



## *Power Scrub II*

"The fast, efficient way to put a shine on your eggs."

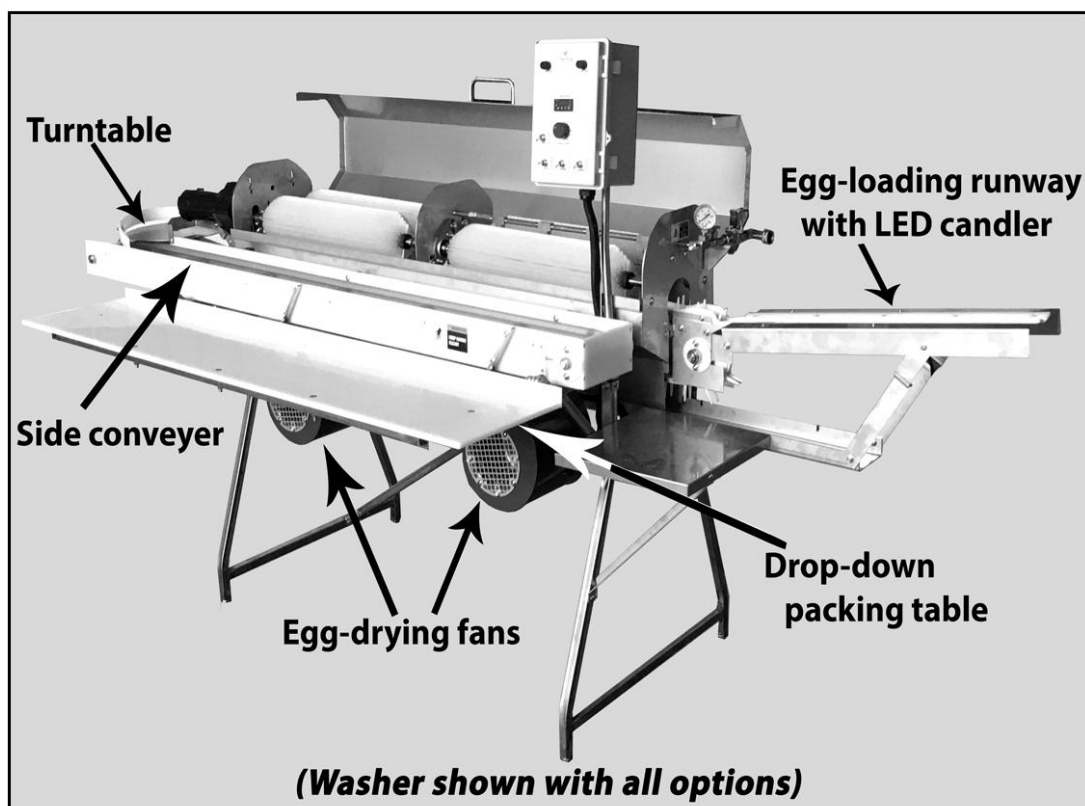


# Egg Washer

## Owner/Operator's Manual



# The *Power Scrub II* Egg Washer



Manufactured by Power Scrub Manufacturing

**POWER SCRUB  
MANUFACTURING**

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Revision 2 (February, 2021)

# *Power Scrub II*

## Specifications

### DIMENSIONS

#### Widths

With side-table removed	31 1/2"
With side-table folded	34"
With side-table down	45 1/2"

#### Lengths

Without turntable	107 1/2"
With turntable	112"

#### Heights

To top of closed lid	46"
To top of control panel	60"

### WEIGHTS

Base unit (no options)	220 lbs
Complete unit (all options)	295 lbs
Complete unit (crated)	700 lbs

ELECTRICAL POWER	220 - 240V / 15A
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AIR POWER	80 psi (maximum)
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WASHING BRUSHES SPEED	500 to 540 rpm
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EGGS WASHED PER HOUR	3,000 to 3,500
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### CONSTRUCTION

Entire body and all fasteners	Stainless steel
All plastics	Food-grade high density polyethylene (HDPE)



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## I. Introduction

*Thank-you* for purchasing this ***Power Scrub II*** Egg Washer. You should anticipate years of service from this machine, if you operate it with care and provide it with the minimal maintenance required.

The ***Power Scrub II*** was designed to permit a single operator to place eggs onto the loading runway for washing, candle them to check for cracked shells, and collect and pack the cleaned eggs. More than one operator will allow the washer to be operated at maximum capacity. Outfitted with a variable speed conveyance system, the washer is designed to process from 3,000 to 3,500 eggs per hour.

Egg types that have been tested with this washer include those of chickens, turkeys, and ducks. (Adjustable brush settings, discussed in the *Operation* section of this manual, will enable eggs of various sizes to be effectively cleaned.)

Please read this manual carefully, starting with the *Uncrating* instructions, before attempting to place your ***Power Scrub II*** in its intended space and connecting it to sources of water and electrical power.

### A. Unit identification

The information below outlines your particular purchase, and is completed for you by the manufacturer or authorized dealer. Please save this information, and be prepared to refer to it if you make inquiries about your washer, e.g., pertaining to replacement parts or for troubleshooting if problems are encountered.

Purchase date \_\_\_\_\_ Serial # \_\_\_\_\_  
Sold by \_\_\_\_\_

Options chosen:

Standard candler _____	Air motors _____
Turntable/side conveyer _____	Line shaft system _____
Drop down packing table _____	DeWalt candler _____
Drying fan(s) 1 2 _____	Milwaukee candler _____
Other(s) _____	

NOTES: \_\_\_\_\_  
\_\_\_\_\_

B. Warranty and Disclaimer

**Power Scrub Manufacturing** offers a one-year warranty that covers all non-electrical components of the *Power Scrub II*. All electrical components, including motors, are warrantied for 90 days. *All returns for any warranty claims or needed repair must be returned at customer's expense to manufacturer or authorized dealer to determine if the equipment component in question is covered by this warranty.* Please note:

- Start of warranty is the date of purchase of the egg washer
- Warranty will be invalidated if **Power Scrub Manufacturing** determines that the egg washer, or any components of the egg washer, were
  - Damaged by misuse or abuse
  - Damaged by causes beyond your or our control
  - Installed or operated other than in accordance with installation and operation instructions provided in this manual
  - Operated other than in accordance with equipment updates originating from **Power Scrub Manufacturing**
  - Altered or repaired by you or your agent not authorized by **Power Scrub Manufacturing**

**DISCLAIMER:** *Power Scrub Manufacturing shall not be held responsible for any injury or damage to property if this egg washer is operated in an unsafe manner, or if it is used for any purpose other than which it is intended. Please follow all safety guidelines found in this manual.*

C. Shipping and Receiving

If you choose not to pick up the *Power Scrub II* unit from the manufacturer or an authorized dealer, then the unit will be shipped F.O.B. from the manufacturing site or the dealer's location. *Note that the weight of the crated unit possessing all available options will not exceed 700 lbs.*

**Power Scrub Manufacturing** cannot be responsible for damage incurred during transfer to its intended location—whether picked up by you, the purchaser, or your agent, such as a professional transport company.



## II. Installation and Assembly

### A. Uncrating (if your unit was crated for transport)

You will need access to a drill and driver bit, a 7/16" flat or socket wrench, a hammer and wrecking bar, and a wire cutter to completely remove the egg washer from its wooden crate.

