

INSTRUCTIONS AND PARTS MANUAL

UNI-BUG® II THE UNIVERSAL BUG-O

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-UBII-IPM-0319

Bug-O Systems is committed to empowering our customers by providing operator controlled mechanized solutions for their welding, cutting and custom applications.



BUG-O SYSTEMS
A DIVISION OF WELD TOOLING CORPORATION

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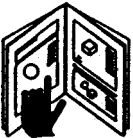
SAFETY

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 the equipment when wet or standing in a wet location.
2. Never open the equipment without first unplugging the power cord or serious injury may result.
3. 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.
4. 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 Electrical 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. Do not leave the equipment unattended. Remove from the work site 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.

CAUTION

DO NOT LEAVE EQUIPMENT UNATTENDED WHEN NOT IN USE!

Remove from work site and store in a safe location.

UNI-BUG® II

INSTRUCTION AND PARTS MANUAL

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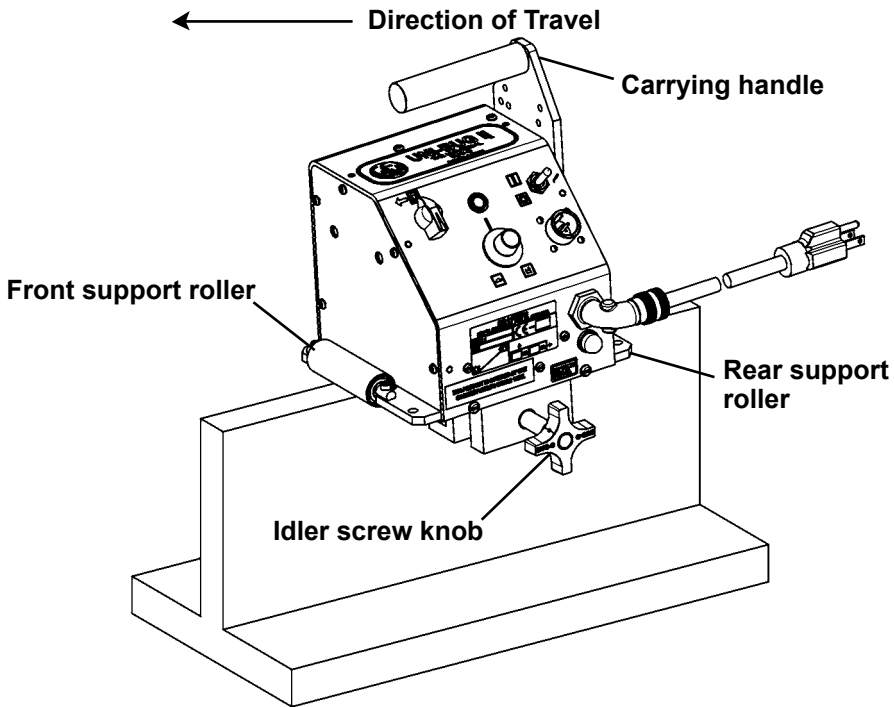
**THIS PRODUCT IS COVERED BY ONE OR
MORE PATENTS WORLD WIDE.**

INTRODUCTION

The UNI-BUG® II is a small, lightweight, versatile machine originally designed for the shipbuilding industry to weld or cut coamings, flanges, stiffeners and similar joints. Previously this work could not be automated because there was not enough room to mount a machine track system or the available machines were too large to follow some of the workpiece curves or get into tight work areas.

The UNI-BUG® II is small enough to carry a cutting torch or welding gun into tight work areas or around very tight curves without the use of a track. The built-in carrying handle allows for easy mounting and removal at any point along the workpiece. The UNI-BUG® II can weld or cut both straight line and on an inner radius as small as 6" (152 mm). It will travel at speeds of 4-75 ipm (101-1905 mm/min) with a 50 lb. (22.7 kg) horizontal pulling capacity.

The UNI-BUG® II is designed to run on the edge of a bar or stiffener up to 2" (51 mm) thick as shown below. Front and rear rollers support the machine and tilt it forward for better control and traction. This also sets the working direction. The machine must be turned around to weld the other side of the workpiece.



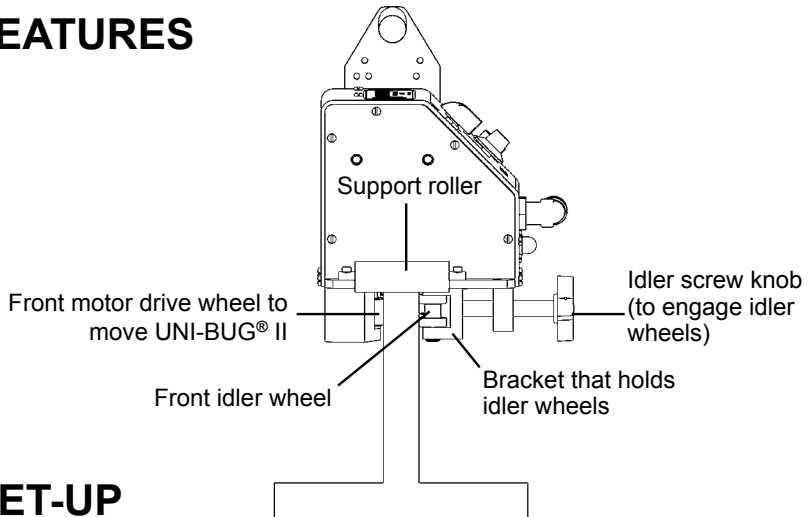
UNI-BUG® II straddling an I-beam
(Torch holding devices not shown for clarity)

INTRODUCTION (CONT'D.)

