

INSTRUCTIONS AND PARTS MANUAL

LIGHT'N BUG MULTI-PURPOSE BURNING & WELDING TRAVEL CARRIAGE

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Model Number: _____

Serial Number: _____

Date of Purchase: _____

Whenever you request replacement parts or information on this equipment, always supply the information you have recorded above.

LIT-LBG-IPM-0411



B U G - O S Y S T E M S

A DIVISION OF WELD TOOLING CORPORATION



280 TECHNOLOGY DRIVE CANONSBURG, PENNSYLVANIA 15317-9564 USA
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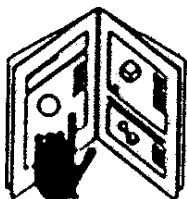
SAFETY

PROTECT YOURSELF AND OTHERS FROM SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.



ELECTRIC SHOCK can kill.

- 1) The equipment is not waterproof. Using the unit in a wet environment may result in serious injury. Do not touch equipment when wet or standing in a wet location.
- 2) The unused connectors have power on them. Always keep the unused connectors covered with the supplied protective panels. Operation of the machine without the protective panels may result in injury.
- 3) Never open the equipment without first unplugging the power cord or serious injury may result.
- 4) Verify the customer-supplied power connections are made in accordance with all applicable local and national electrical safety codes. If none exist, use International Electric Code (IEC) 950.
- 5) Never remove or bypass the equipment power cord ground. Verify the equipment is grounded in accordance with all applicable local and national electrical safety codes. If none exist, use International Electric Code (IEC) 950.



READ INSTRUCTIONS.

Read the instruction manual before installing and using the equipment.



EQUIPMENT DAMAGE POSSIBLE.

- 1) Do not plug in the power cord without first verifying the equipment is OFF and the cord input voltage is the same as required by the machine or serious damage may result.
- 2) Always verify both the pinion and wheels are fully engaged before applying power or equipment damage may occur.
- 3) Do not leave the equipment unattended.
- 4) Remove from the worksite and store in a safe location when not in use.



FALLING EQUIPMENT can cause serious personal injury and equipment damage.

Faulty or careless user installation is possible. As a result, never stand or walk underneath equipment.



MOVING PARTS can cause serious injury.

- 1) Never try to stop the pinion from moving except by removing power or by using the STOP control.
- 2) Do not remove any protective panels, covers or guards and operate equipment.

HIGH FREQUENCY WARNINGS

SPECIAL PRECAUTIONS ARE REQUIRED WHEN USING PLASMA, TIG OR ANY WELDING PROCESS THAT USES HIGH FREQUENCY TO STRIKE AN ARC.



WARNING: HIGH FREQUENCY CAN EFFECT MACHINE OPERATION AND THEREFORE, WELD QUALITY.

Read the precautions below before installing and using the equipment.

PRECAUTIONS:

- 1) Some plasma or welding cables are strong sources of high frequency interference. NEVER lay a plasma or welding cable across the controls of the machine.
- 2) Always physically separate the plasma or welding cable leads from the machine cables. For example, the plasma or welding cable leads should NEVER be bundled with a pendant cable or the machine power cord. Maximize the separation between any machine cables and the plasma or welding cables.
- 3) Strictly follow the grounding procedures specified for the plasma or welding unit. NOTE: Some plasma and welding units produce exceptionally large amounts of high frequency noise. They may require a grounding rod be driven into the earth within six feet (2 meters) of the plasma or welding unit to become compatible with an automatic cutting or welding process.
- 4) If the high frequency is produced using a spark gap, adjust the points so the gap is as small as possible. The larger the gap, the higher the voltage and the higher the interference.
- 5) Some plasma or welding units will inject high frequency interference into the AC power line. Use separate power line branches whenever possible to power the plasma or welding source and the machine. Do not plug them into the same outlet box.
- 6) High frequency noise may enter the machine through the plasma or welding supply remote contactor leads. Some plasma and welding sources can produce noise spikes of up to several thousand volts. These sources are not compatible with automated cutting and welding equipment. It is recommended that the remote contactor leads on these plasma or welding sources not be connected to the machine. An alternate solution is to purchase a separate remote contactor isolation box.

LIGHT'N BUG

MULTI-PURPOSE BURNING & WELDING TRAVEL CARRIAGE

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Patents Pending

INTRODUCTION:

The **Light'n Bug** is a versatile travel carriage that can produce machined quality cuts and bevels as well as high quality, uniform welds. It is a compact friction drive machine that will ride on most standard 6" (152 mm) V-grooved track. A solid-state variable speed control allows the **Light'n Bug** to travel and carry a torch at precise speeds. Plate cutting and welding can be done quickly with a high degree of precision.

FEATURES:

- Four Wheel Drive for superior traction.
- Can be used with or without a track.
- Closed loop speed control.
- Clutch, to enable freewheeling of the unit for quick alignment to work line.
- 4-85 IPM (100-2160 mm) infinitely variable speed control.
- Multiple, bolt on, accessories are available:
 - Fillet Attachment, Radius Attachment and Steering Attachment.
- Kits available for oxy-fuel cutting, plasma cutting or welding.
- Lightweight, easy to carry design.

WELDING KIT SET-UP AND OPERATION:

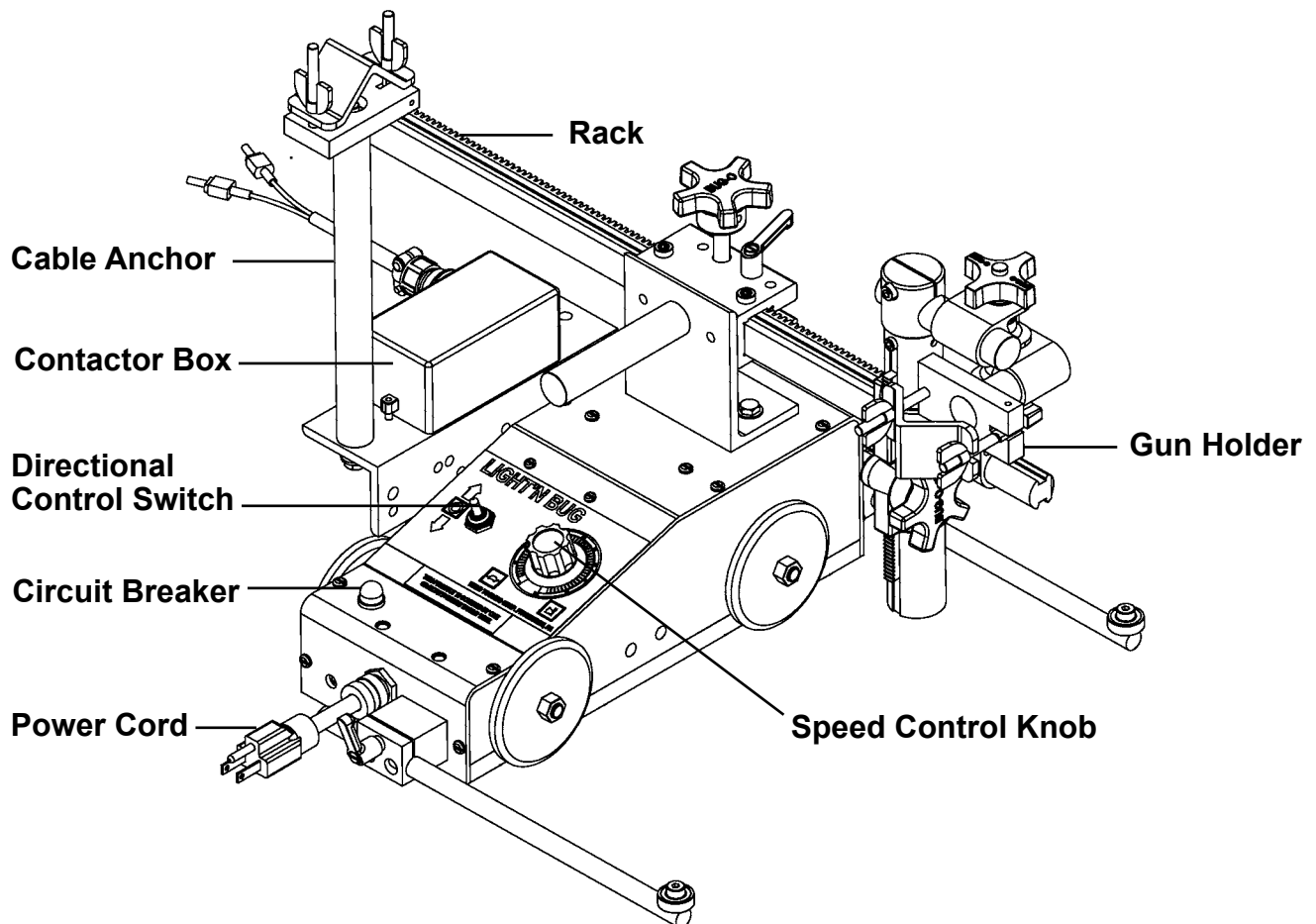
Track Set-up: The LIGHT'N BUG will run on any 6" (152 mm) centerline, "V" groove friction track. To position the track, simply set it parallel to the cut line of the work piece. For most applications such as straight or bevel cutting, the rail should be set within 6" to 10" of the cut line. Snapping a chalk line will aid in set-up. Rails can be joined for longer applications.

Gun Set-up: Insert the gun into the **Gun Holder**. Adjust the **Gun Holder** and the **Rack** to set the gun to the desired position. Connect the gun cable to the **Cable Anchor**. Once the gun is positioned, the **Cable Anchor** prevents the gun cable from dragging the gun out of position.

Gun Trigger Connection: To enable the weld contact switch on the LIGHT'N BUG **Contactor Box**, disconnect the trigger lead from the contactor outlet on the feeder. Install a 2-conductor cable from the contactor outlet on the feeder to the A and B leads on the connector on the **Contactor Box**.

Machine Set-up: The LIGHT'N BUG can be positioned anywhere along the track and in either direction. Be sure the wheels are seated into the "V" of the track. Disengage the clutch on the front of the unit to allow free rolling along the track. Adjust the gun over the weld line and roll the unit back and forth to confirm alignment with the weld line. Engage the clutch.

