

# INSTRUCTIONS AND PARTS MANUAL

## BUG-GY AFW-3000 AUTOMATIC FILLET WELDER

Bug-O Systems is guided by honesty, integrity and ethics in service to our customers and in all we do.

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-BGYII-IPM-0112



### BUG-O SYSTEMS

A DIVISION OF WELD TOOLING CORPORATION



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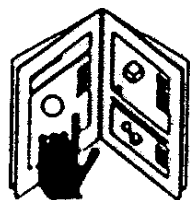
## SAFETY

**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. 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.

# **BUG-GY**

## **AUTOMATIC FILLET WELDER**

### **INSTRUCTIONS AND PARTS MANUAL**

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## **INTRODUCTION:**

The BUG-GY Fillet Welder is designed for making continuous or intermittent stitch welds on fillet, lap or butt joints. It is a lightweight portable carriage that uses powerful magnets and guide wheels to clamp and track on the work piece. The BUG-GY is self-guiding and requires little operator input once it is set up. It can be programmed for stitch welding by distance and features automatic weld back for crater fill. Between stitch welds the BUG-GY accelerates to a top speed of 120 ipm (300 mm/min). Dynamic braking and closed loop feed back allow the BUG-GY to make crisp starts and stops and to travel at precise speeds. Limit switches provide automatic shut-off at the end of a joint.

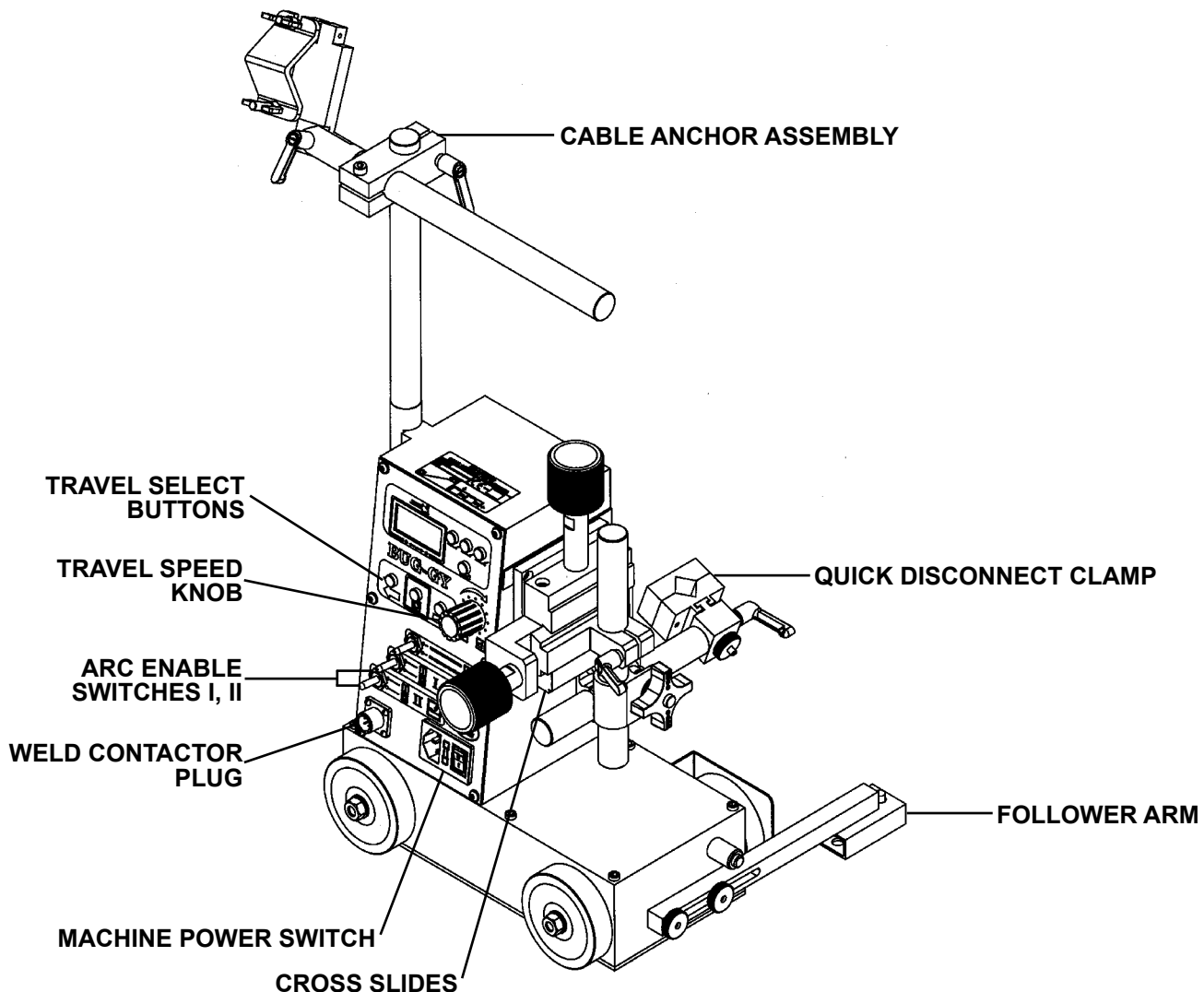
## **FEATURES:**

- Light weight, easy to carry design.
- Permanent magnet for powerful traction.
- Built in programmable stitching by distance.
- Dual mode selector switch for stitch or continuous welding.
- 4 to 60 ipm (10-152 cm/m) welding speed range can be preset.
- Rapid traverse between welds at 120 ipm (300 cm/m).
- Built-in dual weld contactor connection.
- Adjustable end on weld back-up.
- Dynamic braking for crisp starts and stops.
- Digital LCD speed indicator.
- Closed loop speed & position control.
- Limit switches provide automatic weld stop.
- Spatter guard on work-side wheels.
- Versatile gun support will fit most MIG guns.
- Precision micro-adjustable “Y” & “Z” slides for gun positioning.
- Available in three operating voltages: 42, 110 & 220 VAC.



## SETUP:

1. Remove the machine from the shipping box. Be sure to account for all loose parts before discarding the box!
2. Install the **Follower Arms** at each end of the machine. The **Follower Arm** in the “**Front**” (the direction of travel) must always be set a 1/2” (12 mm) “**Shorter**” than the trailing arm. This directs the machine to track toward the opposed wall to keep the torch in position.
3. Mount the **Cable Anchor** assembly to the machine as shown.
4. Mount the welding torch in the **Quick Disconnect Clamp** and position the torch in the joint using the **Cross Slides**. Position the wire feed cable, contactor cable and power cord in the **Cable Anchor Assembly** to prevent drag.
5. **DRY RUN**  
**CAUTION: ENSURE BOTH ARC ENABLE SWITCHES ARE IN THE “OFF” POSITION.** Turn **Machine Power Switch** to the “**On**” position and set the direction of travel with the **Travel Select Button**, then adjust the travel speed with the **Travel Speed Knob**.
6. Connect the welding torch “trigger switch leads” to the **Weld Contactor Plug**, so the wire feeder will be turned “**On/Off**” automatically when the **Travel Select Button** is thrown “**Left/Right**”. **NOTE: ARC ENABLE SWITCH(s) must be “ON”.**



## PROGRAMMING CONTINUOUS AND STITCH WELDS:

NOTE: Refer to the controls page in this manual to reference letter callouts.

**Continuous Welds:** For continuous welds, programming is not needed.

1. Push either the **Travel Start Button** “Left” (F) or the **Travel Start Button** “Right” (H) to set the direction of travel.
2. Regulate the speed of travel by rotating the **Travel Speed Knob** (I), counter-clockwise will decrease the speed of the machine while clockwise will increase the speed of the machine.
3. To weld, stop the machine by pressing the **Travel Stop Button** (G), switch the **Mode Select Switch** (J) to the continuous position. Switch the **Arc Enable On/Off Switch #1** (K) to the “On” position and push the **Travel Start Button** (F or H) corresponding to the correct direction of travel.

NOTE: If you are using two welding guns the Arc Enable On/Off Switch #2 will also need to be switched to the on position.

