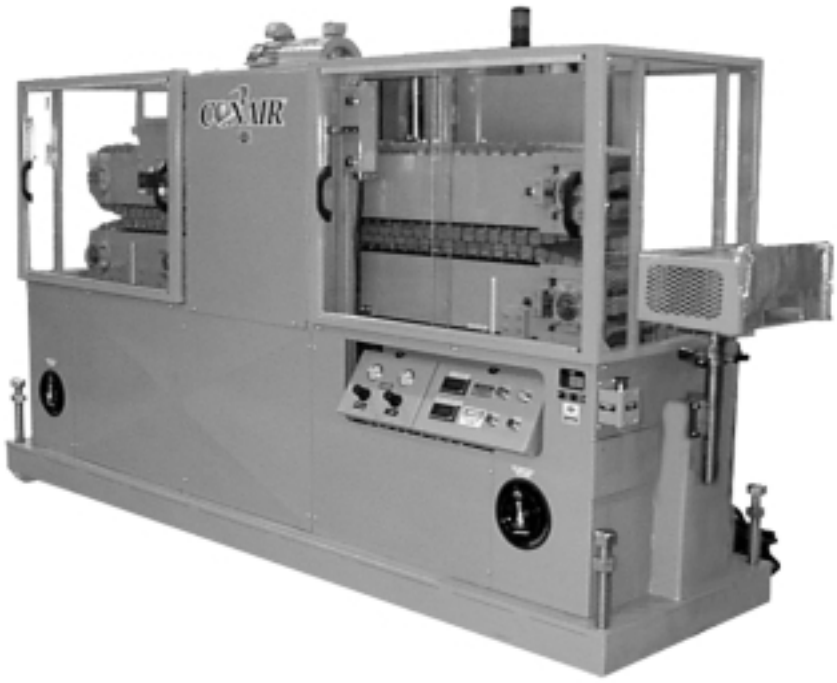
User Guide

PC Series Cleated Pullers

PC-8, PC-10, PC-12 and PC-18



Installation

Operation

Maintenance

Troubleshooting

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UGE055/0802

Record your equipment's model and serial number(s) and the date you received it in the spaces provided.

It is important to record the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

Date:	
Document Number:	**UGE055/0802**
Serial number(s):	
Model number(s):	
Power Specifications:	
Amps	
Volts	
Phase	
Cycle	

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INTRODUCTION

PURPOSE OF THE USER GUIDE

This User Guide describes the Conair PC Series Cleated Pullers and explains step-by-step how to install, operate, maintain and repair this equipment.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

HOW THE USER GUIDE IS ORGANIZED

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.

⚠ Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.

1 Numbers within shaded squares indicate tasks or steps to be performed by the user.

◆ A diamond indicates the equipment's response to an action performed by the user.

❒ An open box marks items in a checklist.

● A shaded circle marks items in a list.

YOUR RESPONSIBILITY AS A USER

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

⚠ ATTENTION: READ THIS SO NO ONE GETS HURT

We design equipment with the user's safety in mind. You can avoid the potential hazards identified on this machine by following the procedures outlined below and elsewhere in the User Guide.

DANGER: Moving parts; pinch hazard

Safety devices have been installed on this machine to prevent injury that could result from clothing or the operator becoming caught in moving traction belts. Never remove or disable safety devices to sustain production. Operating without these devices could lead to hazardous conditions that can cause severe injury.

- The emergency stop (E-stop) button is located on the upstream side of the control box. When pressed, it works in parallel with the guard switch to disconnect power to the belt drive. The E-stop must be physically pulled up to reset the switch and start the puller again.

WARNING: Improper installation, operation, or servicing may result in equipment damage or personal injury.

This equipment should only be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

Continued on next page

ATTENTION:
READ THIS SO NO ONE GETS HURT

WARNING: Voltage Hazard

This equipment is powered by three-phase alternating current, as specified on the machine serial tag and data plate.

A properly-sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the electrical enclosure. Improper grounding can result in sever personal injury and erratic machine operation.

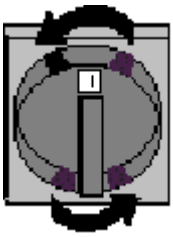
Always disconnect and lockout power before opening the electrical enclosure or performing non-routine procedures such as maintenance.

How to Use the Lockout Device

WARNING: Electrical hazard
Before performing maintenance or repairs on this product, disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

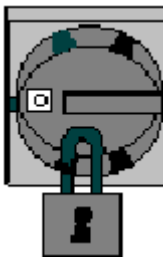
Lockout is the preferred method of isolating machines or equipment from energy sources. Your Conair product is equipped with the lockout device pictured below. To use the lockout device:

1 **Stop or turn off the equipment.**



2 **Isolate the equipment from electrical power.** Turn the rotary disconnect switch to OFF or O position.

3 **Secure the device with an assigned lock or tag.**



4 **The equipment is now locked out.**

CAUTION: Moving parts
Before removing lockout devices and returning switches to the ON position, make sure that all personnel are clear of the machine, tools have been removed and all safety guards have been reinstalled.

DESCRIPTION

WHAT IS THE PC SERIES CLEATED PULLER?

Conair PC Series Cleated Pullers are designed to consistently pull medium to large-sized extruded products through sizing and/or cooling tanks.

The standard chain drive system is suitable for applications requiring relatively high pulling force. The hardened chain drive gears protected with high temperature grease make the chain drive shaft pullers a good choice for high torque, low speed applications.

TYPICAL APPLICATIONS

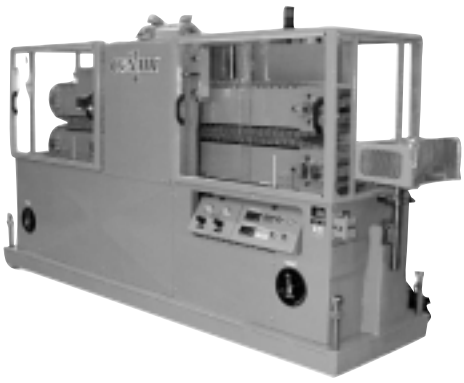
Conair PC Series Cleated Pullers can pull extrudable plastics and elastomers both on and off line. These units can pull tubes and profiles up to about 6 inches in diameter through a vacuum sizing tool. Larger sizes may be accommodated for free extrusion processes having little or no drag against a sizing tool.

