DataMetrics™

TUFF RIDER™ MODEL 9300-EC

Operation and Maintenance Manual for P/N 140661-100

Tuff Rider™ Model 9300-EC Embedded Computer

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Introduction

Thank you for purchasing the Model 9300-EC Tuff Rider™.

This product is a small size (17cm x 23cm x 10cm) embedded workstation. This document describes how to operate this product.

Please review the information outlined in this manual before using the Model 9300-EC Tuff Rider™.

November 2004

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RECORD OF CHANGES

DATE	REVISION	DESCRIPTION OF CHANGE
050217	–	INITIAL RELEASE

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CAUTIONS & WARNINGS

CAUTION!

SHOCK HAZARD

Ensure power source is not active when installing or connecting power cord

CAUTION!

SHOCK HAZARD

Pin 9 on COM1 may be a fused supply of the input power to the unit. Power cord should be disconnected prior to handling unit.

WARNING!

Improper powering down of unit may cause adverse affects to operating system (OS).

WARNING!

Pin 9 on COM1 may be a fused supply of the input power to the unit. Extreme care must be taken to insure any device connected to COM1 will not be damaged.

WARNING!

When mounting the Tuff Rider™, ensure airflow to the rear of the unit is not obstructed.

INTRODUCTION

The *Tuff Rider(tm) Series* Model 9300-EC (Embedded Computer) is a rugged and reliable computer/display combination that is ideally suited for public safety vehicles, law enforcement vehicles, construction equipment, utility vehicles, mobile medical vehicles, delivery/courier vehicles, automobiles, vans, trucks, airplanes, helicopters, trains, and military ground vehicles, vessels and aircraft. Equipped with an optional NFI (Near Field Imaging) touch screen interface and powered by a SBC with the Intel Pentium® M processor with Intel Speedstep® technology makes the Model 9300-EC ideal for mobile applications. However the Model 9300-EC is also equipped with all of the interfaces you would find on a normal desktop computer making it even more versatile.

MOUNTING

The Tuff Rider™ Series Model 9300-EC is designed to be mounted in a wide variety of applications using the provided mounting holes or via a user made adapter bracket. There are a total of eight mounting holes available, with two on both the left and right sides (Fig. 2, 3), and four on the rear (Fig. 6). The mounting holes use an 8-32 screw and have a depth of 5/16". The mounting holes use helicoil inserts that can be replaced. When mounting the Tuff Rider™ it is ***important*** that the air flow to the heat sink on the rear of the unit is not obstructed. Obstructing the airflow to the heat sink may cause the Tuff Rider™ to over heat and operate at diminished capacity or shutdown. In some installations the user defined I/O and power connections may need to be made prior to mounting due to limited access to the bottom of the unit.

POWER CORD

The Tuff Rider™ is supplied with a four-foot long power cord. One end the cord has a mating connector that will be either straight or 90-degree depending on the user's preference. The other end has a white and black wire pigtail to connect to an 11-30Vdc power source. Ensure the power source is off prior to installing or connecting the power cord to unit. Regardless of which mating connector use used, the pigtail wires and connector are connected in the following manner.

1. Connect white wire of the power cable to the positive side of the power source
2. Connect black wire of the power cable to the negative (return) side of the power source
3. Connect mating connector to J1 on bottom of unit (Fig. 5)

The 90-degree mating connector is aligned to bring the power cord out on the left side of the unit. However, it is possible the change the alignment by loosening the connector's backshell, moving the cord to the required position, and tightening the backshell.

OPERATION

Start-up

The Tuff Rider™ is designed for a "one touch" start-up.

1. With 11-30Vdc supplied briefly press and release the "PWR" button on front of unit (Fig. 1).
2. After approximately five seconds the display and power indicator will turn on and the OS will start (Fig. 1).

After OS has finished loading, user defined software can be installed and/or started.

Shutdown

The Tuff Rider™ with Windows XP Pro can only be safely powered down using Window's shut down function. There are two ways to accomplish a proper shut down:

1. On the task bar, touch the "Start" button
2. In the pop-up menu, touch the "Shut Down" option
3. When the shut down window opens, touch the "Shut Down" option

Or

1. Briefly press and release the "PWR" button on front of unit (Fig. 1).
2. When the shut down window opens, touch the "Shut Down" option

If the OS or user's software is not responding to user input it is possible to power off the unit by pressing and holding the "PWR" button for approximately 5 seconds until the display and power indicator are off. It is imperative that the Tuff Rider™ is only powered down in the proper manner. Improper shut down or loss of power may cause the OS to function improperly. When the Tuff Rider™ is mounted in a vehicle the unit should only be operating while the vehicle is running. Power fluctuations due to vehicle motor start-up and shut down may cause a loss of power to the unit.

