

INSTRUCTIONS AND PARTS MANUAL

WPD-2500 H.D. STAND ALONE LINEAR WEAVER

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-WPD-2500-IPM-0424

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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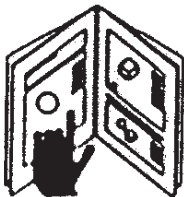
SAFETY

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 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. In 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 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.

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.

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

INTRODUCTION

The **WPD-2500 H.D. Stand Alone Linear Weaver** is a self contained machine used for weave welding. It can be installed as part of a welding fixture, or mounted on a drive carriage running on a track.

The H.D. Linear Weaver is particularly useful for weaving v-groove welds in a butt joint. The Weaver box is attached on the end of an adjustable rack, held by a rackholder that can be mounted on the front of the drive carriage, or directly on the welding fixture.

FEATURES

- High torque, low inertia motor for precise stops and starts
- High speed Linear Weaver for weaving, with independent control of right and left dwell times
- High motor gearing which prevents the crossarm from moving when the unit is turned off
- Closed loop speed control for adjustable and repeatable control of critical welding or cutting parameters
- Closed loop position control to prevent drift from the center weld position
- Clutch, to enable rapid installation or replacement of the weaver cross arm
- Gun mounting group with adjustable racking block for accurate positioning of the gun
- Contactor ON/OFF switch

TECHNICAL DATA

Power Requirement: 120 VAC/50-60/1
240 VAC/50-60/1
42 VAC/50-60/1

Dimensions: 7.25" L x 5.50" W x 5.37" H (184 x 140 x 137 mm)

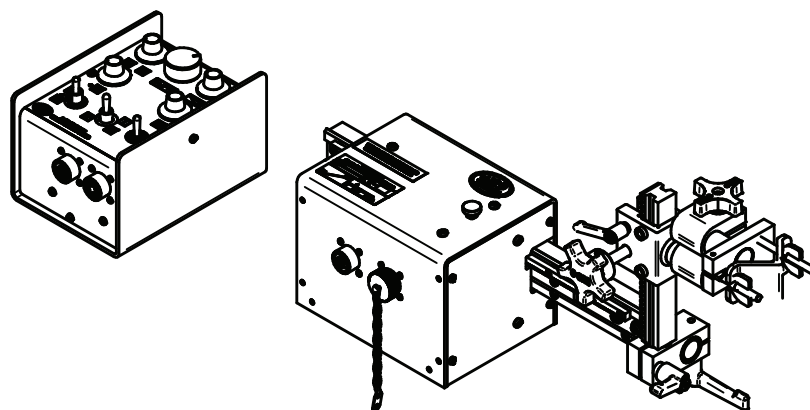
Net Weight: 13.5 lbs (6.0 kg)

Shipping Weight: 16.5 lbs (7.5 kg)

Speed: 2-100 in/min (51-2540 mm/min)

Cycles: 2.5 cycles per second at 1/8" (3mm) stroke
1.6 cycles per second at 1/4" (6mm) stroke
1.0 cycles per second at 1/2" (12mm) stroke
0.7 cycles per second at 1.0" (25mm) stroke
(at maximum speed and 0 dwell)

Load Capacity: 10 lbs (4.5 kg)



LINEAR WEAVER SETUP

1) WEAVER CONTROL MODULE AND LINEAR WEAVER INSTALLATION

The Weaver Control Module plugs into the top of the Master Drive Unit. Use a flat head screw driver to firmly secure the four corners of the module.

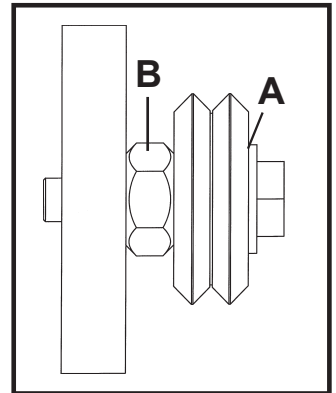
Place the Linear Weaver on a flat surface, connector side up. Remove connector cover plate from MPD-1000. Loosen, but do not remove, the bolts that hold the Master Drive Module to the carriage. Plug the Master Drive Module into the Linear Weaver. The connectors should fit together easily and do not need forced. Attach the Linear Weaver to the carriage using the two weaver mounting bolts. **DO NOT SUBSTITUTE LONGER BOLTS.** Retighten the bolts that hold the Master Drive Unit to the carriage.

2) CROSSARM WHEEL ADJUSTMENT AND ALIGNMENT

Always check the crossarm wheel adjustment before using the machine. The wheels are too loose and need adjustment if the crossarm can move up and down. Normal gear backlash will permit crossarm side to side movement of approximately 0.02" (0.5 mm).

If the wheels need adjustment, remove the left and right weaver end covers. The two top wheels are adjustable. Loosen the hex bolt (A) until the adjustable bushing (B) can be rotated. Correct the wheel alignment by rotating adjustable bushing (B).

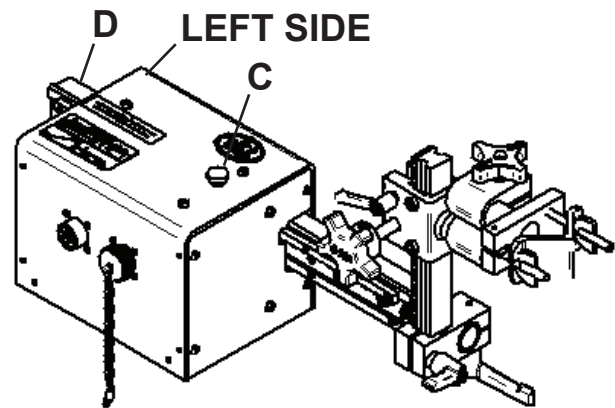
Check for proper alignment by using a finger to keep one of the wheels from rotating while manually moving the crossarm. The wheels are adjusted too tight if firm finger pressure is not enough to prevent wheel rotation. Once aligned, hold the adjustment bushing (B) still while tightening the hex bolt (A). Recheck alignment.



3) REALIGNING THE CROSSARM (includes crossarm INSTALLATION and REMOVAL)

Rotate the clutch knob (C) fully counterclockwise. This disengages the drive pinion from the rack. Remove the two socket head screws from the crossarm (D). The crossarm may be removed from or installed into the Linear Weaver at this time.