The cleated pullers are limited by the traction length (the length over which the extrusion is in contact with the puller cleats), which is fixed for a particular model.

Conair PC Cleated Pullers are available in seven sizes:
The cleat material will affect puller traction performance.

MODEL	BELT WIDTH	TRACTION LENGTH*
PC 8-60	8 in.	52 in.
PC 8-84	8 in.	76 in.
PC 8-96	8 in.	88 in.
PC 10-96	9.75 in.	79 in.
PC 10-120	9.75 in.	113 in.
PC 12-60	12 in.	52 in.
PC 18-60	18 in.	52 in.

*The approximate length the belts are in contact with each other.

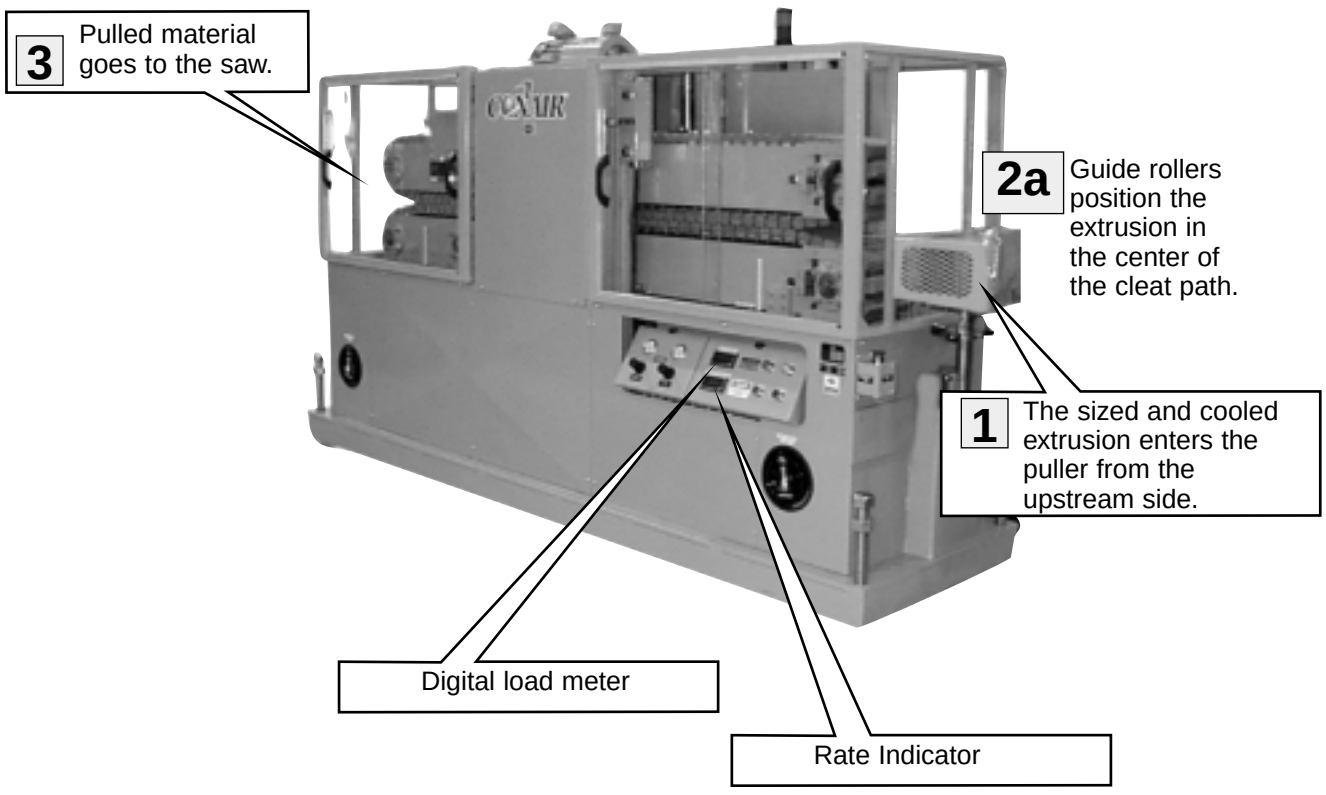


Softer (low durometer) materials provide good ‘grab’, but will wear more quickly. Harder materials last longer, but may not grab the extrusion properly.

