Versa-Roll™ Roller Apparatus

CLS-3859

Top Drive

OPERATIONS MANUAL

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Rev. D

Contents:

General Description

The CG Life Sciences Cell Production Roller Apparatus is designed for use in the production of various attachment cells. The units are available in 106 (850cm²) bottle positions to provide over 90,000cm² of surface area. Units have been engineered for maximum reliability. Our rollers are formulated from a chemical resistant, non-slip EDPM rubber. All units feature a solid state control with a heavy-duty maintenance free DC brushless motor. The entire frame is powder coated aluminum for durability and cleanliness. All models also feature angled rubber bumpers and rear guards. All Position Drive is standard on all units to prevent any lightweight bottles from slipping.

Specifications:

- Speed Range: 0.1 – 3.5 rpm
- Dimensions CLS-3859-011 (HxWxD): 75 ¾"x 32 ¼" x 25 ½" (192.22cm x 81.9cm x 64.8cm) *including bumpers*
- Weight: 210 lb (95.25 kg)
- Rating: CLS-3859-011, 115VAC fused at 2 amps, same with Alarm option and/or Battery Back-up option
- Rating: CLS-3859-011E, 240VAC fused at 2 amps, same with Alarm option and/or Battery Back-up option

Features:

- ✓ Steel reinforced Polyurethane timing belts maintain durability and precise roller rotation
- ✓ Unit retains last rpm set value when turned on
- ✓ Brushless DC "maintenance free" Motor
- ✓ Accommodates standard roller bottles (110-120mm diameter)

Available Options:

- ➢ Battery Back-Up system – allows up to 30 hours of uninterrupted rotation should there be a loss of power, or, if the unit needs to be moved without interrupting roller rotation
- ➢ Rotation Alarm – Two motion sensors located at the last two rollers will depict any stoppage in roller motion, sounding an audible alarm as well as illuminating a red l.e.d on the front panel. A remote alarm output connector allows the user to connect to an external alarm system.