The UNI-BUG® II can operate without a track as shown below. A gear motor turns two drive wheels on one side of the workpiece. On the other side of the workpiece is a bracket which has four idler wheels mounted on it. An idler screw knob is used to move the idler wheel bracket into the workpiece and clamp it between the four idler wheels and the two drive wheels.

BUG-1855 Welding Group is required to clamp and position a welding gun. BUG-1875 Cutting Group is available for cutting applications.

FEATURES



SET-UP

1. Loosen the idler screw knob to open the gap between the idler wheels and the drive wheels. When the gap is large enough, drop the machine over the workpiece edge.
2. The machine should be firmly resting on the front and back roller supports and tilt forward in the direction of desired travel.
3. Engage the idler screw knob until all of the idler and drive wheels are contacting the workpiece. Tighten another 1/2-3/4 turn to firmly clamp the workpiece.
4. Adjust the UNI-BUG® II racking attachment so the welding gun or cutting torch is properly positioned. This should always be placed below the center of the machine so that the gun or torch can hold the same relative position as the machine moves from a straight to a curved work section.
5. Set the machine speed using the speed control.
6. Set the travel switch to "ON".
7. The Uni-bug® II comes with a power cord only and the amphenol for connecting the contactor to the machine.

Weld Contact - There are two contact cables available: UNI-1085-25 or UNI-1085-50 (sold separately). The other option is to build your own using a heavy lamp type cord and wire it into the 4-pin amphenol. You only need four wires as you connect pin A & B then C & D together to make it work.

8. Turn on the weld contactor switch to begin welding.

TECHNICAL DATA

Power Requirement: UNI-1000 120 VAC/50-60/1
UNI-1002 240 VAC/50-60/1
UNI-1004 42 VAC/50-60/1

Dimensions: 8.00" L x 7.62" W x 10.50" H
(203 x 194 x 267 mm)

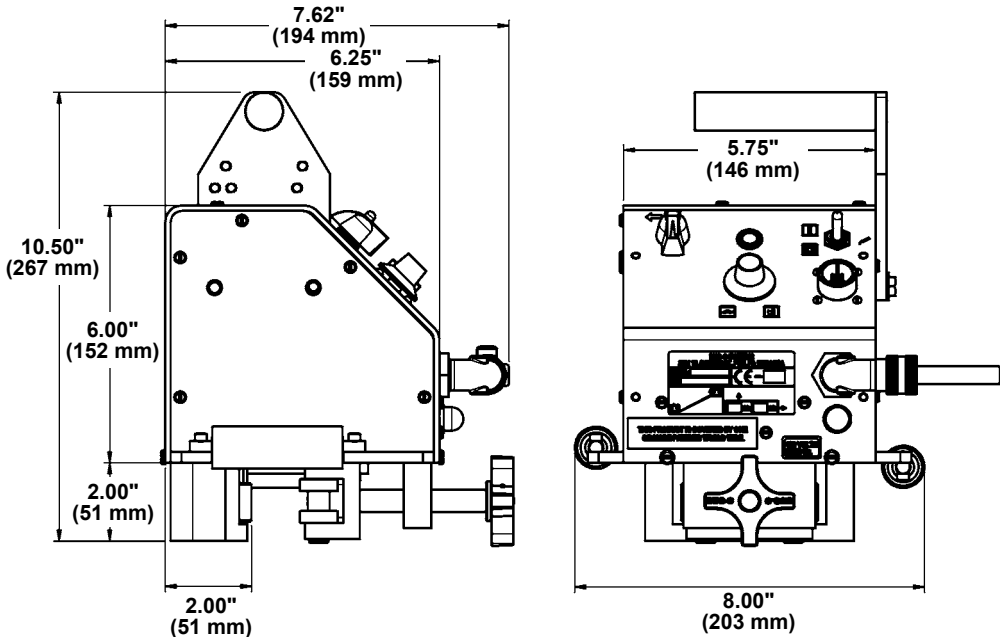
Speed Range: 4 ipm to 75 ipm
(102 to 1905 mm/min)

Maximum Stiffener Size: 2" (51 mm)

Net Weight: 14 lbs. (6.35 kg)

Shipping Weight: 16 lbs. (7.26 kg)

DIMENSIONS



UNI-BUG® II KITS

UNI-1100 UNI-BUG® II Welding Kit 120 VAC

UNI-1102 UNI-BUG® II Welding Kit 240 VAC

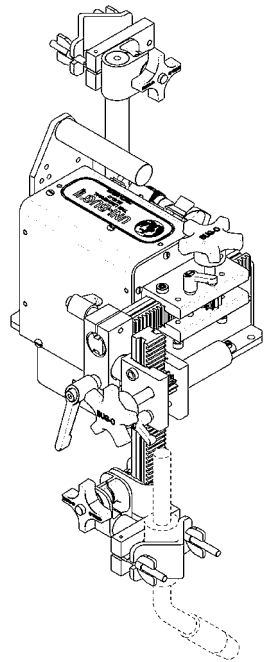
UNI-1104 UNI-BUG® II Welding Kit 42 VAC

Net Weight: 19 lbs. (8.62 kg)

Shipping Weight: 21 lbs. (9.53 kg)

Includes:

- (1) BUG-1855 UNI-BUG® Welding Group
- (1) UNI-100_ UNI-BUG® II



UNI-1200 UNI-BUG® II Cutting Kit 120 VAC

UNI-1202 UNI-BUG® II Cutting Kit 240 VAC

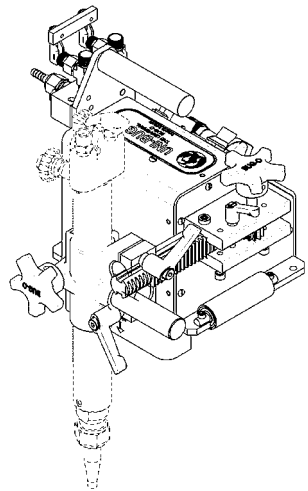
UNI-1204 UNI-BUG® II Cutting Kit 42 VAC

Net Weight: 20 lbs. (9.07 kg)

Shipping Weight: 22 lbs. (10.0 kg)

Includes:

- (1) BUG-1875 UNI-BUG® Cutting Group
- (1) UNI-100_ UNI-BUG® II



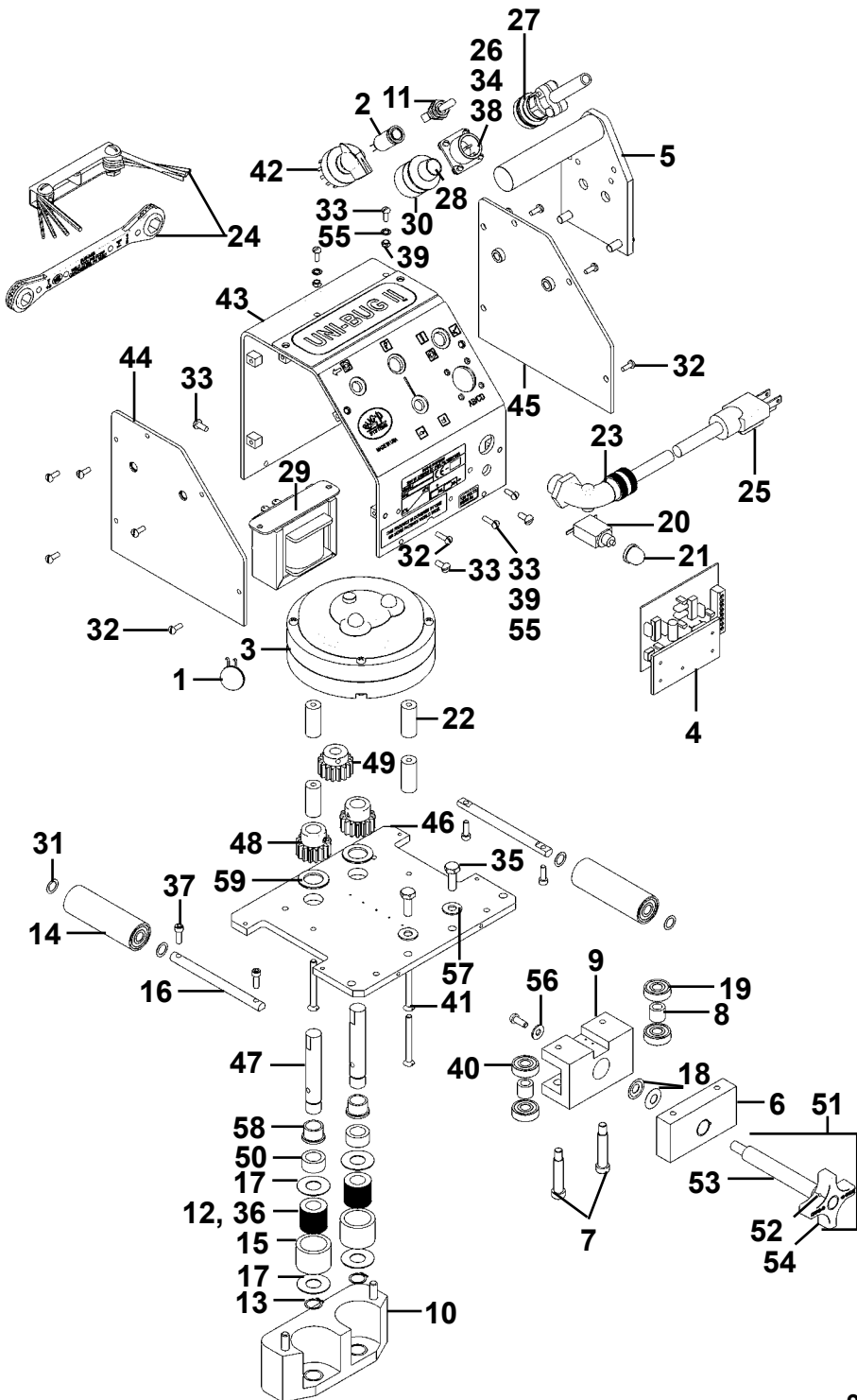
UNI-1000 UNI-BUG® II / PARTS LIST

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
* 1	1	BUG-1393	Volt Trap 120 VAC
* 2	1	BUG-1415	Pilot Light 120 VAC
3	1	BUG-1550	Gear Motor (150:1)
4	1	BUG-1725	Precision Speed Control
5	1	BUG-1785	Handle
6	1	BUG-1854	Screw Block with Insert
7	2	BUG-1858	Soc Hd Shr Scr 5/16 x 1 1/4 x 1/4-20
8	2	BUG-1859	Bearing Spacer
9	1	BUG-1863-R	Idler Channel
10	1	UNI-1040	Drive Wheel Blk. Assy.
11	1	SWT-0810	Toggle Switch, ON-ON
12	2	BUG-1888	Drive Roll
13	2	BUG-1893	Retaining Ring 1/2" External
14	2	BUG-1895	Roller Bearing Assembly
15	2	BUG-1897	Sleeve
16	2	BUG-1898	Axle
17	4	BUG-1899	Washer 1 1/16 OD x 1/2 ID x 1/32 Thk
18	2	BUG-1988	Belleville Washer .323 ID x .709 OD
19	4	BUG-2012	Bearing
20	1	CIR-5247	0.7 Amp Circuit Breaker
21	1	BUG-2924	Reset Button Seal
22	4	BUG-5121	Stand Off
23	1	BUG-9103	Cord Grip
24	1	BUG-9444	Tool Kit
* 25	1	BUG-9445	Power Cord 120 V
26	1	BUG-1034	Panel Connector, 4-T, M
