

CB30 Dual Control Box User Guide

Introduction

Thank you for choosing the Spectra Precision® Laser CB30 Dual Control Box. The CB30 is used on construction grading machinery to automatically control the blade in earthmoving and grading applications. It is also used on agricultural and land-leveling machinery.

The CB30 works with the Spectra Precision® Laser LR30, LR50, and LR60 receivers. The LR50 and LR60 have internal slope sensors that can be used for blade control on most machines. Please note that the CB30 has to be set up during installation to recognize the internal slope sensors. Elevation and slope can be controlled using at least one receiver.

The LR30 can be used for elevation, elevation offset, and grade matching. The last two applications are limited, however, due to the receiver's limited proportional control capability. The LR30 cannot be used for blade slope control because it does not have an internal slope sensor. For more information about the receivers, please read their user guides.

Before using the control box, be sure to read this user guide carefully. Included in it is information about setting up, using, and maintaining the control box. Also included in this manual are **WARNINGS**, **CAUTIONS**, and **Notes**. Each of these words represents a level of danger or concern. A **WARNING!** indicates a hazard or unsafe practice that could result in serious injury or death. A **CAUTION** indicates a hazard or unsafe practice that could result in minor injury or property damage. A **Note** indicates important information unrelated to safety.

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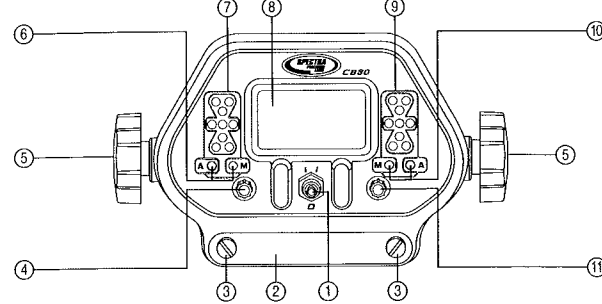
Quick Start (continued)

19. Make passes around the work area. If cuts become too large, rotate the multi-function switches to temporarily raise the on-grade set point. Increase or decrease the amount of cut as needed.
20. To turn off the system, toggle the power/setup switch down to the OFF (O) position. The current settings are retained so that they can be used the next time the system is turned on.
Note: If you make any adjustments to the settings, be sure to wait 30 seconds before turning off the system. Doing so allows the control box to save the new settings.

Controls and Displays

Control Box

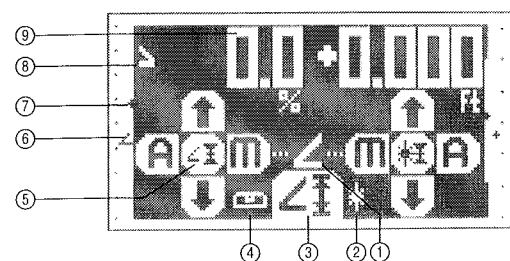
Front View



1. Power/Setup Switch—turns the power on/off. This switch is also used to access the setup menus and Help screens and to change the system's operating mode.

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Single Elevation/Slope Control Mode



1. Slope Direction—shows the direction of the slope after it has been reversed (flipped).
2. Right Control Source—shows whether the right side of the blade is being controlled by a receiver (starburst) or the receiver's internal slope sensor (level bubble).
3. Control Mode—shows whether dual elevation or single elevation/slope is being used to control the right and left sides of the blade.

