

LaserLine Manufacturing, Inc.

T-2000SD
OWNER'S MANUAL
Long Range Alignment Laser



L LASERLINE MFG., INC.

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T-2000SD OWNER'S MANUAL

Long Range Alignment Laser

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PRODUCT DESCRIPTION

The T-2000SD was designed for long range alignment applications. The T-2000SD is a modular or “building block” design that allows the laser to be upgraded from its basic form. This enables the contractor to configure the laser based on the specific application and job site needs.

FEATURES

Highly visible 5mw Laser Diode with round spot

Stable, rugged base with heavy duty tapered bearings

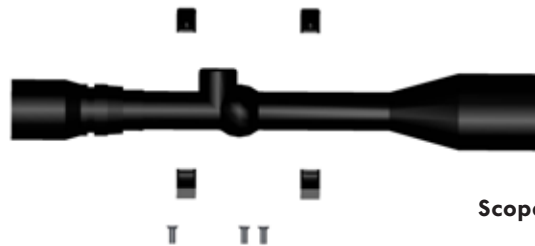
Smooth, precise 80 pitch horizontal and vertical tangents

Laser spot is fixed focused to infinity from maximum range without the need to frequently adjust the focus

Stable and Accurate performance

Modular design allows you to build up or down to your specific needs

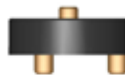
Field friendly, easy to use



Scope Package 2000-0625



Fan Lens 2000-0035



Tribrach Adaptor 2000-0620



**Tribrach with Optical Plummet
2000-0630**

LASER SAFETY (CONTINUED)

The T-2000SD Series Laser is a Class IIIa Laser Product generating less than 5 milliwatts of Laser Light. Class IIIa Lasers are used every day in construction and alignment applications. With every use, eye safety is a consideration.

The Operators of the laser are effectively the "Safety Persons", and should think of themselves as the person responsible for preventing accidents and unwanted exposure.

SAFETY CONSIDERATIONS:

Class IIIa Lasers are bright lights that can or may be aimed. Be aware of people and your surroundings.

Therefore, think of the laser as the sun, something you do not stare back into. Do not look at the laser through optical devices, or look at it reflected off of shiny surfaces such as chrome, glass or mirrors.

CAUTION! The use of optical instruments with this product will increase eye hazard.

Viewing the laser beam or a reflection of the beam with optics, such as binoculars or cameras can be hazardous because they can gather or concentrate the laser right to the eye.

Turn laser off in the event of potential exposures: i.e., stopped at a crosswalk in the vicinity of pedestrian traffic. Watch for the reflection off of bumpers, windows, etc.

CAUTION! Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

WARNING! Under no circumstances attempt to open or disassemble Laser Housing. Doing so may cause exposure to potentially hazardous levels of Laser Radiation.

LASER SAFETY (CONTINUED)

This laser complies with all applicable portions of Title 21 of the Code of Federal Regulations, Department of Health, Education, and Welfare, Food and Drug Administration, Bureau of Radiological

Health (Federal Register, Volume 40, No.148, July 31, 1975).