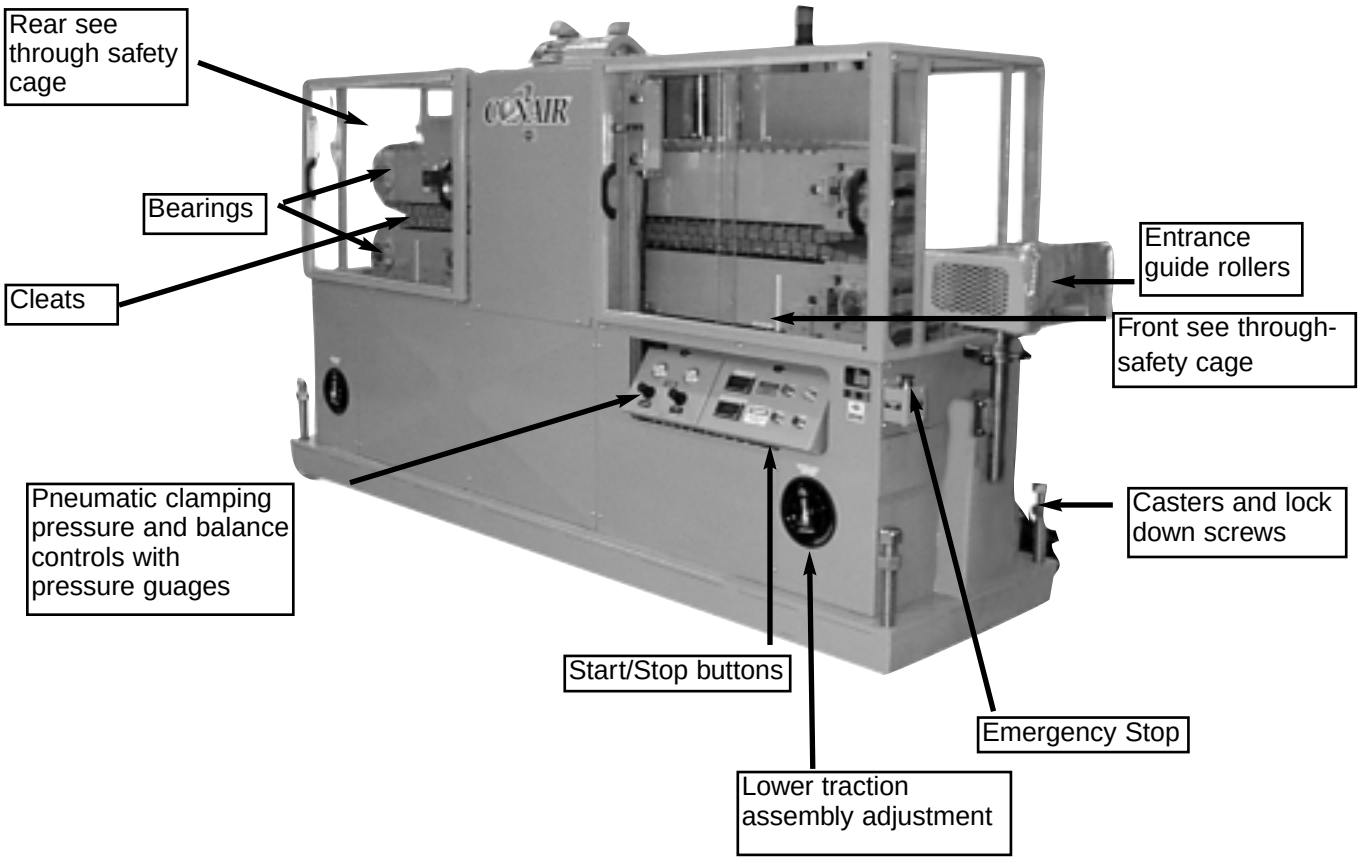
Sixty-five (65) durometer cleats are standard on the PC Pullers. Other materials are available. Contact your Conair representative for more information.

HOW IT WORKS: THE RATE INDICATOR

Two opposing cleated chains pull the extrusion through the line based on the speed set at the puller's speed reference potentiometer. The standard rate indicator displays linear speed (ft/min) or motor rpm in English or metric units, depending on customer preference.

