



BEVCO MODEL: GENERIC ELEVATOR/LOWERATOR

Company name: Generic

Date: AUG XX 20XX

SERIAL NO: JXXXXX

Supplied By:

Bevco Sales International

9354 - 194th Street
Surrey, BC. V4N 4E9

Toll Free: 1-800-663-0090

Phone: (604) 888-1455

Fax: (604) 888-2887

E-Mail: info@bevco.net

Website: www.bevco.net

SERVICE MANUAL - ELEVATOR/LOWERATOR

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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. 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:

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GENERAL OPERATING DESCRIPTION

The Bevco elevator/lowerator is designed to grip the container at the infeed section, carry it through to the outfeed, and set it on the outfeed conveyor. A handwheel provides one point adjustment of the spacing between the grippers for the containers.

Standard Features:

- 2'-0" Stainless steel tabletop conveyor infeed drive section, with fixed rpm drive.
- 2'-0" Stainless steel conveyor idler section.
- All stainless steel gripper base chain and adjustment chain.
- All bearings are polyamide
- Gripper adjustments to grip containers ranging from $\varnothing_{\min} - 3.0''$ to $\varnothing_{\max} - 5.0''$ achieved by means of a single handwheel with numerical counter to indicate width between grippers.
- BEVCO's soft ribbed rubber grippers to gently grip each container, reduce damage to containers.
- All stainless construction.
- Stainless steel covers at operator's level.
- Positive emergency discharge jam switch to stop equipment.
- Centralized and conveniently located grease manifolds.
- Fixed rpm gearmotors.
- CSA approved stainless steel electrical enclosure with controls, starter, frequency inverter for soft start/stop functions and variable speed control & Allen Bradley Micrologix 1100. (if controls provided)

SAFETY REQUIREMENTS

Recommended Installation

- 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.** Workers Compensation Board regulations shall be adhered to in all cases.
- E.** All equipment must be "LOCKED OUT" electrically before any maintenance or work of any kind is performed on the equipment.
- F.** Be aware, this equipment has many moving parts and pinch points, and extreme caution is advised when the elevator/lowerator is in operation.
- G.** Safety warning stickers have been affixed to the equipment and must not be removed.
- H.** Note: Bevco has supplied a backup jam switch on each elevator/lowerator. These should be wired in to stop the machine instantly on backup. Restart should NOT be automatic on clearing the switch. For safety reasons a manual restart should be required.
- I.** Handwheel adjustment should only be made when machine is empty of all containers.

OPERATIONAL CHECKLIST

1. STARTUP:

Before initial operation, the following procedures are to be covered.

- A.** Confirm all service connections.
- B.** Lubricate all bearings-Keystone Pennwalt Nevastane HT-2, for food and beverage or equivalent.
- C.** Check drive units for oil level and top-off if required. SHELL OMALA 680 or equivalent.
- D.** Confirm correct motor rotation.
- E.** Check alignment of equipment and ensure it is firmly anchored to the floor.
- F.** Check and tighten all bolted connections.
- G.** Ensure all safety guards and covers are in place.
- H.** Test run all pieces of equipment and ensure it is firmly anchored to the floor.
- I.** Check gripper spacing for the container to be handled. Adjust the spacing using the adjustment wheel. NOTE: do not attempt to move this handwheel when containers are in the elevator/lowerator to do so may cause the machine to go out of alignment. The container should be held firmly but not too tight. Excessive pressure on the container will greatly increase the load on the drives and may cause the drives to overheat.
- J.** On a 2 1/2 to 2 3/4 diameter aluminum container the spacing of the grippers should be approximately 3/8" less than the container.
- K.** Adjust the elevator/lowerator speed to ensure approximately 1" to 1 1/2" between containers through the elevator/lowerator. When properly gapped the containers will travel through the curves almost touching. Speed is adjusted using the potentiometer control on the panel. Once set, the infeed drive will rack up and down with the elevator/lowerator speeds.
- L.** Jog elevator slowly with containers, to ensure the product will not bind through the elevator. Readjust if necessary, after elevator is empty.
- M.** While running the elevator slowly, apply a food grade grease to the wear strip. Grease nipples are mounted on an external grease manifold and labeled "**WEARSTRIP**"

II regular maintenance requirements:

a). Bearings.