Display settings

The display brightness is fully adjustable from full bright to off via the "DIM" knob on the front of the unit (Fig. 1). Other display settings such as resolution and colors can be changed via the OS. See the OS manual for detailed instructions. The Tuff Rider™ also supports the use of an external monitor via J16 on the bottom of the unit (Fig. 4). The Tuff Rider™ can be configured to show the same image on both displays or it can be used as a dual display system.

User Interface

The NFI touch screen is the primary user interface and is active at all times. It is possible to adjust the NFI touch screen's interface settings and sensitivity as needed for the application. See manufacture's user manual for detailed instructions on setup and calibration. There are also USB ports as well as a PS/2 port for connecting optional input devices. The PS/2 port (Fig. 4) supports either a keyboard or mouse, or both if a "Y" adapter is used. The unit will need to be restarted for OS to recognize the input device(s) on the PS/2 port.

Networking

The primary network connection is via the J12 ethernet connection on the bottom of the unit (Fig. 4) The Tuff Rider™ can also use an option internal Cisco wireless LAN card as its primary network connection. This internal WLAN card is connected to an external antenna via J4 on the bottom of the unit (Fig. 5).

Data & File Management

The wireless ethernet connection is the primary means by which to transfer files and data to and from the Tuff Rider™. The use of a wired network connection, USB flash drives and external USB storage devices such as an external CD-ROM and hard drives are also supported. The USB ports (Fig. 1 & 4) support most "plug and play" mass storage devices. However, not all plug and play devices may be recognized and drivers may need to be installed prior to use. The number of user programs and amount of data storage is determined by the size of the hard drive selected when the unit was purchased. The Tuff Rider™ uses a compact flash card as its primary hard drive. Removing the cover plate in the left side of the unit (Fig. 2) allows access the compact flash card. However, it is not recommended for the user to remove the compact flash card.

PCMCIA SLOTS

The Tuff Rider™ supports the use of two PCMCIA Type II or one PCMCIA Type III cards. The PCMCIA slots are accessible by removing the cover on the right side of the unit (Fig. 3). If the option Cisco WLAN option is installed only one additional PCMCIA Type II card can be installed.

PERIPHERALS

The Tuff Rider™ is designed to connect to most peripheral devices. There are many I/O ports on the bottom of the unit (Fig. 4 & 5) as well as a UBS 2.0 port on the front (Fig. 1). The J2 COM1 port has the option of having a fused input power source on pin 9. The power option on pin 9 can be used to operate the connected device without the need for a second power cord. By default this option is disabled unless requested by the user when ordering. Caution must be used when connecting to J2 COM1 ensure that the power input from pin 9 will not cause any damage to the device.

TECHNICAL SPECIFICATIONS

Environmental

Temperature	Operating: 0ºC to 50ºC (32°F to 122°F) Storage:-40ºC to 65ºC (-40°F to 149°F)
Shock	Operating: 10g, 6-9ms, per MIL-STD-810E
	Non-operating: 20g, 6-9ms, per MIL-STD-810E
	Bench Handling: 3g non-operating
Vibration	MIL-STD-810E, Method 514.4, Categories 1 and 8 for installed platforms
Humidity	Operating: 5-90% @ 40°C (non-condensing)
	Non-operating: 5-90% @ 40°C (non-condensing)
Altitude	Operating: -300 to 15,000 ft.
	Non-operating: -300 to 40,000 ft.
EMC/EMI	FCC part 15, Class B

