Feature Upgrade Setup Card

1. Introduction

Congratulations on your purchase of a feature upgrade for your Workhorse ADCP! These upgrades add additional capabilities to your system. This package includes:

- 1 disk containing the latest Workhorse Firmware Version *XXnnn*.exe (where *XX* = the system type and *nnn* = the firmware version)
- 1 disk containing the feature upgrade *XXnnnnn*.exe (where *XX* is the upgrade abbreviation and *nnnnn* is the ADCP's system serial number)
- Latest version of the WorkHorse Technical Manual documentation CD
- Software and User's Guide CD (see table below)

Table 1. Feature Upgrade Software

Feature Upgrade	Abbreviation	Minimum Firmware Version	Software/Documentation
Bottom Tracking	BT	8.xx or 16.xx	WinRiver or VmDas (user specified)
Shallow Water Bottom Mode	SB	16.19 for WorkHorse ADCPs or version 10.11 for Rio Grande ADCPs	WinRiver
Lowered ADCP (LADCP)	LA	8.xx or 16.xx	LADCP User's Guide
Water Profiling (for Navigators)	WP	9.xx	WinADCP
High-Resolution Water-Profiling mode (modes 5, 8, and 11)	HR	16.19 for WorkHorse ADCPs, version 10.11 for Rio Grande ADCPs, or version 9.xx for Navigator ADCP/DVLs (modes 5 and 8 only)	None
High Ping Rate (mode 12)	HP	16.19 for WorkHorse ADCPs or version 10.11 for Rio Grande ADCPs	None
Waves	WV	16.xx	Waves
River Surveyor ADCP	RG	Version 10.xx Rio Grande ADCPs	WinRiver

For reference, a standard WorkHorse Monitor/Sentinel includes Water Profiling. The system can be upgraded to include Bottom Track, Shallow Water Bottom Mode, Lowered ADCP (LADCP), High-Resolution Water-Profiling modes, High Ping Rate, and Waves.

A standard Navigator ADCP/DVL includes Bottom Track. The system can be upgraded to include Water Profiling and the High-Resolution Water-Profiling modes (modes 5 and 8 only). The following modes are NOT available for Navigator ADCP/DVLs: Waves, Shallow Water Bottom Mode, High Ping Rate, and Lowered ADCP (LADCP).

The Rio Grande ADCP includes Water Profiling, Bottom Track, and the High Resolution Water-Profiling modes. The system can be upgraded to include Shallow Water Bottom Mode and High Ping Rate. The following modes are NOT available for Rio Grande ADCPs: Waves and Lowered ADCP (LADCP).

A standard Long Ranger ADCP includes Water Profiling. The Long Ranger ADCP can be upgraded to include Lowered ADCP (LADCP), High-Resolution Water-Profiling modes, High Ping Rate, and Waves. The following modes are NOT available for Long Ranger ADCPs: Bottom Track and Shallow Water Bottom Mode.

2. Installing the Feature Upgrade

The feature upgrade installation program is used to install Bottom Tracking, Shallow Water Bottom Mode, Lowered ADCP (LADCP), Water Profiling (for Navigators), High-Resolution Water-Profiling mode, High Ping Rate, and Waves capabilities in a Workhorse ADCP.

NOTE. The upgrade disk is specific to the unit for which it was ordered. DO NOT attempt to install this feature for any other unit.

NOTE. Many feature upgrades require the latest firmware version to be installed in your ADCP. If you need to update the firmware, do this before installing the feature upgrade (see Firmware Updates).

a. Set up the Workhorse as shown in the appropriate ADCP User's Guide.

b. Place the feature upgrade disk in the disk drive (usually the "A" drive).

c. Click the Windows **Start** button, and then select **Run**.

d. In the **Open** box, type A:*XXnnnnn*.exe, where *XX* is the upgrade abbreviation (see Table 1) and *nnnnn* is the ADCP's system serial number. The installation program will start (see Figure 1). The program is encoded with the ADCP's CPU serial number and the requested feature upgrade.

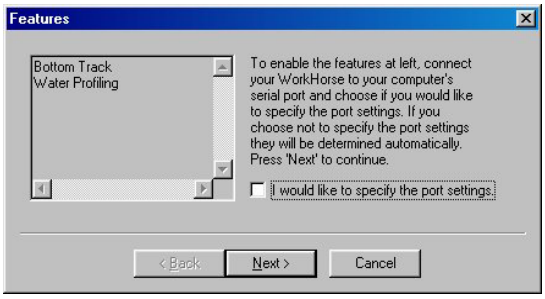

Figure 1. Installing Feature Upgrades

e. To select the port settings, select the **I would like to specify the port setting** box and click **Next**. If you choose not to specify the port settings, they will be determined automatically when you click **Next**.

f. Select the **Serial Port** and **Baud Rate** or wait for the program to identify the settings.

g. Click **Next** to install the feature upgrade. Click **Finish** to exit the program.

