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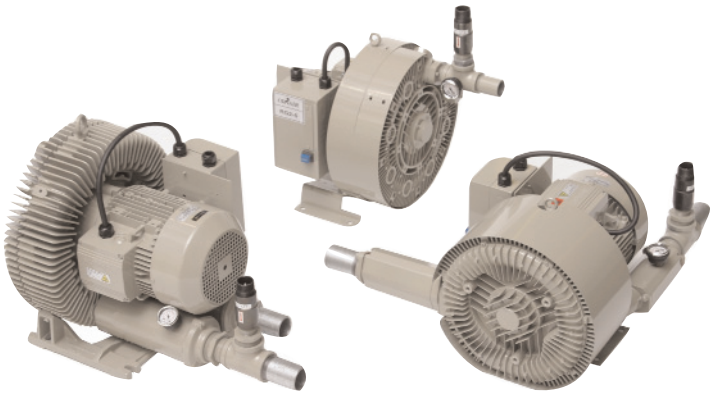
USER GUIDE

UGC025/0905

RG Series Pumps



INTRODUCTION • Purpose of the User Guide • How the guide is organized • Your responsibilities as a user • ATTENTION: Read this so no one gets hurt • **DESCRIPTION** • What is the RG Pump • Typical applications • How it works • Specifications: RG Pump • **INSTALLATION** • Unpacking the boxes • Preparing for installation • Installation - Mechanical • Installation - Electrical • Installation with Idle Mode Valve-Mechanical • Installation with Idle Mode Valve-Electrical and the Transformer • **OPERATION** • RG Pump Operation • Sequence of Operation without Idle Mode • Sequence of Operation without Idle Mode Valve

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

It's a good idea 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.

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

Date:

Manual Number: UGC025/0905

Serial Number(s):

Model Number(s):

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SECTION

1

Introduction

Purpose of the User Guide

This User Guide describes the Conair RG Pump 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 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 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 circle marks items in a list.

 Indicates a tip. A tip is used to provide you with a suggestion that will help you with the maintenance and the operation of this equipment.

 Indicates a note. A note is used to provide additional information about the steps you are following throughout the manual.

Using the RG Pumps

Each RG Pump is designed to work within a central vacuum system consisting of:

- Vacuum Receiver
- Dust Collector
- Central Loading Control(s)

Separate instructions are provided for these devices and should be referred to as needed to fully understand the operation of the entire system.

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.

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

This equipment should 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.

⚠ WARNING: Voltage hazard

This equipment is powered by a control voltage, as specified on the machine serial tag and data plate. See separate loading control manual.

A properly sized conductive ground wire from the incoming control wiring must be connected to the ground terminal inside the electrical enclosure. Improper grounding can result in severe personal injury and erratic machine operation.

Always disconnect and lock out the incoming main power and control sources before opening the electrical enclosure or performing non-standard operating procedures, such as routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.

SECTION
2

Description

What is the RG Pumps?

RG series vacuum pumps are vacuum pump and motor units designed to provide vacuum power for the conveyance of plastic pellets and regrinds through connection with vacuum receivers and a dust collector. Control of the pump is provided by a loading control system, interconnected with the receivers. The pump provides vacuum energy as indicated on its vacuum gauge, to the vacuum receiver(s) to allow material transfer. The pump motor operates on 3 phase electrical power controlled by a magnetic starter mounted to the pump assembly. The loading control provides a start signal to the pump in response to the need for material by the vacuum receiver(s).

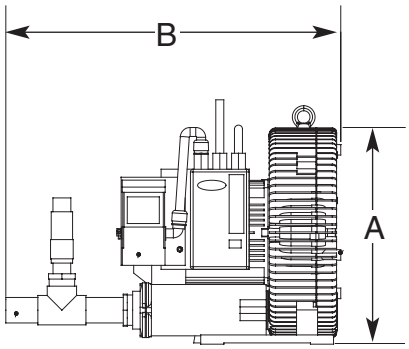
In addition to various pump and motor sizes, pumps are provided in either single or dual stage models, indicating the number of suction stages provided to create a vacuum. Dual stage pumps create stronger levels of vacuum.

Typical Accessories and Options

Vacuum pumps traditionally work directly with Dust Collectors or other filters that are designed to remove plastic dust from the incoming air line to prevent contaminant's from circulating through the vacuum pump. In some cases, operation of the pump without a dust collection system can create pump damage or a hazardous condition resulting from flammable or at least low melt point plastic material being exposed to the elevated operating temperature of the pump.

