Recharging the Batteries (cont.)
1. Plug the battery recharger's plug into the laser's battery recharging jack.
2. Plug the battery recharger into the wall outlet.

Setting Up and Leveling the Laser
1. Set up a tripod to the height appropriate for your application needs.
2. Insert the 5/8-11 tripod screw into the laser's 5/8-11 threaded insert.
3. Turn the screw to hold the laser securely in place.
4. Press the power button.

Checking Calibration
To check the horizontal calibration, you’ll need a tripod with a 5/8-11 threaded mount, hand-held receiver, and a nail (1/16 in. or 1.5 mm) diameter pin or small nail. If you need to adjust the calibration, having another person to help saves time.
1. Set up and level the laser 100 ft (30 m) from a wall.
2. Raise/lower the receiver until you get an on-grade reading for the +Y axis. Using the on-grade marking notch as a reference, make a mark on the wall.
3. Rotate the laser 180° (+Y axis toward the wall) and re-level the laser.
4. Raise/lower the receiver until you get an on-grade reading for the +Y axis. Using the on-grade marking notch as a reference, make a mark on the wall.
5. Measure the difference between the two marks. If they differ more than 1/8 inch at 100 feet (3.0 mm at 30 m), the laser needs calibrating.
6. To correct for a calibration error, position the receiver at the midpoint of the two elevation marks on the wall.
7. After adjusting the Y axis, rotate the laser 90°. Repeat steps 2-7 above.

Features and Functions
1. Power Button — turns the laser on/off.
2. Handle — allows you to carry the laser easily.
3. Battery Housing — holds four D-cell alkaline or Ni-Cd batteries.
4. Battery-Recharging Jack — the port that an optional battery recharger plugs into.
5. Low-Battery LED — flashes when the batteries need replacing or recharging.
6. Rotating Prism — spins at 600 rpm to transmit the laser signal.
8. Leveling Screws — turn clockwise/counterclockwise so the laser can be leveled.
9. Leveling Base — supports the laser while it’s on the tripod. The leveling base also allows you to use the laser freestanding.
10. Lighthouse — is a 360° exit window for the laser beam. The lighthouse is sealed and protects the internal components from the environment.
11. Out-of-Level LED — flashes when the laser is out of its self-leveling range.
12. X Axis Calibration Screw — allows the X axis of the laser to be adjusted so that the laser beam is level.
13. Y Axis Calibration Screw — allows the Y axis of the laser to be adjusted so that the laser beam is level.
14. 5/8-11 Tripod Mount — allows the laser to be attached to a standard 5/8-11 construction tripod.

How to Use the Laser System
Batteries
Installing/Removing the Batteries
1. Turn the battery-housing thumbs in, both thumbs out, the bubble follows the left thumb.
2. Install/remove the batteries.
3. Put the battery housing in place and reinstall the screws.

Determining the Height of Instrument (HI)
The HI is determined by adding the grade-rod reading to a benchmark or known elevation.
1. Set up and level the laser.
2. Attach the receiver to a grade rod and turn on the receiver.
3. Place the grade rod on a job-site benchmark (BM) or known elevation.
4. Slide the receiver up/down the grade rod until the LCD shows an on-grade reading.
5. Add the grade-rod reading to the benchmark to determine the height of instrument.
6. Use this HI as a reference for all other elevations.

Note: If additional adjustment is required, repeat steps 2-7 above.

Note: When installing the batteries, be sure to note the positive (+) and negative (−) diagram inside the housing.

Note: Recharge the batteries whenever they are put into storage or before use. More frequent recharging may be needed if you use the laser for long periods during the day or in colder climates.

Note: Do not recharge alkaline batteries. If you try to recharge them they do not damage the laser but doing so might blow the battery-protection fuse in the laser pack.

Example: Benchmark elevation = 100.23 ft (30.55 m)
On-grade rod reading = +4.34 ft (1.32 m)

Height of instrument = HI = 104.57 ft (31.87 m)
Maintenance and Care
You will get years of service from the leveling system by following the maintenance and care recommendations in this manual. Carry the laser in its moisture-resistant, field-tested carrying case to safely move the laser from one job to another. However, well the product is designed, mishaps do occur. The most common problems associated with these are covered in the following areas.

Storage
CAUTION: Do not store the laser in a wet carrying case. If the case gets wet, open it and let it dry before storing the laser.

Battery Disposal
Some states and local areas have regulations regarding the disposal of rechargeable batteries. Be sure that replaced batteries are disposed of properly.

System Cleaning
Use only a good-quality glass cleaner and a soft cloth to clean all external optical components. A dry cloth used on the laser exit windows may scratch or damage the glass surfaces. Monthly, wipe off with a moist, cloth any dust or dirt from the laser’s outer surface, inside the battery housing, and within the leveling base. Blow off any loose debris before cleaning any surfaces to prevent scratching of optical surfaces.

Request for Service
Our goal is to provide prompt and efficient service through competent service centers. Before returning your system for repair, be sure to do the following:

1. Put a note into the package identifying yourself as the owner.
2. Explain the operating difficulty.
3. Include a return address and phone number.
4. If the laser is in warranty, provide verification of the date of purchase.
5. Pack the equipment securely for shipment in its original carrying case.
6. Return the equipment prepaid and insured to your local dealer or authorized Trimble Service Center.
7. Request estimate of charges for non-warranty or other service work before repair begins. If estimates are not requested, repair work will begin immediately.

