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USER GUIDE

UGD040-0217

ResinWorks

Central Drying and Conveying System



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: UGD040-0217

Serial Number(s):

Model Number(s):

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Purpose of the User Guide

This User Guide describes the Conair ResinWorks conveying and preconditioning system 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.

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 a qualified technician who is familiar with the construction, operation and potential hazards of this type of machine.

All wiring, disconnects and fuses should be installed by qualified electrical technician 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 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 (control center). Improper grounding can result in severe personal injury and erratic machine operation.

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

ATTENTION:

Read this so no one gets hurt (continued)

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.

CAUTION: Hot Surfaces.


Always protect yourself from hot surfaces inside the dryer and hopper. Also exercise caution around exterior surfaces that may become hot during use. These include the hopper door frame, the exterior of an uninsulated hopper, the return air hose and the dryer's process filter housing and moisture exhaust outlet.

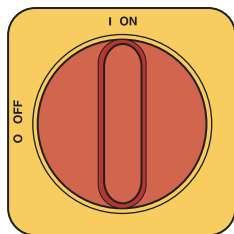
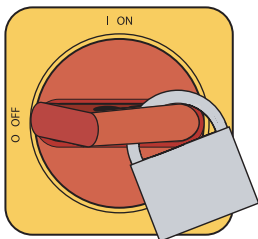
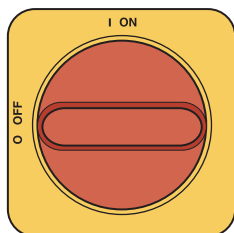


WARNING: Do not place aerosol, compressed gas or flammable materials on or near this equipment.

The hot temperatures associated with the drying process may cause aerosols or other flammable materials placed on the dryer or hopper to explode.

How to Use the Lockout Device

 **CAUTION:** Before performing maintenance or repairs on this product, you should disconnect and lockout 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 the electric power.** Turn the rotary disconnect switch to the OFF, or “O” position.
- 3 Secure the device with an assigned lock or tag.** Insert a lock or tag in the holes to prevent movement.
- 4 The equipment is now locked out.**

WARNING: 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 reinstalled.

To restore power to the heater, turn the rotary disconnect back to the ON position:

- 1 Remove the lock or tag.**
- 2 Turn the rotary disconnect switch to the ON or “I” position.**

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What is the ResinWorks Central Drying and Conveying System?

ResinWorks is a central drying and conveying system for providing materials to processing machines from a central area. The materials may be in a raw material state (straight from a silo, bin or box) or they may be blended, dried, ground, reclassified, etc. (pre-conditioned) before they are pneumatically transported to the end-use location; usually a processing machine throat.

Due to the wide variation in the ways that these systems can be configured, different instruction manuals must be referred to for a full understanding of all the ResinWorks components.

Typical Applications

The ResinWorks central drying and conveying system is designed for applications requiring drying temperatures from 150° - 375°F {66° - 191°C}.

The ResinWorks can be used successfully in applications that require:

- The ability to dry multiple materials requiring different drying temperature setpoints in a central drying system.
- The ability to easily take a hopper “off-line” for cleaning without shutting down the entire central drying system.
- The ability to move the equipment to a central location for safety, energy efficiency and ease of maintenance.

How it Works

The ResinWorks central drying and conveying system is comprised of multiple components working together to deliver dry, multiple materials to meet various production needs.

Central Dryer

The ResinWorks utilizes a central dryer to provide desiccated air to each hopper. The heaters at each hopper elevate the temperature for drying the specific material in each hopper.

ResinWorks Sled

The ResinWorks sled serves as the support structure for all hoppers in the system. The supply and return air, as well as the dry air conveying manifolds are integrated into the sled.

A control panel and air flow lever are located at each hopper station on the ResinWorks sled. This allows each hopper to be controlled individually based on the material in the hopper. The “Enable/Standby” switch and air flow lever (On/Off control) allows each hopper to be isolated from the rest of the system for cleaning without shutting down the entire system.

Hopper

The hoppers available with the ResinWorks system are insulated and made of stainless steel. They have large, easy-to-open doors that allow for easy cleaning.

Automatic Bypass Valve

The automatic bypass valve allows each hopper to be taken “off line” without having to manually adjust the air flow on any of the other hoppers.

Adjustable Purge Valve (APV)

The Adjustable Purge Valve (APV) meters the materials entering the conveying air stream for delivery to the destination. It also purges the line after delivery to prevent cross-contamination of materials.

How it Works (continued)

Resin Selection Station (RSS)

The Resin Selection Station (RSS) (material distribution center) allows the user to direct the material from each hopper to any processing machine connected to the system. For example, the material from a specific hopper may need to be directed to six (6) separate processing machines. Each row in the material distribution center is fed by one of the specific hoppers.



- ① Central Dryer
- ② ResinWorks Sled
- ③ Hopper
- ④ Automatic Bypass Valve
- ⑤ Adjustable Purge Valve (APV)
- ⑥ Resin Selection Station (RSS)

Specifications: ResinWorks System

RESIN DRYING HOPPERS AND STANDS

MODEL	RWH14-3	RWH18-6	RWH24-12	RWH24-18	RWH33-21	RWH33-28	RWH39-35†	RWH39-42‡	RWH44-58‡
FIGURE NUMBER	Fig. 1	Fig. 1	Fig. 1	Fig. 1	Fig. 1	Fig. 1	Fig. 2	Fig. 2	Fig. 2
Performance characteristics									
Volume ft ³ (liter)	3.0 {85.0}	6.0 {170.0}	12.0 {340.0}	18.0 {509.0}	21.0 {595.0}	28.0 {793.0}	35.0 {991.0}	42.0 {1189.0}	58.0 {1643.0}
Capacity @ 35 lb/ft ³ lb (kg)	105.0 {48.0}	210.0 {95.0}	420.0 {191.0}	630.0 {286.0}	735.0 {333.0}	980.0 {445.0}	1225.0 {556.0}	1470.0 {667.0}	2030.0 {921.0}
Capacity @ 52 lb/ft ³ lb (kg)	156.0 {71.0}	312.0 {142.0}	624.0 {283.0}	936.0 {425.0}	1092.0 {495.0}	1456.0 {660.0}	1820.0 {826.0}	2184.0 {991.0}	3016.0 {1368.0}
Air inlet/outlet OD (mm)	2.5 {64.0}	2.5 {64.0}	2.5 {64.0}	2.5 {64.0}	5.0 {127.0}	5.0 {127.0}	5.0 {127.0}	5.0 {127.0}	5.0 {127.0}
Inside diameter OD (mm)	14.0 {356.0}	18.0 {457.0}	24.0 {610.0}	24.0 {610.0}	33.0 {838.0}	33.0 {838.0}	39.0 {991.0}	39.0 {991.0}	44.0 {991.0}
Material inlet	IT06	IT07	IT07	IT07	IT07	IT07	IT07	IT07	IT07
Material outlet ID (mm)	2.0 {51.0}	2.0 {51.0}	2.0 {51.0}	2.0 {51.0}	3.0 {76.0}	3.0 {76.0}	3.0 {76.0}	3.0 {76.0}	3.0 {76.0}
Material discharge (bottom)	IB02	IB02	IB02	IB02	IB02	IB02	IB03	IB03	IB03
Voltages full load amps[§]									
Heater kW	4	10	30						
208 V/3 phase/60Hz	11.4	11.4	21.2*	21.2*	21.2*	21.2*	n/a	n/a	n/a
230 V/3 phase/60Hz	10.3	10.3	25.3	25.3	25.3	25.3	n/a	n/a	n/a
400 V/3 phase/50Hz	5.9	5.9	14.5	14.5	14.5	14.5	43.7	43.7	43.7
460 V/3 phase/60Hz	5.1	5.1	12.7	12.7	12.7	12.7	38.0	38.0	38.0
575 V/3 phase/60Hz	4.1	4.1	10.2	10.2	10.2	10.2	30.4	30.4	30.4
Dimensions inches (cm)									
Standard sled									
A - Overall height †	78.7 {200.0}	86.5 {219.7}	92.6 {235.2}	116.3 {295.4}	107.5 {273.1}	118.5 {300.9}	121.5 {308.0}	132.5 {337.0}	138.5 {352.0}
B - Height below mounting flange	29.3 {74.0}	25.6 {65.0}	20.6 {52.3}	20.6 {52.3}	24.0 {61.0}	24.0 {61.0}	19.5 {50.0}	19.5 {50.0}	14.5 {37.0}
C - Panel height	41.3 {104.8}	41.3 {104.8}	41.3 {104.8}	41.3 {104.8}	41.3 {104.8}	41.3 {104.8}	41.8 {106.0}	41.8 {106.0}	41.8 {106.0}
D - Sled width	25.0 {63.5}	25.0 {63.5}	36.0 {91.4}	36.0 {91.4}	45.0 {114.3}	45.0 {114.3}	69.0 {175.3}	69.0 {175.3}	74.0 {187.9}
E - Depth	51.3 {130.3}	51.3 {130.3}	51.3 {130.3}	51.3 {130.3}	51.3 {130.3}	51.3 {130.3}	59.0 {150.0}	59.0 {150.0}	64.0 {162.0}

SPECIFICATION NOTES:

* Uses 230V heater derated to 7.5 kW.

† For multi-hopper sled, be sure to use the largest hopper as the reference for the overall height dimension.

‡ Conair 39 and 44 inch hoppers are mounted on individual sleds.

§ FLA ratings are per hopper. FLA ratings for a ResinWorks sled is the sum of the sled's individual hopper FLA ratings.

Specifications can change without notice. Contact a Conair representative for the most current information.



NOTE: Hoppers that are 33 inches {838 mm} in diameter and smaller may be joined together onto a single sled and shipped as a unit, installed as a unit and connected into your drying system as a single unit (see **Figure 1**). This consolidation greatly saves time and expense and once connected to the proper central drying unit, provides an optimum dehumidification system for all of your resins. Hoppers 39 inches {991 mm} and over in diameter are provided on their own individual floor stands (sleds) and each is equipped with air connections, heater, control, etc. (see **Figure 2**).

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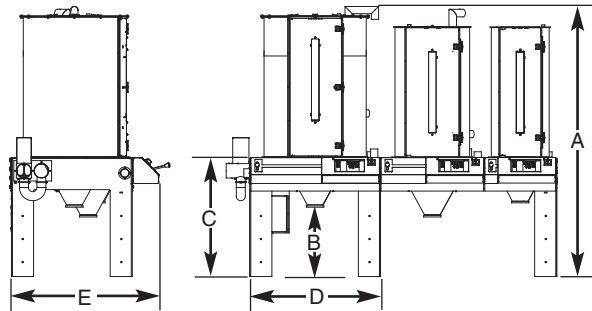
Specifications: ResinWorks System (continued)

RESIN DRYING HOPPERS AND STANDS

Depending upon hopper requirements, ResinWorks drying systems may be configured with single-hopper sleds, multiple-hopper sleds or a combination of both.

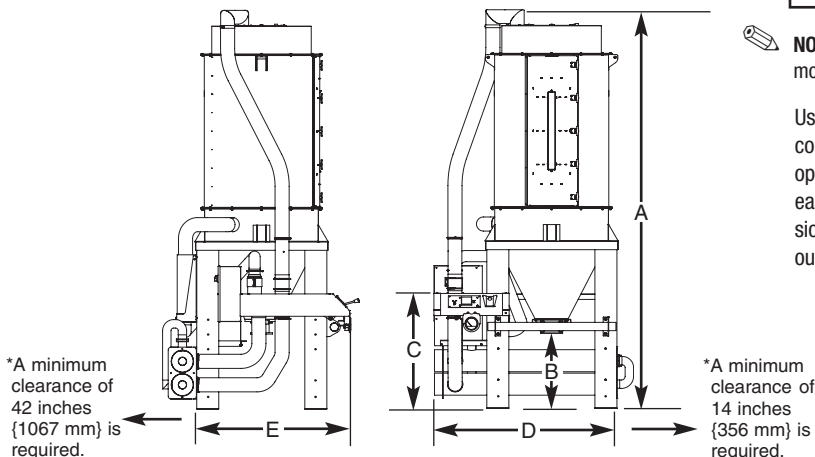
Multi-Hopper Sled

Figure 1



Single-Hopper Sled

Figure 2



Available Hopper Combinations

Figure 3

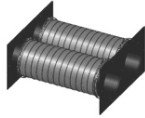
RWH Hopper Models possible sled combinations				Sled Total Length	
				in. (mm)	ft. (cm)
33				45 {1143}	3.8 {116}
33	33			90 {2286}	7.5 {229}
33	33	24		126 {3200}	10.5 {320}
33	33	14/18		115 {2921}	9.6 {293}
33	24			70 {1778}	5.8 {177}
33	24	24		95 {2413}	7.9 {241}
33	24	14/18	14/18	131 {3327}	10.9 {332}
33	14/18	14/18	14/18	120 {3048}	10.0 {305}
24				36 {914}	3.0 {91}
24	24			72 {1829}	6.0 {183}
24	24	24		108 {2743}	9.0 {274}
24	24	14/18		97 {2464}	8.1 {247}
24	24	14/18	14/18	122 {3099}	10.2 {311}
24	14/18	14/18	14/18	111 {2814}	9.3 {283}
14/18				25 {635}	2.1 {64}
14/18	14/18			50 {1270}	4.2 {128}
14/18	14/18	14/18		75 {1905}	6.3 {192}
14/18	14/18	14/18	14/18	100 {2540}	8.3 {253}

NOTE: Conair 39 and 44 inch hoppers are mounted on their own individual sleds. (see Fig.2)

Use **Figure 3** to identify the available hopper combinations that would be correct for your operation, and determine the overall width of each multi-hopper sled. More specific dimensions for hoppers can be found on the previous page, in the specifications table.

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ResinWorks System Options



- **Multiple Sled Connection Kit**

This option allows the connection between multiple sleds for the integral supply, return and conveying manifolds. For each junction between sleds, a kit is required.



- **Adjustable Purge Valve**

New design! This valve controls material flow from material source to destination(s). This easy-to-clean and install valve has a discharge that rotates 360 degrees to allow complete purge of material lines.



- **Hopper Discharge Drain Port**

Facilitates hopper draining and cleanout.



- **Precision Slide Gate**

Use the precision Slide Gate to prevent material leakage when no purge valve or distribution box is specified on the hopper.

- **Communications**

Options include: Modbus and DeviceNet.

