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Loop Control 3

Model Number: LC-3



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Thank you for selecting our product for your coil handling needs. This manual will provide you with all the information necessary to install, operate, apply and maintain your machine. Safety is always a priority so please follow all the caution and warning stickers labeled on our machines.

1 Introduction



Please read this manual thoroughly before installing, operating, applying and maintaining this machinery. Failure to do so may result in serious injury to yourself and/or others.

The P/A Counter option for the Air Scrap Chopper (ASC) or the Pneumatic Stock Cutter (PSC) is a solid-state device that controls the cycling of the ASC or PSC. This Counter can be used to actuate the Cutter on each stroke of the press or by selecting the number of strokes. Multiple press strokes can occur between cycles of the cutter. This is useful in higher speed applications and short progression tooling. If in doubt, ask a qualified electrician. Read these instructions. They are provided to answer questions regarding the operation and use of this equipment. If questions arise that are not answered here, the P/A Industries Technical Service Department can be contacted for help, call toll-free, 1-800-243-8306.

1.1 General Safety program

Accident free operation will result from a well developed, management sponsored and enforced safety program. Of vital importance to any successful program is the proper selection of guards and devices. However, there is no safety device that will bring “automatic” safety to your operation.

Of equal importance to this proper selection of the guard and the device is the training of your personnel. Each person must be trained as to the operation of the guard or safety device, highlighting why they have been provided on the equipment. Rules for safe operating should be written and enforced at all times. A final major concern of an effective safety program is regularly scheduled inspection and maintenance of all of the equipment.

To ensure continued safety at all times, top management, line supervision, safety engineers and all employees must assume their proper share of the responsibility in the program. Only as a group, one that knows your own operation and its problems, can you carry out an effective safety program.

To assist you in the development of and continued use of safety programs, many safety minded groups have made guidelines available to you. However, you must know when and how to apply these guidelines. The manufacturer provides information to assist you in properly adjusting and maintaining your equipment. There is no short cut to proper safety; therefore, it is recommended that you comply with their recommendations at all times.

1.2 Warning

This equipment offers various means of operating or controlling machines. The operator must not be in or near the point-of-operation of the machine, or the operating parts of any equipment installed on the machine, or bodily injury could result. The EMPLOYER must post adequate warning signs onto the machine with proper warnings for his machine and the specific application to which the machine and equipment are being applied. Occupational Safety and Health Act (OSHA) Sections 1910.211, 1910.212, and 1910.217 contain installation information on the distance between danger points and point-of-operation guards and devices. No specific

references have been made to which paragraph of OSHA 1910.211, 1910.212, 1910.217 or any other applicable sections because the paragraphs may change with each edition of the publication of OSHA provisions.

All equipment manufactured by us is designed to meet the construction standards of OSHA in effect at the time of sale, but the EMPLOYER installs the equipment so the EMPLOYER is responsible for installation, use, application, training, and maintenance, as well as adequate signs on the machine onto which this equipment will be installed.

Remember, OSHA says that the EMPLOYER must use operating methods designed to control or eliminate hazards to operating personnel.

It shall be the responsibility of the EMPLOYER to establish and follow a program of periodic and regular inspections of his machine to insure that all their parts, auxiliary equipment, and safeguards are in a safe operating condition and adjustment. Each machine should be inspected and tested no less than weekly to determine the condition of the machine. Necessary maintenance or repair of both shall be performed and completed before the machine is operated. The EMPLOYER shall maintain records of these inspections and the maintenance work performed.

Our Company is not responsible to notify the user of this equipment of future changes in State or Federal laws, or construction standards.

1.3 Warranty Program

We warrant our new parts against defects under normal use and service for a period of 12 months after date of shipment. Our obligation under this warranty is limited to replacing or repairing (at our option) the defective part without charge, F.O.B. our plant in Bloomfield, Connecticut. The defective part must be forwarded to our plant, freight prepaid, for our inspection prior to replacement or repair. **EXCEPT AS EXPRESSLY PROVIDED HEREIN, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING A WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

Furthermore, the seller does not warrant or represent that the equipment complies with the provisions of any law, particularly including the Occupational Safety and Health Act of 1970, and regulations promulgated there under. In no event shall we be liable for special, indirect incidental or consequential damages, however rising.