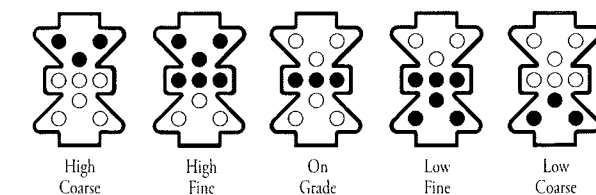
2. Access Panel—contains the rotary dial and DIP switches that are used for factory setup and installation. It also contains a fuse.
3. Access Panel Thumbscrew—securely holds the access panel cover in place.
4. Left Multi-Function Switch—is used to select whether the left side of the blade is being controlled automatically or manually (move left or right), adjust the blade height (move up or down), adjust where the on-grade location is set on the receiver's photocells (rotate clockwise/counterclockwise), and enable elevation and slope matching (press in). This switch is also used to navigate the setup menu.
5. Mounting Knob—securely holds the control box to the mounting bracket.
6. Left Automatic/Manual Mode LEDs—light to show whether the blade is being controlled automatically or manually. The green "A" indicates automatic mode; the amber "M" indicates manual mode.
7. Left Grade LEDs—show grade and lost-beam information for the left side of the blade. The green LEDs light solidly to show that the left side of the blade is on grade; the red LEDs light solidly to show which direction to move the left side of the blade to get it on grade. The red LEDs flash when the receiver is out of the laser beam and show which direction to move the left side of the blade to get the receiver back into the beam.
8. Liquid Crystal Display (LCD)—shows operating and setup information and the system's status. During setup, the menus display.
9. Right Grade LEDs—show grade and lost-beam information for the right side of the blade. The green LEDs light solidly to show that the right side of the blade is on grade; the red LEDs light solidly to show which direction to move the right side of the blade to get it on grade. The red LEDs flash when the receiver is out of the laser beam and show which direction to move the right side of the blade to get the receiver back into the beam.
10. Right Automatic/Manual Mode LEDs—light to show whether the right side of the blade is being controlled automatically or manually. The green "A" indicates automatic mode; the amber "M" indicates manual mode.

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7. Slope Set Point—shows where the zero (0) bench value is set for the receiver's internal slope sensor. At the factory, the internal slope sensor's bench value is set to zero when the internal slope sensor is plumb (perpendicular to true level). The control box allows you to change this set point according to your application needs.
8. Slope Set-Point Direction—shows the direction that the slope angle is pointing.
9. Slope Set-Point Value—identifies how far the receiver's internal slope sensor is tilting in reference to the last horizontal bench. The amount of tilt is measured in percent or degrees.

Grade-Display LEDs

The LEDs show grade information as follows:



Safety

Please follow all operating and safety instructions in this guide and those of your machinery.

WARNING: Do not remove the back panel of the control box. Only authorized service personnel should access it.

WARNING: High-pressure fluid is present in the equipment hydraulic system. Fluids under high pressure are dangerous and can cause serious injury or death. Do not make modifications, repairs, or adjustments to any hydraulic system unless you are certified to do so.

WARNING: Be aware of all overhead obstructions and electrical power lines. The receiver and mast may be higher than the machinery. Remove them when transporting machinery.

WARNING: Equipment may extend beyond the extent of the blade or other implements. Maintain adequate clearance from people and objects when operating the equipment.

WARNING: When working near construction or agricultural machinery, follow all safety precautions as described in the machinery's user guide.

WARNING: When excavating, follow all excavation and trench safety regulations and practices.

WARNING: When leaving the equipment, make certain that the system is in manual mode.

WARNING: When you are not using the equipment, make certain that the blade is on the ground.

CAUTION: At any time, the power switch can be toggled down to the OFF (O) position.

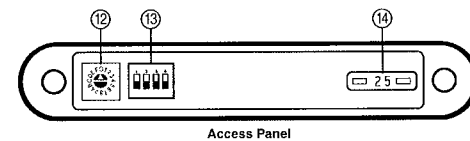
CAUTION: Make sure all equipment is properly installed, the receiver is securely mounted, and all cable connections are tight and secure.

CAUTION: The person responsible for the equipment must make sure that it is used in accordance with the instructions. This person is also accountable for training the people who use the equipment and for the safety of the equipment when in use.

Note: Environmental Limits—the control box is suitable for use in an atmosphere appropriate for human habitation (no protection in an aggressive or explosive environment). The control box can be used in rain for short periods. Refer to specifications for temperature ranges.

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11. Right Multi-Function Switch—is used to select whether the right side of the blade is being controlled automatically or manually (move left or right), adjust the blade height (move up or down), adjust where the on-grade location is set on the receiver's photocells (rotate clockwise/counterclockwise), and enable elevation and slope matching (press in). This switch is also used to navigate the setup menu.



12. Rotary Dial—is used for factory setup. The default setting is "0".
13. DIP Switches—are used for factory setup and installation. The default position for all the switches is down (off).
14. Fuse—is 25 Amps and the same style used in automobiles.