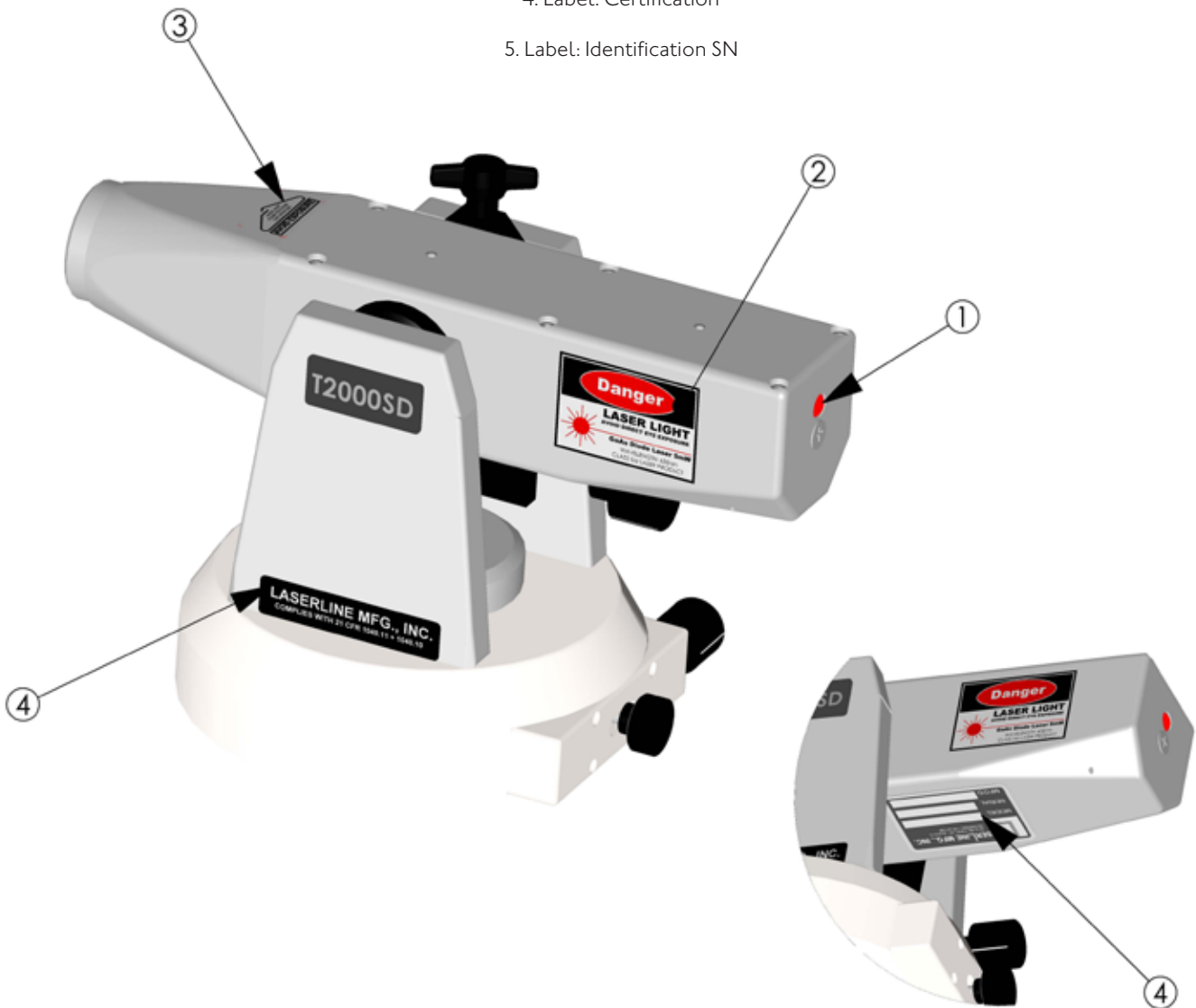
NOTE: The T-2000SD is a Class IIIA laser in the United States and in most countries. It does comply to IIIB certifi-

cation where applicable.

CAUTION! DO NOT disassemble the laser head or attempt to perform any internal servicing. This will violate CDRH Regulations and Void the Warranty

DESCRIPTION OF COMPLIANCE

1. Emissions Indicator Lamp
2. Label: Warning Logo
3. Label: Aperture
4. Label: Certification
5. Label: Identification SN