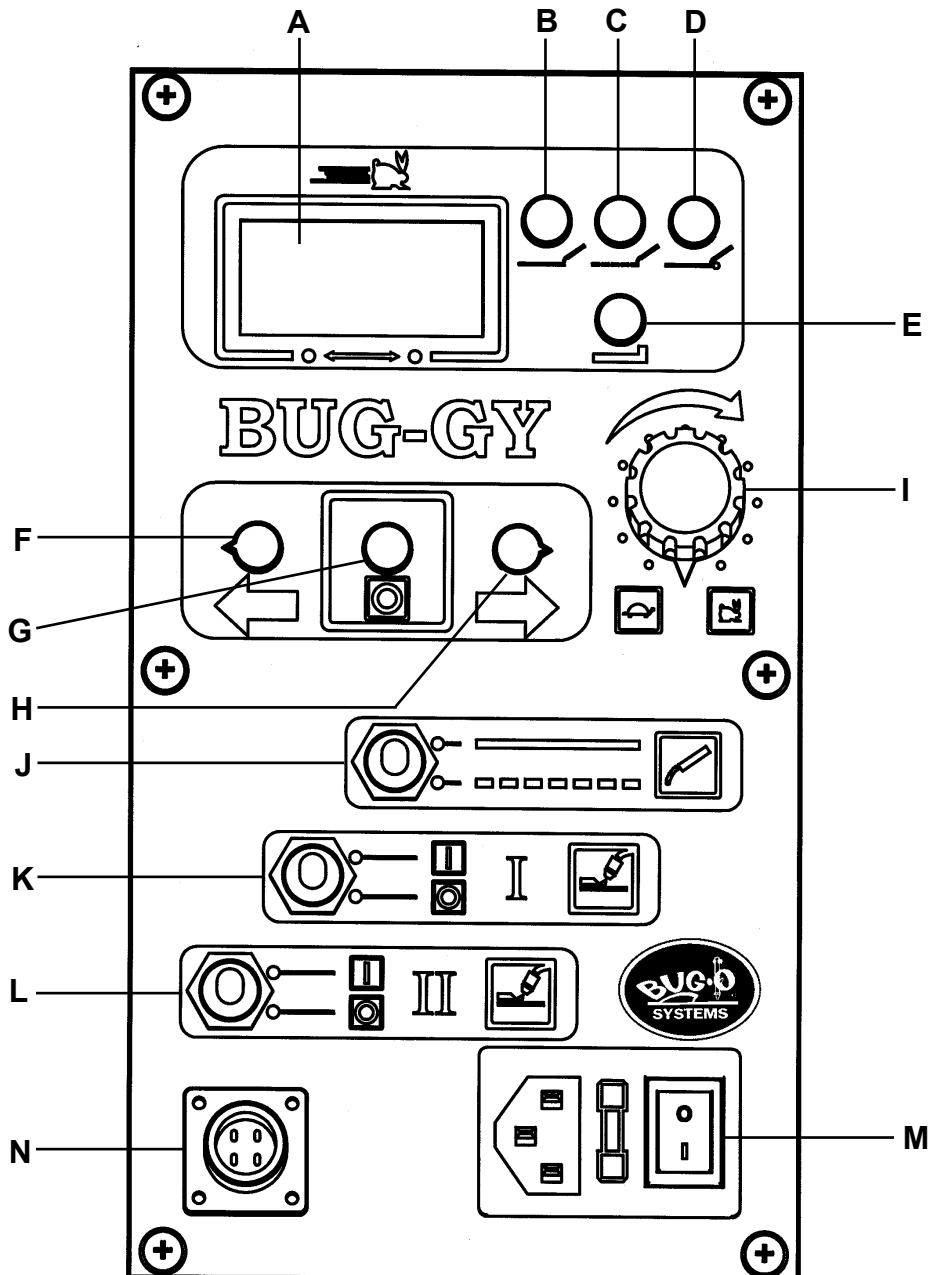
**Stitch Welds:** For stitch welds, the weld length, skip length and reverse travel distance will need to be programmed.

1. Press and hold the **Programming Button** (E) for three seconds. The machine will go into programming mode and the indicator light in the **Weld Length Button** (B) will light up and the programmed weld length will be shown in the **Digital Display** (A).
2. Press and hold down the **Weld Length Setting Button** (B) until you get close to the desired value. You may then jog the **Weld Length Button** (B) until the desired value for weld length is selected.
3. Press the **Programming Button** (E) once; the **Skip Length Setting Button** (C) indicator light will light up. Press and hold down the **Skip Length Setting Button** (C) until you get close to the desired value. You may then jog the **Skip Length Setting Button** (C) until the desired value for stitch length is selected.
4. Press the **Programming Button** (E) once, the **Reverse Travel Distance Setting Button** (D) indicator light will light up. Press and hold down the **Reverse Travel Distance Setting Button** (D) until you get close to the desired value. You may then jog the **Reverse Travel Distance Button** (D) until the desired value for the reverse travel distance is selected.
5. Press the **Programming Button** (E) once, to exit programming mode.
6. Regulate the speed of travel by rotating the **Travel Speed Knob** (I), counter-clockwise rotation will decrease the speed of the machine while clockwise will increase the speed of the machine.
7. To weld, stop the machine by pressing the **Travel Stop Button** (G); Switch the **Mode Select Switch** (J) to the stitch position. Switch the **Arc Enable On/Off Switch #1** (K) to the “On” position and push the **Travel Start Button** (F or H) corresponding to the correct direction of travel. **NOTE:** Pushing the **Travel Start Button** (F or H) will strike an arc.

NOTE: If you are using two welding guns the Arc Enable On/Off Switch #2 will also need to be switched to the on position.

## CONTROLS:

- A. Digital Meter shows the speed when traveling or the distance when programming.
- B. Weld Length-Setting Button [0.1" (1 mm) increments].
- C. Skip Length-Setting Button [0.1" (1 mm) increments].
- D. Reverse Travel Distance Setting Button, used for crater fill [0.1" (1 mm) increments].
- E. Programming Button.
- F. Travel Start Button, Left.
- G. Travel Stop Button.
- H. Travel Start Button, Right.
- I. Travel Speed Knob.
- J. Mode Select Switch, continuous or stitch.
- K. Arc Enable On/Off Switch #1.
- L. Arc Enable On/Off Switch #2.
- M. Power Switch.
- N. Weld Contactor.



## TECHNICAL DATA:

**Power Requirements:** AFW-3000 120 VAC/50-60/1  
AFW-3002 240 VAC/50-60/1  
AFW-3004 42 VAC/50-60/1

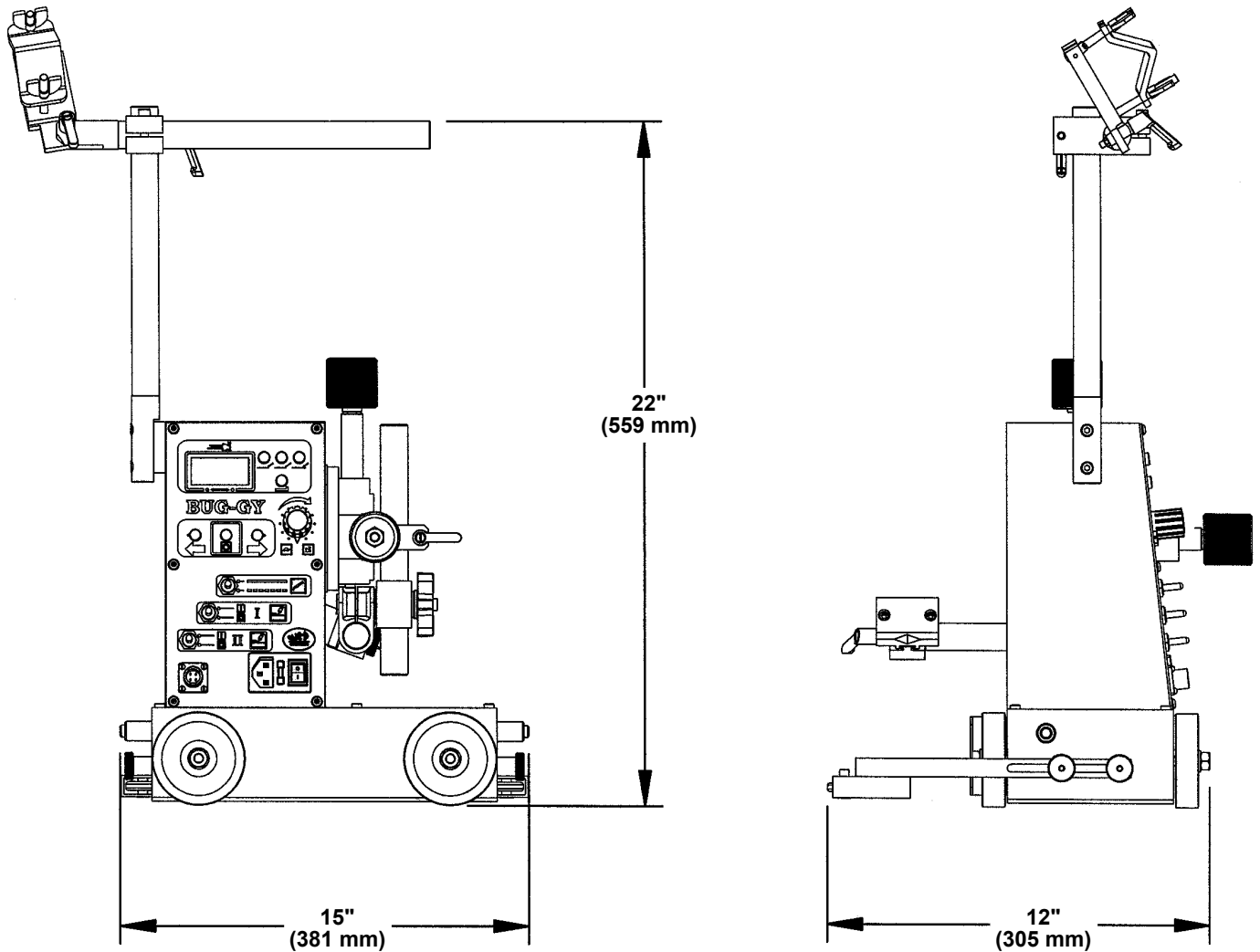
**Travel Modes:** 1. Continuous  
2. Stitch: weld, crater fill, skip

