



Laser Leveling Control



304 Machine Control System

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Power up the system

Push the **SELECT** key. You will see a 3 digit software code, followed by a 4 digit elevation. The **SELECT** key is used to cycle through the operating modes.

- Preset
- Survey
- Set Automast
- Activate Automast
- Power Off



Mast Switch

The mast is raised or lowered using the mast up down switch. The travel range varies depending on the length of the mast, but generally the range would be 4 feet



Mast Type

Telescoping:

Tracking



Preset

Push the **SELECT** key until the light next to **preset** illuminates. Use the + key to enter a known elevation or use your own elevation. The + key adds elevation; the – key subtracts elevation numbers. The elevation changes when the mast is raised or lowered. To reset to “0” push the + and – buttons at the same time.



Survey

Push the **SELECT** key until **Survey** is lit. When the unit is in survey mode, the sensor tracks the laser beam and the mast moves accordingly. The panel displays the changing elevations. **Pressing the minus — key will show # of stations and average elevation.**



Set Automast

Push the **SELECT** key and the **Set Automast** LED is lit. You are now ready to enter a reference elevation change. Use the + or – key to input this change. Set any number example +00.10 or a tenth of a foot. We are now ready to **Activate**



Activate Automast

Push the **SELECT** key until the **Activate Automast** LED is lit. Each time the + is pushed, the mast moves one tenth of a foot. Push + and we now have two tenths change. Pushing the – key brings the mast up a tenth; pushing the + key brings the mast down a tenth. This feature is a valuable asset when building a ditch bank, house pads, or leveling large acreage using two transmitters set at different elevations



Menus

To enter the menu section, push & hold the **SELECT** key and push **AUTOBLADE** key. The number on the left blinks and the number on the right, is solid Pushing the + key, changes the menu items. Pushing the **SELECT** key switches to the menu item value. The numbers on the right should now be blinking. Use the + and – keys to change the menu item value



Menu Settings

To test the near grade valve speed, enter menu section (Hold down the select button and push the auto blade button). Push up and down on the blade toggle. If the blade is too fast in either direction-push select until 1 or 2 flashes on left. Push select until #s on right flash and change the speed with plus or minus key. Exit the menu by pushing auto blade.

Near Center speed should be about half normal up down (outside menu setting)

- 0 Sensitivity, refers to center channel filtering. Settings run from 00 to 20. Set by installer
- 1 Valve speed down, down speed near center settings run 00 to 25. Set by installer.
- 2 Valve speed up. Up speed near center 00 to 25.
- 3 Mast speed – this is the up/down speed of the mast 00 to 10, with 10 being the fastest. Any number above 10 removes brake feature
- 4 Elevation units 01 inch, 02 feet, 03 meters, default 02 feet
- 5 Valve type 00 standard, 01 proportional; 10 & 11= Make the Auto Blade key a toggle

Menu 5

00= standard valve. Blade toggle disables Auto Blade
01= proportional valve. Blade toggle disables Auto Blade
10 = standard valve - Auto Blade key disables Auto Blade
11= proportional valve Auto Blade key disables Auto Blade

6 SURVEY TYPE

	00 manual data entry
	01 automatic
	02 continuous Gradeplane
	03 GPS/Laser no Code
Menu 6	04 GPS/Laser L Code
00= + key records elevation	05 GPS/Laser M Code
01= Push + key once drive a distance push + again elevation will be recorded In that interval.	06 Dual 304 Master
	07 Dual 304 Slave
	08 GPS only L Code
	09 GPS only M Code
02= Records elevation every two seconds.	

Use this setting with Gradeplane software

Default 01 Automatic

- 7 Max change for GPS input, gps only
- 8 Blade Speed Gain, GPS only
- 9 Center width, GPS only

To exit the Menu section and save the entries push AUTO-BLADE or BLADE TOGGLE.

Once again, to enter menus, push and hold the **SELECT** key

Grading

Set your blade on a grade hub, move the sensor to center and the green light on panel will light. Hit the **AUTOBLADE** key, the light above **AUTOBLADE** will illuminate, the hydraulics will take over blade control. Hit the **AUTOBLADE** key or **BLADE** toggle again to exit auto control.

Trouble Shooting

There are a number of variables while grading, such as speed, terrain, other lasers on site, all of which can affect the performance of the system. If the blade has a lot of vertical movement, the sensor will continually try to stay on grade. A rapid up could cause the blade to plunge. Another laser on the job could cause the sensor to track that laser. Laser reflecting off a mirrored surface could cause the laser receiver to track that signal. **The laser RPM should be set at MAX**

Trouble Shooting

Problem	Probable Cause	Remedy
Blade speed slow or erratic	Menu item 1 or 2 too low— Laser rpm's too slow	Enter menu section 1 and 2 change values— increase laser rotation speed
Mast speed slow or non responsive	Menu item 3 value set to low	Change value in menu item 3 9 max
Hydraulic do not respond when Autoblade is pushed	JD tractor only	Tractor must be moving at least 1 MPH
No lights on panel	No power or loose cable	Check power source
No signal to receiver	Loose cable . Laser transmitter not functioning - Laser beam obstruction	Check power source to receiver and mast. Check laser transmitter function— Look for beam obstruction.
Erratic vertical movement	Another laser transmitter providing additional signal. Radical elevation changes. Laser beam reflection	Check for other lasers on job site. Slow down in rough terrain. Check for mirrored surfaces

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