- **Temperature Setback RTD**

Automatically reduces the drying temperature to a lower standby mode when the machine throughput is reduced or stopped to prevent overdrying of material.

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Unpacking the Boxes

The ResinWorks central drying and conveying system, depending on the model and options ordered, could include:

- ResinWorks sled
- Hoppers (installed) **NOTE:** For large hoppers the “high hat” or center section will not be bolted in place due to shipping constraints.
- Purge valve(s)
- Sled connection kit(s)
- Dry air conveying connection kit(s)
- Two (2) hoses to connect the central dryer to the sled (supply and return air hoses)
- Hose adapters (if required).

Other Equipment

- Resin Selection Station (RSS)
- Loaders/receivers
- Vacuum pump
- Dust collector
- Central loading control

- 1 Carefully remove all components** from their shipping containers.
- 2 Remove all packing material**, protective paper, tape and plastic.
- 3 Carefully inspect all components** to make sure no damage occurred during shipping, and that you have all the necessary hardware.
- 4 Take a moment to record serial numbers** and electrical power specifications in the blanks provided on the back of the 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.** Follow the preparation steps on the next page.

Preparing for Installation

The ResinWorks system is easy to install if you select and prepare the installation area properly.

⚠ IMPORTANT: Check the dryer orientation of your ResinWorks system. Standard configuration of the dryer is left-to-right. If your application requires right-to-left orientation, contact Conair Parts for a right-handed bypass valve.

1 Make sure the mounting area provides:

- ❑ **A grounded power source supplying the correct current for your ResinWorks system.** All ResinWorks systems require three-phase power. Check the ResinWorks' serial tag for the correct amps, voltage and cycles. Field wiring should be completed by a qualified electrical technician at the planned location for the ResinWorks. All electrical wiring should comply with your region's electrical codes. *See Description section entitled, Specifications: ResinWorks System.*
- ❑ **Close proximity to the central dryer to be used with the ResinWorks system.** Conair recommends using the hoses supplied with the dryer to make the connections between the dryer's delivery outlet and return air inlet and the ResinWorks delivery and return air manifolds.
- ❑ **If applicable, close proximity to the Cargo Caire dry air generator to be used with the ResinWorks system.** Conair recommends using the 3.0 inch {76.2 mm} flex hose supplied to make the connections between the Cargo Caire conveying air system and the ResinWorks conveying air manifolds.
- ❑ **Access to the plant's material feed and delivery systems.**

Automatic bypass valves are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861


✎ NOTE: Multi-sled ResinWorks systems will require separate power drops for each sled.

✎ NOTE: If compressed air will be used for the conveying air used in conjunction with the ResinWorks system, the compressed air system and hoses are the responsibility of the customer. No compressed air hoses are supplied with the ResinWorks system.




Installation of the ResinWorks System

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

 **NOTE:** The ResinWorks system is shipped with wooden supports bolted between the legs of the unit to keep them from being damaged during shipping and to aid in moving the unit to the installation location.





1 The bottom plates on the legs of the ResinWorks are bolted to the shipping skid. **Remove and discard the mounting bolts then remove all packing materials from the ResinWorks and its components. DO NOT remove the wooden supports bolted between the legs at this time.** The wooden supports stabilize the legs for transit and should be used to move the ResinWorks into its installation location.

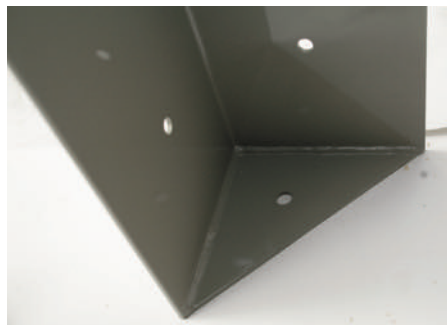
 **CAUTION:** Do not remove the wooden supports until the sled has been installed in its final location. Attempting to move the ResinWorks after the wooden supports have been removed from the legs of the unit could allow damage to the legs during movement.

2 **Once the ResinWorks is in its installation location and properly positioned, unbolt the wooden supports from the legs on the unit.** Discard the wooden supports and mounting hardware.


 **NOTE:** Conair recommends that you bolt the ResinWorks sled to the concrete floor.


 **NOTE:** The bottom plates on the legs of the ResinWorks are designed to accept either adjustable footpads for leveling or lag bolts for securing the unit to the factory floor. The footpads and/or mounting hardware are the responsibility of the installer.

 **WARNING:** Make sure the unit has been properly secured. The integrity of the installation is the responsibility of the customer.



Mounting the ResinWorks Hopper High-Hat

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

 **NOTE:** Some ResinWorks hoppers, depending on size, are shipped with their hopper high-hat or center section removed for shipping.

To mount the hopper's high-hat or center section:

- 1 Remove the high-hat or hopper center section from its shipping pallet, using an appropriately-sized wrench.** The high-hat or hopper center section will be shipped from Conair bolted the pallet.
- 2 Raise the upper section of the hopper above the ResinWorks sled, using an appropriate lifting device.**
- 3 Place the supplied gasket between the upper and lower sections of the ResinWorks hopper.** Ensure to use silicone to seal the gasket and the sections of the hopper.
- 4 Bolt the upper and lower hopper sections together using appropriate hardware, ensuring to secure the gasket between each section.**

Connecting the Main Power

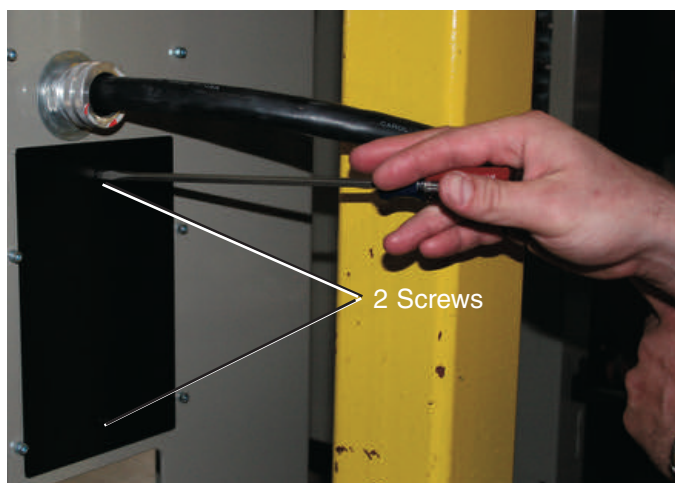


IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks before making electrical connections.



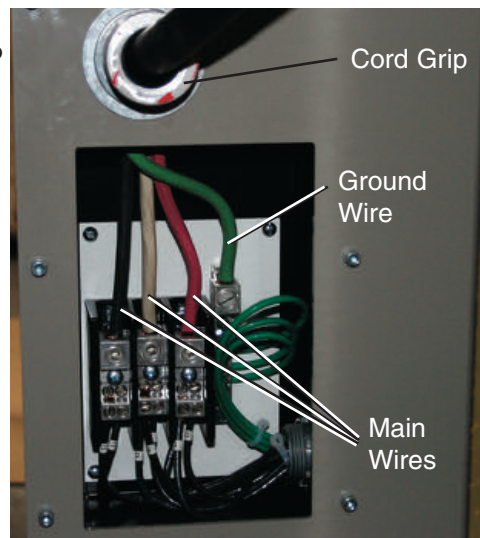
NOTE: All components of the ResinWorks are pre-wired. The only electrical connection that must be made is the main power connection. This does not include optional accessories such as valves and loaders.

- 1 Remove the two (2) screws securing the power connection cover on the rear left corner of the ResinWorks.**



NOTE: Each sled will have a main power connection.

- 2 Feed the main power cable into the hole above the power connection cover. Secure the power cable to the frame with an appropriate cord grip (customer supplied).**
- 3 Connect the ground wire and three (3) main wires to the proper terminals on the distribution plate.**
- 4 Reinstall the power connection cover using the original hardware.**



Connecting the Dryer to the ResinWorks



CAUTION: Before connecting a dryer to a single ResinWorks sled, make sure that the dryer is "phase corrected" and that the dryer's blower is turning in the correct direction. Refer to the manual supplied with your dryer for additional information.



NOTE: The ResinWorks drying air delivery and return ports are 5 inches {127 mm} in diameter. If the ports on the dryer are smaller or larger, install the necessary adapters (included if needed) on the ResinWorks so the hoses supplied with the dryer can be connected. *See Installation section entitled, Connecting Air Hose Adapters.*

1 Connect one (1) of the supplied hoses to the drying air delivery inlet port of the ResinWorks sled using the clamp supplied. If you have an insulated hose, it should be installed on the delivery port.



NOTE: The hoses supplied with the dryer can be cut if necessary for neat installation.

2 Route the ResinWorks dryer air delivery hose from Step 1 to the dryer's dry air delivery outlet. Secure the hose to the dryer outlet port using the supplied hose clamp.



IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks before making electrical connections.

Adapters are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861



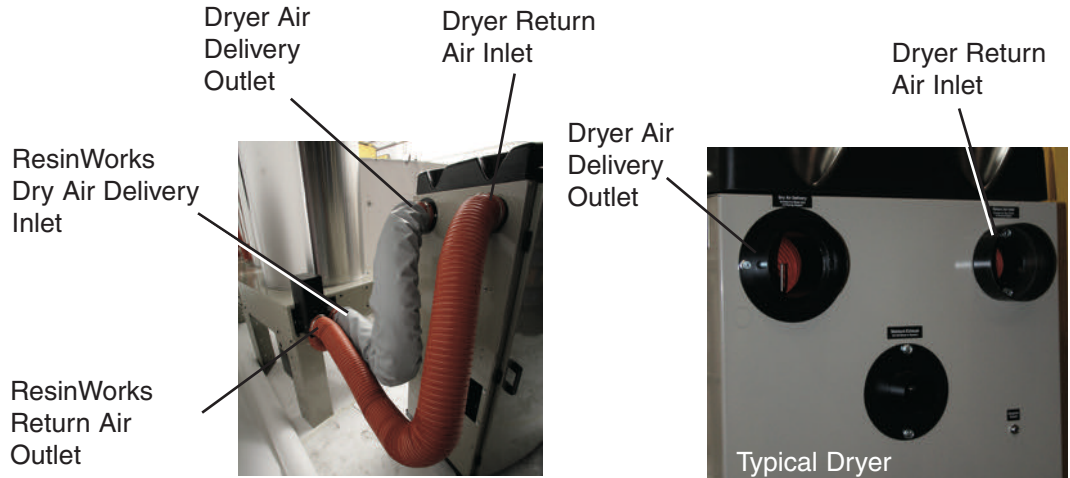
NOTE: An insulated hose is not standard.



NOTE: Do not allow the flexible hoses to kink or crimp.

Connecting the Dryer to the ResinWorks (continued)

- 3** Connect the other supplied hose to the return air outlet of the ResinWorks using the supplied hose clamp.



- 4** Route the ResinWorks return air hose from Step 3 to the dryer return air inlet. Secure the hose to the dryer inlet port using the supplied hose clamp.



IMPORTANT: If your setup requires the dryer to be located on the opposite side of the ResinWorks, a separate automatic bypass valve must be purchased to connect between the dryer and ResinWorks sled. The automatic bypass valve is not interchangeable from side to side.

Connecting the Dryer to a Single ResinWorks Hopper



CAUTION: Before connecting a dryer to the ResinWorks, make sure that the dryer is "phase corrected" and that the dryer's blower is turning in the correct direction. Refer to the manual supplied with your dryer for additional information.



NOTE: The single ResinWorks drying air delivery and return ports can be 5, 8 and 12 inches {127, 203 and 305 mm} in diameter. If the ports on the dryer are smaller or larger, install the necessary adapters (included if needed) on the ResinWorks so the hoses supplied with the dryer can be connected. *See Installation section entitled, Connecting Air Hose Adapters.*

1 Connect one (1) of the supplied hoses to the drying air delivery inlet port of the ResinWorks using the supplied clamp. If you have an insulated hose, it should be installed on the delivery port.



NOTE: The hoses supplied with the dryer can be cut if necessary for neat installation.

2 Route the ResinWorks dryer air delivery hose from Step 1 to the dryer's dry air delivery outlet. Secure the hose to the dryer outlet port using the supplied hose clamp.



NOTE: Each sled will have a main power connection.



IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks before making electrical connections.

Adapters are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861



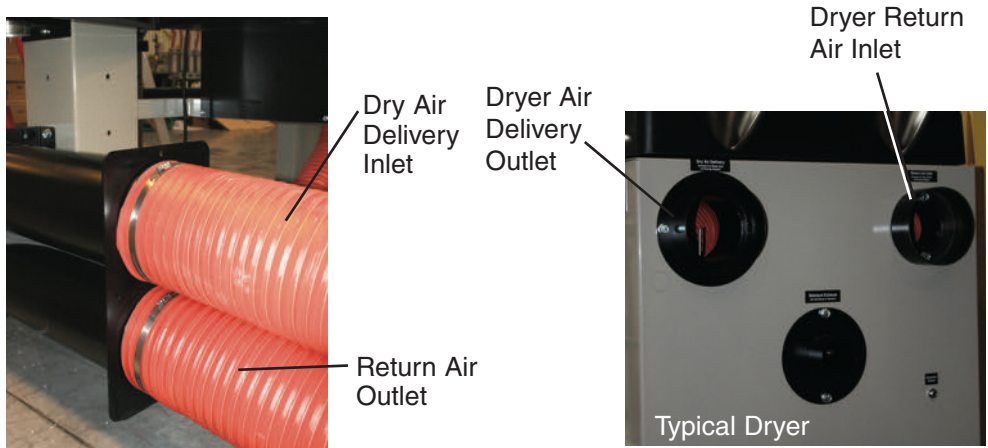
NOTE: An insulated hose is not standard.




NOTE: Do not allow the flexible hoses to kink or crimp.

Connecting the Dryer to a Single ResinWorks Hopper (continued)

- 3 Connect the other supplied hose to the return air outlet of the ResinWorks sled, using the supplied hose clamp.



 **NOTE:** Typical dry air inlet/outlet configuration shown. Location on larger model dryers are different. Refer to the labeling on your dryer.

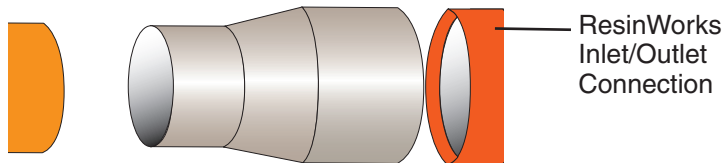
- 4 Route the ResinWorks sled return air hose from Step 3 to the dryer return air inlet. Secure the hose to the dryer inlet port using the supplied hose clamp.

