



**DURAN
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WHEATON[®] Bench-Top Mini Bottle Roller Apparatus

Instruction Manual



Catalog Numbers:

**W348923-A & B (120VAC)
W348923-C, D, F, G, & J (230VAC)**

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WARRANTY

All goods and materials shall conform to DWK Life Sciences Inc. specifications at the time of shipment from our plant. DWK Life Sciences Inc. warrants this product to be free from defects in material and workmanship for a period of 365 days from the date of shipment. If the repair or adjustment is necessary within the warranty period and has not been the result of mishandling or abuse, DWK Life Sciences Inc. will either correct the non-conforming condition, or replace any nonconforming goods or materials or issue a credit in the amount of the purchase price paid and received for such goods. All claims for product nonconformity must be made within ten (10) days of identifying such a problem by calling Customer Service at 800.225.1437 (U.S., Puerto Rico and Canada); or Internationally at 856.825.1100 and then providing the Model, Serial and Catalog Number of the product. Items returned are to be packed very carefully so as to prevent damage in transit. DWK Life Sciences Inc. will also repair or adjust any product that is beyond the warranty period for a nominal fee.

DWK Life Sciences Inc. makes no other express or implied warranty, statutory or otherwise, concerning materials or goods supplied, including without limitation, ANY WARRANTY of fitness for a particular purpose or any warranty of merchantability. The warranties given are exclusive of all other warranties expressed or implied. DWK Life Sciences Inc. shall not be liable for consequential, special or incidental damages.

To expedite any technical or service request, please have the following information available.

Thank you.

Model: _____
Serial #: _____
Catalog #: _____

INTRODUCTION

The DWK Life Sciences Inc. Bench Top Mini Bottle Roller is designed for small scale mixing and agitation using bottles that are too small to be accommodated by our standard roller apparatus. It is perfect for DWK Life Sciences Inc. 30 mL or larger serum bottles, 100-125 mL media bottles or 38 x 200 culture tubes for the growth and observation of single chicken or rat embryos. The compact size makes it suitable for laboratories with limited space and for use with standard incubators and cold rooms. Continuous rotation of cylindrical bottles at predetermined optimum speeds provides better distribution of media and uniform gassing. The transistorized solid state circuitry allows exacting speed control of the bottles and is designed to compensate against sudden or prolonged line voltage changes. The roller shafts are mounted in self-lubricating nylon bearings, which eliminates many maintenance problems. The DWK Life Sciences Inc. Bench Top Mini Bottle Roller will accommodate bottles 38-60 mm in diameter up to 240 mm long, with bottle speeds of 3 to 45 RPM (38 mm bottle) and 2 to 30 RPM (60 mm bottle).

DWK Life Sciences Inc. #348923-A & B (120 VAC) and #348923-C, D, F, G, & J (230 VAC) is a single deck unit which will accommodate a minimum of four bottles.

SAFETY SYMBOLS USED IN THIS MANUAL

The following safety symbols can be found within this manual and applied as decals to the unit. Their definitions are below:



WARNING! READ AND UNDERSTAND ALL INSTRUCTIONS. Failure to follow all instructions listed below may result in electrical shock, fire and / or serious personal injury.



An **ELECTRICAL DANGER** symbol indicates attention to an operation which could cause electrocution or severe injury.



A Pinch and Crush danger symbol indicates attention to an operation which could cause severe injury due to hands or fingers being caught in rotating parts or machinery.

SPECIAL SAFETY INSTRUCTIONS

GROUNDING INSTRUCTIONS



WARNING! IMPROPER GROUNDING CAN RESULT IN ELECTRICAL SHOCK. IN THE EVENT OF A SHORT CIRCUIT, GROUNDING REDUCES THE RISK OF SHOCK BY PROVIDING AN ESCAPE PATH FOR THE ELECTRIC CURRENT. THIS INSTRUMENT MUST BE GROUNDED.