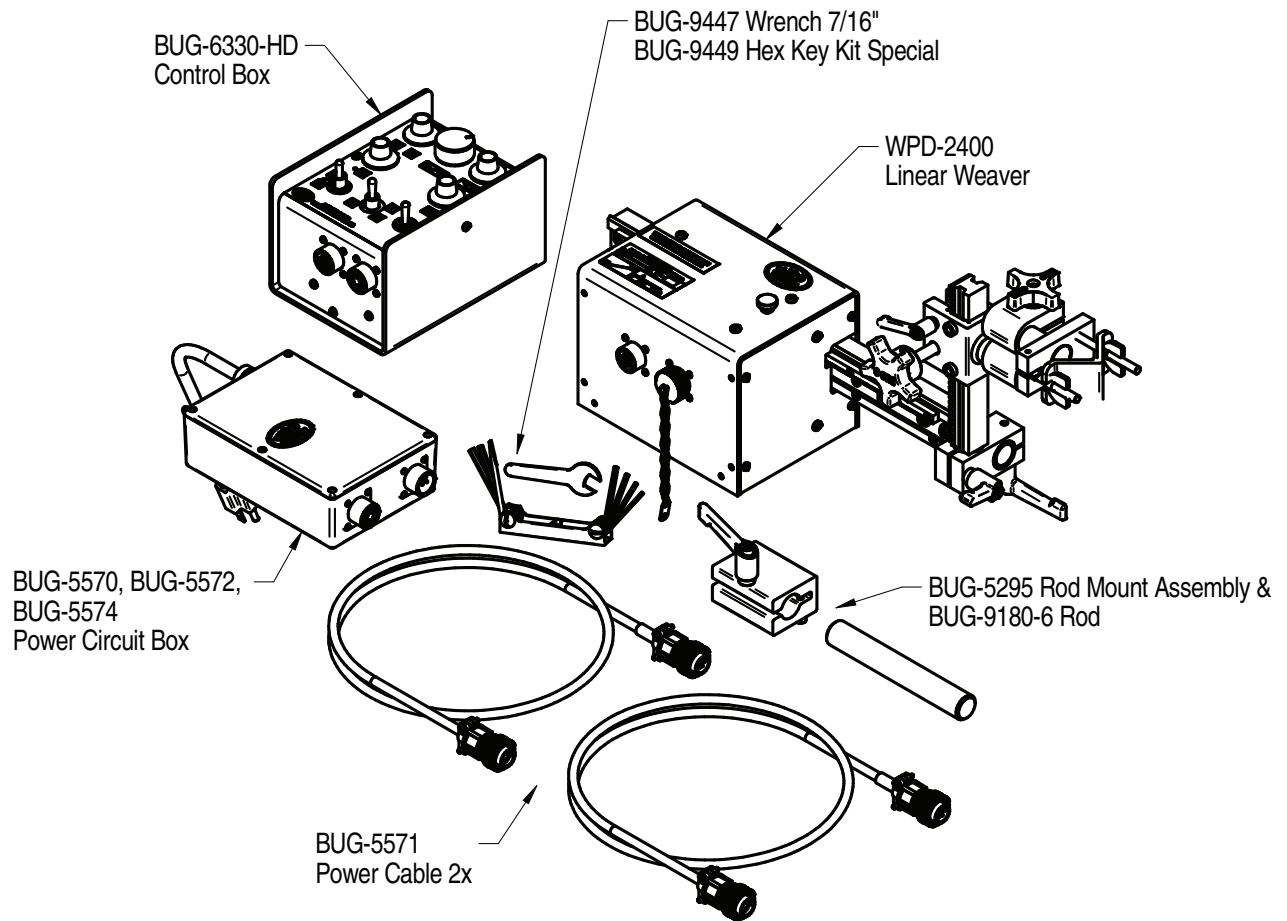
Turn on the AC power. Rotate the four-turn steering control knob and the weave speed knob on the Weaver Control Module fully clockwise. Turn the start/stop switch to START. Set the mode selector switch to NO WEAWE. Align the crossarm (D) so that 1 7/8" (48 mm) of the crossarm protrudes from the left side of the Linear Weaver. To insure proper gear mesh, gently rock the crossarm back and forth about 1/16" (2 mm) while engaging the pinion using the clutch knob (C).



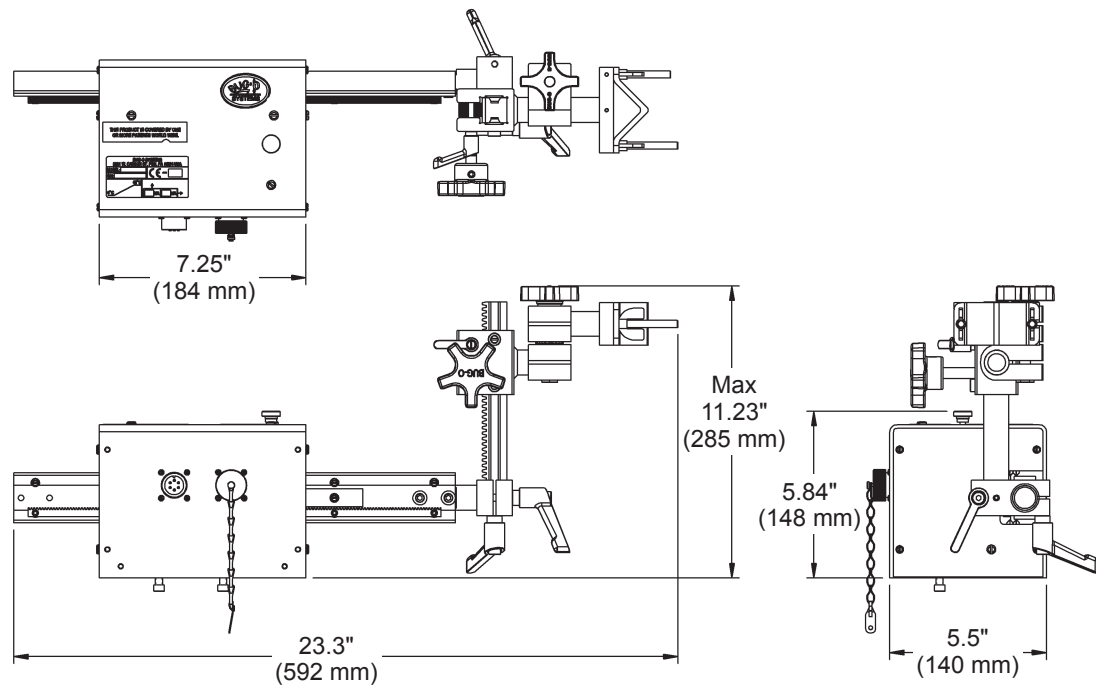
CAUTION: IMPROPER GEAR MESH MAY CAUSE PINION, RACK, OR LINEAR WEAVER DAMAGE.

Set the weave amplitude to maximum. Use the steering knob on the control module to move the crossarm to both the extreme left and the extreme right. Perform measurements to determine if The crossarm is installed too far left or too far right. Repeat the crossarm realigning procedure changing the 1 7/8" (48 mm) dimension as required. Reinstall the two crossarm screws.

