructions provided in the PenOffice tools folder found in the Windows Program list. Confirm the display is on the appropriate setting before attempting to realign the pen.

Touch Operations

(For Touch computer models only. See page 12 if you have a Pen based computer.)

Touch Screen Operation

The touch screen replaces a mouse in normal Windows operation. Wherever you touch the screen with your finger or stylus, the computer interprets it as a mouse click. Due to the nature of the touch screen, it is sometimes hard to drag objects across the screen and it is also hard to move the pointer around the screen without selecting the object below the cursor. It is also difficult to capture a signature on touch screen units. This should be taken into account when applications are being developed for touch screen devices.

Caring for the Touch Screen

With minimal maintenance, the touch screen will last many years. When operating the touch screen, you should not use an abrasive or metallic pointer. The touch screen is easily scratched if an abrasive stylus is used. We recommend using your finger or a plastic tipped stylus. Be careful not to let sand or grit sit on the screen. Cleaning of the touch screen can be done with a regular plastic cleaner such as Plexus.

Battery use and care

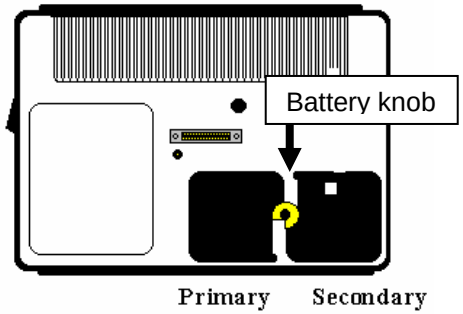
The Lithium Ion batteries used in your Hammerhead computer offer the best technology available today. These 'Smart Batteries' provide Hammerhead users with the greatest power density and the most accurate gas-gauge possible. To achieve the best possible performance from your batteries, we recommend using and maintaining the batteries in accordance with the instructions provided below.

Getting started with your new batteries

Your unit comes with a Lithium Ion battery that is shipped (uninstalled) in the box with the unit. The unit may also have a non-working battery shell in the second battery slot that shows you how the battery is to be installed. Due to current regulations regarding shipment of Lithium Ion batteries, your battery(s) will arrive in a partially charged condition, typically with a maximum charge of 30% to 50%. ***You need to install your battery before turning on the unit.*** We also recommend that you fully charge your batteries before using them. If you do not plan to deploy your computer immediately, please be aware that the batteries self-discharge at a slow rate, typically less than 10% per month at normal temperatures.

How to install new batteries

The Hammerhead has the capability to run on one or two batteries in the field. The unit does not require both batteries to run. The two-battery design allows users to hot swap batteries without turning the computer off.



To install or replace a new battery, locate the round knob in the battery compartment on the back of the unit. The knob holds the batteries in place and is designed so the batteries cannot be taken out at the same time. Simply turn the knob until the quarter piece exposes the corner of the battery that is to be replaced. A lip on the battery aids easy removal. Install the new battery by placing it into the compartment and turning the knob to cover the edges of both batteries.

When to recharge batteries

The green LEDs on the upper right front of the unit indicate the power status of the battery. At full charge, all five LED indicators will light a solid green. Each LED represents approximately 20% of the total charge. As the battery power availability decreases, the LED's will turn off from top to bottom. For example, when the top light begins to flash, the computer has approximately 90% charge remaining. If four LED's are lit a solid green, an estimated 80% of the total battery charge remains. If three are lit a solid green and the fourth one begins flashing, the computer has approximately 70% charge remaining.

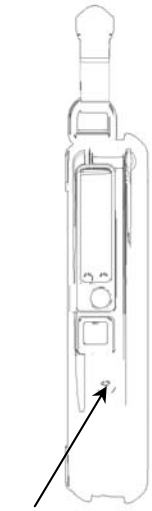
The last LED indicator will begin to flash when approximately 10% of battery power remains. When the remaining battery power becomes critical, all data should be saved. Failure to do so may result in lost data! Replace one of the batteries with a fresh battery or recharge the unit.

When the Hammerhead is turned off, the battery status indicators will also turn off after a delay of a few seconds. When the unit is placed in standby mode, the battery status indicators will flash as a reminder the unit is on standby.

How to recharge your batteries

The Hammerhead's batteries automatically fast charge any time the Hammerhead is connected to an external power source (AC or DC). This is accomplished using either the Hammerhead internal battery charger or an approved DRS power source/battery charger.

To recharge the battery using the AC adapter, plug the circular connector of the AC adapter into the AC connector in the Hammerhead or in the power supply port on the replicator. Charging begins automatically as the unit is docked when using a vehicle-docking mount, desktop docking station or a wall mount docking station. The Hammerhead is fully functional as it charges. Using the unit as it charges will only slightly lengthen the recharging process. Don't be alarmed if batteries feel warm to the touch during this process. It is normal for a battery to become warm during charging and discharging.



AC adapter plugs in here

Do not use any external power source other than the AC or DC adapters provided with the Hammerhead. The power supply "brick" for the Hammerhead specifies 15V. **DO NOT plug the external power supply from the Battery Charger into the computer or docking mechanism. This power supply is 24V and will cause permanent damage to the computer. Also, do not connect the computer to more than one power source at a time, such as an AC power supply and docking station, when charging the unit or permanent damage to the battery or computer may occur.**

How to tell when batteries have finished charging

When charging, the green charge indicator light will flash while the unit is recharging. When charging two batteries, the secondary battery (see diagram below) will charge to 80% of full charge, then the primary battery will charge to 80%. After both batteries reach 80%, the secondary battery will then charge the remaining 20%, after which the primary battery will complete its recharging process. This method provides the best ratio of charge time to run time for short battery charge cycles. When batteries are fully charged, the charge indicator light will stop flashing and remain lit.

How to increase battery "run time"

The total run-time of the battery is dependent on a variety of factors including temperature, backlight requirements and computer usage.

To ensure maximum performance of the battery, optimize your computer's power management features. Settings for the display and the hard drive shutdown, as well as the use of stand-by and hibernate mode, result in lower overall drain on the battery, effectively increasing the computer's operating time.

When to replace your battery

Battery life is dependent on battery usage. Every time a battery is fully charged and discharged, it decreases the amount of energy stored in the battery.

To determine if the battery is past its prime, first check the Silver warranty label on the bottom of your battery. Batteries beyond one year

of service may experience shorter run times. Recommended replacement for batteries is once a year or every 400-500 charge/discharge cycles for optimal battery performance.

Where to purchase replacement batteries

The Hammerhead uses long lasting Lithium Ion batteries that are custom made for DRS Tactical Systems, Inc. If you need to purchase replacement batteries for your Hammerhead computer, contact your sales representative. Do not substitute any other batteries. Substituting batteries may result in a void warranty.

How to store batteries when they're not in use

The following storage tips will help you optimize the capacity and performance of your batteries.

- If the battery will not be in use for a month or longer, it is recommended that it is removed from the computer for storage.
- Store batteries in a cool, dry place.
- Do not leave batteries in direct sunlight during the summer months or any other unusually hot location.
- Do not expose battery terminals to metal objects or moisture, which may short-circuit your battery.
- For long-term storage, store batteries below 50% state of charge because the deterioration of battery capacity is slower at lower state of charge. However, do not store batteries in a fully discharged state.

Safety and handling considerations for your batteries

To make the batteries as safe as possible, DRS Tactical Systems, Inc., along with our approved vendors, has incorporated several built in safety features to protect the pack. The safety circuit in your battery cannot protect against handling abuse. Please use the following safety rules when handling and using Lithium Ion batteries.

- Do not expose the batteries to extremely high temperatures. Do not dispose of batteries in fire.
- Do not short circuit the battery or reverse polarity. Avoid placing batteries around metal objects such as keys, pocket change, paper clips and jewelry.

