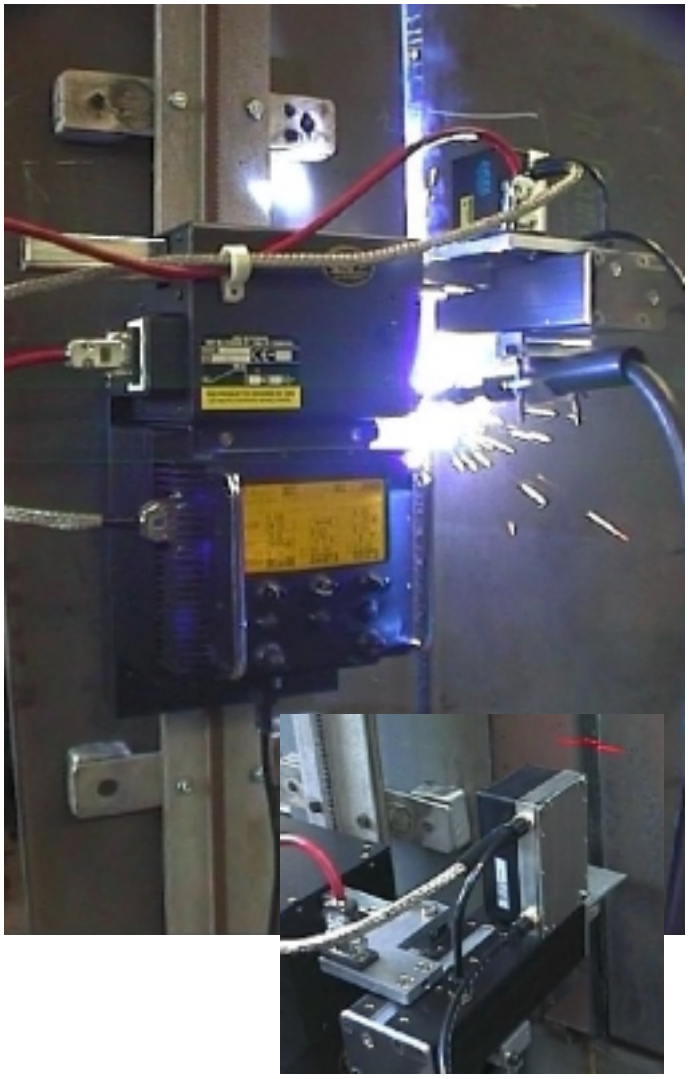
LASER-BUG

Modular welding travel carriage with oscillation and integrated laser guided seam tracking.



Adavanced Features:

- Performs multipass and multilayer butt or fillet welds.
- Supersedes contact probes and arc sensors.
- Camera oscillates with the welding torch.
- Automatic gap control with travel and oscillation speed compensation.
- Extremely compact control module without any additional control boxes.
- High quality weld results.
- Lightweight, portable 3-axis robot.
- Works on all types of Bug-O rail.
- Laser Safety Class IIIa.
- Interface for data exchange.
- Store and recall of seam profiles.
- Preprogramming of root pass and four additional passes – including the cover pass.
- Easy recall of the parameters of each pass and manual override by the operator during welding.

Compact Sensor controlled welding system.

The LASER-BUG is a portable 3-axis robot that automates MIG/MAG welds on Butt or Fillet joints. The Laser Scanner, which scans the seam ahead of the welding torch, recognizes the geometry of the seam and controls the welding torch according to the seam and the selected welding program. The system can control the welding of the root pass as well as the following layers and the cover pass. The LASER-BUG can freely move the torch in all three axis (x,y,z). Mounted in front of the welding torch the laser scanner measures the seam and controls the movement of the torch, in real time. The system can be programmed to sense either the left edge or the right edge of the seam as well as both edges, giving it the ability to perform both multi-pass and multi-layer welds. The system eliminates the need for constant supervision of the welding process by the operator and greatly improves productivity. The three axis robot runs on all standard Bug-O rails which can be attached on or beside the part to be welded using Magnet-Bars or Vacuum cups.

