



# LANER MANUAL

**BEVCO MODEL: GENERIC SERVO LANER**

**Date: JULY XX 20XX  
SERIAL NO: JXXXXX**

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# OPERATION & SERVICE MANUAL

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# Chapter 1

## 1.1. GENERAL INFORMATION

The equipment supplied under this contract is designed to operate with a minimum of operational supervision. However, as with all mechanical systems, care and attention must be given to the equipment to ensure ongoing performance. This manual covers basic installation, operation and maintenance requirements. It does not, however, cover all details or variations in equipment, nor does it provide for every possible contingency to be met in connection with operation or maintenance.

Should further information be required or should particular problems arise which are not covered, please refer to:

### **Head Office and Factory;**

#### **BEVCO SALES INTERNATIONAL**

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## Chapter 2

### **OPTIONAL ACCESSORIES**

#### **2.1. Start-Up Assistance and Training**

Bevco can provide start-up assistance and training for your line personal as well as your mechanics and supervisors. A qualified Bevco Service Representative will go over the installation to insure that the equipment has been integrated into the line properly, and then test the equipment for correct operation prior to meeting with those who will be involved in the training seminar.

Training will consist of some classroom time but is mainly tailored around "hands on" learning. Each student will become proficient in the following aspects of your new equipment;

1. The safety aspects of your equipment and why they are important,
2. The correct way to set up *your* equipment for *your* containers,
3. What function each of the sensors performs,
4. How to trouble shoot any perceived deficiencies in the least amount of time,
5. Lubrication requirements,
6. Sanitation procedures.

At the completion of the training seminar there is a short written quiz that each trainee will fill out and then mark. This quiz will point out to the individual any areas that he/she should perhaps review before the Bevco Service Representative leaves the plant. Please contact the Bevco Service Department at **1 800 663-0090** for Training Rates.

#### **2.2. Service**

Bevco has Service Technicians available to assist your plant personnel in minor and major overhauls of your equipment. Taking advantage of the assistance of a Bevco Service Technician insures that your equipment is brought back to factory standards for optimum performance. The Service Technician is also able to keep your personnel apprised of any improvements that may be to your benefit while at the same time upgrading your mechanics on the proper overhaul procedures that are sure to save you time and money in the future. Please contact the Bevco Service Department at 1 800 663-0090 for Service Rates.

# Chapter 3

## 3. 1. Safety Requirements

**WARNING:** Bevco Laners are automated, and once energized the equipment will start or stop at any time. All equipment must be LOCKED OUT electrically and mechanically before any maintenance or work of any kind is performed on the equipment.

- A. All maintenance and repair work must be performed by qualified personnel
- B. No equipment shall be operated with protective guards, covers or railings removed.
- C. Care and attention shall be taken at all times in the vicinity of any operating equipment
- D. Worker's Compensation Board (Occupational Safety and Health of America) regulations shall be adhered to in all cases.
- E. Be aware, this equipment has many moving parts and pinch points, and extreme caution is advised when the Laner is in operation.
- F. Safety warning stickers have been affixed to the equipment and must not be removed.
- G. Hand wheel adjustment should only be made when machine is empty of all containers.
- I. All electrical components on the Laner are water resistant. Do not use high pressure hoses for cleaning and do not use a direct stream of water on drives, panel or photo-cells.

\*\*\*The foregoing and following safety suggestions should not be considered as limiting in safety precautions to be followed. Local conditions, environment and prudent judgment in safety should be paramount at all times.

# SAFETY

## 3.2. Recommended Lock-Out Procedure

The following checklist is designed to be followed when it is necessary to deactivate a Laner in order to perform maintenance or inspection. The objective is to deactivate the equipment in such a manner that it cannot be mistakenly energized. The preferred method of deactivation is to "lock-out" as opposed to "tag-out".

1. Notify the operator and supervisor of impending lockout and the reason for the action.
2. Shut down the equipment using the normal, recommended shutdown procedures.
3. Disconnect and lockout supply voltage at distribution panel.
4. Open equipment control panel door and test circuit on the supply side and the load side after opening the disconnect. NOTE, Check the voltage tester on a known energized source before testing the circuit.
5. If there are electrical interlocks, lock them out as necessary.
6. After performing voltage tests in 4 above, recheck the voltage tester on a known energized source.
7. Operate control switch, button etc. to make sure equipment is deactivated.
8. Discharge any electrical, pneumatic, or water sources that could hold potential energy.
9. If more than one person will be working on the deactivated equipment then each person shall attach their lock or lockout to that equipment.