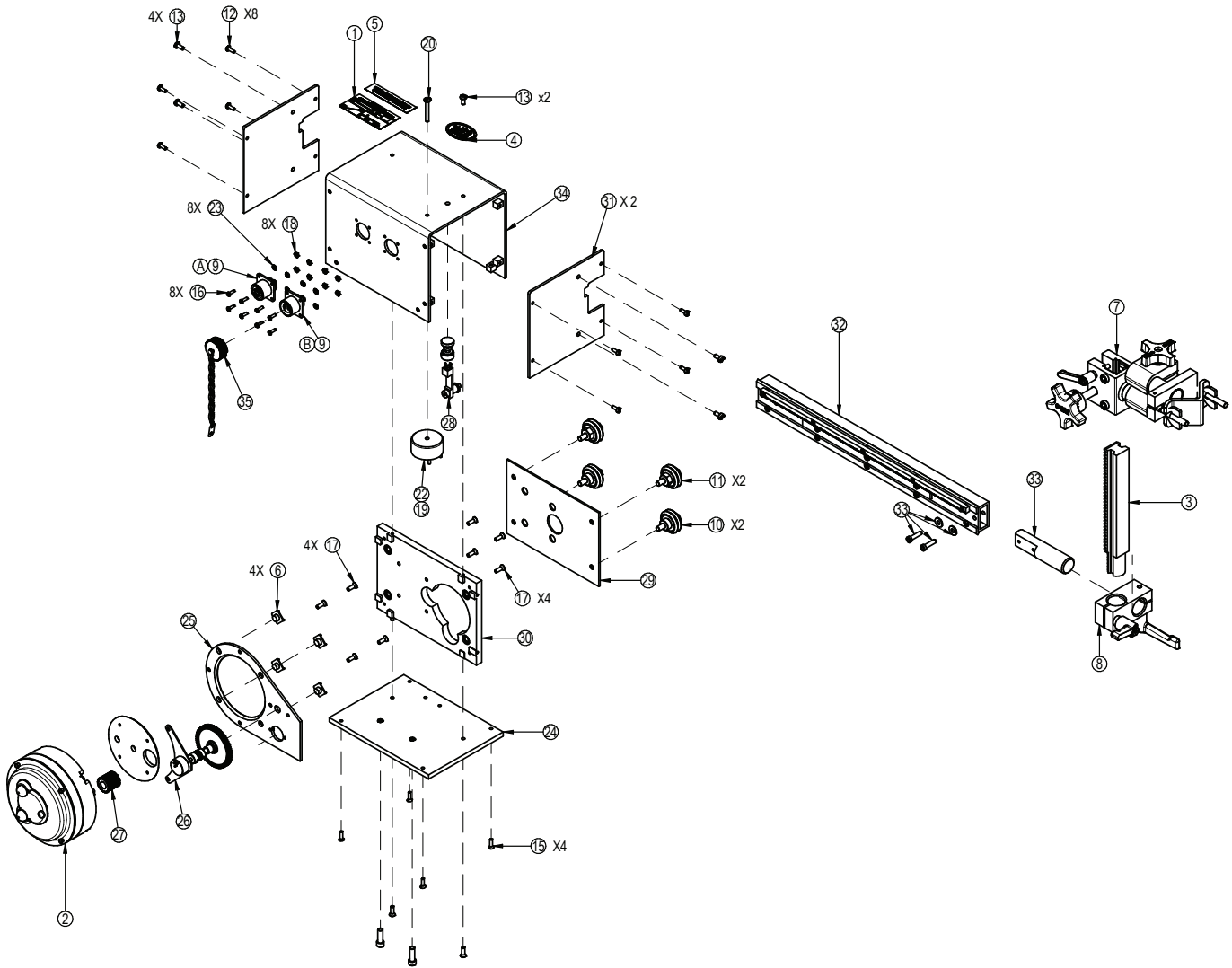
WPD-2500 STAND ALONE LINEAR WEAVER / MAJOR COMPONENTS