Machine Operation: Set the **Directional Control Switch** to the "STOP" position. Connect the **Power Cord** to the appropriate voltage supply for the unit. Adjust the travel speed using the **Speed Control Knob**. Turning the knob clockwise will increase the travel speed, while turning the knob counter-clockwise decreases the speed of the machine. The **Circuit Breaker** protects the unit from overload and electrical faults. If the **Circuit Breaker** opens, find and correct the problem before resetting the **Circuit Breaker**.



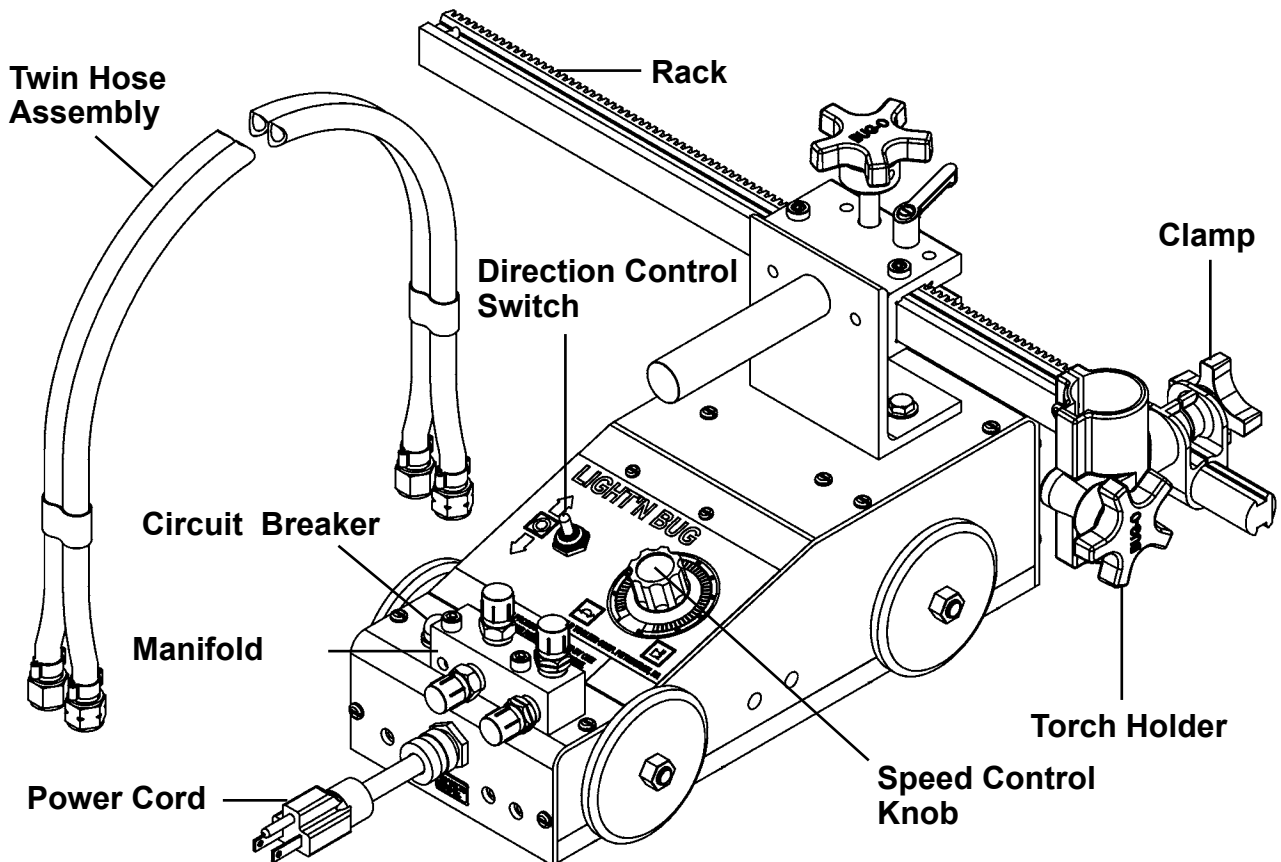
OXY-FUEL SET-UP AND OPERATION

Track Set-up: The LIGHT'N BUG will run on any 6" (152 mm) centerline, "V" groove friction track. To position the track, simply set it parallel to the cut line of the work piece. For most applications, such as straight or bevel cutting, the rail should be set within 6" to 10" of the cut line. Snapping a chalk line will aid in set-up. Rails can be joined for longer applications.

Torch Set-Up: Insert the torch into the **Torch Holder**. Adjust the **Torch Holder**, the **Clamp** and the **Rack** to set the torch to the desired position. Connect the **Twin Hose Assembly** to the **Manifold** and to the torch. Once the torch is adjusted, the **Manifold** prevents the supply hoses from dragging the torch out of position.

Machine Set-Up: The LIGHT'N BUG can be positioned anywhere along the track and in either direction. Be sure the wheels are seated into the "V" of the track. Disengage the clutch on the front of the unit to allow free rolling along the track. Adjust the torch over the cut line and roll the unit back and forth to confirm alignment with the cut line. Engage the clutch.

Machine Operation: Set the **Directional Control Switch** to the "STOP" position. Connect the **Power Cord** to the appropriate voltage supply for the unit. Adjust the travel speed using the **Speed Control Knob**. Turning the knob clockwise will increase the travel speed, while turning the knob counter-clockwise decreases the speed of the machine. The **Circuit Breaker** protects the unit from overload and electrical faults. If the **Circuit Breaker** opens, find and correct the problem before resetting the **Circuit Breaker**.



PLASMA KIT SET-UP AND OPERATION

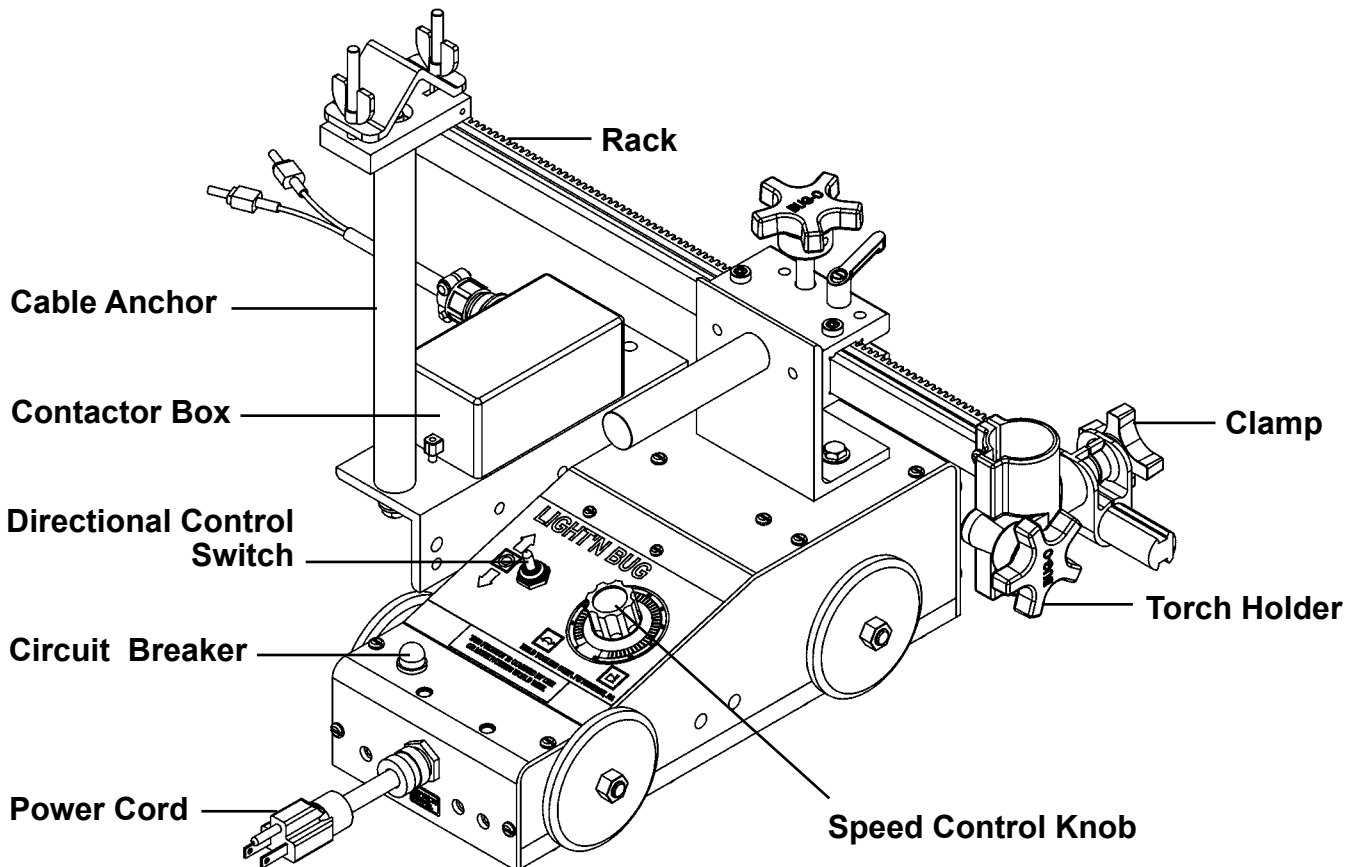
Track Set-up: the LIGHT'N BUG will run on any 6" (152 mm) centerline, "V" groove friction track. To position the track, simply set it parallel to the cut line of the work piece. For most applications, such as straight or bevel cutting, the rail should be set within 6" to 10" of the cut line. Snapping a chalk line will aid in set-up. Rails can be joined for longer applications.

Torch Set-Up: Insert the torch into the **Torch Holder**. Adjust the **Torch Holder**, the **Clamp** and the **Rack** to set the torch to the desired position. Secure the torch cable into the Cable Anchor. Once the torch is positioned, the **Cable Anchor** prevents the torch cable from dragging the torch out of position.

Torch Trigger Connection: To enable the plasma contactor switch on the LIGHT'N BUG **Contactor Box**, disconnect the trigger leads from the contactor outlet of the plasma power source. Install a 2-conductor cable from the contactor outlet on the plasma power source to the A and B leads of the connector on the **Contactor Box**.

Machine Set-Up: The LIGHT'N BUG can be positioned anywhere along the track and in either direction. Be sure the wheels are seated into the "V" of the track. Disengage the clutch on the front of the unit to allow free rolling along the track. Adjust the torch over the cut line and roll the unit back and forth to confirm alignment with the cut line. Engage the clutch.