Rear View

15. 7-Socket Connector—provides communication to the receiver.
16. Audio Port—is the opening that the sound comes out of. Rotate the outer housing to adjust the volume.
17. 7-Pin Connector—provides communication for optional remote switches.
18. 10-Socket Connector—provides output for the dual hydraulic valve.

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Operation

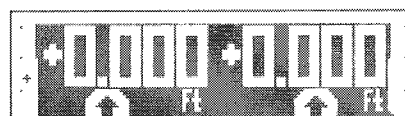
Turning On/Off the Control Box

1. Make sure that all of the components for the grading or earth-moving system are connected.
2. Toggle the power/setup switch up to the ON (I) position.

The control box LEDs and LCD light to confirm power. The control box then checks which system components are present and responds accordingly. If receivers or receivers with internal slope sensors are present, the receivers' LEDs light in rows as a system check. If receivers or receivers with internal slope sensors are not present, a "No Sensors Found" message displays.

If two receivers are connected, an LCD control-mode graphic similar to the one below displays. If one receiver is connected, a single-side graphic displays.

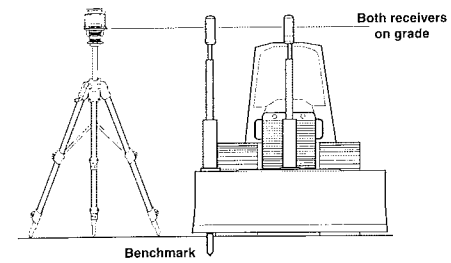
If any receivers or receivers with internal slope sensors are added, the power must be turned off, then on again.



Quick Start

To make sure that the machine is grading to the correct elevation, the blade must be benched over a point with a known elevation relative to the laser beam reference. This point is known as a benchmark. The machine must be benched every time the laser is set up.

WARNING: When leaving the equipment, make certain that the system is in manual mode and the parking brake is engaged.



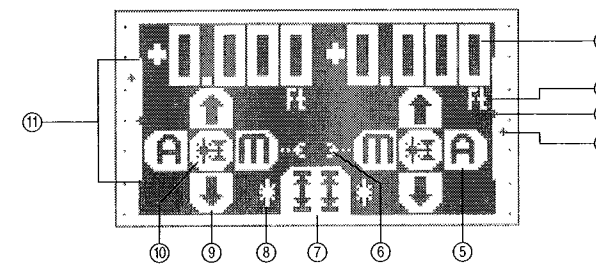
1. Make sure the laser and receivers are set up according to your application needs. Turn on the laser and receiver(s).
2. On the control box, toggle the power/setup switch up to the ON (I) position.
3. Make sure that both multi-function switches are toggled to manual mode (M) so that both sides of the blade are being controlled manually. The manual mode LEDs light to confirm that the system is in manual mode.
4. Make sure that the system is in dual elevation control mode. If it isn't, toggle the power/setup switch up and hold it for 3 seconds until the control mode changes. Release the switch. Repeat this procedure until the dual elevation control mode is selected.

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19. Information Label—provides the product model and serial numbers and cable function symbols.
20. 4-Pin Connector—provides machine power input.

LCD

Dual Elevation Control Mode



1. Reference Elevation—shows the reference elevation that is set for the right and left sides of the blade.
2. Units of Measure—show whether meters, feet, or inches are being used.
3. On-Grade Set Point—shows where on-grade is set on the receiver's photocells. At the factory, on-grade is set in the middle of the photocells. The control box allows you to change this location according to your application needs.
4. Laser Beam Position—shows where the laser beam is striking the photocells on the left and right receivers. If the receiver is raised/lowered to the point that it no longer receives any laser beam information, this position indicator flashes.

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Using Operating and Setup Modes

The CB30 can be switched between two modes: Operating and Setup.

Operating mode is used to operate the system. The display screens for this mode show system configurations, the devices that are connected to the system, switch functions, and additional operating information, such as whether the various systems are linked or unlinked and whether grade information is being provided by receivers or receivers with internal slope sensors.