This instrument is equipped with a cord having a grounding wire and an appropriate grounding plug. The plug must be used with an outlet that has been installed and grounded in accordance with all local codes and ordinances. The outlet must have the same configuration as the plug. **DO NOT USE AN ADAPTER.**

Do not modify the plug that has been provided. If it does not fit the available outlet, contact your nearest DWK Life Sciences Inc. distributor for the proper line cord for your area.

GENERAL SAFETY INSTRUCTIONS

NOTE: EVEN THE SAFEST EQUIPMENT CAN CAUSE INJURY IF THE USER IS CARELESS.

1. **KNOW YOUR INSTRUMENT** - Read the operating manual carefully. Learn the equipment's application and limitations.
2. **GROUND ALL EQUIPMENT** - If electrical, this instrument is equipped with a grounding type plug. The green/yellow conductor in the cord is the grounding wire and should never be connected to a live terminal.
3. **AVOID DANGEROUS ENVIRONMENT** - Electrical instruments designed to process liquids must be operated with extreme caution. If liquid comes in contact with internal electrical components or wires, fire or electrical shock may occur. Adequate surrounding work space should be provided during use. Do not operate electrical instrumentation in a combustible atmosphere.
4. **WORK SURFACE** - Keep well lighted. Be certain the work surface is clean, level and sturdy enough to support the weight of the unit, particularly if it is to be filled with liquid.
5. **WEAR PROPER APPAREL** - Do not wear loose clothing, neckties or jewelry that might get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
6. **WEAR SAFETY GOGGLES** - Wear safety goggles at all times. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
7. **DON'T OVERREACH** - Keep proper footing and balance at all times.
8. **MAINTAIN INSTRUMENT WITH CARE** - Keep screws tight and unit clean. Check periodically for worn or damaged parts. Inspect the plug and cord before each use. Do not operate this instrument if there are signs of damage.
9. **AVOID ACCIDENTAL START UP** - If electrical, always make sure the switch is in the "OFF" position before plugging instrument into outlet.
10. **DISCONNECT INSTRUMENT** - Always disconnect the instrument from the power source before servicing.
11. **DO NOT BLOCK COOLING VENTS IF PROVIDED**
12. **DO NOT OPERATE THIS EQUIPMENT IN ANY MANNER NOT SPECIFIED IN THIS MANUAL**
13. **KEEP THE OPERATING MANUAL FOR THE INSTRUMENT IN A SAFE PLACE NEAR THE INSTRUMENT FOR QUICK AND EASY REFERENCE.**
14. **IT IS RECOMMENDED THAT A FIRE EXTINGUISHER ALWAYS BE LOCATED IN AREAS WHERE ELECTRICAL INSTRUMENTS ARE BEING USED.**

GENERAL INFORMATION

This section contains a general description of the DWK Life Sciences Inc. Bench Top Mini Bottle Roller. This section also contains instructions for initial inspection, installation, selecting the power-line voltage and connecting the unit to AC power.

1. **OPTIONS - WSP #348920-CH** Mini Bottle Deck Kit (sold separately), can be added to accommodate an additional (minimum of) four bottles per deck.
2. **INITIAL INSPECTION** - When you receive your DWK Life Sciences Inc. Bench Top Mini Bottle Roller, inspect it for any obvious damage that may have occurred during shipment. If any damage is found, notify the carrier at once. Warranty information is shown in the front of this manual. Check to confirm that there are no broken switches, or pulleys and that the unit is not dented or scratched.
3. **INSTALLATION** - Install the unit where there will be adequate room for the unit to operate. Provide enough clearance around the unit to keep items away from the rotating belts and pulleys.
4. **INPUT POWER REQUIREMENTS** - This equipment is designed to operate from a nominal 120V or 230V single phase ac power source at 47 to 63 Hz. An indication on the rear of the unit shows the nominal input voltage set for the unit at the factory.
5. **POWER LINE CORD** - This unit has been shipped from the factory with a power line cord that has a plug appropriate for your area. If the wrong power cord has been shipped for your particular application, contact your nearest DWK Life Sciences Inc. dealer for the proper cord. The DWK Life Sciences Inc. Bench Top Mini Bottle Roller has been equipped with a 3-wire grounding type power cord. The unit is only grounded when it is plugged into an appropriate receptacle. Do not operate the unit without adequate grounding protection.
6. **POWER LINE VOLTAGE SELECTION** - Power line voltage selection is accomplished by adjusting two components: the power line voltage selector and the power line fuse in the power line module on the rear of the unit.