Machine Operation: Set the **Directional Control Switch** to the "STOP" position. Connect the **Power Cord** to the appropriate voltage supply for the unit. Adjust the travel speed using the **Speed Control Knob**. Turning the knob clockwise will increase the travel speed, while turning the knob counter-clockwise decreases the speed of the machine. The **Circuit Breaker** protects the unit from overload and electrical faults. If the **Circuit Breaker** opens, find and correct the problem before resetting the **Circuit Breaker**.



LIGHT'N BUG / WELDING KIT

Technical Data:

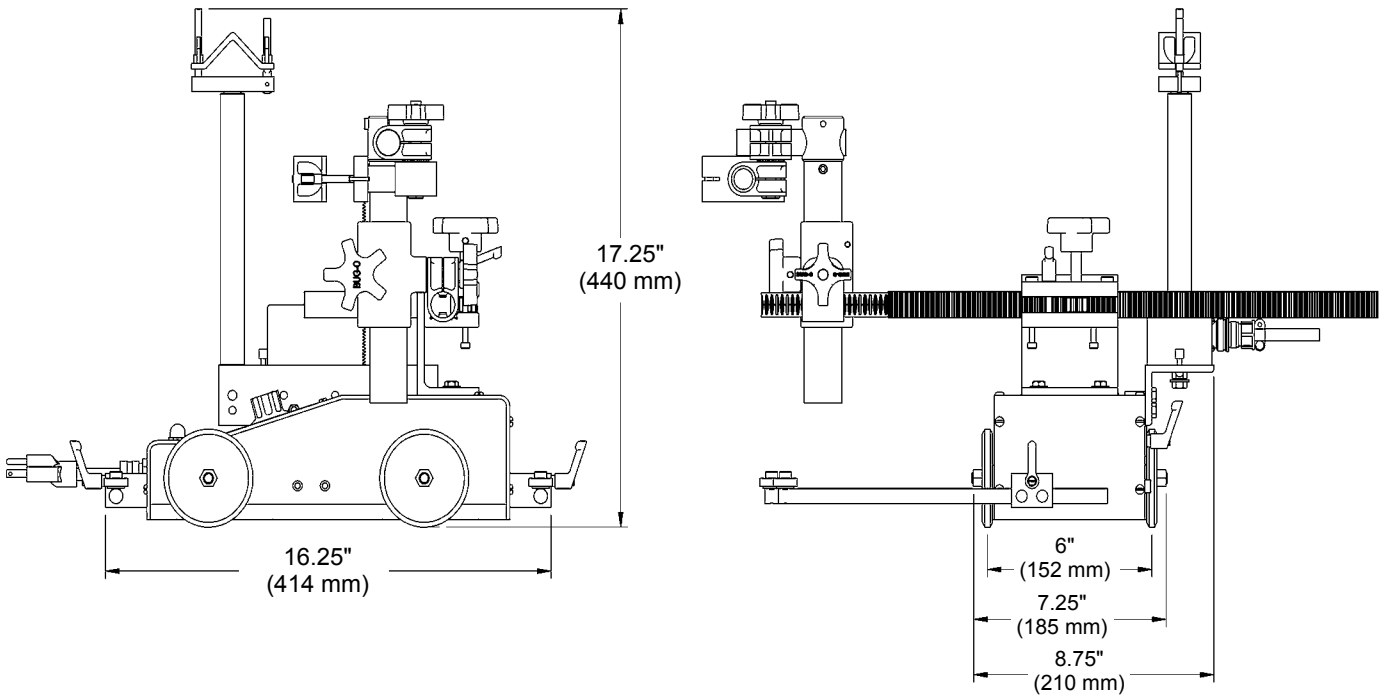
Power Requirements: LBG-1200 Light'n Bug Welding Kit 120 VAC
LBG-1202 Light'n Bug Welding Kit 240 VAC
LBG-1204 Light'n Bug Welding Kit 42 VAC

Travel Speed: Variable speed control from 4-85 ipm (100-2160 mm/min)

Net Weight: 30lbs. (13.6 kg)

Shipping Weight: 34 lbs. (15.5 kg)

Dimensions: See below.



LIGHT'N BUG/OXY-FUEL KIT

Technical Data:

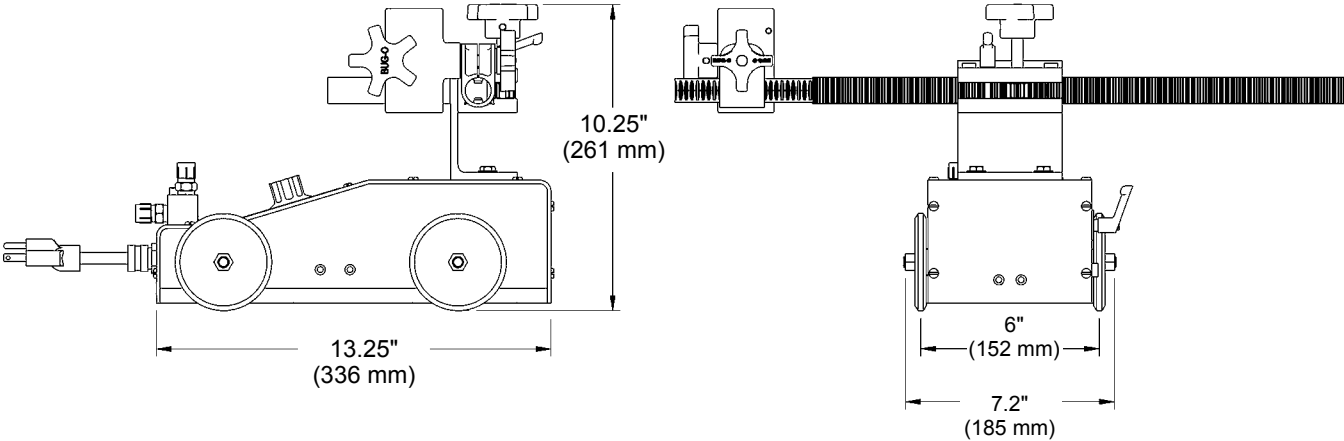
Power Requirements: LBG-1000 Light'n Bug Oxy-Fuel Kit 120 VAC
LBG-1002 Light'n Bug Oxy-Fuel Kit 240 VAC
LBG-1004 Light'n Bug Oxy-Fuel Kit 42 VAC

Travel Speed: Variable speed control from 4-85 ipm (100-2160 mm/min)

Net Weight: 28 lbs. (12.7 kg)

Shipping Weight: 32 lbs. (14.5 kg)

Dimensions: See below.



LIGHT'N BUG/PLASMA KIT

Technical Data:

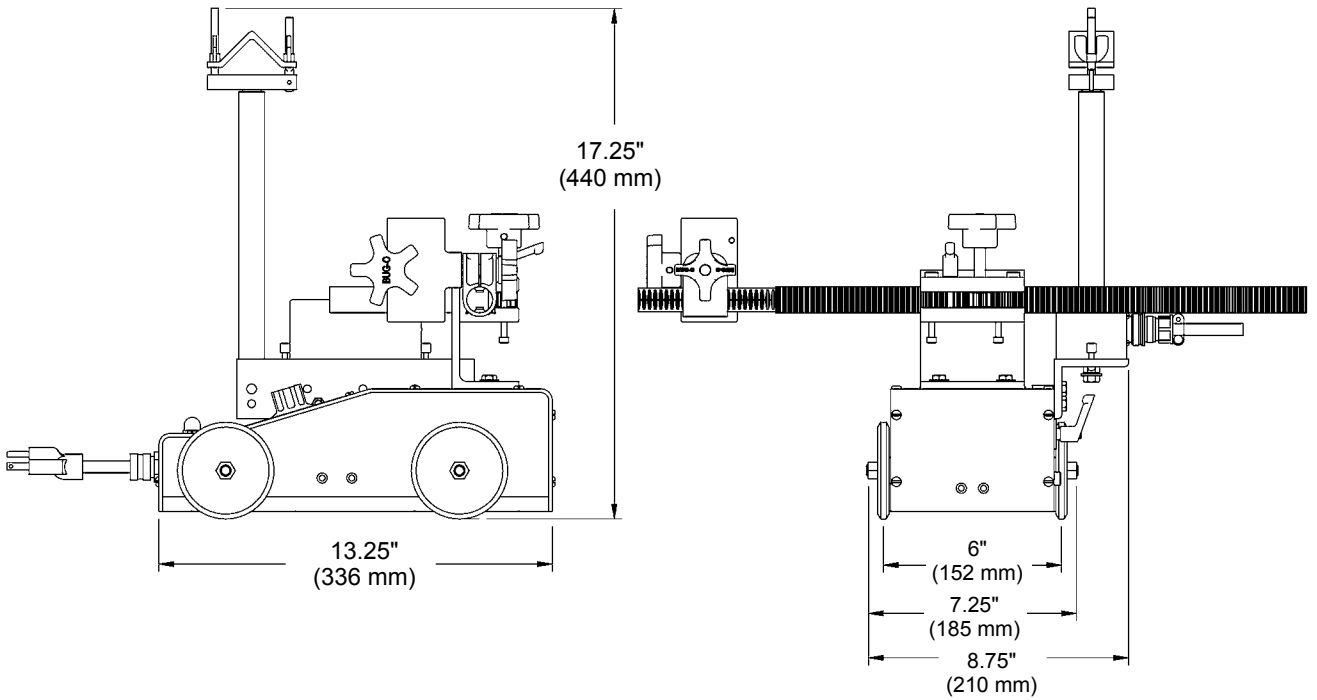
Power Requirements: LBG-1500 Light'n Bug Plasma Kit 120 VAC
LBG-1502 Light'n Bug Plasma Kit 240 VAC
LBG-1504 Light'n Bug Plasma Kit 42 VAC

Travel Speed: Variable speed control from 4-85 ipm (100-2160 mm/min)