PRECAUTIONS FOR HANDLING INSTRUMENT

1. Carry the instrument in its case whenever transporting it between jobs.
2. When carrying the instrument while on a tripod, do not carry it over the shoulder, but cradled in an under arm position. The instrument should never be lifted for carrying until a security check is made of all fasteners, especially the tripod head mounting bolt.
3. When setting up the instrument, be sure to spread the tripod legs sufficiently to guard against possible fall.
4. Particular care should be taken not to grasp any part which may put the instrument out of adjustment, such as the telescope, level vial, etc.
5. When leaving the instrument set up outdoors for long periods of time, in applications like dredging, it is highly recommended that the laser be set up in an enclosure or "house" to protect it from the elements.
6. Do not expose the instrument to rain. If the instrument is subjected to moisture, wipe it carefully with a dry cloth before returning it to its case.
7. Upon completion of use, clean the instrument before returning it to its case. Clean the lens carefully with a soft hair brush or lens tissue. When dust cannot be removed by that method, use several drops of alcohol on a lint free cloth or lens tissue and wipe it gently
8. Never store laser in a damp dirty case!
9. Keep laser stored in dry secure place.

SETUP AND OPERATION (REFER TO PAGE 7)

MOUNT the T-2000SD on any flat surface using a 5/8 X 11 bolt through a plate. Be sure the engagement length of the threads doesn't exceed 7/16"

POWER up by connecting the power cord to a 12VDC 1.5 source. Emission indicator and the laser should both be on.

HORIZONTAL alignment is controlled by loosening the Horizontal lock and rough aligning the laser beam to the far point. Tighten the lock, then adjust the laser left and right using the fine adjust tangent.

VERTICAL alignment is accomplished using the vertical lock and tangent in the same steps as the horizontal

SCOPE installation and alignment uses a rifle style mount "Weaver" (model 63B). Attach the rifle scope of your choice to the "Weaver" mount as per the instruction that comes with the scope. LaserLine Mfg., Inc. provides these parts. To align the scope cross hairs in parallel with the laser beam, measure the distance from the center of the scope cross hair to the center of the laser beam. This will give you the offset of the laser beam center to the cross hair center. *Example:*

Center of laser to center of cross hair = 2-11/32

Example is with LaserLine factory installed scope.

On a piece of cardboard or paper, draw a vertical line with two horizontal lines going through it at the calculated distance. From the above example, 2-11/32 (5.95cm) apart.

Place the target on a wall or vertical surface at least 150 yards (137 meters) from the laser. Set the laser on a tripod and aim it at the target.

Use the horizontal and vertical tangents to place the laser spot on the center of the lower cross hair of the far target.