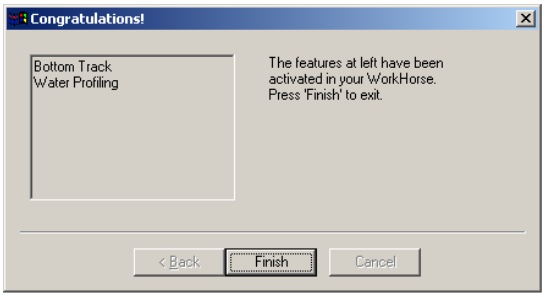

Figure 2. Feature Upgrade Completed

h. Start *BBTalk* and use the OL command to verify the feature upgrade has been installed.

For example, a WorkHorse Monitor/Sentinel OL command printout would look like this after adding the Bottom Track and Shallow Bottom Mode feature upgrades.

```
>ol                              FEATURES
------------------------------------------------------------------------
Feature                                                       Installed
------------------------------------------------------------------------
Bottom Track                                                        Yes
Water Profile                                                       Yes
High Resolution Water Modes                                          No
Lowered ADCP                                                         No
Wave Gauge Acquisition                                               No
Shallow Bottom Mode                                                 Yes
High Rate Pinging                                                    No

See your technical manual or contact RDI for information on how to
install additional capability in your WorkHorse.
```

A WorkHorse Rio Grande OL command printout would look like this after adding the Shallow Water Bottom Mode feature upgrade.

```
>ol                              FEATURES
------------------------------------------------------------------------
Feature                                                       Installed
------------------------------------------------------------------------
Bottom Track                                                         No
Water Profile                                                       Yes
High Resolution Water Modes                                          No
River Surveyor ADCP                                                 Yes
Shallow Bottom Mode                                                 Yes
High Rate Pinging                                                    No

See your technical manual or contact RDI for information on how to
install additional capability in your WorkHorse.
```

NOTE. Enabling **River Surveyor ADCP** is the same as enabling **Bottom Track** and **High Resolution Water Modes**.

3. LADCP Special Notes

The LADCP feature upgrade replaces the water profiling commands (W-commands) with the Lowered ADCP commands (L-commands). When you want to return the ADCP to the water profiling commands, you must reinstall the Water Profiling modes. To do this, do the following steps.

a. Set up the Workhorse as shown in the appropriate ADCP User's Guide.

b. Place the Water Profiling disk in the drive (usually the “A” drive).

c. Click the Windows **Start** button, and then select **Run**.

d. In the **Open** box, type A:WP*xxxxx*.exe, where *xxxxx* is the ADCP’s system serial number. The installation program will start. The program is encoded with the ADCP’s CPU serial number and will install the water profiling modes.

e. Repeat steps “b” through “d” for any other feature upgrade for the system (if needed).

f. Start *BBTalk* and use the OL command to verify the feature upgrade(s) have been installed.

4. Firmware Updates

The firmware for Workhorse ADCPs is located on flash RAM chips on the CPU board. Firmware must be downloaded. To download new firmware, do the following steps.

NOTE. The CPU board must have EEPROM Parts installed to install version 16.xx or higher firmware. The firmware upgrade program checks if the ADCP is capable of upgrading to the new version of firmware.

a. Set up the Workhorse as shown in the appropriate ADCP User's Guide.

b. Start the program *XXnnn*.exe (where *XX* = the system type and *nnn* = the firmware version). Click **Setup**. Click the **View README.TXT** button to view the Readme.txt file for details on what is new in this version of firmware.

c. Click **Next** and follow the on-screen prompts.

d. If you are not able to install the new version of firmware, contact Customer Service and arrange for a CPU board replacement.

e. After successfully upgrading the firmware, use *BBTalk* to test the ADCP.

5. Test the ADCP

BBTalk (included on the RDI Tools CD) will establish communications with the ADCP and run the System Test to make sure the ADCP is functioning properly. If you have questions about *BBTalk* operation, see the *RDI Tools* User's Guide.

a. Connect the ADCP as shown in the appropriate ADCP User's Guide. Place the ADCP in a bucket of water (enough water to cover the transducer head). If the ADCP is not placed in water, some of the tests will fail.

b. Start the *BBTalk* program.

c. Press **<F2>** and run the script file TestWH.txt. The results of the tests will be printed to the screen and saved to the log file WH_RSLTS.txt. The WH_RSLTS.txt file will be created in the same directory that *BBTalk* is running from.

6. How to Contact RD Instruments

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