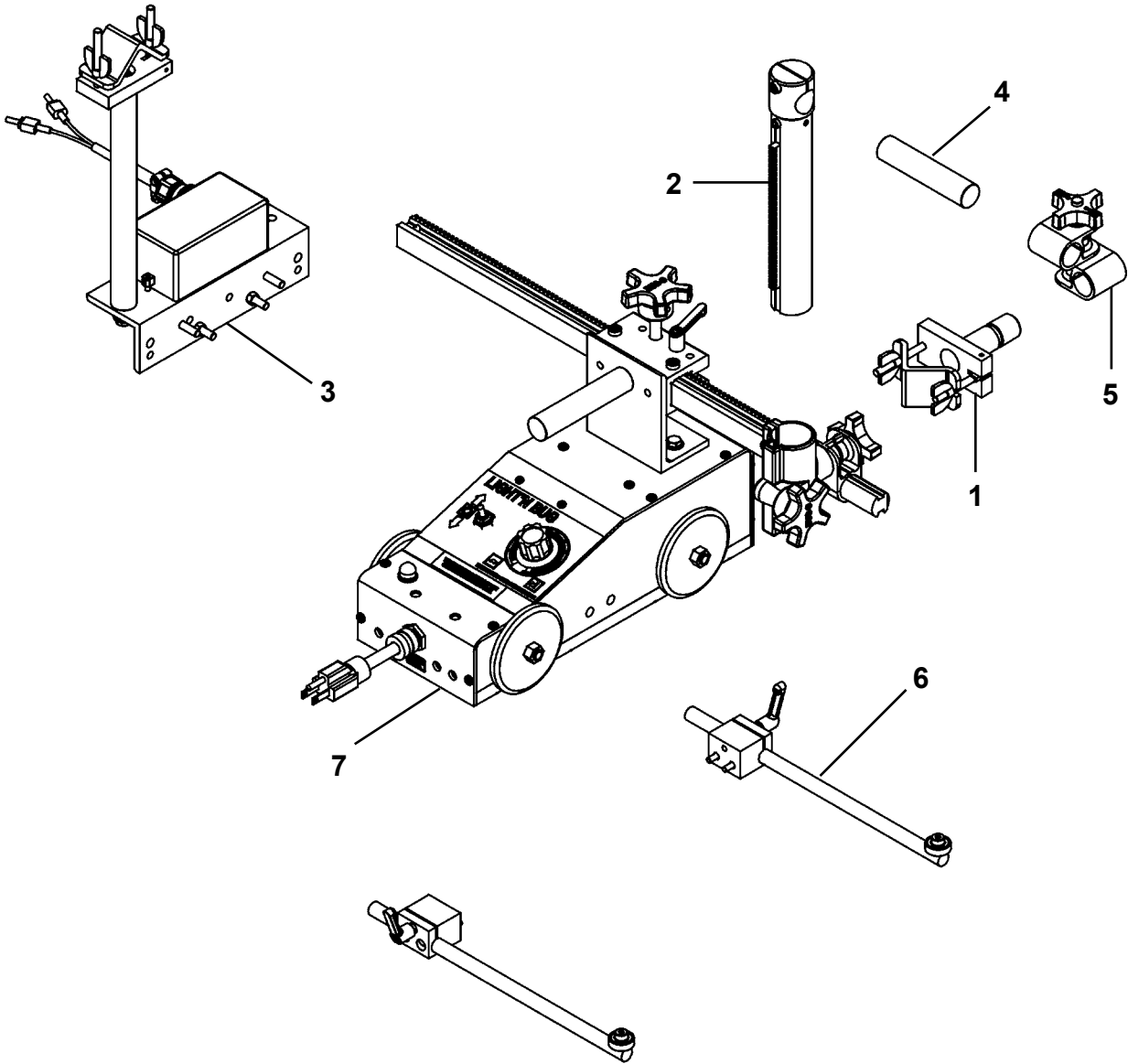
Net Weight: 29 lbs. (13.2 kg)

Shipping Weight: 33 lbs. (15 kg)

Dimensions: See below.



LIGHT'N BUG / WELDING KIT / EXPLODED VIEW / PARTS LIST

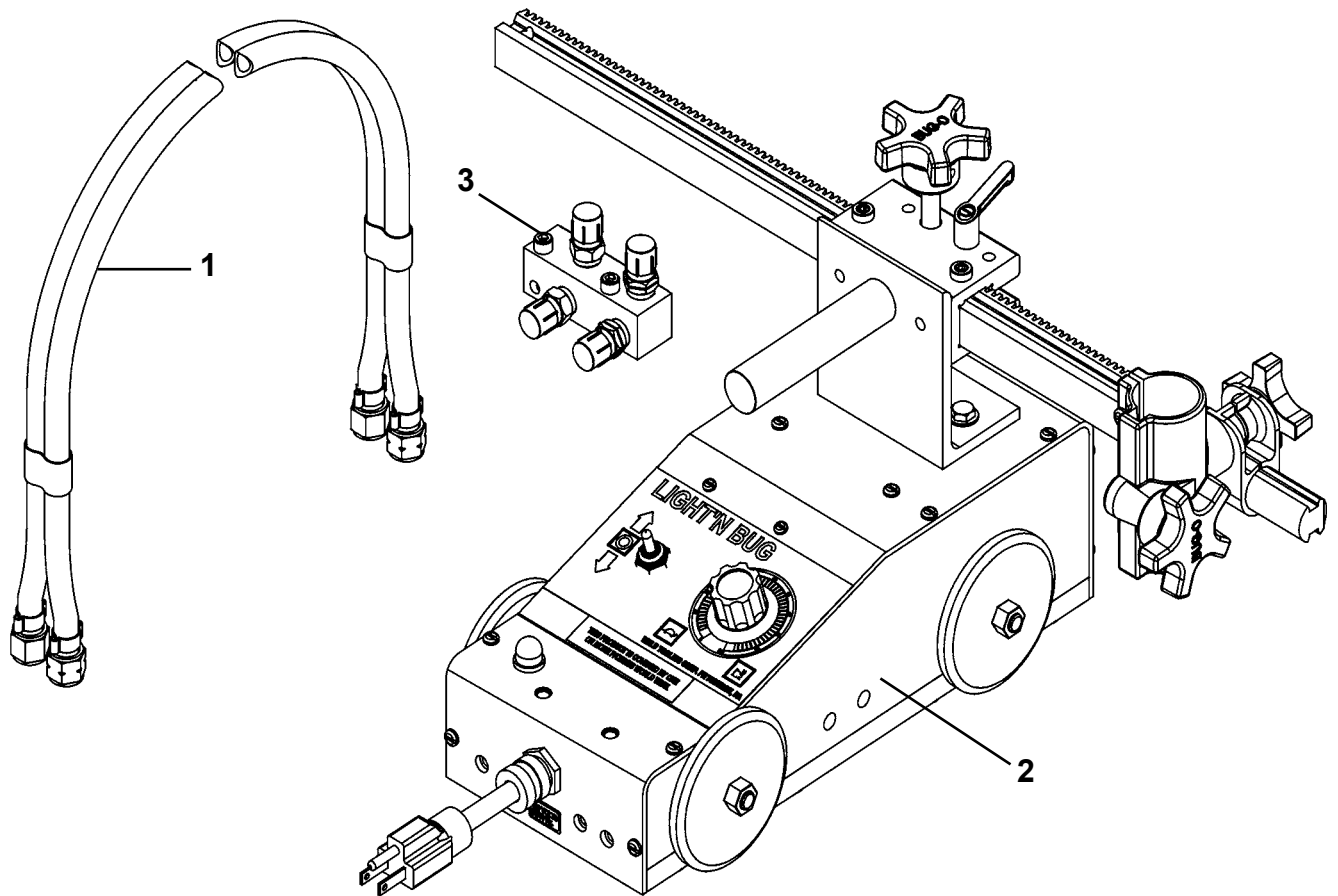


| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|---------------------------|
| 1 | 1 | BUG-2708 | Clamp |
| 2 | 1 | BUG-5166-8 | H.D. Rack Assembly 8" |
| 3 | 1 | BUG-5485 | Contactor/Cable Anchor |
| 4 | 1 | BUG-9180-4 | Rod 4" |
| 5 | 1 | CON-1020 | Swivel Clamp Assembly |
| **6 | 1 | LBG-1015 | Fillet Attachment |
| *7 | 1 | LBG-1100 | Light'n Bug Basic 120 VAC |