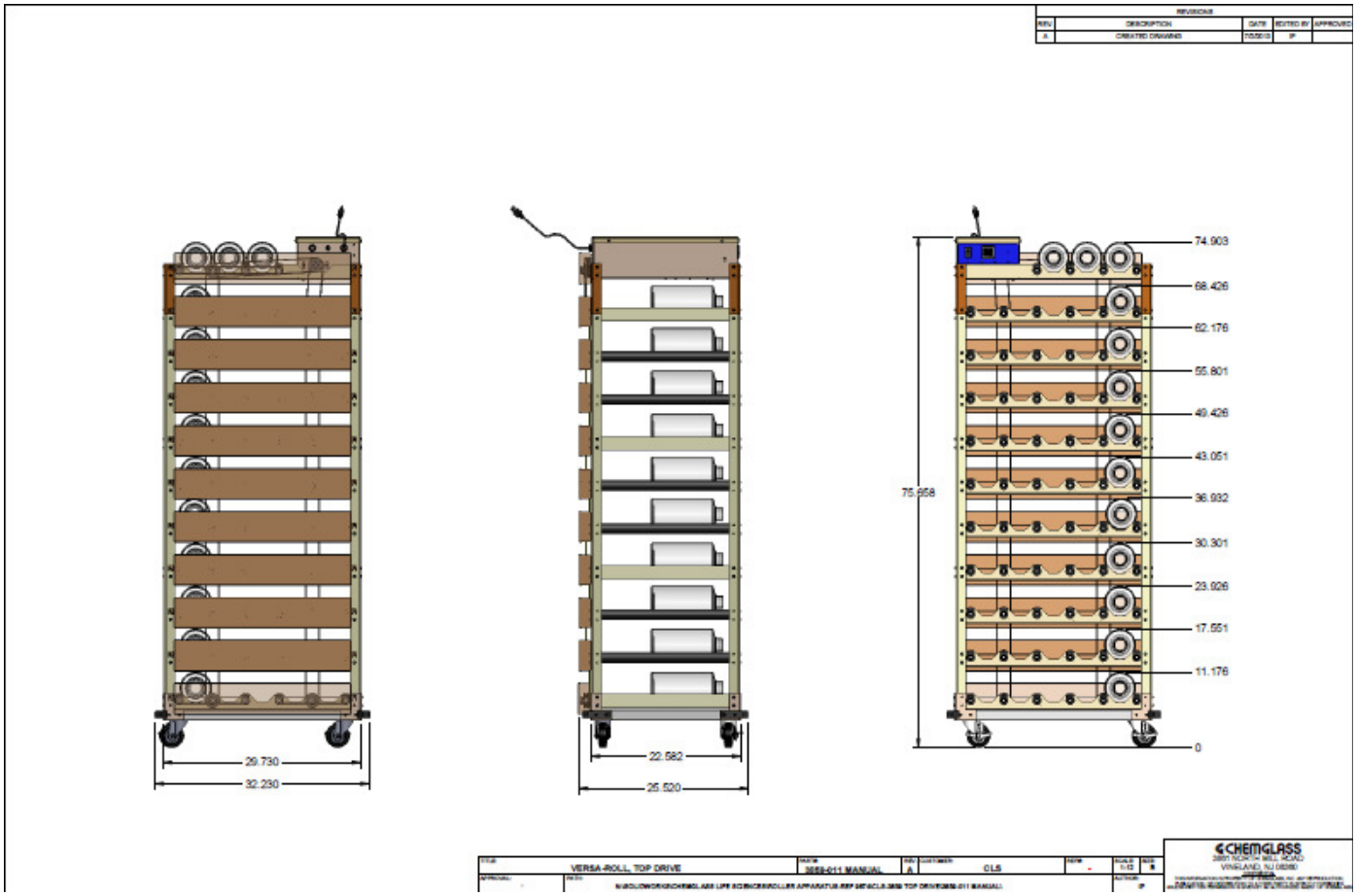
Unpacking Instructions

Unpack the Roller Apparatus carefully. Be certain to retain the warranty information, all packing material and operations manual(s). Record the serial number of the unit, located on the side of the control box.

Example: Serial Number

Any damage claims must be initiated with the delivering carrier within five (5) days of receipt of the product.

Figure 1: Dimensional Overview Drawing



This unit must only be connected to the correct voltage supply receptacle.

Operating Instructions

1. Versa-Roll™ Roller Apparatus is shipped complete and ready for operation. With the unit turned off (rocker switch in the "OFF" position), plug the power cord into an appropriate outlet (one providing power at the rated voltage and frequency).

2. The Roller Apparatus can be locked into position by pressing down on the two locking casters on the front of the unit.

3. Carefully position bottles between rollers with bottle cap facing towards front of unit.

4. Press the power switch to "ON" position. The display will illuminate indicating that the unit is in operation. SEE FIGURE 2.

5. To operate, press the (**V**- **Λ**) arrow keys to select the desired the rpm's - the green smaller display will change. Once the rpm value is obtained release the (**V**- **Λ**) arrow key and the display will flash for a few seconds and then store that value. SEE FIGURE 2

6. The white larger display will then adjust to the set value (ramp up or down).

7. The rpm's may be increased or decreased at any time by pressing the (**V**- **Λ**) arrow keys. *Note: The rpm's displayed are calibrated using 120mm bottles. If using 110mm bottles please consult CG Life Sciences in order to change calibration.*

8. The unit can be stopped at anytime by turning off the Main Power Switch. *Note: When power is turned on the unit will ramp to last rpm set value.*

9. For more information about the display features, please reference the Omron E5CC controller manual supplied with the Roller Apparatus.