- Do not let children play with batteries.
- Do not crush, dent or allow any deformation of the battery.
- Do not disassemble or open the batteries or try to alter or bypass the safety circuit.
- Do not allow the battery to get wet.
- Avoid exposing the battery to extremely humid environments.
- Avoid exposing the batteries to electrostatic discharge.
- Avoid extreme shock and vibration to the battery. Avoid dropping the battery.
- Do not use or connect the battery to any other devices.
- Do not allow batteries to remain discharged for long periods of time.

Disposing of your batteries

The batteries used in the Hammerhead are not considered hazardous waste by EPA regulations; however local regulations may require specific methods of disposal. We strongly encourage recycling and will be happy to recycle batteries for you. Please contact your local sales representative or our technical support department for assistance.

Battery tips for the best performance

- Fully discharge your battery before recharging. By charging the battery only when it has become completely discharged, you will reduce the number of charge cycles and thus extend the life of your battery.
- Fully charge within 24 hours of discharge. Batteries stored in a fully discharged state may be subject to faster deterioration.
- Battery charging should be done at temperatures between 0°C to 45°C, preferably room temperature. The battery could deteriorate more quickly when charged at high temperatures.
- Discharging should be done at temperatures between –10°C to +60°C, preferably room temperature.
- Store your battery in a cool dry place, preferably at temperatures between 20°C to +60°C. Your battery may deteriorate more quickly if stored in high temperatures such as a vehicle in the hot sun.

Calibrating Batteries

When used under normal operating conditions, where the battery goes through a cycle of being charged, fully discharged and recharged again, you should not have to calibrate your Hammerhead batteries. Periodically, however, batteries may require calibration to improve accuracy of the battery gauge, particularly if they go through continual cycles of shallow discharges without ever achieving a fully discharged state. To ensure that the batteries are operating accurately and at their best performance levels, we offer a Smart battery charger that will perform the calibration procedure for you. (DRS Model Number 9800-17019-0000)

This Smart battery charger is based on Intel's System Management Bus (SMBus) interface for Advanced Configuration and Power Interface (ACPI). In addition to calibration, the charger can fully charge two batteries in less time, compared to the current Hammerhead external battery charger. Typical Charge Time per battery is 1.7 hours.

Note: Only calibrate batteries when they need it. Calibrating a battery unnecessarily will increase the cycle count and thereby reduce the battery life.

Removable hard drive

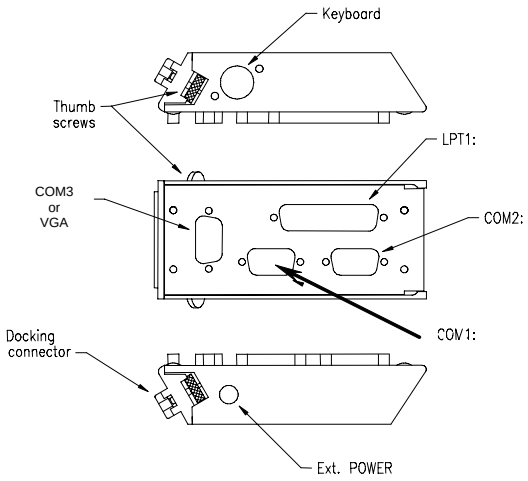
The hard drive compartment allows field upgrades or repairs without opening the Hammerhead. Some customers may have IT Departments that will be trained to replace hard drives at the customer location. **You should not open the hard drive compartment without the proper training from DRS Tactical Systems, Inc.** Please contact our technical support department at 888-872-1100 before removing the cover plate of the hard drive compartment. Any tampering of the hard drive will result in a void warranty.

Connectivity

Most often, connectivity with the Hammerhead is via the docking connector on the backside of the unit. Most customers also purchase a port replicator, desk dock, or Hammerdock vehicle dock that provides standard ports for communications, keyboard, and power supply. Port replicators and docking stations may be customized to your requirements and may not be configured exactly as described below.

Port replicators

There are several variations of port replicators (flat, angled, custom, etc.) New connectivity options are constantly in development. The following features are available on the standard port replicator.



Male docking connector: The male docking connector is inserted into the female docking connector on the back of the computer to activate all ports in the port replicator.

External power: External power connector. **Use only the power supplies provided especially for the <u>Hammerhead</u>, which supply the required DC power from a standard AC outlet (15V). DO NOT plug the external power supply from the <u>Battery Charger</u> into the computer or docking mechanism. This power supply is 24V and will cause permanent damage to the computer.**

Keyboard: Industry standard 5 pin PS2 style keyboard connector.

LPT 1: Industry standard 25-pin Centronics compatible parallel connector.

COM 1: Industry standard DB-9 serial connector.

COM 2: COM 2 on most docking solutions is a full, 9-pin DB-9 serial connector, although only a subset of standard signals are supported.

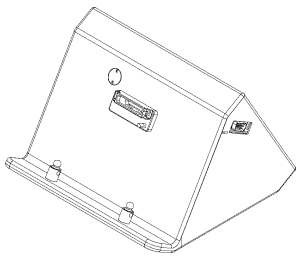
Thumb screws: Thumbscrews secure a positive connection. Insert the port replicator fully before engaging thumbscrews. Be careful not to over tighten thumbscrews.

The standard port replicator also doubles as a desktop stand for the Hammerhead. Simply press the male docking connector on the port replicator into the female docking connector on the back of the unit. The connectors are correctly oriented and only fit in one direction. It is impossible to join them incorrectly. Make sure the connector is fully inserted confirming the port replicator fits snuggly against the back of the computer. Turn the thumbscrews in a clockwise direction to ensure a reliable, positive connection. Do not over tighten.

External power should be connected to the port replicators <u>after</u> being firmly connected to the Hammerhead. <u>Do not connect the port replicator to the computer while power is attached to the port replicator</u>.

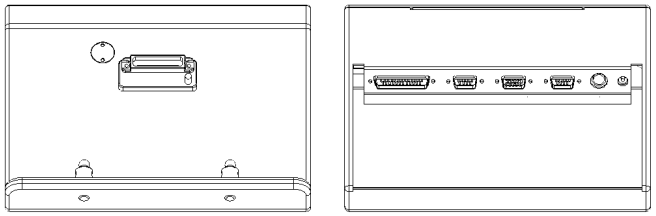
Flat port replicators and custom cable sets are available when connectivity is needed while the unit is mobile. Some custom configurations provide access to ports in the computer housing.

Desktop docking station



The Desktop Docking Station (DESKDOCK) provides complete connectivity and integrated options (e.g. LAN adapter, fax/modem, etc.) for using the Hammerhead on a desktop.

At a minimum, the DESKDOCK offers the following connectors for the connection of external devices:

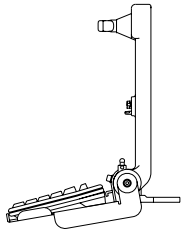


- *Two RS-232 serial ports (COM1 and COM2 – 3-wire serial)*
- *One Centronics-compatible parallel port/floppy interface*
- *One keyboard port*
- *Power connector*
- *One USB port*
- *One SVGA video port*

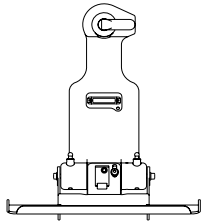
If the Hammerhead is equipped with video output capabilities, one COM port can be used as a VGA port. If a DESKDOCK is equipped for communication with a network, the connection is made through the USB port.

Vehicle docking

The HAMMERDOCK offers compact versatile mounting for a variety of automobiles. The one-piece aluminum body ensures sturdy docking with no adjustments. The HAMMERDOCK has tilt swivel functionality, a built-in keyboard tray, and a push button key lock. A breakout box with a 3-foot or 6-foot cable provides convenient installation for permanent connections.