* LBG-1102 Light'n Bug Basic 240 VAC
 LBG-1104 Light'n Bug Basic 42 VAC

**See TRB-1163 Rod w/Mount Exploded View / Parts List for component information. (page 21).

LIGHT'N BUG / OXY-FUEL KIT / EXPLODED VIEW / PARTS LIST

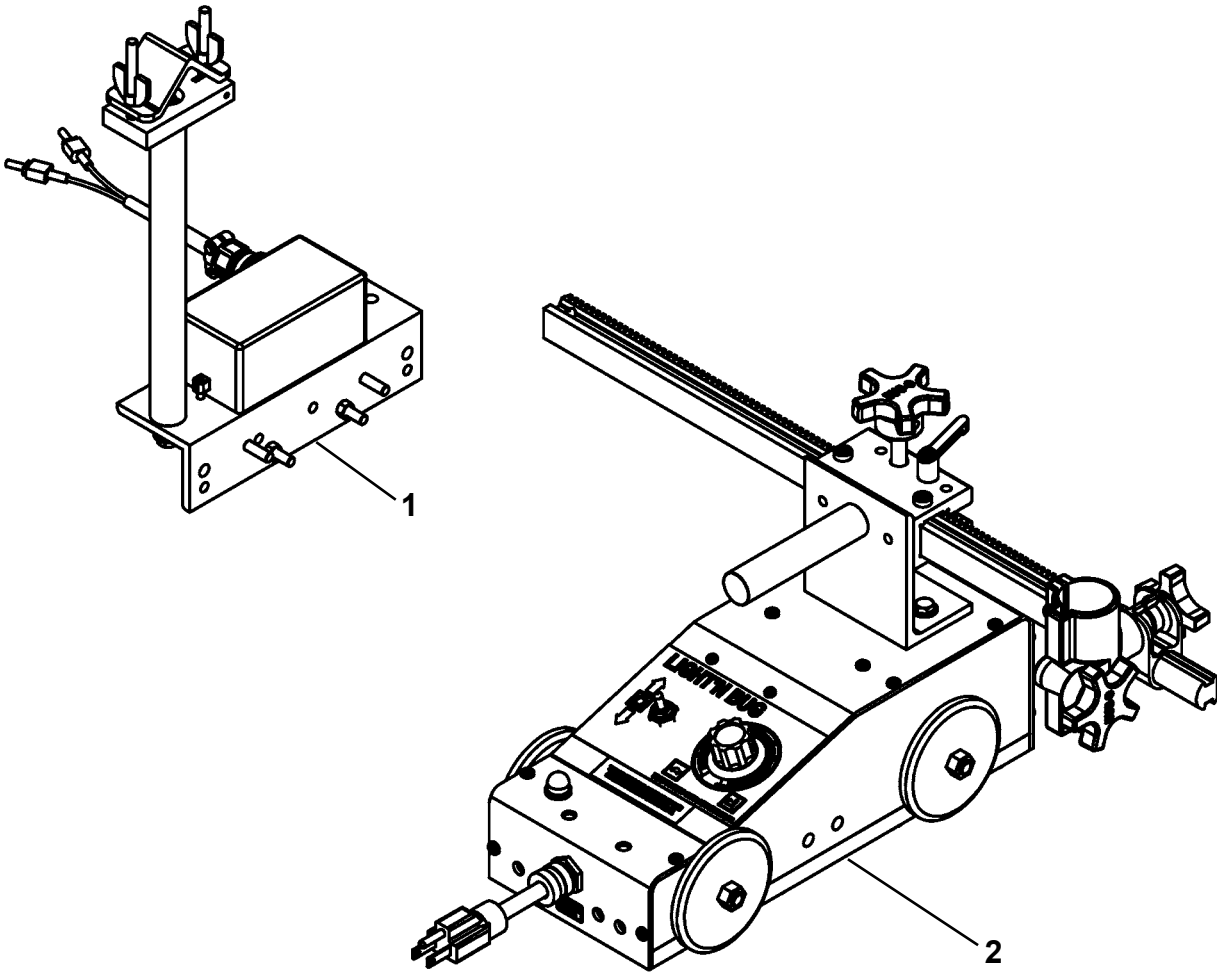


| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|---------------------------|
| 1 | 1 | CIR-1010-3 | Hose Assembly |
| *2 | 1 | LBG-1100 | Light'n Bug Basic 120 VAC |
| **3 | 1 | TRB-1126 | Manifold |

* LBG-1102 Light'n Bug Basic 240 VAC
 LBG-1104 Light'n Bug Basic 42 VAC

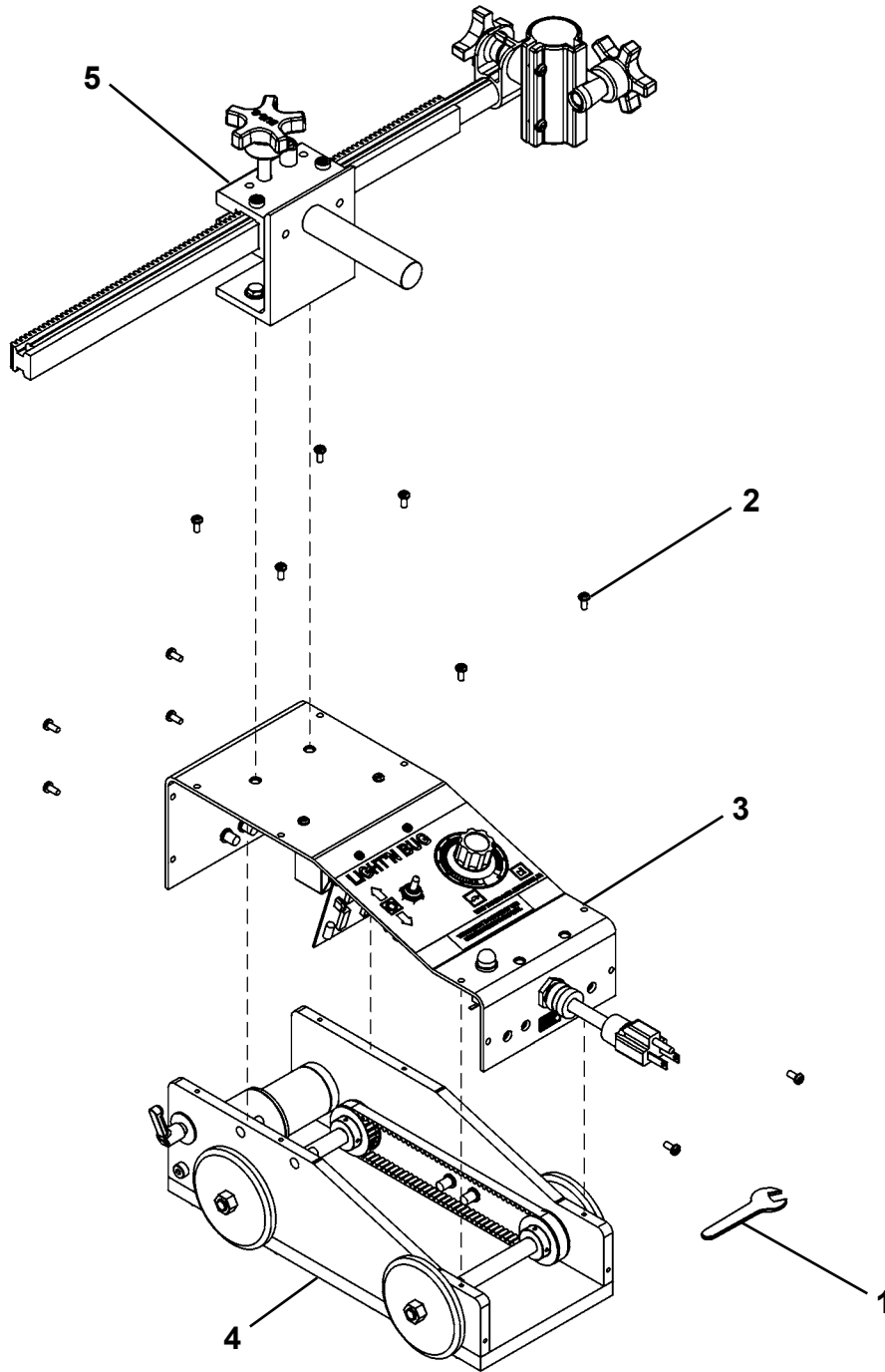
**TRB-1140 Quick Action Manifold supplied with 120 VAC machines only.

LIGHT'N BUG / PLASMA KIT / EXPLODED VIEW / PARTS LIST



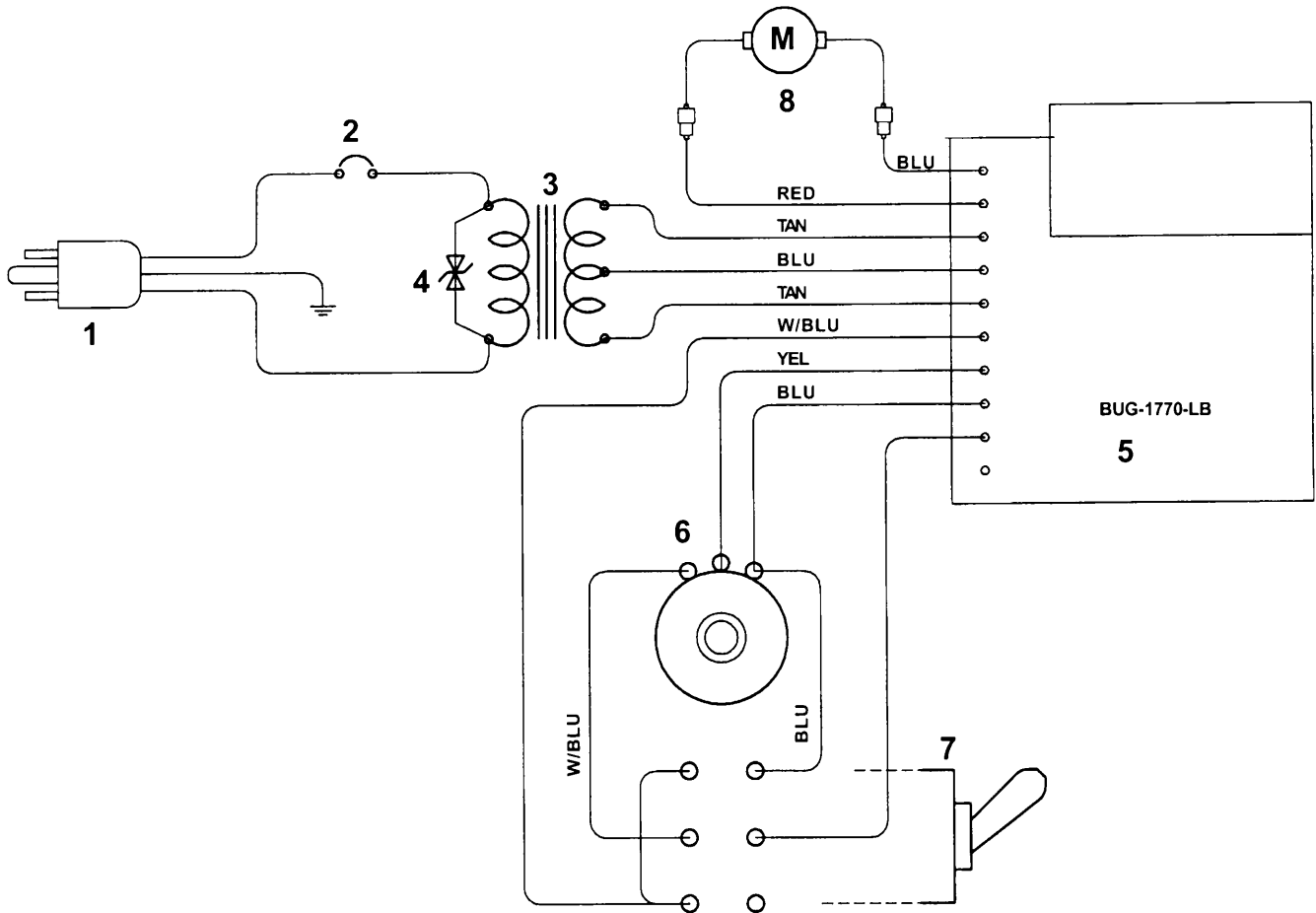
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|---------------------------|
| 1 | 1 | BUG-5485 | Contactors/Cable Anchor |
| *2 | 1 | LBG-1100 | Light'n Bug Basic 120 VAC |
| | | * LBG-1102 | Light'n Bug Basic 240 VAC |
| | | LBG-1104 | Light'n Bug Basic 42 VAC |