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

c). Wear strip.

Grease nipples have been mounted to the grease manifold. Grease daily, or as required, with a food grade grease.

d). Chain.

As the elevator runs the chain will loosen up. Tighten up the chain by adjusting the idler sprockets on the idler end. For proper operation, the chain should have a 1" - 1 1/2" linear slack in it.

CONTROL SYSTEMS (if provided by BEVCO)

Each elevator has a green "**START**" button, and a red "**STOP**" button and a black "**JOG**" button on the panel door as well as warning lights. A "reset" button is used to re-start the elevator when the electronic trip has been thrown. See the appendices for a wiring schematic.

NOTE: Ensure the elevator is electrically "LOCKED OUT" prior to any mechanical or electrical work on the unit.

The main control components of standard Bevco elevator are PLC Programmable Logic controls and AC variable frequency drive (VFD). The PLC monitors the various input sensors and tells the variable frequency drive when to start/stop. The speed of the elevator will be set by the position of the speed pot(s) on manual speed models or by the analog speed signal from line controls on pulse-link models.

Before starting the elevator a visual inspection should be done to ensure that it is safe to do so. Pressing the GREEN button will activate the elevator controls. If the backup sensor **2PEC** is clear, the elevator will ramp up to the selected speed as set by the position of the speed pot.

When a stoppage occurs downstream, the bottles will start backing up. On 2 speed or pulse link options, the bottles will block **3PEC** (container speed). This will cause the elevator to slow to the low speed as preset by the low-speed pot setting. If the photo eye clears the elevator speed back up. If the bottles continue to back up, they will block **2PEC** (container back-up). This will cause the elevator to stop. The GREEN run pilot light will go out, and the RED discharge jam pilot light will flash on/off at a one second interval. This indicates the elevator will restart automatically once the downstream backup clears.

If for some reason, **2PEC** fails to indicate a backup (sensitivity setting, false trip, improper photo eye installation, etc.) and the bottles back up to the elevator discharge, the discharge jam switch **1LS** will be activated. The elevator will stop and the discharge jam pilot light will be fully illuminated. This indicates a discharge jam, and the elevator will have to be restarted after clearing the jam. If the jam switch is still activated the elevator cannot be restarted.

An illuminated emergency stop push-pull button is provided as well as the regular stop (red) button. In the depressed position, the button is illuminated and the variable frequency drive is disabled, preventing it from being started.

If an electrical fault occurs, VFD trip due to over voltage, under current or motor overload (MOL) fault, the elevator will stop and the amber trip pilot light will illuminate fully. If a motor overload fault has occurred, the overload must be manually reset (after finding and correcting the cause) before elevator can be restarted. If the fault is no longer present, depressing the RESET button will de-energize trip pilot light. If this does not reset fault, cycle power to elevator. If on power restoration trip light is still illuminated, call for technical assistance.

The BLUE "power on" pilot light is illuminated whenever live power is present in control panel.

Bevco Elevator/Lowerator

Recommended Spare Parts Listing

Part No.	Description	Quantity
BRG70212	3/4", 2 Hole Flange Polyamide Bearings	2
BRG70216	1", 2 Hole Flange Polyamide Bearings	2
BRG70221	1-1/4", 4 Hole Flange Polyamide Bearings	2
EQE30801	Curve Wearstrip - UHMW - Inside	4
EQE30802	Curve Wearstrip - UHMW - Outside	4
EQR16100	Drive End Support Shoe - UHMW	1 pr.
SPR44173	40B-17T Sprockets, UHMW	2
TTC19110	Plastic Flights – PS	25
TTC19131	Snap-on Gripper	50