Performance

Processor	Intel Pentium® M 1.1GHz with 400MHz FSB, 1MB Cache (Optional 1.6 GHz)
Operating System	Microsoft Windows XP Pro
Memory	512MB (1GB Max)
Storage	2GB Compact Flash (12GB Max with optional 10GB solid state drive)
PCMCIA Slots	Two onboard (one used if Wireless LAN is selected as an option)
Wireless LAN (optional)	Cisco Aeronet 350 PCMCIA
Display	8.4” LVDS, 1024 x 768 Active Matrix
	(Optional Sunlight Readable Display and NFI touch screen)
Primary Interfaces	Serial: Com1/Com2 RS-232, USB: 2 Dual Type A USB 2.0, NFI Touch Screen
	(Optional: Wireless LAN: Cisco Aeronet 350 PCMCIA, Antenna: RP-TNC Coax)
Secondary Interfaces	Keyboard/Mouse: Mini DIN 6, Firewire: 2 IEE1394, Network: RJ-45 10/100 Enet, Mic, Line In and Line Out: Jack, Video Out: VGA Hi-density

Electrical

Power	11-30 Vdc, 12-24 Vdc Nominal
Power Dissipation	30W Nominal, 5W Standby, 40W Max

Physical

Size	6.57 in. H x 9.18 in. W x 3.75 in. D
Weight	6.5 lbs.

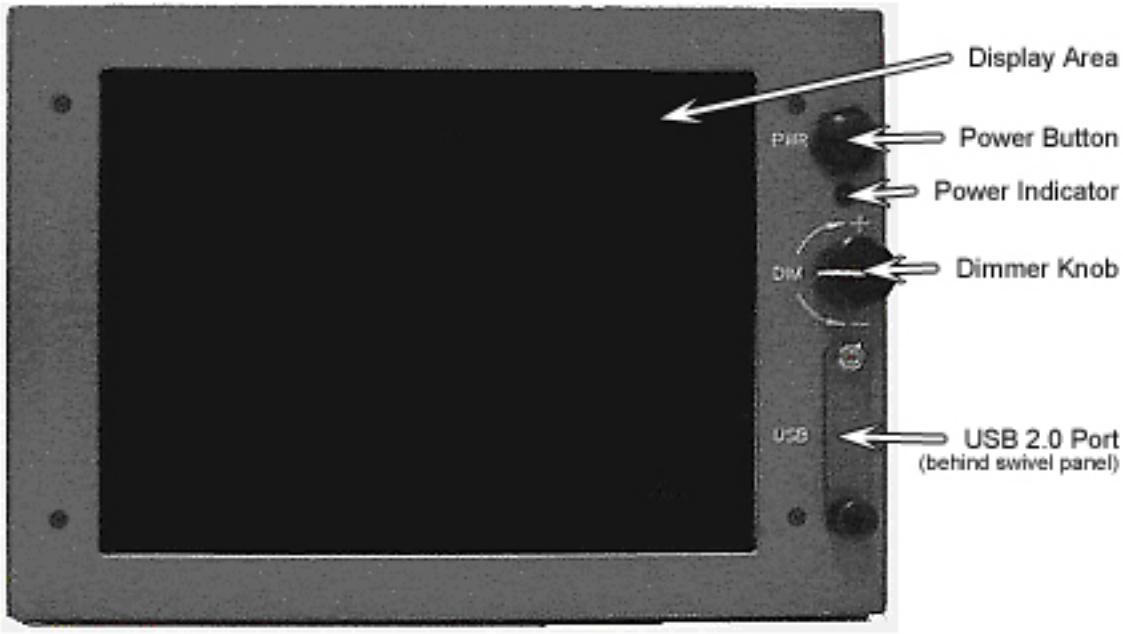
Display Area
PWR
Power Button
Power Indicator
DIM
Dimmer Knob
USB
USB 2.0 Port
(behind swivel panel)

Fig. 1

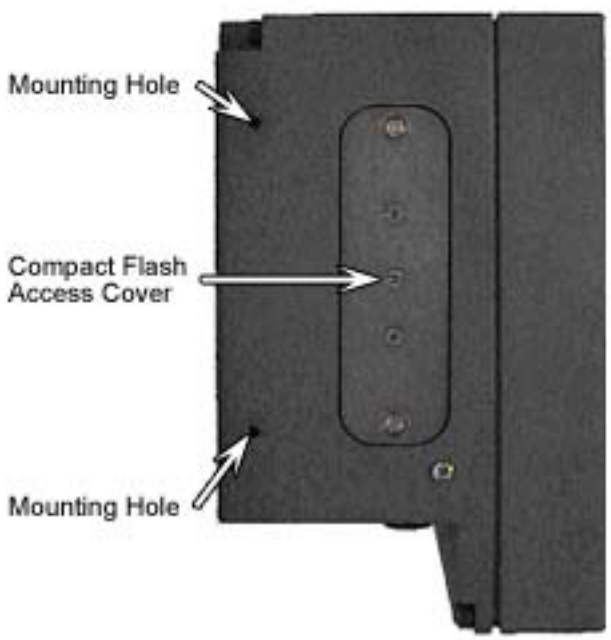
Mounting Hole
Compact Flash
Access Cover
Mounting Hole