BASIC LIGHT'N BUG / EXPLODED VIEW / PARTS LIST



| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|------------------------|
| 1 | 1 | BUG-9447 | Wrench |
| 2 | 12 | FAS-0124 | Pan Hd Scr 8-32 x 3/8" |
| 3 | 1 | TRB-1121 | 120V Cover |
| 3 | 1 | TRB-1122 | 240V Cover |
| 3 | 1 | TRB-1123 | 42V Cover |
| 4 | 1 | TRB-1124 | Base Assembly |
| 5 | 1 | TRB-1125 | Torch Holder Assembly |

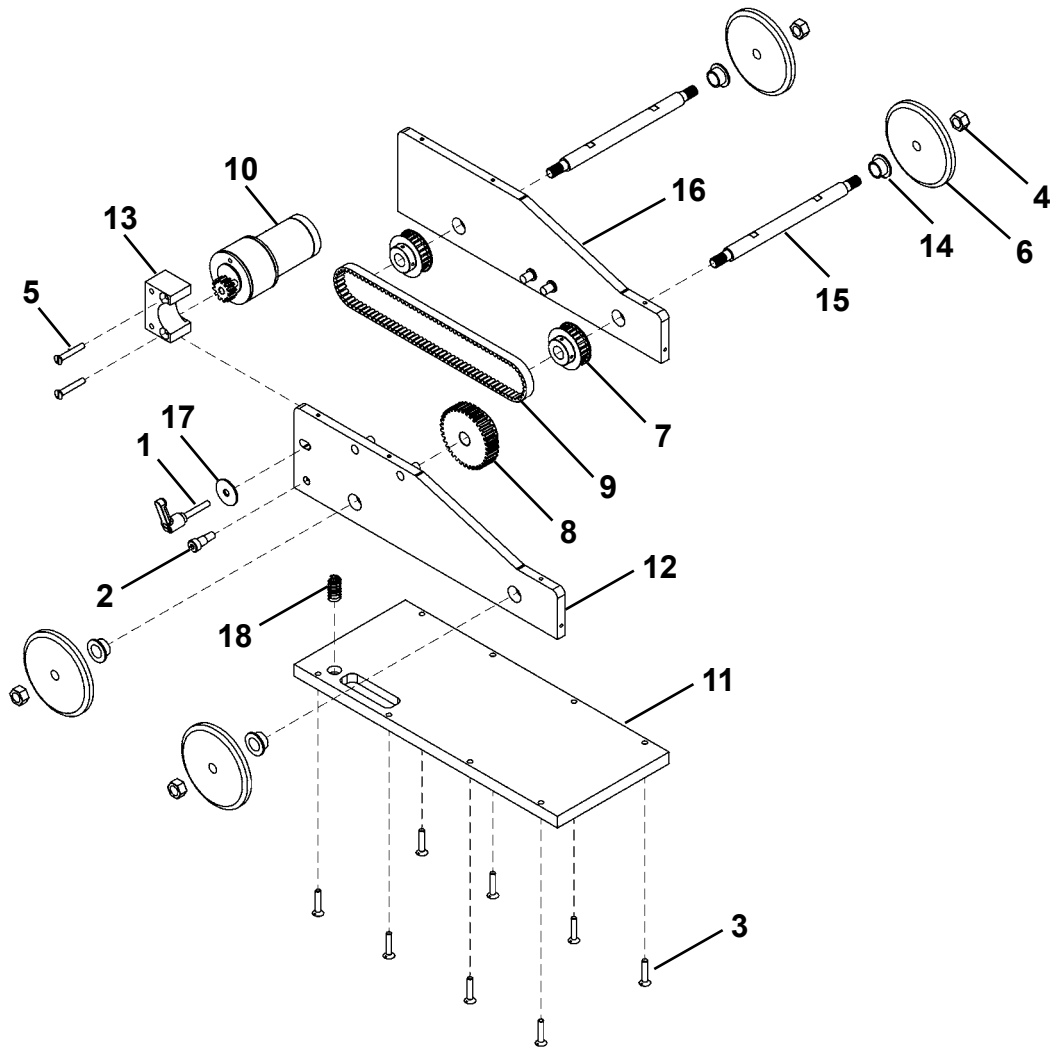
LIGHT'N BUG / WIRING DIAGRAM / ELECTRICAL COMPONENT CHART



ELECTRICAL COMPONENT CHART

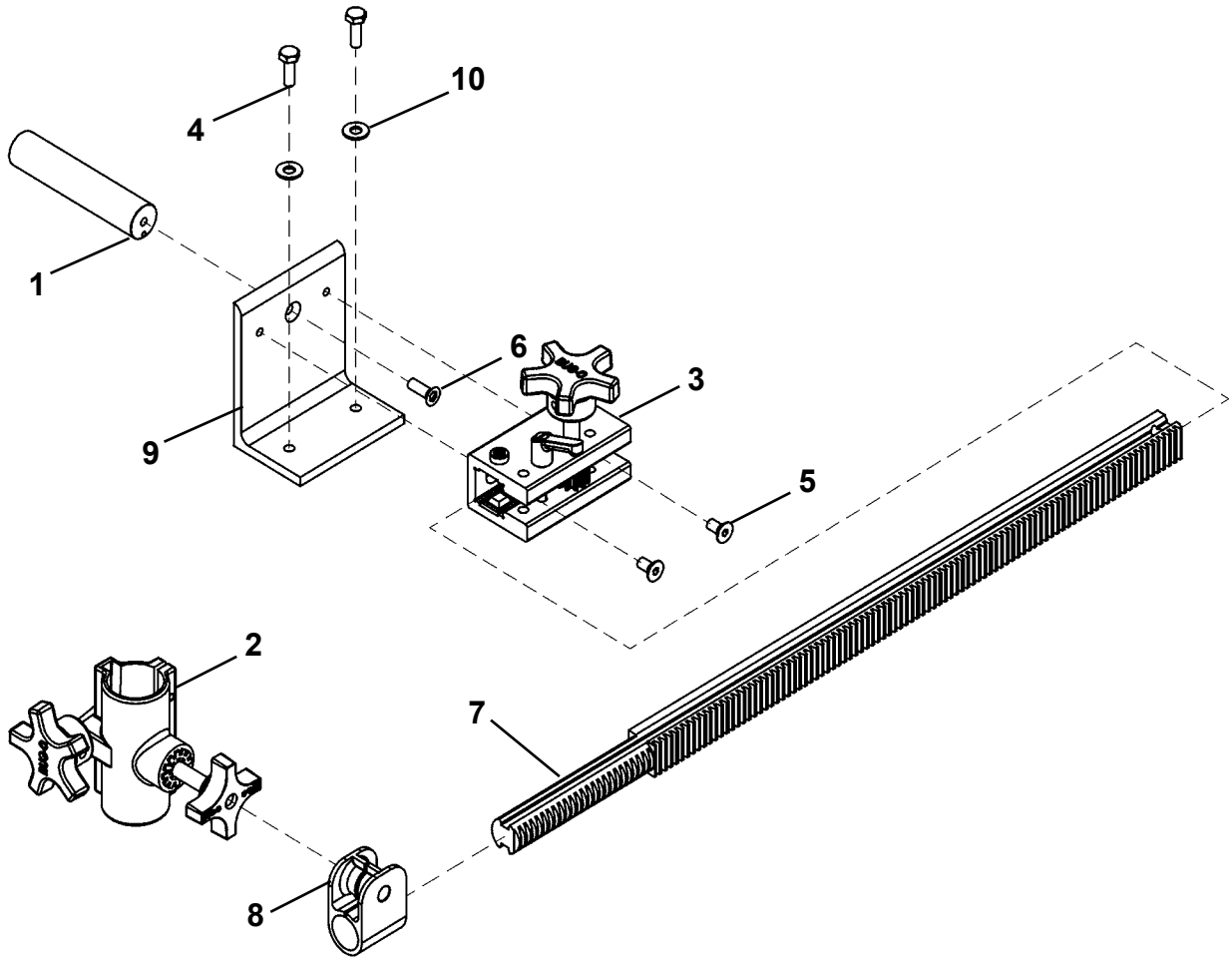
| ITEM | DESCRIPTION | VOLTAGE | | |
|------|----------------------|----------|-------------|----------|
| | | 120 VAC | 240 VAC | 42 VAC |
| 1 | Power Cord | BUG-9455 | GOF-3115 | BUG-9442 |
| 2 | Circuit Breaker | BUG-2923 | BUG-2952 | BUG-2933 |
| 3 | Transformer | BUG-5001 | BUG-5002 | BUG-5003 |
| 4 | Volt Trap | BUG-1393 | BUG-1563 | BUG-1393 |
| 5 | Speed Control | | BUG-1770-LB | |
| 6 | Potentiometer w/Knob | | | BUG-9686 |
| 7 | Toggle, Sw., F-O-R | | BUG-2255 | |
| 8 | Gear Motor | | TRB-1127 | |