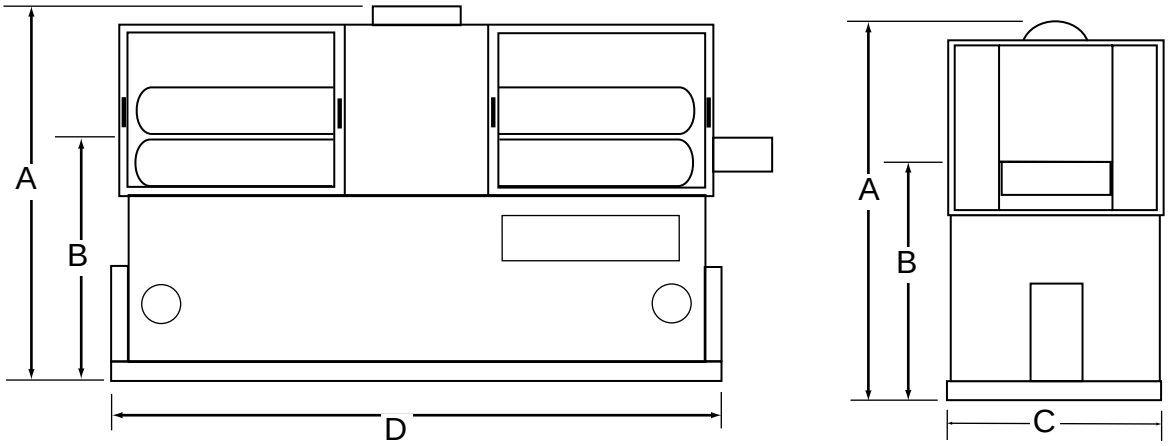


PC Series Cleated Puller Features



SPECIFICATIONS

CLEATED PULLERS
PC Series Cleated Pullers



MODELS	PC8-60	PC8-84	PC8-96	PC10-96	PC10-120	PC-12-60	PC18-60
Performance characteristics							
Belt width in. {mm}	8 {203}	7.75 {197}	8 {203}	9.75 {248}	9.75 {248}	12 {305}	18 {457}
Belt contact length in. {mm}	52 {1320}	76 {1930}	88 {2235}	79 {2007}	113 {2870}	52 {1321}	52 {1321}
Maximum feed opening in. {mm}	6 {152}	6 {152}	6 {152}	6 {152}	6 {152}	6 {152}	6 {152}
Drive motor	2x2 Hp AC	2x3 Hp AC	2x3 Hp AC	2x3 Hp AC	2x5 Hp AC	2x2 Hp AC	2x3 Hp AC
Digital control system	inverter	inverter	inverter	inverter	vector	invertor	invertor
Belt speed ranges ft/min							
	2 - 20 3 - 30 4 - 40	2 - 20 3 - 30 4 - 40	2 - 20 3 - 30	2 - 20 3 - 30	2 - 20	2-20 3-20 4-20	2-20 3-20 4-20
Belts							
Belt type	Caterpillar-type traction belt with 65 Durometer cleats						
Number of cleats per machine	216	292	330	206	272	216	216
Cleat style	bolt on	bolt on	bolt on	quick change	quick change	bolt on	bolt on
Cleat height in. {mm}	1 {25.4}	1 {25.4}	1	1.5 {38.1}	1.5 {38.1}	1 {25.4}	1 {25.4}
Dimensions inches {mm}							
A - Overall height	72 {1829}	72 {1829}	72 {1829}	82 {2083}	82 {2083}	72	72
B - Height to centerline, ±3 {±76.2}	42.5 {1080}	42.5 {1080}	42.5 {1080}	42.5 {1080}	42.5 {1080}	42.5	42.5
C - Width	30 {762}	30 {762}	30 {762}	34 {864}	38 {965}	30	30
D - Length	74 {1880}	98 {2489}	110 {2794}	121 {3073}	154 {3912}	74	74
Weight lb {kg}							
Installed	3300 {1497}	4200 {1905}	5100 {2313}	6500 {2948}	9500 {4309}	3300 {1497}	3300 {1497}
Shipped	3600 {1633}	4600 {2087}	5500 {2495}	7000 {3175}	10000 {4536}	3600 {1633}	3600 {1633}
Voltage Total Amps*							
230V/3 phase/60 Hz	18	31	31	33	33	18	18
460V/3 phase/60 Hz	12	15	15	16	23	12	12
575V/3 Phase/60 Hz	10	15	15	16	24	10	10

SPECIFICATION NOTES:

These tables define standard configurations only.
Specifications can change without notice. Contact a Conair representative for the most current information.

* The PC6-36 operates on single phase electricity, not 3 phase.

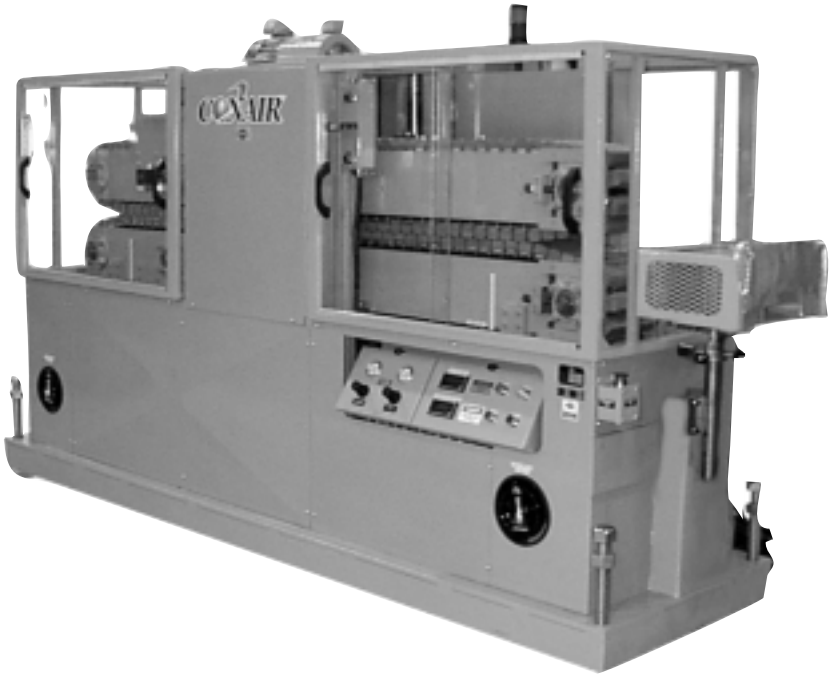
OPTIONS

- **Different reducer ratios**
  A particular reducer ratio is selected at the time of purchase to optimize puller performance in a particular speed range.
- **Left-to-right machine operation**
  This option changes the machine direction from the standard right to left extrusion flow.
- **Transformer for 575 Volt**
- **Adder for 1.5 inch cleats**
  reduces maximum opening by 1 inch.
- **Adder for 2 inch cleats**
  reduces maximum opening by 2 inches
- **Profiled cleats**
  cleat drawing required
- **Quick Change Cleats**
- **Closed loop vector drive**
  For improved speed regulation and increased 50:1 speed range.

INSTALLATION

UNPACKING THE BOXES

CAUTION: Lifting hazard
To avoid personal injury or damage to the puller, lift the puller using a forklift or hoist with straps that have been positioned at the puller's center of gravity.



1 **Carefully uncrate the puller and its components.** The PC Series Cleated Puller comes fully assembled in a single crate.

2 **Remove all packing material**, protective paper, tape, and plastic. Compare contents to the shipping papers to ensure that you have all the parts.

3 **Carefully inspect all components** to make sure no damage occurred during shipping. Check all wire terminal connections, bolts, and any other electrical connections, which may have come loose during shipping.

4 **Record serial numbers and specifications** in the blanks provided on the back of the User Guide's title page. This information will be helpful if you ever need service or parts.

5 **You are now ready to begin installation.** Complete the preparation steps on the next page.

PREPARING FOR INSTALLATION

⚠ WARNING: Improper installation, operation, or servicing may result in equipment damage or personal injury.

This equipment should only be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

You will install the puller on the extrusion line, downstream of the extruder and any calibration/sizing equipment.

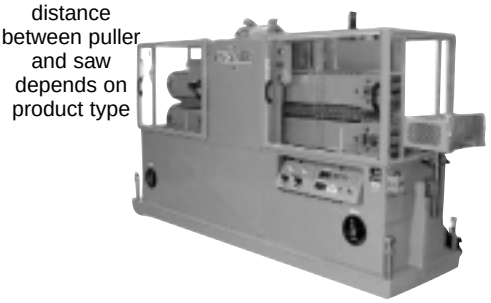
1 Make sure the installation area provides:

- ❒ **A grounded power source** supplying the correct current and voltage. Check the serial tag for the correct amps, voltage, phase and cycles. All wiring should be completed by qualified personnel and should comply with your region's electrical codes.
- ❒ **Minimum clearance for safe operation and maintenance.** Allow at least 12 to 24 inches (305 to 610 mm) between the downstream end of sizing or cooling tanks and the upstream end of the puller to roll the tank away from the extruder for maintenance. Allow at least 36 inches clearance in front and back of the puller for maintenance access to electrical and mechanical systems.