**Travel Speeds:** Welding 4-60 ipm (10-152 cm/m)  
Skip 120 ipm (300 cm/m)

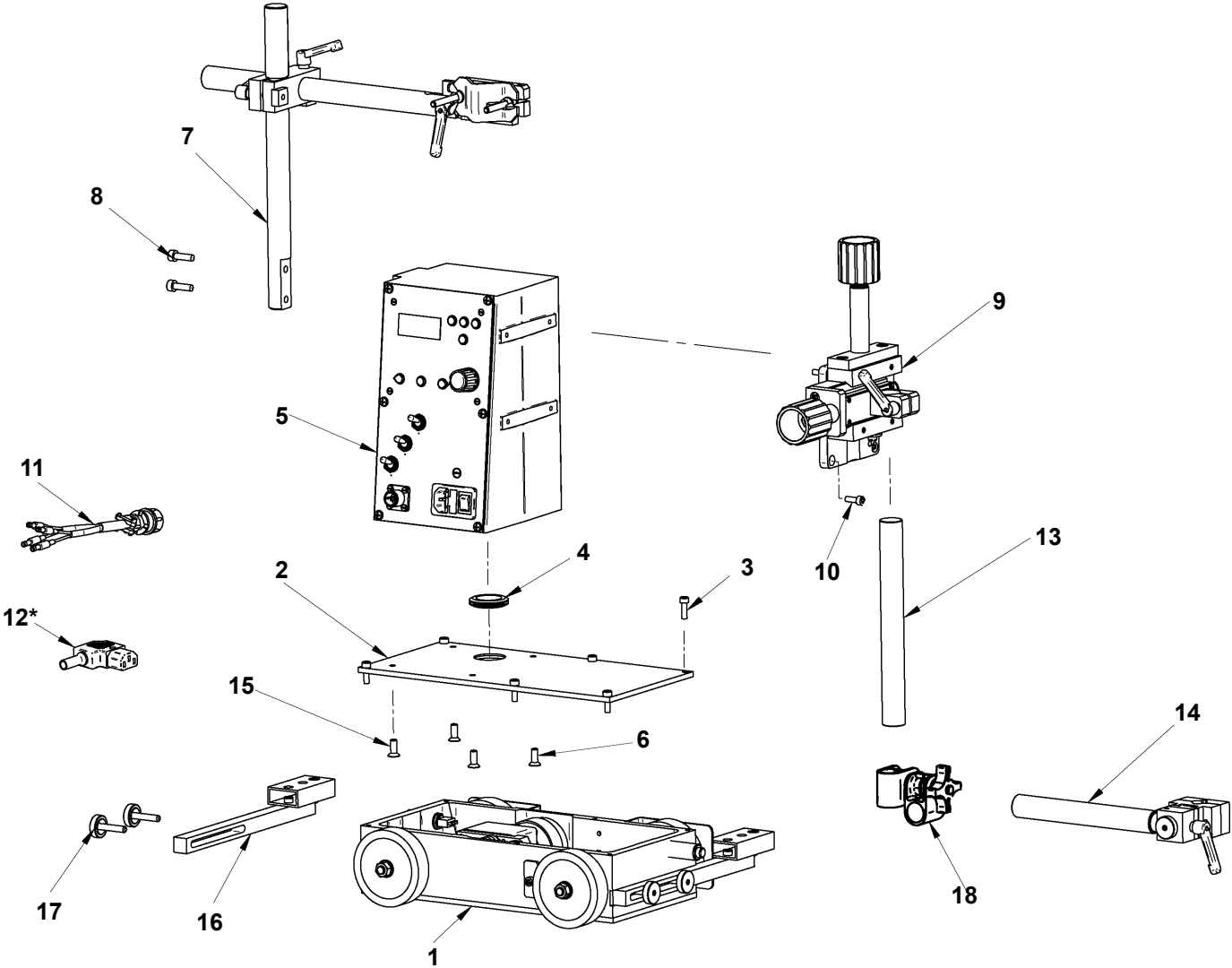
**Net Weight:** 27 lbs. (12.5 kg)