A common option is an Idle Mode Valve that allows the vacuum pump to remain operating for a period of time after the run signal from the loading control is interrupted. This option can greatly lengthen pump life by eliminating rapid start/stop cycles common to many vacuum loading systems. Instead of shutting down, the pump continues to run for a minimum of five minutes while vacuum pressure is relieved through a compressed air operated valve that bleeds ambient air into the vacuum inlet line of the pump. This optional valve is usually shipped loose with the pump and may be installed anywhere in the vacuum line between the pump and the dust collector with the supplied compression couplings. The valve gets its operating signal from a combination Transformer/Idle Mode Control box, mounted next to and interconnected with the pump starter and clean compressed air must be provided to the valve solenoid for it to operate.

Specifications



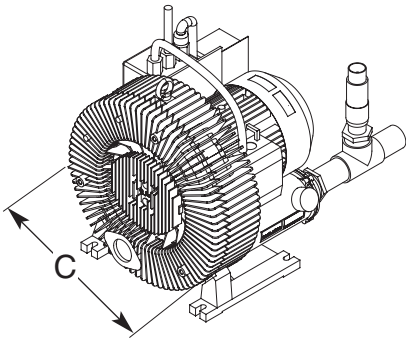
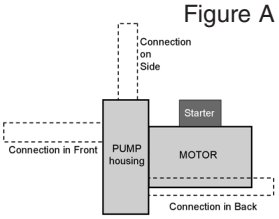


Figure A



Inlet/Outlet Orientation (top view)

MODEL	RG1-3		RG1-6		RG1-11		RG2-5		RG2-8		RG2-16	
Single Stage or Dual Stage	**Single**		**Single**		**Single**		**Dual**		**Dual**		**Dual**	
Performance Characteristics												
	60 Hz	50Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz
Motor Hp*	3.4	N/A	6.2	5.4	11.5	10.1	5.1	4.4	8.45	7.4	16.9	14.8
Equivalent kW	{2.6}	N/A	{4.6}	{4.0}	{8.6}	{7.5}	{3.8}	3.3	{6.3}	{5.5}	{12.6}	{11.0}
Line size inches	1.5	N/A	2.0	1.5	2.5	2.0	1.5	1.5	2.0	1.5	2.5	2.0
Airflow at material pickup ft³/min	55	N/A	76	43	135	76	41	60	74	41	138	74
Airflow at pump inlet ft³/min	70	N/A	101	57	191	107	67	79	122	69	226	131
Pump pressure inches Hg Vac. †	-6.2	N/A	-7.4	-7.4	-8.8	-8.4	-11.7	-7.3	-11.7	-12.2	-11.7	-12.9
Sound level (dba)	70	N/A	72	69	74	70	71	67	76	73	78	74
Inlet orientation (see Fig. A)	Back		Back		Back		Front		Back		Back	
Outlet orientation (see Fig. A)	Back		Back		Back		Back		Side		Back	
Dimensions inches {mm}												
A - Height	14 {355.6}		16 {406.4}		21 {533.4}		25 {635.0}		17 {431.8}		23 {584.2}	
B - Width	22 {558.8}		24 {609.6}		31 {787.4}		36 {914.4}		27 {685.8}		32 {812.8}	
C - Depth	15 {381.0}		18 {457.2}		21 {533.4}		18 {457.2}		28 {711.2}		28 {711.2}	
Weight lb {kg}												
Shipping	60 {27.2}		103 {46.7}		302 {136.9}		116 {52.6}		164 {74.4}		472 {214.1}	
Installed	55 {24.9}		93 {42.2}		282 {127.9}		106 {48.1}		154 {69.8}		452 {205.0}	
Voltage Full load amps (FLA)												
230V (220-275)/3 phase/60 Hz	10.3	N/A	16.4	N/A	30	N/A	14.2	N/A	23	N/A	50.2	N/A
460V (380-480)/3 phase/60 Hz	6	N/A	9.5	N/A	17.3	N/A	8.2	N/A	13.3	N/A	29	N/A
400V (345-415)/3 phase/50 Hz	N/A	N/A	N/A	9.5	N/A	16.7	N/A	7.5	N/A	13.3	N/A	28
575V/3 phase/60 Hz	4.5	N/A	7.6	N/A	13.6	N/A	5.4	N/A	10.4	N/A	20.4	N/A
Motor Type	TEFC											

SPECIFICATION NOTE:

* Hp rating is based on the kW rating of the blower. Not comparable to positive Hp ratings.
† Hg Vac. : Mercury Vacuum
N/A: Not Available.
Specifications can change without notice. Contact your Conair representative for the most current information.

SECTION
3

Installation

Unpacking the Boxes

⚠ **WARNING**: You are responsible for the structural integrity of this installation.