OPERATION



CAUTION: Keep hands and fingers away from rotating parts of the machine. Do not remove any safety guards or operate the machine without the safety guards.

IMPORTANT: This apparatus was designed to run partially filled bottles for standard cell culture applications. Please consult DWK Life Sciences Inc. engineering if you have special applications.

1. Plug the unit into an appropriate source of AC power.
2. Place bottle(s) on unit.
3. Turn on the power switch located on the rear of the unit.
4. Adjust the speed control knob until the desired rotational speed is obtained. Turn the speed control knob clockwise to increase roller speed, or counterclockwise to decrease roller speed.



CAUTION: Because a fully loaded roller apparatus can become very heavy, care should be taken when moving the equipment while it is loaded with bottles.

MAINTENANCE

QUALIFIED SERVICE PERSONNEL ONLY



DANGER! NEVER ATTEMPT TO PERFORM REPAIRS IF THIS INSTRUMENT IS PLUGGED IN! IN ORDER TO AVOID SERIOUS ELECTRIC SHOCK OR ELECTROCUTION, THIS INSTRUMENT MUST BE DISCONNECTED FROM THE SOURCE OF AC POWER BEFORE MAINTENANCE IS ATTEMPTED.

As with any piece of laboratory equipment, periodic inspection for worn and or damaged parts should be performed on a regular basis in order to maintain optimum performance. How often is dependent upon amount of usage, working environment, motor speed, etc. The maintenance interval is best determined by the user.

MOTOR REPLACEMENT

Refer to Figures C & D



DANGER! BE CERTAIN UNIT IS DISCONNECTED FROM THE AC POWER SOURCE.

1. Unplug the unit from power source.
2. Loosen the Allen screw, which secures the shaft extender (27) to the output shaft of motor (29). Remove shaft extender assembly along with drive belts (2) and set aside.
3. Remove the four screws (underneath unit) which secure the cabinet lid to the cabinet base. Remove lid.
4. Noting their location, unplug wires from rear of motor.
5. Remove the four screws (13) and lock washers (14) that secure the motor to the cabinet base (19). Remove motor.
6. Remove two screws that hold motor mounting plate (26) to the motor. Remove motor mounting plate from the motor.
7. For re-assembly, reverse the above order using new motor. When replacing the four screws removed in step 5, do not tighten until re-assembly has been completed. Drive belt tension is effected by moving the four screws either up or down prior to tightening. Do not over tighten the drive belts.

CONTROL BOARD REPLACEMENT

Refer to Figures C & D



DANGER! BE CERTAIN UNIT IS DISCONNECTED FROM THE AC POWER SOURCE.

1. Unplug the unit from power source.
2. Loosen the Allen screw, which secures the shaft extender (27) to the output shaft of motor (29). Remove shaft extender assembly along with drive belts (2) and set aside.
3. Remove the four screws (underneath unit) which secure the cabinet lid to the cabinet base. Remove lid.
4. Unplug the wire harness (31) from the control board (28).
5. Remove the four screws (11) that secure the control board to the cabinet base. Remove control board.
6. Unplug the harness connectors from the control board noting their location for proper replacement.
7. For re-assembly, reverse the above order using new control board.

FUSE REPLACEMENT



DANGER! BE CERTAIN UNIT IS DISCONNECTED FROM THE AC POWER SOURCE.