27	1	BUG-1035	Cable Connector, 4-T, F
28	1	BUG-9621	Knob
* 29	1	BUG-9675	Transformer 120 V
30	1	BUG-9677	Potentiometer
31	4	CON-1029	Washer 5/16 x .015 Thk
32	12	FAS-0114	Pan Hd Scr 6-32 x 3/8
33	7	FAS-0124	Pan Hd Scr 8-32 x 3/8
34	4	FAS-0204	Rnd Hd Sor 4-40 x 3/8
35	2	FAS-0357	Hex Hd Cap Scr 1/4-20 x 3/4
36	2	FAS-0452	Set Scr 1/4-20 x 1/4
37	4	FAS-0525	Soc Hd Cap Scr 8-32 x 1/2
38	4	FAS-1305	Hex Nut 4-40
39	3	FAS-1320	Hex Nut 8-32
40	1	FAS-1445	Phil Pan Hd Th Rolling 10-32 x 1/2
41	4	FAS-2824	Fit Hd Sit Scr 8-32 x 1 3/4
42	1	MUG-1192	Rotary Switch w/Knob, 4P, 3-Pos
**43	1	UNI-1016	Cover
44	1	UNI-1017	Left Side Panel
45	1	UNI-1018	Right Side Panel
46	1	UNI-1021	Base Plate
47	2	UNI-1022	Slave Shaft
48	2	UNI-1024	Slave Pinion
49	1	UNI-1025	Pinion w/set screw
50	2	UNI-1029	Shaft Spacer
51	1	UNI-1030	Tensioning Screw Assembly (includes items 52,53,54)
52	1	RPS-0117	Roll Pin 3/32 x 3/4
53	1	UNI-1031	1/2-13 Threaded Stud
54	1	UNI-1032	Knob
55	3	WAS-0221	#8 Internal Star Lockwasher
56	1	WAS-0230	#10 Washer
57	2	WAS-0240	1/4 SAE Washer
58	2	BER-1001	Flange Bearing
59	2	BER-1002	Thrust Washer

* See Electrical Component Chart for 240 VAC and 42 VAC Part Numbers

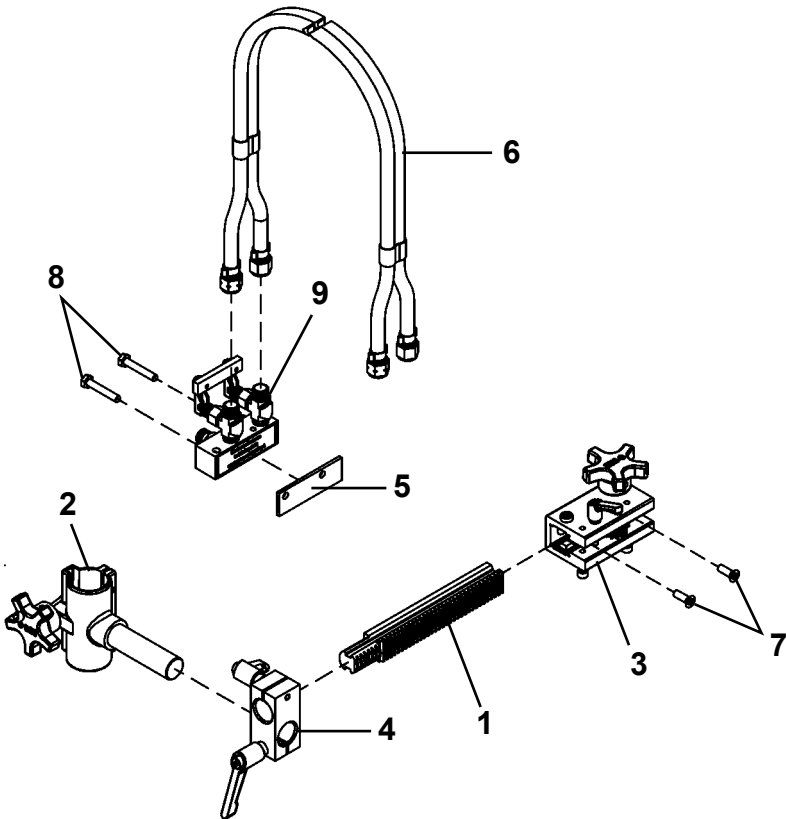
** UNI-1013 (Uni-bug II Front Legend Plate) and UNI-1015 (Uni-bug II Top Legend Plate) are both part of UNI-1016