Setup mode is used for making adjustments to the system, such as LCD brightness and contrast, deadband, valve speed, elevation settings, units of measure, and saving and recalling settings.

Operating Mode

Selecting the Control Modes

The model of the receivers being used determines which control modes are available. Slope-control mode is only available if a receiver with an internal slope sensor is being used. Please note that the CB30 has to be set up during installation to recognize the internal slope sensors.

If two receivers with internal slope sensors are detected, the following three selections are available:

Elevation control for both left and right sides of the blade



5. Place the section of the blade that is directly under the receiver on the benchmark. Make sure you do not disturb the benchmark. If necessary, place the blade next to the benchmark.
Note: For best accuracy, bench the system with the blade in the normal working position. Typically the blade should be on the ground and level with the tracks of the machine.
6. Level cutting edge of the blade using a 4-foot spirit level.
7. Manually move the right mast/receiver up or down until the receiver indicates on-grade. Tighten the mast/receiver. Repeat this procedure for the left mast/receiver.
8. On the control box, press in and hold for 1 second both multi-function switches. Doing so sets the laser-strike position as "on-grade." The elevation value goes to 0.00.
9. Toggle the power/setup switch up and hold it until the setup screen appears (about 1 second). Release the switch.
10. Toggle/rotate either multi-function switch to navigate the setup menu. When the deadband icon is highlighted, press in either multi-function switch.
11. Select the deadband appropriate for your application needs. To exit the setting, toggle either multi-function switch in any direction.
12. Toggle/rotate either multi-function switch until the return icon is highlighted. Press in either multi-function switch to return to the operating mode.
13. Move the machine to the work area. Make sure the receiver is in the laser beam.
14. Toggle both multi-function switches outward so that both sides of the blade are being controlled automatically. The green "A" LEDs confirm that the system is in automatic mode.
15. Grade a small area at the benched elevation.
16. Return the system to manual mode.
17. Get down from the machine and check the grade using a grade rod and laser.
18. Get back on the machine and return the system to automatic mode.

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5. Automatic/Manual Mode—shows whether the right and left multi-function switches are toggled to automatic mode (outward) or manual mode (inward). The right and left automatic/manual mode LEDs also show this information.
6. Linked/Unlinked—lights to show whether various settings are linked (right and left sides of blade act in unison) or unlinked (right and left sides of blade act independently).
7. Control Mode—shows whether dual elevation or single elevation/slope is being used to control the right and left sides of the blade.
8. Control Source—shows whether the right and left sides of the blade are being controlled by a receiver (starburst) or the receiver's internal slope sensor (level bubble).
9. Blade Position—shows whether the right and left multi-function switches are toggled up to raise the blade or toggled down to lower the blade.
10. Multi-Function-Switch Status—shows that a receiver is being used to control the elevation.
11. On-Grade Set Range—shows the limits of where on-grade can be set on the receiver's photocells and the limits that the setting can be adjusted. The size of the set range varies depending on which receiver is being used and which deadband is selected. Smaller deadbands have a larger range. Larger deadbands have a smaller range. The areas above and below the set range are the parameters (outer limits).

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If only one receiver with an internal slope sensor is detected, slope control is available for only one side of the blade—the one opposite of the side that the receiver is mounted. For example, if the receiver is mounted on left side, elevation control is on the left side and slope control is on the right side. If the receiver is mounted on right side, elevation control is on the right side and slope control is on the left side.

1. To change the current control mode, toggle the power/setup switch up and hold it for about 3 seconds until the control mode changes.
2. Release the switch.
3. Repeat this procedure until the desired control mode is selected.

Benching an Internal Slope Sensor


If a receiver with an internal slope sensor is detected, a "Bench Slope Sensor" message displays when the control box is turned on. This message is a reminder to bench the internal slope sensor to the machine. This message clears in about 5 seconds. You can also manually clear it by toggling the power/setup switch up.

At the factory, the receiver's internal slope sensor's bench value is set to zero when the internal slope sensor is plumb (perpendicular to true level). A difference between factory benching and the actual blade slope can occur due to mounting mechanics, mast position, etc. Receivers should always be treated as unbentched sensor prior to starting work.