SIDE VIEW



FRONT VIEW

Noise reduction circuitry, surge protection, reverse polarity protection, and power conditioning circuitry are built into the HAMMERDOCK. In some cases a GPS receiver may also be included. Connectivity on the rear of the HAMMERDOCK includes a power connector, keyboard connector, and USB connector. Connectors in the "break out box" at the end of a 3' or 6' cable include 1 keyboard, 2 COM ports, 1 USB and 1 parallel port.

No adjustments are ever required to assure precision insertions of the docking connector. The tension of the tilt/swivel functions and the angle of the keyboard tray are the only adjustments available on the HAMMERDOCK. All tension adjustments are made at the time of installation with an Allen key provided with each docking system. The keyboard tray is removable.

The computer can be secured in position by turning down the spring-loaded red retention latch. Once the latch is turned completely down, the push button lock can be depressed to prevent unauthorized removal. Security keys for fleet users are identical to eliminate logistic problems.

The HAMMERDOCK cannot be installed without a base to mount it in the vehicle. Contact DRS for a current list of vehicle mount providers.

Heater option

The Hammerhead supports an optional heater package that improves boot time in colder environments and allows the computer to operate at temperatures down to -20° C. You can enable the heaters to automatically activate while your machine is booting and/or while it is running. If enabled, the heaters will automatically activate each time the ambient temperature falls below a predetermined level.

CardBus/PCMCIA cards

The Type III slot in the Hammerhead will support both CardBus and/or PCMCIA cards. CardBus and PC Cards are two alternative types of PCMCIA interfaces (or slots) on laptops, desktops, and PDAs. PCMCIA cards are based on a 16-bit interface, while CardBus is a 32-bit interface. This allows the CardBus Card to transfer data at speeds exceeding 100 Mbps, while a 16-bit PCMCIA card transfers data at approximately 20 Mbps. CardBus also offers lower power consumption: CardBus Cards are all 3.3-volt cards, while 16-bit PCMCIA Cards can be 5-volt or 3.3-volt.

To insert a card, take off the door by removing the two screws that secure the door. Cards should be inserted face up (i.e. the up arrow on the card should point toward the front of the Hammerhead). **Do not apply excessive pressure when loading cards.** They are keyed and should slide in easily. Remove the card in the same manner.

Most PCMCIA devices are too fragile for direct connections in field environments. In response, DRS provides a variety of doors that extend beyond the housing to contain a combination of connectors and cable assemblies needed to connect to common PCMCIA devices. These extended doors serve two purposes: 1) they provide for a sturdy and highly reliable connection not possible when connecting directly to a PCMCIA device, and 2) they maintain the environmental integrity of the Hammerhead by fully sealing the PCMCIA compartment while providing the needed connectivity. Extended doors are available only for those PCMCIA devices that have been tested and recommended by DRS. Custom doors may be available for large purchases.

Internal "Flex Space" for OEM modules

In addition to a Type III CardBus/PCMCIA slot, the Hammerhead computer has an internal "Flex Space" that will accommodate optional radios such as GPS and GPRS. The antenna for the internal module is mounted on the top right hand side of the computer and does not interfere with the CardBus/PCMCIA door and antenna options, which are located on the upper left hand side of the computer.

ProtectIT™ (this feature not yet shipping)

We have spent a considerable amount of time designing and implementing shock-absorbing fixtures to protect the data on the hard drive from damage in the likely event of an accidental fall. The Hammerhead debuts an exciting new feature called ProtectIT™. ProtectIT™ (a combination of hardware and software) can sense a sudden increase in acceleration that may occur from the unit being dropped from a standing position, or falling off the hood of a truck. When a fall is sensed, the hard drive read/write heads are instantaneously retracted preventing them from impacting the hard drive spindle surfaces, preventing what is commonly referred to as a "head crash". Think of ProtectIT™ as a "Seat-belt" for your data.

The ProtectIT™ application is incorporated in the HH Utility, which is preloaded on the Hammerhead. Simply click on the utility and select the ProtectIT™ tab. With the HH utility running, you will notice the arrow will change direction according to the movement of your Hammerhead Tablet PC. The hard drive read/write heads are retracted or "parked" when the color of the arrow changes from Green to Yellow. The interface allows the user to enable, disable or control the sensitivity of ProtectIT™.

Chapter 3 Software Operation

This chapter shows you how to improve performance of your computer through screen calibration, battery maintenance and screen brightness settings. It also explains our new QuickBack™ feature which allows customers a fast and easy way to backup and restore their computer anytime – even in the field. Some of the unique features and benefits of Microsoft's XP Tablet PC Edition Operating System, which comes standard on Hammerhead Tablets, are also covered in this chapter.

CALIBRATION

Pen Tablet Calibration

If you change screen orientations or sitting positions, it may be necessary to recalibrate the pen settings. The pen should be calibrated any time options in the tablet and pen settings are changed.

- Go to Start, Control Panel, Tablet and Pen Settings
- Tap the Settings tab
- Under Calibration, tap the name of the screen orientation for which you would like to calibrate your tablet screen.
- Tap Calibrate
- Follow the on-screen instructions for calibrating the screen
- Note: You must calibrate the screen for each screen orientation separately.

Touch Screen Calibration

You can calibrate your touch screen anytime you notice it may be getting out of alignment.

- Go to Start, All Programs
- Select Hampshire TSHARC Control Panel
- Under the Calibration tab, in the section marked "General Calibration," choose the Calibration Type (you can select a 3, 4, 7 or 20 point calibration) and then select "Run" which will enable you to calibrate the touch screen.

Battery Performance and maintenance

Monitoring your battery

You can easily monitor your battery to see how much power you have available while you are working away from your desk.

To check your battery power, double-tap the Power Meter icon in the Windows system tray. The Power Meter icon appears as a battery when your Tablet PC is running on battery power. The icon changes to a plug when on AC power. You can monitor your battery as it charges to see when it is fully charged.

Setting the battery alarm

You can set a warning alarm that is activated when your battery falls below the levels you have defined as low and critical. You can change the battery level at which the alarm or message is activated.

- On the taskbar, tap the Start button, and then tap Control Panel.
- Tap the Power Options icon.
- Tap the Alarms tab.
- Under Low battery alarm and Critical battery alarm, specify the settings that you want by moving the slider.
- Tap Alarm Action to select the type of alarm notification and resulting action you want. In the critical battery alarm section, under Alarm Action, DRS recommends a Shutdown or Hibernation setting, not a Standby setting.

Turning off power-consuming peripherals

Peripheral devices on your computer use power. For instance, your Tablet PC may have a wireless network connection, a modem card or USB devices. Because some of these peripherals can draw a significant amount of power, you should consider unplugging them or turning them off in situations where you want to conserve battery power. For

information on turning off your wireless network connection, please refer to the manufacturer's documentation.

Using power schemes

Power schemes are a collection of settings that manages the power usage of your computer. You can select from a number of power schemes that are available in Power Options in the Control Panel, you can adjust individual settings of any available power scheme, or you can create your own power schemes to suit your particular system and preferences.

Standby

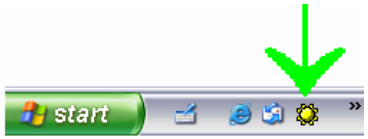
Standby is a low-power state in which your LCD and CPU turn off. When you want to use the computer again, it comes out of standby quickly and your desktop is restored exactly as you left it. Use standby to save power when you will be away from the computer for a short time while working.

Hibernation

Hibernation is a state in which your computer shuts down to save power but first saves everything in memory on your hard disk. When you restart the computer, your desktop is restored exactly as you left it. Use hibernation to save power when you will be away from the computer for an extended time.

Adjusting Screen Brightness and Backlight Settings

The Hammerhead comes with a Utility program that provides additional functionality to your computer. To launch the Hammerhead Utilities program, click on the icon found in the quick launch bar.