When the equipment is ready to be activated the following procedure should be adhered to.

- A. Inspect the work area to ensure that non-essential items have been removed and to ensure that the equipment is operationally intact.
- B. Remove the lock-out/padlocks
- C. Ensure that all employees are clear of the equipment.
- D. Begin energizing the circuitry starting at the furthest disconnect. When it comes time to energize the actual piece of equipment ensure that any switches etc. are in the "off" position.
- E. Energize the equipment for testing. Follow recommended start-up procedure. If for any reason the equipment must be shut back down for further trouble shooting or repair then the entire lockout procedure must be followed.

## Chapter 4

### OPERATIONAL CHECKLIST

#### 4.1. **Recommended Installation**

By using this detailed, step by step outline as a checklist you will be assured that nothing has been overlooked and your Laner will perform to its' maximum efficiency.

All Laners are test run in our plant to insure that all systems perform properly and to reduce the chance of misunderstanding in the field. Load readings are checked and recorded, all lubrication points are serviced, necessary inverter programming is completed and test sample containers run.

Upon completion of the test run and quality control check, your Laner was crated for maximum protection during shipment, and to ease unloading and placement within your plant without subjecting the Laner to handling procedures which could cause damage. It is important to inspect the Laner thoroughly when it arrives at your site and to record and report any damage immediately.

1. The Laner was preinstalled on the conveyor at Bevco with all limit switches and photo eyes in place. After conveyor installation the appropriate power needs to be supplied to the panel to activate the new laner.

# Chapter 5

## 5.1. Overview

Your Bevco Laner is designed to lane product from 1 lane to mass flow, 1-2, 1-3 and 1-4 lane capabilities.

## 5.2. Controls

The control panel contains all necessary indicator lamps, function buttons and controls that are required for efficient operation. The door of the control panel has the main disconnect switch handle as well as the **POWER ON** blue light, the amber **FAULT** light, and the green **RUN** light. The door also contains the green **START** button, the red **STOP** button, the yellow **RESET** button and the **EMERGENCY STOP** mushroom button.

Inside the control panel is the PLC, fuses, inverter, relays, contactors, transformer and all wiring terminals. Normally the wiring schematics and PLC program sheets are contained in the pocket on the inside of the door.

- If the blue light is on it indicates that the main disconnect switch is ON and the panel is powered.
- If the green light is on it means the Laner is in the run mode and is either running or may start automatically at any time.
- If the yellow fault light is on it means there was/is an electronic fault that requires correction. When corrected, push the yellow reset button followed by the green start button.



## Chapter 6

### Gauges and Controls

#### 6.1. Transparent Object Detector Setup

The Allen Bradley 42SMU-7261-QD photocell is designed for the detection of transparent glass and plastic objects. The supplied Container at Infeed, Container Backup and Speed Switch photocells are of this type. To properly set up and maintain the accuracy of these photocells, refer to the following setup instructions or the Allen Bradley technical documentation provided in the document package supplied with the Laner.

1. Ensure the photocell and reflectors are properly mounted to the conveyor.
2. Ensure that the control power to the Laner is turned on.
3. Ensure that there are no foreign objects obstructing the view of the photocell.  
These may include broken containers, guide rails, etc.
4. Ensure photocell is properly aligned with the reflector. The center of the photocell lens should be in line with the center of the reflector.
5. The photocell indicator lamp should be on if the photocell is reading the reflector.
6. If the indicator lamp is not on, adjust the photocell margin by using the margin adjustment pot. Turn the pot clockwise until the lamp turns on.
7. Place a product container in front of the photocell to obstruct the beam.
8. The indicator light should turn off. If the indicator light does not turn off with the product container in front of the photocell, the margin is too high. Turn the margin pot counter clockwise until the indicator light turns off.
9. Repeat steps 4 through 8 until the presence of a container in front of the photocell causes the indicator lamp to turn off, and the removal of the container causes the indicator lamp to turn on again with no adjustments necessary.
10. It may be necessary to adjust photocells due to varying product container materials.
11. The transparent object detector is water resistant but is not water proof . Any cleaning procedures should not include a direct stream of water against it or the photo eyes.

#### 6.2. 3PEC, 4PEC, 5PEC, 6PEC Container Back Up

**Purpose:** Determines line conditions downstream of the Laner

**Function:** When line conditions are running at normal operating speed, 1PEC monitors the line conditions to prevent a line back up from causing the Laner to jam. If 1PEC remains blocked for a determined amount of time, the Laner will stop. This timer value should be long enough to prevent

# **Chapter 7**

## **Preventative Maintenance**

### **7.1. Routine as well as Shut-Down/Start up**

All bearings on the Laner are sealed to insure maximum service life. There are six grease zerks on the Laner. Four on the Ball Screw Drive System, and two on the laner mounting shaft.

### **7.2. Shut down/Start-up**

Prior to shut down the Laner should be washed down, dried and greased as per the instructions above.

### **7.3. Regular Maintenance Requirements**

a) **Bearings:**

Grease all bearings weekly during continuous operation - Keystone Pennwalt Nevastane T-2 food grade grease or equivalent.

b) **General:**

Maintain general cleanliness of machine areas and avoid any dust buildup.

### **7.4. Shutdown Procedures:**

**Extended**

If the operation is to be shut down for an extended period of time, care must be taken to ensure problems are avoided on restart.

- a) Grease all regular bearings.
- b) Lock out electrical system.
- c) Sweep down all components and wash down as required.

## Chapter 8

### Troubleshooting

#### 8.1. Troubleshooting Guide

The following troubleshooting guide assumes that the Bevco Laner has been properly installed in accordance with the section containing Recommended Installation, and that the Bevco Laner has been running prior to the current condition.

#### 8.2. Laner Does Not Start

1. **Power Interruption:** If *Power* Indication lamp on the Main Control is on, press the *Reset* push-button, then press the *Start* button.
2. **Emergency Stop Pressed:** Determine reason for the Emergency Stop condition, When safety conditions permit, restart machine by deactivating the E-Stop button (Pull E-Stop Button out), then press the *Start* push-button.
3. **Downstream Photoeyes:** Check that all photo eyes are clear IE: Down stream photoeyes Correct the problem and start the machine.
4. **1PEC Malfunction:** Reflector may be dirty, out of alignment or sensitivity / margin may be set too low. Correct the problem and press the *Start* push-button to restart the Laner. (See also the chapter that contains the setup procedure for transparent object detector).
5. **Inverter Fault:** Fault Indicator light is on. Verify the inverter fault by observing the display panel on the inverter-programming module. This fault can be referenced in the Allen Bradley Inverter manual supplied with the Laner. Press the *Reset* push-button on the Main Control Panel and press the *Start* button to restart the Laner

## Chapter 9

### 9.1. Parts List

#### Bevco 1 to 4 SERVO LANER

##### Replacement Parts Listing

<b>Part No:</b>	<b>Description:</b>	<b>Quantity:</b>
<b>BEARINGS</b>		
BRG12616	FYH UCP205-16 1" PILLOW BLK	2
BRG70608	SYS PLAST 73201 1/2" PILLOW BLK BRG	4
BRG70609	SYS PLAST 50013 BEARING CAP OPEN/CLOSE	8
BRG12934	MCGILL CAMFOLLOWER CFE-1 1/2SB	1
<b>SPROCKETS</b>		
SPR	30xL037DF-1 x 1/2" BORE KS2SS	1
SPR	30xL037DF-1 x 3/4" BORE	1
<b>PNEUMATICS</b>		
AIR13723	NUMATICS PICK-01A3B-AAA0	2
<b>BELTS</b>		
	GOODYEAR 180XL037	1
<b>ELECTRICAL</b>		
	GOULD ATDR-2 MOTOR FUSE HRCL-CC 600V/2A	
	GOULD ATDR-15 MOTOR FUSE HRCL-CC 600V/15A	
	GOULD GGC-1 CONTROL FUSE 250V/1A	
	GOULD GGC-2 CONTROL FUSE 250V/2A	
	GOULD GGC-4 CONTROL FUSE 250V/4A	
	GOULD GGC-6 CONTROL FUSE 250V/6A	
	GOULD USCC-2-I FUSE HOLDER 2 POLE 600V/30A	
	GOULD USCC-3-I FUSE HOLDER 3 POLE 600V/30A	
<b>SENSORS</b>		
ELC56834	TRANSPARENT OBJECT DETECTOR	2