Connecting Air Hose Adapters

Depending on the ResinWorks hopper you purchased, you may need to install an air hose adapter to connect to your dryer.

To connect the air hose adapter:

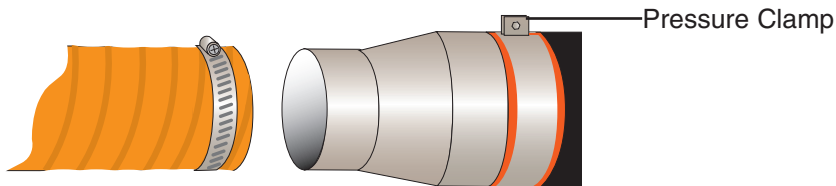
- 1 Place a high temperature gasket approximately half way down from the end of the dry air delivery inlet/outlet.**



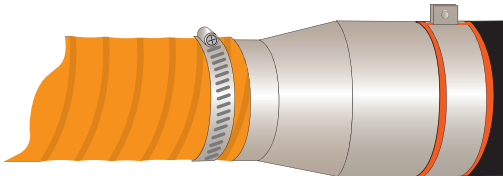
Adapters are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861

- 2 Place the hose adapter inside the high temperature gasket and flush to the ResinWorks inlet/outlet, secure with pressure clamp.**



- 3 Attach the dryer inlet/outlet hose over the adapter, secure with clamp.**



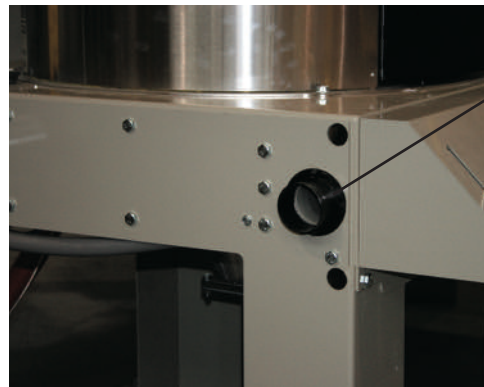
Connecting the Conditioned Air (If Applicable)

This section only applies if you have purchased the Cargo Caire dry air generator option.

- 1 Connect the supplied 3 inches {76.2 mm} hose to the conveying air inlet port of the ResinWorks, using the supplied hose clamp.**
- 2 Route the ResinWorks conveying air hose to the conveying air source or an optional Cargo Caire unit or central dryer. Secure the hose to the conveying air source, using the supplied hose clamp.**



NOTE: Do not allow the flexible hoses to kink or crimp.



Conveying Air Inlet Port

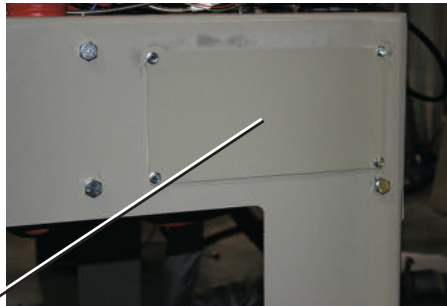
(continued)

Connecting Additional ResinWorks Sleds

The ResinWorks systems can consist of as many as 20 hoppers, depending on specifications. This is accomplished by means of multiple ResinWorks sleds. Follow the instructions below to connect additional ResinWorks sleds.

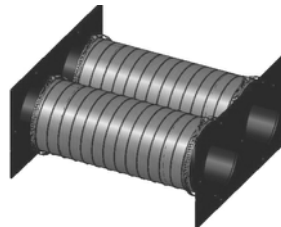
- ❖ **TIP:** It is best to have the larger hoppers close to the dryer. If you are adding a sled(s) to your system with large hoppers, and your current sled(s) has only smaller hoppers, the new sled should be situated as the first sled in the system. Contact your Conair Sales Representative for additional information.

- 1 Remove the hardware securing the drying air manifold cap to the right or left side (based on your specific installation) of the ResinWorks sled frame. Remove the drying air manifold cap.**



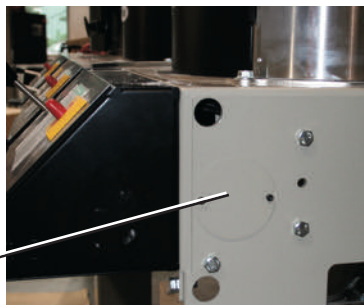
Drying Air Manifold Cap

- 2 Align the drying air adapter manifold adapter kit with the drying air manifold.**
Secure the drying air adapter manifold to the ResinWorks frame using the hardware removed in Step 1 and the hardware supplied with the adapter kit.



- 📎 **NOTE:** Apply a bead of high temperature silicone to one of the mating surfaces.

- 3 Remove the hardware securing the conveying air manifold cap to the right or left side (based on your specific installation) of the ResinWorks sled frame. Remove and discard the conveying air manifold cap.**



Return Air Outlet Port

(continued)

- 📎 **NOTE:** The following instructions assume that the main ResinWorks sled has been set in the installation location, the main power connected, the dryer connected, and the conveying air (if applicable) connected to the unit.

Additional ResinWorks sleds are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the United States, call:
(814) 437 6861

- 📎 **NOTE:** Steps 3 and 4 are only applicable if conveying air is used in the system. If conveying air is not used in the system, proceed to Step 5.

Connecting Additional ResinWorks Sleds (continued)

Additional ResinWorks sleds are available from Conair.

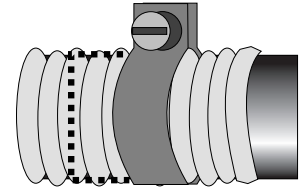
Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861

- 4 Align the conveying air adapter manifold with the conveying air manifold.** Secure the conveying air adapter manifold to the ResinWorks frame using the hardware removed in Step 3 and the hardware supplied with the adapter kit.

 **NOTE:** Apply a bead of high temperature silicone to one of the mating surfaces.

- 5 Install additional ResinWorks sled(s)** so that the side of the additional sled(s) is approximately 1 to 2 ft {0.31 to 0.61 m} (minimum of 8 in. {203.2 mm}) from the side of the main ResinWorks sled.


- 6 Using the supplied hose and clamps, connect the outlet of the drying air adapter manifold on the main ResinWorks sled to the drying air inlet on the second ResinWorks sled.**




- 7 Using the supplied hose and clamps, connect the outlet of the return air adapter manifold on the main ResinWorks sled to the return air inlet on the second ResinWorks sled.**

- 8 Using the supplied hose and clamps, connect the outlet of the conveying air adapter manifold on the main ResinWorks sled to the conveying air inlet on the second ResinWorks sled.**

- 9 See *Installation section entitled, Connecting Main Power*, to connect the second ResinWorks sled's main power.**

 **NOTE:** Step 8 is only applicable if conveying air is used in the system. If conveying air is not used in the system, proceed to Step 9.

 **NOTE:** If additional sleds are to be used, follow the instructions in this section for each additional sled.

Connecting the ResinWorks Central Drying System to the Plant-wide Material Distribution System

Material Conveying Lines (from the Drying Hoppers)

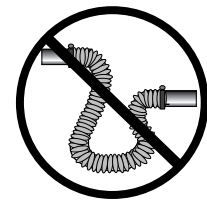
Materials dried in the hoppers of your ResinWorks system need to be directed to the final end use location. A wide variety of methods may be used for this transfer.

The ResinWorks Drying System is ideal for providing this transfer utilizing conveying air that is itself dry (with optional Cargo Caire), to assure that moisture will not be regained in the transfer process. If your plan includes this dry air conveying process, then the appropriate equipment for combining material from the drying hopper, mixing it with dry conveying air and then directing this air/material mix into the conveying line is provided with your system. It may include a simple take-off box or an Adjustable Purge Valve (APV). Each module has its own operating characteristics, but each mounts below the hopper and must be plumbed from its location towards the material distribution system.

Flex hose should be used for the connection at the base of the hopper to allow flexibility if/when removed. If supplied with your system, connection to the dry air manifold will have already been made. If not, then a flex hose connection to the dry air manifold will also be required. All flex hose connections should be as straight as possible and secured with hose clamps. Double check that all under-hopper components may be easily removed for service before finalizing your installation.

The path of the material transfer lines from the drying hopper sled to the end use location will vary depending upon the actual configuration of your system, but all lines should be adequately supported against vibration, coupled with leak proof connectors, and routed with minimal bends.

Refer to both your system flow schematic and the appropriate additional instruction manuals for more information regarding the material transfer system.



NOTE: Do not allow the flexible hoses to kink or crimp.

Connecting the Loading System to the ResinWorks



IMPORTANT: Always refer to the wiring diagrams that came with your heater before making electrical connections.

The hoppers available with the ResinWorks system are designed to accept a variety of loading systems. The lids supplied with the hoppers are designed to accept either a 12 inch {304.8 mm} loader (all hoppers) and/or an 8 inch {203.2 mm} loader (smaller hoppers only).

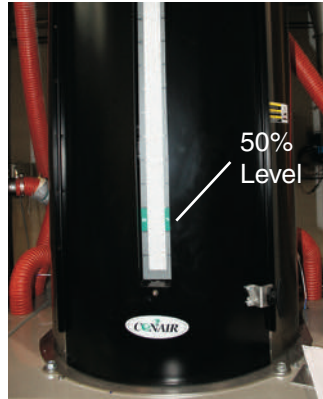
It is the responsibility of the installer to mount the loading system to the hoppers on the ResinWorks and make all necessary power and control connections.




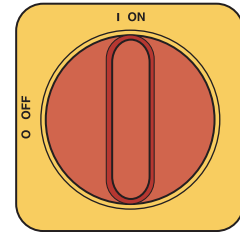
Testing the Installation

You have completed the ResinWorks installation. Now it is time to make sure everything works.

- 1** Fill each hopper to at least the 50% level (green area of the site glass).
- 2** Turn on the main power supply.
- 3** Turn on the dryer used with the ResinWorks system.



 **NOTE:** The installation can be tested hopper by hopper, or all the hoppers at once. The decision is up to the installer.



- 4** Turn the main power disconnect for each individual hopper to the "On" position.

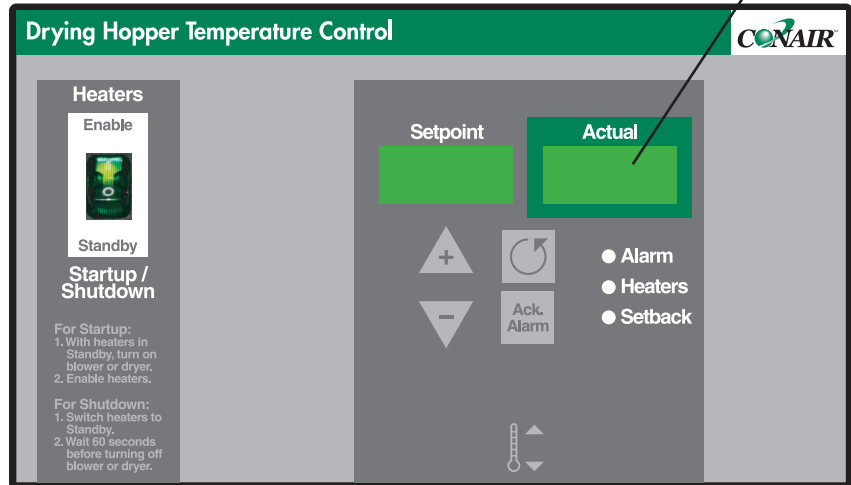
- 5** Make sure the airflow valve(s) is in the "Open" position (all the way up).



Testing the Installation (continued)

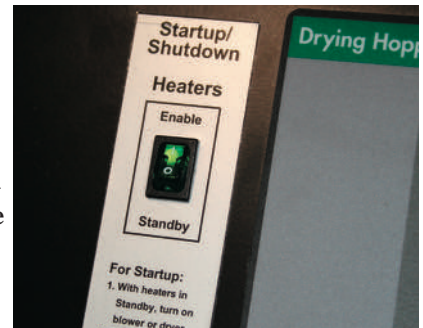
- Set the set point temperature to 150°F {66°C}. "Stand By" will appear in the "Actual Temperature" window.

Actual Temperature Window



- Toggle the "Enable/Disable" switch to the "Enable" position.

- Verify that the heater(s) turn on and the actual temperature begins to rise towards the set point temperature.

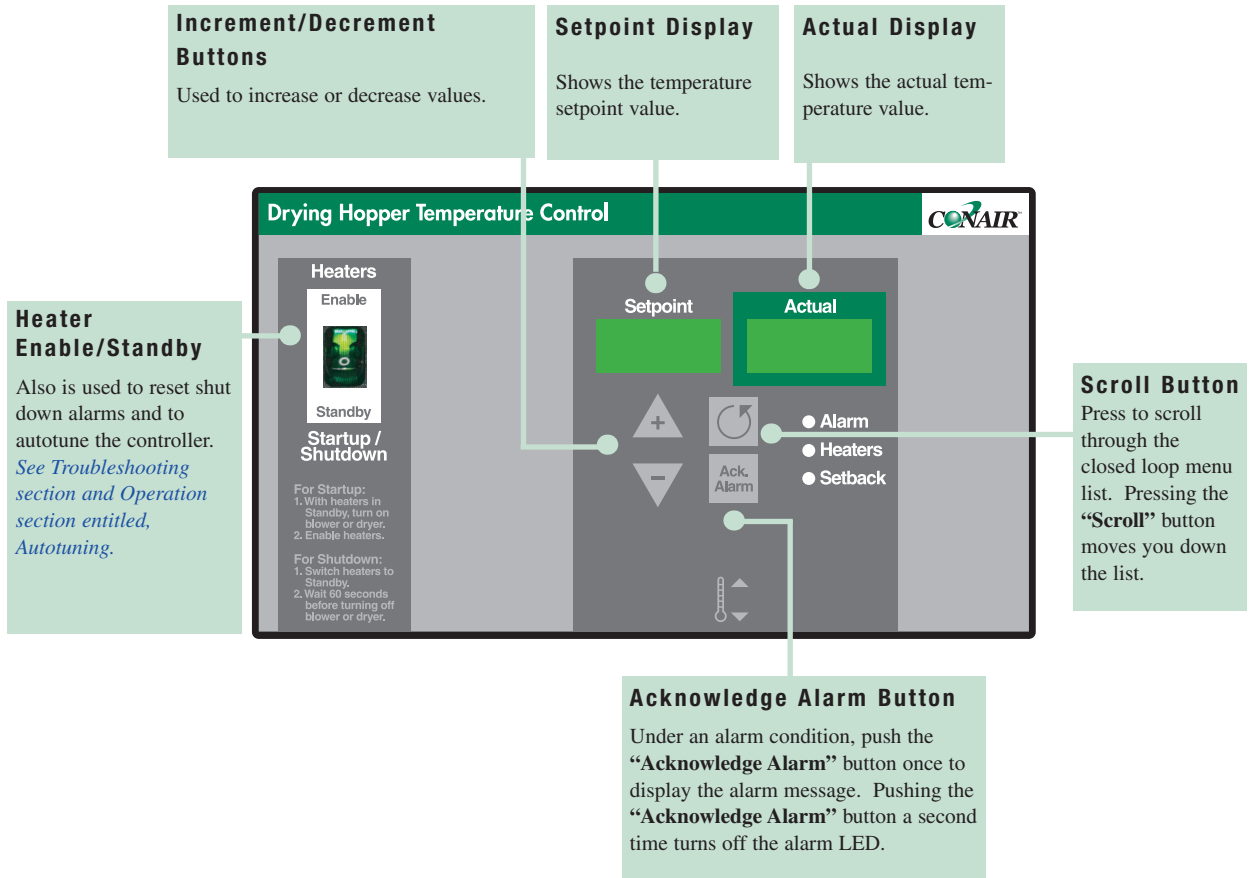


- Repeat Steps 4 through 8 for each hopper in the ResinWorks system, if you are testing each hopper individually or if you have multiple single sled ResinWorks systems.