RG pumps are typically shipped bolted to a pallet and either enclosed by a box or simply wrapped in protective plastic sheeting.

1. **Carefully remove the box or wrap and unbolt the unit from the shipping skid.** When unpacking, be sure to locate any accessories or other loose parts that may have been consolidated in the shipment along with the instruction packet. Make sure that all packing material is completely removed from the pump, paying special attention to the inlet and outlet tubes and crevice areas, to prevent potential damage caused by the packing materials during the heat and suction of operation.

2. **Once the pump is unbolted from the pallet, a lifting hook, centrally located on the top of the pump assembly may be used to lift the pump with a crane or other lifting device.** Use caution as the pump is transferred off the skid and into the desired location for installation.

Preparing for Installation

The pump should be located in a protected, indoor location, typically near the dust collector or pump protection filter. 3 phase power will be required and a fused disconnect switch (not included) is typically used near the pump. If the Idle Mode Valve option is being utilized, then compressed air will also be required near the pump. Tubing connections to the pump are typically made with a flex hose to allow easy connections to be made between the dust collector and pump.

Securing the pump to the floor with bolts is not strictly required, but is recommended to prevent the minimal motion that could occur as the pump ages or in the event of malfunction caused by contamination of the air stream.

The pump will not require regular maintenance, but should still be located where it is accessible and where its vacuum gauge is easily read by set-up and operation personnel. In addition, the pump's magnetic starter (and optional Idle Mode Control) is mounted to the unit and may need to be accessed for service on occasions.

Installation - Mechanical

1. **Use the lifting hook on the top of the pump to gently lower it into its operating location.**

2. **Use care in orienting the pump for easy access to its pump starter and clearance** for the opening of its lid and allowing easy visibility of its vacuum gauge.

3. **Note the inlet and outlet stubs of the pump:** Generally, the outlet will simply exhaust conveying air out of the blower, but it may need to be plumbed to a dry air conveying line in some applications. It may also be plumbed outside if desired, as long as the exhaust line expands the size of the tube as it follows its path to exhaust. The inlet stub will be connected to the dust collector or filter of the system and may also contain the optional Idle Mode Valve (see section 3, *Installation of the Idle Mode Valve*.)

4. **The use of flex hose for pump connections is recommended,** to allow easy movement or service if ever needed. Line up and coordinate all connections to allow for easy connections, but wait until pump rotation has been established (and corrected, if need be) before completing installation.

5. **If tubing is to be used, employ OD matched compression couplings,** with tubing fully seated and butted against adjacent tubing in the center of the coupling.

6. **Tighten all coupling bolts evenly**. Tubing must not put a strain on the inlet or outlet of the pump connections or eventual leaks will occur.

7. **Maintain an air space all around the pump for ventilation.** Do not block or cover any portion of the cooling fins that would prevent free air movement or reduce cooling effectiveness.

Installation - Electrical

1 **A 3 phase, fused disconnect switch** is typically provided near the pump location and matched to the voltage and full load amps of the pump, listed on its serial tag.

⚠ 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.

2 **An appropriately sized cable or rigid or flexible conduit must be provided from the disconnect to the pump starter,** located on the side of the pump assembly. Follow all local and industrial electrical codes for your location and connect the incoming power from the disconnect into the starter via the center hole of the starter box.

3 **If a Transformer/Idle Mode control is included**, refer to section 3, *Installation with Idle Mode Valve-Electrical and the Transformer.* Otherwise, the 120 Volts AC pump start signal from the loading control (see separate instructions) is connected into the pump starter via the left hand knockout cable entry point on top of the starter. Connect the start signal to the coil circuit of the starter according to code and the instructions on the lid of the starter.

4 **Assure that all connections are proper, firm and routed away from moving or hot parts and close the lid of the starter.** Electrical connections are now complete.

Installation with Idle Mode Valve-Mechanical

1 **The Idle Mode Valve provides ambient air relief to the pump for 5 minutes after running,** to eliminate rapid stop and start cycles from damaging the pump. The valve is provided with a "T" junction tube at the top that matches the line size of the pump and is intended to be installed in the vacuum line between the pump and the loading system's dust collector or filter.

2 **Locate the valve near the vacuum line inlet of the pump and position one open end of the "T" towards the pump and the other end towards the dust collecting filter.** Orientation of the valve and the "T" may be in any direction to suit the installation, but note that compressed air must be plumbed to the solenoid, so allow room for this connection. Also note that ambient air will be sucked into the vent plate of the valve in operation so it should be oriented away from heat, dust filled areas (floors, etc) or hot exhausts from other machines, including the pump itself.