UNI-1000 UNI-BUG® II / EXPLODED VIEW



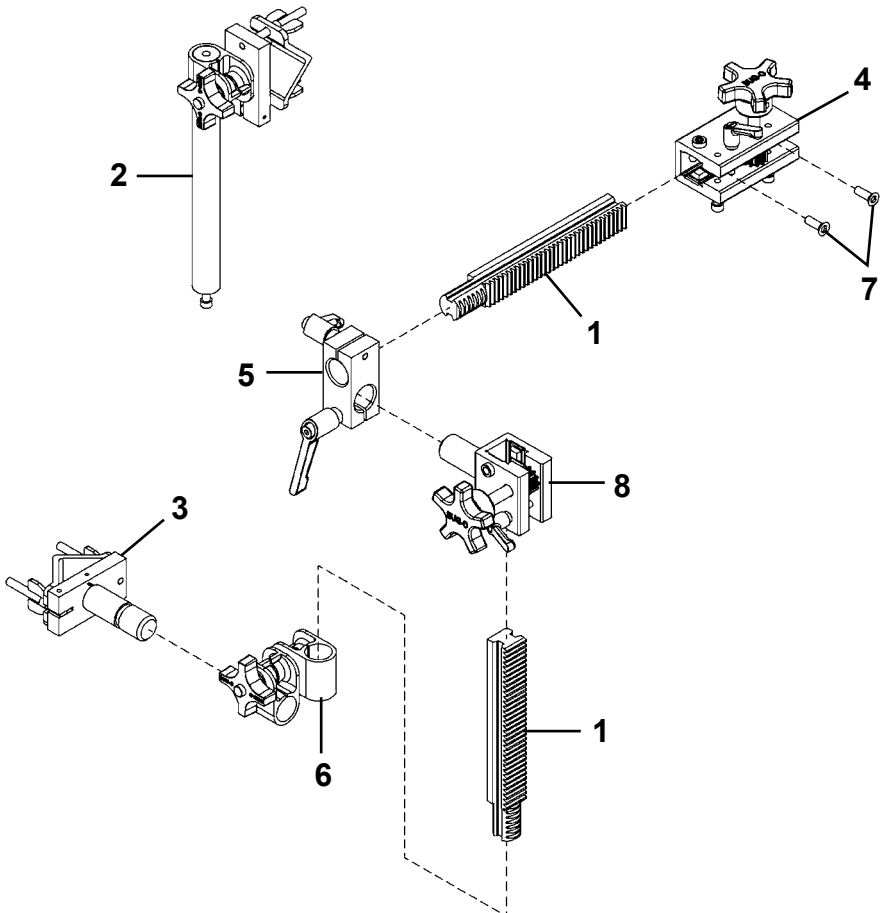
BUG-1875 UNI-BUG® CUTTING GROUP / EXPLODED VIEW / PARTS LIST

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	BUG-1853	Machined Rack 7-1/2" (191 mm)
2	1	BUG-5188	Torch Holder Assembly
3	1	BUG-5451	3.5" Rackholder (88.9 mm)
4	1	BUG-5462	Right Angle Clamp
5	1	BUG-9729	Spacer
6	1	CIR-1010-2	Hose Assembly 20" (508 mm)
7	2	FAS-0957	Flt Hd Soc Scr 1/4-20 x 3/4
8	2	FAS-2353	Hex Hd Cap Scr 1/4-20 x 1-1/2
9	1	GOF-3025	Quick-Acting Manifold

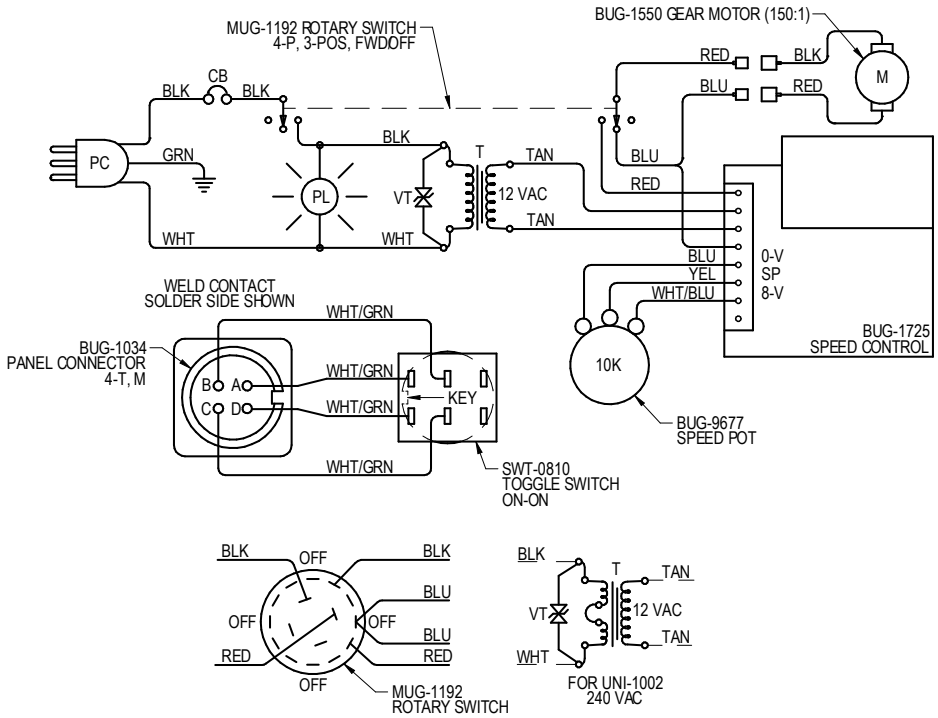


BUG-1855 UNI-BUG® WELDING GROUP / EXPLODED VIEW / PARTS LIST

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	BUG-1853	Machined Rack 7-1/2" (191 mm)
2	1	BUG-1881	Cable Anchor w/Swivel Clamp
3	1	BUG-2708	Clamp
4	1	BUG-5451	3.5" Rackholder (88.9 mm)
5	1	BUG-5462	Right Angle Clamp
6	1	CON-1020	Clamp
7	2	FAS-0957	Fit Hd Soc Scr 1/4-20 x 3/4
8	1	UNI-1036	Rackrider w/Post