WPD-2400 DIMENSIONS



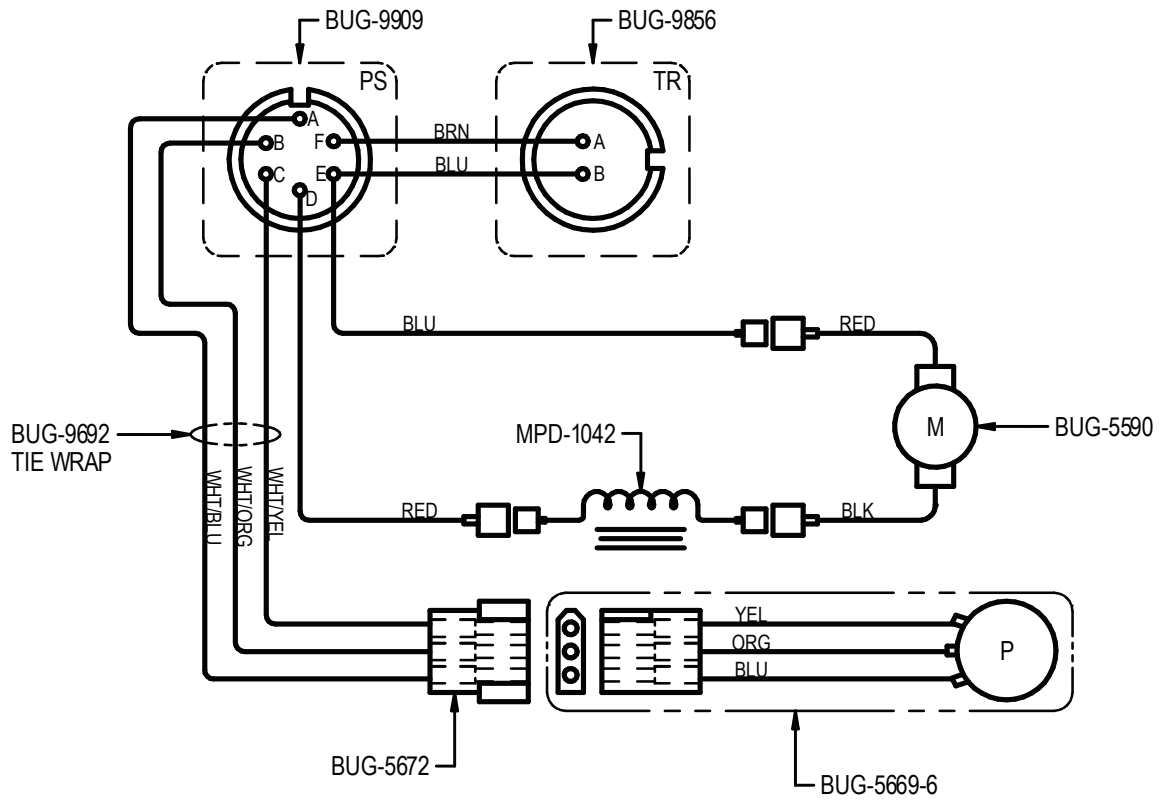
WPD-2400 WEAVER UNIT / EXPLODED VIEW



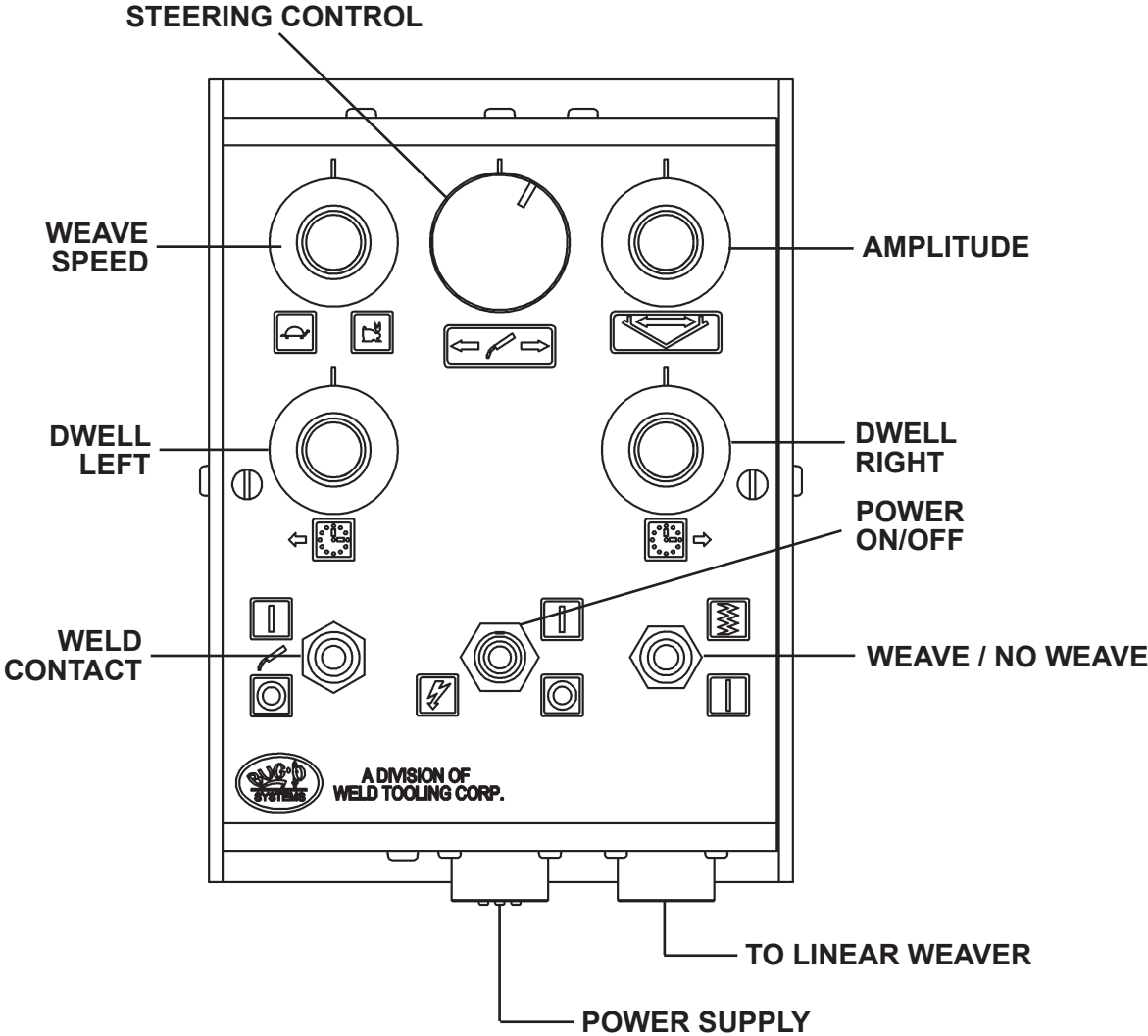
WPD-2400 WEAVER UNIT / PARTS LIST

PARTS LIST			
ITEM	PART #	DESCRIPTION	QTY
1	BUG-1338	NAMEPLATE	1
2	BUG-1590	GEAR MOTOR (80:1)	1
3	BUG-1853	MACHINED RACK 7-1/2	1
4	BUG-2005	LABEL, BUG-O	1
5	BUG-2414	LABEL, PATENT	1
6	BUG-2593	GLIDE FLAT	4
7	BUG-5455	GUN MOUNTING GROUP	1
8	BUG-5462	RIGHT ANGLE CLAMP	1
9	CDS-1212	WEAVER UNIT WIRING HARNESS	1
10	CWO-4020	FIXED LEG & WHEEL ASSY	2
11	CWO-4021	ADJ. LEG & WHEEL ASSY	2
12	FAS-0114	PAN HD SCR 6-32 X 3/8 BLACK	8
13	FAS-0124	PAN HD SCR 8-32 X 3/8	6
14	FAS-0557	SOC HD CAP 1/4-20 X 3/4	2
15	FAS-0815	FLT HD SLT SCR 6-32 X 1/2	4
16	FAS-0104	4-40 x 3/8 PAN GEAD, BLACK	8
17	FAS-0925	FLD HD SOC SCR 8-32 X 1/2"	10
18	FAS-1305	HEX NUT 4-40	8
19	FAS-1325	#8-32 NYLON HEX NUT	1
20	FAS-2121	PAN HD SCR 8-32 X 1 1/4 BLACK	1
21	MPD-1013	CLUTCH PLATE	1
22	MPD-1042	INDUCTOR, POTTED	1
23	WAS-0201	#4 INTERNAL STAR LOCKWASHER	8
24	WPD-1002	WEAVER BASE PLATE	1
25	WPD-1004	MOTOR MOUNT PLATE	1
26	WPD-1025	POT/GEAR ASSY	1
27	WPD-1028	PINION, 3/4 PD 24 T W/ SET SCR	1
28	WPD-1035	CLUTCH ASSY	1
29	WPD-1103	DUST PLATE	1
30	WPD-1106	OSCILLATOR MOUNT PLATE	1
31	WPD-1110	SIDE PANEL	2
32	WPD-1150	CROSS ARM 15.50"	1
33	WPD-1178	POST W/ FASTENERS	1
34	WPD-2420	COVER PANEL	1
35	BUG-9628	CAP & CHAIN ASSY	1
A	BUG-9909	PANEL CONNECTOR, 6T, M	1
B	BUG-9856	PANEL CONNECTOR, 2T, F	1