Operation

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The ResinWorks System: DC Control Panel



ResinWorks DC Control Functions

ResinWorks functions are values that you can set or monitor. Press the “**Scroll**” button until the function you want to set or monitor appears in the LED display.

Control Function Flow Charts

The following flow charts provide a quick summary of the control functions. For an explanation of each control function, *see Operation section entitled, Control Function Descriptions.*

Control Function Flow Charts (continued)

POWER ON

- 1 2 sec All LEDs On
- 2 2 sec Software Version
- 3
- (Default Screen) 4 Process Setpoint and Actual Temp (Default Screen)
Press + or - to change setpoint.
Press Scroll Button for Process Deviation Alarm Setpoint (Dev)
- 5 + or - Deviation Band
Press + or - to change setpoint.
Press Scroll to enter the value

(The Following Shows Only If the Mode Is Set to Resin and Setback enabled.)

Press Scroll Button again for Setback Return Temperature Setpoint

(Optional) 6
Press + or - to change setpoint.
Press Scroll to enter the value

Press Scroll Button again for Process Setback Temperature Setpoint

(Optional) 7
Press + or - to change setpoint.
Press Scroll to enter the value

When the Setback option is installed these screens will be displayed.

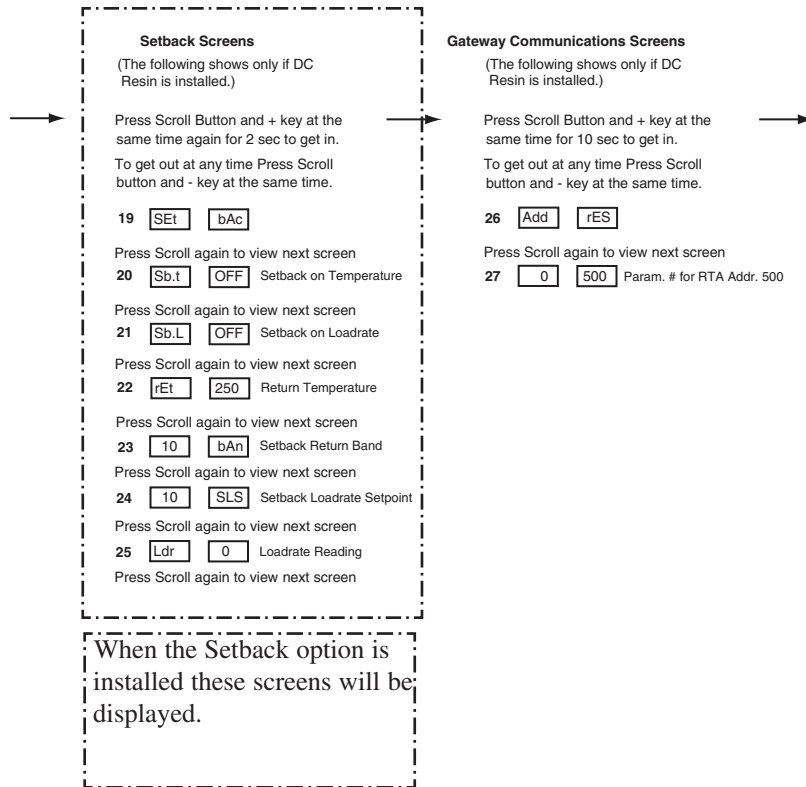
Process Screens

Press Scroll Button and + key at the same time for 2 sec to get in.
To get out at any time Press Scroll button and - key at the same time 2 min timer then return to the default screen.

Note:
To go from the Process Screens directly to the Setup Screens, press the Scroll Button and the + key at the same time for 10 sec.

- 8
- Press Scroll again to view next screen
- 9 Process High Limit
- Press Scroll again to view next screen
- 10 Process Loop Break Band
- Press Scroll again to view next screen
- 11 Process Loop Break Time
- Press Scroll again to view next screen
- 12 Process High Alarm Setpoint
- Press Scroll again to view next screen
- 13 Process High Switch Alarm Delay
- Press Scroll again to view next screen
- 14 Airflow Alarm Delay
- Press Scroll again to view next screen
- 15 Process Proportional Band
- Press Scroll again to view next screen
- 16 Process Integral
- Press Scroll again to view next screen
- 17 Process Derivative
- Press Scroll again to view next screen
- 18 Process Autotune
Press + Key to Start Autotune
Press Scroll again to view the first screen

Control Function Flow Charts (continued)



(continued)

Control Function Flow Charts (continued)

Setup Screens

(The following shows only if the control is in Standby.)

Press Scroll Button and + key at the same time for 10 sec to get in.

To get out at any time Press Scroll button and - key at the same time.

28

Press Scroll again to view next screen

29 Controller Type

Press Scroll again to view next screen

30 Process Protection Install

Press Scroll again to view next screen

31 Setback Install

Press Scroll again to view next screen

32 Communication ID

Press Scroll again to view next screen

33 Goto Test Mode

Press Scroll again to view next screen

34 Units degrees F or degree C

Press Scroll again to view next screen

35 Load Default

Press + Key to Load Default

Press Scroll again to view the first screen

Test Mode Screens

(The following shows only if the control is in Test mode.)

* The test mode screens become visible if tSt (screen 40) is turned on.

To get out at any time Press Scroll button and - key at the same time.

36

Press Scroll again to view next screen

37 Digital Input 1 Status

Press Scroll again to view next screen

38 Digital Input 2 Status

Press Scroll again to view next screen

39 Digital Input 3 Status

Press Scroll again to view next screen

40 Digital Input 4 Status

Press Scroll again to view next screen

41 Press + Key to Jog Output 1

Press Scroll again to view next screen

42 Press + Key to Jog Output 2

Press Scroll again to view next screen

43 Press + Key to Jog Output 3

Press Scroll again to view next screen

44 Press + Key to Jog Output 4

Press Scroll again to view next screen

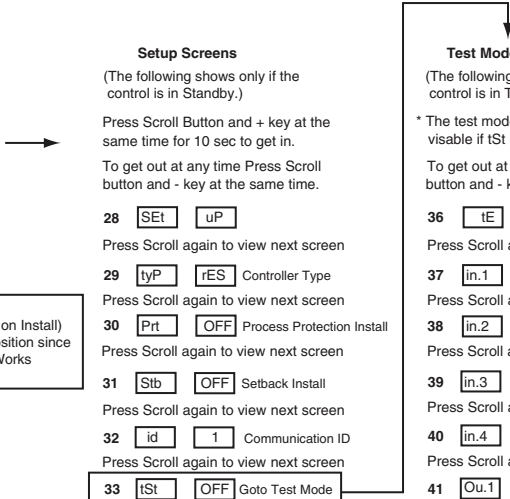
45 Press + Key to Jog Output 5

Press Scroll again to view next screen

46 Press + Key to Jog Output 6

Press Scroll again to view the first screen

Note:
Screen 30 (Process Protection Install) MUST BE left in the OFF position since it is not an option on ResinWorks systems.



Control Function Descriptions

General Screens

SCREEN 1

888	888
-----	-----

SCREEN 2

v1.0	1.06
------	------

SCREEN 3

rE	Sin
----	-----

SCREEN 4

Setpoint	Actual
----------	--------

250	250
-----	-----

SCREEN 5

10	dEv
----	-----

Function

Once the power is turned on, this screen is displayed for 2 seconds while the control performs its self-checking process. All LEDs are illuminated during this 2-second interval.

After the self-checking process is complete, this screen flashes for 2 seconds and displays the software version.

After the software version is displayed, this screen appears for 2 seconds and identifies that the control is setup for a ResinWorks system.

This is the default screen. It shows the process air temperature setpoint and the actual temperature measured at the inlet to the drying hopper. The (+) or (-) buttons can be used to change the setpoint. Holding the (+) or (-) buttons in will cause the number to ramp up or down at a faster rate. The display will return to the default screen from anywhere in the menu structure if no buttons are pressed after 10 minutes.

This is the Process Deviation Temperature Alarm Setpoint screen. It is used to set the deviation temperature band around the process temperature setpoint. The range is 5° - 20°F {2.8 - 11.1°C}. The (+) or (-) buttons can be used to change the setpoint. If the temperature goes outside the band, the control will display a passive alarm (P1).

(continued)

Control Function Descriptions (continued)

When the Setback option is installed these screens will be displayed.

General Screens

Function

SCREEN 6 (optional)

180

Srt

This screen is the Setback Setpoint screen. When setback is enabled, this is the hopper outlet temperature at which the setback becomes active. The (+) or (-) buttons can be used to change the setpoint.

SCREEN 7 (optional)

140


PSt

This screen is the Process Setpoint screen. The process setpoint is the temperature the control tries to maintain when functioning in the setback mode. The (+) or (-) buttons can be used to change the setpoint.

Control Function Descriptions (continued)

Process Screens **Function**

To access the Process Screens, press the “**Scroll**” and (+) buttons at the same time and hold for two seconds . To exit the Process Screens at any time, press the “**Scroll**” and (-) buttons at the same time. After two minutes, you will be automatically returned to the Default screen.

 **NOTE:** To go from the Process Screens directly to the Setup Screens (skipping over the Setback and Gateway Communications Screens), press the “**Scroll**” and (+) buttons at the same time and hold for 10 seconds.

SCREEN 8 (Read-only)

PrO **cES**

This is the Process Header screen. It indicates that all items below it pertain to the process temperature control.

SCREEN 9

250 **Hi.L**

This is the Process High Limit screen. It is used to set the high limit for the process temperature setpoint. The (+) or (-) buttons can be used to change this value. If set at 150° to 375°F {66° to 191°C}, the operator cannot set the process setpoint above the temperature set at this screen.

SCREEN 10

3 **Lbb**

This is the Process Loop Break Band screen. It is used to set the temperature band for the loop break alarm. The (+) or (-) buttons can be used to change the setpoint. When outside the deviation band, if the actual temperature does not move toward the setpoint by this value in the time value in screen 11, a loop break alarm will occur.

(continued)

Control Function Descriptions (continued)

Process Screens Function

SCREEN 11

10 **Lbt**

This is the Process Loop Break Time screen. It is used to set the temperature band time for the loop break alarm. The (+) or (-) buttons can be used to change the temperature band time. When the actual temperature is outside the deviation band, if the temperature is not moving toward the setpoint at a rate greater than or equal to the value in screen 10 for the amount of time selected in this screen (sec.), then the heater will activate a Loop Break alarm. Once the actual temperature is within the deviation band, the loop break is ignored.

SCREEN 12

250 **H.AL**

This is the Process Alarm High Temperature Setpoint screen. It is used to set the temperature at which the process high temperature shutdown alarm (A1) will shutdown the heater and display the alarm. The (+) or (-) buttons can be used to change the setpoint.

SCREEN 13*

2 **P.dL**

This is the Process High Switch Alarm Delay. It is used to delay the process heater alarm. This setting is the delay time in seconds that an alarm will occur on loss of process heat. The (+) or (-) buttons can be used to change the setpoint.

SCREEN 14

5 **A.dL**

This is the Airflow Alarm Delay. It is used to delay the airflow alarm. This setting is the delay time in seconds that an alarm will occur on loss of airflow. The (+) or (-) buttons can be used to change the setpoint.

Control Function Descriptions (continued)

Process Screens **Function**

SCREEN 15*

50 **Pb**

This is the Process Proportional Band screen. It is used to change the proportional band value for the process control loop. The (+) or (-) buttons can be used to change the proportional band setpoint.

* These parameters will be automatically adjusted by the Autotune procedures. Conair does not recommend they be adjusted individually.

SCREEN 16*

16 **int**

This is the Process Integral screen. It is used to change the integral value for the process control loop. The (+) or (-) buttons can be used to change the integral value setpoint.

SCREEN 17*

2 **dEr**

This is the Process Derivative screen. It is used to change the derivative value for the process control loop. The (+) or (-) buttons can be used to change the derivative value setpoint.

SCREEN 18

tun **OFF**

This is the Process Heater Autotune screen. *See Operation section entitled, Autotuning.* The Autotune procedure should be performed when setting up the ResinWorks system the first time or if the control is inconsistent. Autotuning may take a few minutes to complete. When finished, the display will read “don”. The new PID values are automatically saved to screens 15, 16, and 17.

(continued)

Control Function Descriptions (continued)

Setback Screens

Function

To access the ResinWorks' Setback screens, press the **“Scroll”** and (+) buttons at the same time and hold for two seconds from the Process Screens (Screen 8). To exit the ResinWorks' setback screens at any time, press the **“Scroll”** and (-) buttons at the same time.

When the Setback option is installed these screens will be displayed.

SCREEN 19 (optional) (Read-only)

SEt **bAc**

This is the Setback Option Setup screen. It indicates that all items below it pertain to the Setback option.