TRB-1124 / BASE ASSEMBLY / EXPLODED VIEW / PARTS LIST



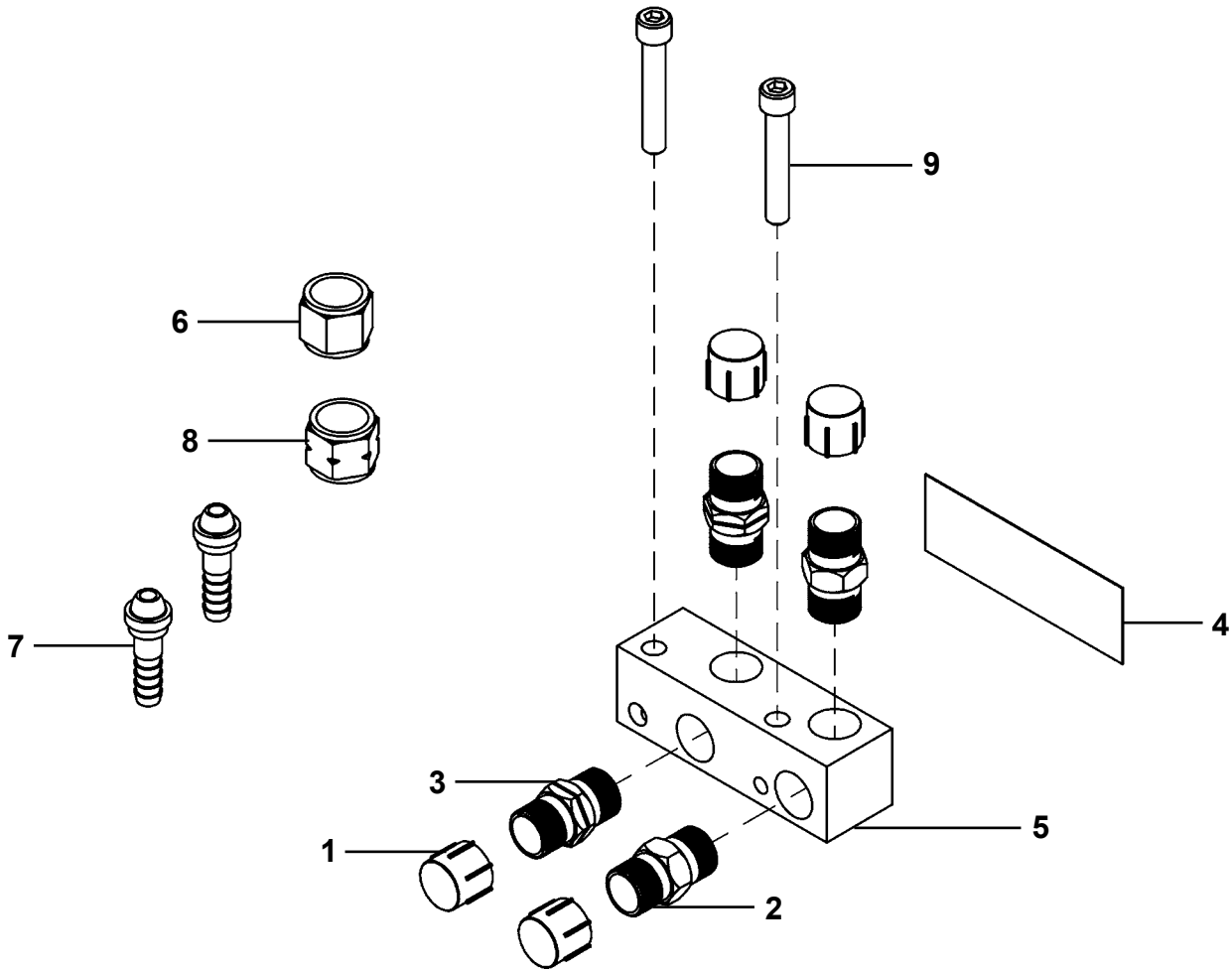
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|--------------------------------|
| 1 | 1 | BUG-2234 | Adjustable Clamping Lever |
| 2 | 1 | FAS-0654 | Soc Hd Shr 5/16 x 3/8 x 1/4-20 |
| 3 | 8 | FAS-0838 | Flt Hd Slit Scr 10-24x7/8" |
| 4 | 4 | FAS-1390 | Hex Nut 3/8-16 |
| 5 | 2 | FAS-2844 | Flt Hd Slit Scr 10-32 x 1-3/4" |
| 6 | 4 | TRB-1014 | TRB Steel Wheel |
| 7 | 2 | TRB-1017 | TRB Timing Pulley |
| 8 | 1 | TRB-1018 | TRB Driven Gear |
| 9 | 1 | TRB-1019 | Drive Belt |
| 10 | 1 | TRB-1128 | Motor, w/Pinion |
| 11 | 1 | TRB-1129 | Base Plate |
| 12 | 1 | TRB-1131 | Side Panel "A" Assembly |
| 13 | 1 | TRB-1133 | Motor Mount |
| 14 | 4 | TRB-1135 | Flange Bearing |
| 15 | 2 | TRB-1136 | Axle |
| 16 | 1 | TRB-1141 | Side Panel "B" Assembly |
| 17 | 1 | WAS-0244 | Fender Washer |
| 18 | 1 | SPR-0045 | Spring |

TRB-1125 / TORCH HOLDER ASSEMBLY / EXPLODED VIEW / PARTS LIST



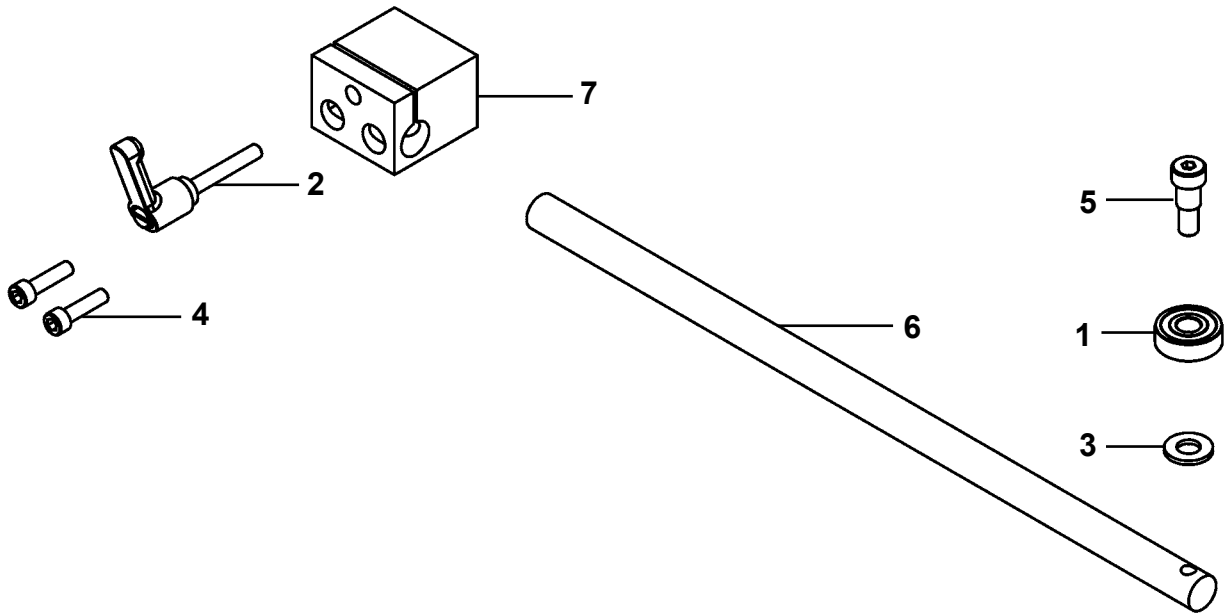
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|------------------------------|
| 1 | 1 | BUG-1789 | Post |
| 2 | 1 | BUG-2915 | Torch Holder |
| 3 | 1 | BUG-5451 | 3.5" Rackholder |
| 4 | 2 | FAS-0357 | Hex Hd Cap Scr 1/4-20 x 3/4" |
| 5 | 2 | FAS-0955 | Flt Hd Soc Scr 1/4-20 x 1/2" |
| 6 | 1 | FAS-0957 | Flt Hd Soc Scr 1/4-20 x 3/4" |
| 7 | 1 | PAN-1015 | Rack 22-5/8" Long |
| 8 | 1 | PAN-1033 | Rod Clamp |
| 9 | 1 | TRB-1134 | L-Bracket |
| 10 | 2 | WAS-0240 | 1/4 SAE Washer |

TRB-1126 / MANIFOLD / EXPLODED VIEW / PARTS LIST



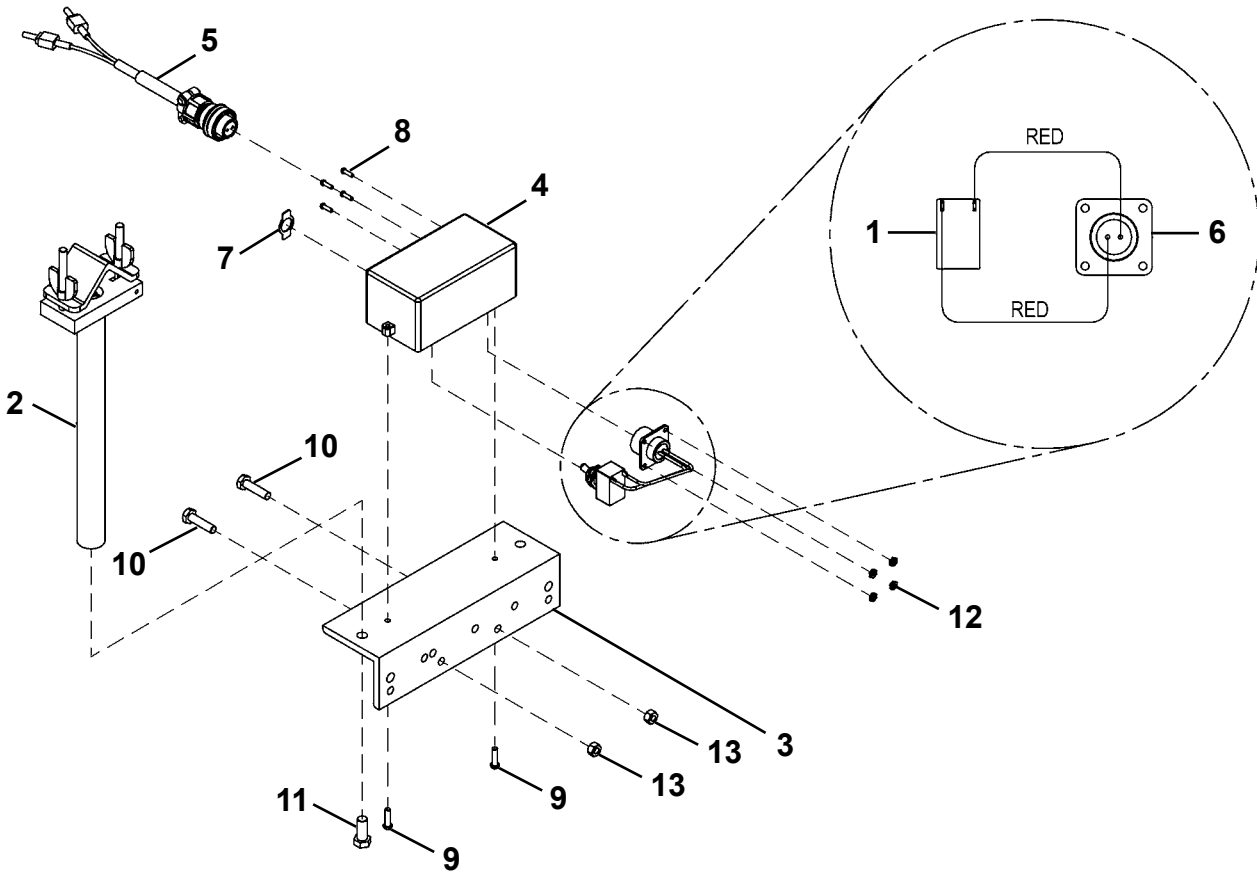
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|--------------------------------|
| 1 | 4 | BUG-2062 | Male Thread Protector |
| 2 | 2 | BUG-9096 | Outlet Bushing, Oxygen |
| 3 | 2 | BUG-9097 | Outlet Bushing, Fuel |
| 4 | 1 | BUG-9109 | Maximum Pressure Label |
| 5 | 1 | BUG-9113 | Manifold Block |
| 6 | 1 | CIR-1012 | Hose Nut, Oxygen |
| 7 | 2 | CIR-1013 | 1/4" Hose Nipple |
| 8 | 1 | CIR-1014 | Hose Nut, Fuel Gas |
| 9 | 2 | FAS-2553 | Soc Hd Cap Scr 1/4-20 x 1-1/2" |