Please follow these steps for removing your washer from its crate:

1. Remove the top pressed board piece from the 2" x 4" frame;
2. Remove both pressed board end pieces from the 2" x 4" frame;
3. Remove the top three 2" x 4" boards (screwed into the three vertical 2" x 4" posts on each side) from the top of the crate;
4. Unfasten the three vertical posts on each side of the crate by unscrewing them from the bottom of the crate;
5. Remove both pressed board side pieces;
6. Remove any fasteners that secure the washer legs to the bottom of the crate;
7. Lift the unit out of the bottom of the crate and place it on a level surface to prepare for any needed assembly of standard and optional components that accompany your egg washer.
8. **Important: Before powering the egg washer**, be sure to remove the plastic wire tie connecting the conveyor to the support bracket (Figure 1), and the tie connecting the lid handle to the conveyor (Figure 2). (NOTE: If you did not purchase the turntable-conveyer option, the lid will be secured to the frame with transparent plastic wrap.)

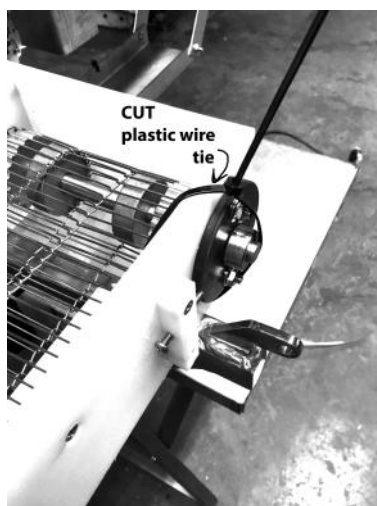


Figure 1



Figure 2

9. Remove the plastic wrap holding any other components to the unit.

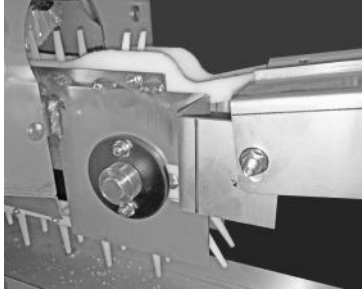
B. Assembly and Set-Up

You will need access to these common tools to assemble your egg washer:  
1/2-inch & 7/16-inch flat (or socket) wrenches, and a Phillips-head screw driver.

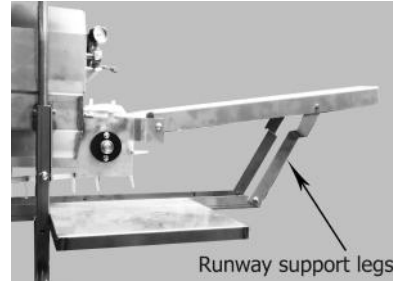


1. Egg-loading runway

The runway, which part contains the LED candler, is attached to the end of the unit housing the egg track rails (Figure 3). The steel runway rails are slotted, allowing you to adjust the rail vertically to align the egg track rails so that they are situated just below the loading runway rails. If this alignment is correct, eggs should roll smoothly from the runway to the egg track. Carriage bolts/nuts (provided) are used to secure this attachment. Figure 4 shows the supporting arms of the unit attached to the predrilled holes in the side rails of the runway. Make those two attachments with the nuts and bolts provided. Note that the arms extend to the inside of the runway side rails.



**Figure 3**



**Figure 4**

2. Candler wiring connection

The electrical wires, with keyed complementary plugs, that extend from the candler and from the wiring harness on the main unit, should be joined together tightly (Figure 5).



**Figure 5**

3. Control panel mounting bracket and control panel

Locate the only uncapped square-tubing leg, near the runway attachment end on the front of the washer, shown in Figure 6. Remove the bolt and nut from the top of the leg, and align the mounting bracket and post above the leg, as shown in Figures 7 and 8. (Note that the weld joining the post and the plate will be faced away from you.)



**Figure 6**



**Figure 7**



**Figure 8**

Push the post down into the leg until the pre-drilled holes meet and attach the post to the leg with the bolt and nut (removed earlier from the leg). See Figure 9.



**Figure 9**

Finally, attach the control panel to its mounting bracket with the screws provided. (Photos of control panel being attached with screws to its mounting bracket, and properly mounted panel, are Figures 10 & 11.)



**Figure 10**



**Figure 11**

4. Drop-down egg packing table

If the “drop-down” egg packing table was an option you purchased, follow these steps to attach it to the conveyer. First, remove the pins and their wire “keepers” from both hinges extending from the packing table. Then, align the hinge parts attached to the table with those matching ones that extend from the side of the conveyer and replace the pins, securing them with their wire “keepers” (Figures 12 & 13).



**Figure 12**



**Figure 13**

5. Washer placement and alignment

Though likely you will be limited by the location of your water and power source, you may wish to place your egg washer against a wall, since both operation and occasional maintenance (e.g., chain lubrication,

adjustment of brushes), can be accomplished conveniently from the front and ends of the unit. We recommend you place your washer near a floor drain, and that the floor itself (ideally, cement, for ease of cleaning) gently slopes towards the floor drain. You should connect a hose (not provided) from the 1 ½-inch fitting (welded to the underside of the drain trough) to the floor drain.

Leveling bolts are found screwed into the bottom of each of the four steel legs (Figure 14). Initially, they should be used to level the unit. (When the unit is level, water will flow down the sloped drain trough and exit through the hose fitting. If you desire more rapid water flow, the leveling bolts on the egg-loading end of the unit may be adjusted to raise that end.)



**Figure 14**

If you purchased the Turntable and Side Conveyor option, you should use two of the leveling bolts to raise the side of the unit opposite to the side conveyor just enough so that the clean eggs will move readily from the turntable to the conveyor.

#### C. Water and Electrical Connections

The ***Power Scrub II*** is assembled with a standard (female) garden hose fitting. A hose (not provided) should be connected to a hot water source and to the egg washer fitting. The temperature of the water should be 130 - 140 degrees Fahrenheit.

The electrical cord (provided) should be connected to a **220V/240V 15A** power source. (For air-powered models, the air pressure should be regulated to a maximum 80 psi.)

### III. A Word About Safety

We at **Power Scrub Manufacturing** are concerned that you, the owner of a *Power Scrub II*, operate this machine safely and responsibly. Please pay close attention to the cautions and warnings that appear in several sections of this manual pertaining to possible mechanical, electrical, and high temperature hazards.

#### WARNING!

You are responsible for the proper installation and operation of this appliance. Improper installation and/or operation may cause injury to personnel and/or failure of the unit. If you choose to make changes to the installation instructions given in this manual, e.g., hard-wiring electrical power, connecting the water source with copper or PVC tubing, make sure you have qualified electrical/plumbing service persons do the work in accordance with all local, state, and national safety codes. If the power disconnect point is out of sight, before any maintenance is performed on this appliance, lock the power switch in the disconnected position and tag it accordingly to notify other persons that the power is OFF for the purpose of maintenance safety.

### IV. Operation

Prepare for operating the *Power Scrub II*:

- **Make sure that all control panel switches are OFF and the power cord is connected to a 220V/240V 15A circuit;**



Be keenly aware of the possibility of **electrical shock** or **electrocution** in the operation or circuit-testing of this appliance, *especially when the water delivery system is active.*

- **Check to see that the unit is connected to a hot water source and the water is turned ON at the source; and**



Water, heated to the temperature recommended for use with this washer, clearly presents a **burn hazard** possibility to persons standing near it. Please use a high-quality garden hose to connect it to its water source.