SCREEN 20

Sb.t **OFF**

This is the Setback on Temperature screen. Use the (+) or (-) buttons to turn the Setback on Temperature on or off.

SCREEN 21

Sb.L **OFF**

This is the Setback on Load Rate screen. (Not available at this time.) This setting should always be set to “OFF”.

SCREEN 22 (optional) (Read-only)

rEt **250**

This shows the Actual Return Air Temperature measured underneath the hopper in the return air elbow.

Control Function Descriptions (continued)

Setback Screens

Function

SCREEN 23

10

bAn

This shows the Setback Return Band setting. The value is used to determine when the setback mode is disabled, once the dryer has gone into the setback mode. This example indicates a 10°F {5.5°C} band width, which means when your hopper outlet temperature is 10°F {5.5°C} below your setpoint, the ResinWorks will come out of setback mode.

When the Setback option is installed these screens will be displayed.

SCREEN 24

10

SLS

This is the Setback Load Rate Setpoint screen. (Not available at this time.)

SCREEN 25

Ldr

0

This is the Load Rate Reading screen. (Not available at this time.)

Control Function Descriptions (continued)

Gateway Communication Screens

SCREEN 26 (Read-only)

Add **rES**

SCREEN 27


0 **500**

Function

To access the ResinWorks' Gateway Communications screens, press the “**Scroll**” and (+) buttons at the same time and hold for two seconds from the Setback screens, screen 18. To exit the ResinWorks' Gateway Communications screens at any time, press the “**Scroll**” and (-) buttons at the same time.

This is the Gateway Communications Header screen. It indicates that all items below it pertain to address registers for the communications gateway.

This screen and all the following address screens show which internal parameters are mapped to the customer communications area. Conair does not recommend using this function unless instructed to by a Conair Service Technician.

 **CAUTION:** The setting on Screen 26 should not be changed without the direction of Conair Service Personnel.

Control Function Descriptions (continued)

Setup Screens

Function

SCREEN 28 (Read-only)

SEt **uP**

SCREEN 29

tyP **rES**

SCREEN 30

Prt **OFF**

SCREEN 31 (optional)

Stb **OFF**

SCREEN 32

id **1**

To access the Setup screens, press the “**Scroll**” and (+) buttons at the same time and hold for ten seconds from the Gateway Communications Screens. To exit the Setup screens at any time, press the “**Scroll**” and (-) buttons at the same time.

This is the initial Setup screen. It indicates that all items below it pertain to the ResinWorks setup.

This screen indicates the hardware to the controller. This controller can be setup to control a dryer or a ResinWorks. This should always be set to “rES” for a ResinWorks system.

This is Process Protection On/Off screen. This should always be set to “OFF” for a ResinWorks system since process protection is not an option.

This screen turns the Setback “On” or “Off”. The ResinWorks system is shipped with function set to “On” if the setback option is installed.

This screen allows the user to modify the default device address. If multiple controllers are connected to a gateway or other external device, the address may need to be changed so that multiple controllers do not have the same address. The (+) or (-) buttons can be used to change the setpoint.



NOTE: To go from the Process Screens directly to the Setup Screens (skipping over the Setback and Gateway Communications Screens), press the “**Scroll**” and (+) buttons at the same time and hold for 10 seconds.



NOTE: Screen 29 (Process Protection) **MUST** be left in the “OFF” position since it is not an option on ResinWorks systems.

Control Function Descriptions (continued)


Setup Screens

SCREEN 33

tSt **OFF**

SCREEN 34

F **unt**

 **CAUTION:** The setting on screen 35 should not be changed without the direction of Conair Service Personnel.


SCREEN 35

Ld.d **OFF**

Function

This screen lets you access the Test Mode. To access the Test Mode screens, press the (+) button when you are at this screen. To exit the Test Mode screens at any time, press the “**Scroll**” and (-) buttons at the same time.

This is the Temperature Units screen. Use the (+) or (-) buttons to change the temperature display from °F to °C or °C to °F.

 **NOTE:** The current temperature selection will periodically flash on the main screen.

This screen returns the control board to the factory default settings (not necessarily for a specific model). Conair does not recommend using this function unless instructed to do so by a Conair Service Technician.

Control Function Descriptions (continued)

Test Mode Screens

SCREEN 36 (Read-only)

tE	St
----	----

SCREEN 37 (Read-only)

in.1	OFF
------	-----

SCREEN 38 (Read-only)

in.2	OFF
------	-----

SCREEN 39 (Read-only) (Not Used)

in.3	OFF
------	-----

Function

To access the Test Mode screens, press (+) button when you are in the “Go To Test Mode” screen (screen 33). To exit the Test Mode screens at any time, press the “Scroll” and (-) buttons at the same time.

This is the Test Mode screen. While in Test Mode, you can see the status of the inputs and outputs and you can toggle the outputs on or off by pressing the (+) or (-) buttons on the control.

This screen shows the state of Digital Input 1. If the input is open, "OFF" will be displayed. If the input is closed, "ON" will be displayed. Digital input 1 on a ResinWorks system is the Heater High Temperature switch. This switch is closed during normal operation. It opens when it detects a high temperature inside the process heater tube.

This screen shows the state of Digital Input 2. If the input is open, "OFF" will be displayed. If the input is closed, "ON" will be displayed. Digital input 2 on a ResinWorks system is the Heat On/Off Enable switch.

This screen shows the state of Digital Input 3. If the input is open, "OFF" will be displayed. If the input is closed, "ON" will be displayed. Digital input 3 on a ResinWorks system is the optional Load Rate relay. The relay is closed when the loader on top of the drying hopper is loading and open when it is not loading.

(continued)



NOTE: Screen 39 is not used on this version of software.

Control Function Descriptions (continued)

Test Mode Screens

SCREEN 40 (Read-only)

in.4 **ON**

* Outputs 1, 2, and 4 are not used in the ResinWorks system.

SCREEN 41*

Ou.1 **OFF**

SCREEN 42*

Ou.2 **OFF**

SCREEN 43

Ou.3 **OFF**

SCREEN 44*

Ou.4 **OFF**

Function

This screen shows the state of Digital Input 4. If the input is open, "OFF" will be displayed. If the input is closed, "ON" will be displayed. Digital input 4 on a ResinWorks system is used for the air pressure switch. (A8 alarm)

This screen shows the state of Digital Output 1. Press the (+) button to jog output 1. Output 1 on a ResinWorks system is not used.

This screen shows the state of Digital Output 2. Press the (+) button to jog output 2. Output 2 on a ResinWorks system is not used.

This screen shows the state of Digital Output 3. Press the (+) button to jog output 3. Output 3 on a ResinWorks system is the Process Heater Solid-State Relay signal. Pressing the (+) button will cause the process solid-state relays to fire. Observe the solid-state relay LED to check this output. Since the isolation contactor is open, the heater does not come on because it does not have power.

This screen shows the state of Digital Output 4. Press the (+) button to jog output 4. Output 4 on a ResinWorks system is not used.

Control Function Descriptions (continued)

Test Mode Screens

SCREEN 45

ou.5 **OFF**

SCREEN 46

ou.6 **OFF**

Function

This screen shows the state of Digital Output 5. Press the (+) button to jog output 5. Output 5 on a ResinWorks system is the Process Heater Power Isolation Contactor signal. Pressing the (+) button will cause the isolation contactor to close. Watch the isolation contactor pull in to check this output. Since the solid-state relays are not on, the heaters do not come on because they do not have power.

This screen shows the state of Digital Output 6. Press the (+) button to jog output 6. Output 6 on a ResinWorks system is the General Alarm relay. Pressing the (+) button will cause the relay to close. Observe the relay LED to check this output.

ResinWorks DC Control Alarms

Passive Alarms

Passive alarms flash the alarm code and display process temperature until the alarm condition goes away, or it becomes a shut down alarm.

Code	Description	Alarm LED
P1	Process Temperature Deviation	Blinking Red

Shut Down Alarms

Shut Down alarms flash the alarm code and display process temperature. The ResinWorks process air heaters should stop when the process temperature is below 150°F {66°C} but should still flash the alarm code until the **“Acknowledge Alarm”** button is pressed. If the alarm condition is still active, the ResinWorks cannot start. It will flash the alarm code again. If the alarm condition is not active, the display should return to the normal default screen display and the ResinWorks is ready to run.

Alarms place the control in “Standby” mode. After the alarm is corrected and acknowledged, cycle the heater **“Standby/Enable”** switch to “Standby” then back to “Enable” to restart the process control.

Code	Description	Alarm LED
A1	Process High Temperature	Solid Red
A2	Process Temperature Loop Break	Solid Red
A3	Process Heater Tube High Temperature	Solid Red
A8	Airflow Switch Loss	Solid Red
A10	RTD Integrity	Solid Red
A39	EEProm Write Error-Internal Control	Solid Red

Initial Operation

1 Hopper material: Fill the hopper(s) with the material to be heated.



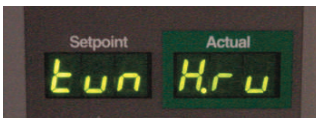
WARNING: Fire potential - The electric heating elements are exposed to the air going into the hopper. It is important that there is no debris in this air stream. Under no circumstances should the tube heater be ran in a dirty air stream as material passing through the heater could ignite embers and shoot sparks into the hopper, which could catch fire.

2 Autotuning: When the unit is fully assembled and ready for operation, it should be tuned to the actual system that it is connected to with material in the hopper. *See Operation section entitled, Autotuning.*

3 Hopper residence time: The material throughput rate must be determined by the size of the hopper, the drying time required and the extent of drying desired for the product.

Autotuning

❖ **Tip:** Conair recommends that the Autotune should be run from a cold start. The minimum temperature difference between the start temperature and setpoint temperature you will be running should be 50°F {28°C}.



Follow the procedure below to “Autotune” the ResinWorks system.

- 1 Use the toggle switch and put the ResinWorks control into “Standby”.
- 2 Adjust the setpoint to a “Normal” setting.
- 3 Establish the normal operating air flow.
- 4 Access the Process menu by pressing and holding the “Scroll” and (+) buttons for 2 seconds until “Process” is displayed.

PrO cES

- 5 Press the “Scroll” button until “Tune Off” is displayed.

tun OFF

- 6 Press the (+) button until “Tune Set” is displayed. If the control remains on Screen 8, the difference between the setpoint and the actual temperature is not at least the required minimum of 50°F {28°C}.

tun SEt

- 7 Enable the heater after the system stabilizes. The following will display when Autotuning starts.

tun H.ru

- 8 When Autotune is complete, “Tune Done” is displayed and the heater is placed in the Standby mode.

tun don

- 9 Note the “Pb”, “int”, and “dEr” values on screens 15, 16 and 17 have been optimized.

Autotuning (continued)

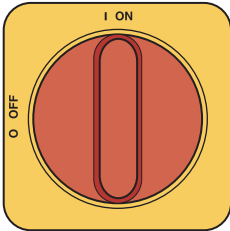
- 10** Cycle the heater's toggle switch to "Standby" and then back to "Enable", to return to normal control.
- 11** If "Tune Error 1" is displayed, the Autotune was not successful and the process must be repeated. The most likely reason for this error is that the difference between the starting temperature and the autotune temperature was not at least 50°F {28°C}.

tun Er.1

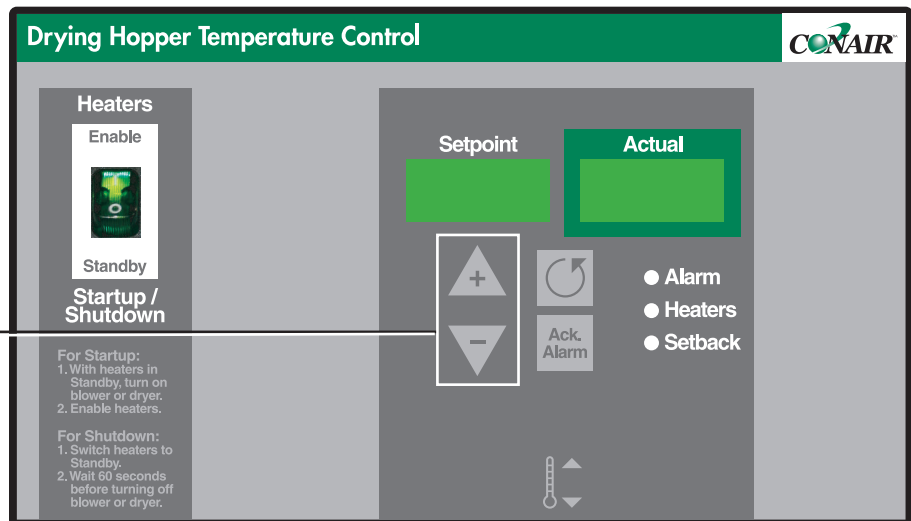


Normal Operation To Start Processing

- 1 Determine what the ResinWorks' setpoint must be for your process and materials.** Consult your material supplier.
- 2 Make sure there is material in the hoppers.**
- 3 Start the dryer that is connected to the ResinWorks system.**
- 4 Ensure the flow of conveying air (optional Cargo Caire) to the ResinWorks, if supplied.**
- 5 Turn on the main power to the ResinWorks system.** Make sure the ResinWorks disconnect dial is in the ON position. This powers up the control and the display lights will illuminate.
- 6 Make sure the air flow valve is in the “Open” position** (all the way up).
- 7 Set the processing temperature.** Press the Adjust Setpoint ▲ or ▼ buttons to select the temperature.



Setpoint Adjust
Buttons



- 8 Move the heater toggle switch to “Enable” to start heating.**

Normal Operation To Stop Processing

1 Move the heater toggle switch to “Standby”.

! **IMPORTANT:** Always turn off the ResinWorks **BEFORE** the dryer.

2 Allow the ResinWorks to cool to below 150°F {65.5°C}.

3 Turn the air flow valve “Off” (all the way down).

4 Turn off the dryer and conveying air (Cargo Caire), if applicable.

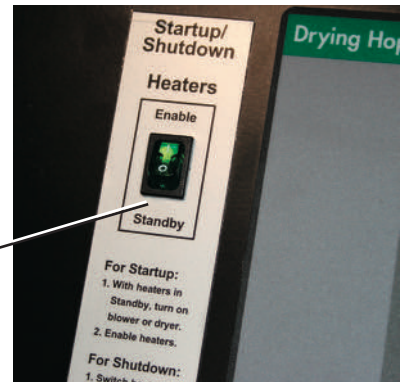
5 Be sure to disconnect and lockout the main power if you have stopped the ResinWorks to perform maintenance or repair.

! **IMPORTANT:** Lockout the main power. It is also important to note that each hopper is equipped with a lockout device.

! **CAUTION:** Improper shut down can cause damage to your ResinWorks system.

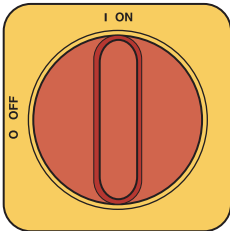
✎ **NOTE:** If an individual hopper is not in use, it is recommended that the airflow valve is off. If the airflow remains on, it may effect air flow to the rest of your ResinWorks system.

Standby
Position

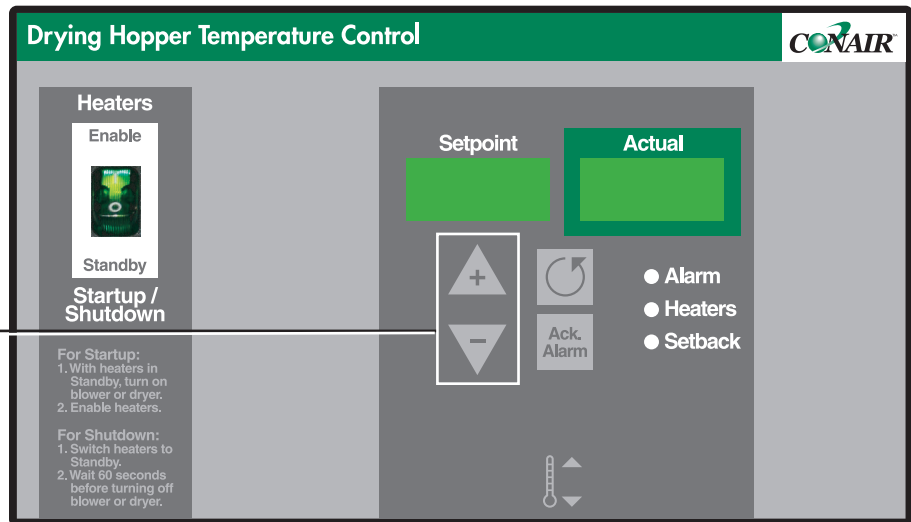


Normal Operation To Start Processing (Single Hopper)

- 1 Determine what the ResinWorks' setpoint must be for your process and material.** Consult your material supplier.
- 2 Make sure there is material in the hopper to be used.**
- 3 Start the dryer that is connected to the ResinWorks system.**
- 4 Ensure the flow of conveying air (optional Cargo Caire) to the ResinWorks, if supplied.**
- 5 Turn on the main power to the ResinWorks system.** Make sure the ResinWorks disconnect dial is in the ON position. This powers up the control and the display lights will illuminate.
- 6 Make sure the air flow valve is in the “Open” position** (all the way up).
- 7 Set the processing temperature.** Press the Adjust Setpoint ▲ or ▼ buttons to select the temperature.



Setpoint Adjust
Buttons



- 8 Move the heater toggle switch to “Enable” to start heating.**

Normal Operation To Stop Processing (Single Hopper)

1 Move the heater toggle switch to “Standby”.

! **IMPORTANT:** Always turn off the ResinWorks **BEFORE** the dryer.

2 Allow the ResinWorks to cool to below 150°F {65.5°C}.

3 Turn the air flow valve “Off” (all the way down).

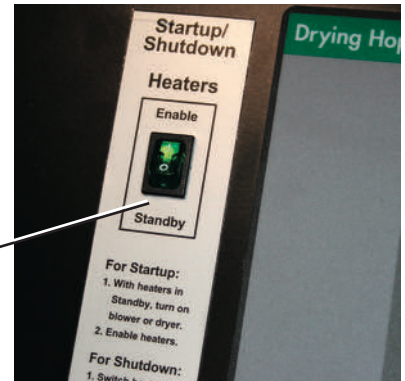
4 Turn off the dryer and conveying air (Cargo Caire), if applicable.

5 Be sure to disconnect and lockout the main power on the hopper if you have stopped the ResinWorks to perform maintenance or repair.

! **IMPORTANT:** Lockout the main power. It is also important to note that the hopper is equipped with a lockout device.

! **CAUTION:** Improper shut down can cause damage to your ResinWorks system.


Standby
Position




Adjusting the Manual Air Bypass Valve (39 and 44 inch hoppers)

When using large, single sled ResinWorks systems, adjustment of the manual air bypass valve is required. Typically, when the ResinWorks sled is in-use the air flow adjustment lever is in the “opened” position the bypass valve will need to be closed. The opposite is also true when the ResinWorks sled is not in-use and the air flow lever is in the “closed” position.

To adjust the manual air bypass valve:

 **NOTE:** It may be necessary to open or close the manual bypass valve depending upon the amount of hoppers or airflow within your system.

 **NOTE:** As hoppers are added to your system, in addition to adjusting the manual bypass valve, it may be necessary to adjust the end-of-line bypass valve. When all hoppers are in use, the end-of-line bypass valve is almost closed, the opposite is true when hoppers are not used.

- 1 Upon initial setup of your ResinWorks system, the manual bypass valve (located on the back of the ResinWorks sled) should be fully closed** and the air flow lever is fully open (all the way up). Proper adjustment of the manual bypass valve is also dependent on the type of material to be processed.
- 2 Make sure there is material in the hopper to be used.**
- 3 Start the dryer that is connected to the ResinWorks system.**
- 4 Ensure the flow of conveying air (optional Cargo Caire) to the ResinWorks, if supplied.**
- 5 Turn on the main power to the ResinWorks system.** Make sure the ResinWorks disconnect dial on the hopper to be used is in the ON position. This powers up the control and the display lights will illuminate.
- 6 Set the processing temperature.** Press the Adjust Setpoint ▲ or ▼ buttons to select the temperature.
- 7 Check to ensure proper air flow through the ResinWorks hopper. If too much air flow is reaching the hopper slightly open the manual air bypass valve to allow air to recirculate back to the dryer or Contact a Conair Service Technician for your particular air flow requirements.**
- 8 Move the heater toggle switch to “Enable” to start heating on the hopper to be used.**


Initial ResinWorks Autostart

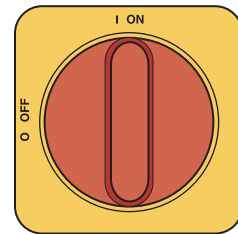
(Carousel Plus Dryers only)


The ResinWorks system can be configured to start drying automatically in conjunction with your dryer’s autostart function. Correct preparation must be followed for this feature to function properly with the ResinWorks system.

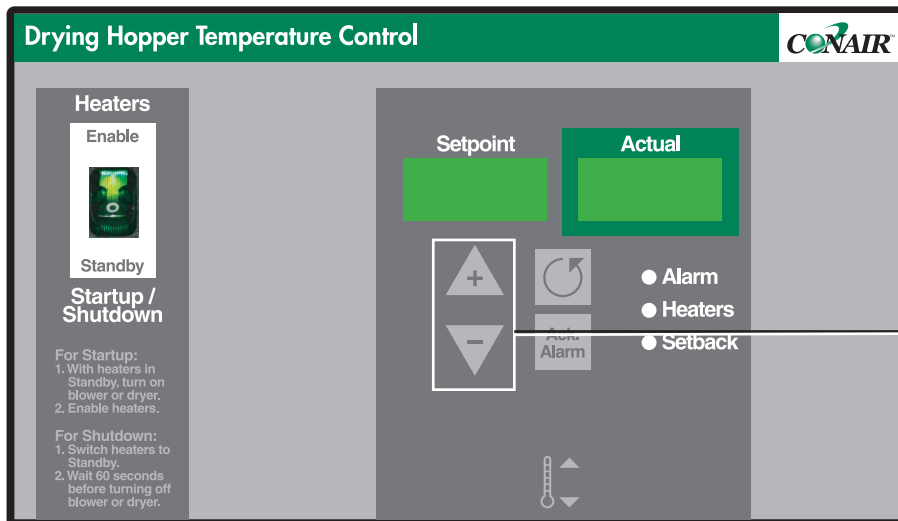
To configure the ResinWorks system to start automatically:

- 1 Determine what the ResinWorks’ setpoint must be for your process and material.**
- 2 Check to ensure there is material in the ResinWorks hopper(s).**
- 3 Turn on the main power to the ResinWorks.** Make sure the ResinWorks’ disconnect dial is in the ON position. This powers up the control and the display lights will illuminate.
- 4 Set the drying temperature.** Press the Adjust Setpoint ▲ or ▼ buttons to select the temperature.

 **NOTE:** Reference your particular dryer manual for steps to activate Autostart.



 **NOTE:** This procedure must be repeated for each individual hopper station.



- 6 Turn the heater switch to “Enable”.** The control will wait at this state until it detects airflow from the dryer. Once airflow is detected, the ResinWorks’ heaters will be enabled and your material will start to dry.

Operational ResinWorks Autostart

(Carousel Plus Dryers only)

The ResinWorks and dryer must be shut down properly in order for the ResinWorks to automatically start again using the dryer's autostart function.

To shut down the ResinWorks:

- 1 Turn the heater switch to “Standby” on the ResinWorks.



IMPORTANT: Always turn off the ResinWorks **BEFORE** the dryer.

- 2 Allow the ResinWorks' heaters to cool to below 150°F {65.5°C}.

- 3 Press the “Stop” button on the dryer to allow proper cool down.

- 4 Once the blowers on the dryer have stopped running, turn the heater switch on the ResinWorks to “Enable”. The ResinWorks will remain in Standby mode until it detects airflow from the dryer. Once airflow is detected, the ResinWorks' heaters will be enabled and your material will start to dry.



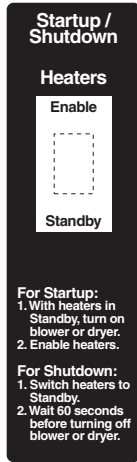
CAUTION: Improper shut down can cause damage to your heater.



NOTE: This procedure must be repeated for each individual hopper station.



NOTE: Reference your particular dryer manual for steps to activate Autostart.



Maintenance

Preventative maintenance checklist 5-2
Cleaning the hoppers 5-3

Preventative Maintenance Checklist

The ResinWorks conveying and preconditioning system requires little maintenance. Conair recommends the following maintenance schedule and tasks.

- **Whenever you change material or process**

- Change the ResinWorks setpoint if it must be changed.**

- **Daily or weekly as needed**

- Inspect the inlet and outlet hoses.**

Tighten the hose clamps if loose. Replace hoses if worn or damaged.

- Inspect the filters on the central dryer (process and regeneration).**

Clean or replace the filter as necessary.

- **Monthly or as often as needed**

- Inspect the main power wires, heater wires and conduit and RTD probe wires for damage and wear.**

Replace any damaged or worn wire or conduit.

- Check for any damage to the control panel.**

Replace if damaged.

- Check for damage to the heater.**

Replace if damaged.

- Clean dirt from exterior surfaces with a cloth dampened with water.**

Cleaning the Hoppers

CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside the dryer and drying hopper.

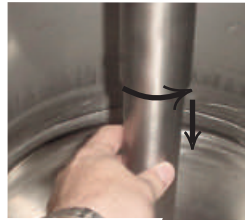
The hopper, spreader cone and discharge assembly should be cleaned thoroughly between material changes to prevent resin contamination.

- 1 Place a container beneath the hopper's drain port** to catch the material.



- 2 Close the optional hopper slide gate or remove material from the hopper before removing the distribution box or Adjustable Purge Valve (APV).**

- 3 Disconnect the hoses and remove the distribution box or Adjustable Purge Valve (APV) under the hopper.** Allow the remaining material to drain into a bucket.



- 4 Remove the spreader cone.** Open the hopper door. Reach into the hopper. Grasp the spreader cone tube, lift up slightly, twist and then push down to release it. Tilt the cone assembly and pull it out through the hopper door.



(continued)

Cleaning the Hoppers (continued)

- 5** Clean the spreader cone and the inside of the hopper. Make sure you also clean the return air screen at the return air outlet of the hopper.
- 6** Repeat the steps in reverse order to reassemble the hopper **before** adding material.



Troubleshooting

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<u>DIAGNOSTICS</u>	
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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 start disassembling the components of the ResinWorks conveying and preconditioning system be sure to:

Diagnose causes from the control panel.

1 Press the “Acknowledge Alarm” button to acknowledge the alarm.

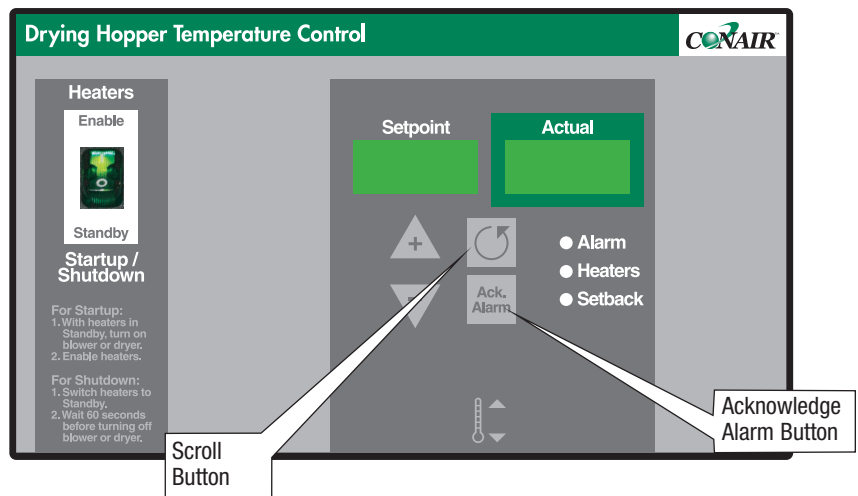
2 Address the alarm message and fix the problem.

3 Move the heater toggle switch from “Enable” to “Standby”.

4 Cycle the heater toggle switch from “Standby” to “Enable” to restart normal control. If the alarm reappears the problem was not fixed.

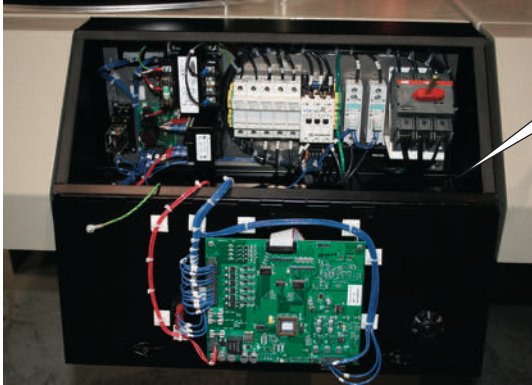
If the alarm is a **passive alarm** you will see **P** in the screen title display.

If the alarm is a **shut down alarm** you will see **A** in the screen title display.



Before Beginning (continued)

- ❑ **Find the wiring and equipment diagrams that were shipped with your ResinWorks system.** These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring or alarm capabilities, not covered in this User Guide.



See warnings below. Open the control panel to check fuses and heater contactors.

A Few Words of Caution

The ResinWorks conveying and preconditioning system is equipped with numerous safety devices. Do not remove or disable them. Improper corrective action can lead to hazardous conditions and should never be attempted to sustain production.

! **WARNING: Only qualified service technicians should examine and correct problems that require opening the ResinWorks' control panel or using electrical wires to diagnose the cause.**

WARNING: High voltage. Always stop the ResinWorks, disconnect and lock out the main power source before troubleshooting or performing repairs.

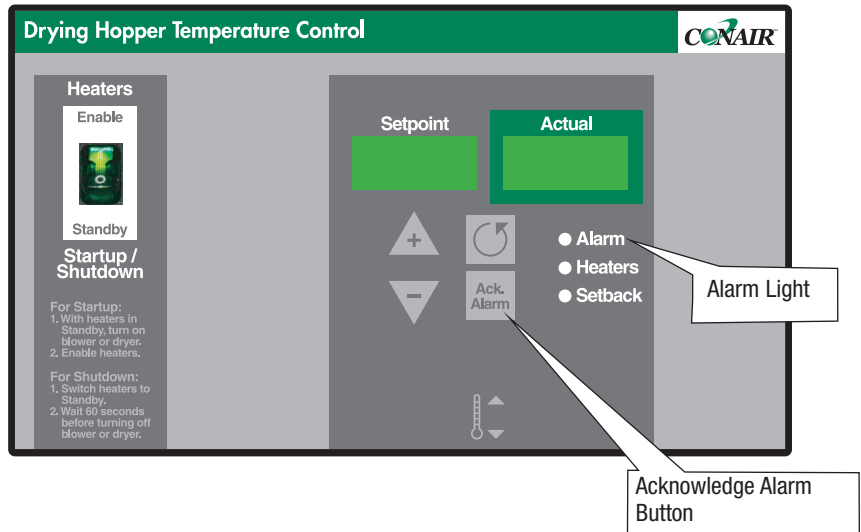
CAUTION: Hot surfaces. Always protect yourself from hot surfaces inside and outside of the ResinWorks.

How to Identify the Cause of a Problem

Most process malfunctions are indicated by an illuminated alarm light on the ResinWorks conveying and preconditioning system control panel.

A problem can trigger two types of alarms:

- **Shut down:** The ResinWorks has automatically shut down because it detected a serious problem that could damage your material or dryer.
- **Passive:** The ResinWorks continues to operate, but warns of a problem that could prevent correct conveying and preconditioning of your material. If ignored, this problem could lead to a condition that will shut down the system.



When the alarm light is displayed:

- 1** Press the “Acknowledge Alarm” button to acknowledge the alarm.
- 2** Find the error message in the diagnostics table, [see Troubleshooting section](#).
- 3** Cycle the heater toggle switch from “Enable” to “Standby” and then back to “Enable” to clear and restart normal control. If the alarm reappears, the problem was not fixed.

Shut Down Alarms

If the red Acknowledge Alarm LED is solid, the alarm is a shut down alarm. The ResinWorks will shutdown automatically to prevent damage to the equipment or personnel.

Problem	Possible cause	Solution
<p>A1 Process High Temperature – If the process temperature exceeds the process high temperature setpoint, it shuts down the ResinWorks. Defaults are set to 385°F {196.1°C} for 20 seconds.</p>	The RTD temperature probe is not installed correctly.	Make sure the RTD temperature probe tip is in the center of the hopper inlet tube.
	The air lines are restricted or loose.	Straighten any crimps in the hoses. Tighten any loose hoses.
	Solid state relay (SSR) has failed.	Replace the solid state relay (SSR).
	Output on the board has failed.	Replace the board.
<p>A2 Process Temperature Loop Break – If the process temperature is outside of the operator entered deviation, alarm band (see Process High Temperature Deviation passive alarm) and the process temperature is not moving towards the setpoint at a rate greater than specified. It shuts down the dryer. Defaults are set at 3°F {1.7°C} over 20 seconds.</p>	Process RTD is loose or has fallen out.	Check the process RTD and tighten if needed.
	The process heater has failed.	Check the heater fuses, and resistance across each leg of the process heater. <i>See Troubleshooting section entitled, Replacing Fuses.</i>
	The air lines are restricted or loose.	Straighten any crimps in the hoses. Tighten any loose hoses.
	Output on the board failed “Open”.	Replace the board.
	Drying or setback setpoint is too low.	Adjust the setpoint.

Shut Down Alarms (continued)

If the red Acknowledge Alarm LED is solid, the alarm is a shut down alarm. The ResinWorks will shutdown automatically to prevent damage to the equipment or personnel.

Problem	Possible cause	Solution
A3 Process Heater High Temperature – The snap switch in the process heater tube opens due to excessive temperature.	There is an air flow blockage or loose hoses.	Remove the blockage. Tighten any loose hoses.
	The isolation contactor failed in the closed position.	Replace the isolation contactor.
	The heater solid state relays (SSRs) failed.	Replace the failed heater solid state relays (SSRs).
	No air flow or the airflow is reversed.	Turn on the blower. Reverse the connection points of the hoses. Check the operation of the differential pressure switch.
A8 Airflow Switch Loss – The airflow to the ResinWorks system has been interrupted for a duration longer than 10 seconds.	The dryer for the ResinWorks system has been turned off.	Restart the dryer.
	Too short of an alarm delay setpoint.	Increase the duration of alarm delay, <i>see Operation section, entitled, Control Descriptions, Screen 14.</i>

Shut Down Alarms (continued)

If the red Acknowledge Alarm LED is solid, the alarm is a shut down alarm. The ResinWorks will shutdown automatically to prevent damage to the equipment or personnel.

Problem	Possible cause	Solution
A10 RTD Integrity – If a RTD is faulty.	The connection for the RTD is loose.	Check the RTD plug connection and tighten if needed.
	The connection of the RTD plug on the control board is loose.	Check the plug connection and tighten if needed.
	One of the RTDs has failed.	Replace the RTD.
	The RTD is enabled but wired incorrectly.	Move the wires to the proper terminals (see the wiring diagrams supplied with the unit).
A39 EEPROM Write Error.	Internal control board problem.	Replace the control board.

Passive Alarms

If the red Alarm LED is blinking, the alarm is a passive alarm. The heater continues to operate, but this problem could prevent correct heating of your material. Note that once the “**Acknowledge Alarm**” button is pressed once, the blinking red LED becomes solid. A passive alarm will go away when the alarm condition is cleared.

Problem

P1 Process Temperature Deviation – The process temperature exceeds the deviation band as entered for the specified time. Default values are 10°F {5.5°C} for 5 sec.

Possible cause

One of the solid state relays (SSRs) has failed.

The process RTD is loose or has fallen out.

The air hose connections are loose.

The heater has failed.

Solution

Replace the failed solid state relays (SSR).

Check the process RTD and tighten if needed.


Tighten all air hose connections.

Replace the failed heating element. *See Troubleshooting section entitled, Replacing the Process Heater.*

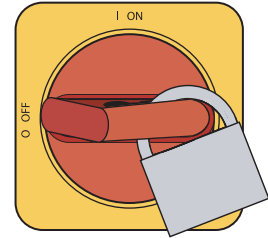
Opening the Control Panel


To open the control panel:

1 Lockout the power with the main power disconnect switch.

 **NOTE:** If the main power disconnect switch is in the "On" position, the control panel CANNOT be opened.

2 Turn the two (2) locking screws 1/2 turn counterclockwise.



 **IMPORTANT:** Always refer to the wiring diagrams that came with your ResinWorks to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.



3 Pull the top of the control panel away from the sled. The panel is hinged on the bottom and opens out towards the technician.

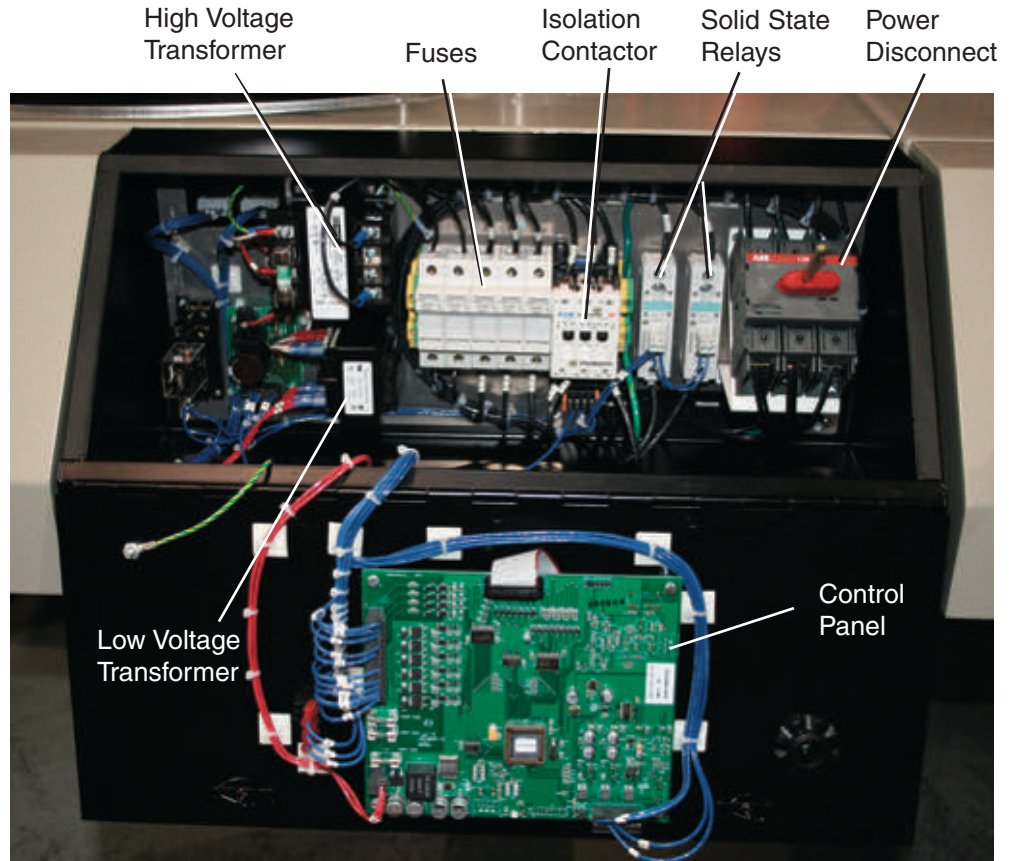
4 This gives access to all control circuit components including the:

- Power disconnect
- SSRs for the process heater
- Isolation contactor
- Fuses
- High voltage transformer going from 460V to 110V
- Low voltage transformer (24V) to power the control panel
- Relays
- Communications board (optional)
- Control panel

(continued)

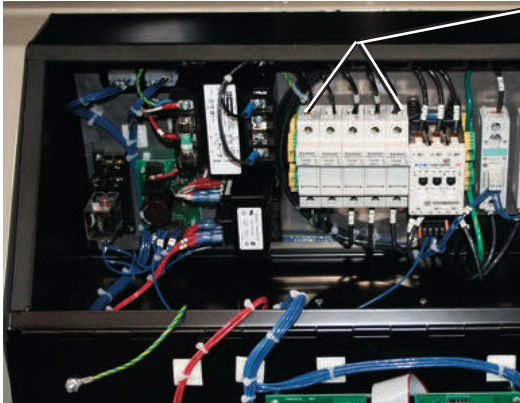
Troubleshooting | 6-7

Opening the Control Panel (continued)



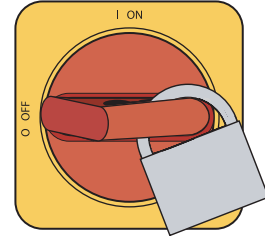
Replacing Fuses

- 1 Disconnect and lockout the main power supply.**
- 2 Open the control panel.** *See Troubleshooting section entitled, [Opening the Control Panel](#).*



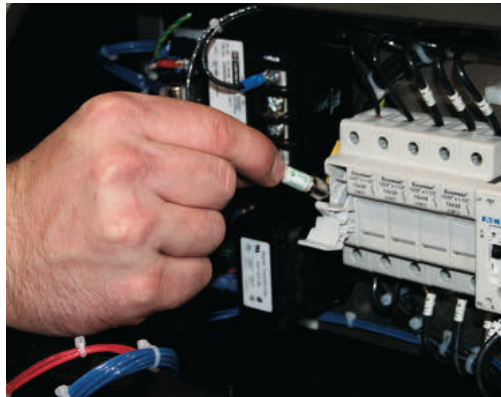
Fuse Blocks

To locate the appropriate fuse and replacement part, refer to the wiring diagrams that came with your ResinWorks.



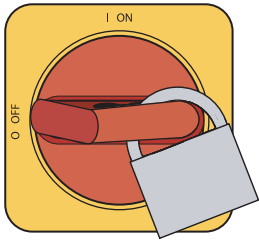
IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

- 3 Check the fuse.** If necessary, pull the fuse out and replace it with a fuse of the same type and rating.



