

CB52 Dual Control Box
Automatic Laser Machine Control

Automatic blade control improves finishing operations by increasing accuracy and optimizing efficiency. This results in fewer machine passes saving time and fuel. Additional profits are generated by material savings, reduced labor, and less downtime waiting for grade checks. If you have finish grading work, the affordable TORNADO F2 system has a quick return on investment.

The CB52 Dual Control Box takes the TORNADO automatic blade control system to the next level - F2. The dual system is designed to simultaneously control the lift and tilt of a dozer blade or two independent lift sides for a grader blade type arrangement.

F2 systems can be used on a wide range of machines. Flexibility and ruggedness were designed into the systems. Skid steer attachments ranging from dozer blades, box blades and grader attachments as well as bulldozers and tractors with grading implements can be automated. Applications include building pads, house pads, and sports fields.

The CB52 Control Box typically mounts in the cab of the machine and works in conjunction with BULLSEYE® laser receivers to automatically control construction or agricultural grading machinery for earthmoving and grading applications. Reference elevation from a rotating laser is received by the BULLSEYE receivers and sent to the control box. This information is processed and directs the hydraulic valves to maintain the blade on-grade.

The system offers true proportional control for fast, smooth, and accurate operation and works with proportional time (PT), proportional current (PC) and proportional voltage (PV) valves.



The control box consists of three main areas - an LCD, three switches, and an LED array on each side.

Liquid Crystal Display

The large easy to read LCD displays system information when in the operating mode. Machine configuration, reference elevation numbers and control sources are all instantly visible at a glance.

On-grade location, current laser strike location and grade matching reception range are visible in the sensor position window giving a quick assessment of adjustment options.

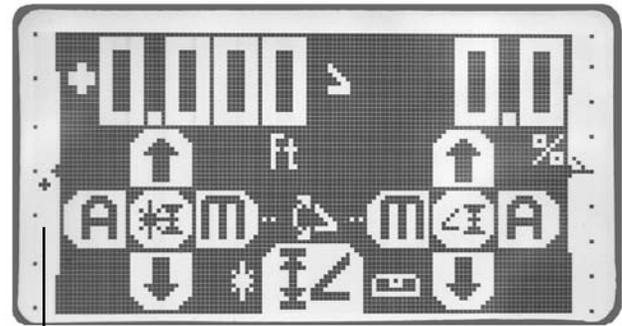
Settings for the deadband (accuracy) and hydraulic speed (gain) are adjustable in the user setup menu. Reference elevation, units of measure, and screen brightness and contrast can also be selected or adjusted by the operator. Setups for four different applications or machines can be stored and recalled.

Switches

The main power switch is located in the front center of the box. This toggle switch is used to access the user setup mode and the operating mode. It is also used to bring up help screens and other information.

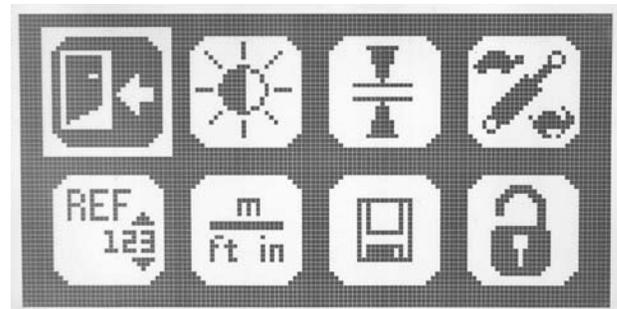
Automatic / manual selection and raise / lower functions for each side are combined into one multi-switch for ease of operation. These multi-switches also control grade matching, centering/resetting the laser strike location, and dialing in numeric adjustments to the receivers. The same multi-switch is typically used on the optional remote switch.

Operating Mode

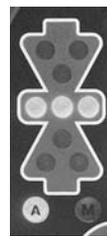


Sensor position window

User Setup Menu



LED's:



A 9-light LED array on each side of the main LCD screen indicates on-grade with a green bar and direction to grade with red arrows.

Automatic or manual LED's are located just below the grade LED's and are visible at a glance giving current selection.

Slope Control:

When combined with BULLSEYE 5+ or 6 receivers, the CB52 can control both the lift and slope of a blade with one receiver. The internal slope sensors in the receivers are used as the slope control source. Although not as fast responding as a second receiver, it does offer an economical single receiver solution.

Cross Coupling:

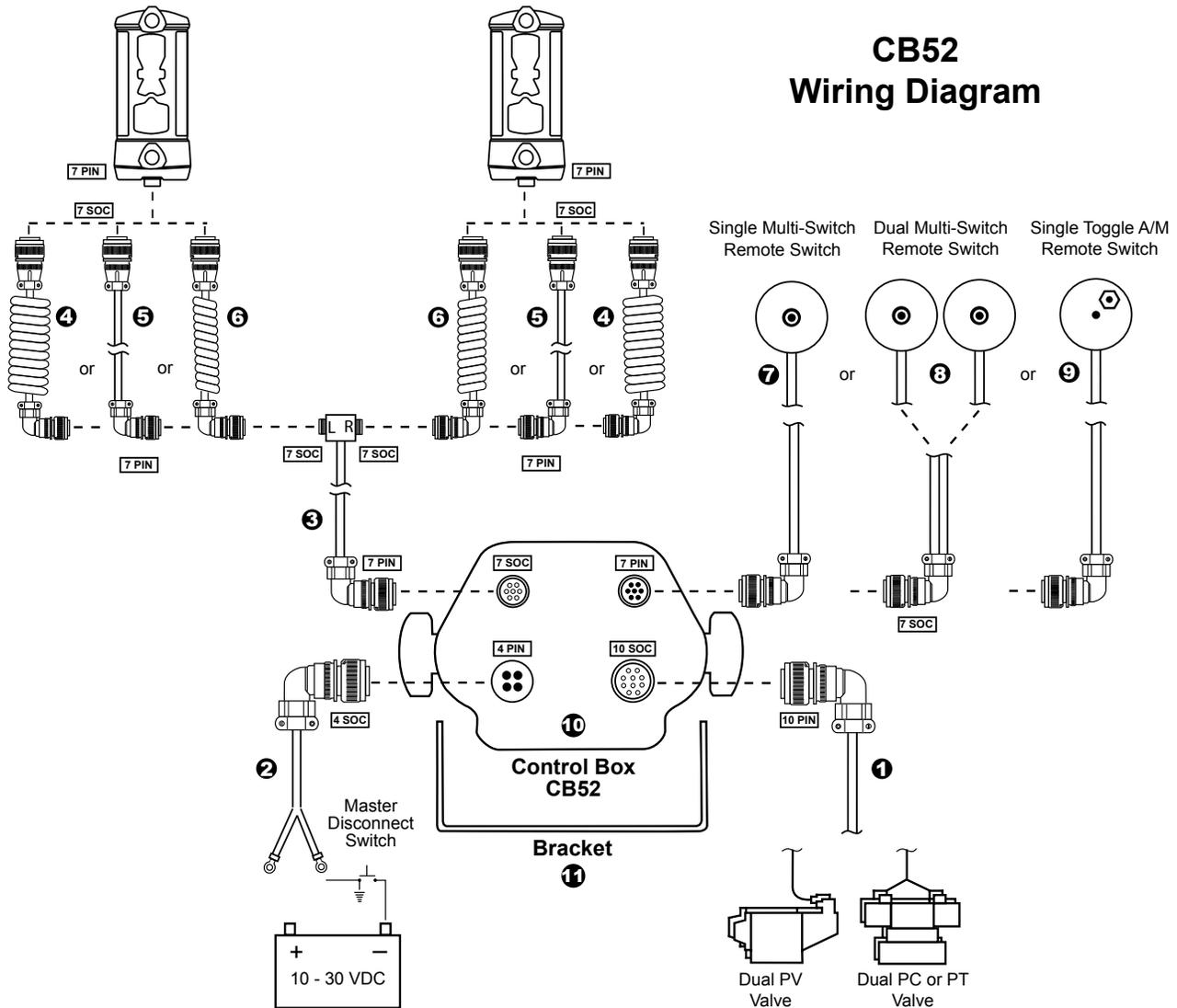
In addition to advanced processing technology, the CB52 features Cross Coupling Compensation. This feature actively anticipates blade movement and stabilizes the blade reducing "duckwalking" errors commonly associated with other systems.



BULLSEYE
5+, 5MC, 6

BULLSEYE
5+, 5MC, 6

CB52 Wiring Diagram



Item	Part No.	Description
1	ATI-026044-XX	Dual PT/PC/PV Valve Cable
2	ATI-024012-XX	Power Cable
3	ATI-010907-XX	Dual Receiver Cable w/ Junction Block
4	ATI-026047	Large Receiver Coil Cord, CB52, 4-16 ft (1.2 - 4.9 m)
5	ATI-010980-XX	Straight Receiver Cable, CB52
6	ATI-026045	Small Receiver Coil Cord, CB52, 3-12 ft (0.9 - 3.7 m)
7	ATI-010904-XX	Single Remote Multi-Switch Cable, CB52
8	ATI-010938-XX	Dual Remote Multi-Switch Cable, CB52
9	ATI-011012-XX	Single Remote A/M Toggle Switch
10	ATI-995200-02	CB52 Control Box, Red
10	ATI-995200-09	CB52 Control Box, Yellow
11	ATI-950054	Bracket for Control Box
Not Shown	ATI-026026-XX	Straight Cable Extension
	ATI-010975	Coil Cord Extension 3-12 ft (0.9 - 3.7 m)

Cable part numbers are configured that the dash number (-XX) indicates the cut cable length in feet. Cables are typically stocked in 5 foot increments.

CB52 Dual Control Box
Automatic Laser Machine Control



BULLSEYE 5+



BULLSEYE 5MC



BULLSEYE 6

CB52 Specifications:

Accuracy Settings	0 - 2 inches (0 - 50 mm)
Display	LCD
Grade Display	On-Grade LED's Green High / Low LED's Red
Operating Voltage	10 to 30 Volts DC reverse polarity protected
Electrical Connection	Standard military type
Valve Compatibility	PT, Proportional Time (On/Off) PC, Proportional Current PV, Proportional Voltage
Maximum Current	5 Amps per driver
Weight	5 lbs. (2.25 kg)
Dimensions	7.0 x 5.3 x 4.8 in. (178 x 134 x 120 mm)
Operating Temperature	-4° F to 140° F (-20° C to +60° C)

**Specifications subject to change without notice*

Compatibility:

The CB52 Control Box is compatible with BULLSEYE Laser Receivers. BULLSEYE receivers are highly flexible, extremely rugged and can be used on a wide range of machines, including dozers, backhoes, scrapers, skid steers and excavators.

Full capabilities, including slope control, can be obtained using the BULLSEYE 5+ or 6. The BULLSEYE 5MC is an economical choice if it will only be used for automatic control.

The BULLSEYE 5+, 5MC, and 6 feature full proportional control for high precision grading.

The control box in conjunction with BULLSEYE 3+ will yield limited functionality and is mainly reserved for use on slower moving, agricultural equipment.



© Apache Technologies, Inc. P/N CB52PIR1 10/07
Made in USA



8261 State Route 235, Dayton, OH 45424
Phone: (937) 482-0200 Fax: (937) 482-0030
Toll Free 1-888-272-2433
www.apache-laser.com