To bench a receiver's internal slope sensor when it is mounted to a machine:

Seleccting Automatic or Manual Mode

Automatic

- Toggle outward the multi-function switch for the side of the blade that you want to be controlled automatically. When the switch is released, it returns to the neutral position and the corresponding green "A" LED lights to confirm that that side is in automatic mode.
 

Note: When the CB30 receives elevation information from a laser and receiver or slope information from a receiver's internal slope sensor, the control box displays the grade information and sends correction signals to the valve to raise or lower the blade to obtain and maintain on-grade position. If the receiver is not receiving any laser information, the receiver must be moved within the reception range to begin corrections.

Manual

- Toggle inward the multi-function switch for the side of the blade that you want to be controlled manually. When the switch is released, it returns to the neutral position and the corresponding amber "M" LED lights to confirm that that side is in manual mode.

Note: When the CB30 receives elevation information from a laser and receiver or slope information from a receiver's internal slope sensor, the control box displays the grade information but does not send correction signals to the valve.

Raising/Lowering the Blade

The left and right multi-function switches raise/lower the blade.

When the system is being operated in manual mode, the switches act the same as a manual lever. To raise the blade, toggle the switch up. To lower the blade, toggle the switch down. When you release the switch, it returns to the neutral position.

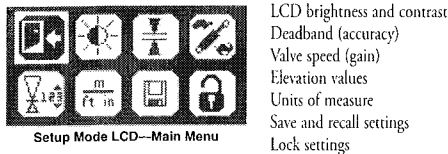
When the system is being operated in automatic mode, toggling the left/right multi-function switch up/down temporarily override the automatic setting and the blade raises/lowers. When you release the switch, the system returns to automatic mode. Both sides can be toggled at once.



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Setup Mode

Setup mode is used to select and change the following settings:



To access the setup mode:

- Toggle the power/setup switch up and hold it until the setup screen appears (about 1 second). Release the switch.
- Toggle/rotate either multi-function switch to navigate the setup menu. When an icon is highlighted, the setting is active.
- When the setting that you want to change is highlighted, press in either multi-function switch to enter the selected setting. To exit the setting, toggle either multi-function switch in any direction.
- To return to the operating mode, toggle/rotate either multi-function switch until the return icon is highlighted. Press in either multi-function switch.

Note: Help screens are available for each setting. To access them, highlight the setting you need help with. Toggle the power/setup switch up to view the help screen. Release the switch to turn off the help screen.

Note: When setting numerical values, rotate the multi-function switch clockwise to increase the value; rotate it counterclockwise to decrease the value.

Note: Numeric values used in this guide are for illustration purposes only.

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Recalling a Setup


- Rotate the right multi-function switch to the setting number or name that you want to recall. Press in the multi-function switch.


Note: A menu asks whether you would like to recall the setting.
- Select "Yes" to recall the stored setting and make it the current one. Select "No" to return to the previous menu.

Note: "Checksum" values appear on the LCD to check copied setups.

Locking/Unlocking Setups

The current settings can be locked so that changes to them cannot be made without unlocking them.

- Toggle/rotate either multi-function switch until the lock icon is highlighted. Press in the multi-function switch.
 

Note: When the setting is locked, the following cannot be changed: deadband, valve speed, elevation and slope matching, elevation values, units of measure, linking, and store and recall settings.
- To unlock the settings, press in the multi-function switch. Each successive press allows you to alternate between locking and unlocking.
 

Adjusting Elevation and Slope

Elevation

The current blade position can be adjusted (raised/lowered) by rotating the multi-function switch for the elevation side of the blade. The elevation display shows the actual elevation change. Rotating the switch clockwise increase the elevation; rotating it counterclockwise decrease the elevation. The range of adjustment is affected by the receiver model, deadband selection, and location of the on-grade set point.

If the system is linked, both sides of the blade change in unison. If the system is in automatic mode, the blade moves as the switch is being rotated. If the system is in manual mode, the blade does not move until the system is put into automatic mode.

As the switch is being rotated, the on-grade set point moves on the LCD and shows its location relative to the on-grade set range. Elevation changes stop when the on-grade set point gets to the parameters (outer limits) of the on-grade set range.