BUG-O SYSTEMS
A DIVISION OF WELD TOOLING CORPORATION

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LASER-BUG
Sensor Controlled Welding System

Control Functions:

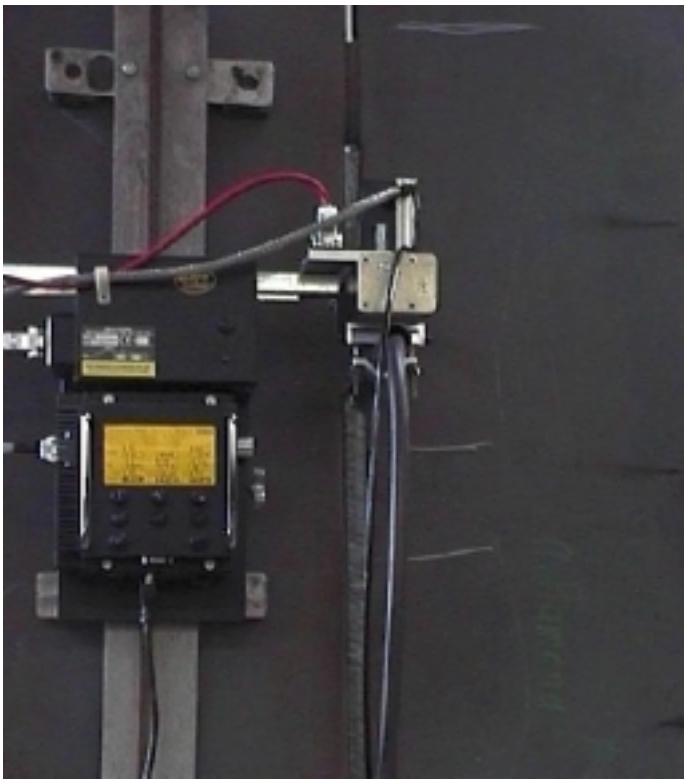
The heart of the LASER-BUG is the control module. On a large lighted display various parameters can be selected and programmed.

Manual Mode:
In this mode the unit can be handled like a standard Bug-O Weaving Unit. It means that all functions like travel and oscillation speeds, oscillation width, dwell left and right will be preprogrammed and adjusted manually. In this mode the Laser Scanner is not activated.

Automatic Mode:
The moment the system is switched into the "Auto" position the computer will memorize the preadjusted parameters and the Laser Scanner takes over the control and the adjustment of the torch position.

NOTE: Also in the automatic mode certain functions like travel and oscillation speed or side and height deviation can be readjusted during the welding operation.

Small tackwelds up to 3/4" (20 mm) length or diameter are ignored by the sensing system. The length or diameter of the tacks can be preset. If the scanner is sensing a longer tackweld or a wide crossweld the system stops sensing and issues an alarm before the welding torch reaches the problematic zone. The operator can override this part in the manual mode with constant settings and return to auto mode after passing the critical area.



LASER-BUG in vertical-up butt welding.

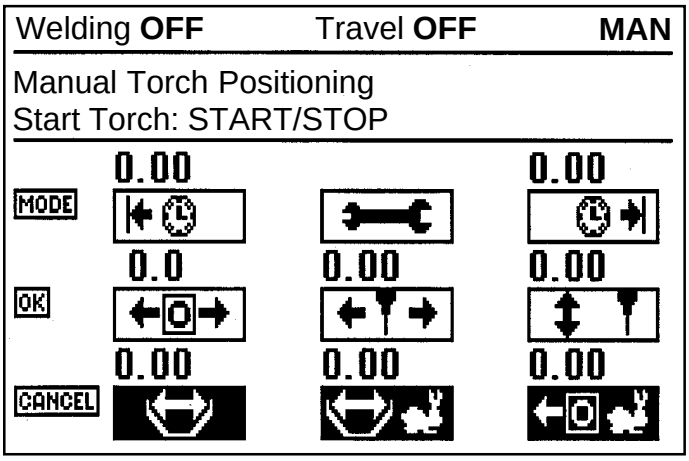
LASER-BUG in flat fillet welding.

The system must be preset for butt or fillet weld operations.

The Display:

After the system is started the program will be loaded and the display shows "Loading". When the loading is completed the display will show in the upper line the status of the welding torch (ON/OFF), the carriage travel (ON/OFF) and the operation mode (Manual or Automatic).