**Shipping Weight:** 34 lbs. (15.5 kg)

## DIMENSIONS:



# AFW-3000 BUG-GY / EXPLODED VIEW

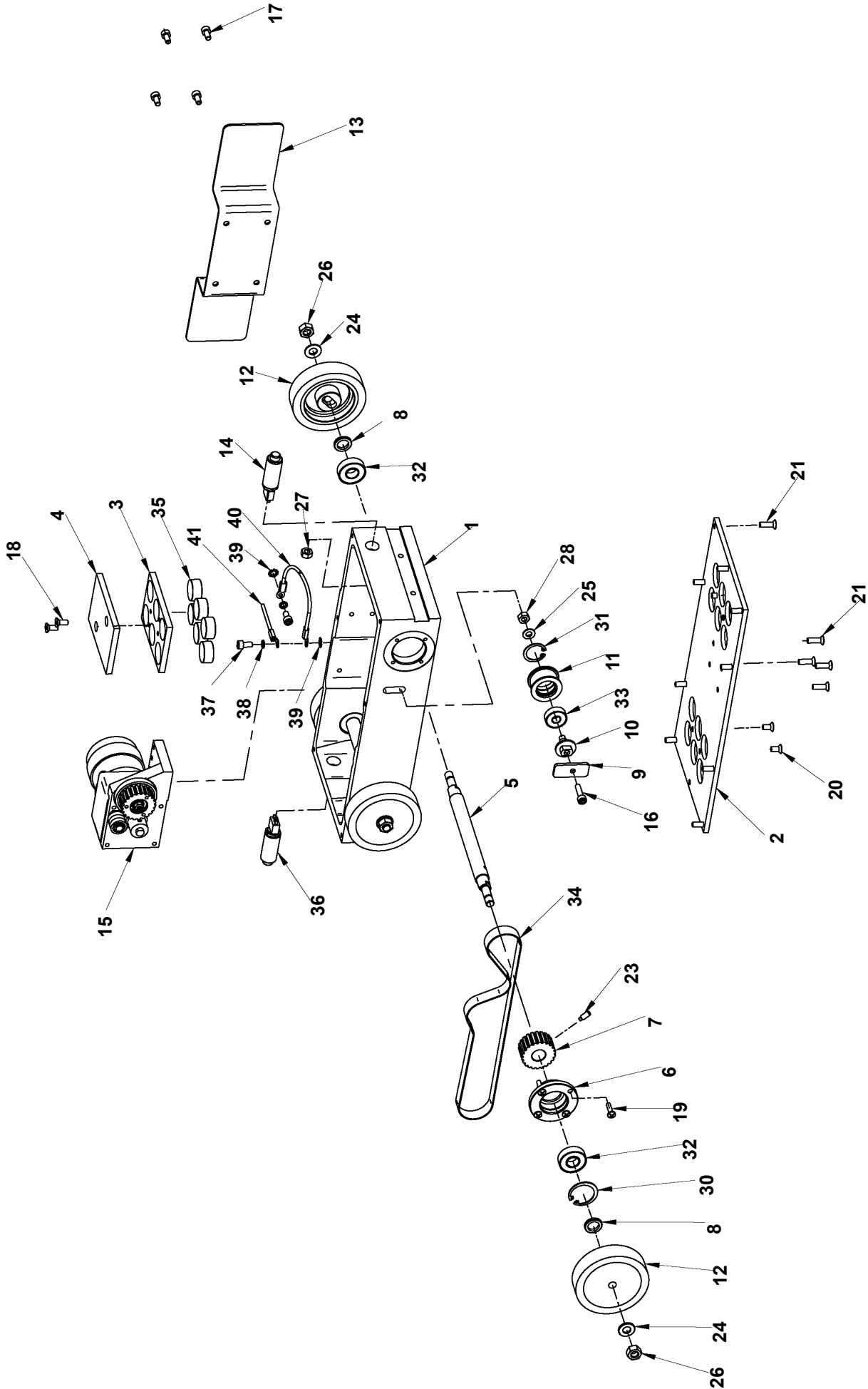


## AFW-3000 BUG-GY / PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-440-10-00	Drive System
2	1	C07182-440-00-10	Plate
3	6	N18230-205-16-00	Hex Socket Bolt M5 x 16
4	1	H01370-001-01-25	Snap Bushing
5	1	C07182-440-70-00	Electronic Control Assembly
6	3	N60799-105-16-02	Screw M5 x 16
7	1	C07182-210-50-00	Cable Anchor Assembly
8	2	N18230-206-20-02	Hex Socket Bolt M6 x 20
9	1	C07182-440-90-00	Cross Slides
10	4	N18230-205-14-00	Hex Socket Bolt M5 x 14
11	1	C07182-440-00-20	Plug with Wires
12*	1	H01156-110-01-44	Plug
13	1	C07182-360-01-60	Bar
14	1	C07182-460-50-00	Torch Holding Assembly
15	1	N60799-105-25-02	Screw M5 x 25 FHSCS
16	2	C07182-440-40-00	Follower Assembly
17	4	SRB-000187	Knurled Thumbscrew M6 x 40
18	1	CON-1020	Swivel Clamp Assembly

\* For 120 VAC models a AFW-2029 (power cord) is used with the H01156-110-01-44 (plug).  
When ordering replacement parts both items will need to be ordered.

C07182-440-10-00 DRIVE SYSTEM / EXPLODED VIEW

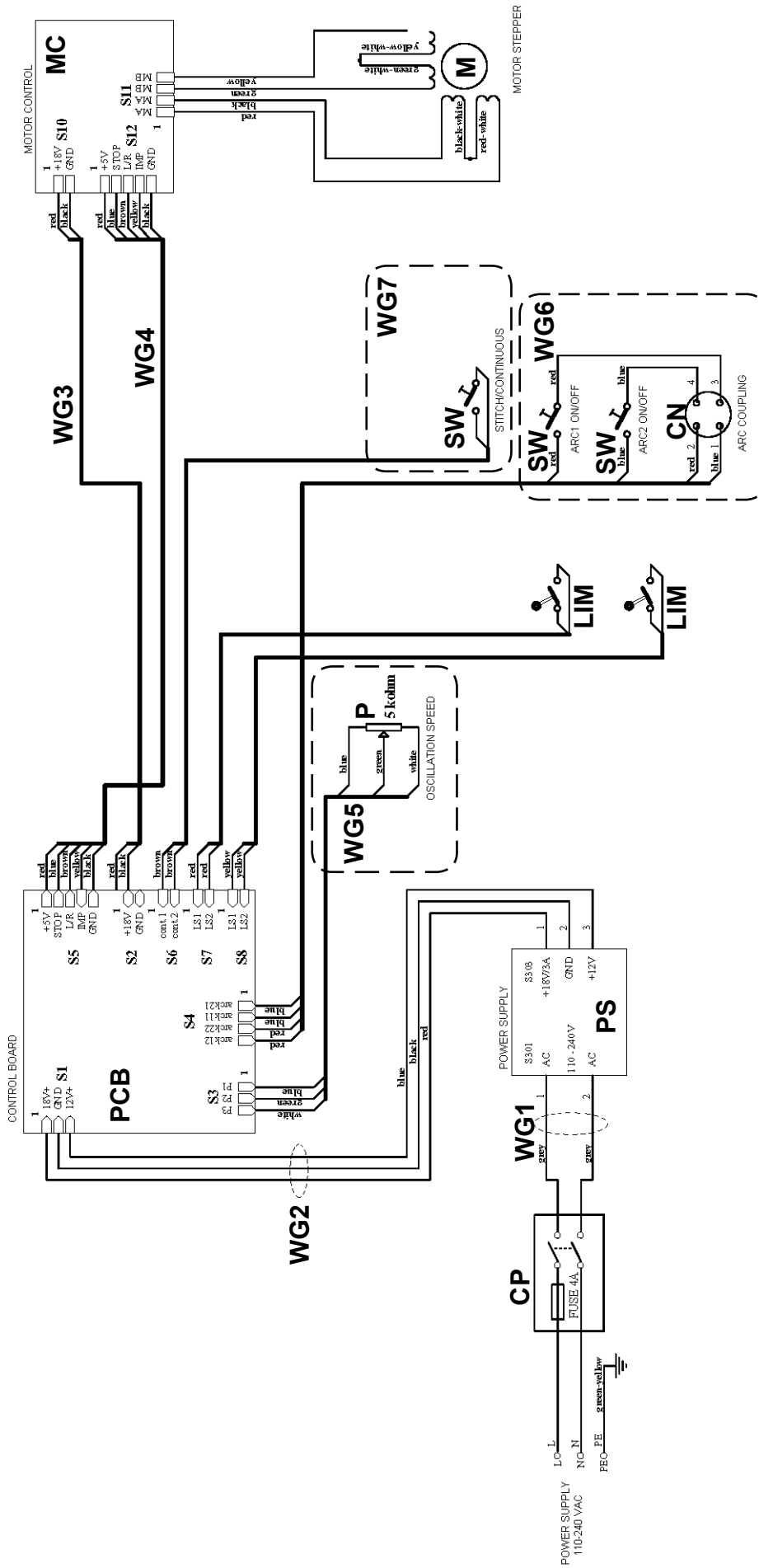


## C07182-440-10-00 DRIVE SYSTEM / PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-440-10-10	Frame
2	1	C07182-440-10-20	Frame Plate
3	2	C07182-440-10-30	Magnet Housing
4	2	C07182-440-10-40	Magnet Plate
5	2	C07182-330-10-30	Drive Shaft II
6	2	C07182-500-10-20	Drive Shaft Holder
7	2	C07182-330-10-70	Pulley
8	4	C07182-330-12-10	Distance Washer
9	1	C07182-330-10-90	Tension Plate
10	1	C07182-440-10-50	Tension Shaft
11	1	C07182-440-10-60	Tension Sleeve
12	4	C07182-440-30-00	Drive Wheel
13	1	C07182-330-12-40	Guard
14	1	C07182-440-50-00	Back Limit Switch Assembly
15	1	C07182-440-20-00	Drive Motor Assembly
16	1	N18230-205-20-02	Hex Socket Bolt M5 x 20
17	4	N18230-205-10-00	Hex Socket Bolt M5 x 10
18	4	N60799-105-12-02	Screw M5 x 12 FHSCS
19	8	N18220-204-16-01	Cross Recessed Screw M4 x 16
20	4	N60799-105-10-02	Screw M5 x 10 FHSCS
21	14	N60799-105-16-02	Screw M5 x 16 FHSCS
*22	4	N60091-306-35-00	Screw M6 x 35
23	2	N18231-605-12-02	Socket Set Screw M5 x 12
24	4	N18200-608-04-01	Round Washer 8.4
25	1	N18200-605-03-01	Washer 5.3
26	4	N18214-408-00-01	Hex Nut M8
27	4	N18214-406-00-01	Hex Nut M6
28	1	N18214-405-00-01	Hex Nut M5
*29	4	H00653-032-01-06	Clamping Nut
30	2	N18511-120-28-00	Internal Retaining Ring 28W
31	1	N18511-120-22-00	Retaining Ring 22W
32	4	H00636-300-01-15	Bearing 6001 ZZ
33	1	H00636-448-01-00	Bearing 608 ZZ
34	1	H01374-001-01-02	Belt 220XL050
35	12	H01158-333-01-02	Magnet
36	1	C07182-440-50-01	Front Limit Switch Assembly
37	2	N18230-205-10-12	Hex. Socket Bolt M5 x 10
38	2	N18200-805-01-01	Spring Washer M5
39	2	N18202-405-03-01	Spring Washer 5.3
40	1	C07182-441-10-10	Ground Wire L=110
*41	1	C07182-441-10-30	Ground Wire L=380

\*Items not shown on exploded view drawing.