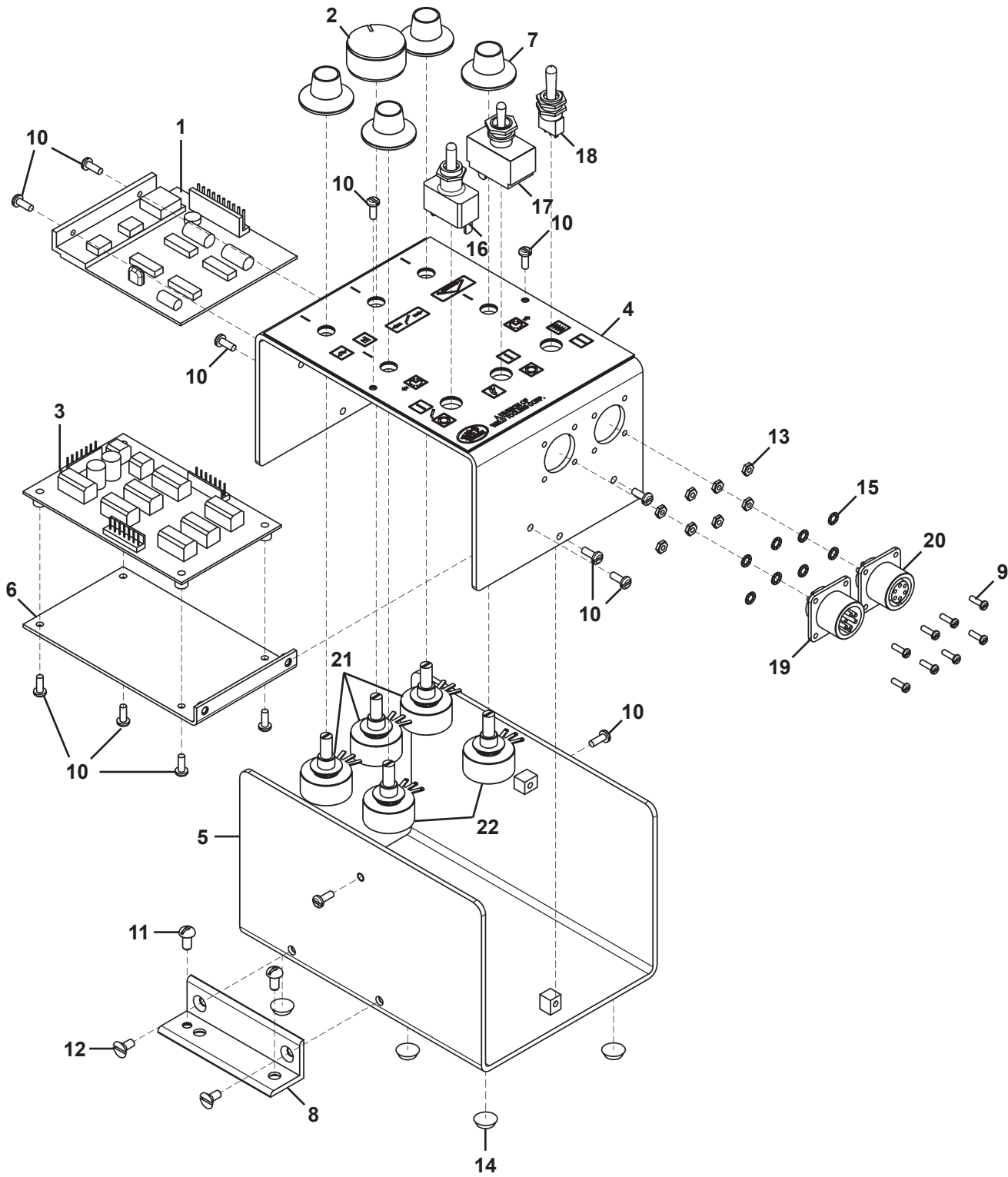
WPD-2400 WEAVER UNIT / WIRING DIAGRAM



BUG-6330-HD CONTROL BOX



BUG-6330-HD / CONTROL BOX / EXPLODED VIEW

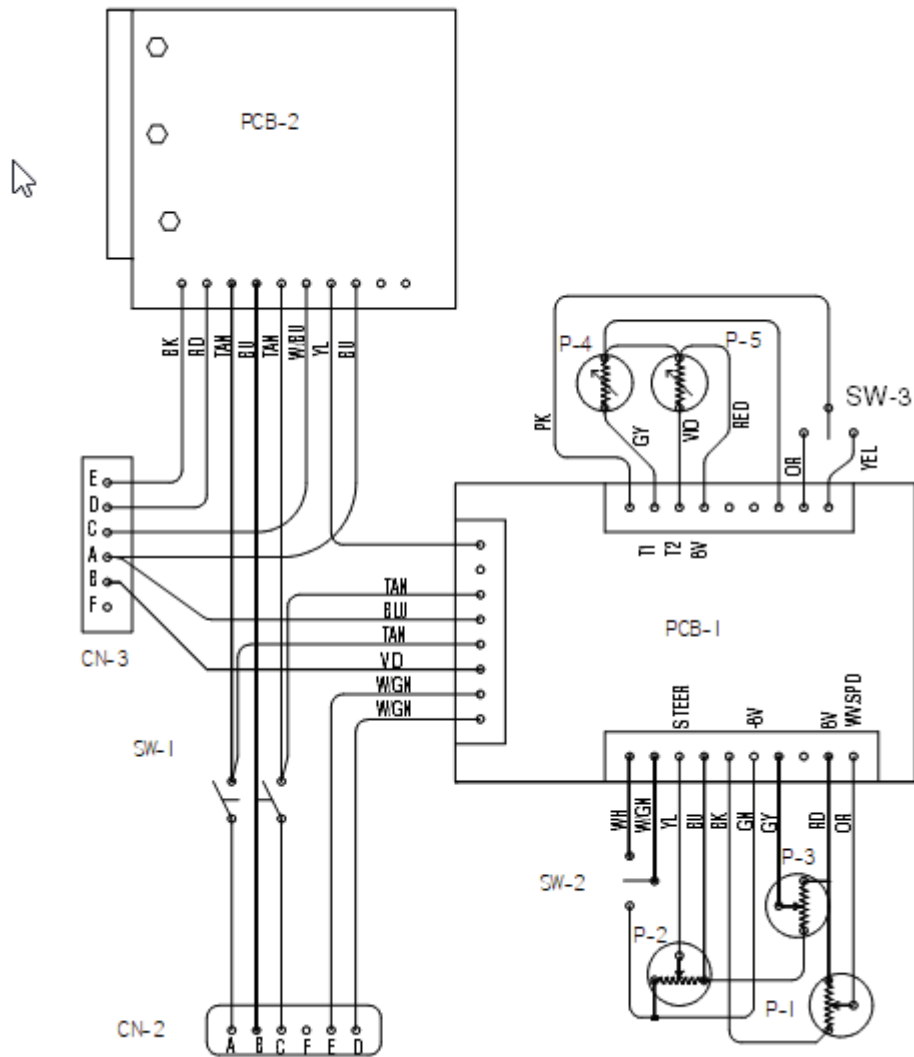


BUG-6330-HD CONTROL BOX / PARTS LIST

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	BUG-1770	Motor Control Board
2	1	BUG-5757	Knob
3	1	BUG-5760	Control Board
4	1	BUG-6331	Front Panel
5	1	BUG-6332	Rear Panel
6	1	BUG-6333	Mounting Bracket
7	4	BUG-9621	Knob
8	1	CDS-1068	Mounting Bracket
9	8	FAS-0104	Pan Hd. Scr. #4-40 x 3/8 Lg.
10	14	FAS-0114	Pan Hd. Scr. #6-32 x 3/8 Lg.
11	2	FAS-0224	Pan Hd. Scr. #10-32 x 3/8 Lg.
12	2	FAS-0824	Flat Hd. Slit. Scr. #8-32 x 3/8 Lg.
13	8	FAS-1305	Hex Nut #4/40
14	4	SFX-1292	Bumper
15	8	WAS-0201	#4 Internal Star Lock Washer
16	1	BUG-5761	SW-2 Toggle Switch, SPDT
17	1	ARM-2279	SW-1 Toggle Switch, DPST