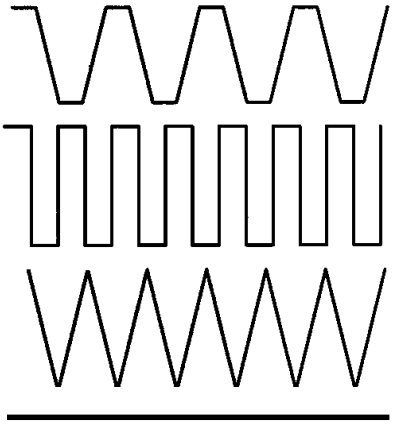
The two lines below show the actual information and instructions. In the lower larger part of display are three lines with nine different symbols. The values of these functions can be preset or changed during the actual operation.



The Installation Menu:

This menu can be activated by pushing the "Mode" knob and selecting D2 with the installation menu symbol: The following program functions can be preset:

- Preset for Butt or Fillet welds
- Preset of weld pattern



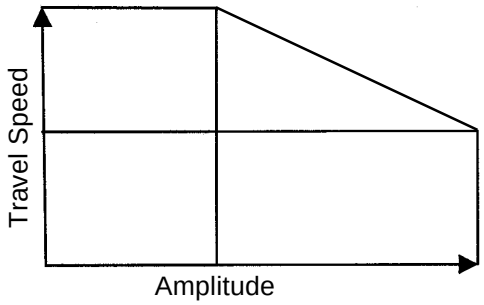
Run: In this mode, power to the drive unit is always on and the machine travels continuously both during weave and dwell. Weave speed and dwell time both effect the pattern.

Step: The unit travels only during dwell and stops during the oscillator stroke. Changing weave speed does not effect the weld pattern – dwell time does.

Travel stops on dwell: The tractor travels during the weave stroke. Tractor and oscillator stop during dwell.

No Weave: In this mode oscillation is stopped and powers the tractor only for stringer passes.

- Preset of gap width compensation



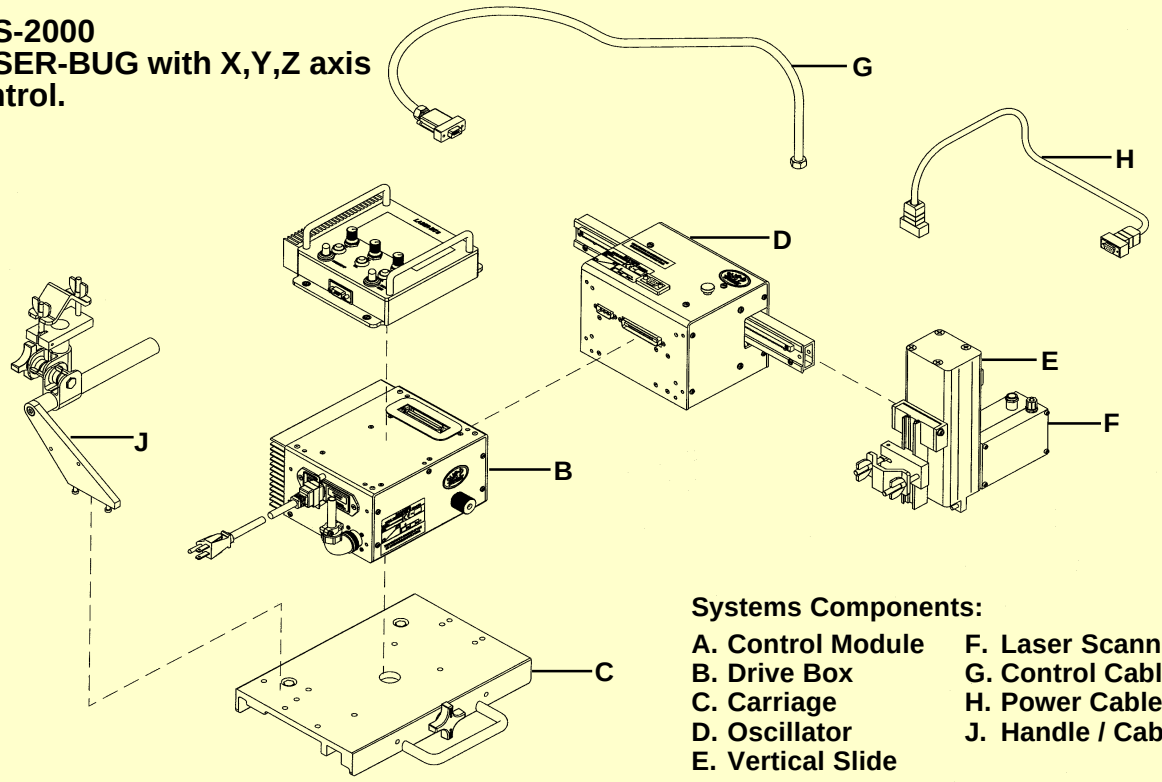
In most applications the width of the gap can vary. To compensate these variations during the welding process, it is necessary to increase or decrease the travel speed as well as the oscillation speed. This menu allows the operator to adapt the travel speed and the oscillaltion speed to the amplitude measured by the laser scanner. The correlation between the speed and the oscillation width is always linear.

