

Foreman PC

Hardware Installation Guide



MODULARTM
Mining Systems

Revision A: October 2002
Part Number 201265

**RESTRICTIVE COVENANT
AND
DISCLAIMER**



**Copyright © 2002 by Modular Mining Systems, Inc.
Tucson, Arizona, U.S.A.
All rights reserved.**

Modular Mining Systems, Inc., makes no representation regarding the fitness, quality, design, condition, capacity, suitability, or performance of the equipment or of the material or workmanship thereof and/or compliance of the system with the requirements of any law or regulations, and disclaims all warranties, either express or implied, including but not limited to any implied warranty of merchantability or fitness for any particular purpose. Modular Mining Systems, Inc., shall not be responsible for any loss or damage to property or injury or death to persons caused by any defect or failure in the system hardware and/or software regardless of the form of action, whether in contract or in tort, including negligence, strict liability, or otherwise. Modular Mining Systems, Inc., is not responsible for any losses, financial or otherwise, that the customer, purchaser, or end user (hereafter, collectively, user) incurs nor shall it be liable for any damages whatsoever (including, without limitation, damages for loss of business or investment profits, business interruption, loss of business information or the like) arising out of the use, interruption in the use of, or performance of the system hardware and/or software. User expressly agrees to indemnify and hold harmless Modular Mining Systems, Inc., from and against all claims, damages, losses, and expenses, including but not limited to: (i) any loss resulting from general or particular requirements of needs of user as defined in user's originating purchase order; (ii) any damages from loss of use, loss of data, loss of profits, or loss of business arising out of or in connection with the performance of system hardware and/or software; (iii) any loss or damage to property or injury or death to persons proximately resulting from system hardware and/or software, even if entirely due in whole or in part to negligent acts or omissions of Modular Mining Systems, Inc.; and (iv) attorney's fees and costs.

The information described in this document is furnished as proprietary information and may not be copied or sold without the written permission of Modular Mining Systems, Inc.

Trademarks

The Modular distinctive font, MasterLink, ProVision, and WebReports are trademarks of Modular Mining Systems, Inc.

The Modular logo, DISPATCH, and IntelliMine are registered U.S. trademarks of Modular Mining Systems, Inc.

All other brand names and product names used in this book are trademarks, registered trademarks, or trade names of their respective holders.

MANDATORY SAFETY INSTRUCTIONS TO INSTALLERS AND USERS

Use only antennas supplied by Modular Mining Systems or dealer.

Antenna Minimum Safe Distance: 20 cm

Antenna Gain: Zero dBd referenced to a dipole.

The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio Frequency) energy which is below the OSHA (Occupational Safety and Health Act) limits.

Antenna Mounting: The antenna supplied by Modular Mining Systems or dealer must not be mounted at a location such that during radio transmission, any person or persons can come closer than the above minimum safe distance to the antenna, i.e. 20cm.

To comply with current FCC RF exposure limits, the antenna must be installed at or exceeding the minimum safe distance shown above, and in accordance with the requirements of the Modular Mining Systems.

1. Mag Mount Roof-top Installation: The Mag mounted antenna assembly should be placed on the roof of the automobile. The 5 foot extension rod should not be modified.
2. Permanent Roof-top Installation: The magnetic base may be removed from the antenna assembly, however, the base of the assembly should be mounted to the top of the automobile so that the antenna is at least 4 feet over the roof. The 5 foot extension rod should not be modified.

Antenna substitution: Do not substitute any antenna for the one supplied or recommended by Modular Mining Systems. You may be exposing person or persons to harmful radio frequency radiation. You may contact Modular Mining Systems for further instructions.

WARNING: Maintain a separation distance from the antenna to person(s) of at least 20cm.

You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying RF Exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational / Controlled Exposure Environment, for work-related use. Transmit only when person(s) are at least the minimum distance from the properly installed, externally mounted antenna.