Figure 2: FRONT PANEL

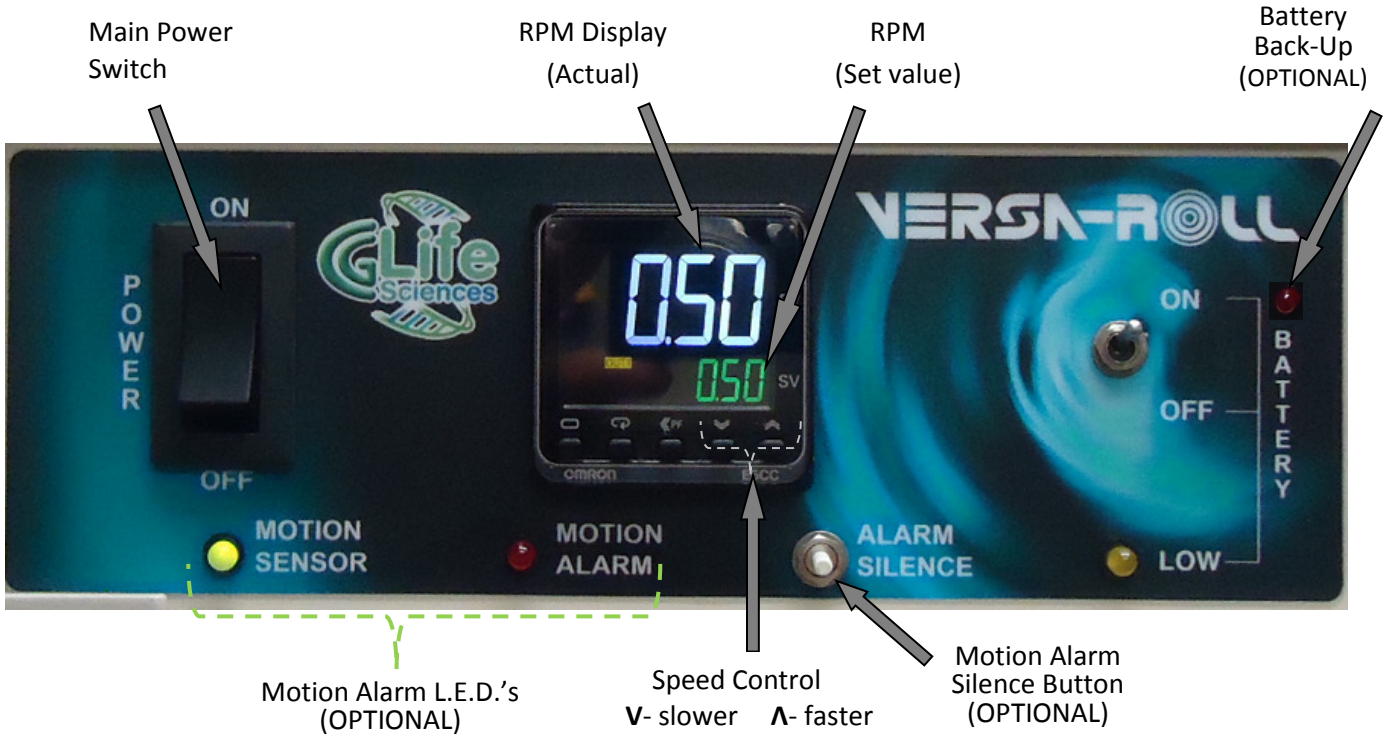
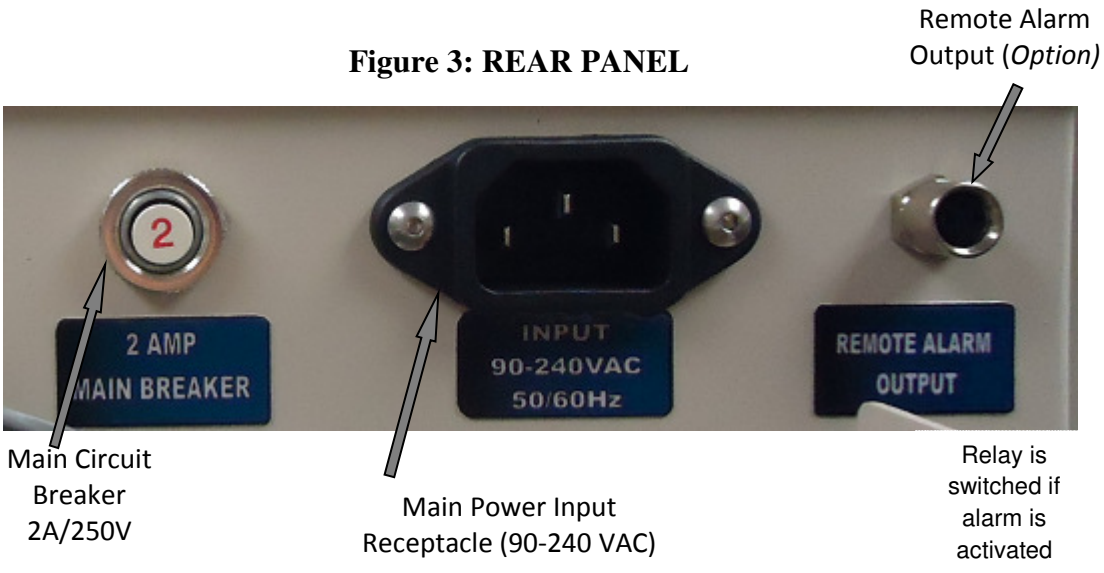