WIRING DIAGRAM

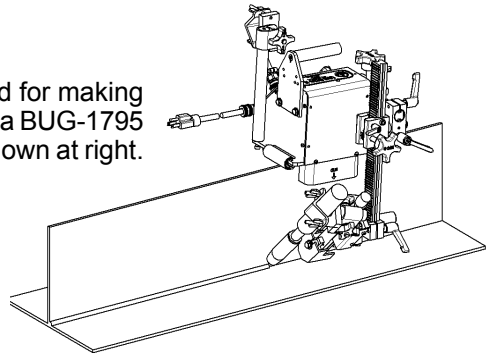


ELECTRICAL COMPONENT CHART

		UNI-1000	UNI-1002	UNI-1004
ITEM	DESCRIPTION	120 VAC PART NO.	240 VAC PART NO.	42 VAC PART NO.
CB	Circuit Breaker	BUG-2923	BUG-2952	BUG-2933 (2A)
PC	Power Cord	BUG-9445	GOF-3115	BUG-9442
PL	Pilot Light	BUG-1415	BUG-1428	BUG-1427
T	Transformer	BUG-9675	GOF-3112	BUG-1466
VT	Volt Trap	BUG-1393	BUG-1563	BUG-1393

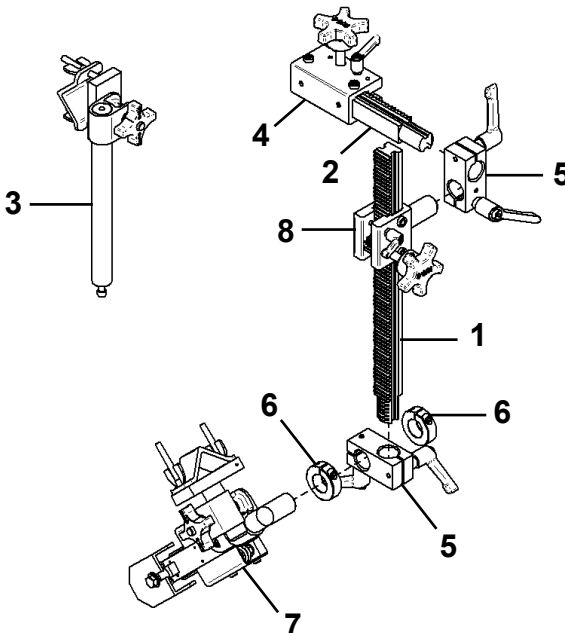
BUG-1795 COMPACT CORNER FOLLOWER

The UNI-BUG® II can be used for making fillet welds with the addition of a BUG-1795 Compact Corner Follower, shown at right.



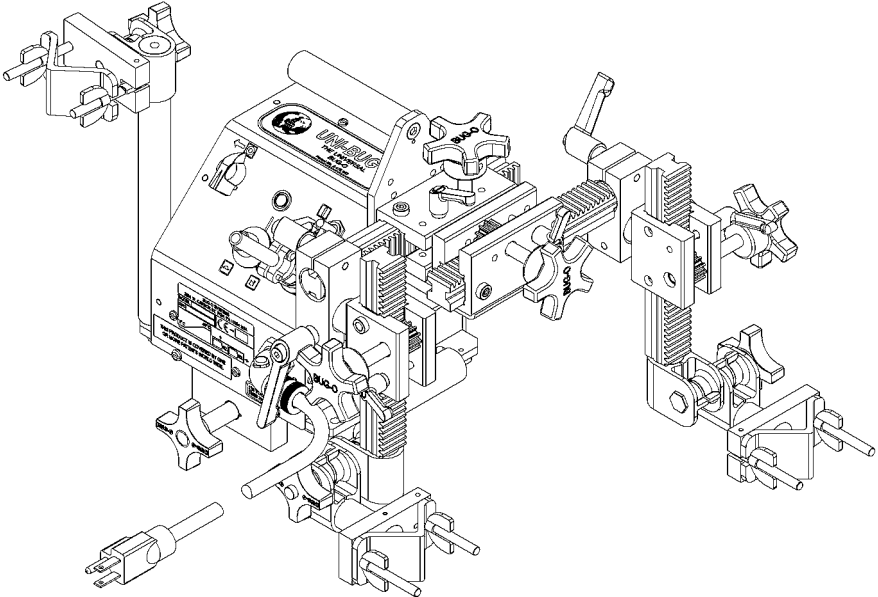
BUG-1795 COMPACT CORNER FOLLOWER / EXPLODED VIEW / PARTS LIST

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	BUG-1796	Machined Rack 14" (355 mm)
2	1	BUG-1853	Machined Rack 7-1/2" (191 mm)
3	1	BUG-1881	Cable Anchor w/Swivel Clamp
4	1	BUG-5451	3.5" Rackholder (88.9 mm)
5	2	BUG-5462	Right Angle Clamp
6	2	MUG-1515	Collar
7	1	PAN-1200-L	Compact Corner Follower, Welding LH
8	1	UNI-1036	Rackrider w/Post



UNI-BUG® II FOR DUAL WELDING

The UNI-BUG® II can be adapted for dual welding applications as shown below. A double racker mounting angle is bolted directly onto the left side of the machine using two 1/4-20 socket head cap screws. Two 3.5" (88.9 mm) rackholders are then mounted to the angle, each engaged with a 7-1/2" (191 mm) rack positioned horizontally in opposite directions. At the end of each horizontal rack, a right angle clamp block is attached allowing for an additional rackholder and 7-1/2" rack to be mounted vertically. At the end of each vertical rack, a swivel clamp assembly and torch clamp are added. A cable anchor with swivel clamp is mounted to the front right side of the UNI-BUG® II to complete the set up.