Contents

About This Manual	v
Audience	v
Chapter Table	v
 1 Introduction	 1-1
What is the Foreman PC?	1-3
 2 Hardware Installation	 2-1
Tools Required	2-3
Overview	2-3
Installing the PC	2-5
Installing the PC Pedestal	2-5
Using a Transmission Hump Assembly	2-6
Using Floor Mount Bracket	2-8
Installing the PC Mount and PC	2-11
Mounting the Electrical Box	2-8
Mounting the GPS Receiver (part of 302184)	2-9
Mounting the RF Antenna	2-10
Connecting Cables	2-12
Connecting the RF Feedline (302255) to the RF Antenna	2-13
Running the RF Antenna and GPS Receiver Cables into the Cab	2-13
Connecting Cable 302188 to PC	2-14
Connecting the PC Power Cable (part of part number 302184)	2-14
Connecting the Electrical Box Power Cable (302203)	2-17
Connecting the Attenuator (105919)	2-18
Connecting the RF Feedline (302255) to Electrical Box	2-20

Appendix A - Drawings and SCDs A-1

Appendix B - Bill of Materials B-1

Appendix C - Installation Kit C-1

About This Manual

Welcome to the *Foreman PC Hardware Installation Guide*. This manual provides step-by-step instructions for installing the IntelliMine Foreman PC hardware.

Audience

This manual is written for mine technicians experienced in installing Modular hardware.

Chapter Table

This manual contains two chapters and three appendixes.

Chapter 1, Introduction, provides an overview of the Foreman PC.

Chapter 2, Hardware Installation, provides step-by-step instructions for installing the PC hardware, including the vehicle-specific mounting pedestal, touch-screen monitor and keyboard, and GPS and RF antennas.

Appendix A, Drawings and SCDs, contains cable drawings and SCDs.

Appendix B, Bill of Materials, contains the BOMs for the hardware installation.

Appendix C, Installation Kit, contains the BOM of the installation kit used to install the Foreman PC system hardware.

Introduction

What is the Foreman PC?1-3



Introduction

What is the Foreman PC?

The IntelliMine Foreman PC is a ruggedized PC installed in the cab of a pickup truck or other designated foreman's vehicle. The Foreman PC provides

- IntelliMine dispatcher and foreman utilities for controlling and monitoring the haulage operation
- MasterLink diagnostic utilities
- IntelliMine maintenance utilities (in mines using the IntelliMine MineCare system)
- Corporate applications, such as mine email.
- Internet Explorer



Figure 1.1 Foreman PC

The Foreman PC runs the Windows 2000 operating system and allows both touch-screen and keyboard operation. It has a Pentium 3 processor (500 Mhz) and a solid state flash disk for high-vibration applications. The PC's chargeguard timer shuts down the computer when the computer is not in use (after a user-defined interval) to protect the vehicle's battery.

For easy installation, the Foreman PC includes a vehicle-specific mounting pedestal. The PC communicates with the IntelliMine system via a 2.4 GHz Cisco 802.11 radio and a one watt RF power amplifier.

2

Hardware Installation

Tools Required	2-3
Overview	2-3
Installing the PC	2-5
Installing the PC Pedestal	2-5
Using a Transmission Hump Assembly	2-6
Using a Floor Mount Bracket	2-8
Installing the PC Mount and PC	2-11
Mounting the Electrical Box (302230)	2-12
Mounting the GPS Receiver (part of 302184)	2-13
Mounting the RF Antenna (302189)	2-14
Connecting Cables	2-16
Connecting the RF Feedline (302255) to the RF Antenna	2-17
Running the RF Antenna and GPS Receiver Cables into the Cab	2-17
Connecting Cable 302188 to PC	2-18
Connecting the PC Power Cable (part of part number 302184)	2-18
Connecting the Electrical Box Power Cable (302203)	2-21
Connecting the Attenuator (105919)	2-22
Connecting the RF Feedline (302255) to Electrical Box.	2-24



Hardware Installation

Tools Required

To install the Foreman PC system hardware, you need to use Modular's hardware installation kit (part number 200602). Tools provided in the kit (see Appendix C) include:

- a 20AWG pin insertion tool
- a 20AWG pin extraction tool
- a coaxial wire stripper
- military pin crimpers
- a drill and bits

Overview

The main hardware components of the Foreman PC system are:

- A ruggedized PC and keyboard mounted on an adjustable PC mount in the cab
- An RF antenna on the cab roof that provides serial communications to the PC
- A GPS receiver/antenna on the cab roof that provides GPS data to the PC
- An electrical box (enclosure) behind the cab seat that, among other things, provides power to the PC and relays information to the PC from the RF antenna

Installing the Foreman PC entails mounting the above components in place and connecting them with cables. The installation also includes connecting the electrical box to an unswitched, continuous 12-volt power source inside the cab or direct to the truck battery.