Figure 3: REAR PANEL



Motion Alarm Instructions - *Option*

General Description:

The Motion Alarm circuit monitors the Roller Apparatus to verify the continuous rotation of the roller shafts. Should the rotation stop, an alarm indicator will illuminate on the front panel and an audible alarm will sound.

Operation:

The alarm circuit is shown working by the blinking yellow / green l.e.d., labeled “MOTION SENSOR” located on the control panel – see figure 4. The blinking yellow / green l.e.d. indicates the circuit is receiving pulses from the sensors. If a pulse is not received within 3 ½ minutes, then the alarm is triggered. The red l.e.d. is illuminated – labeled “MOTION ALARM”, an 85 dB audible alarm is sounded, and the “REMOTE ALARM OUTPUT” relay is switched (Connection is rear of control box – see figure 3).

The “ALARM SILENCE” push button is also located on the front panel – see figure 4. When the alarm has been activated, pressing this button will silence the audible alarm, turn off the ALARM l.e.d. and switch the Alarm Output relay. The alarm circuit remains off until it is reset. The circuit may be reset by cycling the power or re-establishing the roller motion.

Figure 4: Alarm Option

Blinks indicating alarm function is on

Alarm state triggered if illuminated

Press to silence Alarm

General Description:

The Battery Back-up system provides up to 30 hours of uninterrupted rotation should there be a loss of power or to allow the unit to operate while being moved from one location to another.

The Battery Back-up system consists of two 12VDC, 7Amp Hour batteries and a power supply with a built-in battery charger. *(See Figure 5A)*

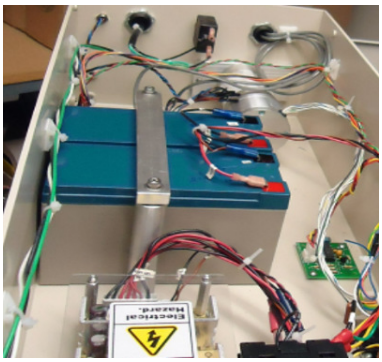


Figure 5A: Battery Back-Up Option inside Control box

The change from Mains Power to Battery Power is fully automated and seamless. The Roller Apparatus does not require any changes to programming or calibration of rpm's when switched to Battery Back-up.

Operation: *(See Figure 5)*

Figure 5: Battery Back-Up Option Front Panel

When the Roller Apparatus is initially received and plugged into a suitable AC power source, the Battery Back-up "ON/OFF" switch and the Main Power switch should be turned "ON". The unit should remain on for 12-14 hours to allow the batteries to fully charge.

The Roller Apparatus' battery charger applies a "float charge" to the batteries to maintain them

at the optimal charge level when the unit is plugged in and the Main Power switch and Battery Back-up switch are “ON”.

The Roller Apparatus will only run on Battery Back-up if the Battery Back-up switch is in the “ON” position and the AC power source is removed from the unit, and/or, the Main Power switch is placed in the “OFF” position.