1. Unplug the unit from power source.
2. Locate the fuse holder on the rear of the unit.
3. Use a small screwdriver to pry open the fuse holder and remove the fuse.
4. Replace with new fuse.

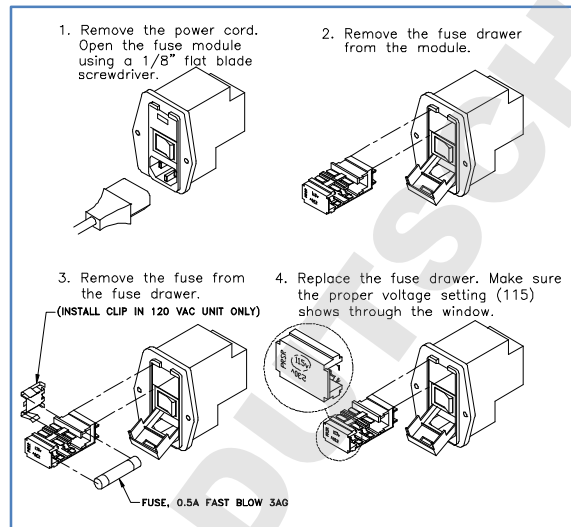


Figure A - 120VAC

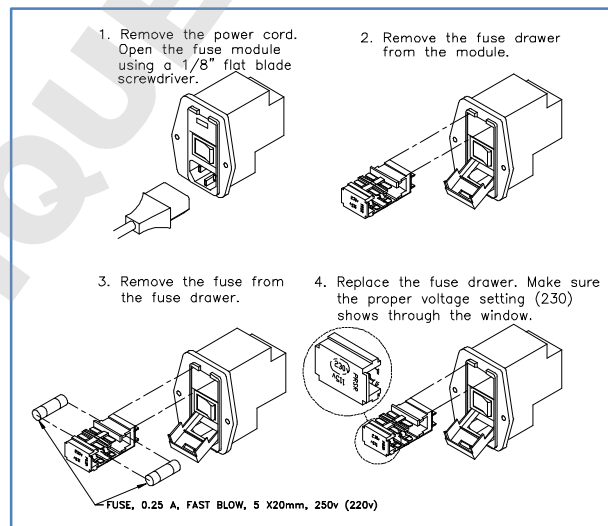


Figure B - 230VAC

TROUBLE SHOOTING

QUALIFIED SERVICE PERSONNEL ONLY



DANGER! NEVER ATTEMPT TO PERFORM REPAIRS IF THIS INSTRUMENT IS PLUGGED IN! IN ORDER TO AVOID SERIOUS ELECTRIC SHOCK OR ELECTROCUTION, THIS INSTRUMENT MUST BE DISCONNECTED FROM THE SOURCE OF AC POWER BEFORE REMOVAL OF ANY PROTECTIVE COVERS.

Unit will not operate;

- | | |
|---------|--|
| Cause: | Fuse blown. |
| Remedy: | Replace fuse with proper size and type (see fuse replacement). |
| Cause: | Supply voltage low or at zero. |
| Remedy: | Check house receptacle with a voltmeter. |
| Cause: | On/Off power switch in "off" position. |
| Remedy: | Turn on power by depressing the power switch. |

Motor runs but roller(s) will not turn;

- | | |
|---------|---|
| Cause: | Drive and/or deck gear pulley(s) loose.
Belt(s) worn or broken. |
| Remedy: | Tighten gear pulley(s) with Allen wrench.
Replace defective belts. |