1.4 Receiving and Inspection

SPECIAL NOTE: P/A INDUSTREIS INC. ASSUMES NO RESPONSIBILTIIY IN CONNECTION HEREWITH, NOR CAN IT BE ASSUMED THAT ALL ACCEPTABLE SAFETY MEASURES ARE CONTAINED IN THIS PUBLICATION, OR THAT OTHER ADDITIONAL MEASURES MAY NOT BE REQUIRED UNDER PARTICULAR OR EXCEPTIONAL CIRCUMSTANCES OR CONDITIONS.

RECEIVING INSPECTION

Before removing the unit from its packaging, check for visual damage, especially if crate, skid, or carton had been damaged in transit. Any damage caused by shipping should be immediately reported to the carrier. If the unit appears in satisfactory condition, remove all the packaging. Check to assure that you have received all components of the system. Refer to the list below to check your control: Column/Base assembly, Control enclosure with cabling, Probe assemblies (collar, knob, probe, cord), Optional E-Stop Probe Sensor assembly w/cord), Instruction Manual

2 Installation and Assembly

2.1 Mechanical

- First assemble the components onto the stand. One probe assembly should be put on first. The height of this probe will be the low limit of material travel.
- Next, the controller should be slid onto the stand column. This will keep the weight lower on the stand helping stability.
- Next, the upper probe assembly goes on. This probe controls the upper limit of strip travel.

2.2 Electrical

Refer to schematic 21050-01

- If you have purchased the optional E-Stop Tight loop Probe Sensor, this goes on next. It should be placed on the column and brought up to the point where the sensor is approximately 1/16" below the spring on the upper probe.
- After all the collars have been secured to the stand at the desired heights, the cords can be plugged into their respective sockets. The E-Stop cord goes into the enclosure and wired per the schematic.

2.3 Setup and Operation

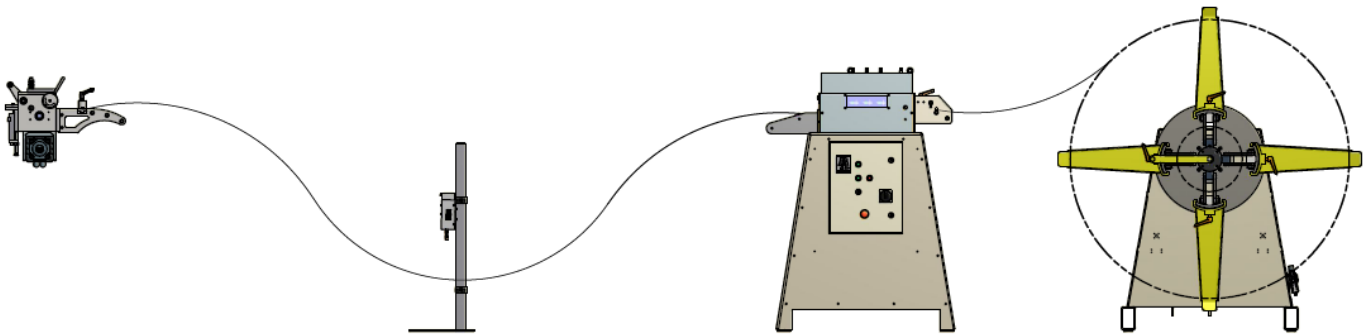


Figure 1

The P/A LC-3 control consists of a stand/column with probes and a control enclosure with on/off switch and power indicator light. There are two different versions of the control, one with a standard power cord, the other equipped with a factory installed multi-conductor cord attached to one of P/A Industries machines. These machines could be pay-off or take-up reels, straighteners, etc. Please consult the instructions that came with these other machines for information regarding the use and operation of the equipment.

This control can be attached to most A.C. motor controls, which will accept a 0-5 VDC analog speed input. (On most controls with a manually adjusted speed potentiometer, this control can be substituted for that POT). Some controls offer terminal connection points for "voltage following". Consult your individual motor control instructions for the proper connection.