If the mains power is interrupted, the unit will seamlessly transition to operating on battery power. When power is restored, the roller will automatically transition back and resume operating on mains power.

While the unit is running on Batteries, the Red Battery On Indicator *(See Figure 5)* will be flashing.

Note: *If at any time the Roller Apparatus is powered off and the unit is unplugged and the Main Power switch and Battery Back-up switch are in the “OFF” position, then the Battery Back-up can only be started once the unit’s power cord is plugged into an appropriate AC power source and the Main Power switch is turned “ON” first.*

While the Roller Apparatus is running on mains power (110-240VAC), it is imperative that the Battery Back-up switch is in the “ON” position so the batteries can maintain a charge.

Note: *The batteries will only charge if the unit’s power cord is plugged in and the Main Power switch and Battery Back-up switch are “ON”.*

Note: *If the Roller Apparatus needs to be turned off completely, then both the Main Power Switch and the Battery Back-up Switch should be turned “OFF”.*

Discharging:

If the yellow LOW Battery indicator l.e.d. comes on *(See Figure 5)* then batteries are in a critical state of discharge. Shortly after the light comes on the unit will shut down and stop rotating. The Roller Apparatus is required to be plugged into a suitable AC outlet and the Main Power switch and Battery Back-up switch turned on to start to re-charge the batteries. The service life of the batteries may be greatly diminished by not charging the batteries once they have been discharged. Repeatedly allowing the amount of charge to drop down to this level will shorten battery life. Allowing the batteries to remain in this “deep” discharge condition may result in damage to the batteries and jeopardize any warranty.

Due to the self-discharge characteristics of this type of battery, it is important that they be charged within 6 months of storage, otherwise permanent loss of capacity might occur.

The rate of self-discharge varies with the ambient temperature. At room temperature (20℃ (68℉)) it is about 3% per month.

To obtain maximum battery life and performance, batteries should be recharged as soon as possible after each use and not stored in a discharged state.

Troubleshooting: *(See Figure 5A)*

If the Roller Apparatus is no longer capable of running on Battery Back-up for more than a few hours, then the batteries may need to be replaced. Consult Chemglass Life Sciences for further information (1-800-843-1794, or email electronics@cglifesciences.com).

If the Roller Apparatus' display module and l.e.d.'s flash on and off when the unit is switched to Battery Back-up, then the batteries are depleted and need to be replaced.

CAUTION: *Any batteries that show signs of deformation, swelling, or discoloring should be taken out of service and be replaced. Batteries should always be replaced as a set.*

Note: It is recommended that the batteries be replaced every 2 years.

Troubleshooting and Service

In the event that a problem develops with any CGLS product, **DO NOT** attempt to perform any service on the unit without first contacting the CGLS Customer Service Department at 1-800-843-1794. **Unauthorized servicing may void the warranty.** CGLS will supply information on minor repairs upon request. In any correspondence to CGLS concerning these units, please include the catalog number (CLS-3859-xxx) and the serial number, which may be found on the side of the control box.

WARNING: POTENTIAL SHOCK HAZARD EXISTS WHEN TOP COVER IS REMOVED. DISCONNECT POWER CORD BEFORE SERVICING.