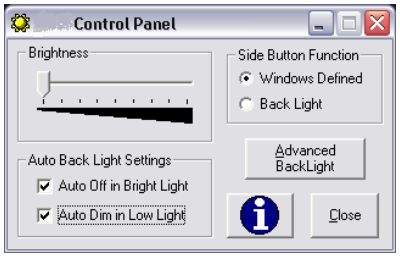
If the icon is not found, you can launch the program by clicking on START, ALL PROGRAMS HH UTILITIES.

Adjusting screen brightness

The brightness of your Tablet PC screen is often the number one consumer of power, so you can conserve battery power by turning down the screen brightness on your Hammerhead. For optimal battery function we recommend that your computer is set for "Auto Off" in bright light, "Auto Dim" in low light and the advanced backlight settings are loaded with default settings. This configuration is designed to give you an optimal balance between performance and battery life. For computers with Transmissive (indoor viewable) displays, it is highly recommended that you do not use the "Auto Off" backlight settings.

Manual brightness adjustment

The brightness slider control allows you to manually adjust the backlight brightness. Click on the bar and slide it to the left or right to achieve the desired brightness. When using the All-Vis LCD, DRS recommends not to select any of the Auto Back Light Settings and to slide the Brightness slider all the way to the right.



Auto backlight settings

To have the backlight automatically turn off in direct sunlight, check the "Auto Off in Bright Light" option.

To have the backlight automatically dim in low light conditions, check the "Auto Dim in Low Light" option.

Power button function

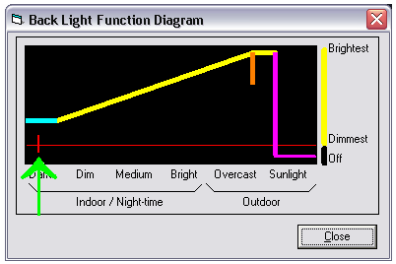
The Power Button Option allows you to have the system respond to the Windows button options, or toggle the backlight on & off using the power button on the front of the unit.

To have the power button function set to Windows defined options, click on the "Windows Defined" button. Note: Windows side button options can be found under Control Panel / Power Options / Advanced / Power Button.

To have the power button set to toggle the backlight on and off, click on the "Back Light" option.

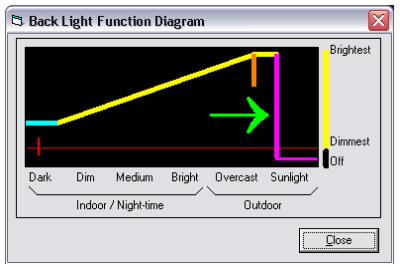
Advanced backlight

Your computer is delivered preset with the optimal settings for most users. For those users with special needs, such as optimizing operation in dark environments, the Advanced Backlight settings allow for optimal backlight performance. To make modifications to the backlight settings, click on the Advanced Backlight button.



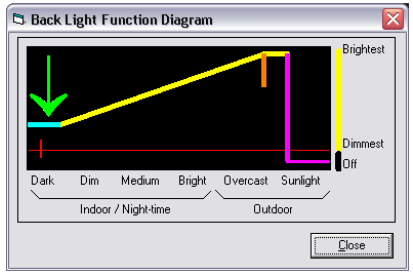
To help you optimize the settings for your special needs, the red tick mark on the red line indicates the current ambient light level. If the tick mark is located to the left, there is little ambient light. As the ambient light becomes brighter, it will move further to the right.

Backlight adjustment

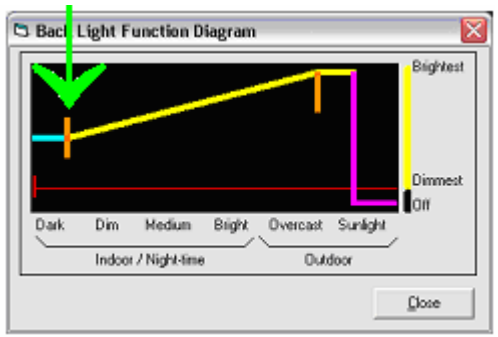


Sliding the pink line left or right will set the light level at which you want the backlight to go off. If the ambient light is greater than this setting (i.e. ambient light is to the right of this line) the backlight is turned off. If the ambient light is less than this setting (i.e. to the left of this line) the backlight will be on. Note: You will only be able to move the pink line within the "Sunlight" range of the light meter indicated at the bottom.

Auto dim



The blue line represents the minimum backlight setting at low light levels. Sliding the blue line up or down sets the auto dim brightness level. Up is brighter; down is darker. The red line represents the minimum backlight level and the top of the window represents maximum backlight level.
Note: The auto dim adjustment tab's size can be adjusted. Hitting Alt-S using a keyboard will enable you to grab the red line and slide it until the desired size of the tab is reached.



The orange segment represents the light level at which the backlight is at full brightness. At light levels lower than this, Auto dimming takes place, as represented by the sloping yellow line. This full brightness range setting can be adjusted by dragging the orange line to the right or to the left.

Note: The red tick mark moves only when settings in the Auto Backlight settings window are checked.

QuickBack™

QuickBack™ is a new backup and restore feature on your Hammerhead computer that allows you to make an exact copy of your hard disk's contents on a hidden partition of your computer, which you can use to restore your PC if the main image ever becomes corrupted or unusable.

Hammerhead Rugged Tablets implement the QuickBack™ functionality using the Acronis True Image OEM software package. The True Image application provides a number of useful System Backup features including the creation and storage of an Archival Backup Image, the ability to store up to two additional User created Backup Images, and the ability to create an Emergency Bootable CD for System Recovery.

The System Hard Drive is divided into several sections or “Partitions”.

- The C partition is the primary partition that contains the Windows files, Application Program files, User files, etc and the C Partition is used as the primary system boot drive for normal operations.

- The D partition contains low level tools for firmware upgrades and the User Backup Images of the C Partition. The firmware tools in the D partition are accessed by a system boot to the Internal EFI shell (Intel Extensible Firmware Interface). Ideally the D partition is made large enough to contain the Firmware Tools and download files and at least two compressed User-generated backup images.

- The DRS-Acronis SVC Partition is a “hidden” partition that is used to store the Original Archive Backup Image. This partition is sized by the True Image tool and is made to be just large enough to contain the compressed Archive Backup Image.

The compressed image of a partition can only be stored in one of the other partitions for backup purposes. This allows the User to overcome the most common image corruption issues and to restore the system back to the last saved image. Note that if the entire hard drive becomes

defective of if the hard drive fails then the QuickBack™ feature will not be able to restore the system. Even the System Recovery CD looks for the backup image on the hard drive. **The periodic use of an alternate backup tool is recommended to provide backup images on external media in case of catastrophic hard drive failures.** You may decide to purchase the upgraded full-featured Acronis True Image tool to be able to backup and recover an image from an external drive.

Archive Backup Image

The original Archive Image is created and supplied by DRS as part of the system manufacturing process. The Archive Backup Image contains the original C and D partition images and is stored in a compressed form in a hidden partition on the system hard disk. This hidden partition is not visible or accessible to the user with the standard system file access toolset. The Archive Backup Image can be used to restore the hard drive by selecting the F11 option when prompted during the system boot to immediately start the standalone True Image Application. Within the True Image application, the User can select the “Restore Original System Installation” button and follow the on-screen directions to restore the entire Archive Backup Image onto the C and D partitions of the System Hard Drive. Note that any changes or additions to either of these two partitions will be lost. This includes User Backup Images that have been placed in the D partition area.