A UNI-BUG® II converted for dual welding using a UNI-1350 UNI-BUG® Dual Welding Group.

RACK MOUNTING

The handle mounting bracket has been redesigned so that it can be mounted on either the left or right side of the machine. This allows the rackholder and rack also to be mounted on either side. The welding gun can then be positioned behind the drive desired, to reduce heating of the rollers.

UNI-1019 STEEL DRIVE ROLL

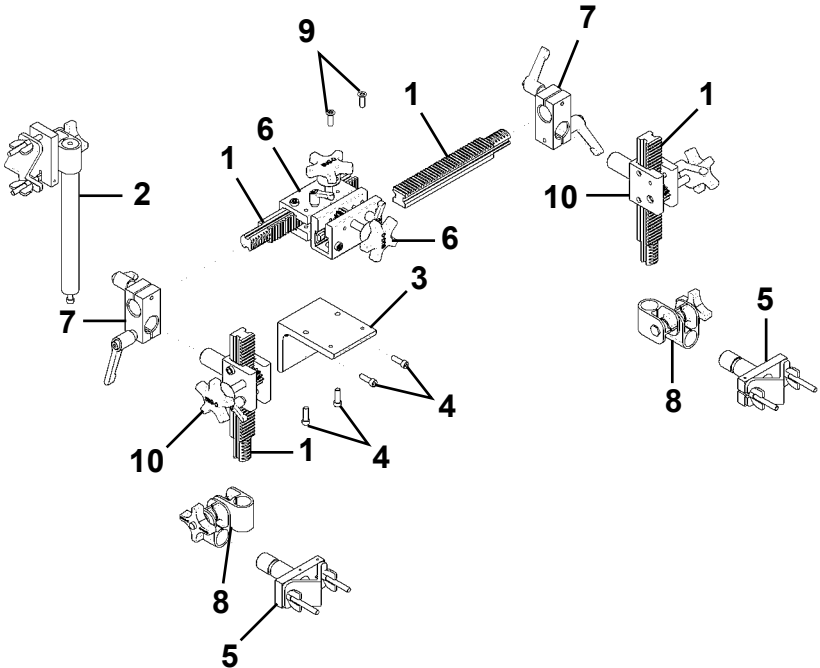
Optional hardened steel drive rolls are available for use when running on a heated workpiece, which could melt the sleeves on the standard drive rolls.

Order (2) UNI-1019 Steel Drive Rolls.

UNI-1350 UNI-BUG® DUAL WELDING GROUP / EXPLODED VIEW / PARTS LIST

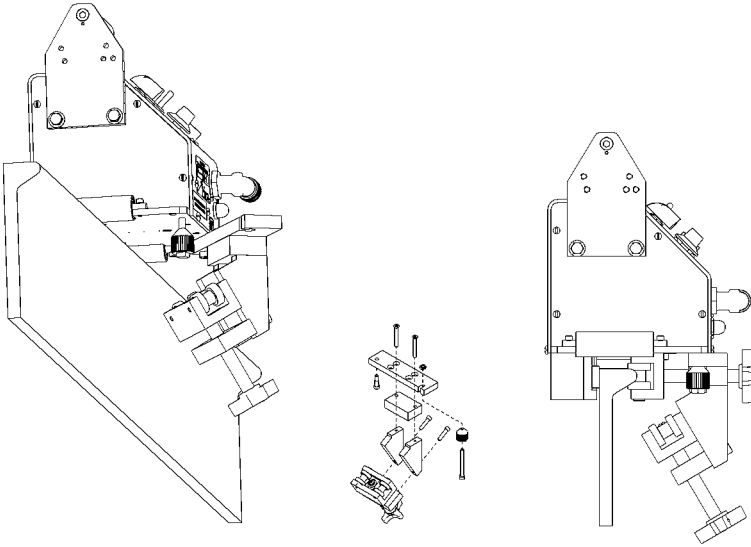
Converts a standard UNI-1000 into a dual welder.

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	4	BUG-1853	Machined Rack 7-1/2" (191 mm)
2	1	BUG-1881	Cable Anchor w/Swivel Clamp
3	1	BUG-1891	Double Racker Mounting Angle (includes 2 of item # 4)
4	4	FAS-0557	Soc Hd Cap Scr 1/4-20 x 3/4
5	2	BUG-2708	Clamp
6	2	BUG-5451	3.5" Rackholder (88.9 mm)
7	2	BUG-5462	Right Angle Clamp
8	2	CON-1020	Swivel Clamp Assembly
9	2	FAS-0957	Fit Hd Soc Scr 1/4-20 x 3/4 lg.
10	2	UNI-1036	Rackrider w/Post



UNI-BUG® BULB FLAT WELDER

UNI-BUG® Bulb Flat Welder will weld large bulb angles from 140-430 mm

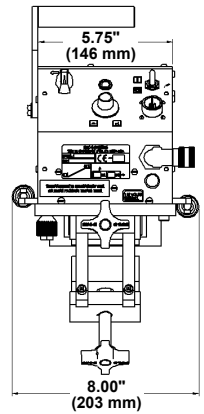
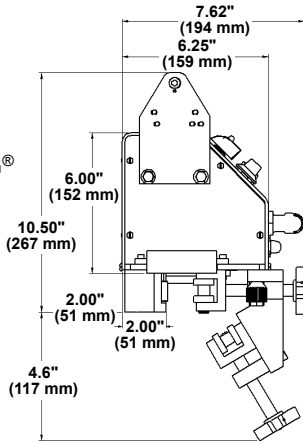


*Spacer Block For 280 to 430 mm

Dimensions of machine without torch mounts.