Slope

The current slope can be adjusted (increased/decreased) by rotating the multi-function switch for the slope side of the blade. If the system is in automatic mode, the blade moves to the adjusted slope value. As the switch is being rotated, the slope set-point moves on the LCD.


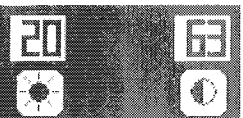
Matching Elevation and Slope

Elevation



If a laser beam is not striking the center of the receiver's photocells, elevation matching allows you to designate this off-center elevation information as being "on grade." The on-grade set range for elevation matching is affected by the receiver being used and the deadband selected.

- Place the blade so that both sides of it lightly touch the ground.
- Make sure that the receiver is receiving a laser strike within the on-grade set range.

Adjusting Brightness/Contrast

- Toggle/rotate either multi-function switch until the brightness icon is highlighted. Press in the multi-function switch. Brightness is on the left side and contrast is on the right.
 
- To change the brightness of the LCD and LEDs, rotate the left multi-function switch. Changes are in increments of 5. The change range is from 5 to 100.
 
- To change the contrast of the LCD, rotate the right multi-function switch. Changes are in increments of 1. The change range is from 45 to 100.

Changing the Deadband

- Toggle/rotate either multi-function switch until the deadband icon is highlighted. Press in the multi-function switch.
 
- If the system is configured without slope during installation, rotate the left or right multi-function switch to change the elevation deadband. The changed value applies to both sides of the blade.
 

Note: For the LR50 and LR60 receivers, the deadband width can be set from 0.0 m to 0.050 m (2.0 in.; 0.170 ft). For the LR30 receiver, the deadband width can be set from 0.0 m to 0.025 m (1.0 in.; 0.085 ft). The resolution for all receivers is in 1 mm (0.05 in.; 0.003 ft) increments.

Specifications*

Grade Display	Green on-grade LEDs Red high/low LEDs
Display	LCD
Operating Voltage	10 Volts to 30 Volts DC, reverse polarity protected
Maximum Current	5 Amps per driver
Electrical Connection	Standard military type
Valve Compatibility	PT, Proportional Time (on/off), PC, Proportional Current, and PV, Proportional Voltage
Receiver Deadband	LR50 and LR60: 0.0 m to 0.050 m (2.0 in.; 0.170 ft) LR30: 0.0 to 0.025 m (1.0 in.; 0.085 ft) Resolution: 1 mm (0.05 in.; 0.003 ft) increments
Slope Set-Point Range	+/- 23° (+/- 44%)
Remote Switch Option	Raise/lower automatic/manual multi-function switch

- Press in and hold for about 1 second the multi-function switch for the elevation side of the blade. Doing so sets that laser-strike position as "on-grade."

Note: A single beep emits when the elevation-matching command is accepted. The control box and receiver LEDs light to show the on-grade position. The elevation value also resets to 0.00.

Note: Two beeps emit when the elevation-matching command is not accepted. This non-acceptance can occur when the elevation information is too close to the parameter (outer limits) of the on-grade set range.
- To reset the elevation to the default center on-grade location, press in and hold for about 5 seconds the multi-function switch for the elevation side of the blade. A second single beep emits when the command is accepted. The on-grade set point moves back to the center position of the receiver. The elevation value resets to 0.00 and the on-grade set point appears in the center of the on-grade set range on the LCD.

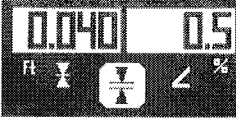
Slope

Slope matching allows you to designate a current slope position as being "on-grade." Although on-grade usually refers to elevation rather than slope, the term's definition is being expanded for ease of explaining this concept.

- Place the blade so that both sides of it lightly touch the ground.
- Make sure that the control box is receiving slope-position information from the receiver's internal slope sensor.
- Press in and hold for about one second the multi-function switch for the slope side of the blade. Doing so sets that slope position as "on-grade."

Note: A single beep emits when the slope-matching command is accepted. Additionally, the on-grade LEDs for the control box and receiver light, and the slope set-point indicator moves to the new slope position. The new slope set-point value, which is relative to the last horizontal bench, displays on the LCD.