- See that the stainless-steel lid is down and assure yourself that no tools or other foreign objects would interfere with the smooth running of the egg chain, turntable, wash brushes, and conveyor.



Any appliance having spinning rotors (as motors, wash brushes) and parts that move objects from one place to another (as the egg chain and the egg conveyor) presents the possibility of an **entanglement hazard**. You must guard against the risk of bodily injury to fingers, hands, and arms—of the operator, and of others nearby, such as children—by (1) keeping fingers away from the moving egg chain and the parts of the wire conveyor/rotating sprocket system that could injure them, and by (2) ensuring that persons with loose clothing, long hair, and jewelry are not near this unit when it is operating.

## Switches and Controls

The **water delivery system** allows a metered flow of water to spray through the nozzles. A solenoid valve controls water flow between the hose fitting and the metering valve. That valve is CLOSED when the **Brush** switch (on the control box) is in the OFF position. The metering valve is OPEN when turned counter-clockwise, and water pressure (in pounds per square inch [psi]) is indicated on the water pressure gauge. (Figures 15 & 16)

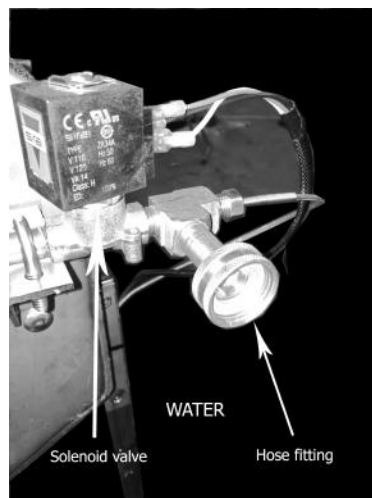


Figure 15

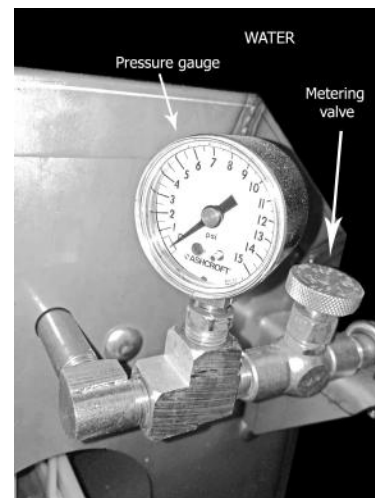


Figure 16



## Control panel



Figure 17

The **Conveyer** switch is ON in the “up” position. This switch controls both the egg conveyer belt and the egg chain. In addition, this switch acts as a Master Switch to the entire unit; i.e., in the OFF (“down”) position, electrical power to the motors that control the conveyer, egg chain, and brushes, as well as power to the water solenoid and candler, will be shut down.

The **Conveyer Speed** dial controls the speed of both the egg chain and egg conveyer. Please note that, even with this dial set to “0” (zero), these components will run, though very slowly.

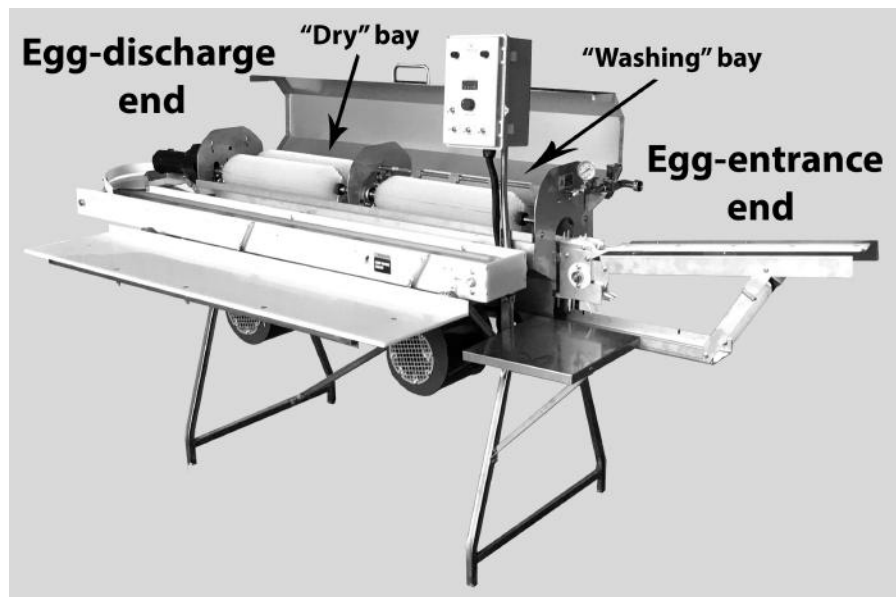
The **Brush** switch controls the cleaning brushes. Note that the brushes turn at a fixed rate, regardless of the setting of the **Conveyer Speed** dial. In the “up” position, the brushes rotate and the water solenoid opens, allowing the water to spray. When in the “down” position, rotation of brushes stop, and power to the water solenoid and candler is interrupted.

The **Candler** switch, the only three-position toggle switch on the control panel, allows you to set the candler LEDs to provide low intensity (switch “down”) or high intensity (switch “up”) lighting, according to your need and preference. The LEDs are “OFF” when the switch is in the middle position.

The **Water Temp** display indicates the water temperature, by factory setting, in degrees Fahrenheit (°F).

The **Fan** switch controls one (or both) egg-drying fans; fans are ON when the switch is in the “up” position.

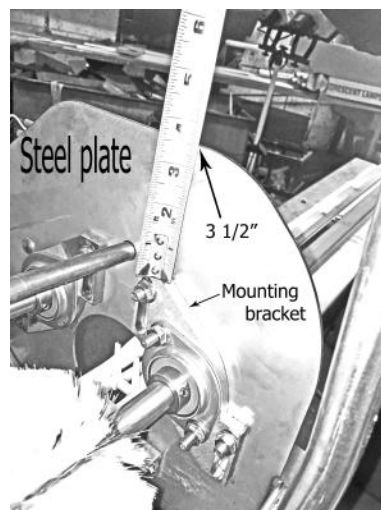
**Adjustment of cleaning brushes for egg size/fragility and age of brushes (Figure 18)**



**Figure 18**

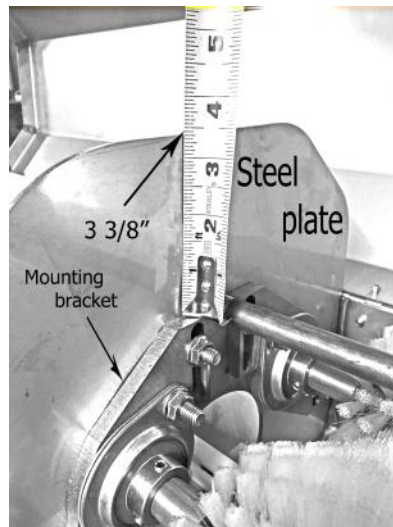
The brush heights are factory-set to be appropriate for chicken and duck eggs. These are the measurements:

- Brushes on the egg-entrance end (Figures 19 & 20) of the unit:



**Figure 19**

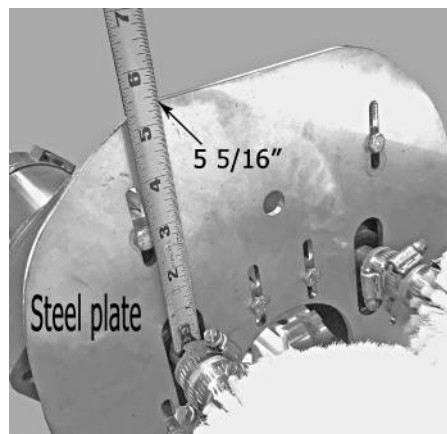
**In the “washing” bay, 3 1/2 inches from the top of the brush mounting bracket to the top of the steel plate nearest the egg-loading runway. (Two 5/16” bolts [with 1/2” wrench] on each of both brackets.)**



**Figure 20**

**In the “washing” bay, 3 3/8 inches** from the top of the brush mounting bracket to the top of the middle steel plate (located between the “washing” and “dry” bays). (Two 5/16” bolts [with 1/2” wrench] on each of both brackets.)