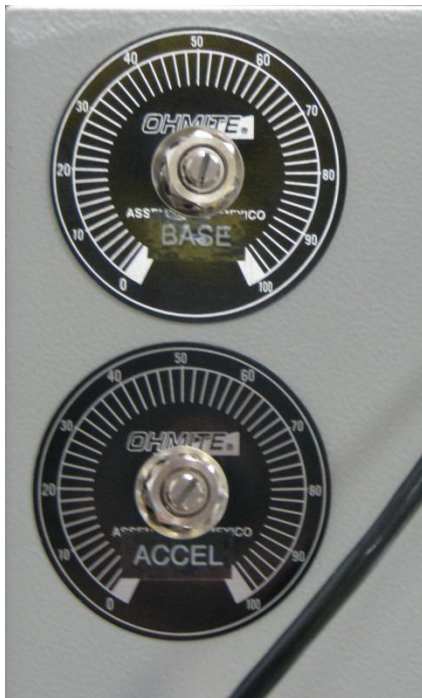
When attaching to a D.C. motor controller, an optional signal isolator must be used if the DC drive used does not have an isolated analog signal input. **If in doubt, ask a qualified electrician.**

If this control is received with a P/A Industries' piece of equipment, it has been pre-wired and tested at the factory for proper operation. If however, it is received for use with an existing piece of equipment, it will be necessary to wire the signal output of the LC-3 to your machine and provide a source of power to the control.

1. Connect the 12mm Eurofast[®] cord to the connector on the bottom of the LC-3 control
2. Move the Auto/Manual switch to the Manual position
3. Move the POWER switch to ON- the power light should turn ON
4. Press the jog pushbutton- the motor control should run at Base Speed
5. Move the Auto/Manual switch to the Auto position- the control should run at base speed until the strip contacts the decel probe and then decelerate to a stop.
6. The reel is now ready to run.

3 Calibration

- If your application requires material to be payed-out, the following adjustments should be made with NO material. Use a grounded jumper wire or the like to touch the probes, simulating the material.



There are two potentiometers used to adjust the LC-3 for your application. They are located on the inside of the enclosure. They are:

- Base= Base speed adjust
- Accel= Acceleration and Deceleration ramp adjust

1) The Base speed (top) should be adjusted first. The Base Speed is the minimum RPM the mandrel will start to revolve at when the coils are full. It should basically, match the desired line speed. By turning the top potentiometer clockwise, you increase the base speed of the motor. When first powered up with the material not touching either probe adjust the top pot until the mandrel rotation approximately matches the line speed.

2) Now the system can be tested. When power is applied and neither probe is grounded, the drive should step up to the Base speed and hold that speed. If the acceleration probe is touched, the drive should step up its speed again and hold. If you touch the deceleration probe, the drive should slow down and hold speed. If the probe is continually touched, the drive should stop. Likewise, if the acceleration probe is continually grounded, the drive should speed up to its maximum speed.

- 3) The time it takes to accelerate and decelerate to a desired speed is adjusted by ACCEL. By turning the ACCEL pot CLOCKWISE, you will speed up both the acceleration and the deceleration rates. Turning the pot COUNTER CLOCKWISE slows down both the acceleration and deceleration rates when the strip touches a probe.

When the system is properly adjusted the strip should ride somewhere between the two probes and occasionally touch either probe when a speed correction is required

4 Troubleshooting

PROBLEM	REMEDY
Motor starts and stops- Loop never hits accel probe	Base Speed set too high- reduce Base Speed
Loop comes off decel probe and quickly hits accel probe	Base Speed set too low- increase Base Speed
Loop comes off accel probe and quickly hits decel probe	Accel set too high- decrease acceleration
Loop stays on accel probe causing a tight loop	<ol style="list-style-type: none">1. Accel set too low- increase acceleration2. Max speed set too low- increase motor drive max speed3. Max speed set for 10 VDC- make sure a 5VDC signal from the loop control operates motor at full speed
Material touching probe but no change in speed or function.	Bad ground-check all ground connections and make sure material is conductive.

