

WakeboardPro for DBW Engines Graphics Display

User Manual

January 2006

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Section 1 Initial System Start Up

The very first time your PerfectPass is turned on, it may ask you two questions:

1. [**5.7 L / MPI** ^ = **Yes**] If your boat has the standard 5.7L engine, press the UP Key. For the optional Big Block 6 or 8.1 L, Press the DOWN Key.
2. [**Read in MPH** ^ = **Yes**] If you want your system to display in MPH, press the Up Key. For metric, press the Down Key.

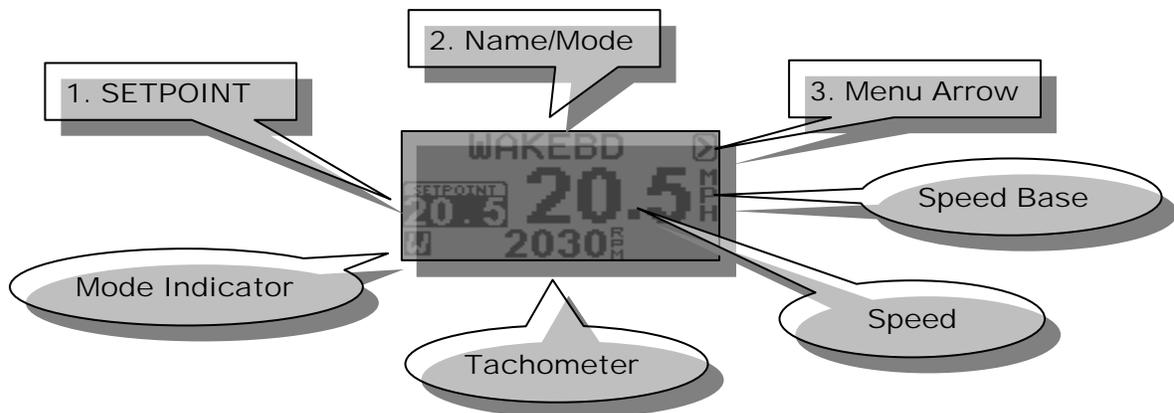
USING WAKEBOARDPRO

There are three operating modes to choose from: (1) **Wakeboard Mode** is speed based and controls from the paddle wheel; (2) **RPM Mode** allows the user to set an RPM value; and (3) **Slalom Mode** allows recreational slalom skiers to enter a speed for open water skiing. (24 – 36 mph).

The ON/OFF key is pressed to turn control ON or OFF. System should always be in OFF mode when not in use. Turning system ON or OFF is always done at neutral or at idle for safety. You may be asked to confirm you are in neutral as follows [**IN NEUTRAL** ^ = **Yes**].

Typically, wakeboarders prefer the pull characteristics of the speed based Wakeboard Mode. This mode is designed for 9 – 25 mph. Open water skiers at higher speeds should use the RPM or Slalom Mode.

Wakeboard Mode (Speed Based)



When system is ON, the screen will appear as above with set point speed at left. By using Menu Key you can move around the screen and highlight set point to make speed changes.

TIP: You can adjust the contrast on your screen by pressing MENU and UP keys together.

Once desired speed has been set, you can simply drive normally and when set point has been reached or exceeded the system will engage and take over automatically. (You will hear an audible beep and “WAKEBD” heading will become highlighted to confirm engagement.

To disengage system, pull back on the throttle.

The key to good driving is to smoothly drive to engagement speed so PerfectPass can seamlessly take control. If you have a heavily laden boat and need full throttle from start, slowly pull back on handle as speed increases to help PerfectPass engage smoothly.

If the rider falls, pull throttle back and system will disengage. Return slowly to rider and pull them back up. PerfectPass will once again engage when set speed is reached.

Menu Arrow  – To move to another mode, use menu key to highlight Menu arrow and press up key to confirm. The following screen will appear with other operating modes you can select.



KDW, NN – These background adjustable settings allow you to tailor the pull characteristics of WakeboardPro. To access, highlight Menu Key , and press up to highlight Wakeboard mode. When Wakeboard is highlighted, press Down Key and the following screen will appear:



KDW (Throttle Pull Rate) – KDW can be changed using up or down keys. The higher the value, the more aggressive the control. Heavy boats may need higher values. Factory setting is about 80. Normal range is 80 – 200.