Fig. 2

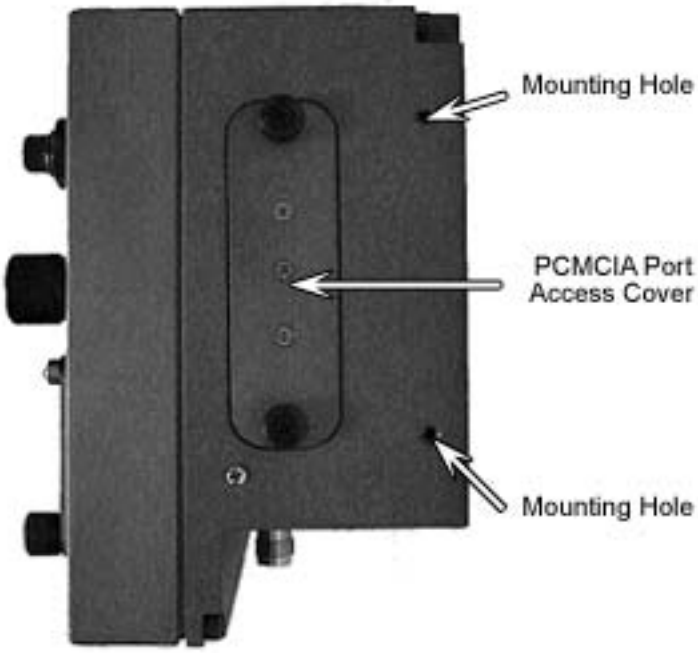
Mounting Hole
PCMCIA Port
Access Cover
Mounting Hole

Fig. 3

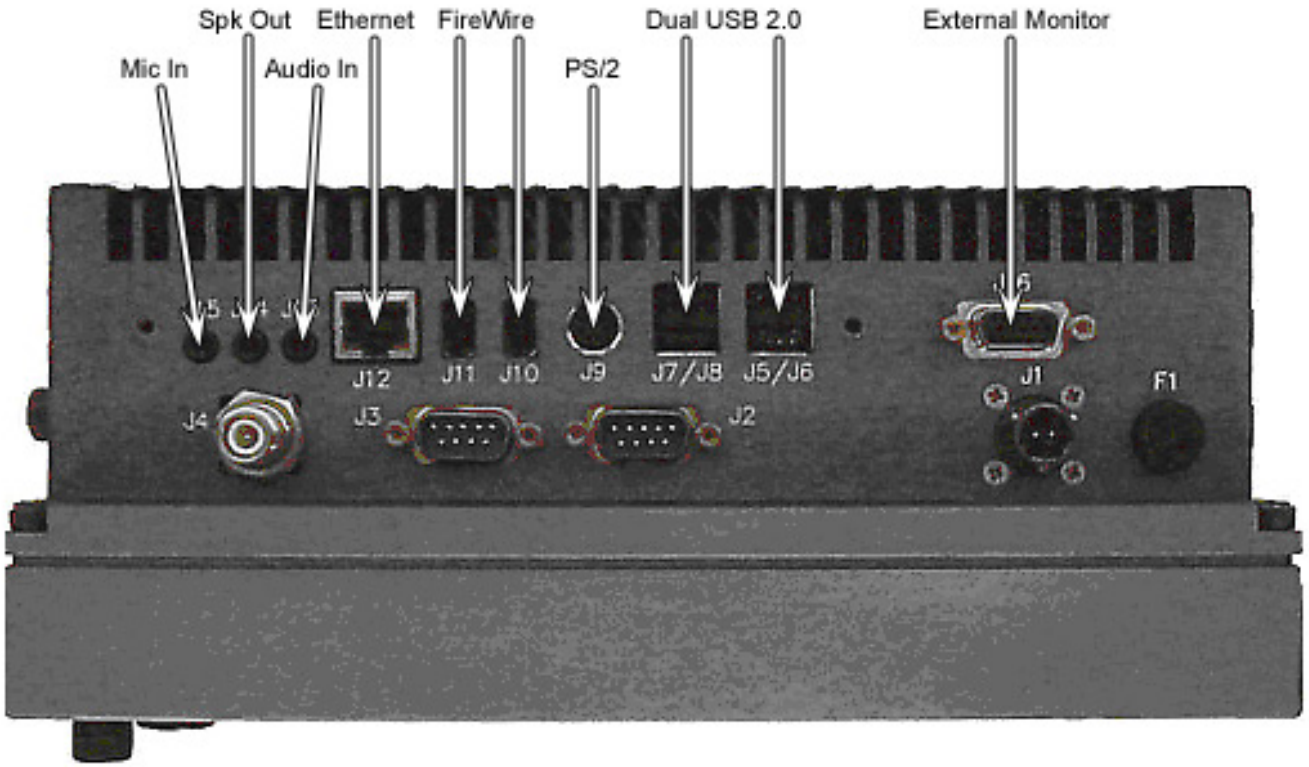
Spk Out
Ethernet
FireWire
Dual USB 2.0
External Monitor
Mic In
Audio In
PS/2
J12
J11
J10
J9
J7/J8
J5/J6
J4
J3
J2
J1
F1