# AFW-3000 BUG-GY / WIRING DIAGRAM /



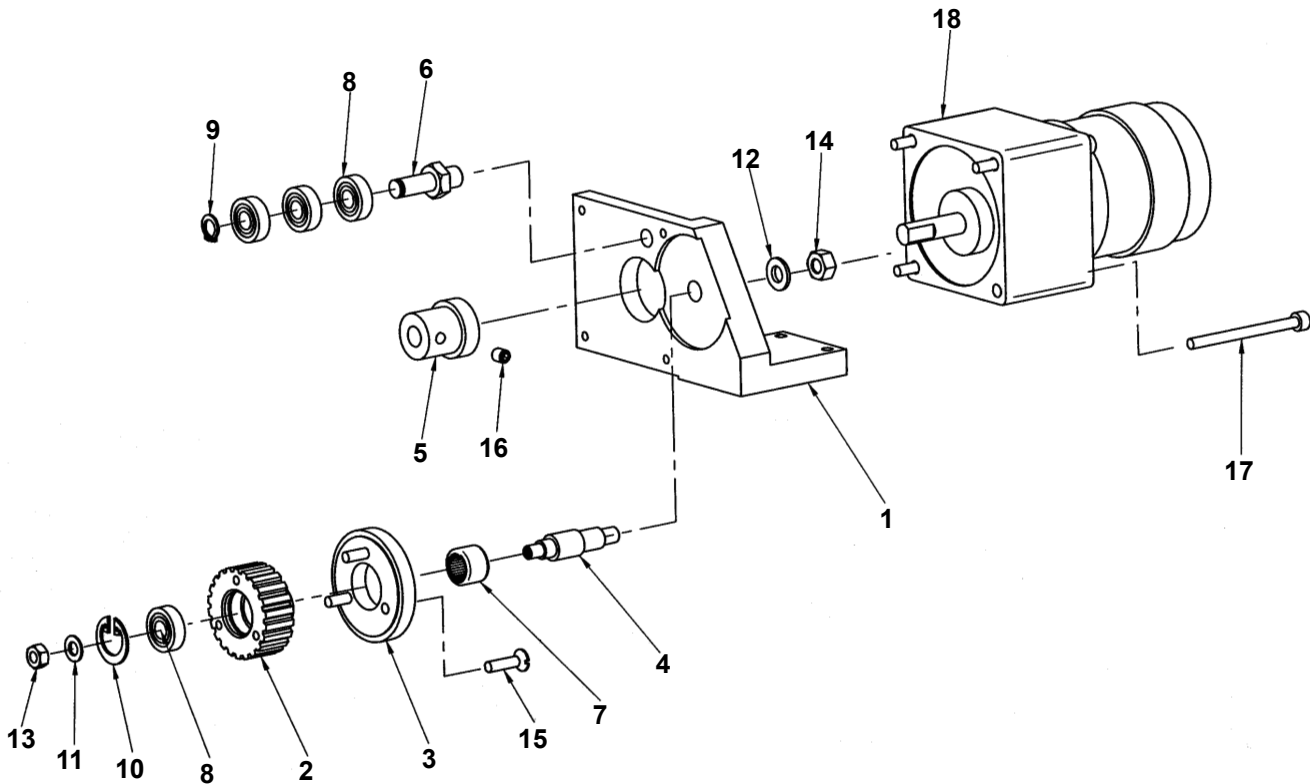
# AFW-3000 BUG-GY / ELECTRICAL COMPONENT CHART

## ELECTRICAL COMPONENT CHART

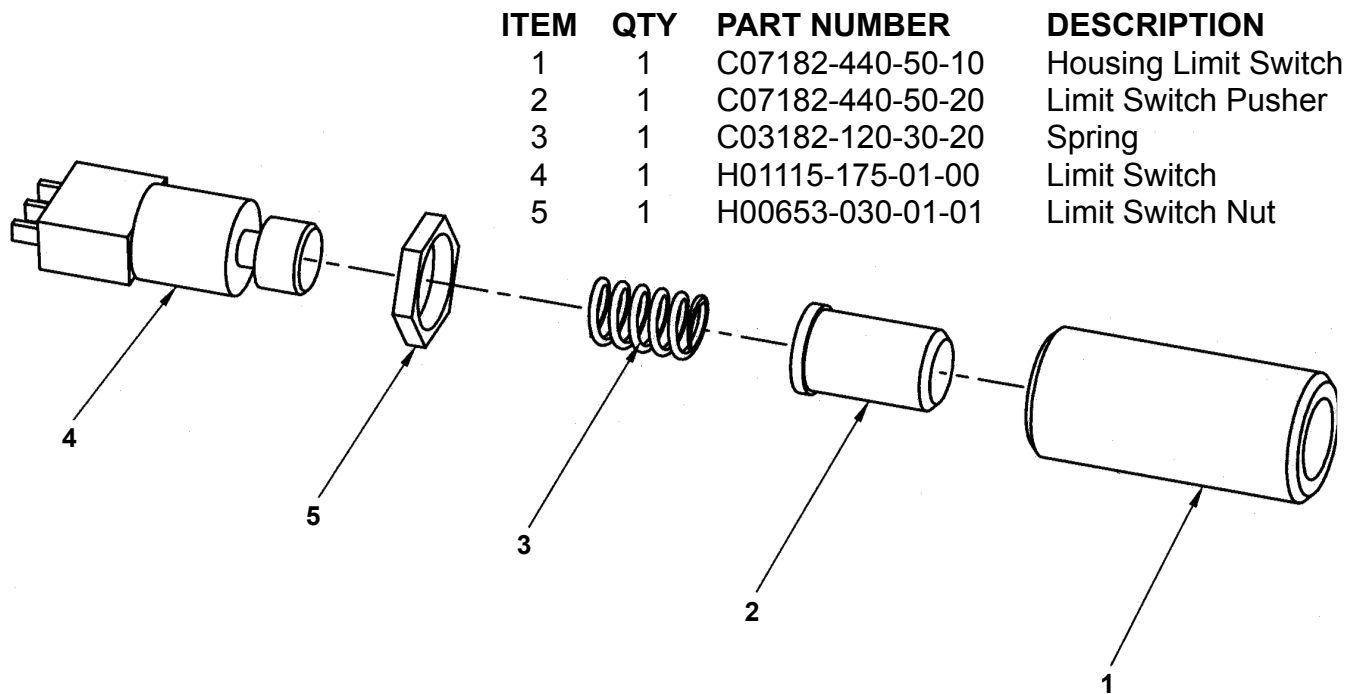
ITEM	QTY	DESCRIPTION	PART NUMBER
CP	1	Switched Fused Chassis Plug	H01115-169-01-01
PS	1	Power Supply Board 110-220V	C07182-210-40-72
PCB	1	LCD Board BC 0205	C07182-440-80-10
P	1	Pot, 5k OHM (3 pc, No Wires)	H01156-111-01-04
LIM	2	Limit Switch Ass'y (5 pc, No Wires)	C07182-440-50-00
SW	3	Toggle Switch (No Wires)	H01115-174-01-00
CN	1	Panel Connector, 4-T, M	H01131-002-01-02
MC	1	Electronic Controller BUG-GY	C07182-440-70-30
M	1	Stepper Motor Ass'y	C07182-440-20-70
WG1	1	Power Supply Board Wires II	C07182-440-70-70
WG2	1	Power Supply Board Wires I	C07182-440-70-40
WG3	1	Electronic Controller Wires I	C07182-440-70-50
WG4	1	Electronic Controller Wires II	C07182-440-70-60
WG5	1	5k Pot with Wires (Includes P)	C07182-330-40-70
WG6	1	Toggle Switch with Wires (Includes SW)	C07182-440-80-20
WG7	1	Contacting Wiring Group (Includes CN, SW x 2)	C07182-440-80-30