18	1	BUG-1869	SW-3 Toggle Switch, SPDT
19	1	BUG-9909	Panel Connector, 6-T, M
20	1	BUG-9902	Panel Connector, 6-T, F
21	3	BUG-9677	Potentiometer, 10K
22	2	BUG-5054	Potentiometer, 500K
*	1	BUG-6336	Connector Wiring Harness
*	1	BUG-6318	Weave Wiring Harness
*	1	BUG-6337	Timer Wiring Harness

* not shown

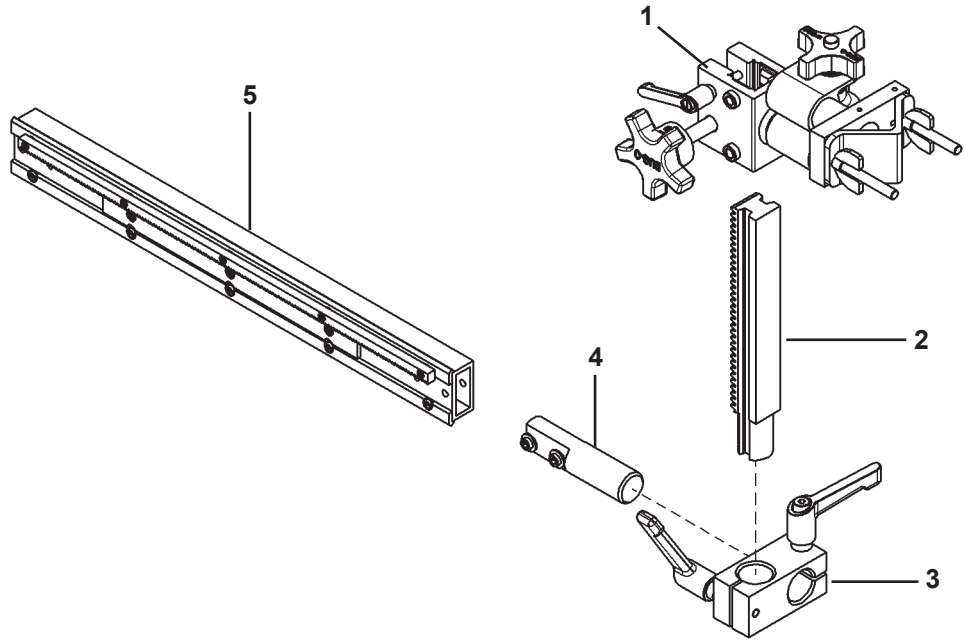
BUG-6330-HD CONTROL BOX / WIRING DIAGRAM / ELECTRICAL COMPONENT CHART



ELECTRICAL COMPONENTS

ITEM	PART NO.	DESCRIPTION
CN-2	BUG-9909	Panel Connector, 6-T, M
CN-3	BUG-9902	Panel Connector, 6-T, F
P-1,2,3	BUG-9677	Pot, 10 K
P-4,P-5	BUG-5054	Pot, 500 K
PCB-1	BUG-5760	Control Board
PCB-2	BUG-1770	Motor Control Board
SW-1	ARM-2279	Toggle Switch, DPST
SW-2	BUG-5761	Toggle Switch, SPDT
SW-3	BUG-1869	Toggle Switch, SPDT

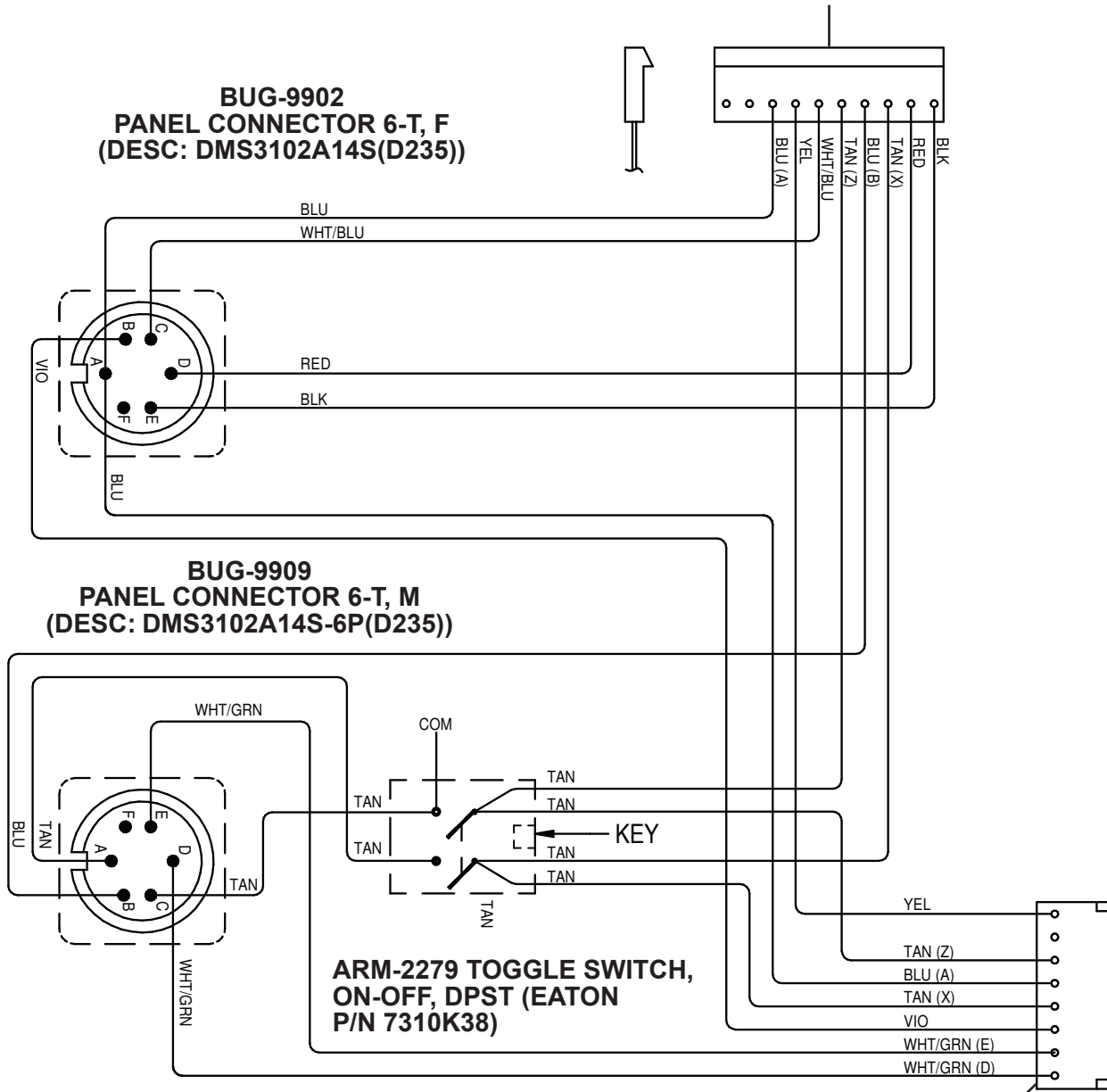
BUG-5475 WEAVER RACKING GROUP / EXPLODED VIEW / PARTS LIST