SCOPE OF WORK

Scope of Work is Job Specific

Below is an Example of some of the Options Available

ELEVATOR/LOWERATOR

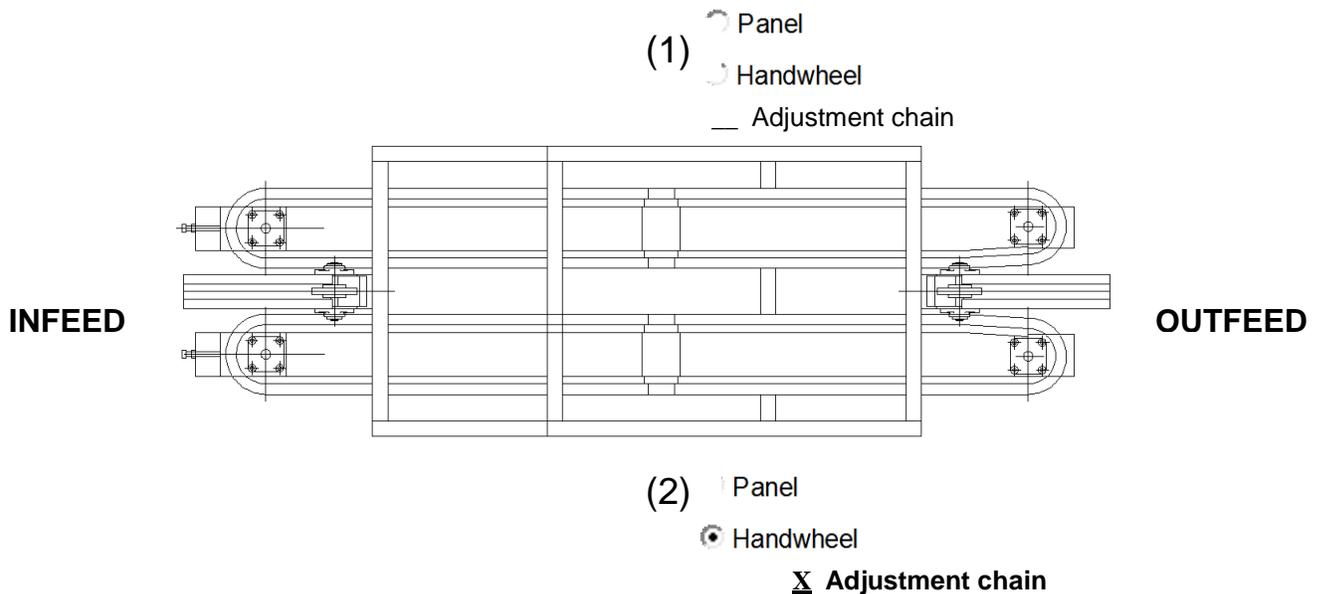
PRODUCT:

CONTAINERS:

HALF GALLON SQUARE CARTON 3.75" SQUARE X 9 1/2" TALL @ 150 BPM

- GRIPPER HANDWHEEL LOCATION: #2
- PANEL LOCATION: #2
- 3/4 HP INFEED DRIVE (EURODRIVE S47)
- 2 – 1.0 HP ELEVATOR DRIVES (EURODRIVE SA47)
- PLANT VOLTAGE: 460v/3ph./60cycle
- POLYAMIDE BEARINGS
- INFEED ELEVATION: 3' T.O.C.
- OUTFEED ELEVATION: 13' 1 1/2" T.O.C.
- DRIVE AND IDLER SPRKT'S. TO BE PLASTIC TWO PIECE (GREEN)
- INFEED CHAIN TYPE: 820 - 4 1/2"
- OUTFEED CHAIN TYPE: 879 TAB-4 1/2"

Electrical Panel & Gripper Hand wheel Locations:



SHIP DATE : AUGUST 13, 2010

Electrical Panel Content

The following documentation is included inside the door of the electrical control panel:

- Allen Bradley Adjustable Frequency AC Drive User Manuals
- MicroLogix 1100 Manual
- Electrical Schematics