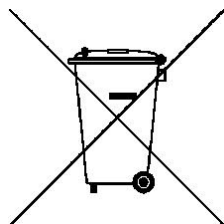
SPECIFICATIONS

Operating Voltage: (Depending on model)	120 VAC 50/60Hz or 230 VAC 50/60 Hz
Power Consumption:	14 watts
Fuse(s): 120 VAC 230 VAC	0.50 AF, 5 x 20 mm, 250V 0.25 AF, 5 x 20 mm, 250V
Bottle Size:	38-60 mm dia. X 240 mm lg. (max.)
Bottle Speed:	38 mm dia. bottle - 3 to 45 RPM 60 mm dia. bottle - 2 to 30 RPM
Installation Category:	Class II
Environmental:	Operating temperature: 5 °C to 40 °C Humidity: 80% up to 31 °C / 50% at 40 °C Altitude limit: 2000 meters

DIMENSIONS AND CAPACITIES

Cabinet Size:	12 1/2" W X 12 3/4" D X 7 1/8" H (311.2 mm W X 323.9 mm D X 190 mm H)
Weight:	18 lbs. (8.2 kg.)

WEEE DISMANTLING INSTRUCTIONS



This Small Bottle Bench-Top Roller apparatus is not to be discarded in typical trash outlets. This unit is to be discarded according to WEEE guidelines established in your area. There are no reusable parts. Contact the original distributor from which this product was purchased for proper disposal instructions.

MAIN UNIT DISASSEMBLY

1. Refer to figure C. Remove belts from back of unit. Remove any cabling from back of unit. Remove all pulleys from unit.
2. Remove any upper decks from unit (if provided), starting with the removal of the top deck and working down to the bottom deck.

CONTROL HOUSING DISASSEMBLY

1. Refer to figures C and D. Remove lid, belts, pulleys and cables from bottom of control housing (Fig. D item 19).
2. Remove wire harness from unit. Remove control knob (Fig C. item 6).
3. Remove motor (Fig. C item 6) and motor controller (Fig C item 5).
4. Remove power entry module (Fig. C item 8).
5. Remove motor bracket and motor (Fig. C items 29 and 26)
6. Turn base control housing upside down and remove feet (Fig. C item 1).

DECK DISASSEMBLY

1. Refer to figure C. Remove pulleys (Item 21) and loosen roller spacers (Item 22).
2. Remove rubber rollers and shafts from deck.
3. The rubber sleeve can be removed from the aluminum roller shafts. This is a friction fit. No adhesive is used to mount the rubber sleeve onto the shaft.

MATERIALS DECLARATION

Description	Material
Chassis and control cabinet sheet metal	Aluminum with Sherwin Williams Polane™ two-part epoxy coating.
Black cog belts	Neoprene Rubber
Roller shafts	Aluminum
Rubber Rollers	EPDM
Pulleys	Aluminum
Screws, bolts, nuts	Stainless Steel