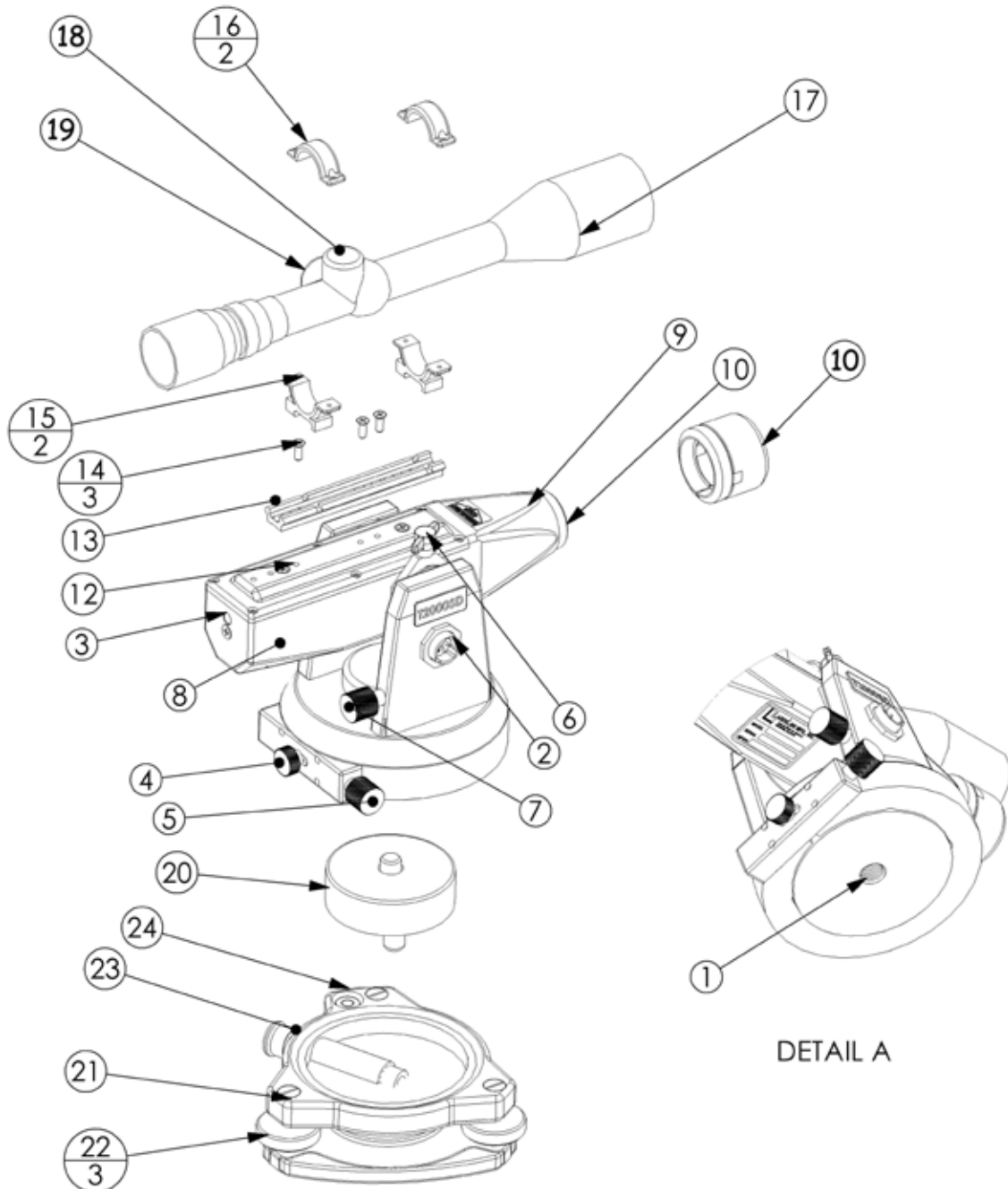
Use the crosshair horizontal (18) adjustment to adjust the vertical crosshair until it is centered on the laser spot. Next, use the cross-hair vertical adjustment (17) to adjust the horizontal cross hair in the scope to match the upper cross hair on the far target. The laser beam is now parallel with the spotting scope cross hairs.

FAN LENS (2000-0025) changes the laser beam from a spot to a vertical plane of reference. The laser beam maintains its standard width at any given distance while fanning out in the vertical at the rate of 1,320 feet per mile.

The fan lens is hinged on the left side to allow you to swing the lens out of the way and use the beam, rather than the plane of laser light without having to remove the fans lens assembly.

PRODUCT NOMENCLATURE

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|---------------------------|--|-----------------------------------|---|
| 1. Instrument Mount | 8. Laser Housing | 14. 8-40 Screws for Weaver Mount | 20. Tribrach Adapter (Required to Adapt Tribrach) |
| 2. Power Connector I2 VDC | 9. Laser Collimator | 15. Lower Scope Mount | 21. Tribrach with Optical Plummet (Optional) |
| 3. Emission Indicator | 10. Fan Lens Mount Ring | 16. Upper Scope Mount | 22. Leveling Screw |
| 4. Horizontal Lock | 11. Fan Lens (Optional) | 17. Scope (Optional) | 23. Optical Plummet |
| 5. Horizontal Tangent | 12. Scope Adaptor with 8-40 Tapped Holes for Weaver #63B | 18. Horizontal Crosshair Adjuster | 24. Level Bubble |
| 6. Vertical Lock | 13. Weaver #63B Scope Mount | 19. Vertical Crosshair Adjuster | |
| 7. Vertical Tangent | | | |