For the adaptation four values can be preset:
Small gap – Travel and Oscillation Speed
Wide gap – Travel and Oscillation Speed

- Preset of display language: Choose between different languages.
- Length of tackwelds: The maximum length of tackwelds should be preset between 0 and 3/4" (20 mm).
- Side deviation: Sidewise offset of the scanner centerline to the torch centerline.
- Height deviation: Offset of the torch distance to the plate minus 2" (minus 5 cm).
- Tracking mode: Right edge sensing or left edge sensing or both edge sensing.
- Measurement of the distance scanner line to the welding wire.
- Display Scan: The display shows what the laser scanner is sensing as a graphic display.

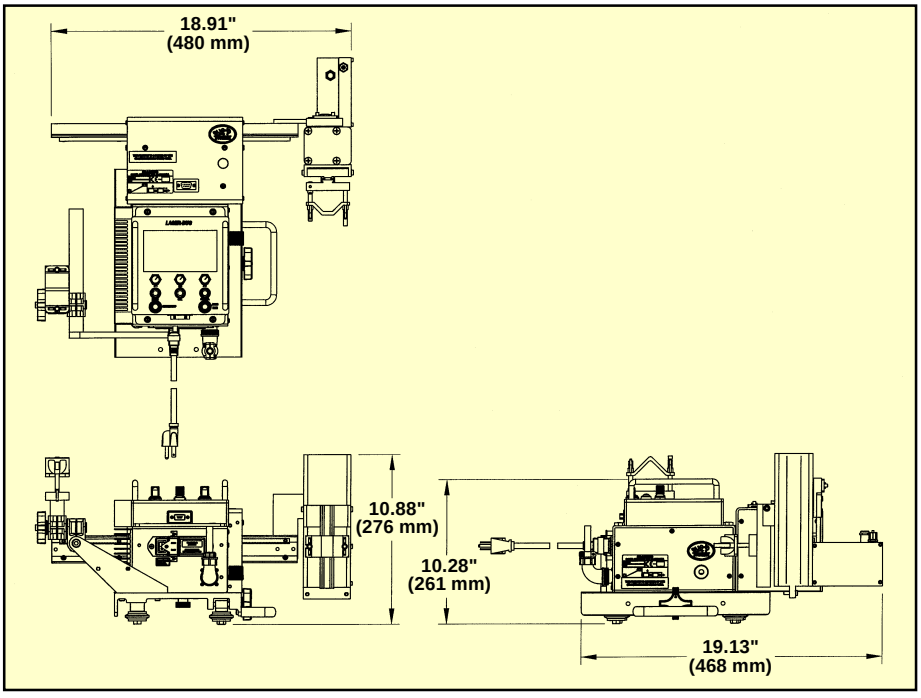
LASER-BUG
Flexible, portable motion control

LAS-2000
LASER-BUG with X,Y,Z axis control.



Systems Components:

A. Control Module
B. Drive Box
C. Carriage
D. Oscillator
E. Vertical Slide
F. Laser Scanner
G. Control Cable
H. Power Cable
J. Handle / Cable Anchor



The LASER-BUG X,Y,Z Kit is used for all longitudenal butt or fillet welds with or without oscillation in vertical-up, flat or 3 o'clock position. In general it should be used with a straight MIG/MAG Torch. The torch mounting is included in the Kit. The unit works with the following input voltages: 42 VAC, 120 VAC or 220 VAC.

Net Weight: 41 lbs. (18.64 kg)
Shipping Weight: 60 lbs. (27.22 kg)

LIT-LASER-BUG-BRO-0302 ROM 1:16 CE Litho in U.S.A.