NN (Paddle wheel Filter Factor) – NN is set at about 120. The higher the value the more filtering is done. If you feel your boat is surging a little too much, raise value by 20 or 30. If you feel the speed is slowly drifting around too much, try a lower value to tighten control.

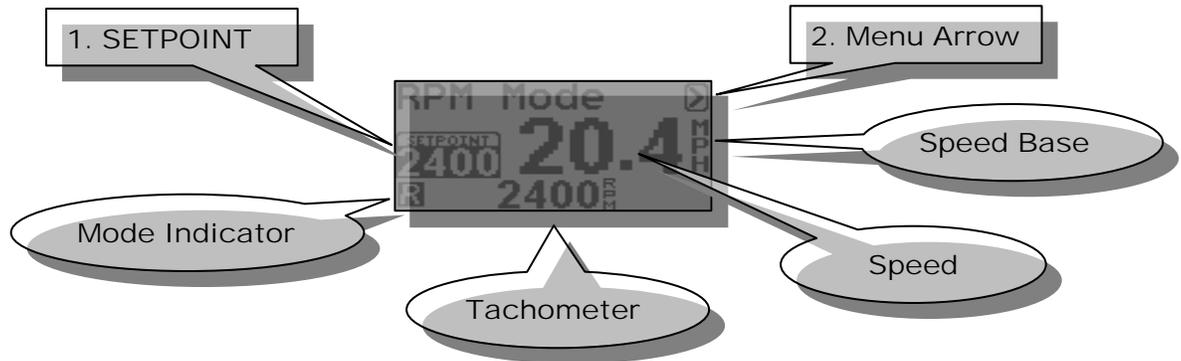
Speedometer Calibration – If you feel PerfectPass is not showing an accurate speed, see calibration details on Page 7.

CS (Control Setting) - This value affects how well your system engages. See Section 5, Page 6 for details.

Section 2 RPM Mode

USING RPM MODE

In this mode, the screen will appear as follows:



Operating in this mode is very similar to using the Wakeboard or Trick modes, except the system is now controlling to an RPM **SETPOINT**.

RPM DRIVING

Prior to towing the rider / skier, select the RPM **SETPOINT** by using the **UP** or **DOWN** keys with the SETPOINT highlighted on the screen. Pull the rider up smoothly and continue to accelerate up to or beyond the RPM **SETPOINT** so the system can engage and take control. The digital tachometer should match the RPM set point.

Changes can be made to the RPM SETPOINT while the system is engaged (“on the fly”) to fine-tune the RPM you desire.



Section 3 Slalom Mode

SIMPLE SLALOM

This Simple mode is for recreational skiing and will provide an excellent, tournament quality pull, however, it is not designed to be as accurate as the tournament class Slalom modes.



This mode allows you to set speeds in 2 mph increments ranging from 24 – 36 mph. It is designed for those wishing to use the system for open water skiing.

(Before calibrating Slalom Mode, you should calibrate at 20 mph in Wakeboard Mode - See Page 7).

Step 1 Calibrate RPM Baseline – Initial calibration of baselines should be done with 2 – 3 people in boat and without a skier. If you set the speed at 34.0 mph, but your digital speed readout shows something different such as 33, simply press the **MENU** key until the  is highlighted then press the **DOWN** key. This can be done on the fly or at the dock. Press the **UP** key several times and the rpm baseline will increase 25 rpm per press. This will increase the rpm on the boat which will increase the actual speed. Adjust the rpm until the actual speed matches the **SETPOINT**. Press the **MENU** key to highlight the  then press the **UP** key to return to the main Simple Slalom screen.



*Baseline Calibration
Screen*

If you are towing skiers, you can change the **SETPOINT** on the fly (i.e. 30 to 32), or you can raise the rpm baseline setting on the fly by going into the BasCal Screen as described above. For example, you have 32 mph set, but because you have five people in the boat, the speed may be running a little slow due to the extra weight. You can adjust the speed by entering the BseCal Screen and raising the rpm baseline until the digital speedometer matches the desired speed.