2 Determine the correct position for the puller.

The puller will be positioned downstream of the extruder and any sizing equipment, and upstream of the saw. You must consider optional equipment and product type to determine the best spacing between the equipment.

- **For flexible products,** the puller should be as close as possible to the saw.
- **For rigid products**, leave enough space between the puller and the saw to allow the product to flex during the cutting cycle. It may be necessary to allow 6-8 feet between the puller and saw.
- **When operating with an optional laser gauge or diameter gauge,** allow 1 to 2 feet (305 to 610 mm) between the laser gauge and the puller.



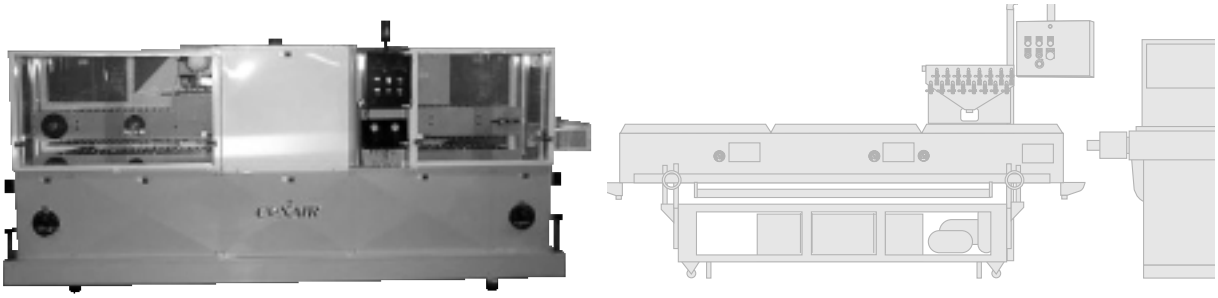
12 to 24 inches between puller and laser gauge or sizing equipment

INSTALLING THE PULLER

Tools for installation:
- ❒ *16- or 18-inch adjustable wrench*
- ❒ *Set of Allen wenches*
- ❒ *Screwdriver*

CAUTION: Lifting hazard
To avoid personal injury or damage to the puller, lift the puller using a forklift or hoist with straps that have been positioned at the puller's center of gravity.

1 **Move the puller into position.** Place the cleated puller downstream of the extruder and upstream of the saw in the position determined during preparation.

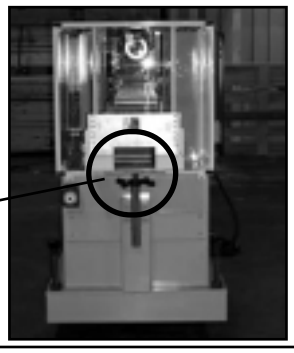


2 **Measure the centerline height** of the extruded product as it exits the extrusion line. Make sure all equipment on the extrusion line is aligned to this height. Use a plumb line or laser to check for a straight line from the extrusion die through each line component.

3 **Align the puller with the centerline height of the extrusion line.** Adjust the puller's floor lock/caster assembly to the center height of the extrusion line using a 16- or 18-inch adjustable wrench. Turn the floor locks until the puller reaches the center height of the extrusion line.

IMPORTANT: Never operate the puller on casters. *Always use the leveling jacks to support the puller. Once the correct height is reached, adjust the pad assembly to remove the weight from the casters.*

4 **Adjust the belt puller entrance guide rollers** to insure consistent guidance of the product along the centerline.



CONNECTING THE MAIN POWER SOURCE

WARNING: Electrical hazard
Before performing any work on this product, disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

WARNING: Improper installation, operation, or servicing may result in equipment damage or personal injury.

This equipment should only be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

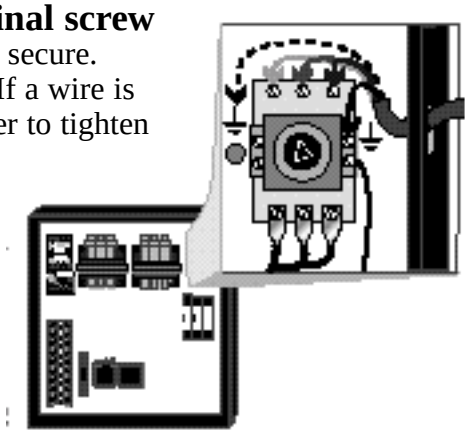
1 **Open the puller's electrical enclosure.** Turn the disconnect dial on the door to the OFF or O position and open the door.

2 **Insert the main power wire** through the knockout in the side of the enclosure. Secure the wire with a rubber compression fitting or strain relief.

3 **Connect the power wires** to the three terminals indicated on the wiring diagram that came with your machine.

4 **Check every terminal screw** to make sure wires are secure. Gently tug each wire. If a wire is loose, use a screwdriver to tighten the terminal.

5 **Connect the ground wire** to either grounding point shown in the wiring diagram.