- Brushes on the egg-discharge end (Figure 21) of the unit:



**Figure 21**

**In the “dry” bay, 5 5/16 inches** from shaft (NOT the rubber coupling) to top of steel plate adjacent to the two brush motors. (Three 1/4” bolts [with 7/16” wrench] for each motor.)

To wash turkey and geese eggs, we recommend that you raise the tops of each mounting location by 1/4 inch.

*Please note that these measurements are only guidelines provided by the manufacturer. You may alter these measurements according to your needs; for example, you may choose to reduce brush heights for smaller eggs, such as pullet eggs; or, if eggs are breaking during the washing process, you may choose to increase the brush heights. Also, as your flock ages, if the wash water left on the eggs appears chalky, we suggest you raise the brushes to avoid breaking these more fragile eggs—especially brown eggs—to minimize calcium loss. And, as the ends of your brushes*

deteriorate (because of normal “wear-and-tear”), you may decide to lower them as a means of extending the life of the brushes.

***IMPORTANT: All four brushes, the heights of which are set as shown in Figures 18 through 21, are set by the manufacturer at a slight (1/8-inch) slope. That is, each brush is set 1/8-inch higher at the mounting point nearest the egg-discharge end than at those points nearest the egg-loading end. To achieve optimal cleaning of your eggs, wherever you set the brush heights, make sure you raise or lower them at each mounting point by the same distance.***

### Egg Washing Start-up

*You have uncrated your **Power Scrub II** Egg Washer, assembled it, connected it to hot water and power sources, and—we hope!—learned the basics of its operation and concerns for your safety. You are now ready to begin washing eggs!*

- With the water metering valve (between the water pressure gauge and the solenoid), set the desired water pressure by turning the valve counter-clockwise. (We recommend 3 psi to 5 psi, though you may set the pressure lower or higher, as desired.) The digital temperature gauge will indicate the water temperature as °F.
- Turn ON the **Conveyer** switch. We suggest that you begin with the **Conveyer Speed** dial set on “2”, and then adjust the conveyer/egg chain speed as you desire.
- Turn ON the **Brush** switch.
- Turn ON the **Fan** switch.
- Position the **Candler** switch for either low or high illumination.
- Remove eggs from the basket, place them so that the pointed ends face the edges of the runway to facilitate eggs rolling, not sliding, down the runway, over the candler, and onto the egg track for cleaning. (Heavily soiled eggs may receive a more thorough cleaning if you spray them with water prior to loading them on the washer.) Please note: When new, the HDPE egg rails may be too slick to grip the eggs effectively; therefore, during brushing, some eggs may rotate a quarter of a turn and not roll properly. This issue likely will be corrected with continued egg exposure as the rails pick up a thin coating of calcium.
- Clean eggs will roll off the turntable onto the conveyer, from where you may pack them into flats or cartons resting on the packing table.

## V. Maintenance

### A. Routine

We at **Power Scrub Manufacturing** designed the *Power Scrub II* to require minimal regular maintenance. Little effort is needed to keep your egg washer running smoothly.

- After powering down your egg washer, with a hose/spray nozzle, lift the stainless-steel lid of the washer and spray the brushes with water to remove debris that accumulate while washing your eggs. Spray other surfaces, if needed, but carefully avoid spraying electrical components, such as your control panel, motors, and power connections of the wiring harness.

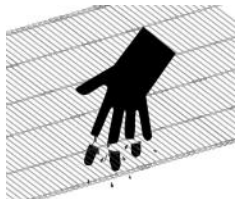


Minimize risk of shock or electrocution by powering down the unit.

- Lubricate the steel roller chain once a month by spraying it with a food-grade silicone product.

### B. As Needed

#### 1. Adjustment of wire conveyer belt



Keep hands and fingers away from moving parts of the washer where injury may occur. Reduce the risk of entanglement of anything that may get caught in any moving part of this appliance.

The conveyer belt may loosen/stretch with normal use. If it sags excessively, you may remove a small section to effectively tighten it. Detailed instructions and photographs are included in this manual as Appendix (5).

2. Adjustment of the roller chain



Dress appropriately to avoid entanglement injury. Make sure hands do not get too near roller chain and sprockets when washer is running.

The roller chain that drives the side conveyor and turntable may stretch/loosen as well with egg cleaner use. To tighten the chain, a link may be removed, or two nuts may be loosened and the side turnbuckle may be adjusted to tighten the chain. (See Figures 22 and 23 below.) However, if you tighten the chain with the turnbuckle too much, you risk causing the turntable to tilt so that eggs will not roll onto the conveyor. (A second turnbuckle, located on the egg-discharge end of the washer, should be adjusted—only as needed—to prevent the turntable from touching the conveyor belt.)