PARTS LIST & ILLUSTRATIONS – FIGURE C & D

ITEM	QTY.	DWK NO.	DESCRIPTION
1	4	50029504	BUMPER CYLIN 0.687" DIA GRAY
2	2	I052172	BELT, 130 X L187
3	10	I051343	RETAINING RING
4	2	I052338	WASHER, STAR, #10, INT. TOOTH
5	1	I054954	KNOB, BLACK ABS, 1/8" SHAFT
6	4	WI058100	VIBRATION ISOLATOR 8-32 X 1/2
7A	1	50028585	FUSE, 1/2A FAST BLOW 3AG (120VAC)
7B	2	50028423	FUSE, 1/4A, 250V, 5 X 20MM (230VAC)
8	1	50063467	MODULE, POWER INLET
9	2	I053401	SCREW, #4-40 X 3/8" LG., PFHM
10	8	I052240	SCREW, #6-32 X 3/8" LG., PPHM
11	4	I052239	SCREW, #6-32 X 1/4" LG., PPHM
12	3	I052273	WASHER, STAR, #6, INT. TOOTH
13	4	I052287	SCW, 8-32 X 1/4" LG PPHM
14	4	50029959	WASHER, STAR, #8, INT. TOOTH
15	2	I052319	SCW, 10-32 X 3/8" LG, PPHM
16	4	I052355	SCW, SET, 10-32 X 3/8 LG
17	2	50027151	SCW, 1/4-20 X 1/2 LG PPHM
18	5	I053003	ROLLER, RUBBER – BENCHTOP
19	1	WI056104	BASE, CABINET - BENCHTOP ROLLERS
20	1	WI056106	LID, CABINET - MINI BENCHTOP ROLLER
21	2	I053004	ROLLER GEAR 204207
22	4	I053005	STOP, ROLLER, NYLON BLK
23	3	I053006	SHAFT, ROLLER
24	2	I053007	SHAFT, DRIVE
25	10	I051341	NYLINER
26	1	I054562	PLATE, MOTOR MOUNT
27	1	I053015	1/4" SHAFT EXTENDER
28	1	I055017	PCBA, MOTOR CONTROL BOARD OVERDRIVE
29	1	I057191	DC MOTOR, 65.5:1
30	1	I053018	PULLEY 206493
31	1	WI055434	WIRE HARNESS, COMPLETE - MINI ROLLER
32	1	50028829	LABEL, PINCH AND CRUSH
33	1	50028414	LABEL, CAUTION
34	1	50028394	LABEL, MET NRTL LISTED, OMNI/FLO
35	1	50028416	LABEL, CE (MARK) (230VAC)
36	NA	NA	DELETED
37	NA	NA	DELETED

38	1	50028530	LABEL, GROUND
39	1	50028527	LABEL, MAIN GROUND
40	4	50029919	NUT, HEX, #6-32
41	1	WI055996	CLIP, POWER MODULE (120VAC)
42	1	50091156	LABEL, WHEELIE BIN (250VAC)
43	1	50029508	CONN,HSG,2PN,MOLEX#09-50-3021
44	2	50029511	CRIMP PIN, .156, #08-50-0106 MOLEX
45	1	50099927	LABEL, ELECTRIC SHOCK
46	1	50099276	LABEL, UL APPROVED - SERIAL #

Bench-Top Mini Bottle Roller Apparatus

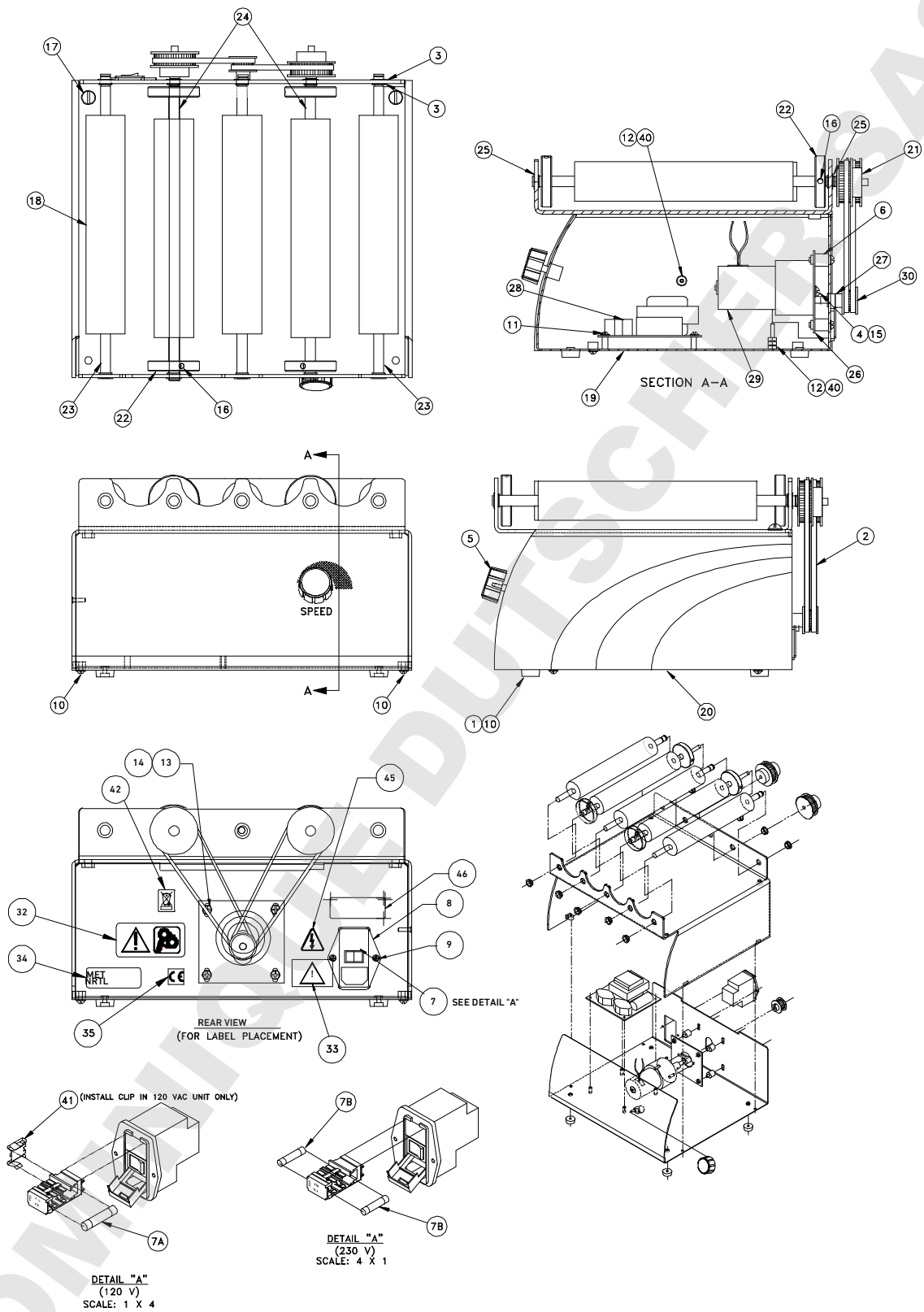
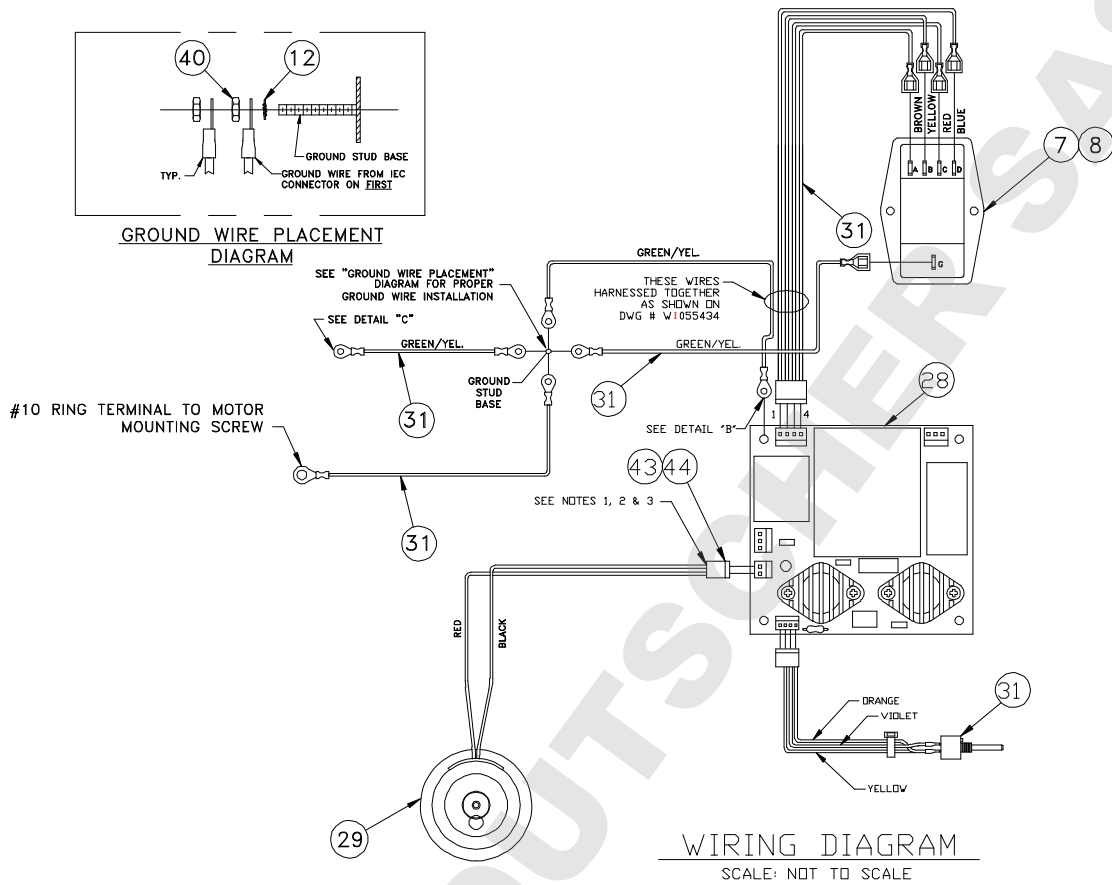