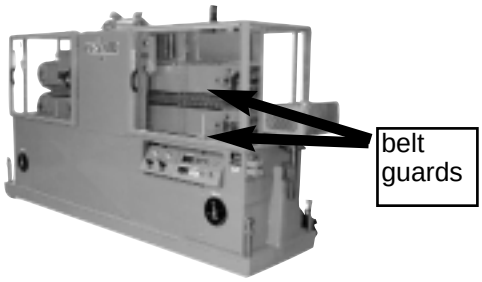


IMPORTANT: *Always refer to the wiring diagrams that came with your cleated puller before making electrical connections. The diagrams show the minimum size main power cable required for your puller, and the most accurate electrical component information.*

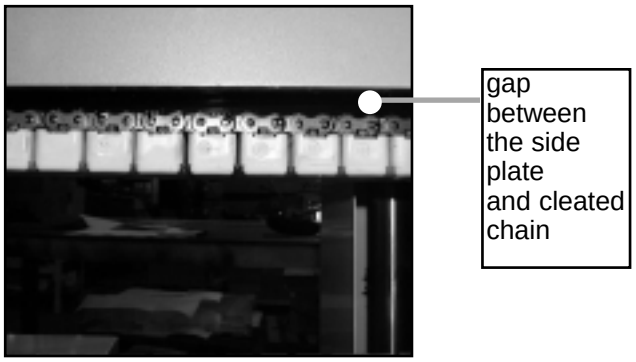
ADJUSTING CLEATED CHAIN TENSION

1 **Turn the main power disconnect to the off position.**

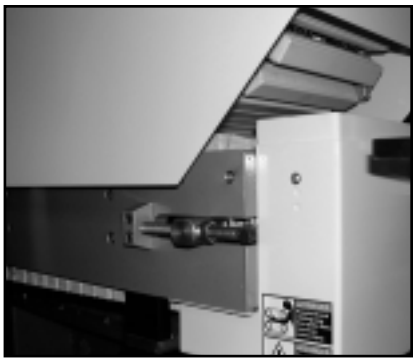
2 **Remove the upper belt guard.**



3 **Check the chain tension.** by checking the gap between the slack side or bottom of the upper and lower cleated chain assemblies with the beams opened. The gap should be approxiamately 1 inch {} on models 84 inches in length and between 1 1/4 and 1 3/4 on models over 84 inches in length.



4 **Adjust chain tension, if necessary.** Adjust tension by turning the threaded tension rods. Keep tension on front and back edges, top and bottom belts as even as possible. Use a machines T ruler to measure the distance between the idler shaft and the steel block that the bolts are against. Make sure the left and right side bolts are the same.



SETTING THE CLEAT GAP

The cleat gap should be set to the dimensions of the extruded product, being careful not to make the gap so small that the pressure causes distortion in the product.

1 Each cleat boom assembly is moved separately. A single handle is used for manually adjusting the lower beam.

2 The Pneumatic Actuation feature adjust the upper beam. This adjustment is found on the front of the control box, and is labeled as “close.” A pressure gauge is included. The “close” gauge/adjustment is used to apply sufficient downward pressure to grasp the profile. To set this adjustment, pull out on the knob and turn.

3 When producing light profiles, the “balance” gauge/adjustment is used to balance the weight of the upper beam. To set this adjustment, pull out on the knob and turn.

NOTE: At all other times, this pressure gauge should be set at “0” zero.

TESTING THE INSTALLATION

DANGER: Pinch Hazard

Never remove or disable safety devices to sustain production. Operating without these devices could lead to hazardous conditions that can cause severe injury. Take all necessary precautions when working around moving parts to prevent body parts and clothing from being pulled into the machine.

1. **Make sure all components** are installed according to assembly drawings. Check all bolts on the puller for tightness.
2. **Check that puller is firmly anchored** into position with the floor locks.
3. **Check that all wiring conforms to electrical codes**, and all wiring covers are in place.
4. **Turn on the main disconnect.** Plug in the main power cord and turn on the main disconnect.
5. **Check that the E-Stop button is in the out, extended position.**
6. **Press Start button.** The cleated tractions should begin to rotate.

If the puller is not working properly at any time, turn it off immediately and refer to the Troubleshooting section of this User Guide.

If you do not encounter any problems, proceed to the Operation section.

OPERATION

STARTING THE PULLER

DANGER: Moving Parts Hazard

Take all necessary precautions when working around moving parts to prevent body parts and clothing from being pulled into the machine.

Always disconnect and lock out the main power source before performing maintenance on the puller.

Never remove or disable safety devices to sustain production. Operating without these devices could lead to hazardous conditions that can cause severe injury.

Before you start daily operation of the puller, you should:

- ❒ Inspect the puller cleats.
- ❒ Check puller alignment with the extrusion line.
- ❒ Assure the floor locks are properly engaged.
- ❒ Thread the extrudate through the sizing equipment, puller and an other devices on the extrusion line.

See the *MAINTENANCE* section of this User Guide for detailed information on daily maintenance procedures.

1 **Locate puller on the extruder line** with the floor support pads adjusted to the product centerline.
Note: Never operate the puller on casters only.

2 **Be sure power supply matches** specified cleat puller power before connecting. Check the serial plate on you machine for electrical information. If unsure, please do not hesitate to call the factory.

3 **Adjust the cleat puller** entrance guide rolls to insure consistent product guidance. Rotate the 10-turn potentiometer to adjust belt speed.
The digital line rate indicator can be used to observe line speed.

4 **Adjust the cleat opening** to allow consistent traction to the product without deformation.

1. **Apply power to the machine** by placing the disconnect in the "ON" position.

2. **Check to insure the 10-turn speed potentiometer** is turned to zero speed. (Counter-clockwise fully). Note: Whenever the puller is turned off, the speed potentiometer should be rotated to zero speed. In this way, when the unit is started, it will be in a safe operational mode.

3. **Open the gap** between the puller cleats to the desired gap for the product to be pulled.

4. **Depress the green "START" button** to start the drive. Note: If the puller does not start, make sure the "E-Stop" button is pulled out in the extended position.

5. **Using the 10-turn potentiometer,** adjust the puller speed. **Note:** Turn in a clockwise direction to increase speed and counter-clockwise to decrease speed.

6. **The rate indicator** can be used to set the desired puller speed. **Note:** This display should be programmed in feet per minute, with one decimal point (tenths of feet per minute), unless otherwise specified.

STOPPING THE PULLER

WARNING: Safe Stopping

Do not use any part of the guard circuit or the rotary disconnect to stop the belt puller. Use the recommended procedure to assure a safe stopping.