<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	BUG-5455	Gun Mounting Group
2	1	BUG-1853	Machined Rack 7-1/2
3	1	BUG-5462	Right Angle Clamp
4	1	WPD-1178	Post w/ Fasteners
5	1	WPD-1150	Cross Arm 15.5"

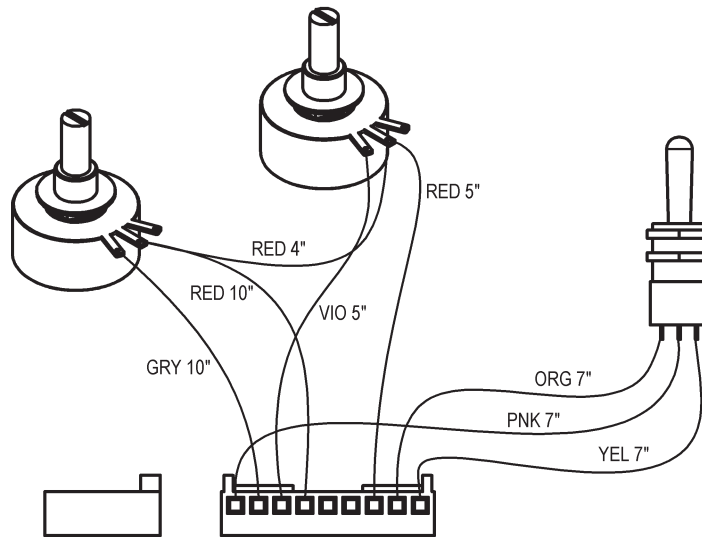
BUG-6336 CONNECTOR WIRING HARNESS / WIRING DIAGRAM

**CNN-022A 10-PIN HOUSING
INCLUDES:**
 (1) CNN-022A-P 10 PIN HOUSING
 (MOLEX P/N 09-50-8101)
 (10) CNN-0220 PIN .156
 (MOLEX P/N 08-50-0106)

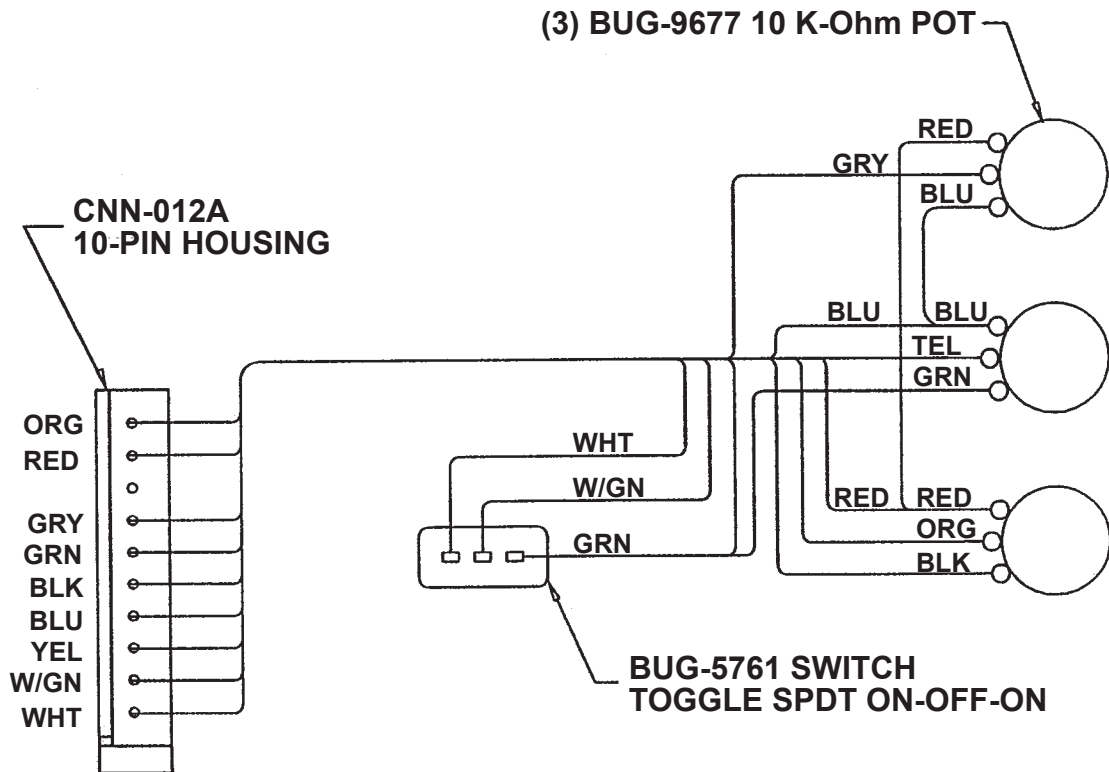


**CNN-0128 8-PIN HOUSING
INCLUDES:**
 (1) CNN-0128-P 8 PIN HOUSING
 (MOLEX P/N 22-01-3087)
 (8) CNN-0120 PIN .100
 (MOLEX P/N 08-05-0114)