3 **Use the supplied compression couplings or connect directly to the "T" with flex hose, to install the valve between the pump and dust collector.** The valve should be secured against motion using its "T", its body or the vent plate bolts, but without blocking free air movement into the valve's vent.

4 **Clean, dry compressed air must be plumbed into the solenoid of the valve** via its open, ¼" NPT fitting. Air should be in the range of 60 to 90 psi, approximately 1 CFM. A shut-off valve for the compressed air line is recommended, to allow future service of the Idle Mode valve.

Installation with Idle Mode Valve- Electrical and the Transformer

The Transformer/Idle Mode Control is mounted next to and interconnected with the pump's starter and provides both a transformer for 120 volts from the 3 phase pump supply as well as a control for the Idle Mode Valve.

1. **The signal from the loading control to the pump must be connected to the Transformer/Idle Mode Control and the Idle Mode Valve itself connects to the Transformer/Idle Mode Control.**

2. **Disconnect the 3 phase power** before making any connections to the Transformer/Idle Mode Control, the Transformer/Idle Mode Control is energized when the pump starter box is energized.

3. **The vacuum pump start signal from the loading control must be wired into the Transformer/Idle Mode Control via the cord grip on the side of the control.** Inside, a terminal strip is provided for connecting the signal. In operation, this signal triggers the Idle Mode control function and the Idle Mode control, and in turn, energizes the vacuum pump starter. Connections for the start signal from the loading control are indicated on the label on the outside of the Transformer/Idle Mode Control box and should be followed carefully. The incoming signal may be 24 VDT or 120 VAC and the control will automatically adjust to the input voltage. Be sure to properly terminate the ground wire.

4. **Wire the Idle Mode Valve into the Transformer/Idle Mode Control.** The 120 volt AC Idle Mode Valve is equipped with a cable set that may be cut to length once the location of the valve is determined and the cable is carefully routed back to the Transformer/Idle Mode Control. In addition, the Valve assembly is equipped with a cable grip for installation in the Transformer/Idle Mode Control.

5. **Remove a knock-out or hole plug** in the lower cover panel of the Transformer /Idle Mode Control and install the cable grip and Idle Mode Valve cable.

6. **Connect to the internal term strip according to the instructions on the outside of the Transformer /Idle Mode Control.** Be sure to properly terminate the ground wire.

3 Installation

SECTION
4

Operation

Operation

Checking Rotation

Upon initial start-up, but before normal operation, the RG vacuum pump must be checked for proper rotation.

1. **Set the loading controls to a minimal operating cycle** (very low load time setting of a single receiver, see separate loading control instructions) and check the pump with no vacuum or exhaust tubing or flex hose installed. Arrows are provided on the inlet and outlet to indicate proper air direction.

2. **Double-check air flow to confirm actual flow direction**. If direction is OK, proceed.

3. **If direction is backwards,** disconnect power and change any two of the 3 phase leads coming into the pump starter. Upon confirming proper rotation, reconnect power and complete the tubing installation for operation.

The RG series vacuum pumps operate in response to signals provided from a loading control, located elsewhere, and wired to the pump starter or the Transformer /Idle Mode Control. Once properly installed, the pump should respond to signals from the loading system and run according to the Idle Mode timer (if used) and the loading control. Operation (on-time, etc) is determined solely by the loading and Idle Mode control systems. The only change to operation that can occur within the pump assembly itself is a motor overload within the pump starter or a malfunction, if this occurs (*see troubleshooting, Section 6*).

Sequence of Operation without Idle Mode Valve

The loading control system determines the need for vacuum power for conveying.

The Vacuum start signal is sent to the pump starter. If this signal is 120 VAC, then the signal is routed directly to the pump starter. If the signal is 24 VDT, then the signal passes through the Transformer/Idle Mode Control box, next to the pump starter. In this set-up, the Idle Mode control is not used, but the same circuit board and the transformer provide a method for the 24 VDT input to trigger the 120 volt pump starter.

The pump runs for the duration of the signal from the control.

Sequence of Operation with Idle Mode Valve and Control

The loading control system determines the need for vacuum power for conveying.

1 The Vacuum start signal (120 VAC or 24 VDT) from the loading control is sent to the Idle Mode Control box, next to the pump starter and the Idle Mode Control, in turn sends the signal to the pump starter to operate the pump.

2 When the loading control de-energizes the pump start signal, two functions take place:

A. While the pump starter remains energized by the Idle Mode Control, the Idle Mode Valve is also energized to vent the pump vacuum inlet to ambient air.

B. A timing function within the Idle Mode Control begins, which will keep the pump running and the Idle Mode Valve open to ambient air for up to five minutes (a ten minute setting is also selectable by a jumper on the Idle Mode Control's PC board).