Note: Two beeps emit when the slope-matching command is not accepted.

- If the system is configured with slope during installation, rotate the left multi-function switch to change the elevation deadband.
 

- Rotate the right multi-function switch to change the slope deadband.



Note: If an internal slope sensor(s) is not detected, the deadband is not affect when a multi-function switch is rotated.

Note: The maximum slope deadband is 5° or 10%.

Note: The changed value applies to the display deadband only. The default deadband, which is set up during installation and may be smaller, remains unaffected.

Changing the Valve Speed

Field changes to the deadband and valve speed may be necessary due to changes in system variables or jobsite requirements. If the system becomes unstable and causes overreacting between above and below grade, increase the deadband setting or decrease the valve speed.

- Toggle/rotate either multi-function switch until the valve speed icon is highlighted. Press in the multi-function switch.
 
- Rotate the multi-function switch to adjust the valve speed for optimum machine performance.
 

Note: Values are from 0 to 100%. The default setting is 50.

Note: Increase the value to increase the system gain. Decrease the value to decrease the system gain.

Maintenance and Care

Your control box may be placed in a protective carrying case. If the control box is transported from job to job inside a protective case and normal instrument precautions are followed, the control box will provide many years of service.

Do not wipe dust or dirt off the control box with a dry cloth as scratching could occur, possibly damaging these surfaces. Use only a good quality cleaner with a soft cloth on all external components. If these surfaces have hardened concrete or other materials on them, take the system to your Authorized Service Center for cleaning.

Inspect the cables daily to make sure that there is no excessive wear, especially at pivot points. Check for crimps or cuts in the wire insulation.

Self Diagnostics

The control box provides error codes and error messages to help you troubleshoot system problems. When a problem is detected, an error message appears on the LCD. To clear the error, press in a multi-function switch. To reset the drivers, turn the power off then on again.


For more troubleshooting support, contact the service department of your local dealer.

Please record your product information below. This will assist you if there are any questions regarding warranty or service.

Reversing the Slope

⚠ WARNING: When reversing the slope, large, quick movements of the blade can occur. Make sure you have enough clearance around the blade so as not to strike anyone or anything.

The slope function of the control box can be reversed or flipped. This function is useful when the machine is grading a slope in one direction then turns 180° to travel in the opposite direction. For example, a left-to-right increase slope of 2.0% can be reversed to a decreased left-to-right slope of 2% (the maximum slope capability is ± 2.5°). To reverse the slope direction:




- Simultaneously toggle both of the multi-function switches inward to the manual position and hold them for about 3 seconds. The angle icon for the slope set-point direction reverses.

Note: For safety reasons, the system reverts to manual mode if it is currently in automatic mode.
- Toggle the multi-function switches outward to automatic mode to move the blade to the reversed position.


Linking/Unlinking System Functions

Linking allows various system functions to be linked so that the right and left sides of the blade act in unison. This function can only be turned on/off in the dual elevation control mode.




In dual elevation control mode, automatic/manual, blade raise/lower, elevation increase/decrease, elevation matching, and elevation reset are linked for both sides when the link function is activated.

In single elevation/slope control mode, automatic/manual, elevation/slope matching, internal slope sensor benching, and elevation reset are linked when the link function is activated.

- Before linking, establish the elevation of the blade in reference to the laser beam (usually parallel).
 


Changing the Reference Elevation Number

Changes can be made to the reference elevation number for the left and/or right side of the blade. These changes can be made to match a known elevation or elevation value. These changes do not affect the on-grade set points.




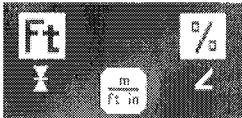
Whether elevation or slope appears on the LCD depends on which control mode that the system is being operated in. Slope cannot be changed. The units for the reference elevation number shown on the LCD depend on the units you've selected.

To change the reference elevation number:

- Toggle/rotate either multi-function switch until the elevation icon is highlighted. Press in the multi-function switch.
 
- Rotate the left multi-function switch to change the number for the left side of the blade.
- Rotate the right multi-function switch to change the number for the right side of the blade.