Fig. 4

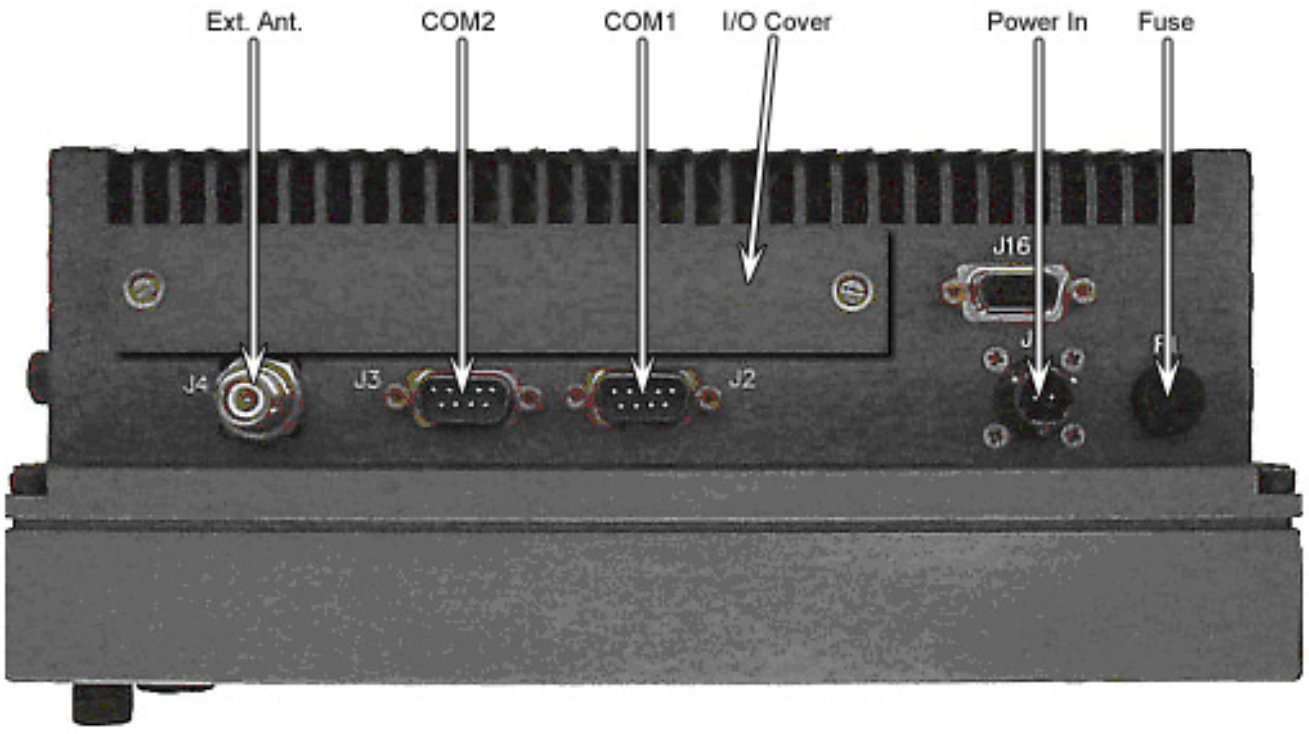
Ext. Ant.
COM2
COM1
I/O Cover
Power In
Fuse
J16
J4
J3
J2