All certified outlets have factory-trained personnel and use authorized replacement parts to ensure proper and quick return. For long-distance shipments, UPS, 2nd-Day Air, or air freight is recommended.

Except for one-way transportation charges, there will be no charge for problems caused by defective materials and/or workmanship under warranty.

To locate your local dealer or authorized Trimble Service Center worldwide for service, accessories, or spare parts, contact one of our offices listed below.

Labels required for this product:

EMC Declaration of Conformity
This laser has been tested and found to comply with the limits for a Class B digital device for radio noise for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communication, and is pursuant to part 15 of the Federal Communication Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This laser generates radio frequency. If it’s not used in accordance with the instructions, it may cause harmful interference to radio or television reception. Such interference can be determined by turning the laser off and on. You are encouraged to try eliminating the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the laser and the receiver.

For more information, consult your dealer or an experienced radio/television technician.

CAUTION: Changes or modifications to the laser that are not expressly approved by Trimble could void authority to use the equipment.

Troubleshooting
if none of the following techniques corrects the problem, take your system to a local Trimble dealer or authorized service center for evaluation or repair.

Problem
Solution

Laser will not operate
• Press power button.
• Check or replace batteries.
• Make sure the battery contacts are clean.
• Make sure the battery housing is securely in place.
• Return the laser to an authorized service center for inspection.

Laser out-of-level indicator does not shut off
• Make sure the laser setup is stable.
• Make sure the leveling screws are free to turn.
• Re-level the laser and make sure the bubble is centered in bull’s-eye level vial.
• Return the laser to an authorized service center for inspection.

Laser not accurate
• Check and adjust the laser’s calibration as needed.
• Return the laser to an authorized service center for inspection.

Low-battery LED is flashing
• Replace or recharge the batteries.

The laser levels, the rotating prism turns but the laser beam does not come on
• Return the laser to an authorized service center for inspection.

The receiver does not detect the laser beam at long range
• Clean the lighthouse and recheck the receiver distance.
• Return the laser to an authorized service center for inspection.

Batteries do not charge
Make sure the laser is not equipped with alkaline batteries.
• Make sure the Ni-Cd batteries are correctly installed.
• Replace the Ni-Cd batteries with new ones.
• Replace the recharger.

Specifications

Laser
Laser Type/Classification 670 nm visible, Class II
Self-Leveling Range ±11 arc minutes
Horizontal Accuracy ±10 arc seconds over temperature <13/16 in. per 100 ft (+±1.5 mm per 30 m)
Power Source 4 D-cell alkaline/NiMH/Ni-Cd (4.4 Ah) batteries
Battery Life (68 °F / 20 °C) Alkaline/NiMH: 80 hours Ni-Cd: 27 hours
Operating Diameter 1600 ft (500 m)
Operating Temperature −4 °F to 122 °F [−20 °C to 50 °C]

Label:(s)
Manufacturer’s Name: Trimble Navigation Limited
Manufacturer’s Address: 5475 Kellenburger Road Dayton, Ohio 45424-1099 U.S.A.
European Representative Address: Trimble GmbH
Am Prise Parc 11
65479 Raunheim, Germany
Model Number(s): L500
Conformance to Directive(s): EC Directive 89/336/EEC using ENS0502 and ENS0082-1
Equipment Type/Environment: ITE/residential, commercial & light industrial
Product Standards:
Product meets the limits B and methods of IEC 801-2, 8 kV air, 4 kV contact IEC 801-3, 3 kV/d 26 to 3000 MHz 80%=1 k Hz IEC 801-4, ac 10 kV 2 kV

Warranty

Trimble warrants the LL500 laser to be free of defects in material and workmanship for a period of five years. This warranty period is in effect from the date the system is delivered by Trimble or its authorized Dealer to the purchaser, or is put into service by a Dealer as a demonstrator or rental unit.

Additionally, items covered by the standard Trimble one-year warranty are the accessories. All other components not manufactured by Trimble but sold as a part of the system such as tripods and grade rods, will carry a 90-day warranty or the manufacturer’s warranty, whichever is greater. Trimble or its Authorized Service Center will repair or replace, at its option, any defective part of components of which notice has been given during the warranty period. Travel and per diem expenses, if required, to and from the place where repairs are made will be charged to the purchaser at the prevailing rates.

Customers should send products to the nearest Authorized Factory Service Center for warranty repairs, freight prepaid. In countries with Trimble Service Subsidiary offices listed below, the repaired products will be returned to the customer, freight prepaid. Any evidence of negligence, abnormal use, accident, or any attempt to repair equipment by other than factory-authorized personnel Trimble certified or recommended parts, automatically voids the warranty.

Special precautions have been taken to prevent the calibration of the laser; however, calibration is not covered by this warranty. Maintenance of the calibration is the responsibility of the user.

To the foregoing states the entire liability of Trimble regarding the purchase and use of its equipment. Trimble will not be held responsible for any consequential loss or damage of any kind.

This warranty is in lieu of all other warranties, except as set forth above, including an implied warranty merchantability of fitness for a particular purpose, is hereby disclaimed. This warranty is in lieu of all other warranties, expressed or implied.