Figure 2.1 on the following page shows the hardware locations and cable connections. Subsequent sections in this chapter provide step-by-step instructions for installing the hardware and cables.

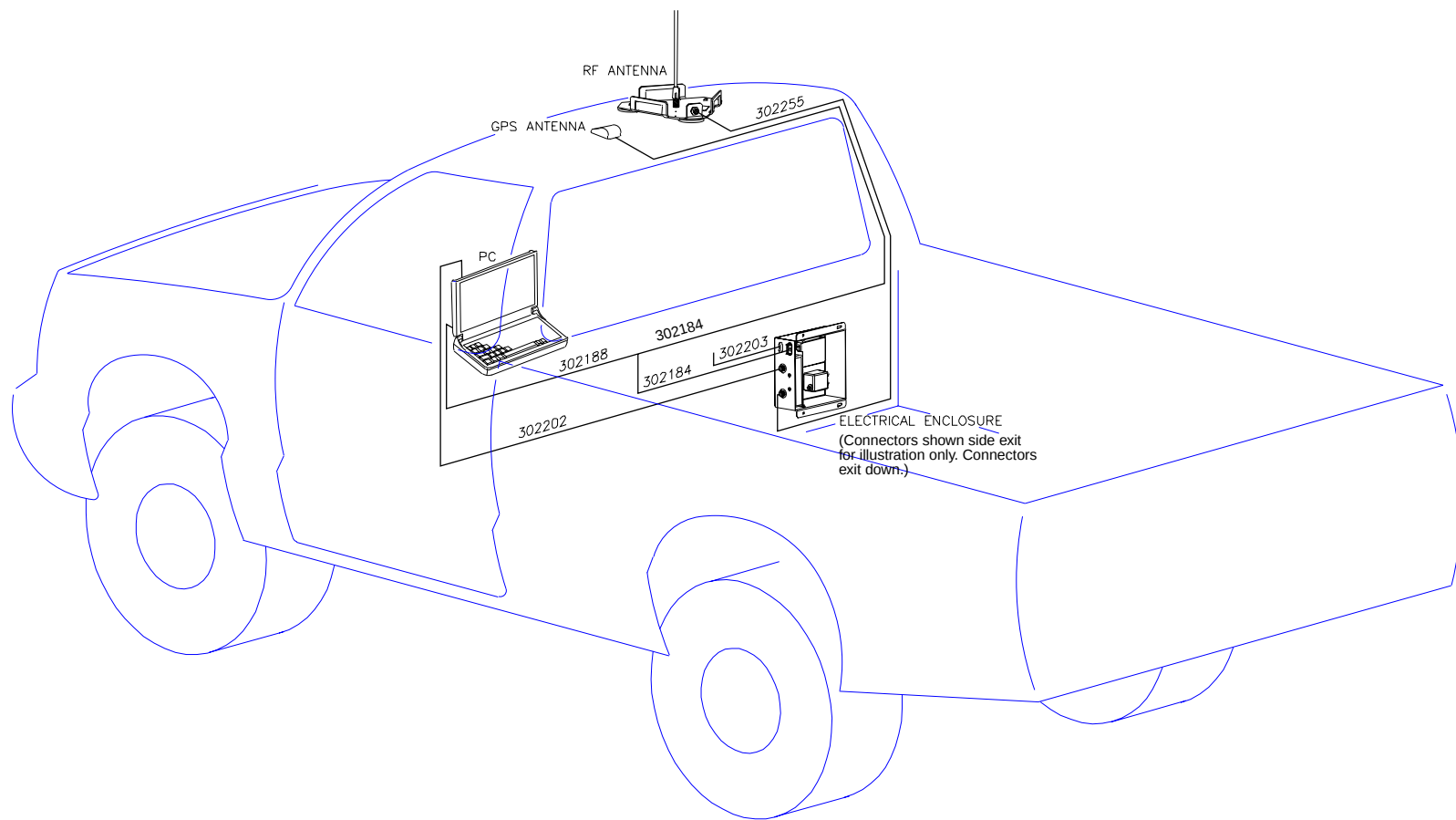


Figure 2.1 Foreman PC Hardware Locations and Cable Connections

Installing the PC

The Foreman PC comes with a vehicle-specific pedestal that serves as a base for the PC. An adjustable PC mount attaches to the pedestal in order to hold the PC in place. The mount swivels and allows virtually any adjustment for optimum positioning of the PC. To connect the adjustable mount to the PC, you install a bracket to the back of the PC and then attach the mount to the bracket.