1. **Remove extrudate from the puller.**
2. **Rotate the 10-turn potentiometer to zero speed. Note: Always start puller with potentiometer set at zero.**
3. **Press the red Stop button.**
4. **Turn rotary disconnect to OFF.**

SHUTTING DOWN

To shut down the puller, perform the stopping procedure listed above. No additional steps are necessary.

MAINTENANCE

PREVENTATIVE MAINTENANCE SCHEDULE

WARNING: Moving Parts.
Improper servicing may result in equipment damage or personal injury.

This equipment should be adjusted and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

Before performing maintenance or repairs on this product, disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

Make sure all safety devices and belt guards are installed before resuming normal operation.

To maintain the best performance of the puller, we recommend the following maintenance schedule. You may need to shorten the time between servicing, depending on how often you use the cleated puller, and the types of material flowing through it. Maintenance should be performed anytime you change materials, lines or equipment in the extrusion line.

All bearings are sealed and lubricated for life.

Check the tension on all the chains and belts during the first three (3) weeks of operation for looseness, and correct if necessary. After the three (3) weeks, continue to check every three (3) months.

Check the chain drives for any wear and elasticity, and replace if necessary. Replace any damaged or worn chains, sprockets, or traction belts with new ones.

Continued on next page

PREVENTATIVE MAINTENANCE SCHEDULE

●Daily

- ❒ **Clean any debris from the puller surfaces.**
- ❒ **Remove any material from the cleat surfaces,** or any which may be caught between the chain and the sprocket.
- ❒ **Verify that all the guards are in place.**
- ❒ **Adjust the product guide rolls to the size of the extrusion.**
- ❒ **Verify that all the control cabinet doors are closed tightly.**
- ❒ **Check the alignment of the haul-off** with the extrusion line (parallel to line and proper center-height).

●Weekly

- ❒ **Check the condition of the cleat surfaces.**
- ❒ **Verify the tension of the cleated chains.** *SEE PAGES 5-5, STEP 3 ADJUSTING THE CLEATED CHAIN TENSION* for detailed instructions.

●Quarterly (every 3 months)

- ❒ **Disconnect the power from the haul-off.**
- ❒ **Check the chain drive** for proper tension. Clean and grease if necessary.
- ❒ **Check that the oil** in the gear reducers is at the proper level, and that there are no leaks.
- ❒ **Clean and grease the spindle controls and chain ways (if applicable).**
- ❒ **Grease the conveyor support bushings and the chain (if applicable).**
- ❒ **Check for wear on sprockets and chain.**
- ❒ **Check chain alignment with sprocket tracking.**

Continued on next page

PREVENTATIVE MAINTENANCE SCHEDULE

- ❒ **With the power disconnected** from the puller, blow or vacuum any dust or dirt from the control panels.
- ❒ **Verify that all the electrical connections are tight.**
- ❒ **Verify, with a hand-held tachometer,** that the motor speed is stable through the whole speed range of the puller.
- ❒ **With the speed potentiometer set to full,** check that the motor RPM is approximately 1750 rpm.

●Semiannually (every 6 months)

- ❒ **Change the oil in the worm gear reducer every 2500 hours of running time or every six months depending of which comes first.**

Recommended oil:50° to 125° F. (ambient temperature) AGMA, compound #8, for example:

-Exxon Cylesstic TK-680
-Gulf Senate 680D
-Mobile Extra Hecla Super
-Shell Valvata J680

- ❒ **Check the chain drive for any wear and elasticity, and replace if necessary.** Replace any damaged or worn chains, sprockets or cleats with new ones.

●Annually (once a year)

- ❒ **Verify electrical connection and tighten screw where needed in main box.**
- ❒ **Inspect pneumatic tubes for any signs of damage.**

Recommended Lubricator Oil

Tellus 21, but any high quality oil in the 80/350 second (Redwood No. 1) at 70° F. range is suitable.

REPLACING THE CLEATS

WARNING: Moving Parts. Improper servicing may result in equipment damage or personal injury.

This equipment should be adjusted and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

Before performing maintenance or repairs on this product, disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

Make sure all safety devices and belt guards are installed before resuming normal operation.

1 Turn the main power disconnect to the off position.

2 Remove the cleat guards.

Remove the screws attaching guards to the unit (four on each guard: top, bottom, front and rear). Disconnect the safety cable on the upper guard. Lift off and remove guard.

3 Release the cleated chain tension/remove master link.

Loosen the threaded rods, making sure you keep tension on front and back edges as even as possible. Turn each rod 5 to 10 revolutions, then switch to the other side. Continue until the cleat and chain assembly is loose enough to remove the master link. (find the marked link that indentifies the master link) Remove the master link.

4 Remove the cleated chain.

Lay the chain out on a table - chain up. Remove cleat bolts and cleats.

5 Replace cleats and bolts.

Put the cleated chains back on the puller and adjust the chain tension. See steps 3 and 4 ***ADJUSTING THE CLEATED CHAIN TENSION*** in the *INSTALLATION* section.

6 Reinstall the upper and lower cleat guards.

REMOVAL AND INSTALLATION OF QUICK CHANGE CLEATS (JOG FUNCTION)

NOTE:
Quick Change Cleats are standard on models:
PC 10-96, PC10-120
Optional on Models:
PC8-60, PC8-84 and PC8-96

The JOG push buttons on the side entrance of the right conveyor guard, are used to enable quick cleat removal and installation.

1. **Stop the puller.** Press the STOP push-button located on the front mounted operator control station to stop the running of the puller.

2. **Seperate the conveyors.** Press the OPEN push-button located on the operator control station to seperate the conveyors.

   Note: The JOG push-buttons will not respond if the conveyors are not seperated.

3. **Start the traction conveyor in motion.** Press the two JOG push-buttons down simultaneously to start the traction in motion and hold them until cleat to be changed is easily reachable.