Fig. 5

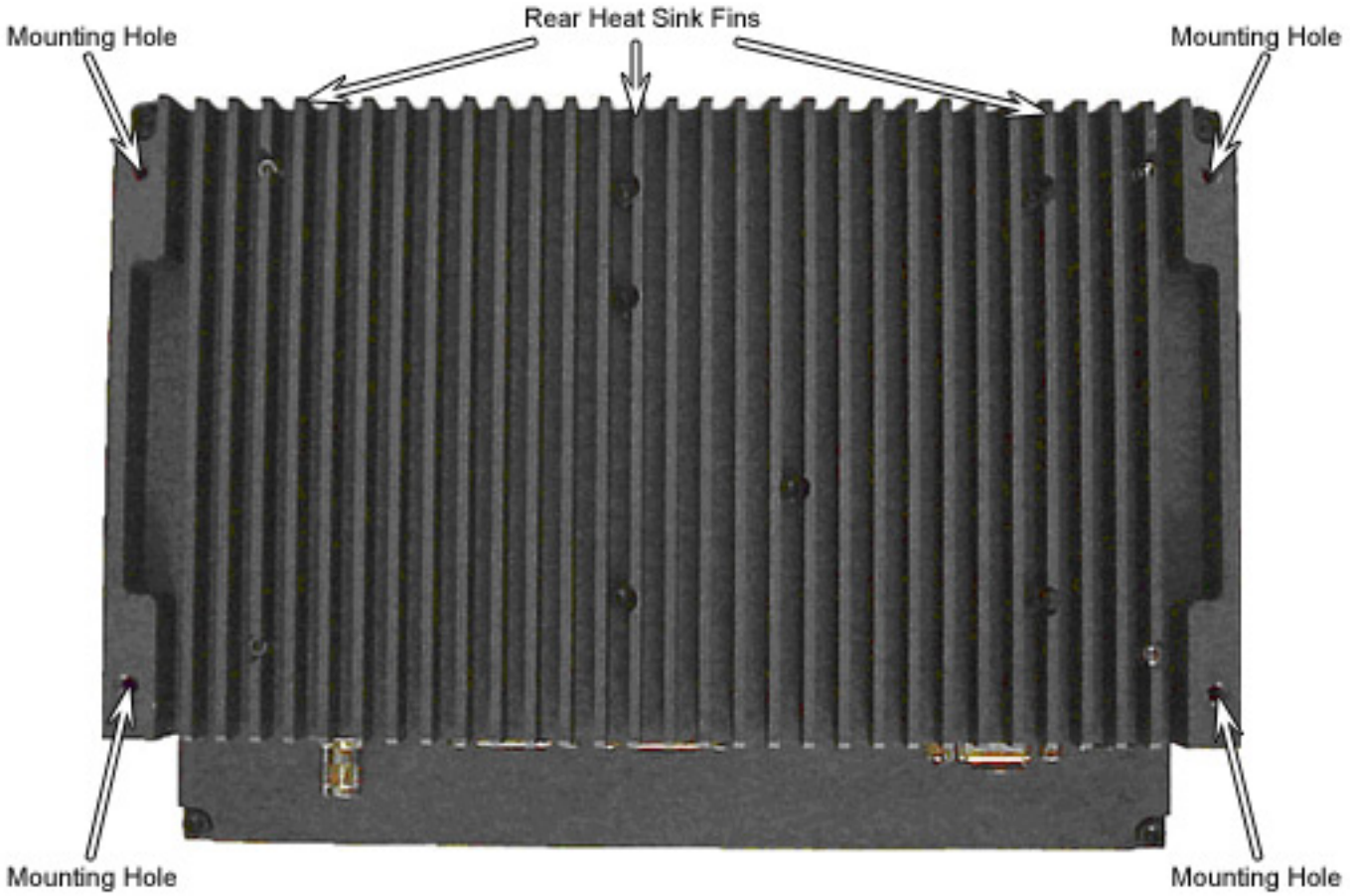
Mounting Hole
Rear Heat Sink Fins
Mounting Hole
Mounting Hole
Mounting Hole

Fig. 6

Model 9300-EC Tuff Rider™
User Manual

140661-400

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