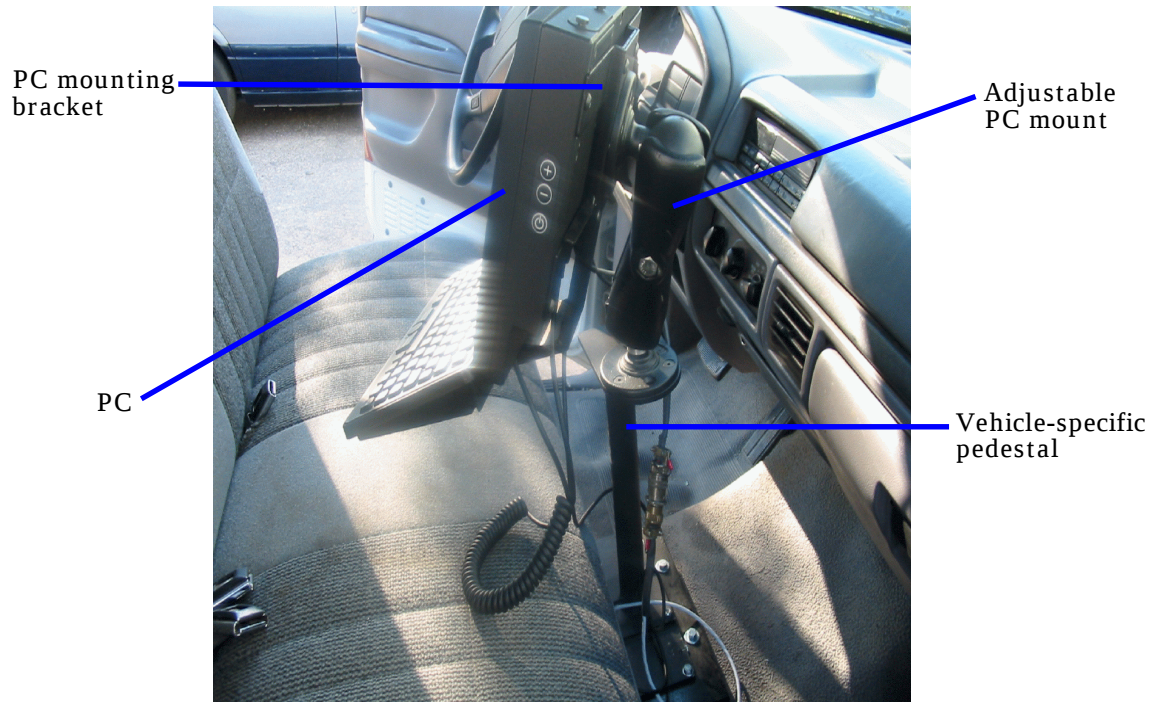


Figure 2.2 PC Installation Overview

Installing the PC comprises the following basic tasks:

- Installing the pedestal
- Installing the PC mount and PC

Installing the PC Pedestal

There are two ways to install the PC pedestal:

- You can mount the pedestal in the cab, using a transmission hump assembly (this is typically for trucks with bench seats)

or

- You can mount the pedestal in the cab, using a floor mount bracket, which attaches to one or two of the seat bolts (this is for Ford F250/F350 series trucks)