(Torch mounts shown on earlier pages).

The UNI-1305, Bulb Flat Welder Adaptor Kit can be used with the standard UNI-BUG® for bulb flat welding.



TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Does not run. Indicator light off.	No input power.	<ul style="list-style-type: none"> - Turn on the circuit breaker. - Plug in the line cord. - Insure there is power at the outlet.
	Broken Wire.	<ul style="list-style-type: none"> - Unplug the machine from power. - Examine internally and rewire at fault.
	Bad circuit.	<ul style="list-style-type: none"> - Replace if breaker has input power and no output when in the "ON" position.
	Bad travel switch.	<ul style="list-style-type: none"> - Replace if switch has input power and no output when 'ON'.
Does not run. Indicator light off and circuit breaker is tripped.	Wiring short.	<ul style="list-style-type: none"> - Unplug the machine from power. Examine internally and rewire at fault.
	Burned out part.	<ul style="list-style-type: none"> - Unplug the machine from power. Examine internally and replace any part that looks burned up.
	Other.	<ul style="list-style-type: none"> - Can only be determined by factory or qualified repair person.
Does not run. Indicator light on.	Bad connection.	<ul style="list-style-type: none"> - Unplug the machine from power. Examine internally and fix any broken connections. - Tighten terminal screws on speed control board.
	Open transformer.	<ul style="list-style-type: none"> - Replace the transformer if there is input power on the primary and no output on the secondary. (12 VAC/CT is expected)
	Burned out part.	<ul style="list-style-type: none"> - Unplug the machine from power. Examine internally and replace any part that looks burned up.
	Wiring short.	<ul style="list-style-type: none"> - Unplug the machine from power. Examine internally and rewire fault.
	Failed motor.	<ul style="list-style-type: none"> - Replace the motor if it has input voltage and does not turn.
	Failed control card.	<ul style="list-style-type: none"> - Unplug the machine from power. Check the card for damaged traces or parts. Repair or replace if required. - Verify the card has 12 VAC/CT input power. Replace the card if the output to the motor leads is OV with the speed knob at maximum.
	Other.	<ul style="list-style-type: none"> - Can only be determined by factory or a qualified repair person.

MORE

TROUBLESHOOTING GUIDE (CONT'D.)

PROBLEM	CAUSE	REMEDY
Unit runs, but no speed control.	<p>Faulty control card.</p> <p>Failed speed potentiometer.</p>	<ul style="list-style-type: none"> - Unplug the machine from power. Verify there are no bad connections to the control card or on the board. Replace the card. - Replace if visually appears damaged. Verify no loose or broken connections to the part.
Unit runs, but erratic poor speed control.	<p>Poor input voltage regulation.</p> <p>Faulty control card.</p> <p>Damaged wheel or wheel assy.</p> <p>Pitted workpiece.</p>	<ul style="list-style-type: none"> - Verify the machine power source is or stable and at the correct voltage. Measure at the outlet. - Unplug the machine from power. Verify there are no bad connections to the control card or board. Replace the board. - Turn the machine upside down and off. Replace any wheels that are damaged. Replace any idler wheels that do not freely turn. - Verify the workpiece is not pitted or damaged in a way that will give an uneven drive surface to the machine wheels. Verify the workpiece thickness does not vary significantly where the machine wheels travel.

WARRANTY

LIMITED 3-YEAR WARRANTY

MODEL _____
SERIAL NO. _____
DATE PURCHASED: _____
WHERE PURCHASED: _____

For a period ending one (1) year from the date of invoice, Manufacturer warrants that any new machine or part is free from defects in materials and workmanship and Manufacturer agrees to repair or replace at its option, any defective part or machine. HOWEVER, if the invoiced customer registers the Product Warranty by returning the Warranty Registration Card supplied with the product within 90 days of the invoice date, or by registering on-line at www.bugo.com, Manufacturer will extend the warranty period an additional two (2) years which will provide three (3) total years from the date of original invoice to customer. This warranty does not apply to machines which, after Manufacturer's inspection are determined by Manufacturer to have been damaged due to neglect, abuse, overloading, accident or improper usage. All shipping and handling charges will be paid by the customer.

The foregoing express warranty is exclusive and Manufacturer makes no representation or warranty (either express or implied) other than as set forth expressly in the preceding sentence. Specifically, Manufacturer makes no express or implied warranty of merchantability or fitness for any particular purpose with respect to any goods. Manufacturer shall not be subject to any other obligations or liabilities whatsoever with respect to machines or parts furnished by Manufacturer.

Manufacturer shall not in any event be liable to Distributor or any customer for any loss of profits, incidental or consequential damages or special damages of any kind. Distributor's or customer's sole and exclusive remedy against Manufacturer for any breach of warranty, negligence, strict liability or any other claim relating to goods delivered pursuant hereto shall be for repair or replacement (at Manufacturer's option) of the machines or parts affected by such breach.

Distributor's Warranty:

In no event shall Manufacturer be liable to Distributor or to any customer thereof for any warranties, representations or promises, express or implied, extended by Distributor without the advance written consent of Manufacturer, including but not limited to any and all warranties of merchantability or fitness for a particular purpose and all warranties, representations or promises which exceed or are different from the express limited warranty set forth above. Distributor agrees to indemnify and hold Manufacturer harmless from any claim by a customer based upon any express or implied warranty by Distributor which exceeds or differs from Manufacturer's express limited warranty set forth above.

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 THEY 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.