Section 4 Using Name List

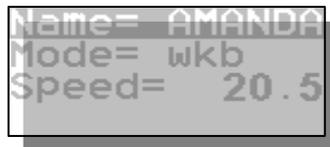
Additional PerfectPass features are accessed by pressing the **MENU & UP** keys together. The features available vary depending on the make and model of your boat. If a feature is not present on your PerfectPass then it is not available on your system. To move to the next feature press the **MENU** key.

NAME LIST

This version of PerfectPass allows you to store up to eight names and their preferred speed. The Name List can be accessed by pressing the **UP** key when the NAME/MODE section is highlighted or by going into the SUBMENU and selecting the Name List. Once in the Name List press the **MENU** key to move through the list. With the desired name highlighted press the **UP** key to select the name from the list and load their settings or press the **DOWN** key to edit the name.



Creating Names – First enter the Quick List. Press the **MENU** key until [NEW ENTRY] is highlighted. Then press the **UP** key to enter a new name. The following screen will then appear:



Scroll through the alphabet using **UP & DOWN** keys, and then press **MENU** to move to next position. Press the **MENU** key to move through the settings. If you are programming a JUMP or SLALOM name there will be another page of settings to enter.

Editing Names – As you scroll through list of names, instead of pressing **UP** key to select that name, press the **DOWN** key to edit.

Note: Names can be changed by “Editing Names” but can only be deleted by performing “System Reset”.

Section 5 Other Features

Press **Menu & Up keys** together to access the following:

Screen Contrast – By pressing up or down keys you can change the contrast level. Range is 0 – 5. Lower values = better visibility in extreme sun. 3 is normal.

Name List – You can get to the name list through this feature, or by highlighting the mode or name on main screen and press up.

System Info – This screen will display software version #, battery voltage, engine selection and water temperature. (Some information not on all boats)

CS & CR (Control Settings)

CS is a control parameter for the Wakeboard speed based modes. This adjustable parameter allows you to tune the engagement of the system so it is ideal for your boat. Heavily weighted boats may need a higher CS to engage and control properly. Factory value on WakeboardPro is about 735.

Example:

1. You are set for 22 mph, but system overshoots and goes to 26 mph before settling back. CS should be lowered. (Try adjustments of 20 at a time).
2. You are set for 23 mph, but boat will not get to 23 mph and engage. CS must be raised to allow for a faster engagement point.

CR is for RPM mode and simple slalom. Factory setting about 1600.

Example:

1. If your system in slalom will not engage at 30 mph, raise CR value.
2. If system overshoots speed to far before engaging, lower the setting.

Throttle Override ON/OFF - Some boats have throttle override capability. This means if you advance the throttle once PerfectPass is engaged, the boat speed will move ahead to where the handle is positioned. For PerfectPass to regain control, you must pull the throttle back to the previous position. Throttle override can be used by expert drivers for “Double Up” manouvers. **For most users, we recommend override be left in OFF position.**

XU – If throttle override is activated on your boat, this allows you to advance the throttle while PerfectPass is engaged and override the system. The value range is 3 – 6, normal is 4. The higher the value, the more aggressive override is once activated. If you use override, you must pull the throttle back to its former position for it to re-take control.

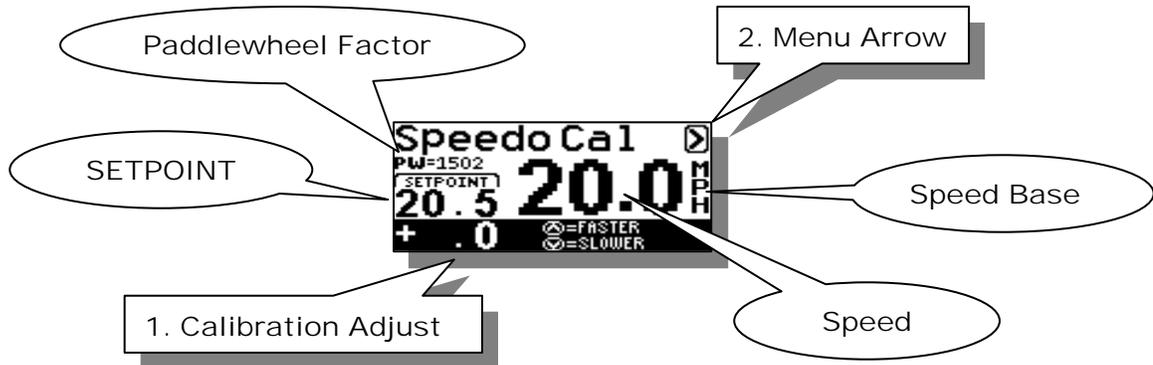
Device Test – Troubleshooting information electronic throttle systems. See Page 10 for details