Figure C
18

Bench-Top Mini Bottle Roller Apparatus



NOTES:

1. CUT WIRE TO 6", STRIP WIRE TO .25", CRIMP ON MOLEX PIN.
2. ALL CRIMPED PINS ARE TO BE CRIMPED AS SHOWN. (SEE DETAIL "D")
3. INSERT WIRES INTO CONNECTOR.

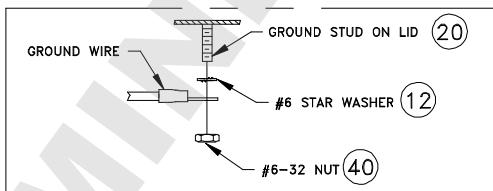
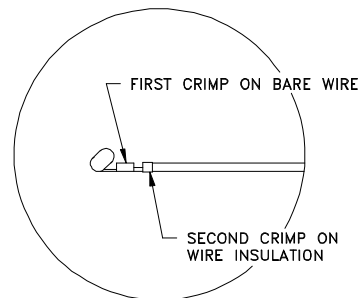
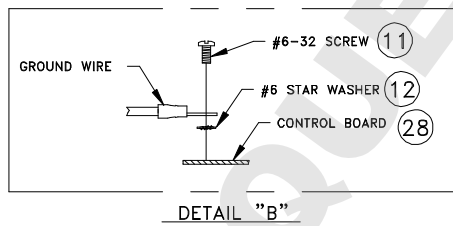


Figure D

SAFETY CERTIFICATION

CANADA

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel du Canada

UNITED STATES

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



DECLARATION OF CONFORMITY

DWK Life Sciences
1501 North Tenth Street
Millville, NJ 08332-2093
USA

We declare that the device described below - marked with CE - fulfills the relevant fundamental EMC and safety requirements specified by the appropriate EU - Directive, with respect to the design and construction of the commercialized version.
This declaration is invalid if modifications are performed on the device which has not been certified by DWK Life Sciences Inc.

Designation of the device: Small / Mini Roller Apparatus

Directives: LVD 73/23/EEC as amended by 93/68/EEC
EN 61010-1:2001
EN61326-1:2006
EN60950-1:1993

Standards: UL3101 1st Edition
CSA 22.2 No. 1010.1

A handwritten signature in black ink, appearing to read 'Gregory Bianco', is written over a horizontal line.

Gregory Bianco,
Vice President, Quality Management Systems
& Strategic Sourcing

01/23/2014
Date