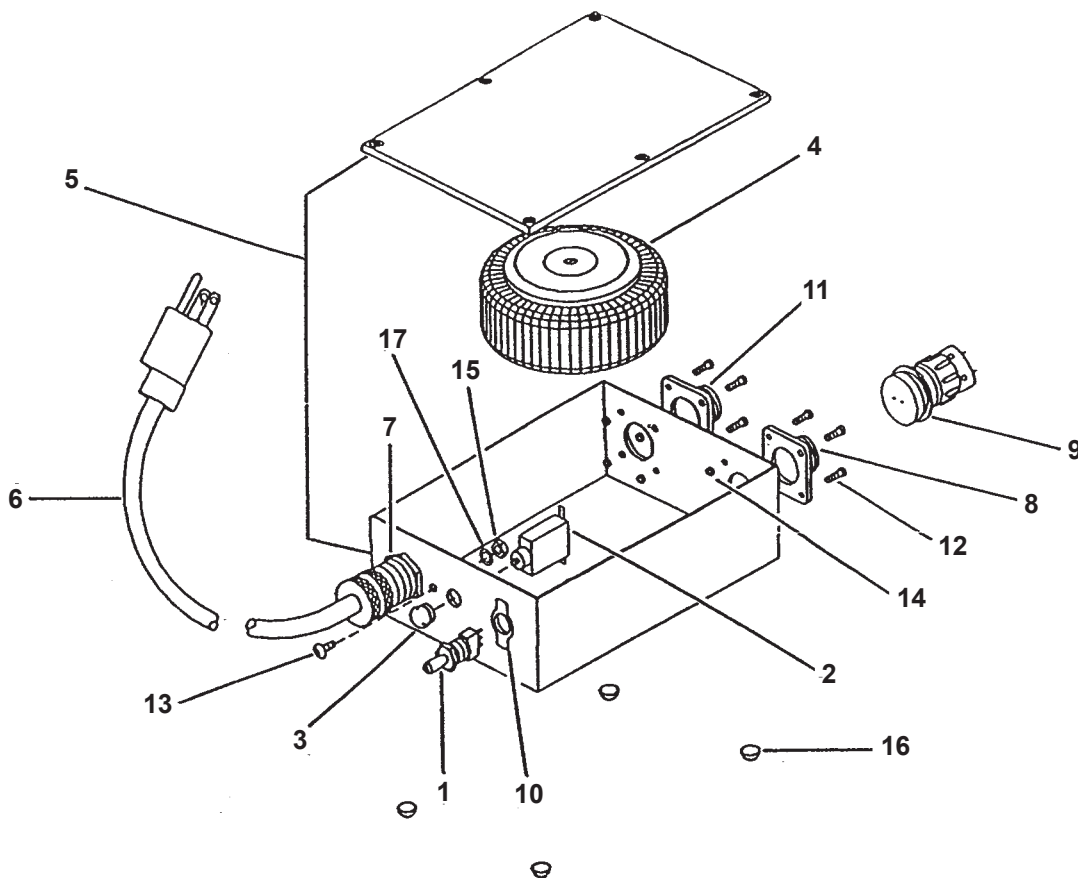
BUG-6337 TIMER WIRING HARNESS / WIRING DIAGRAM



BUG-6318 WEAVE WIRING HARNESS / WIRING DIAGRAM



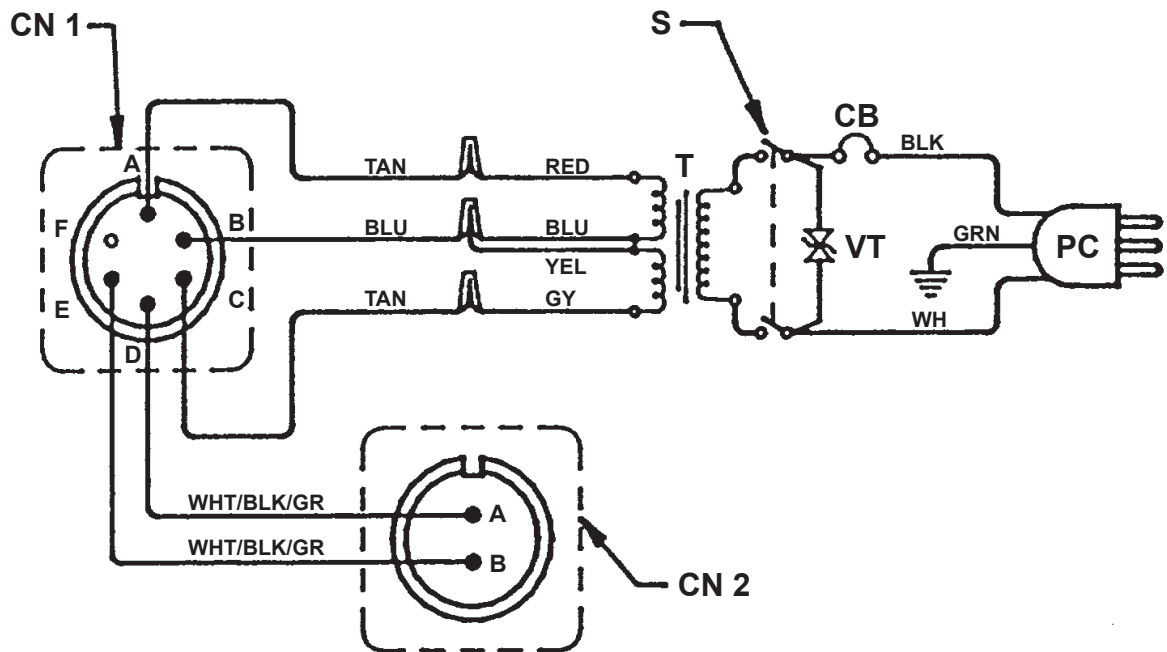
BUG-5570 POWER CIRCUIT BOX / EXPLODED VIEW / PARTS LIST



<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	ARM-2279	Toggle Switch
*2	1	BUG-2923	Circuit Breaker .7A
3	1	BUG-2924	Reset Button Seal
*4	1	BUG-5218	Transformer
5	1	BUG-5573	Enclosure
*6	1	BUG-9445	Power Cord
7	1	BUG-9446	Cord Grip
8	1	BUG-9486	Panel Connector, 2-T, M
9	1	BUG-9487	Cable Connector, 2-T, F
10	1	BUG-9884	On-Off Switch Plate
11	1	BUG-9902	Panel Connector, 6-T, F
12	8	FAS-0204	Rnd Hd Scr 4-40 x 3/8
13	1	FAS-1224	But Hd Soc Hd Scr 8-32 x 3/8
14	8	FAS-1305	Hex Nut 4-40
15	1	FAS-1320	Hex Nut 8-32
16	4	SFX-1292	Bumper
17	1	WAS-0221	#8 Star Lockwasher

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

POWER CIRCUIT BOX / WIRING DIAGRAM



ELECTRICAL COMPONENT CHART

ITEM	DESCRIPTION	BUG-5570	BUG-5572	BUG-5574
		120 VAC PART NO.	240 VAC PART NO.	42 VAC PART NO.
CB	Circuit Breaker	BUG-2923	BUG-2952	BUG-2933
PC	Power Cord	BUG-9445	GOF-3115	BUG-9442
T	Transformer	BUG-5218	BUG-5231	BUG-5232
VT	Volt Trap	BUG-1393	BUG-1563	BUG-1393
CN-1	Panel Connector		BUG-9902	
CN-2	Panel Connector		BUG-9486	
S	Toggle Switch		ARM-2279	

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.