# C07182-440-20-00 DRIVE MOTOR ASSEMBLY / EXPLODED VIEW / PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-440-20-10	Motor Housing
2	1	C07182-440-20-20	Pulley
3	1	C07182-440-20-30	Gear Z=50
4	1	C07182-440-20-40	Bearing Shaft
5	1	C07182-440-20-50	Gear Z=25
6	1	C07182-440-20-60	Bearing Shaft
7	1	H00636-448-01-08	Bearing, Needle RHNA 101410
8	4	H00636-304-01-00	Bearing 219/7 2Z
9	1	N18511-110-07-00	External Retaining Ring 7 Z
10	1	N18511-120-17-00	Internal Retaining Ring 17 W
11	1	N18200-605-03-01	Washer 5.3
12	1	N18200-606-04-02	Round Washer 6.4
13	1	N18214-405-00-01	Hex Nut M5
14	1	N18214-406-00-01	Hex Nut M6
15	3	N18220-804-16-01	Screw M4 x 16
16	1	N60091-305-05-00	Set Screw M5 x 5
17	4	N60091-204-50-00	Hex Socket Bolt M4 x 50
18	1	C07182-440-20-70	Stepper Motor Assembly

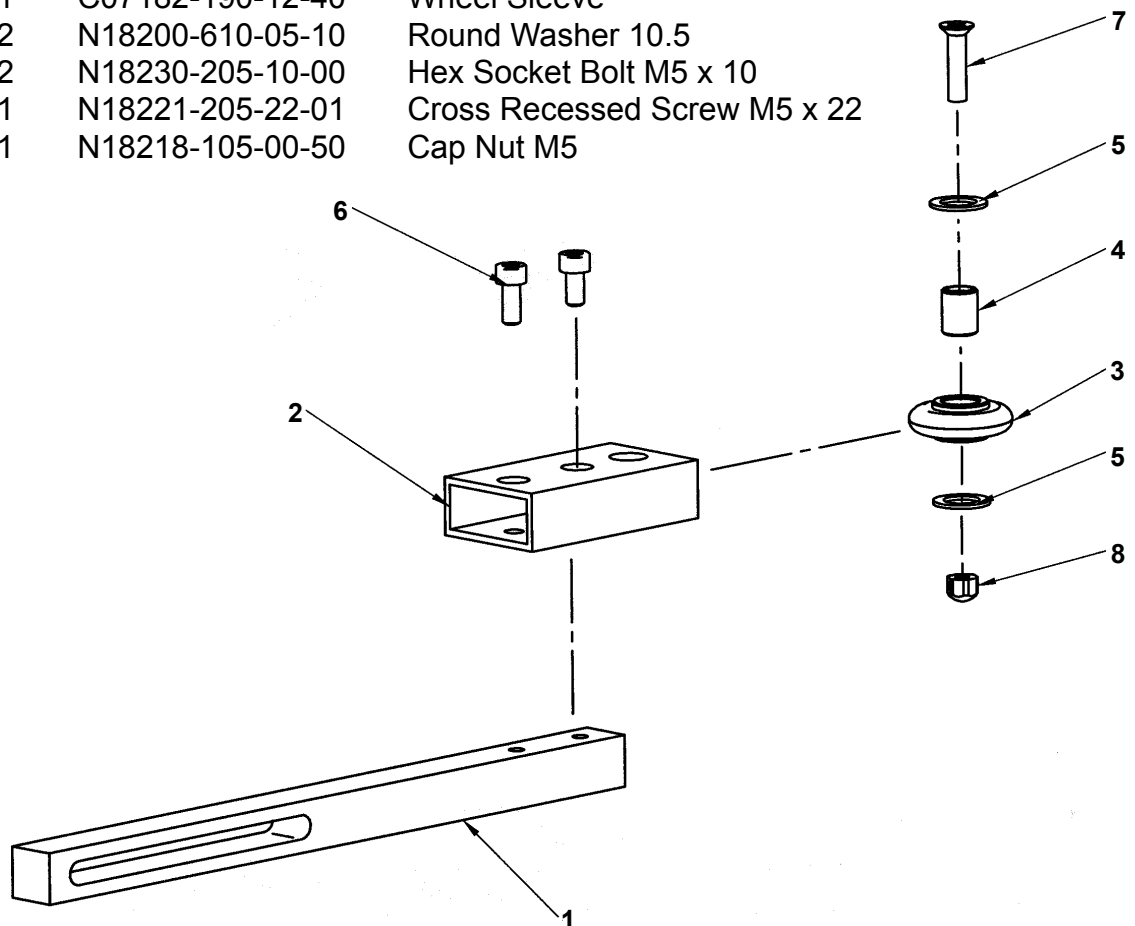


## C07182-440-50-00 LIMIT SWITCH ASSEMBLY / PARTS LIST / EXPLODED VIEW



## C07182-440-40-00 FOLLOWER ASSEMBLY / PARTS LIST / EXPLODED VIEW

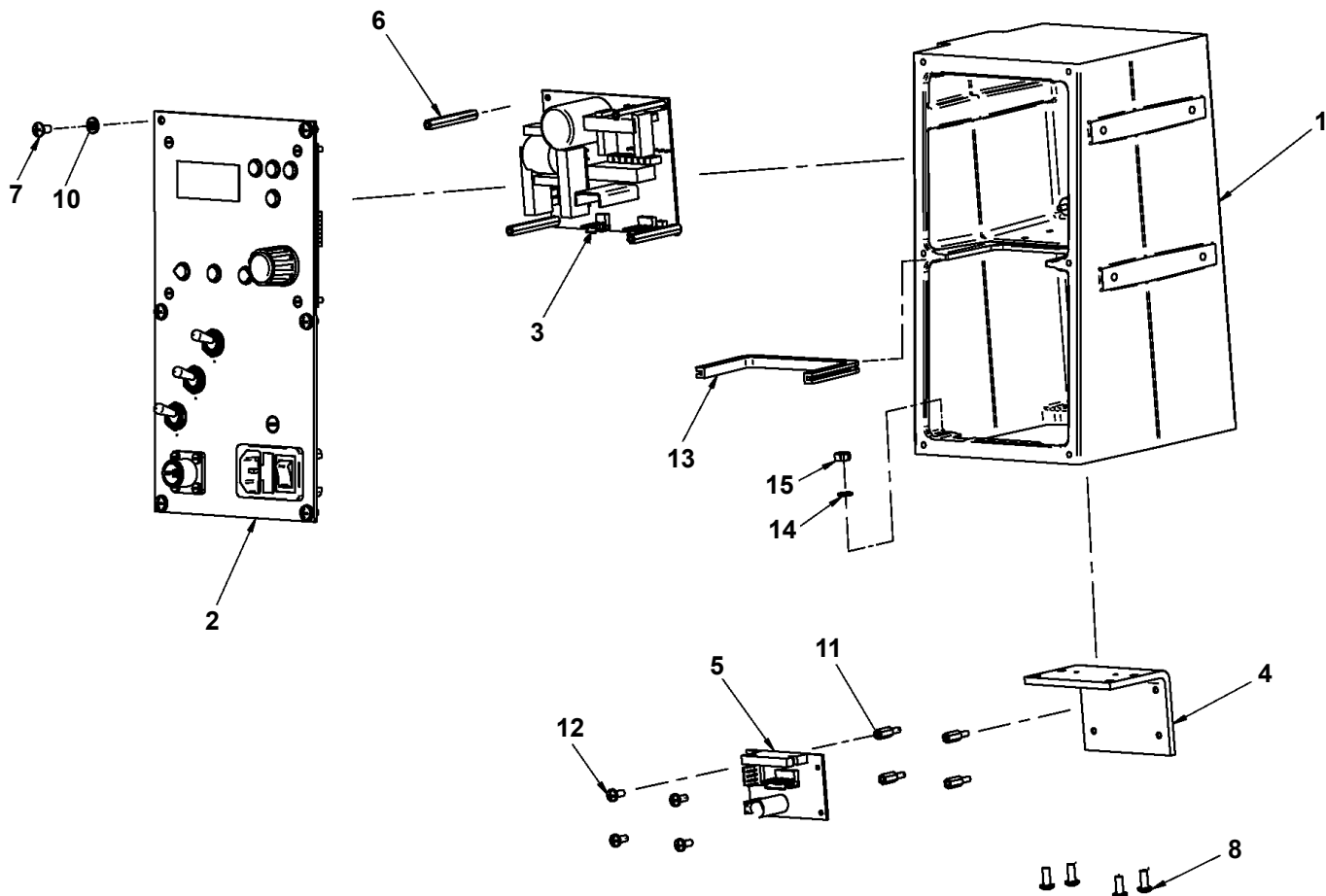
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-360-01-20	Follower Arm
2	1	C07182-210-10-60	Wheel Holder
3	1	C07182-210-11-90	Follower Wheel
4	1	C07182-190-12-40	Wheel Sleeve
5	2	N18200-610-05-10	Round Washer 10.5
6	2	N18230-205-10-00	Hex Socket Bolt M5 x 10
7	1	N18221-205-22-01	Cross Recessed Screw M5 x 22
8	1	N18218-105-00-50	Cap Nut M5