LASER SPOT SIZE CHART

DISTANCE

500' (152 m)
 1000' (305 m)
 1500' (457 m)
 2000' (610 m)
 2500' (762 m)
 5280' (1609 m)

DIAMETER

0.8" (2.0 cm)
 1.1" (2.8 cm)
 1.4" (3.6 cm)
 1.7" (4.3 cm)
 2.0" (5.1 cm)
 4.0" (10.2 cm)

NOTE: Atmospheric conditions can reduce the working range of the Laser by distorting and/or apparently enlarging the Laser spot at distance. For "line and grade" applications, in good conditions, 2,000 feet (610 meters) is about the maximum range. For center line control, using a fan lense, out to four miles (6,436 meters) or more is not uncommon.

PRODUCT SPECIFICATIONS

Laser Power 4.6mw nominal.	Weight: T-2000SD w/scope and Tribrach	13lbs. (5.9 kilos)
Operating temperature -5 to +20F (-18 to +50C).	Power 10 to 14 VDC at 1.5 amps per hour (AC adaptor Available I140-3)	
Storage temperature -40 to + 150F (-40 to+65C).	Laser beam Spot Size:	
Base 5/8 X 11 Threads/inch	At exit	0.87" (2.2cm)
Dimensions:	500' (152M)	0.8" (2.0cm)
Length	1000' (305M)	1.1" (2.8cm)
Width	1500' (457M)	1.4" (3.6cm)
Height	2000' (610M)	1.7" (4.3cm)
Height (with Tribrach)	2500' (762M)	2.0" (5.1 cm)
Height (with Tribrach & Scope)	1 mile (1,609KM)	4.0" (10.2cm)

WARRANTY

This product is guaranteed against defects in materials and workmanship with parts and labor, under normal working conditions from one year from the date of purchase, except as noted herein.

LaserLine Mfg., Inc. liability under this warranty is limited to repairing or replacing any product returned to an authorized service center for that purpose. Any evidence of attempts to repair this unit by other than factory authorized personnel automatically voids the warranty.

FACTORY SERVICE CENTER

LaserLine MFG., INC.
 1810 S.E. First Street, Suite H,
 Redmond, OR 97756

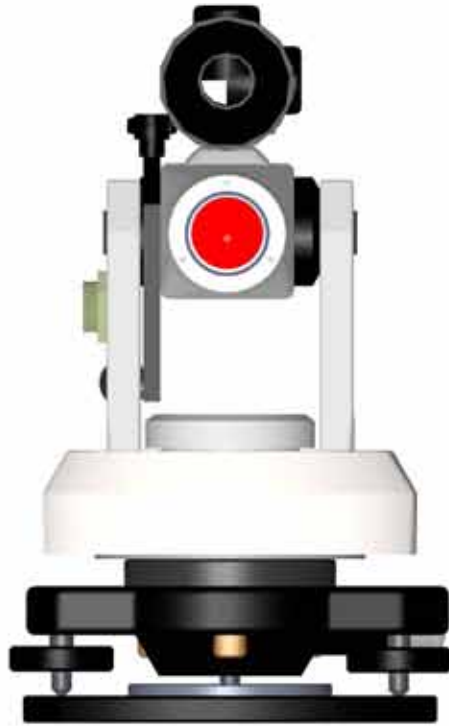
FACTORY SERVICE: New Product Warranty service policy for new products stated above.

SERVICE WARRANTY: 1 year on replacement Parts, 90 days on Labor.

FOR ALL WARRANTY: Call **Order Processing** for RMA # at 541-548-0882. The Unit will be repaired and returned by prepaid freight.

NON-WARRANTY

Send to: LaserLine MFG., INC. at above address.



LaserLine MFG., Inc. Service Center provides trained personnel using authorized replacement parts to ensure the highest quality and fast turnaround. If any part of your T-2000SD should require servicing, contact LaserLine MFG., Inc. at 541-548-0882.

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