Common Troubleshooting Tips

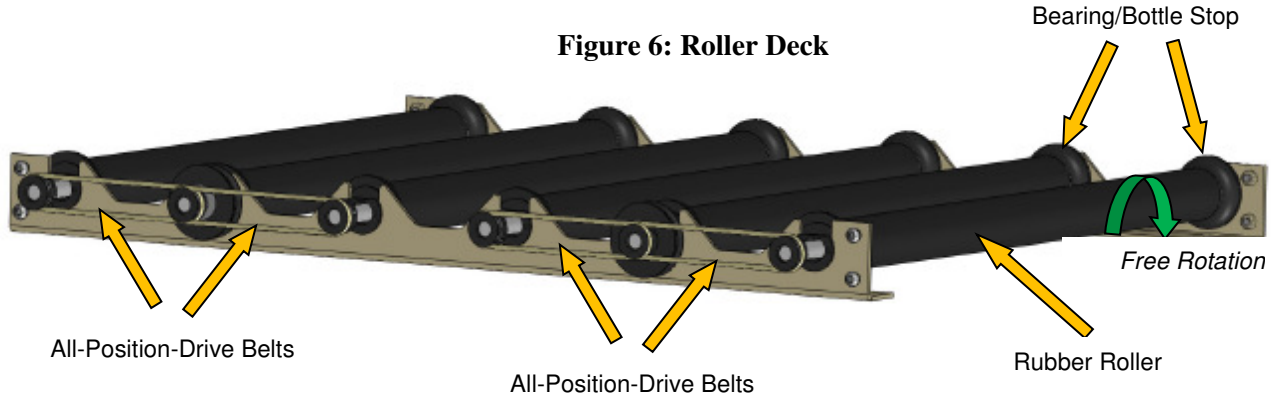
1. Unit does not turn on:
    a. Check condition of Main Circuit Breaker. See figure 3.
    b. Ensure power cord is fully inserted suitable power outlet.
    c. Verify power outlet
2. Unit turns on but there's no rotation:
    a. Verify movement of drive belts, located in rear of unit. Ensure pulley set screws are tightened on roller shaft.
3. Contact CGLS for additional troubleshooting assistance.

Reset Circuit Breaker – Depress tripped circuit breaker located rear of control box. If circuit breaker does not reset then contact CGLS for assistance.

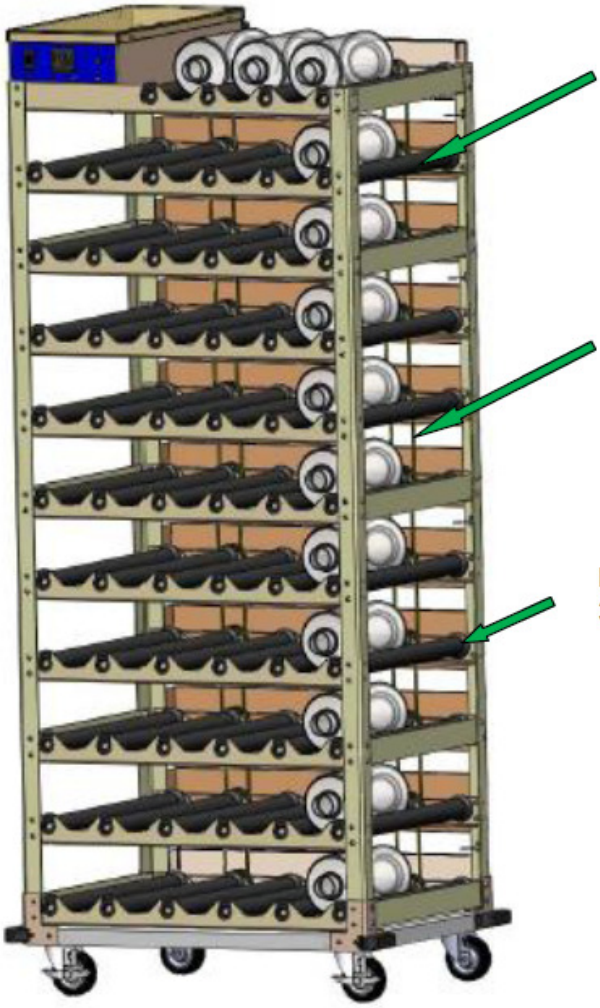
Preventive Maintenance Suggestions

1. Check All-Position-Drive (APD) Belts for any surface cracking or loss of tension every 12 months. *Check every 6 months if used in CO2 incubator.* Replace as necessary (p/n: ELE-045-009). Note – 4 APD belts are used per deck, see figure 6.
2. Inspect Bearing/Bottle Stop for free rotation every 12 months. *Check every 6 months if used in CO2 incubator.* Temporarily remove belts to check for free rotation, see figure 6. Note – 12 Bearing/Bottle Stops per deck.
3. Periodically inspect Rubber Roller for damage caused by broken or chipped bottles. Replace as needed.
4. Periodically ensure that all pulley set-screws are secure.