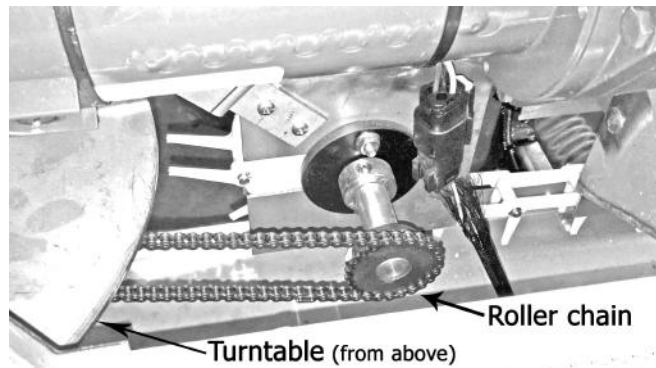


Figure 22

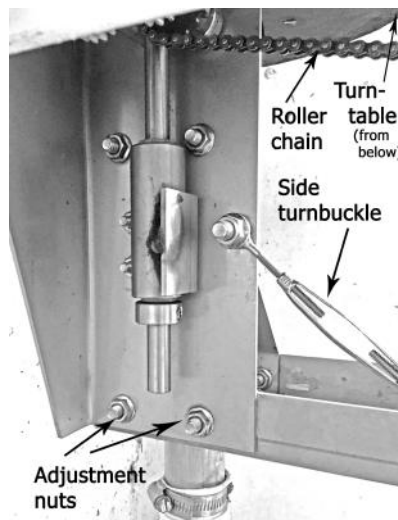


Figure 23

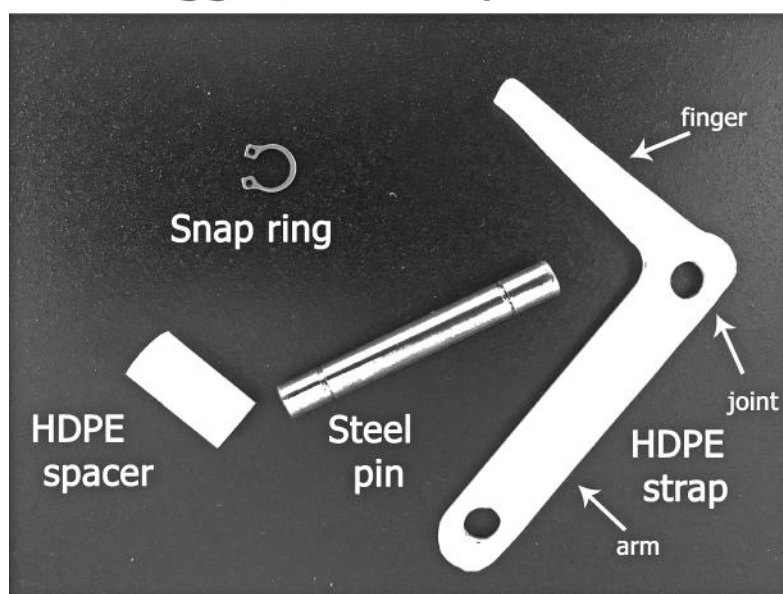
### 3. Adjustment of the egg chain



Caution: Be aware of entanglement hazard, and possible injury to extremities, when egg chain is running.

This food-grade HDPE chain runs better if it is loose than if it is tight. (The chain may drag through the water trough during the washing process and be just fine.) However, if you wish to shorten it somewhat, you may do so.

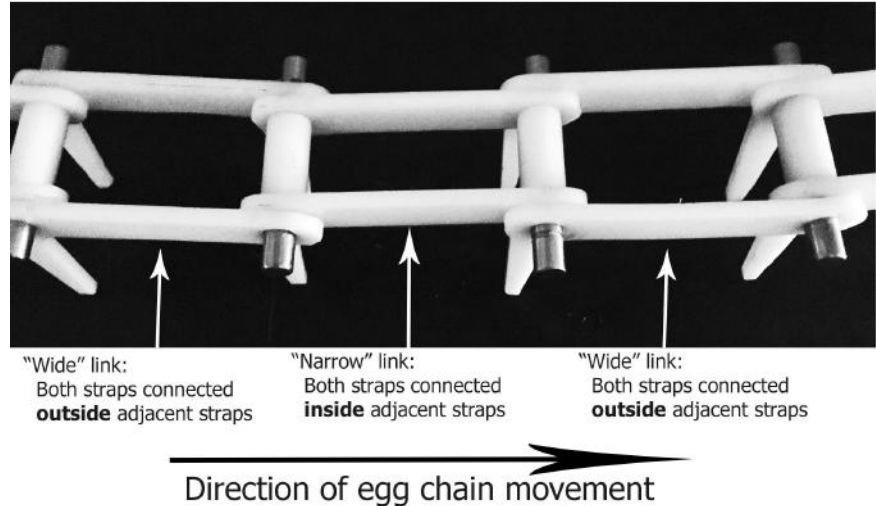
### Egg chain components



**Figure 24**

The chain, comprised of the components shown in Figure 24, is assembled with alternating wide and narrow links (straps). That is, two straps that make up a “wide” link connect to the outside of the straps to which they are connected; and, if two straps connect to the inside of those adjacent to them, they form a “narrow” link. Figure 25 illustrates this usual configuration.

### Egg chain--Normal (wide --> narrow --> wide) configuration



**Figure 25**

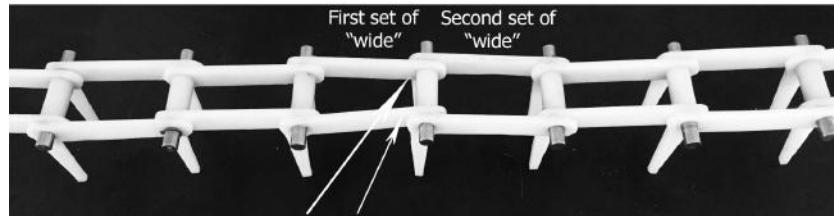
*(Please note: Likely, a new egg washer will be outfitted with an egg chain that has two “wide” links, or two “narrow” links, already joined. If so, we recommend that if you shorten the chain, do so by removing one of these so that, either the remaining “wide” link can be joined to a “narrow” link, or the remaining “narrow” link can be joined to a “wide” link.)*

To remove a link, first use snap ring pliers to remove both snap rings from both steel pins holding the two straps in place. Then, remove both pins and the two cylindrical spacers surrounding the centers of the pins. Finally,

- For a “wide” link to be joined to a “narrow” link, connect the straps as you see other links joined in the egg chain—with a single pin, a cylindrical spacer, and two snap rings. (Figure 25)
- For a “wide” link to be joined to another “wide” link, gently compress the “arms” of one set of “wide” link straps to make them fit inside the “joints” of the adjacent straps. Replace one of the steel pins, its cylindrical spacer, and secure the pin with two snap rings. (Figure 26)



Egg chain: "Wide"-to-"wide" configuration



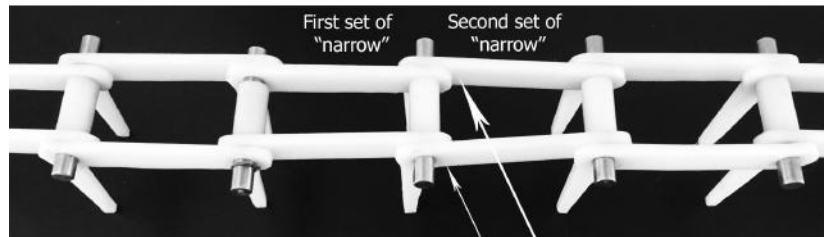
**Note: Attach the "arms" of the first set of "wide" link straps to the inside, not the outside, of the second set of "wide" link straps.**



Figure 26

- For a "narrow" link to be joined to another "narrow" link, gently expand the "joints" of one set of "narrow" link straps to make them fit inside the "arms" of the adjacent straps. Replace one of the steel pins, its cylindrical spacer, and secure the pin with two snap rings (Figure 27).

Egg chain: "Narrow"-to-"narrow" configuration



**Note: Attach the "joints" of the second set of "narrow" link straps to the outside, not the inside, of the first set of "narrow" link straps.**



Figure 27

## VI. Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE(S)	POSSIBLE SOLUTION(S)
No power	Unit not plugged into 220/240V/15A power source 15A circuit breaker “tripped” 5A fuse(s) “blown” “Master” switch OFF	Plug into (ideally) dedicated circuit Re-set breaker Check and replace “blown” fuse(s) Turn ON control panel <b>Conveyer</b> switch
No water pressure/flow	Water <u>source</u> valve closed Water <u>metering</u> valve closed No power to solenoid Solenoid failed	Open valve Open valve Check both fuses; replace if needed Replace defective solenoid
Candler failure	LEDs not illuminating	Turn <b>Candler</b> switch ON for desired brightness Check both fuses; replace if needed Check LED “driver”; replace if needed <sup>(1)</sup> Check each LED; replace defective bulb <sup>(1)</sup>
Motor(s) not operating	Failed fuse(s) Failed DC control board(s) Worn motor brushes Motor failed	Check both fuses; replace if needed Check boards; replace if needed <sup>(2)</sup> Check brushes; replace if needed <sup>(3)</sup> Replace motor
Eggs not clean	Egg chain moving too quickly  Water spray failure  Brush heights not optimal	Adjust <b>Conveyer Speed</b> knob to slow egg chain Check water spray in “washing” bay; if needed, check operation of solenoid; check and adjust water pressure/flow if needed; check nozzles and clean, if needed Adjust brush height(s) if needed
Temperature display does not illuminate	No power to temperature probe Temperature display has failed	Check both fuses; replace if needed Replace temperature display
Correct water temperature not displayed	Temperature probe failure Poor or incorrect wire connections in control box Temperature display set as degrees Celsius	Replace probe if needed Check/correct temperature probe wire connections Re-set display to show degrees Fahrenheit <sup>(4)</sup>

Superscripts (1) through (4) refer to appendices having those numbers (pp. 22 and 23).