Changing the Units of Measure

- Toggle/rotate either multi-function switch until the units icon is highlighted. Press in the multi-function switch.
 

Note: If slope was turned off during installation, the slope units of measure may not appear.
- Rotate the left multi-function switch to select the elevation units (m = meters; in = inches; and ft = feet).
 
- Rotate the right multi-function switch to select the slope units (% = percentage of slope; ° = degrees of slope).

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Warranty

Trimble Navigation Limited CB30 control box is warranted to be free of defects in material and workmanship for two years. This warranty period is twenty-four months from the date the product is delivered from the dealer to the purchaser or is put into service by a dealer as a demonstration unit or rental unit. Electric cables and other allied equipment are warranted for ninety (90) days.


Please return the warranty card. Please retain your warranty information and proof of purchase. If a warranty card is not on file, proof of purchase must accompany your request for warranty repair.

Any evidence of abuse, misuse, alteration, accident or negligent use, or attempt to repair products by unauthorized personnel or with part other than those provided by Trimble automatically voids the warranty.

The user of the product is expected to follow all operating instructions and periodically check the instrument and the work as it progresses.

Trimble liability under this warranty is limited to repairing or replacing any product returned to an authorized service center for that purpose. The foregoing states the entire liability of Trimble regarding the purchase and use of its product. Trimble shall not be held responsible for any consequential loss or damage of any kind.

- Select dual elevation control mode.
- Simultaneously toggle both multi-function switches inward and hold for about 3 seconds.

Note: A linked chain icon appears on the LCD to confirm the linking status. The icon also appears if the control mode is switched to single elevation/slope.
- To unlink both sides, make sure that dual elevation control mode is selected.
 

- Simultaneously toggle both multi-function switches inward and hold for about 3 seconds. The unlinked chain icon appears on the LCD to confirm the unlinked status.

Understanding Audio Alerts

An audio port on the rear of the control box housing emits an audible tone (beep) when switches are activated. Rotate the outer housing to adjust the volume.

A single beep emits when a function command is accepted. Two beeps emit when a command is not accepted or the laser beam signal is lost. Three beeps emit when the control box is powering up.

Using Remote Switches

A single remote switch is typically used for lift and tilt applications. Two remote switches are typically used for dual lift applications.

A remote switch is conventionally used for selecting automatic or manual control. It can be configured during installation to operate similarly to the right and left multi-function switches on the control box. Other options include raising/lowering the blade, increasing/decreasing elevation/slope, and matching elevation/slope.


When a remote switch is mounted to the machine, the cable is at the bottom and the control switch faces inward so that your thumb can activate the switch. When the switch is mounted to the machine's blade-control lever, toggling forward (away from you) is automatic and toggling backward (toward you) is manual. If adjusting the blade elevation is available, toggling up raises the blade and toggling down lowers it.


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Storing and Recalling Setups

Storing allows a current system configuration to be kept in memory for later use. Recalling allows you to access a stored system configuration.

Storing a Setup

- Toggle/rotate either multi-function switch until the save icon is highlighted. Press in the multi-function switch.
 

Note: Store is on the left and recall is on the right.
- Rotate the left multi-function switch to the desired number (1 to 4). Press in the multi-function switch.
 

Note: A menu asks whether you would like to store the setting.
- Select "Yes" to store the setting, or select "No" to return to the previous menu.

Note: If "Yes" is selected, a new name can be entered for the stored setting.
- To enter a new name, rotate the multi-function switch to scroll through and stop on the desired character. If a mistake is made, toggle the multi-function switch to the left to scroll through the characters and enter the correct one.
- To move to the next character in the name, toggle the multi-function switch to the right.
- Continue this process until the name is entered. Up to seven characters may be entered.
- When the name is completely entered, press in either multi-function switch.

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Notice to Our European Union Customers

For product recycling instructions and more information, please go to: www.trimble.com/environment/summary.html

Recycling in Europe

To recycle Trimble WEEE, call: +31 497 53 2430, and ask for the "WEEE associate," or mail a request for recycling instructions to:
Trimble Europe BV
c/o Menlo Worldwide Logistics
Meerheide 45
5521 DZ Eersel, NL