User Backup Image(s)

The User can create up to two User Backup Images of the C partition (Compressed Images of C can be stored up to the available space in the D partition). The User Backup Images are typically created as desired by the User using the True Image application under Windows. The User Backup Images are stored into the D partition of the system hard drive. Currently, the existing Image size and the D partition size allows up to two User Backup Images to be saved at one time. If the user increases the size of the image significantly with the addition of new software, then only one backup image can be stored. With the addition of very large amounts of user data it is possible to grow the image large enough that it can not be compressed into the available space on the D partition (In this case the True Image will inform the user that no backup into the requested location is possible).

Emergency Bootable CD

The user can create an Emergency Bootable CD using the True Image Application under Windows and an attached CD/DVD disk drive with write capability. If the C drive becomes corrupted and the system fails to boot normally, then the Emergency Bootable CD provides the user with the ability to boot the system to the True Image Application. The User can then restore the C partition from one of the User created Backup Images.

To boot from the Recovery CD:

- Place the recovery CD in a CD drive attached to the System
- Boot the system and press the ESC key when the DRS splash screen appears
- Select Boot Manager
- Select the CD drive (the exact text depends on the type of drive being used)

As well as reading an image you've already made, the rescue disc can actually make a brand new image — handy if you want to copy a data partition on a PC that's no longer bootable.

How to Access QuickBack™ for Initial Set-Up and Help Features

The QuickBack™ feature can be accessed by clicking on the Acronis True Image shortcut on the computer's desktop. You can also access it by clicking on START > All Programs > Acronis > True Image. The program includes an extremely easy to use wizard interface and detailed HELP features.

Windows XP Tablet PC Edition Features

This section describes some of the unique features and benefits of Microsoft's XP Tablet PC Edition software for your Hammerhead Tablet.

(Note: This section is not applicable for units with XP Pro Operating Systems.)

Tablet and pen settings

Windows XP Tablet PC Edition 2005 lets you customize the tablet and the tablet pen to suit the way you work. Not all users have to use the same Tablet and Pen Settings. Individual users can save their own settings. Attributes related to use of the pen can be adjusted by clicking on Control Panel, Tablet and Pen Settings.

In this section you can:

- Change the screen orientation between landscape and portrait modes.
- Set the pen for left- or right-hand use.
- Change the default settings of the hardware buttons on Tablet PC.
- Change how a pen matches mouse movements, such as single-click, double-click, right–click, and hover.
- Set handwriting-recognition language.
- You can also customize features of Microsoft Windows Journal, Input Panel, and Sticky Notes to get the most from your Tablet PC.

Screen rotation – this section will be replaced with new instructions

XP Tablet PC supports rapid display rotation between portrait and landscape modes without requiring the user to restart the computer. That makes it easy for users to work in either mode according to their preferences. For example, when annotating PowerPoint slides, it may be preferable to work in landscape mode—the same orientation as most PowerPoint slides. However, when taking notes in Windows Journal, it is more natural to do so in portrait mode—just like taking notes in a paper notebook. The Tablet PC screen displays rotate almost instantly, so the user can go back and forth as often as desired or needed for a specific task.

How do I rotate the screen on my Hammerhead?

- In the sys-tray, click on the Intel Extreme Graphics 2 icon. See figure below.

- Click **Graphics Options**
- Click **Rotation**
- Choose your desired rotation type

To restore the display to the previous mode, follow the same instructions.

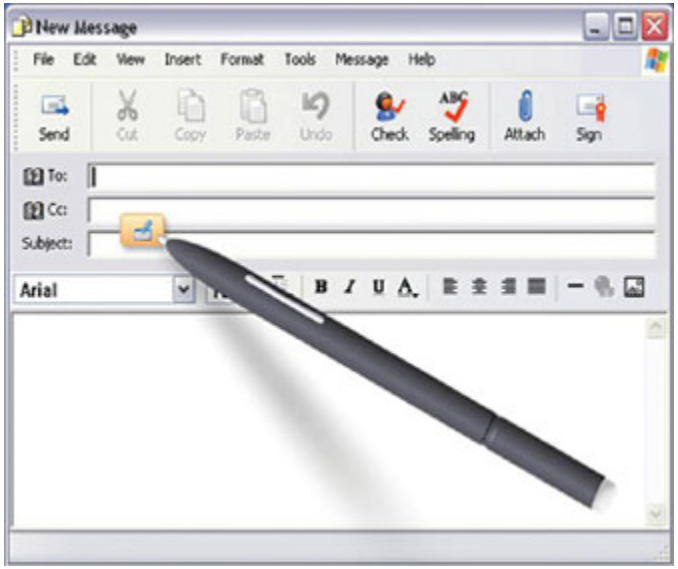
Note: The pen may need to be calibrated after rotating the screen. See **pen calibration** on page 20.

Handwriting using the Input Panel

One way to write with the digital pen when you're not using your keyboard and mouse is by going to the Input Panel. The Input Panel has three views, the writing pad, character pad and the on-screen keyboard. You can input text into applications using your own handwriting on the writing pad and/or character pad or tap in characters using your pen with the on-screen keyboard. The Tablet PC Input Panel is hidden when you first start, but is easily opened.

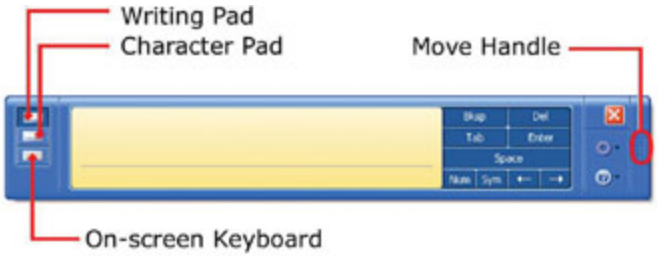
How to open the Input Panel

To open Input Panel next to the location where you want to enter text, tap the floating Tablet PC Input Panel icon. The icon appears automatically when you rest the pen near the field that you want to complete, such as the "To" field in a new Microsoft Outlook e-mail message, or when you tap the location on the screen where you want to insert text, for example, in the middle of a paragraph in a Microsoft Office Word 2003 document.



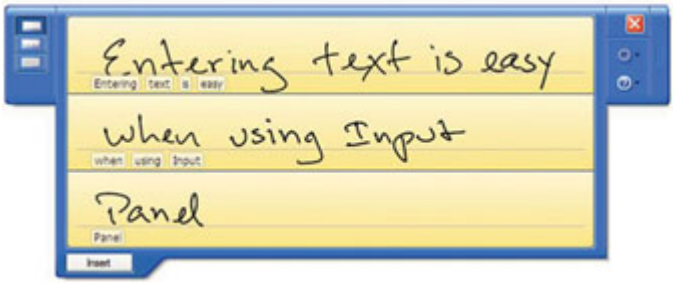
You can move Input Panel anywhere on the screen by using the move handle, which appears at the far right side of Input Panel. Or, you can dock Input Panel—that is, set it to appear at the top or bottom of the screen. When docked, Input Panel is always available and does not cover any open windows.

Input Panel offers three entry modes—the writing pad, the character pad, and the on-screen keyboard.



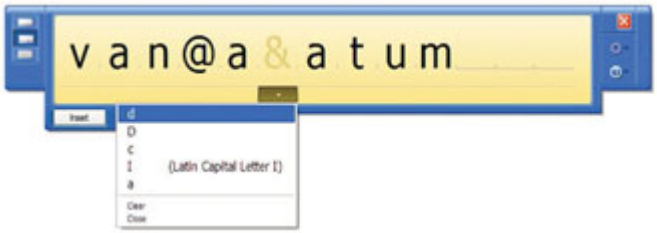
Writing Pad

You can enter text by using ink in the writing pad. The writing pad is especially useful for tasks such as adding text to a Word 2003 document or updating a Microsoft Office Excel 2003 spreadsheet. As you write, Input Panel expands to accommodate more text as needed. If you want to convert ink to text, Input Panel does so dynamically.