TRB-1163 / ROD W/MOUNT / EXPLODED VIEW / PARTS LIST



| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|--------------------------------|
| 1 | 1 | BUG-2012 | Bearing |
| 2 | 1 | BUG-2234 | Adjustable Clamping L |
| 3 | 1 | BUG-2841 | Washer 5/8 O.D. x 5/16" |
| 4 | 2 | FAS-0557 | Soc Hd Cap 1/4-20 x 3/4" |
| 5 | 1 | FAS-0654 | Soc Hd Shr 5/16 x 3/8 x 1/4-20 |
| 6 | 1 | TRB-1161 | Rod |
| 7 | 1 | TRB-1162 | Rod Mount |

BUG-5485 / CONTACTOR / CABLE ANCHOR / EXPLODED VIEW / PARTS LIST



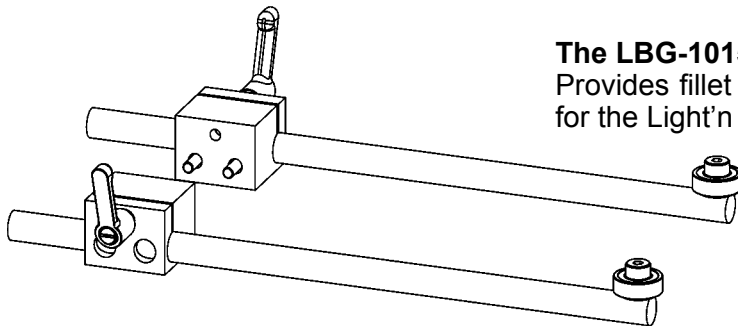
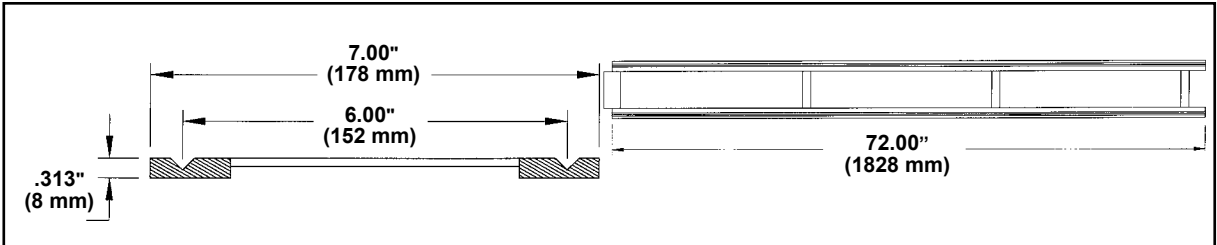
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|------------------------------|
| 1 | 1 | ABP-1069 | Toggle Switch |
| 2 | 1 | BUG-2668 | Cable Anchor Bracket |
| 3 | 1 | BUG-5486 | Mounting Angle |
| 4 | 1 | BUG-5487 | Enclosure, Drilled |
| 5 | 1 | BUG-9485 | Cable Connector w/Leads |
| 6 | 1 | BUG-9486 | Panel Connector, 2T, M |
| 7 | 1 | BUG-9884 | On-Off Switch Plate |
| 8 | 4 | FAS-0204 | Rnd Hd Scr #4-40 x 3/8" Zinc |
| 9 | 2 | FAS-0226 | Rnd Hd Scr #8-32 x 5/8" |
| 10 | 2 | FAS-0359 | Hex Hd Cap Scr 1/4-20 x 1" |
| 11 | 1 | FAS-0377 | Hex Hd Cap Scr 5/16 x 3/4" |
| 12 | 4 | FAS-1305 | Hex Nut #4-40 |
| 13 | 2 | FAS-1351 | Hex Nut 1/4-20 |

ACCESSORIES

TRB-1250 Friction Rail 71" (1.8 m)

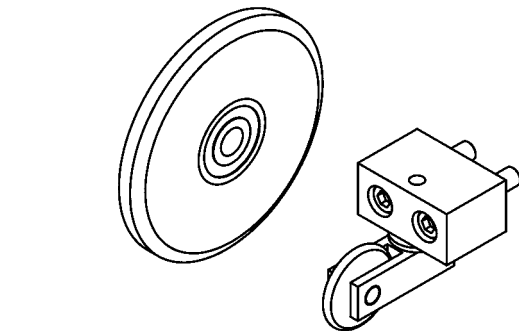
The TRB-1250 Friction Rail is made of steel. The design allows the user to join multiple sections together for long cuts. This rail can only be used for down-hand applications. The rail sections weigh 16 lbs. (7.3 kg) each.

TRB-1250 72" (183 cm) Track.



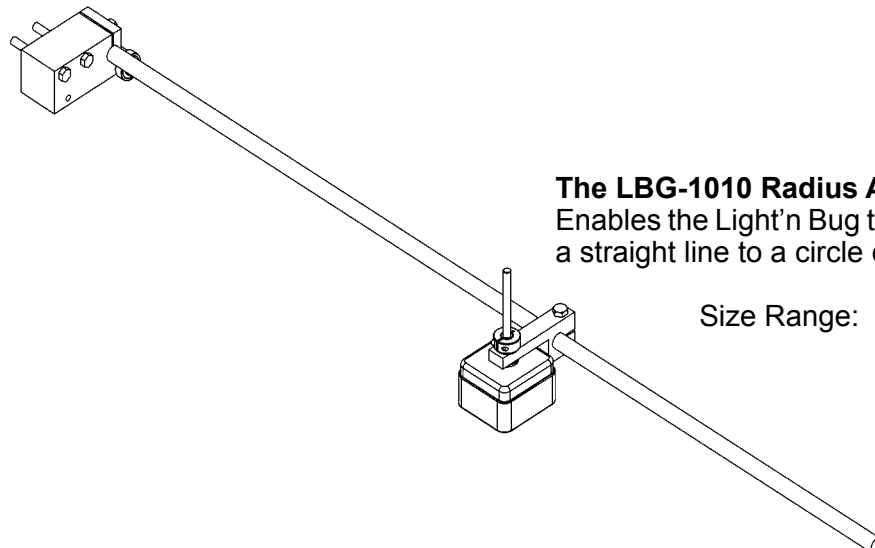
The LBG-1015 Fillet Attachment

Provides fillet or straight edge following capabilities for the Light'n Bug.



The LBG-1020 Steering Attachment

Attaches to the Light'n Bug enabling the unit to be steered manually for irregular weld patterns.



The LBG-1010 Radius Attachment

Enables the Light'n Bug to be quickly converted from a straight line to a circle cutting machine.

Size Range: 8"-96" Diameter
(203 mm - 2438 mm)

TROUBLESHOOTING GUIDE

| PROBLEM | POSSIBLE CAUSE | REMEDY |
|---|--|--|
| Does not run. | No power to the machine. Bad connection. Faulty speed control board. | Check power line supply voltage. Plug in line cord firmly. Check wiring connections, 12 VAC should appear across secondary of transformer. Tighten terminal screws on speed control board. If DC Volts=0 across leads to motor; replace control board. |
| Does not run. Circuit Breaker tripped. | Wiring shorts. Shorted motor. Faulty speed control board. Burned out transformer. | Disconnect machine and examine internally; rewire at fault. If none found, throw direction switch to "OFF", reset breaker and plug in: If breaker does not trip, replace drive unit. If breaker trips again, replace control board. (OR) Replace transformer. |
| Unit runs, but no control over speed | Faulty speed control board. | Replace control board. (Check connection first). |

NOTE: Make sure unit is plugged into the correct voltage, (120 VAC, 240 VAC, 42 VAC) corresponding to Model No. rating.

12 VAC should appear across secondary of transformer in all Light'n Bug units.

WARRANTY

| |
|-------------------------|
| Limited Warranty |
|-------------------------|

Model _____

Serial No. _____

Date Purchased: _____

For a period of twelve (12) months from delivery, BUG-O Systems warrants to the original purchaser (does not include authorized distributors), that a new machine is free from defects in material and workmanship and agrees to repair or replace, at its option, any defective parts or machine. This warranty does not apply to machines, which after our inspection, are determined to have been damaged due to neglect, abuse, overloading, accident or improper usage. All shipping and handling charges will be paid by customer.

BUG-O Systems makes no warranty of merchantability and makes no other warranty, expressed or implied, beyond the warranty expressly set forth above. Buyer's remedy for breach of warranty, hereunder, shall be limited to repair or replacement of non-conforming parts and machines. Under no circumstances shall consequential damages be recoverable.

HOW TO OBTAIN SERVICE:

If you think this machine is not operating properly, re-read the instruction manual carefully, then call your Authorized BUG-O dealer/distributor. If he cannot give you the necessary service, write or phone us to tell us exactly what difficulty you have experienced. BE SURE to mention the MODEL and SERIAL numbers.

NOTES: