

# OPERATING INSTRUCTIONS

## BELLCO Sci/ERA CELL PRODUCTION ROLLER APPARATUS

### CATALOG NUMBERS

<b>Stock No. 100 Volt Model</b>	<b>Stock No. 115 Volt Models</b>	<b>Stock No. 230 Volt Models</b>	<b>Description</b>
		<b><u>Modular Units</u></b>	
	7630-85000	7630-85220	Base Only
	7630-85010	7630-85010	Deck Only
	7630-85011	7630-85221	Base & 1 Deck
	7630-85012	7630-85222	Base & 2 Decks
7630-81013	7630-85013	7630-85223	Base & 3 Decks
	7630-85014	7630-85224	Base & 4 Decks
	7630-85015	7630-85225	Base & 5 Decks
	7630-85016	7630-85226	Base & 6 Decks
	7630-85017	7630-85227	Base & 7 Decks
7630-81018	7630-85018	7630-85228	Base & 8 Decks
		<b><u>Non Modular Units</u></b>	
	7630-80509	7630-82509	45 Position with Stand-By Drive & Alarm System
7630-81510	7630-80510	7630-82510	50 Position with Stand-By Drive & Alarm System

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**IS# 89  
Rev: 10/11**

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**WARNING:**

Use of this equipment is limited to conventional laboratory applications. It is not intended for use in adverse environments outside the environmental conditions listed below. It is also not intended for use with corrosive or explosive solutions.

**Environmental Conditions, operating:** indoor use, pollution degree 2, 4° to 50° C  
relative humidity 0-90% non-condensing

**Environmental Conditions, non-operating:** -10° to 60° C, relative humidity 95% maximum

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**SAFETY SYMBOL DEFINITIONS:**



**Electrical Hazard.** Be extremely careful. Do not remove cover while the unit is connected to a power supply. There are voltages within the unit which could, if contacted, cause personal injury.



**Protective Earth Ground (Safety Ground):** Do not operate if green screw is loose or missing. Screw provides an uninterruptible safety earth ground from the mains (power source).



**Caution or Warning Note.** Denotes a hazard. Included text gives proper procedures. Failure to follow directions could result in minor personal injury and/or property damage.

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**Do not modify the unit in any way if you are not a trained certified electrician. All user modifications and/or repairs must receive prior approval from Bellco Glass Service & Repair Department. Failure to do so not only voids the warranty, but also presents the risks of shock, fire and electrical damage.**

## SPECIFICATIONS

### Dimensions:

Description	No. of Vessels	Dimensions (cm)* H x W x D	Dimensions (in.)* H x W x D
<b>MODULAR UNITS:</b>			
Base Only	5	37 x 76 x 63	14 ½ x 30 x 24 ¾
Deck Only	5	18 x 76 x 63	6 ¾ x 30 x 24 ¾
Base and 1 Deck	10	55 x 76 x 63	21 ¼ x 30 x 24 ¾
Base and 2 Decks	15	73 x 76 x 63	29 x 30 x 24 ¾
Base and 3 Decks	20	91 x 76 x 63	36 x 30 x 24 ¾
Base and 4 Decks	25	109 x 76 x 63	43 x 30 x 24 ¾
Base and 5 Decks	30	127 x 76 x 63	50 x 30 x 24 ¾
Base and 6 Decks	35	145 x 76 x 63	57 x 30 x 24 ¾
Base and 7 Decks	40	163 x 76 x 63	64 x 30 x 24 ¾
Base and 8 Decks	45	180 x 76 x 63	71 x 30 x 24 ¾
<b>NON-MODULAR UNITS:</b>			
Fixed Frame 9 Decks	45	180 x 76 x 63	71 x 30 x 24 ¾
Fixed Frame 10 Decks	50	206 x 76 x 63	78 x 30 x 24 ¾

\* Dimensions shown are without side bumpers. Add 5.1cm (2") to Width if bumpers are installed.

 **NOTE: To determine clearance heights of unit loaded with bottles, add 9 cm to listed height.**

Wheel-to-wheel 66 cm (26"), fits wheel slots in Bellco incubators

**Bottle Speed:** 0.1-4.0 RPM standard on 115V or 230V; 0.07-2.0 RPM Standard on 100V models.

See Appendix A for factory installed slow speed kit.

(Alternate Bottle Speeds are available; Contact Bellco Customer Service for information)

**Drive and Control System:** Solid-state electronic control with precision full-range tachometer.

**Electrical Rating:** 100±10 VAC, 50 Hz line voltage; 1.0 amp @ 100V, 50 Hz power consumption

Or

115±10 VAC, 60 Hz line voltage; 1.0 amp @ 115V, 60 Hz power consumption

Or

230±10 VAC, 50/60 Hz line voltage; 0.5 amp @ 230V, 50 Hz power consumption

**Roller Construction:** Non-transferring chemical-resistant rubber rollers with key-shape.

**Clearance between Decks for Bottle Placement:** 134 mm (5 ¼")

**Construction Material:** Aluminum, chemically treated enamel finish.

**Usable Roller Length:** 51 cm (20")

## GENERAL DESCRIPTION

The Bellco Sci/ERA Cell Production Roller Apparatus has been designed for production of mammalian cells, viruses and cell products. Non-modular production units come in 45 and 50 bottle positions with over 80,000 cm<sup>2</sup> of surface area. All units feature a solid state control with heavy-duty DC motor and digital tachometer.

All Position Drives are for use with plastic roller bottles to prevent slipping of the light-weight bottles. A Stand-By Drive and Alarm System provides motion and power failure alarms and has a backup drive system that automatically drives the unit should the original fail.

## FEATURES

- Battery backup drive system
- Motion & power failure alarms
- Digital speed control knob
- Corner bumpers
- Accepts all Bellco Roller Bottles

## INSTRUCTIONS

Unpack your Bellco Cell Production Roller Apparatus carefully. **Note:** be certain to retain the warranty information, packing materials and these instructions. Claims for shipping damages require that packing materials be retained for inspection. ***All damage claims must be initiated with the delivering carrier within five (5) days of receipt of merchandise. (This is your responsibility.)***

## OPERATING INSTRUCTIONS

 **Note: 230V units require the attachment of a receptacle plug compatible with local supply.**

### OPERATING INSTRUCTIONS FOR STANDBY SYSTEM - (reference Figure #4)

1. **Set Up** - Insert battery fuse into holder on front panel [13]. Plug power cord into standard electrical outlet. Push power button [1] on (the button will light). Adjust speed knob [3]. Variation in load, fluctuations in power and motor or circuit differences affect speed. Final speed adjustment should be made when unit is loaded and run at temperature for at least an hour for best speed stability.
2. **Normal Operation** - Roller is running on primary motor. Both red "POWER" LED [1] and "STANDBY" LED [7] is lit when rocker or push button switches are pushed. Bottle speed is adjusted by turning knob [3] and is indicated on the LED [4] digital display panel.
3. **Electrical Power Failure** - Unit automatically switches to battery backup power. Red "POWER" LED [1] goes off. Red "POWER FAIL" LED [7] is lit. Remote alarm jack [10] is activated. Also horn [11] will sound unless key switch [9] is turned off. Battery power will provide a minimum of 18 hours of "maintenance" bottle rotation (36 hours with optional Twin Battery Pack, Bellco Cat. No. 7630-00555). Battery life time assumes fully charged battery in "new" condition. Rotate stand-by speed knob [14] clockwise to increase speed and counterclockwise to decrease. When speed is set to desired level, rotate the lock collar clockwise to lock. Speed may be set in advance.

4. **Blown Fuse or Unplugged Power Cord** - Same as electrical power failure (Step 3).
  5. **Motion Failure** - If bottle rotation is interrupted because of motor circuit board failure, the red "MOTION FAIL" LED [8] will light. The remote jack [10] is activated and the horn [11] will sound unless switch [9] is turned off. Unit will now switch to the backup motor and battery power. Red "POWER" LED [1] and red "STANDBY ON/OFF MOTION RESET" LED [7] are also lit at this time.
- NOTE:** The "STANDBY ON/OFF MOTION RESET" LED indicator flashes once each roller revolution to indicate proper operation of the circuit and orientation of magnet and motion sensor. When problem has been corrected, push "**STANDBY ON/OFF MOTION RESET**" button [7] **TWO TIMES** to restore unit to primary power and drive. "**MOTION FAIL**" LED [8] should be out and "**STANDBY POWER ON/OFF MOTION RESET**" [7] should be lit.
6. **Turning Off Unit** - To turn off roller apparatus both the "POWER" switch [1] and the "STANDBY ON/OFF MOTION RESET" switch [7] must be switched off.
  7. **Battery Fuse** - This fuse also protects the battery in the event of a short circuit.
  8. **Standby Force On** - This push button switch and LED indicator allows testing of the backup motor and drive system with AC power on [5]. If the primary drive motor is being serviced, it is possible to operate the unit. Repress switch for presetting standby bottle speed.
  9. **Low Battery Cut-off** - The LED indicator light [6] will light only after the battery is depleted and can no longer drive the system. This feature prevents the battery from being completely drained and thus, unable to be recharged.

### **BOTTLE PLACEMENT**

Roller bottles should be carefully placed between the roller apparatus rollers with the cap pointing toward the front of the unit. This ensures that the cap will not become entangled in the drive belts at the rear of the instrument.



**Caution:** If two vessels per roller position are used, the vessels must be placed top to bottom for proper operation. Bottles placed incorrectly on this instrument can cause damage and may void warranty.

The bottle speed is indicated on the LED digital display. The unit is calibrated for bottles that are 110 mm in diameter. For bottles having different diameters, the displayed bottle speed will vary proportionately to actual diameters. The displayed value can still be used for reference so that identical speeds can be set for each production run.

Follow preventive maintenance schedule for best continued operation of the CPRA. Avoid rough handling or bumping of machine as this could affect the electronic drive components.

## CLEANING


1. Please use no harsh abrasives or chemicals to clean the machine or the rubber rollers.
2. If the rubber rollers or metal parts should need cleaning, a commercial spray cleaner (Fantastik, Glass-Plus, Windex, etc.) may be used.

## ADDITIONAL DECK ATTACHMENT (Catalog No. 7630-85010)

1. Two people are normally required to install additional decks. Please refer to attached drawings for assistance.
2. Remove all roller bottles and materials from the Roller Apparatus and disconnect from the electrical power supply.
3. Remove the four (4) screws securing the rear guard from the upper most deck (or base, if applicable) and remove the guard exposing the drive belt(s) and pulley(s).
4. Remove the topmost filler brackets (C507-39) by removing the two (2) bolts securing each filler bracket to the deck (or base).
5. Position the new deck over the machine and gently lower into position. Using the bolts from step 4 above, secure the new deck to the existing deck (or base).
6. Following figure 8 remove pulley, magnet holder and short spacer so it can be moved to uppermost deck. Replace with double pulley configuration.
7. Following Figure 9 remove top pulley and long spacer (A507-56). Be sure magnet is facing toward the front of the unit.

 **NOTE:** The magnet holder must be mounted on the side which allows it to be closest to apparatus frame. The side will vary depending on the number of decks.

8. Reference figure 8 to reattach belt and pulley set and securely tighten all set screws. Route sensor wire (A506-96) up from the base attaching to the inside of the appropriate corner post using the wire clamps provided. The sensor wire provided is adequate for a base and eight decks. Excess sensor wire is coiled in cabinet. Secure the Hall sensor using mounting bracket (A506-101) as shown in **Figure 8**.

 **NOTE:** The small dot on Hall sensor must face toward the magnet for proper operation. Slide wire forward in bracket and reverse sensor orientation if necessary.

9. Attach drive belts from existing deck (or base) to newly installed deck(s) using the supplied drive pulleys (A507-542). Drive belts should run vertically (i.e., inside pulley position to inside pulley position, etc.) using the spacer (A507-56) from the existing deck (or base) as necessary.
10. Tighten all drive pulleys (A507-542) using a hex drive and replace rear guard(s).
11. Reference Figure 9 to install All Position Drive. Attach All Position Drive belts after main pulley belts are secured in position.
12. Unit is now ready for operation.

## MAINTENANCE

### **⚡ Disconnect Power Cord from electrical source.**

1. Remove rear deck guard(s) and check set screws in all drive belt pulleys annually. (See Trouble Shooting and attached drawings for additional information.)
2. Follow Preventive Maintenance schedule to keep your roller apparatus in the best possible operating condition. Although preventive maintenance takes time, routine servicing will ensure trouble free operation.
3. For trouble-free operation it is advisable to run the apparatus on the standby motor for 30 minutes very three months. This can be accomplished by pressing "STANDBY FORCE ON" [5] so that the LED indicator is lit. This keeps the battery and charger circuit at optimum. The user can pull the plug to simulate a power failure. These steps will keep the backup motor gear head greased and battery/charger circuit in top condition.

## PREVENTIVE MAINTENANCE SCHEDULE

Motor Brushes	3 Months (inspect for wear - replace if necessary)
Roller Bearings	1 Year
Drive Belt	2 Years
Main Fuse	2 Years
Circuit Board Fuse	2 Years
Battery	3 Years (Replace)

## **TROUBLE SHOOTING**

In the event that any problems develop with your Bellco Sci/ERA Cell Production Roller Apparatus, **DO NOT** attempt to perform any servicing on the unit without first contacting the Bellco Equipment Service Department. **Unauthorized servicing will void warranty.** Bellco will readily supply information regarding trouble shooting problems upon request. In any correspondence with Bellco regarding your Sci/ERA Cell Production Roller Apparatus, please have the appropriate Stock and Serial Numbers when you call, as it is necessary for proper identification of the unit. This information can be found on the warranty serial plate attached to the unit.

## **COMMON TROUBLE SHOOTING HINTS**

### **Disconnect Power Cord from electrical source.**

Unit will not operate or continually blows fuses when turned on:

1. Blown fuses may occur if the unit is turned on at a high speed setting on the speed control dial.
2. Defective Speed Control Circuit Board - Have electrician check DC output voltage.
3. Worn Motor Brushes - Brushes should be checked once every three (3) months and should be replaced when worn to within 1/8" of spring.
4. Shorted Motor - Have electrician check armature and commutator.



## A508-125 & A508-125B Speed Control Board Fuse

The A508-125 & A508-125B Speed Control Board Fuse protects the speed control circuit overload conditions such as a defective motor, needed brush replacement or a motor stalled due to obstructions or mechanical failures. The fuse eliminates the need for board replacement should one of the above conditions occur.

The Procedure for checking if the fuse needs replacement is given below.

1. Power Switch indicator does not light when the unit is switched **ON**. Check MAIN fuse and power source.
2. Power Switch indicator lights when the unit is ON, but the motor is not active when the speed control knob is advanced clockwise. The user should check for:

### **Disconnect Power Cord from electrical source.**

- a. **Motor makes noise.** The motor runs or makes a humming noise. Check for a mechanical obstruction, loose linkage or broken belt. If no obstruction is apparent then it will be necessary to open the unit and check for an internal obstruction, loose linkage such as pulley set screws or broken belt. Disconnect from the line power source prior to servicing.
  - b. **Motor is silent.** Check motor brushes to insure that they have adequate length. Disconnect from the line power source prior to servicing. The speed control output to the motor will be live and approximately 90 Volts DC. Have an electrician check motor voltage.
  - c. **Stalled Motor.** Check speed control board fuse. (ref. figure 3) Disconnect from the line power source prior to servicing. The fuse can be visually inspected or checked for continuity with an ohm meter. If necessary replace with part # A432-12 fuse for 100/115 volt and A432-16 for 230 volt models. Need for fuse replacement indicates other problems which should be resolved prior using the unit. Again check for obstructions which may cause motor stalling or replace motor brushes. Check that all bearings rotate easily and lubricate or replace if necessary.
3. Inability to produce DC voltage to the motor when the fuses are good indicates need for speed control board replacement. Have an electrician test it for you or contact the Service/Repair Department for repair and return instructions.

## **REPLACEMENT OF MAIN FUSE** (ref. Figure 4)

### **Disconnect Power Cord from electrical source.**

1. Shut off Main Power Switch [1]. Grasp fuse holder [2] with fingers and depress slightly while twisting counterclockwise. The fuse holder cap will pop free exposing the fuse. Replace the defective fuse with one of equal rating: Part No. A500-234 (1 Amp 250V AGC) for 100/115V units and Part No. A432-3 (.5 Amp 250V AGC) for 230V units.
2. Replace the fuse holder cap by inserting into the fuse holder base, depressing slightly and turning clockwise.

## **REPLACEMENT OF MOTOR OR MOTOR BRUSHES**

### **Disconnect Power Cord from electrical source.**

1. Remove the four (4) sheet metal screws holding the Base Rear Guard to the Control Housing. The Drive Motor Assembly is now accessible. (Ref. Figure 5 & 6).
2. Loosen the four (4) screws on the Motor Adjusting Mounting Plate B502-90, slide upward loosening the tension on the drive belts and remove the drive belts from the drive pulley.
3. Remove the three (3) screws securing the Motor Adjusting Mounting Plate to the Control Housing and carefully remove the Drive Motor Assembly. Disconnect the necessary wires noting their colors and location.
4. The Primary Motor Brushes are now accessible by removing the brush screw caps on both sides of the motor. Pull out worn brushes and install new brushes and replace the brush screw caps. The backup motor brushes cannot be replaced.
5. To replace the Primary Motor (Ref. to # 2 & 3). Remove the snap ring that holds the primary motor clutch pulley and remove pulley. Now with a 5/16 open end wrench & 5/16 nut driver, remove the four (4) screws & spacers securing the motor and remove the motor.
6. Remove the extension shaft and optical sensor assembly bracket from the motor and install them on the new motor. Now install the new motor and reverse the above procedures to reassemble.
7. To replace the Backup Motor refer to # 2, 3, 5, & 6 removing the two (2) screws and spacers.
8. Assemble unit reversing above disassembly procedure.

## **REPLACEMENT OF SPEED CONTROL CIRCUIT BOARD** (ref. Figure 3)

### **Disconnect Power Cord from electrical source.**

1. Remove the Front Control Panel exposing the circuit board and other electrical components.
2. Unplug all six (6) wires to the circuit board (2 AC line, 2 meter, and 2 motor).
3. Remove knob on the speed control located on the front panel.
4. Remove the knob on the front panel, thereby loosening the speed control board.
5. Note the orientation of the speed control circuit board to the other components prior to removal of the circuit board. Remove board from panel.

6. Replace with the new circuit board. Reassemble new circuit board into unit ensuring appropriate orientation. Connect line and motor leads prior to testing unit or reassembly. Double check wire placement.
7. Reassemble unit as described in **Replacement of Motor**.

### **REPLACEMENT OF ROLLER BEARINGS**

**⚡ Disconnect Power Cord from electrical source.**

1. Remove belt guards from decks needing servicing or entire guard on non-modular units.
2. Remove drive pulleys or all position pulleys for rollers needing servicing.
3. Align A507-589 pins with corresponding holes on the bearing holder and insert at end. (See Fig. # 7)
4. Twist bottle stop/bearing holder 90° until pins/holes are in a vertical position.
5. Repeat for opposite bottle stop/bearing holder.
6. Gently pull upward on roller to remove from front and rear bearing bars.

**⚠ NOTE: It is important to remove or insert both bottle stops/bearing holders at the same time to avoid cracking.**

7. Reverse procedure to reassemble.

### **DRIVE BELT REPLACEMENT**

**⚡ Disconnect Power Cord from electrical source.**

1. Remove four sheet metal screws holding rear chassis/belt guard.
2. Loosen screws and remove rear belt guards.
3. Loosen the four screws securing the Drive Motor Assembly.
4. Slide the motor upward, loosening the tension on the drive belts and remove the drive belts from the motor drive pulleys.
5. Remove set screws securing pulleys to drive rollers.
6. Remove pulleys using a gear puller if necessary. Replace any pulleys that may break during removal.
7. Remove belts starting with the top deck and proceed downward to the base deck.
8. Reverse steps 2 through 8 to reassemble.

**SEE ATTACHED DRAWINGS FOR ADDITIONAL INFORMATION**

**REPLACEMENT PARTS LIST:** (see Appendix A for factory installed slow speed kit)

<b><u>Parts No.</u></b>	<b><u>No. Required</u></b>	<b><u>Description</u></b>
A432-12	1	Speed Control Fuse (100V, 115V)
A432-3	1	Main Fuse (230V)
A432-16	1	Speed Control Fuse (230V)
A500-234	1	Main Fuse (100V, 115V)
A500-374	1	SBD Switch
A500-486	2	Motor Brush
A506-85	1	12V (backup) Battery
A507-514	As Needed	Deck Belt
A507-524	1	Motor (115V)
A507-A45	1	Motor Assembly (100V, 230V)
A507-546	2	Timing Belt
A507-544	1	Battery Backup Motor
A507-571	2	Timing Belt #240L
A507-589	1	Bottle Stop Tool
A508-125	1	Circuit Board (100V, 115V)
A508-125B	1	Circuit Board (230V)

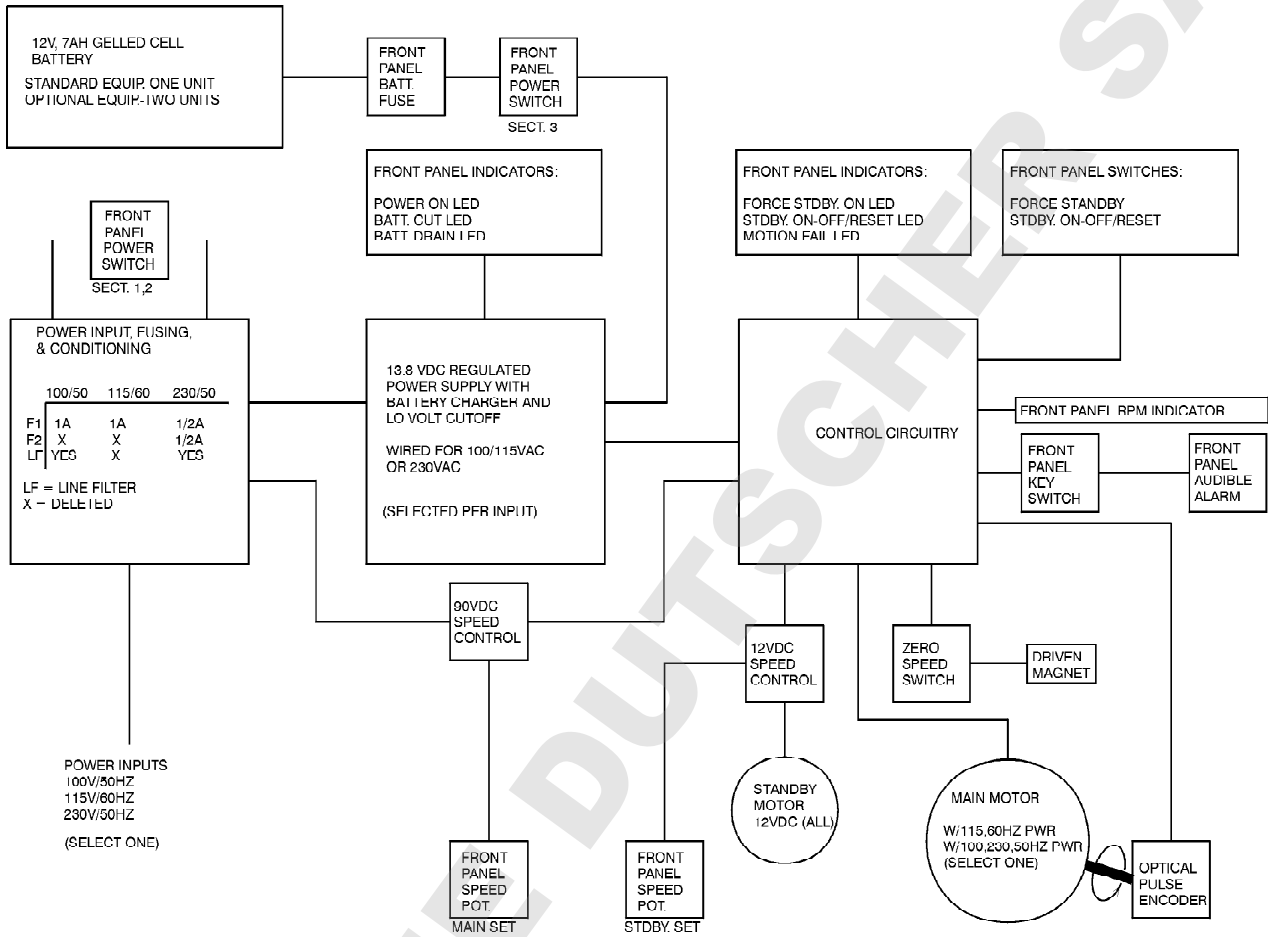
***To order, Contact Belco Customer Service Dept. @  
1-800-257-7043***

**ADJUSTMENT OF TIME OUT CYCLE (Reference Fig. 2)**

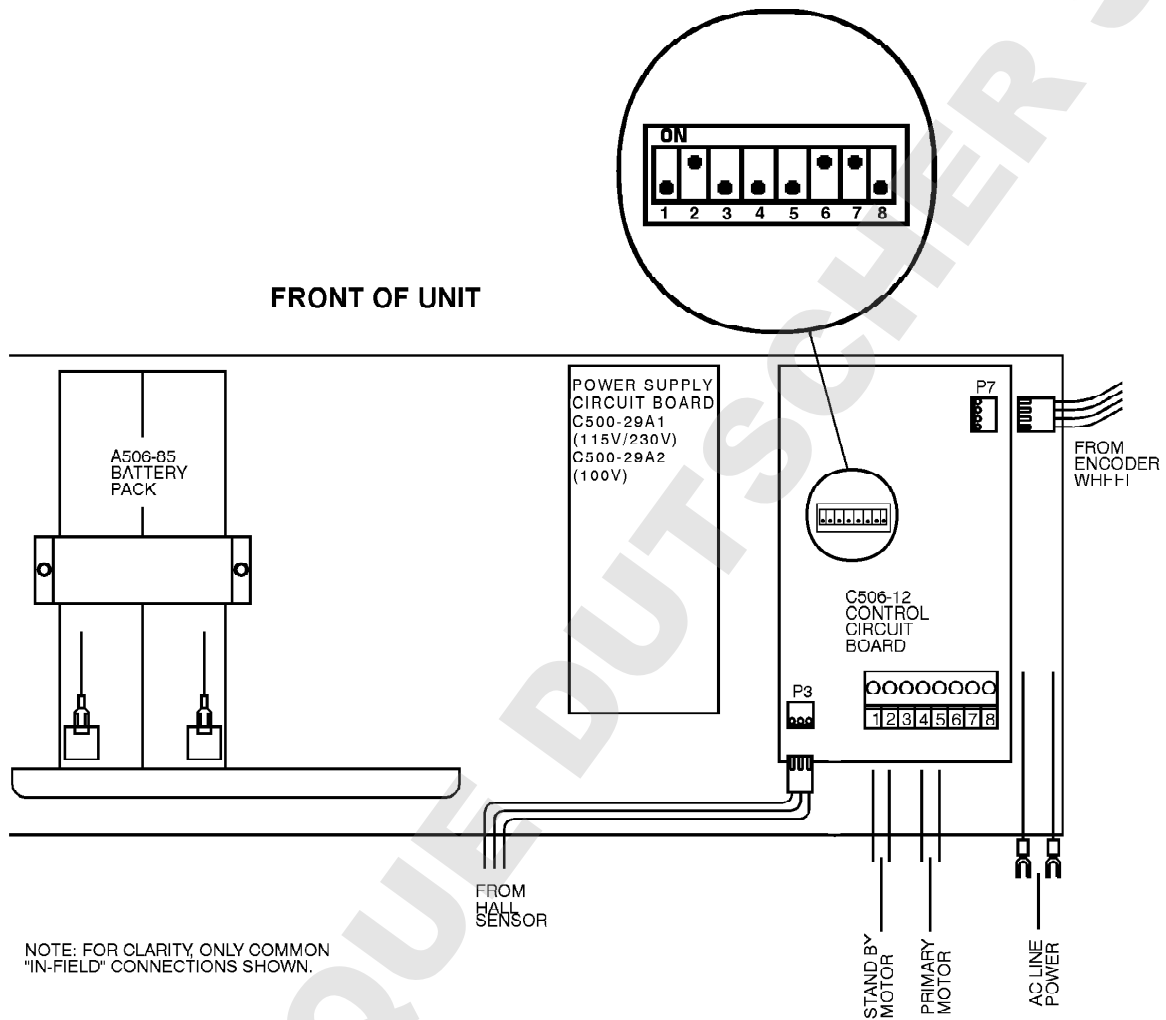
The motion detector alarm is factory preset to activate at three (3) minutes after an absence of motion is detected. When the apparatus is set to run at very low speeds (less than 0.12 RPM) it is necessary to change the time out to a longer interval. Refer to the DIP switch on the control circuit board. The switch is factory set to 1 OFF, 2 ON, 3 OFF, 4 OFF, 5 OFF, 6 ON, 7 ON, 8 OFF. The switch setting may be changed to yield the following time out cycles.

	<b>SWITCH SETTING</b>							
<b>Time (min.)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>1</b>	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
<b>2</b>	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
<b>3</b>	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
<b>4</b>	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
<b>6</b>	OFF	ON	OFF	OFF	OFF	OFF	ON	ON
<b>10</b>	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF
<b>20</b>	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON

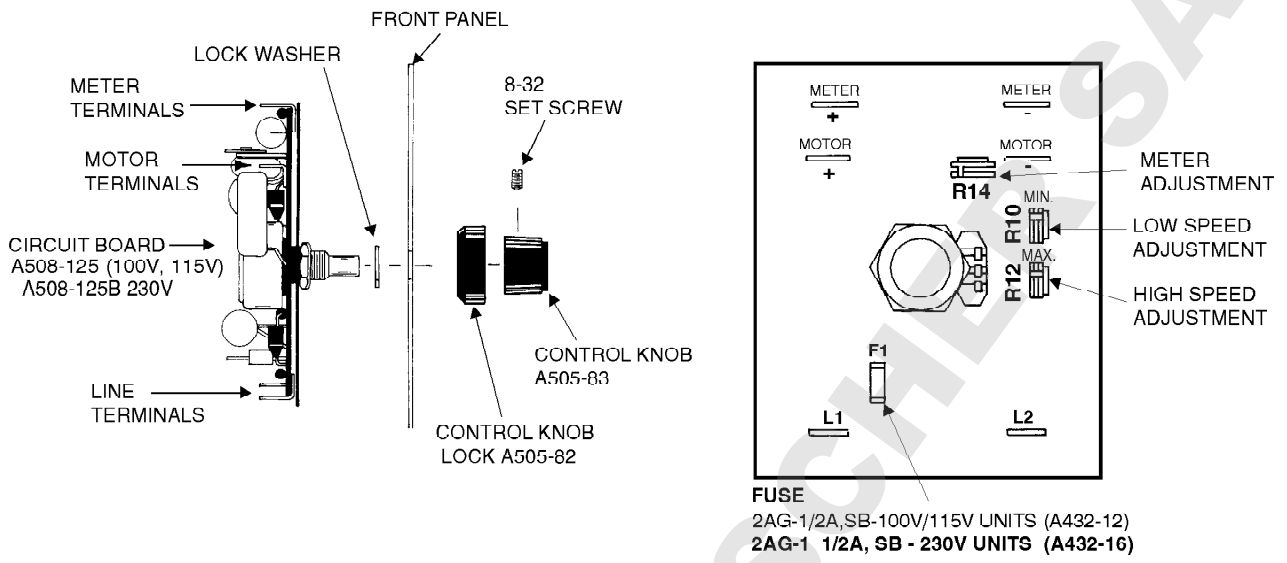
**FIGURE 1: ELECTRICAL BLOCK DIAGRAM (B506-37)**



**FIGURE 2:  
INSTALLATION DIAGRAM (A507-694)**

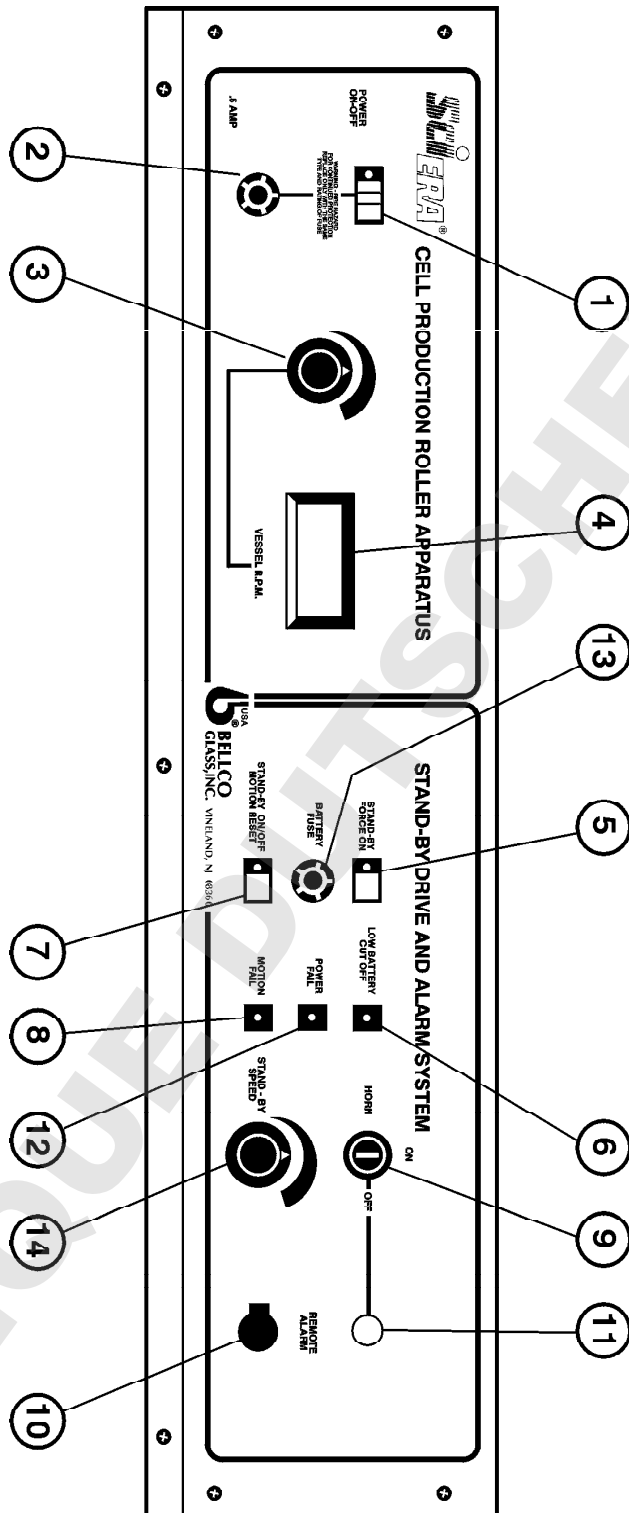


**FIGURE 3:  
SPEED CONTROL BOARD (A508-125A)**

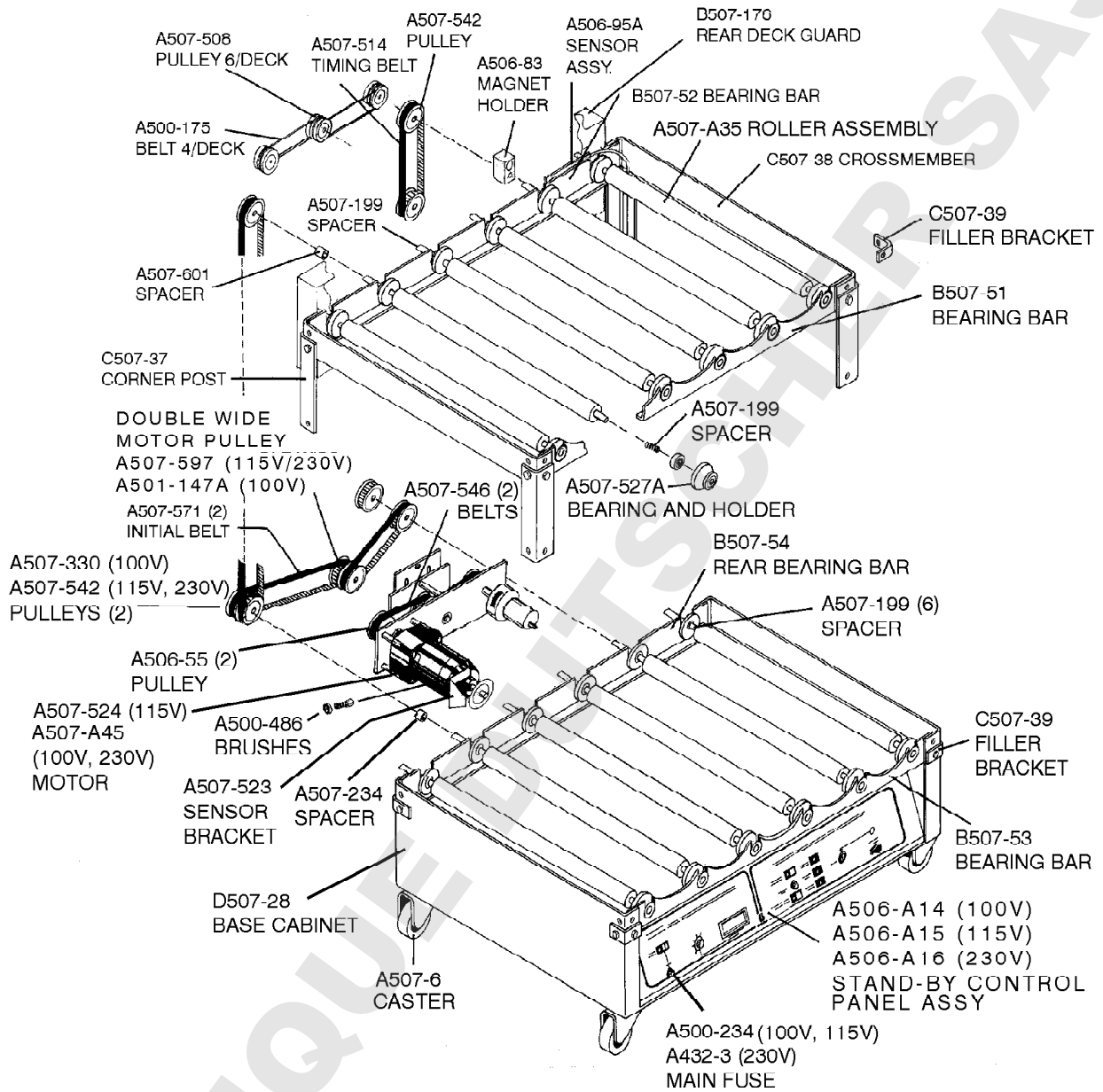




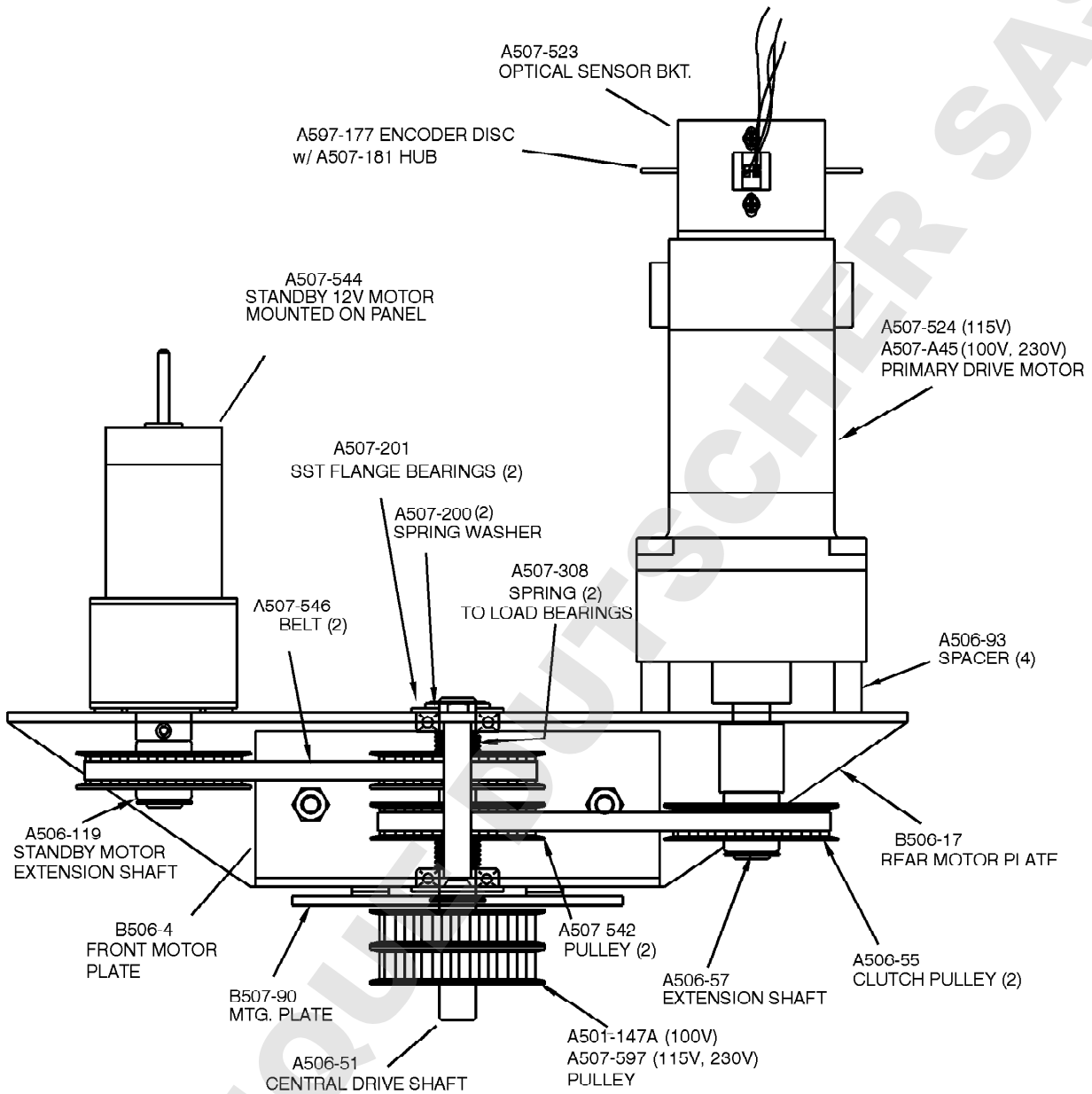
**FIGURE 4: FRONT CONTROL PANEL (C506-11)**



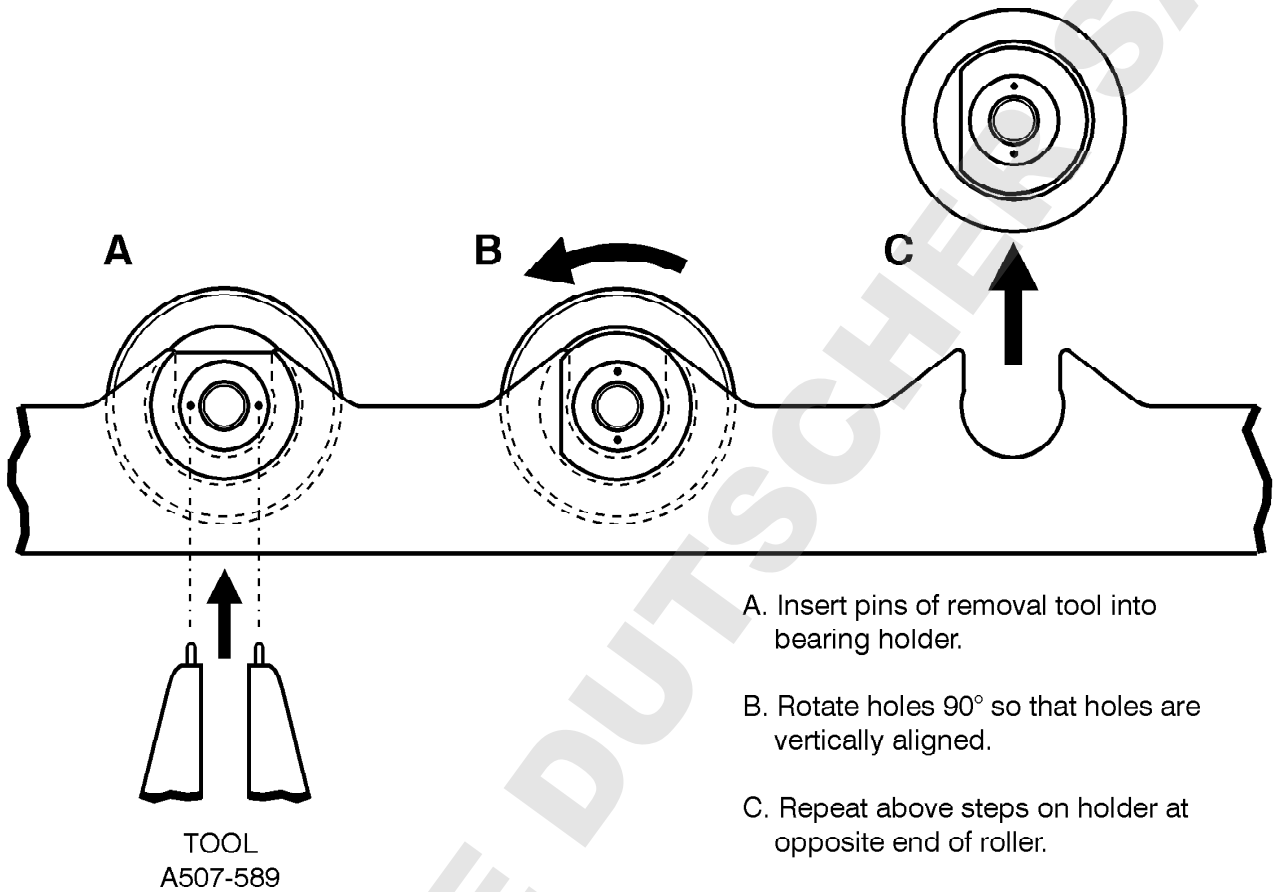
**FIGURE 5:  
EXPLODED VIEW (A507-A20)**



**FIGURE 6:**  
**DRIVE MOTOR ASSEMBLY (C506-A8)**

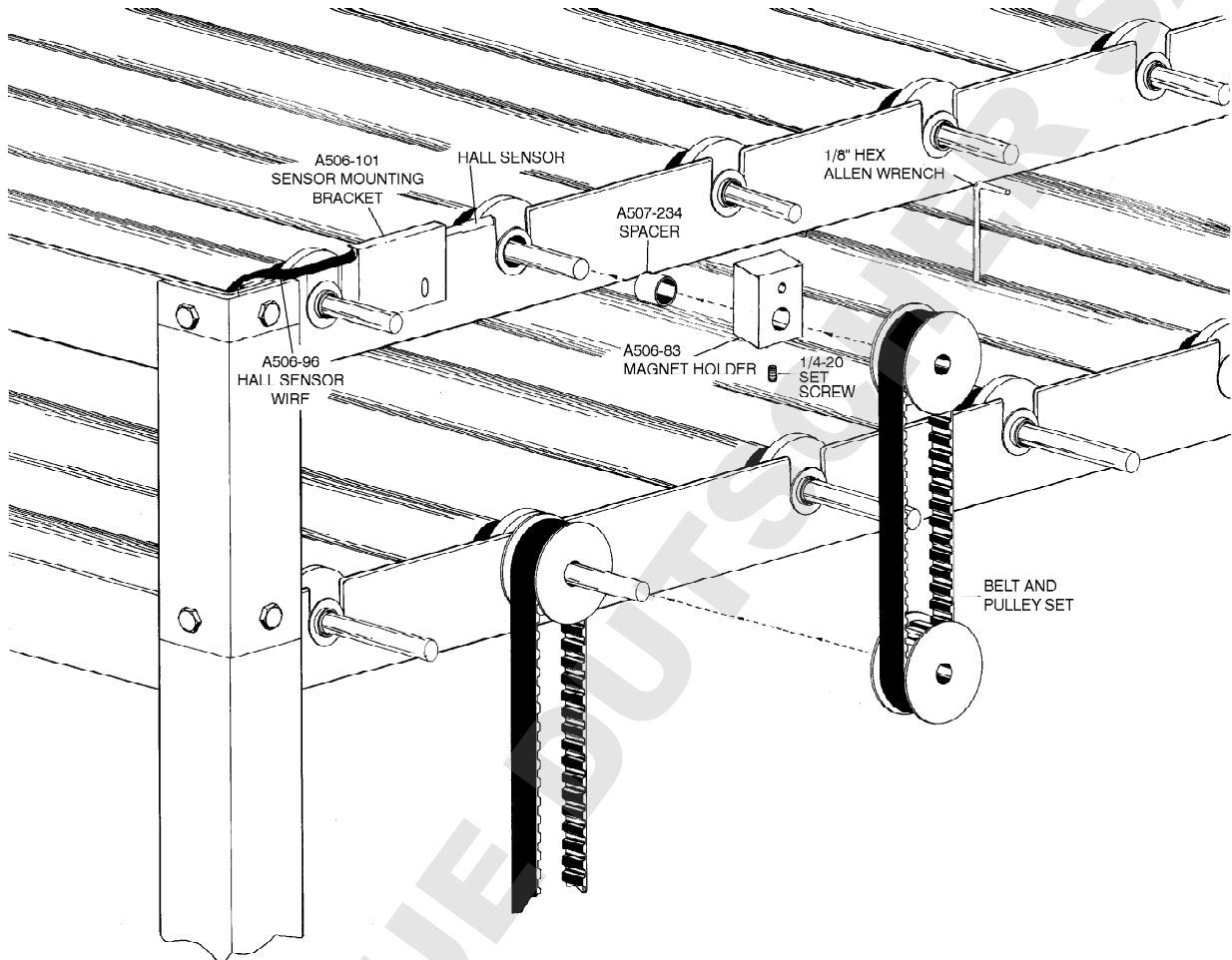


**FIGURE 7:**  
**ROLLER BEARING REPLACEMENT (A507-A43)**

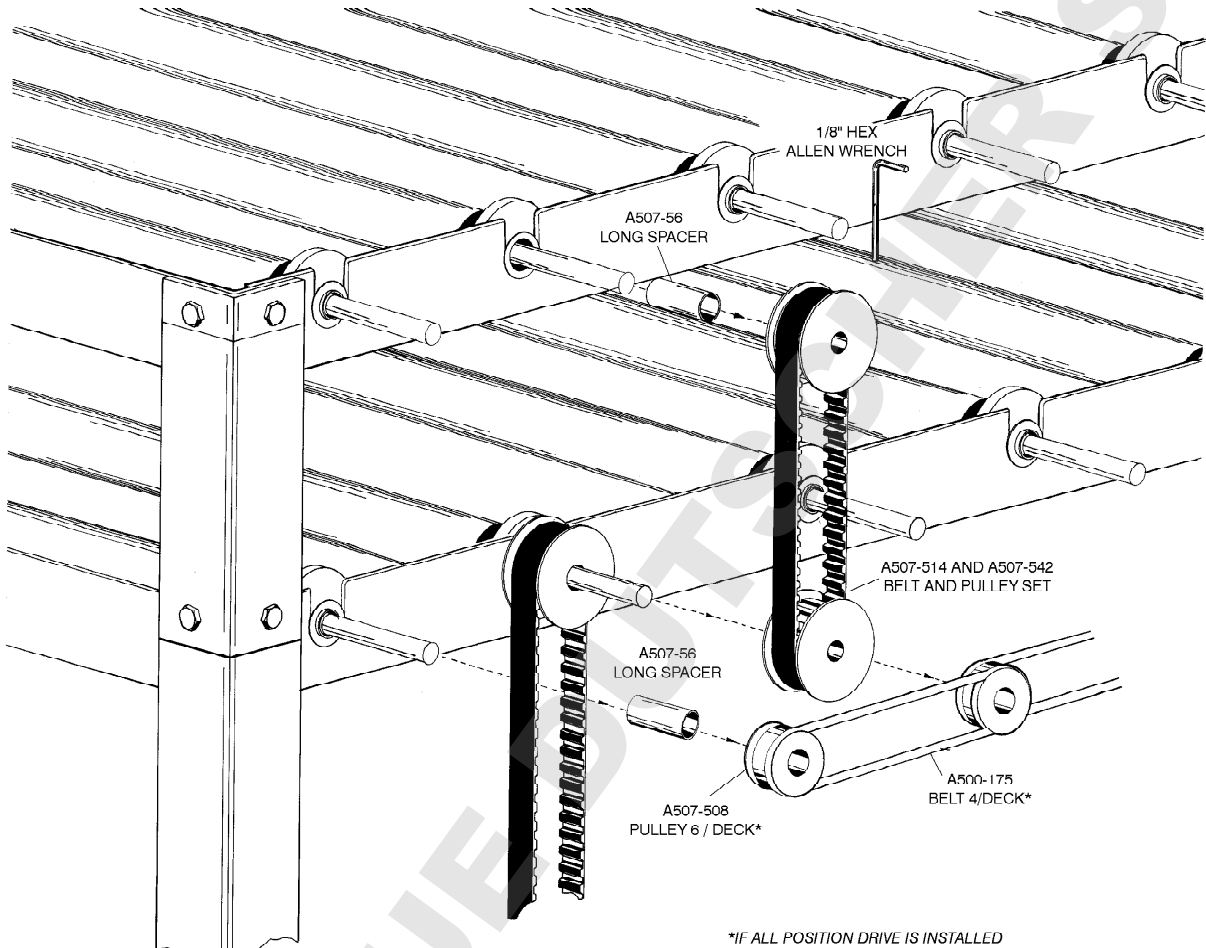


- A. Insert pins of removal tool into bearing holder.
- B. Rotate holes 90° so that holes are vertically aligned.
- C. Repeat above steps on holder at opposite end of roller.
- D. Gently pull roller up to disengage bearing holder.
- E. Reverse procedure to reinstall bearing holder.

**FIGURE 8:**  
**HALL SENSOR AND MAGNET INSTALLATION DIAGRAM (A507-A46)**



**FIGURE 9:**  
**STANDARD INSTALLATION DIAGRAM (A507-A47)**



## BELCO WARRANTY AND LIMITATION OF LIABILITY

Bellco Glass, Inc. warrants to the original purchaser, its products to be free from defects in material and workmanship for a **period for one (1) year from the date of shipment, unless otherwise specified.** Our obligation under this warranty is limited to, at our option, repair, replace, or cause any necessary repairs to be made to, any defective part or parts, which shall be returned to us. **Bellco 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 shall have been repaired or altered outside our factory, or subjected to misuse, negligence, accidents, faulty installation by other parties, or **unauthorized** repairs or modifications. In addition, Bellco Glass, Inc., 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.

The provisions of this warranty and limitation of liability may not be modified in any respect except in writing signed by a duly authorized officer of Bellco. The liability of Bellco, if any, for damages relating to any allegedly defective product shall, under any legal or equitable theory, be limited to the actual price paid by purchaser for such product and in no event include incidental or consequential damages of any kind.

### 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 Bellco Glass, Inc.** Products requiring special or crating may incur additional handling fees.

Bellco takes every reasonable precaution to ensure that its products arrive without damage. However, occasionally damage will occur during the shipment of a product. For this reason, it is imperative that Purchaser examine each product **immediately** upon receipt in order to determine whether the product, has arrived in proper condition. In the event Purchaser detects any damage to the product, Purchaser shall **immediately** notify Bellco and the carrier who delivered the product. **Failure to notify Bellco 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.

## Appendix A

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### SLOW SPEED KITS ON BELLCO MODULAR & FIXED FRAME ROLLER APPARATUS

7630-60666 (.10 TO 2.0 RPM)  
7630-70777 (.085 TO 1.7 RPM)

#### DESCRIPTION

The slow speed conversion kits adapt any Modular or Fixed Frame Cell Production Roller Apparatus to operate between either the speeds of 0.10 and 2.0 RPM (7630-60666) or the speeds of .085-1.7 RPM (7630-70777).

#### PARTS LIST

	<u>7630-60666</u>	<u>7630-70777</u>
2 ea. Pulley	A507-704	A507-705
1 ea. Motor Mount	B507-117	B507-117
1 ea. Timing Belt	A507-571	A507-571
1 ea. Double Pulley	A507-147A	A507-147A