# APPENDICES

## (1) Candler failure



If the LED bulbs in the candler fail to light, the problem may be with the “driver” (located in the control panel) OR with the LED bulbs themselves. (If the “driver” has failed, the LEDs will not be powered.) However, if the “driver” is functioning correctly, then the failure of a single LED bulb will cause the entire series of bulbs not to light as well. If either of these problems arise, you may purchase a new “driver” or a new or refurbished LED strip. Or, you may purchase an individual LED bulb if you believe you would be able to solder it into your existing series. *[To determine which bulb has failed, use a “jumper” wire to bypass each bulb, starting at one end of the series, until the bulbs not being bypassed illuminate. Replace that bypassed bulb.]* Please call **Power Scrub Manufacturing** to inquire about the best way to make your candler operational again.

## (2) Testing the DC Control Boards



- On the wiring diagram [Appendix (6) of this manual], locate **L1** and **L2** on the **BRUSH CONTROL BOARD**, and test that they show a 220-240V AC potential.
- The same (**L1** and **L2**) connectors on the **CONVEYER CONTROL BOARD** should show a 220-240V AC potential.
- Now, having shown that power is going to both boards, check terminals + and – (from which red and black wires extend, respectively). Those “posts” on the **BRUSH CONTROL BOARD** should measure ~ 180V DC potential.
- Then, after setting the **Conveyer Speed** dial to “10”, check terminals + and – (again, from which red and black wires extend, respectively) on the **CONVEYER CONTROL BOARD**, you should measure ~ 90V DC potential.

*\*\*If these voltages are not detected, you will need to replace one or both boards.\*\**

### (3) Checking motor brushes



Depending on the ambient temperature and how long the washer has been running, the motor housings may become a **Burn Hazard**. Take care when touching the motors, both during washer operation or preparing to check motor brushes.

- Failed brush springs will result in poor contact between the brushes and armature. Brush/spring assembly should be replaced.
- Corrosion in the housing that contains the brushes may prevent adequate brush/armature contact. Clean the corrosion from the brush housing.
- If brushes themselves are worn, they should be replaced.

*\*\*If not working, motor has failed, and must be replaced.\*\**

### (4) Changing scale of Auber Temperature Controller display (control panel):

To change degrees Fahrenheit to degrees Celsius (Centigrade) [ $^{\circ}\text{F} \rightarrow ^{\circ}\text{C}$ ]

1. Press SET
2. Press > twice to cause third "0" digit to blink
3. Press ∨ twice to display "8" blinking
4. Press > once to cause the fourth "0" digit to blink
5. Press ∨ once to display "9" blinking
6. Press SET, then press ∨ twice to display "C or F"
7. Press SET, see "1" blinking (indicating current display is  $^{\circ}\text{F}$ )
8. Press ∧ to change "1" to "0" blinking
9. Press set once to display "C or F"
10. Press ∧ once to display "END"
11. Press SET to display temperature in  $^{\circ}\text{C}$ .

To change degrees Celsius (Centigrade) to degrees Fahrenheit [ $^{\circ}\text{C} \rightarrow ^{\circ}\text{F}$ ]

1. Press SET
2. Press > twice to cause a "0" digit to blink
3. Press ∨ twice to display "8" (blinking)
4. Press > once to cause the next "0" digit to blink
5. Press ∨ once to display "9" blinking
6. Press SET, then press ∨ twice to display "C or F"
7. Press SET, see "1" blinking (indicating current display is  $^{\circ}\text{F}$ )
8. Press ∧ once to change "0" to "1" blinking
9. Press set once to display "C or F"
10. Press ∧ once to display "END"
11. Press SET to display temperature in  $^{\circ}\text{F}$ .

(5) Removing a section of the conveyor belt and splicing ends of remaining belt

To access the belt, loosen the two quarter-inch flange nuts on each Delrin bearing, as well as the belt tightening screw (Figure 28). Both bearings and shaft will then slide a small distance to loosen the belt.

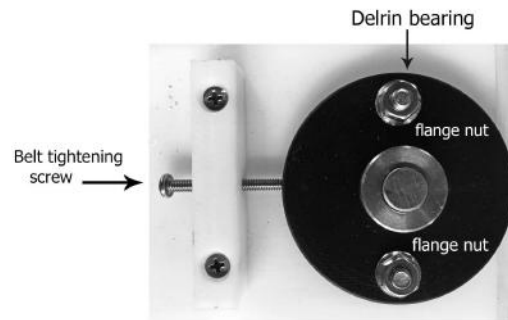


Figure 28

**FIRST:** Use a wire cutter to remove of the belt a section you believe appropriate for tightening.

**THEN:** Follow these steps to obtain a single “splicing wire,” and then use it to splice the two ends of the belt to restore an intact, but somewhat shorter, conveyor belt.

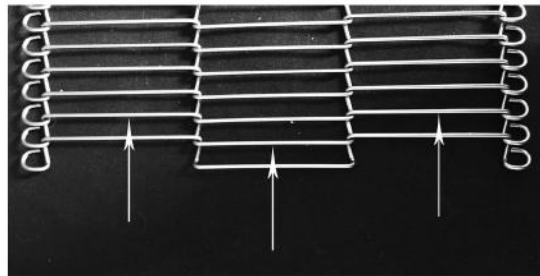


Figure WB1

STEP A. From the section of belt that was removed, use a wire cutter to obtain a **splicing wire** by cutting the second wire from one of the ends. Suggested places to cut that wire are indicated by arrows. Discard the cut fragments, and prepare to use the single wire that remains to splice the ends of the conveyor belt.

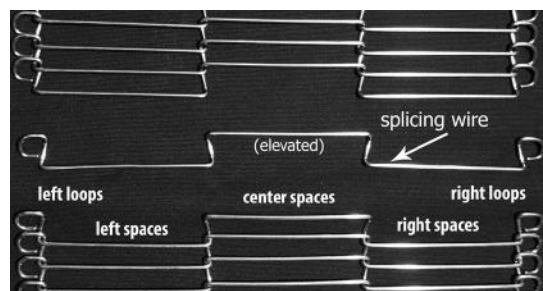


Figure WB2

STEP B. Begin by arranging the two ends of the belt, and the **splicing wire** between them, as shown in Figure WB2. PLEASE NOTE THAT THE TWO ENDS OF THE BELT ITSELF, AS WELL AS THE **SPLICING WIRE**, ARE CONFIGURED TO THAT THE **CENTER SPACES ARE ELEVATED**.

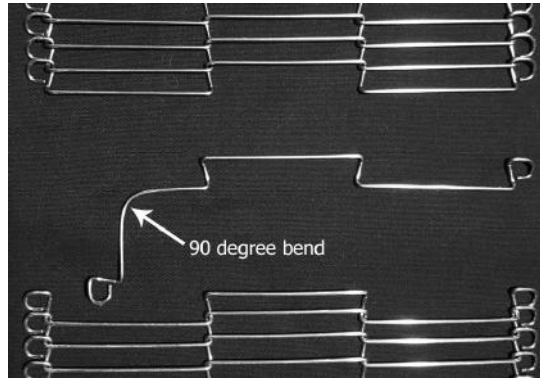


Figure WB3

STEP C. Make a bend in the **left space** of your **splicing wire**.

