


# ***ST 2102 - SALES TAX: LASER SYSTEMS***

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TAXATION RULING NO. ST 2102

SALES TAX: LASER SYSTEMS

F.O.I. EMBARGO: May be released

REF

\*\*\* NOTE: THIS RULING HAS BEEN MODIFIED BY ST 2299

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F.O.I. INDEX DETAIL

| REFERENCE NO: | SUBJECT REFS:   | LEGISLAT. REFS:   |
|---------------|---|---|
| I 1132116     | LAND FORMING LASER<br>SYSTEMS<br>LASER SYSTEMS<br>ROTARY BEAM LASERS<br>FIXED BEAM LASERS | SALES TAX (EXEMPTIONS<br>AND CLASSIFICATIONS)<br>ACT.<br>SUB-ITEMS 13(1), 14(1)<br>AND 78B(1), FIRST<br>SCHEDULE. SUB-ITEM<br>7(1), THIRD SCHEDULE. |

PREAMBLE

Laser systems fall into two categories, rotary beam lasers and fixed beam lasers, and are designed and marketed for use in several different industries.

2. Rotary beam lasers are used in all forms of earthmoving, agricultural or otherwise, and when so used they are generally part of a machine control system which comprises:

- (a) the transmitter which is mounted on either a trailer, tripod or pole sited centrally to the area to be levelled, contoured or graded. The rotating beam of the transmitter provides a 360 degree continuous horizontal plane of laser light and may be tilted to provide a grade of up to 10 degrees (plus or minus) from the horizontal.
- (b) the receiver (also known as a sensor or detector) which is mounted either on a fixed or telescopic pole located on the tractor drawn scoop or scraper. The receiver incorporates a face sensitive to the laser beam emitted by the transmitter. An interface kit is connected through a control panel to a solenoid valve which controls the hydraulic system of the scraper or scoop and automatically raises or lowers the blade in response to the position of the beam on the receiver's face.
- (c) the control panel which is located in the tractor's cabin receives height information from the receiver and operates in either of three modes:-

- (i) automatic mode where the system operates the machine's hydraulics to control the cutting depth;
- (ii) manual mode where it displays the information permitting the operator to adjust the hydraulics accordingly;
- (iii) seek mode where ground contour changes are displayed digitally in a counter panel. From these readings a grid of levels is obtained from which may be determined the most appropriate grade to employ with the least cut and fill.

3. Additional panels may also be located in the tractor cabin. These include a grade breaker panel which is used in conjunction with a fifth wheel in agricultural pipe laying in undulating ground to maintain a constant depth for the pipes and a blade level control panel which, in conjunction with a blade level sensor mounted, for example, on the cutting blade of a bulldozer, automatically keeps the blade horizontal.

4. When used in the agricultural industry rotary beam lasers are used in land levelling, land contouring and the construction of trenches, levees etc, for the irrigation of crops. In the earthmoving industry rotary beam lasers are used in land levelling, contouring and grading; airport, freeway and road and railway line construction. In the mining industry, rotary beam lasers are used as part of a machine control system in open cut mining to level the area traversed by the drag line and to provide accurate removal of overburden.

5. In the construction industry rotary beam lasers are used in site preparation, forming work, footings and foundations, wet screeding of concrete, fine grading and vertical alignment. They are also used in "finishing off" buildings such as horizontal alignment of suspended ceilings. In circumstances such as these which do not entail earthmoving operations, the rotary beam laser transmitter is used in conjunction with a portable rod eye sensor or a target which provides a quick accurate visual readout of elevations required for construction alignment.

6. Fixed beam lasers are used mainly in the construction industry in pipe laying, trenching and tunnelling and in the mining industry in gradient and direction control in underground workings. There is no evidence of any significant use of fixed beam lasers in the agricultural industry.

7. Fixed beam lasers consist of a transmitter and a target with graduations to provide levels, gradients etc. The transmitter can be set up either in the pipe, in the trench or in the position of the manhole. The laser beam is aligned with the centre of the pipe and the target is placed at the other end. The position of the pipe is adjusted and when the beam strikes the centre of the target the pipes are correctly aligned. In trenching operations the manhole is excavated to the correct depth and the laser mounted therein. A backhoe then digs the trench and gradients are checked by visual means with the aid of the laser. In tunnelling operations and in the

mining industry where the unit is used in underground workings, the visual beam continually shines on the centre of the workface to maintain gradient and direction during the tunnelling or the recovery of the ore.

RULING

8. Laser systems are subject to sales tax at the general rate which currently is 20%.

9. Conditional exemption will apply where the systems are used in situations to which sub-items 14(1) or 78B(1), First Schedule, apply.

10. Some rotary beam lasers are specifically designed and marketed for use in the agricultural industry. Systems which have been designed for agricultural use are the Laser Beacon 3000 model, the Sökkisha Agri-Laser System and the Blount Dual Grade, models 26 and 27. Sales of these systems have been made principally to persons engaged in the agricultural industry and where they are sold to such persons they will qualify for conditional exemption under sub-item 13(1), First Schedule. Individual components of those systems will also qualify for conditional exemption under sub-item 13(1), First Schedule.

11. Rotary beam lasers and fixed beam lasers used in the earthmoving and building and construction industries will qualify for the conditional rate of 7.5% under paragraph (c) of sub-item 7(1), Third Schedule.

12. Rotary beam lasers which are designed and used for general applications, e.g. in construction, mining, road making and which are not used predominantly in the agricultural industry do not qualify for conditional exemption under sub-item 13(1), First Schedule. Nor do fixed beam lasers qualify for conditional exemption under sub-item 13(1), First Schedule.

COMMISSIONER OF TAXATION  
23 November 1984

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