Character Pad

The character pad also converts your ink to text so that it can be inserted into a program, but you use it to enter one letter at a time. The character pad is particularly useful when you need the highest levels of accuracy—for example, when you're entering an e mail address or a URL. The characters that you enter into the character pad are immediately converted to text, so you can spot and fix any errors immediately.

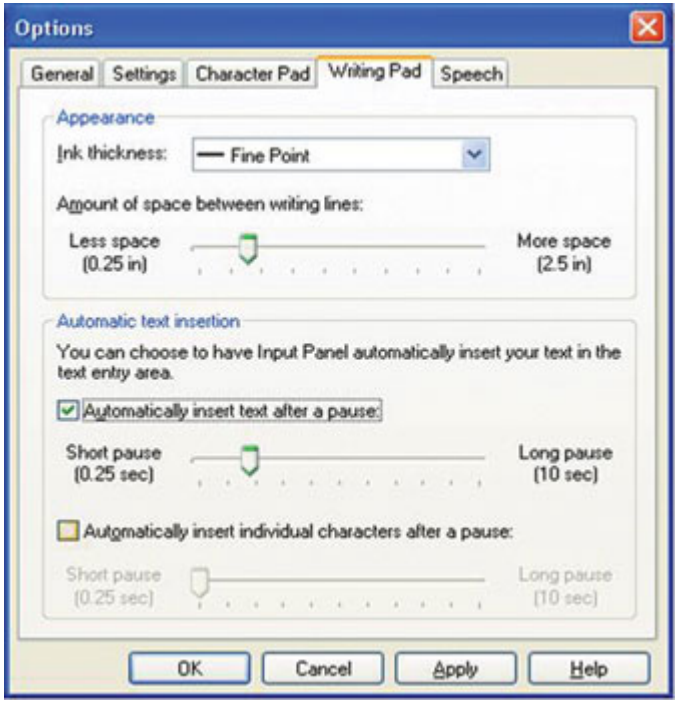


On-screen Keyboard

Use the on-screen keyboard when you don't want to use ink but you do want to use the pen, or when you're using a Tablet PC without an attached keyboard. Simply tap the letters on the keyboard to form words. Input Panel enters the text directly in the field or at the insertion point of the active program. The on-screen keyboard is especially useful for entering small amounts of text, such as passwords and file names.

Customization

You can customize Input Panel based on your personal preferences, such as inserting text automatically, changing the ink thickness, and defining the amount of space between the lines in the writing area.



Speech Recognition

With a USB microphone device attached to the Hammerhead, you can use your voice either to dictate or give commands. For example, you can dictate to your Tablet PC to enter text into a program. You can use voice commands to correct any errors, format text that you have dictated, save documents, switch between programs, move around within a program, or perform other actions to control any Windows-based program. As you speak into your microphone, Input Panel changes your spoken words into text.

Speaking to your computer is often easier and quicker than using your tablet pen to enter text. It may also be more comfortable, allowing you to rest your hands and wrists. You can also save thoughts or ideas immediately, before you forget them. You can use speech features and your tablet pen at the same time. Use the microphone to enter text, and then use the pen to correct and format the text.

Handwriting using Microsoft Windows Journal

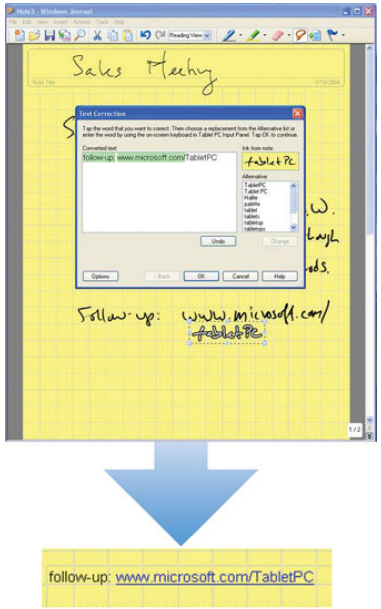
Microsoft Windows Journal allows you to take notes in your own handwriting, just like on a piece of paper. You can later convert those notes to text if you wish or leave them as "ink." In either case, they're completely searchable. You can also create drawings or graphics that can be saved or sent to other applications from Windows Journal. You can even share journal files with non-Tablet PC users by exporting them as MHTML files, which others can view with Microsoft Internet Explorer version 5.0 or later, or by exporting them as TIFF images for viewing with a viewer that is installed by default on Microsoft Windows 98 or later.

How to access Windows Journal

To access Windows Journal, click on Start, All Programs, and Windows Journal.

How to convert handwriting to text in Windows Journal

- Click the Selection Tool icon on the toolbar.
- Circle the handwriting that you want to be converted.
- Click on Actions in the Menu Bar.
- Then select Convert handwriting to text.



How to restore default settings in Windows Journal

You can restore all Windows Journal settings to their defaults such as Pen settings, Highlighter settings, Menu and tool bar positions, Find pane and note list pane positions, and Stationery settings. To restore all Windows Journal settings:

- Click on Tools in the menu bar
- Choose Options
- Click on the Other tab
- Under Restore, click the Restore button

How to improve handwriting recognition

- Calibrate the tablet PC pen and screen
- Hold the tablet pen the same way that you hold a pen or pencil when writing on paper
- Hold the pen near the tip and rest your hand on the screen
- Write using cursive letters in a straight line
- Avoid printing all uppercase letters

- Write legibly, at a constant speed with even spacing between letters and words
- Write uppercase letters larger than lowercase letters
- Avoid empty spaces
- Avoid putting additional words, diagrams, or drawings within existing handwriting in a note

How to set the pen and screen for left-handed users

The tablet pen and screen settings have a setting for left or right-handed users. Follow these steps to change handedness settings.

- Double-tap the Change Tablet and Pen Settings icon in the Notification Area of the Windows Taskbar.
- Under Handedness, select right-handed or left-handed.
- Under Menu Location, select right-handed or left-handed.

How to create "sticky notes"

You can use the Sticky Notes accessory to write and store short notes, phone numbers, and other reminders. You can place sticky notes directly on your desktop as quick reminders or in any OLE-enabled program, such as Word, to add electronic comments or reminders to your documents.

To create a sticky note:

- Launch Sticky Notes and the application automatically opens to a new note.
- Start writing on the surface of the note.
- Click the red record button to record a voice message for a maximum of 30 seconds per note.
- To create another note, click the New Note button.

How to write in Microsoft Excel or Word files

In order to use the Tablet PC features in these applications, you must obtain the Microsoft Office XP Pack for Tablet PC. This is available only from Microsoft's website. If you use the pen to write in Microsoft Word or Excel, and you are sharing the file with another user who does not have Windows XP Tablet PC Edition, they will be able to see the ink comments if they are using Office 95 or newer versions. However they will not be able to do anything with the document such as editing in ink, etc.

Chapter 4 *FAQs*

Following is a list of common questions and answers. If you don't see an answer to your question here, please contact Technical Support at 888-872-1100 and one of our Representatives will be able to help you.

What options are available for loading software into the Hammerhead?

- USB Floppy Drive
- USB CD-ROM
- Local Area Network
- Direct Cable Connection

How do I install drivers for peripheral devices sold by DRS?

- Device drivers for peripherals distributed by DRS reside on the Hammerhead where they can be installed as needed.

- Contact Technical Support for assistance on any of these installations at 888-872-1100.

How do I install drivers for peripheral devices not sold by DRS?

- Device drivers for peripherals not distributed by DRS will require loading via USB Floppy Drive, USB CD-ROM, Local Area Network or Direct Cable Connection

- Contact DRS Technical Support at 888-872-1100 for loading device drivers for any variety of peripheral that may need to be installed.

How do I activate the "Screen Keyboard"?

- If you are using Windows XP Tablet PC, click the Input Panel button on the task bar. The Tablet PC Input Panel opens.