Figure 6: Roller Deck



3859-011, Top Drive Roller Apparatus parts description and quantity per unit



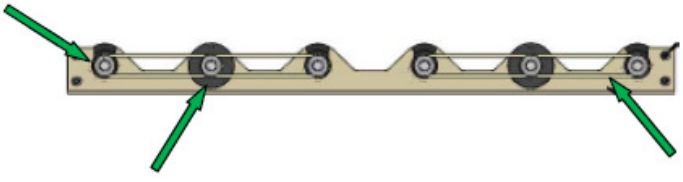
Roller Shaft Assembly – p/n:
ELE-111-072 (64 per unit)

Timing Belt 187xL025 – p/n:
ELE-045-007 (19 per unit)

Bearing/Bottle Stop – p/n:
3855-009-003 (128 per unit)

Individual Deck viewed from Rear of Unit (Rear Guard removed)

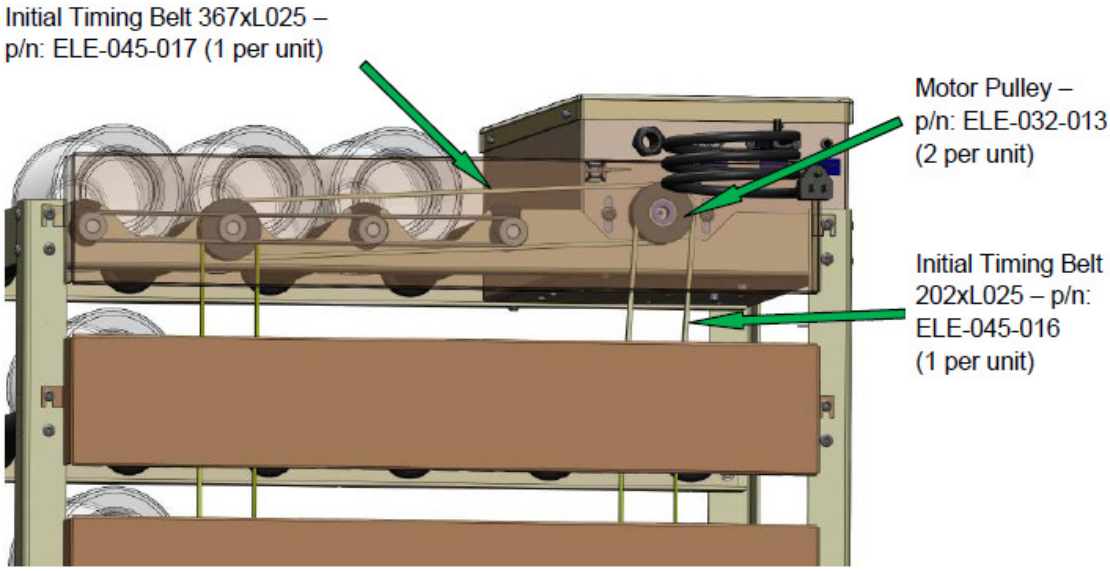
APD Pulley – p/n: 3855-009-015
(64 per unit)