# C07182-440-70-00 ELECTRONIC CONTROL ASSEMBLY / PARTS LIST / EXPLODED VIEW

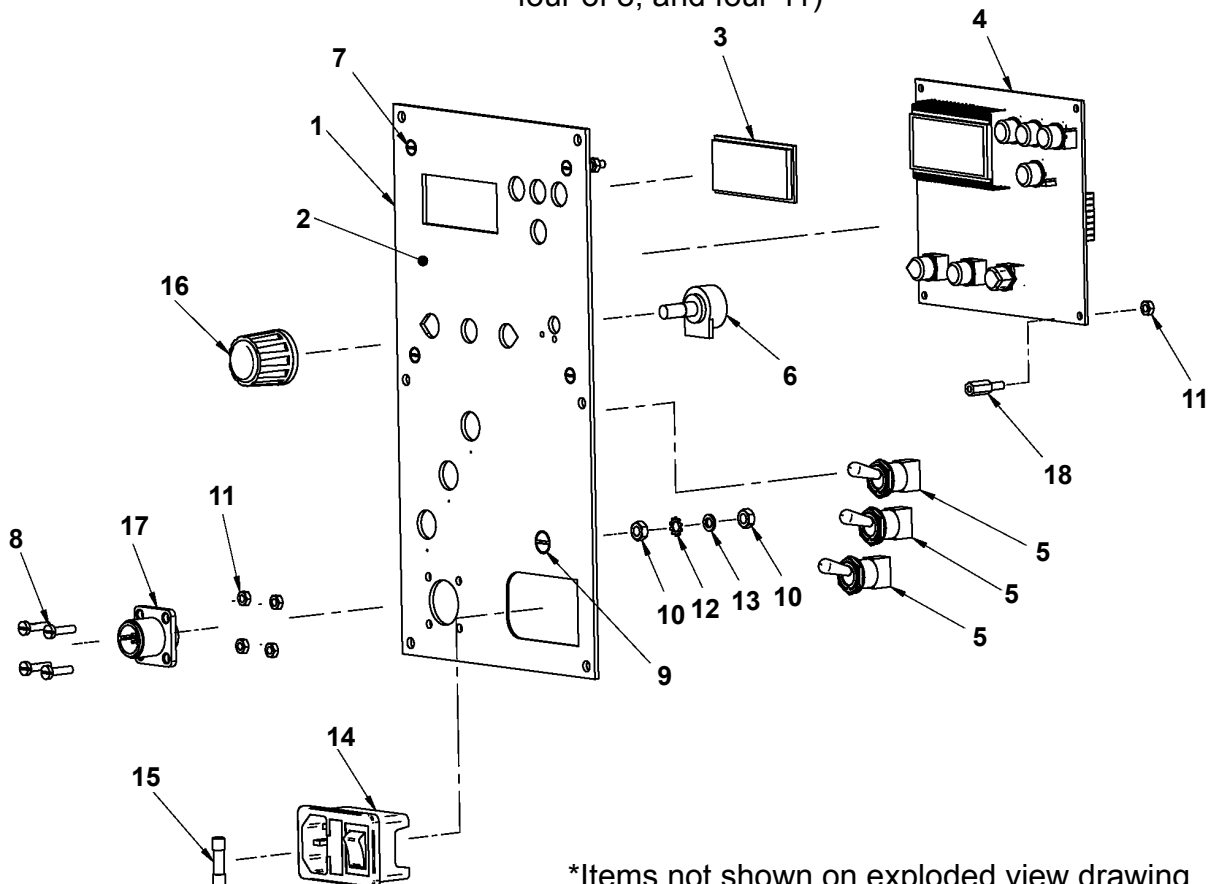
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-440-70-10	Control Console
2	1	C07182-440-80-00	Panel Assembly
3	1	C07182-210-40-72	Power Supply Board 110-220V
4	1	C07182-440-70-20	Radiator
5	1	C07182-440-70-30	Electronic Controller
6	4	H01262-015-01-01	Distance Sleeve
7	6	N60738-004-08-02	Screw M4 x 8
8	4	N18220-204-10-01	Cross Recessed Screw M4 x 10
*9	4	N18220-703-25-00	Screw M3 x 25
10	6	N18200-604-03-01	Round Washer 4.3
11	4	TLJ-000023	Sleeve M3 x 10
12	4	WKR-000313	Screw M3 x 8
13	1	H01369-010-01-01	Seal
14	1	N18202-405-03-01	Spring Washer 5.3
15	1	N18214-405-00-01	Hex Nut M5

\*Items not shown on exploded view drawing.



# C07182-440-80-00 PANEL ASSEMBLY / PARTS LIST / EXPLODED VIEW

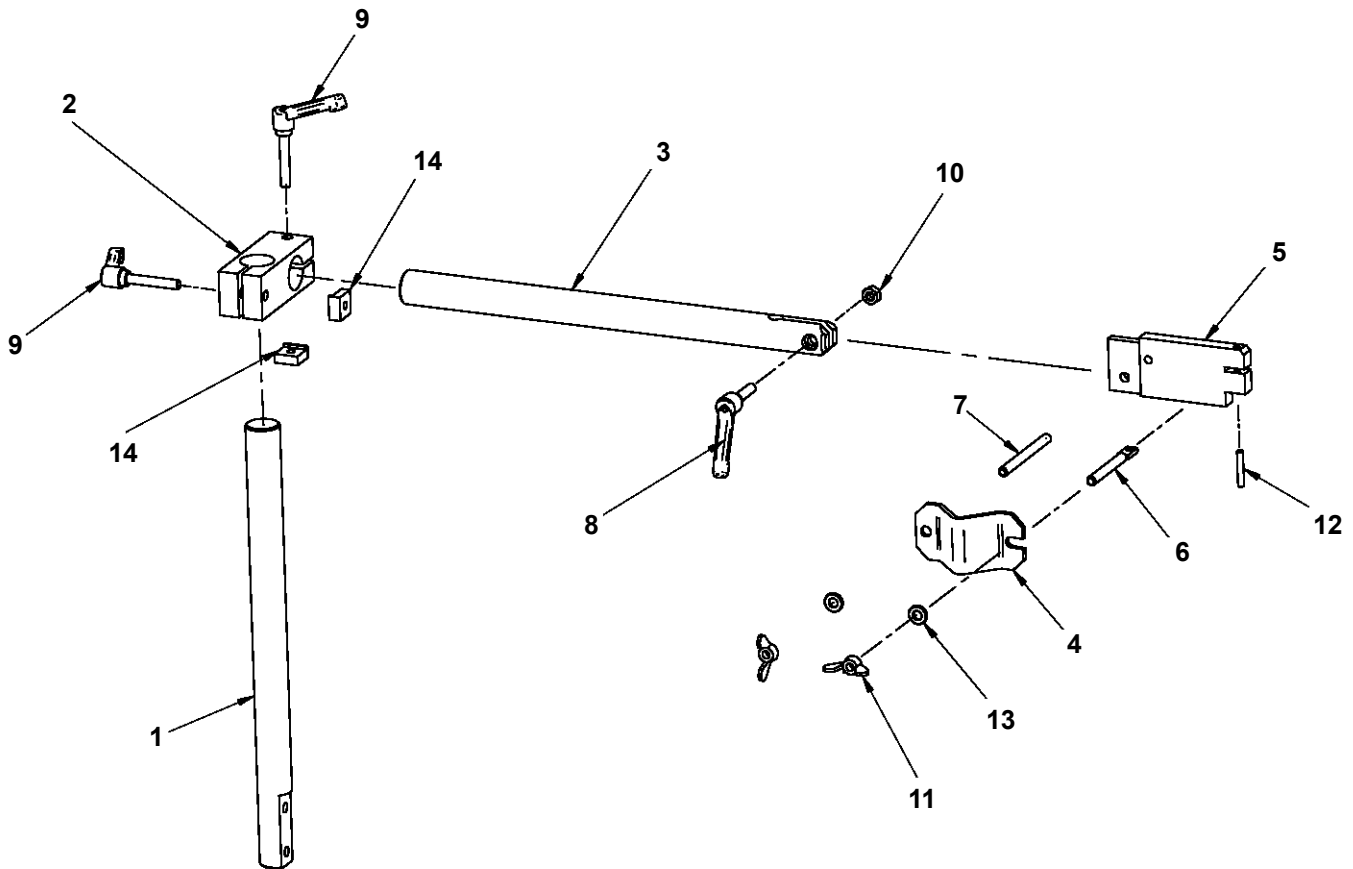
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-210-40-21	Panel Plate
2	1	C07182-210-40-31	Panel Plate Label
3	1	C03181-787-00-60	Speed Screen Filter
4	1	C07182-440-80-10	LCD Board BC 0205
5	3	H01115-174-01-00	Toggle Switch, 2-Position (3 piece, no wires)
6	1	H01156-111-01-04	Potentiometer 5kOHM (3 piece, no wires)
7	4	N18220-703-10-00	Screw M3 x 10
8	4	N18221-903-12-01	Screw M3 x 12
9	1	N18220-705-20-00	Screw M5x 20
10	2	N18214-405-00-01	Hex Nut M5
11	8	N18214-403-00-01	Hex Nut M3
12	1	N18202-405-03-01	Spring Washer 5.3
13	1	N18200-805-01-01	Spring Washer M5
14	1	H01115-169-01-01	Switched Fused Chassis Plug
15	1	H01156-600-01-05	Fuse 2A/250V
16	1	H01369-020-01-01	Handwheel
17	1	H01131-002-01-02	Panel Connector, 4-T, M
18	4	TLJ-000023	Sleeve M3 x 10
*19	1	C07182-440-80-20	Toggle Switch with Wires (Includes one of 5)
*20	1	C07182-330-40-70	5k Pot with Wires (Includes one of 6)
*21	1	C07182-440-70-70	Power Supply Board Wires II
*22	1	C07182-440-70-60	Electronic Controller Wires II
*23	1	C07182-440-70-40	Power Supply Board Wires I
*24	1	C07182-440-70-50	Electronic Controller Wires I
*25	1	PWD-0244-11-05-00-0	Grounding Wire L=115
*26	1	C07182-441-10-40	Switch Grounding Wire L=230
*27	2	C07182-441-10-20	Switch Wire L=80
*28	1	C07182-440-80-30	Contactor Wiring Group (Includes two of 5, one of 17, four of 8, and four 11)



\*Items not shown on exploded view drawing.

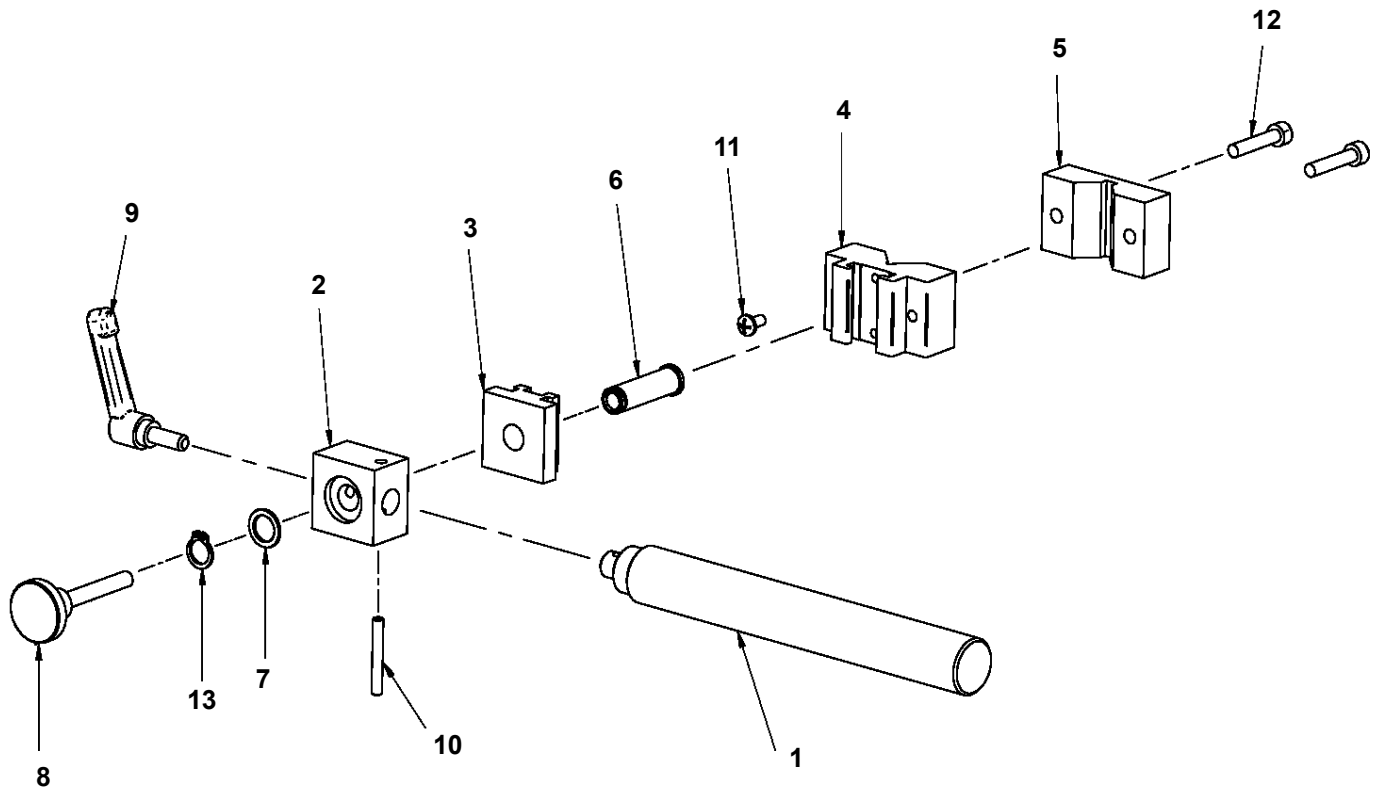
# C07182-210-50-00 CABLE ANCHOR / PARTS LIST / EXPLODED VIEW

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-210-50-10	Cable Anchor Vertical
2	1	C07182-210-50-20	Cable Holding Housing
3	1	C07182-210-50-30	Cable Holding Horizontal
4	1	C07182-190-61-60	Clamp Plate I
5	1	C07182-190-61-50	Clamp Plate II
6	1	C07181-800-02-60	Clamp Bolt
7	1	C07181-800-02-70	Stud Bolt
8	1	H00643-480-01-00	Handlever GN 300-45-M6-25-0
9	2	H00643-480-01-05	Handlever GN 300-45-M6-35-0
10	1	NKR-000018	Hex Nut M6
11	2	N18243-906-00-00	Wing Nut M6
12	1	KLK-000015	Spring Pin 4 x 26
13	2	N18200-606-04-01	Round Washer 6.4
14	2	NKR-0261-03-05-00-0	Square Nut



# C07182-460-50-00 TORCH HOLDING ASSEMBLY / PARTS LIST / EXPLODED VIEW

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	C07182-460-50-10	Torch Holding Horizontal
2	1	C07182-460-50-20	Clamp Block
3	1	C07182-460-50-30	Rotate Block
4	1	C07182-331-20-31	Block Clamping I
5	1	C07182-331-20-40	Block Clamping II
6	1	C07182-460-50-40	Sleeve
7	1	C03682-110-01-50	Torch Washer 10.1x15x1
8	1	SRB-000187	Knurled Knob M6x40
9	1	H00643-480-01-03	Hand Lever GN 300-45-M6-16-0
10	1	N18502-304-30-00	Spring Pin 4x30
11	1	N18220-204-08-01	Crossed Recessed Screw M4 x 8
12	2	N18230-205-25-00	Screw Shcs M5 x 25
13	1	N18511-110-10-00	External Retaining Ring 10Z



# 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 NEGLIGENCE, 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.**