- If you are using MS Pen services: From the Windows desktop, navigate through the Start Menu to the Program group named "Pen Services". Click on the icon for the screen keyboard in this group.

- If you are using My-T-Pen: From the Windows desktop, navigate through the Start Menu to the Program group named "My-T-Pen". Click on the icon for "My-T-Pen" in this group.

How can Hand Writer Recognition be disabled?

- For XP Tablet PC Edition, the handwriting recognition cannot be disabled.

- For MS Pen services, open the control panel applet for Hand Writer Settings. There is an option located under the Personal tab that will allow the user to set the time delay for "Switch from Ink to Text Selection". Set this adjustment to the extreme left (0.0 seconds) to disable Hand Writer Recognition.

- For Calligrapher, the handwriting recognition is only active when the calligrapher program is running.

How can I perform CTRL ALT DEL without a keyboard?

- To get to the Windows Login Screen, depress the light gray Windows Security key button on the front of the unit for 1 to 2 seconds. It is located just below the yellow on/off button.

What do I do if the unit locks up or freezes while under Windows?

- In the event that Windows locks up and you lose control of screen activity, you can depress the Windows Security key button on the front of the unit for 1 to 2 seconds for the CTRL-ALT-DEL function or

press the yellow on/off button for 4-5 seconds to force a “hardware shutdown”.

How do I clean the champ connector on the back of the Hammerhead?

- A non-metallic bristle brush can be used to sweep out any dust or foreign particles

How do I clean the glass on the face of the unit?

- On pen machines, a non-abrasive glass cleaner can be used to wash the display glass.

- On touch screen machines, a plastic cleaner such as ‘Plexus’ can be used to clean the display.

What do I do when the pen gets out of alignment?

- When using Windows XP Tablet PC Edition, the pen should be recalibrated any time you change Screen Orientations or sitting positions. Go to Start, Control Panel, Tablet and Pen Settings. Tap the Settings tab. Under Calibration, tap the name of the screen orientation for which you would like to calibrate your tablet screen. Tap Calibrate. Follow the on-screen instructions for calibrating the screen. You must calibrate the screen for each screen orientation separately.

- If you are using MS Pen services: In the Windows Control Panel is an applet labeled Hand writer Settings (pen settings on some machines), which has the pen alignment utility. You may have to attempt alignment more than once to get the desired result.

- If you are using Pen with Calligrapher: From the Windows desktop, navigate through the Start Menu to the Program group named “Fine Point” (“Mutoh pen system driver” on some units). In this group, click on the icon for “Recalibrate” and follow the onscreen instructions.

What if the pen still will not align?

- Check that the user has not altered the Windows Display settings to a screen resolution other than factory default. If so, adjust the setting to factory default, reboot the unit and attempt pen alignment.

- See supporting documentation for instructions on reinstalling the pen services software. This will typically cure problems with damaged support files that impact the pen function.

What can I do when the “Start” button disappears?

- In pen computing, it is not uncommon for the user to inadvertently resize the task bar so that it is not visible on the screen.

- First, attempt to recover the start button and task bar by moving around the edges of the display to see if you will get a double arrow. If you get a double arrow, simply drag the task bar to the size you need.

- If not, follow these directions (note: you will need a keyboard to perform this function. Do not attempt to use the pen during this process.

  1. Press the <CTRL>, <ESC> keys in combination to display the “Start” menu.
  2. Press the <ESC> button and the menu will disappear. You have now placed the focus on the “Start” button.
  3. Press <ALT>, <SPACEBAR> keys in combination to display a context menu.
  4. Use the cursor keys to navigate in the context menu and highlight “Size”.
  5. Press <ENTER> and the pointer will move to the middle of the taskbar along the edge of the display and become a two-way arrow.
  6. Using the cursor key, size the task bar to your preference.
  7. Press the <ENTER> key to set the task bar size.

- To avoid this problem in the future, try sizing the task bar to be larger than the default. This can be done at your discretion. Windows XP also gives you the option of locking the task bar so this will not happen. We highly recommend locking your taskbar if you are using Windows XP. To lock your taskbar:
  1. Right click on the taskbar.
  2. Select the properties tab.
  3. Under task bar tab menu, check “lock the taskbar.”

What do I do when the battery discharges and will not charge in the unit?

- There are several fused circuits in the Hammerhead designed to protect the core electronics. In the event that the unit will not initiate the charge cycle, there may be a blown fuse in the circuit. See Battery Use and Care in Chapter 2 for more information on charging your battery(s).

What external peripherals does the Hammerhead support?

- The Hammerhead has a Type III CardBus/PCMCIA slot which will accommodate either one Type III card or up to two Type II devices.

How can USB networking be utilized in the Hammerhead?

- DRS manufactures Desk Dock and Wall Dock solutions with a USB network adapter that communicates to the Hammerhead via the docking connection and connects to the network hub by way of standard network patch cabling.
- USB functionality is supported under Windows ’98, 2000, XP Pro and XP Tablet PC Edition.

How can USB be utilized in the Hammerhead?

- The Hammerhead is manufactured with a single USB connection on the side of the unit. This USB connection can be used for a wide variety of USB type devices.
- There is also an additional USB port in the champ connector, available on the desk dock, vehicle dock, and wall dock.

What are DRS’ Technical Support hours of operation?

- DRS staffs the Technical Support department Monday through Friday 8:30 AM to 5:30 PM Eastern Standard Time.

What is your best screen for direct sunlight on the Hammerhead?

- There are two superior outdoor viewable displays available on the Hammerhead. Our SVGA 800x600 All-Vis display maximizes color definition and provides superior visibility for indoor, in-vehicle and outdoor environments. Capitalizing on the backlighting features of the Transmissive display, the All-Vis technology adds the ability to

reflect ambient light making the display extremely powerful both indoors and outdoors. Our XGA 1024x768 Reflective display incorporates a front light with the Reflective LCD panel, for optimal viewing in both indoor and outdoor conditions. When viewing applications in direct sunlight, the Reflective LCD panel makes use of natural light to illuminate the on-screen data, without the text and/or graphics being washed out. When in poor indoor lighting conditions, the display's front light enhances the screen's readability.

Is the heater package available on the Hammerhead?

- An optional heater package for booting in extremely cold environments to –20° C is available for both the Hammerhead and Hammerhead X^{treme} models.

Can I purchase a carry case for the Hammerhead?

- The Hammerhead comes with shock absorbing rubber bumpers and removable rugged carry handle that eliminate the need for a carry case. Although the Hammerhead X^{treme} padded carry case will fit on the Hammerhead if the bumpers are removed, DRS does not recommend removing them as this may affect the rugged specifications of the unit.

Are the power requirements and physical connection the same on both the Hammerhead and Hammerhead X^{treme}?

- Both the Hammerhead and Hammerhead X^{treme} use the same AC power supplies and docking stations.

Are the PCMCIA doors the same for the Hammerhead and the Hammerhead X^{treme}?

- The PCMCIA doors for the Hammerhead and Hammerhead X^{treme} models are interchangeable.

Chapter 5 Warranty Information

This chapter outlines coverage, terms and conditions of DRS' Limited Warranty and how to obtain warranty service.

The standard DRS Tactical Systems, Inc. Limited Warranty is valid for one year from the date of shipment. Extended warranty protection is available for up to three additional years.

DRS TACTICAL SYSTEMS
LIMITED WARRANTY - HARDWARE
HAMMERHEAD COMPUTER PRODUCTS

1. General Information

DRS Tactical Systems, Inc. warrants for the duration of this warranty that DRS Tactical Systems' Hammerhead products ("Products") produced by DRS Tactical Systems are to be free from defects in material and workmanship under normal use and service, subject to the "Terms and Conditions" set forth below. This Limited Warranty applies to DRS Tactical Systems' Hammerhead core proprietary products and excludes, but is not limited to, all other products and accessories supplied and/or distributed but not manufactured by DRS Tactical Systems.