More Throttle – If you see the # sign flashing in the upper right part of screen, this means the system is running out of manual throttle. Advance the handle forward a little until the # sign disappears.

Section 6

CALIBRATING PERFECTPASS SPEEDOMETER (Wakeboard Mode)

If your digital speedometer is not accurate, you can go into the **Speedo Cal** screen of the system. This is accessed by pressing the **DOWN** key with the  highlighted on the main Wakeboard screen.



We recommend you check and calibrate if necessary at 20 mph.

With the Calibration Adjust highlighted on the screen press either the **UP** or **DOWN** keys to speed or slow the boat.

CASE 1. Boat speedometer reading lower then PerfectPass Speedometer
Press the **UP** key until the boat speedometer matches the PerfectPass speedometer.

CASE 2. Boat speedometer reading higher then PerfectPass Speedometer
Press the **DOWN** key until the boat speedometer matches the PerfectPass speedometer.

When the speed readout matches the boat or reference speed press **MENU** once to highlight the  then press the **UP** arrow to return to main screen.

Example: If you are set and engaged at 17 mph, but the analog speedometer or GPS is reading 18 mph, go into the **Speedo Cal** screen and press the **DOWN** key several times until the boat speed drops to 17 mph so the PerfectPass Digital Speedometer matches the GPS or boat's speedometer.

Paddlewheel Factor – This value is the actual calibration value much like an RPM baseline. This number can be used to quickly determine where the calibration is at when troubleshooting the paddlewheel. This number is also very useful when trying to set calibration to match another system or to reset the calibration after a system **RESET** had been performed.

Section 7 DRIVING TIPS

1. Always pull a rider up smoothly. If you accelerate too far past the target speed, you can gently pull the throttle handle back to assist PerfectPass in taking control. When PerfectPass engages you will hear an audible “beep”. In addition when engaged the mode (or name) will become highlighted.
2. Always leave your hand on the throttle and keep an eye on the lake ahead. Pull back throttle to neutral to stop boat. (The system will immediately disengage and the boat will be under manual control).
3. When returning to a rider in the water, drive very slowly and carefully. Always turn engine off when loading or unloading a rider from platform. Never back a boat up when someone is in water behind.
4. The speed based mode is not designed for skiing & speeds over 25 mph as the control may not be smooth. RPM or Slalom mode is designed for smooth control over 25 mph.
5. “More throttle” If you see the # sign on the screen, this means PerfectPass is running out of control room, press throttle handle slightly ahead until the # disappears.
6. On some systems, you can temporarily over-ride the system by applying more throttle. See override on Page 6.
7. In a turn, the engine may accelerate to maintain speed. If you feel it is too aggressive, simply assist the system by pulling back on the throttle to help the rider. As you exit the turn, slowly advance handle so PerfectPass can properly re-engage.
8. Double-Up – If your boat is heavily loaded and you need more power during this manouver, you can turn control OFF and complete the turn driving manually. As you exit “Double-Up” you can turn control back on.



Software Adjustments

System Reset – To reset the entire system back to original factory values, press & hold ON/OFF & MENU Keys together as you turn key on to power PerfectPass. Continue holding for a few seconds until [System Reset ^ = Yes] appears. Then simply answer questions as they appear.

Switching WakeboardPro <> DigitalPro – If your system was selected incorrectly, perform a system reset. As you proceed through this process, you will be asked [Wakeboard Only ^ = YES]. Answer YES for WakeboardPro, and NO for DigitalPro

Engine Selection – On initial start up or during a system reset, PerfectPass will ask if you have a standard 5.7 litre engine. This will appear as [5.7 / MPI ^ = Yes] This means press UP for 5.7 and DOWN for Big Block 6L or 8.1L.

To confirm if correct engine was selected, press Menu & Up Keys together to get into background screen and go to “**System Settings**”. Following battery voltage, etc you will see which engine was selected. If incorrect, perform a system reset.

(An incorrectly selected engine can cause unsettled control in rpm mode only)

WakeboardPro to/ DigitalPro – The Master Module for both systems are identical. The only difference is in the way they were initialized, i.e. as a DigitalPro or WakeboardPro. You can change the way it was set by performing a system reset.



WARNING
RELEASE OF LIABILITY – ASSUMPTION OF RISK

IMPORTANT
(Detach, sign and mail immediately)

YOU MUST READ THIS!

The PerfectPass Speed Control device is a high performance mechanism designed solely for use with water ski and wakeboard boats operating under ideal, calm conditions utilizing a spotter and all other safety crew and requirements of tournament water skiing. The PerfectPass Speed Control device should not be used for any other purpose or under any other conditions.

YOUR USE OF YOUR PERFECTPASS SPEED CONTROL DEVICE IS CONDITIONAL UPON YOU ASSUMING ALL RISKS, LOSSES AND DANGERS RELATING TO USE OF THIS DEVICE.

Both purchaser and/or anyone utilizing the PerfectPass Speed Control device acknowledges that their purchase and or use of this device is conditional upon them releasing and forever discharging PerfectPass Speed Control Systems Inc., its directors, officers, employees, agents and/or dealers, their heirs, and assigns **from any and all liability for personal injury or property loss** and from any other claims, demands, losses or causes of action, whether occurring prior to, during, or subsequent to or directly or indirectly connected with the use of the PerfectPass Speed Control device, **and whether caused by any persons negligence or otherwise.**

The PerfectPass release of liability, and warranty agreement shall be interpreted in accordance with the laws of the Province of Nova Scotia, Canada, and **IT IS FURTHER AGREED** that any legal proceedings that either directly or indirectly relate to the PerfectPass Speed Control device shall be conducted within the Province of Nova Scotia, Canada, regardless of where arising.

The purchaser hereby agrees to inform any subsequent purchasers or anyone using the PerfectPass Speed Control device, of the conditions of this Release of Liability, Assumption of Risk Agreement. It is agreed that there shall be absolutely no alterations to this agreement whether by implication or otherwise.

Purchaser Signature

Date

Address

Serial Number
(found on Master Control Module)

Name (Please Print)

(Must be signed to affect valid purchase and activate warranty agreement, detach and mail immediately to PerfectPass Control Systems Inc., 14 Trider Crescent, Dartmouth, Nova Scotia, B3B 1R6, Canada).

LIMITED WARRANTY

During the first 12 months from date of original retail purchase, any PerfectPass component that fails due to defects in materials or workmanship will be repaired or replaced at the option of PerfectPass at no charge.

All warranty claims must be authorized in advance and a Return Authorization (R/A #) issued. All packages, correspondence, documents and packing slips must reference this R/A #.

Warranty excludes components damaged by improper installation or improper use of boat. Servo Motors are water resistant, but not water proof. Servo motors may become damaged if excess water is run in a boats bilge and this may void warranty. Ensure your boat is properly “bilged” prior to operating.

Warranty Service:

1. If your PerfectPass was factory installed, any warranty issues should be directed to your authorized dealer. PerfectPass encourages all customers to contact us prior to visiting your dealer for “technical support” as many issues may be easily handled direct with customer.
2. If your PerfectPass was purchased and installed by a dealer you may contact your dealer direct or initiate a warranty claim with PerfectPass.
3. If your PerfectPass was purchased directly from the Company, contact us at the number below.

Warranty Service / Technical Support

PerfectPass Control Systems Inc.
14 Trider Crescent
Dartmouth, Nova Scotia
CANADA B3B 1R6
(902) 468-2150

(Hours: Monday to Friday, 8:00 am – 4:00 pm EST)