3 If another vacuum start signal is received from the loading control, then the pump remains running, the Idle Mode Valve is closed and the timing function is halted. Upon termination of the vacuum start signal from the loading control, the Valve will once again open and the timing function will restart.

4 If no additional vacuum start signal from the loading control is received, then the Idle Mode Control's timing function will time out after five minutes (or optional 10 minute period) de-energize the pump starter and close the Idle Mode Valve and wait for the next vacuum start signal from the loading control.

SECTION
5

Maintenance

Maintenance

No regular maintenance is required for the RG series pumps.

1 The pump and motor housings may be cleaned with common cleaning products. In the event the fins become coated with dust, fluff or any other accumulation, they should be thoroughly cleaned out to maintain air cooling.

2 In the event that dirt, dust or fluff accumulation occur on the RG pump equipped with a fan section sheet metal cover, the cover should be removed and the fins below the cover should be thoroughly cleaned for air circulation. Replace the cover after cleaning.

3 After approximately 20,000 hours or 3 years of operation, the grease in the bearings should be removed, the bearing cavity thoroughly cleaned out and the cavity refilled with fresh grease. 50% of the free space in the rolling contact bearings and 65% of the adjacent grease space should be filled with grease that conforms to DIN 51825-K3N. Do not mix different types of grease.

SECTION
6

Troubleshooting

BEFORE BEGINNING

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

Before you begin troubleshooting:

Find the wiring diagrams that were shipped with your equipment. These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring or control options, not covered in this User Guide.

Verify that you have manuals for other equipment in the process line. Solving problems may require troubleshooting malfunctions or incorrect operating procedures on other pieces of equipment.

A Few Words of Caution

⚠ **WARNING:** This machines should be adjusted and serviced only by qualified technical personnel who are familiar with construction and operation of this type of equipment.

⚠ **WARNING: Voltage hazard.**
Troubleshooting the electrical system of this equipment requires use of precision electronic measuring equipment, and may require access to the electrical enclosure while power is on. Exposure to potentially harmful voltage levels may be unavoidable. These troubleshooting procedures should be performed only by qualified electrical technicians who know how to use this precision electronic equipment and who understand the hazards involved.

⚠ **WARNING: Disconnect power and compressed air before servicing.**
Always disconnect and lock out power and compressed air supplies to this equipment before performing maintenance or repair. Failure to do so could result in personal injury caused by the unexpected energization of this equipment.

⚠ **WARNING:** Disconnect power and air sources. Always disconnect the pump from the loading control, main power source, compressed air source and before servicing. This prevents the pump from starting during servicing, which could cause personal injury from flying debris or moving parts.

Problem	Possible cause	Solution
Motor does not start; no motor noise.	At least two power supply leads interrupted.	Eliminate interruption by fuses, terminals or power supply cables.
Motor does not start; humming noise.	One power supply lead interrupted.	Eliminate interruption by fuses, terminals or power supply cables.
	Impeller is jammed.	Open vacuum pump cover, remove foreign body, clean.
	Impeller defective.	Replace impeller.
	Rolling bearing on drive motor side or vacuum pump/compressor side defective.	Replace motor bearing or vacuum pump bearing.
Protective motor switch trips when motor is switched on. Power consumption too high.	Winding short-circuit.	Have winding checked.
	Motor overloaded.	Clean filters, mufflers and connection pipes if necessary.
		Eliminate interruption by fuses, terminals or power supply cables.
	Vacuum Pump is jammed.	Open vacuum pump cover, remove foreign body, clean.

⚠ **WARNING:** Disconnect power and air sources. Always disconnect the pump from the loading control, main power source, compressed air source and before servicing. This prevents the pump from starting during servicing, which could cause personal injury from flying debris or moving parts.

Problem	Possible cause	Solution
Pump-motor unit does not generate any or generates insufficient vacuum.	Leak in system.	Seal leak in the system.
	Seals on muffler defective.	Check muffler seals and replace if necessary.
	Seals in motor area defective.	Check motor seals and replace if necessary.
	Wrong direction of rotation.	Reverse direction of rotation by interchanging two connecting leads.
	Shaft seal defective.	Replace shaft seal.
	Change in blade profile due to soiling.	Clean impeller, check for wear and replace if necessary.
Abnormal flow noises.	Muffler soiled.	Clean muffler inserts, check condition and replace if necessary.
Abnormal running noise.	Ball bearing lacking grease or defective.	Regrease or replace ball bearing.

We're Here to Help

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

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, control type from the serial tag, 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 control systems 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.

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.