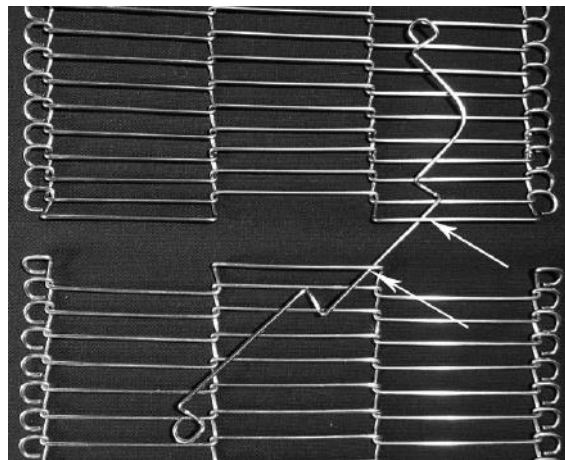


Figure WB4

STEP D. Insert the left loop (nearest the bend) of the **splicing wire** **UNDER** the (*elevated*) **center space** of the end wire of the lower section of the belt and **UNDER** the **right space** of the end wire of the upper section of the belt. (The arrows in Figure WB4 indicate the only points where the **end wires** of the belt sections are above the **splicing wire**.)

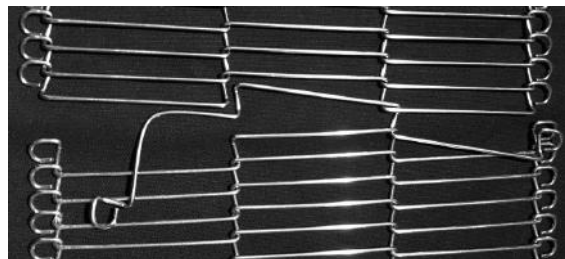


Figure WB5

STEP E. Turn the **splicing wire** counter-clockwise to orient the **right loop** of the wire with the **right loops** of the upper- and lower-ends of the belt. By doing so, you will be drawing those ends of the belt together.



Figure WB6

STEP F. With a pair of needle-nose pliers, open the two **right loops** indicated by the arrows. Then, still with the pliers, "hook" the **right space** of the end wire of the upper section of the belt with the open loop of the **splicing wire**. Finally, "hook" the **right space** of the **splicing wire** with the open loop of the end wire of the lower section of the belt.

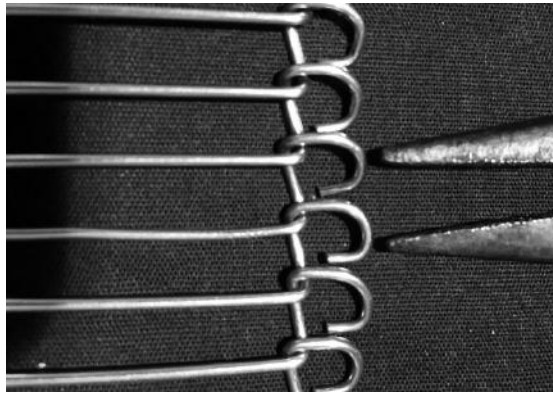


Figure WB7

STEP G. With pliers, close the **right loops** that you opened to accomplish STEP F.

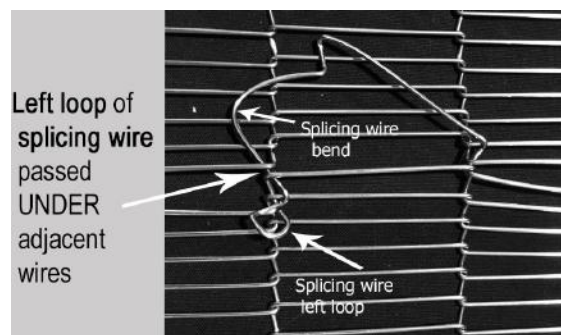


Figure WB8

STEP H. With needle-nose pliers, pull the **left hook** of the **splicing wire** UNDER the **left space** of the end wire of the upper section of the belt and UNDER the **center space** of the end wire of the lower section of the belt. Then, pull the **splicing wire** until its **center space** aligns with those of the belt sections above and below.

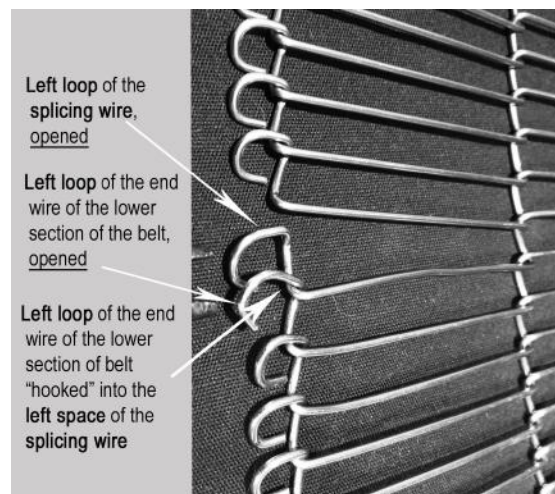


Figure WB9

STEP I. First, un-bend the **left space** of the **splicing wire** that you deliberately bent in STEP C. Second, open the **left loops** of the **splicing wire** and the end wire of the lower section of the belt, as shown in Figure WB9. And third, "hook" that lower belt section end wire loop into the **left space** of the **splicing wire**, as shown in the figure as well.

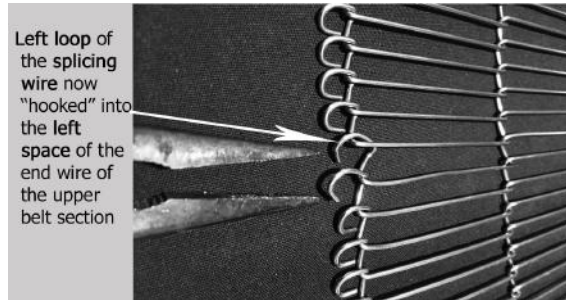
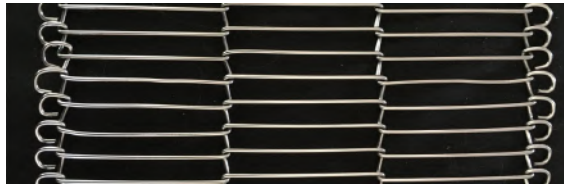


Figure WB10

STEP J. After making this final "hooking" (with your pliers), as shown in Figure WB10, complete the splicing task by using the pliers to close both loops that you opened.



STEP K. Admire your work. The splice likely will not look as pristine as the rest of the manufactured belt, but if you were careful to close the left and right loops that you opened to make the splice, you should have an intact conveyer belt that will serve you well.