This Limited Warranty extends only to the original purchaser of Products from DRS Tactical Systems or a DRS Tactical Systems authorized reseller ("Original Purchaser"). It is not transferable to anyone who subsequently purchases Products from the Original Purchaser.

2. Length of Warranty

The warranty is valid for a period of one (1) year for Products, from the original date of the packing slip or invoice from DRS Tactical Systems and/or a DRS Tactical Systems Authorized Reseller. During this period, DRS Tactical Systems will, at its option, either repair or replace with new

or reconditioned (of equal or better quality) parts of any of the Products which proves to be defective, provided that such Products are returned in accordance with the terms of this Limited Warranty. All exchanged parts and Products replaced under this Limited Warranty will become the property of DRS Tactical Systems. The warranty period is not extended if DRS Tactical Systems repairs or replaces a warranted Product or any parts.

Extended warranty protection is available for purchase for up to three additional years, for a total of four years warranty protection.

3. Terms and Conditions

This Limited Warranty covers defects in materials and workmanship in DRS Tactical Systems Hammerhead branded hardware products, as follows:

Term	1 year standard; Up to three additional years may be purchased
Technical Assistance	Yes
Shipping Costs	Shipping costs of a Product to DRS are not included as part of this Warranty. Shipping costs of a Product to the consumer after a warranty repair is included as part of this Warranty. If after receipt of a Product for repair under this Warranty, it is later determined to be a non-warranted repair, all shipping costs are to be paid by the consumer.

This Limited Warranty does not cover:

3.1 Non DRS Tactical Systems Hammerhead branded products (accessories) are covered under original manufacturer warranty. Accessories include but are not limited to carrying case, PCMCIA cards, etc. Non DRS Tactical Systems Hammerhead branded products are not covered under an extended warranty period.

3.2 Software, including the operating system and software added to the DRS Tactical Systems branded hardware products through our factory-integration system, third-party software, or the reloading of software;

3.3 Scratches or abrasions to the Product's LCD screen/display, and abusive wear of the LCD screens;

3.4 Batteries. Batteries are covered under the Limited Warranty for one (1) year. Batteries are not covered under an extended warranty period;

3.5 Problems that result from:

3.5.1 External causes such as accident, fire, floods, or acts of God; abuse; misuse; or problems with electrical power;

3.5.2 Servicing not authorized by DRS;

3.5.3 Usage that is not in accordance with Product instructions;

3.5.4 Failure to follow the Product instructions or failure to perform preventative maintenance;

3.5.5 Problems caused by using accessories, parts, or components not supplied by DRS Tactical Systems;

3.5.6 Improper installation (to include the absence of surge protection in vehicle installations), testing, operation, use or handling of the Product;

3.5.7 Unauthorized alteration of Products

3.6 Products with missing or altered service tags or serial numbers

3.7 Products for which DRS Tactical Systems has not received payment

3.8 DRS Tactical Systems is not responsible for and shall not be liable for transportation and insurance charges incurred in or damages resulting from transporting the Products, Accessories and/or Replacement Products to DRS Tactical Systems for warranty service.

3.9 DRS Tactical Systems shall not be responsible for consequential, special, incidental or contingent damages or expenses of any nature or kind whatsoever, including, without limitation, damages for any loss of revenue, profits, property, information or use of any kind. Such damages and expenses are not recoverable under this

Warranty, even if DRS Tactical Systems has been notified of the possibility thereof. In any event, DRS Tactical Systems' liability for any breach shall be limited to actual direct, provable damages not to exceed the amount originally paid to DRS Tactical Systems for the Product and/or Accessories. These limitations apply to all causes of action, including breach of contract or negligence. Some jurisdictions do not allow the exclusion or limitation or certain remedies including damages, so the above exclusion or limitation may not apply to you.

3.10 DRS Tactical Systems is not responsible for any third-party software created for use in the integration and/or operation of any Products, Accessories and/or Replacement Products whether or not such third party software was installed by DRS Tactical Systems. Maintenance and support service for third-party software is the sole responsibility of the creator thereof.

4. How to obtain Warranty Service

Immediately notify DRS-Tactical Systems by calling **1-888-872-1100,** or a DRS Tactical Systems Hammerhead Computers Authorized Reseller of problems encountered during the warranty period. As appropriate, DRS Tactical Systems will provide a Return Material Authorization number (the "RMA" number) for the return of your Products, Accessories and/or Replacement Products.

4.1 Label and/or include the following information with the Products/Accessories shipping container:

4.1.1 Company name, address and telephone number

4.1.2 RMA number received from DRS Tactical Systems

4.1.3 Description of the problem

4.2 Return the Products. Accessories and/or Replacement Products with the above mentioned information, transportation and insurance costs prepaid, to the address below. DRS Tactical Systems is not responsible for loss or damage which may occur in transit.

DRS Tactical Systems, Inc.
1110 West Hibiscus Boulevard
Melbourne, Florida 32901

Once repaired or replaced under the terms specified in the Warranty, DRS Tactical Systems will return ship, pre-paid, the Products, Accessories and/or Replacement Products to the originating party.

5. Additional Information

5.1 The agents, dealers and employees of DRS Tactical Systems are not authorized to make any modifications to this Warranty, or additional warranties binding on DRS Tactical Systems about or for Products, Accessories and/or products sold or supplied by DRS Tactical Systems. Additional statements, whether oral or written, except signed written statements from an officer of DRS Tactical Systems, do not constitute warranties and should not be relied upon.

5.2 This Warranty gives you specific legal rights. You may also have other rights which vary from one jurisdiction to another.

5.3 For certain non-DRS Tactical Systems products, product components, software and accessories supplied and/or distributed by DRS Tactical Systems which are expressly warranted by the manufacturer of such products, DRS Tactical Systems will provide a warranty depot service. Where applicable, information with respect to this service will be included.

5.4 DRS Tactical Systems warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

5.5 Limitation of Liability. Except as otherwise provided by an express or implied warranty, DRS Tactical Systems will not be liable for consequential damages resulting from any defect or deficiencies in accepted items.

Customer Service

Toll-free technical support is available from 8:30 a.m. to 5:30 p.m. EST by calling (888) 872-1100. Please call this number to receive return merchandise authorization prior to returning any equipment for repairs of any type.

Notices

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DRS Tactical Systems, Inc.
1110 West Hibiscus Blvd.
Melbourne, FL 32901
Phone: (321) 727-3672

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Wi-Fi is a trademark of the Wireless Ethernet Compatibility Alliance (WECA).

PCMCIA and CardBus are registered trademarks of the Personal Computer Memory Card International Association.

All other brands, trademarks and registered trademarks are the property of their respective holders.

Radio Frequency Emissions Statement

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Subpart J, Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the receiver.
- Consult DRS Tactical Systems, Inc. at (888) 872-1100 for additional information and help.

Properly shielded, grounded cables and connectors have been provided with this equipment and must be used to ensure proper functionality and compliance with FCC rules. Unauthorized changes or modifications could void the user's authority to operate the equipment. Replacement cables and connectors are available from:

DRS Tactical Systems, Inc.
1110 West Hibiscus Blvd.
Melbourne, FL 32901

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

If necessary, the user should consult an experienced radio/television technician for additional suggestions. The user might find the following book prepared by the Federal Communications Commission helpful: **"How to Identify and Resolve Radio-TV Interference Problems"** Stock Number 004 000 00345 4. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

Public Contact Branch Room 725 1919 M St. NW Washington, DC 20554 (202) 634-1940	Consumer Assistance & Small Business Division - Room 254 1919 M St. NW Washington, DC 20554 (202) 632-7000

Canadian Department of Communications Compliance Statement

This equipment does not exceed Class B limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications.

DRS TACTICAL SYSTEMS

DRS TECHNOLOGIES

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