4. **Push the retaining clip down and pull out on the cleat removing it from its sub-base.**

5. **Re-install the cleat until the spring retaining clip engages and locks the cleat to its sub-base.**

LUBRICATING SHAFTS AND FITTINGS

You should check the shafts and grease fittings weekly, and lubricate as needed

Lubricate thread rods and vertical shafts with Never-Seize or an equivalent lubricant.

You can use regular grease on all other locations.

CHECKING ELECTRICAL CONNECTIONS

WARNING: Electrical hazard

Before performing any work on this product, disconnect and lock out electrical power sources to prevent injury. A lockable device has been provided to isolate this product from potentially hazardous electricity.

WARNING: Improper servicing may result in equipment damage or personal injury.

This equipment should only be adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.

All wiring, disconnects, and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial and data plate.

1. **Disconnect and lock out the main power.** Turn the main power disconnect to the off position before opening the electrical enclosure on the back of the puller. This is a safety device to prevent you from opening the doors if the power is still on.

2. **Open the electrical enclosure.**

3. **Inspect all wires and connections**. Look for loose wires, burned contacts, and signs of over-heated wires. Have a qualified electrician make any necessary repairs or replacements.

4. **Close the electrical enclosure door.**

5. **Inspect the exterior power cords.** Cords should not be crimped, exposed, or rubbing against the frame. If the main power cord runs along the floor, make sure it is not positioned where it could rest in pooling water or could be run over and cut by wheels or casters.

TROUBLESHOOTING

BEFORE BEGINNING

You can avoid most problems by following the recommended installation, operation and maintenance procedures outlined in this User Guide. If you have a problem, this section will help you determine the cause and tell you how to fix it.

Before you begin troubleshooting:

- ❒ Find any wiring, parts, and assembly diagrams that were shipped with your equipment. These are the best reference for correcting a problem. The diagrams will note any custom features or options not covered in this User Guide.
- ❒ Verify that you have all instructional materials related to the puller. Additional details about troubleshooting and repairing specific components are found in these materials.
- ❒ Check that you have manuals for other equipment connected in the system. Troubleshooting may require investigating other equipment attached to, or connected with the puller.

A FEW WORDS OF CAUTION

WARNING: Improper servicing may result in equipment damage or personal injury.
This equipment should only be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation, and potential hazards of this type of machine.
All wiring, disconnects, and fuses should be installed and adjusted by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the machine serial tag and data plate.

WARNING: Electrical hazard
Before performing maintenance or repairs on this product, disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

IDENTIFYING THE CAUSE OF A PROBLEM

The Troubleshooting section covers problems directly related to the operation and maintenance of the standard cleated puller. This section does not provide solutions to problems that originate with other equipment. Additional troubleshooting help can be found in manuals supplied with the other equipment.

The main problems you will see with the pullers are:

- **Puller operation problems**, which focus on problems that are clearly related to the puller's mechanical components and electrical control system.

- **Product quality concerns**, which deal with extrudate characteristics that may be related to puller operation. Of course, other sections of the extrusion line also influence the quality of the extruded product. This section does not provide solutions to problems originating with other equipment on the extrusion line.

Additional troubleshooting help can be found in the component manuals included with this User Guide.

OPERATION PROBLEMS

Look in this section when the control or motor is not working properly.

Symptom	Possible cause	Solution
◆ **The puller 'creaks' while running.**	**The cleated chain assembly is too tight.**	Check the cleated chain tension; loosen if necessary. See *ADJUSTING CLEATED CHAIN TENSION in the INSTALLATION section.*
	The bearings are failing.	Replace the bearings.
◆ **The puller does not start.**	**The E-stop button is pushed in.**	Pull out the E-stop button. Make sure it clicks into position.

Look in this section when the extrudate shows annular rings in the cross-sectional cut of the product.

PRODUCT QUALITY PROBLEMS

Symptom	Possible cause	Solution
◆**Annular rings present on the extrudate.**	**The puller is too close to the saw.**	If the extrudate is interrupted (stopped during processing), annular rings can develop, especially on a thin-walled product. Slightly increase the distance between the puller and the saw, and test the product until the distance is correct.
◆**Wall thickness fluctuation on the extrudate.**	**There are variations in the speed of the puller.**	**Check:** ☐ The cleats for cracks and wear. Replace as necessary. ☐For material buildup on the cleat surface or between the chain and sprocket. Clean as needed. ☐The bearings for wear; replace as needed.
◆**Diameter fluctuation on the extrudate.**	**There are variations in the speed of the puller.**	**Check:** ☐For material buildup on the cleat surface or between the chain and sprocket. Clean as needed. ☐The bearings for wear; replace as needed. ☐ The cleats for cracks and wear. Replace as necessary.

We're Here to Help

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

How to Contact Customer Service

To contact Customer Service personnel, call:

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call ...

If you do have a problem, please complete the following checklist before calling Conair:

- ❒ Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- ❒ Make sure power is supplied to the equipment.
- ❒ Make sure that all connectors and wires within and between loading control and related components have been installed correctly.
- ❒ Check the troubleshooting guide of this manual for a solution.
- ❒ Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- ❒ Check that the equipment has been operated as described in this manual.
- ❒ Check accompanying schematic drawings for information on special considerations.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.

EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

WARRANTY LIMITATIONS

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

USING THE DIGITAL BELT GAP SENSOR (OPTION)

The optional digital belt gap sensor uses a linear scale attached to both belts to measure the relative distance between the belts. The relative distance is shown in thousandths of an inch (.001). The sensor has five buttons:

- On/Off - Turns the device on and off.
- Mode - Press to choose the readout in decimals, fractions, or millimeters.
- + - Press to move up one engineering unit.
- 0 - Press to zero the reading. Because all measurements are relative, the sensor can be set to zero at any time by pressing this button.
- - - press to move down one engineering unit.

Readings displays on the digital display.

For more information, refer to the belt gap sensor manual.