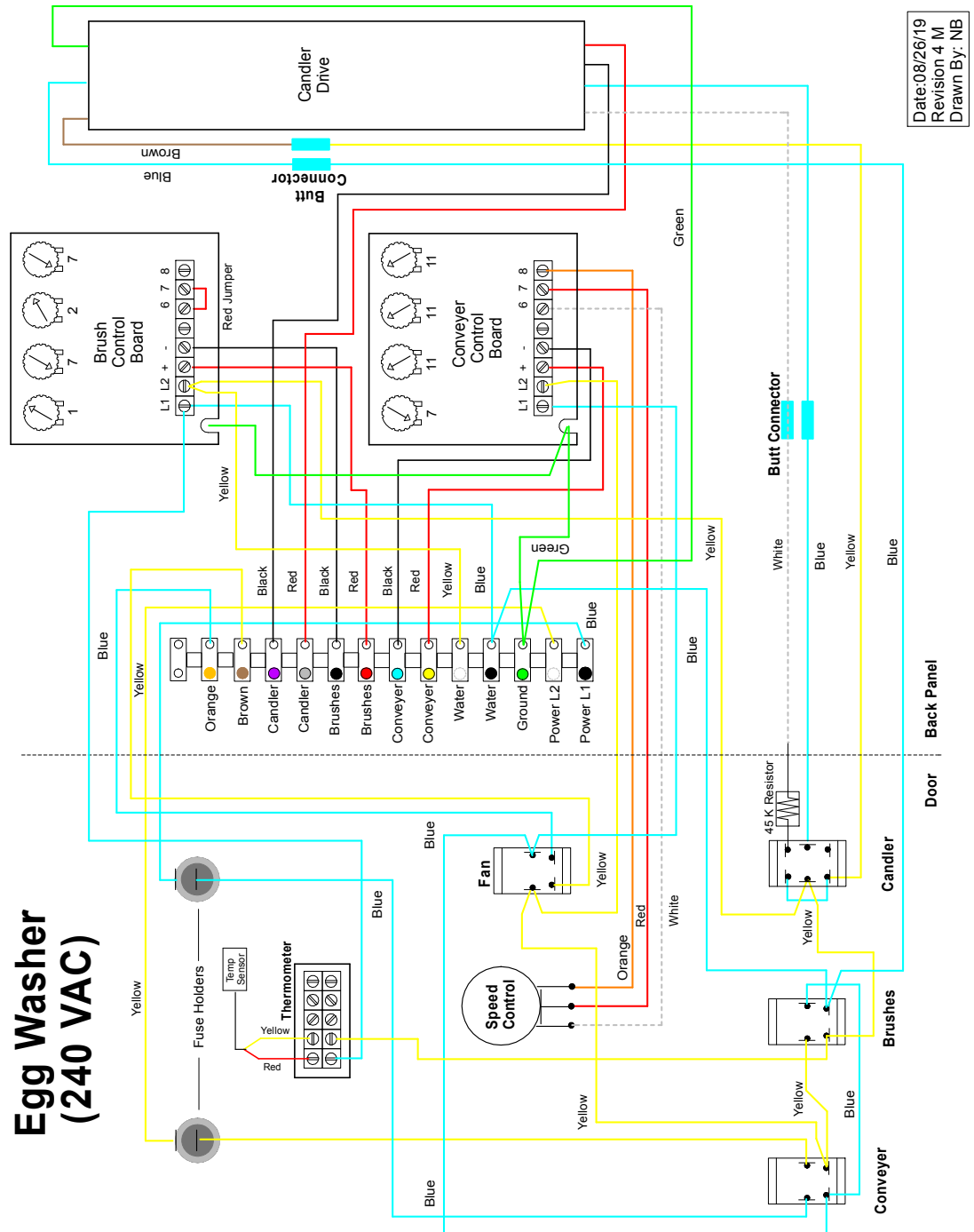
Finally, re-tighten the shaft to tighten the conveyer belt.

*Appendix (6) on pages 28 & 29*

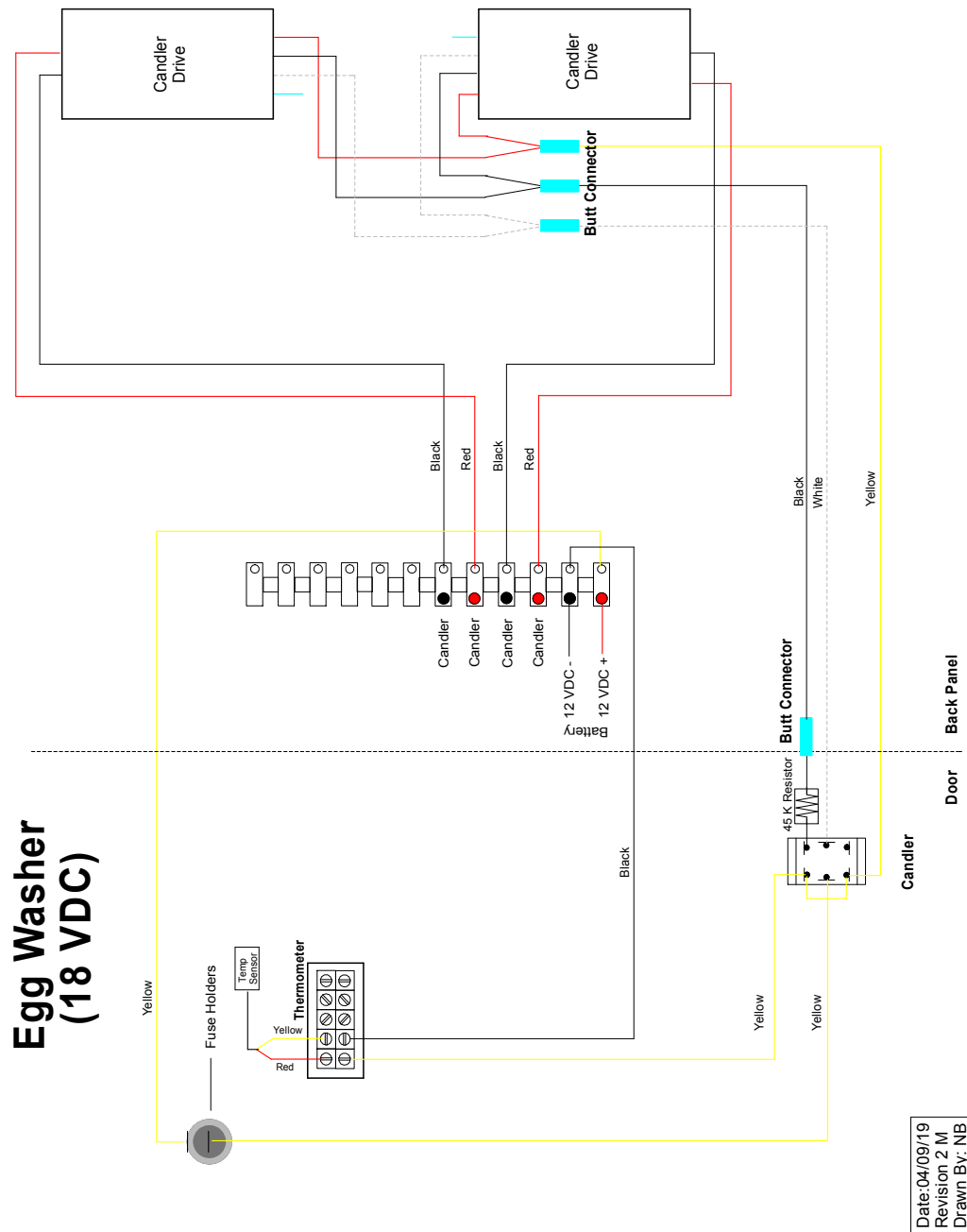


## (6) Wiring Diagrams

For 240 VAC unit:



For 18 VDC unit:



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