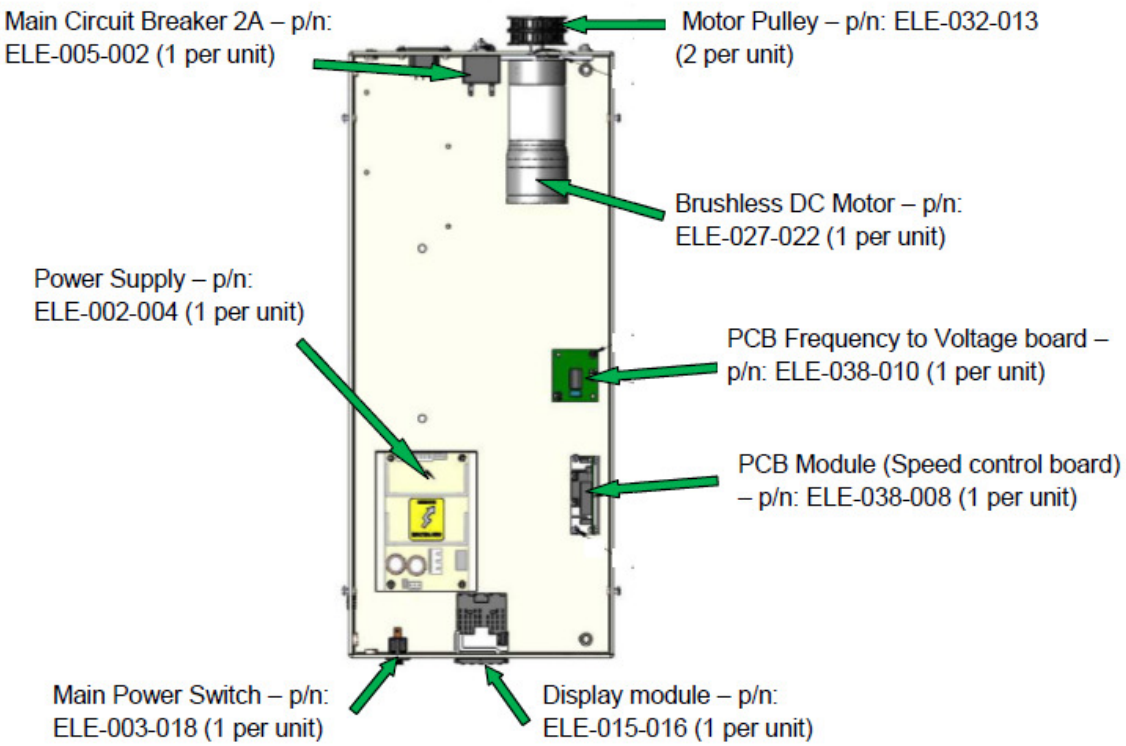
Drive Belt #237 – p/n:
ELE-045-009 (43 per unit)

Pulley – p/n: ELE-032-012
(40 per unit)

Unit viewed from Rear without Top Rear Guard



Unit viewed from Top without Control Box Lid



CGLS WARRANTY AND LIMITATION OF LIABILITY

CGLS warrants to the original purchaser, its products to be free from defects in materials and workmanship for a **period of two (2) years from the date of shipment, unless otherwise specified.** Our obligation under this warranty is limited to, at our option, repair or replace any defective part or parts, which shall be returned to us. **CGLS takes no responsibility for damage to merchandise in transit.** All such claims must be submitted to the carrier. This warranty shall not apply to any equipment or parts which have been repaired or altered outside our factory, or subjected to misuse, negligence, accidents, faulty or **unauthorized** repairs or modifications. In addition, CGLS, shall not be responsible to the original purchaser or any other party or parties for bodily or property loss, damages, or injuries of any kind or nature through either direct or indirect use of the product. This warranty is made expressly in lieu of any and all other warranties, expressed or implied, or statutory as to the merchantability, fitness for purpose sold, description, quality, productiveness or any other matter. All other such warranties are specifically excluded.

SHIPMENTS

All items are shipped F.O.B. Vineland, New Jersey with the charges prepaid and added to the invoice. Special shipping instructions should accompany your order. We will select the best method if none is specified. Air shipments are available for an additional charge. Delivery of large products shall be to the customer's loading dock. **It is the customer's responsibility to arrange movement from the loading dock to the site of use, unless otherwise agreed to by CGLS.** Products requiring special or crating may incur additional handling fees.

CGLS takes every reasonable precaution to ensure that its products arrive without damage. However, occasionally damage may occur during the shipment of a product. For this reason, it is imperative that Purchaser examine each product **immediately** upon receipt. In the event the Purchaser detects any damage to the product, Purchaser shall **immediately** notify **CGLS** and the carrier who delivered the product. **Failure to notify CGLS and the carrier of any damage within five (5) days of receipt of the product shall constitute a waiver of any claim for damage to the product.** The freight carrier shall be exclusively responsible for any damage which occurs during shipment.