Replacement fuses are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861



IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

Replacement solid state relays (SSRs) are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861

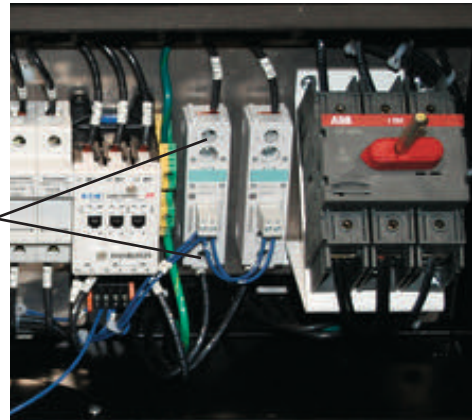
Checking Process Solid State Relays (SSRs)

- 1 Disconnect and lockout the main power supply.**
- 2 Open the control panel.** *See Troubleshooting section entitled, Opening the Control Panel.*
- 3 Locate the process solid state relays (SSRs).** Refer to the wiring diagrams that came with your ResinWorks.
- 4 Check the resistance using an ohmmeter.**

Solid state relays

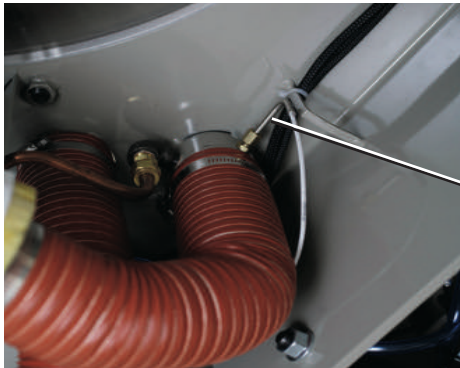
Check the resistance between the terminal screws. If ohms equal zero, replace the relays.

Terminal Screws



Checking or Replacing Temperature Sensors

The ResinWorks process air heater uses RTD sensors to monitor the process temperature in the hoppers and the setback temperature (optional) in the return air elbow.



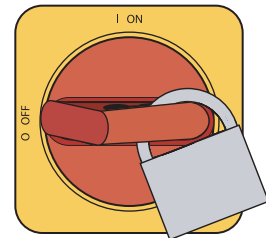
Typical location of the Process RTD at the hopper inlet.

To check or replace an RTD sensor:

- 1 Disconnect and lockout the main power supply.**
- 2 Locate the RTD sensors.**
- 3 Check the sensor positions and conditions.** Temperature readings will be incorrect if the sensors are touching the wall of a component or if the sensor or wiring is damaged. The tip of the sensor should be centered within its receptacle. Sensor wires should be attached to the appropriate connectors in the ResinWorks' wiring.
- 4 To check with an ohm meter,** measure the resistance across the RTDs. The resistance should be approximately 110 ohm at room temperature.
- 5 If an RTD sensor is found to be defective, replace the sensor.** To replace the sensor, locate the RTD wiring harness connector and disconnect the RTD harness from the connector. Remove the RTD sensor from its mounting location.
- 6 Install the new RTD sensor by installing the RTD in its mounting location.** Route the RTD harness to its connector and plug the harness into the connector.

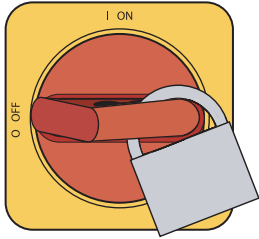


IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.



Replacement sensors are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861



IMPORTANT: Always refer to the wiring diagrams that came with your ResinWorks to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

Replacement process heaters are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861

Replacing the Process Heater

- 1 Disconnect and lockout the main power.**
- 2 Locate the heater wiring harness connector and disconnect the harness.**



Heater Wiring Harness

- 3 Note the orientation of the “hot” and “cold” ends of the heater. The new heater MUST be installed in the same orientation.** The heater wires are on the “cold” end of the heater.





Hot End

Cold End

- 4 Remove the hose clamps at both ends of the process heater.** Pull the hoses of both ends of the process heater. The process heater is now free.
- 5 Remove the hose clamps securing the insulation to the heater.** Carefully remove the insulation from the heater.
- 6 Slide the insulation onto the new process heater and secure it using the original hose clamps.**
- 7 To install the new process heater, align the heater then slide the hoses onto the heater.** Secure the hoses to the heater using the original hose clamps.
- 8 Route the process heater harness to its connection point and plug the harness into its connector.**

Replacing the Air Flow Static Pressure Switch

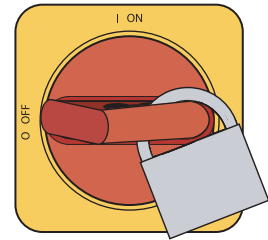
If the air flow static pressure switch fails to detect the pressure drop between the heater inlet and ambient, it should be replaced.


- 1 Stop the ResinWorks, disconnect and lockout the main power.** 
- 2** The air flow static pressure switch is mounted to the inside of the sled frame. **Locate the pressure switch and trace the wiring harness to its connection point. Unplug the pressure switch harness from its connector.** 
- 3 Disconnect the hose from the high side port of the pressure switch, after noting the correct connection point. The low side port has no hose connected to it.**



- 4 Remove and retain the screws securing the pressure switch to the sled frame. Remove the pressure switch.**


- 5 Align the new pressure switch with the mounting holes. Secure the new pressure switch to the sled frame using the original mounting hardware.**
- 6 Connect the hose to the same port from which it was removed.**
- 7 Route the pressure switch wiring harness to the connection point. Connect the harness to the pressure switch connector.**
- 8 Test the system** to ensure that the new air flow static switch is detecting the pressure drop between the heater inlet and ambient. *See Installation section entitled, Testing the system.*



 **IMPORTANT:** Always refer to the wiring diagrams that came with your heater to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

Replacement process heaters are available from Conair.

Contact Conair Parts
(800) 458 1960
From outside of the
United States, call:
(814) 437 6861

 **NOTE:** The air flow static pressure switch must be mounted with the diaphragm vertical.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Department for a nominal fee. Most manuals can be downloaded free of charge from the product section of the Conair website.
www.conairgroup.com


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:



 **NOTE:** Normal operating hours are 8:00 am - 5:00 pm (EST). After hours emergency service is available at the same phone number.

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department.

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 and serial numbers 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:

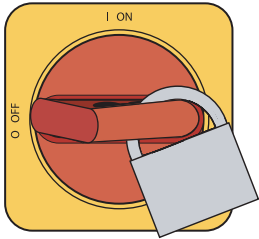
- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the 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.

Installing the Setback RTD (optional)




 **IMPORTANT:** Always refer to the proper wiring diagram supplied with your equipment before making electrical connections.

 **CAUTION:** Always disconnect and lock out the main power sources before making electrical connections. Electrical connections should be made only by qualified technicians.


 **NOTE:** The wiring for the optional setback RTD is pre-installed at the factory before the ResinWorks system is shipped. It is located under the surface of the ResinWorks sled at the left rear corner near the delivery air manifold.

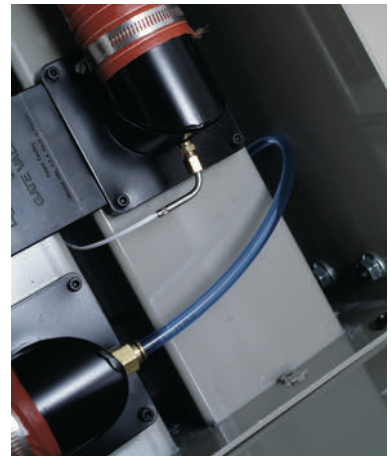
1 **Locate the existing wiring and connector for the setback RTD.** It is located under the surface of the ResinWorks sled at the left rear corner near the delivery air manifold.

 **IMPORTANT:** Always refer to the wiring diagrams that came with your ResinWorks system to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

2 **Remove pipe plug from the return air elbow.**

3 **Insert the setback RTD probe into the return air elbow.** Center the end of the probe so that the tip is in the center of the air flow. Tighten the nut to lock the RTD in place.

 **NOTE:** The RTD probe should **NOT** touch the inlet tube walls.



(continued)

Installing the Setback RTD (optional)

(continued)

- 4** Plug the connector on the setback RTD wiring into the RTD connector.



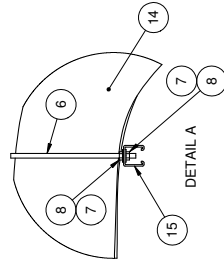
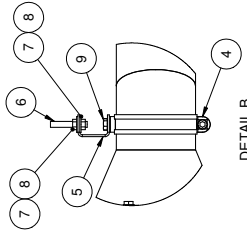
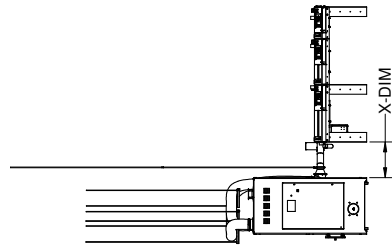
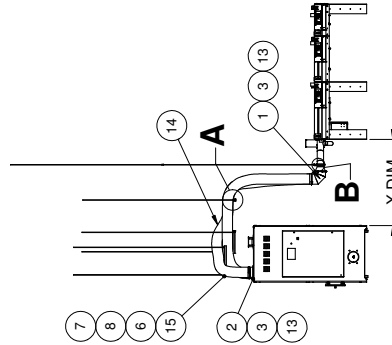
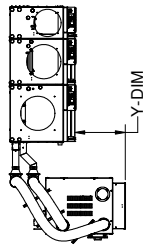
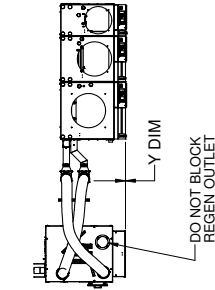
- 5** See *Operation section Control Function Descriptions, Screen 31*, to "activate" the setback RTD on the control.

Appendix C-Drawings

18090120-W600-1000 To Sled Flex Hose<RWH39 . .	C-2
18090121-W600-1000 To Sled Jacobs<RWH39	C-3
18090122-W600-1000 To Sled Flex Hose>RWH33 . .	C-4
18090123-W600-1000 To Sled Jacobs>RWH33	C-5
18090130-W1300-2400 To Sled Flex Hose<RWH39 .	C-6
18090131-W1300-2400 To Sled Jacobs<RWH39 . . .	C-7
18090132-W1300-2400 To Sled Flex Hose>RWH33 .	C-8
18090133-W1300-2400 To Sled Jacobs>RWH33 . . .	C-9
18090140-W3200-5000 To Sled Flex Hose<RWH39	C-10
18090141-W3200-5000 To Sled Jacobs<RWH39 . .	C-11
18090142-W3200-5000 To Sled Flex Hose>RWH33	C-12
18090143-W3200-5000 To Sled Jacobs>RWH33 . .	C-13

18090120 - W600-1000 To Sled Flex Hose <RWH39

ITEM NO.	QTY.	UM	PART NUMBER	LOC	DESCRIPTION
1	2	EA	18472725		ELBOW SUPT TO FLANGE, 8"
2	2	EA	18473521		8 OD ADAPTER FLANGE
3	4	EA	185107809		11OD GASKET, 8" DIA TUBE
4	2	EA	2071300101		5" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
5	2	EA	18589074		ALL THREAD ADAPTER
6	100	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
7	18	EA	25503032		FLAT WASHER, 3/8
8	16	EA	21100902		HEX NUT, 3/8-16
9	2	EA	21247202		M10 x 15mm RHCS CAD PLATED
10	2	EA	22901003		3/8-16 UNC HEX COUPLING NUT
11	16	EA	22300904		LOCKNUT, 3/8-16, WHHZ LOCK CAD PLT
12	16	EA	21264504		SCREW, HEX HEAD, 3/8-16 X 1
13	4	EA	24900184		HOSE CLAMP 7/16" MIN- 8.3/4" MAX I.D.
14	40	FT	2490071082		8" FLEXIBLE DUCTING, RED
15	6	FT	2490130101		CHANNEL, TUBING SUPPORT, GALVANIZED



- NOTE: DIMENSIONS ARE THE SAME REGARDLESS OF LEFT OR RIGHT ORIENTATION.
- HANGING HARDWARE FOR CEILINGS UP TO 19'; CUT AS REQUIRED FOR SHORTER INSTALLATIONS.
 - DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 - ITEM 6, ALL THREAD, SHOULD BE QUANTITY 10 X 10 FOOT SECTIONS TO BE SHIPPED IN TWO 20 FOOT PIECES.
 - ITEM 14, FLEXIBLE DUCTING, SHOULD BE QUANTITY 15 TO THREE PIECES AS NEEDED ON SITE.
 - W600-1000 DRYER AND RESINWORKS SLED SHOWN FOR REFERENCE.
 - THIS KIT IS FOR RWH 33" AND SMALLER.

FRONT PLACEMENT

DISTANCE RANGE		Y-DIM
MIN	MAX	0"
68"	88"	12"

REAR PLACEMENT

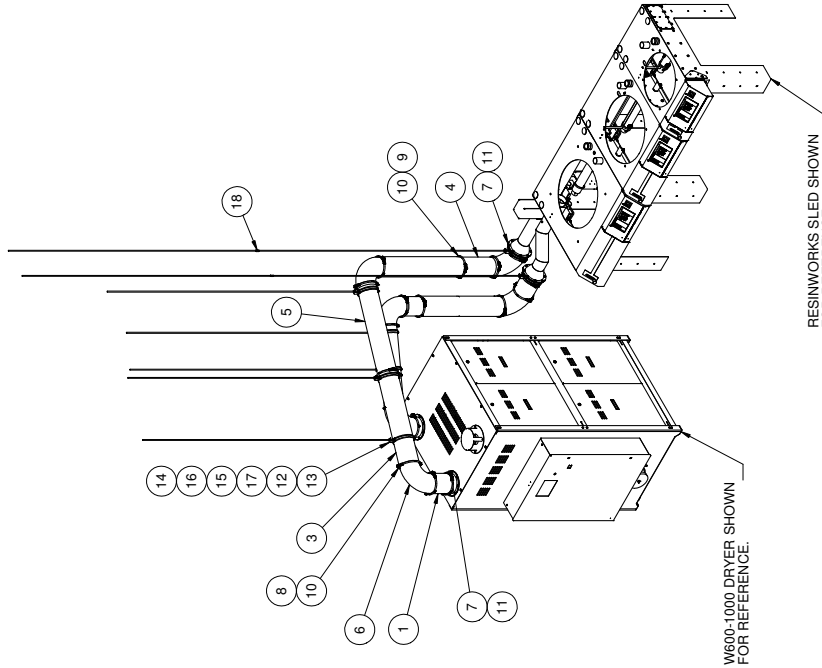
DISTANCE RANGE		Y-DIM
MIN	MAX	40"
12"	36"	63"

The Corair Group Inc. 200 West Kensington Drive Cranberry Twp, PA 16808	
W600-1000 TO RESINWORKS SLED FLEX DUCT KIT < RWH39	
FRACTIONS ±1/32 DECIMAL MACHINING XX: ±0.015 XXX: ±0.005	DRAWING NO: W600-1000-01 JAB DATE: 12/27/13
FORMED SHEET METAL: ±1/2" ANGLES: ±1/2" FINISH: 125	REV: 1 OF 1 18090120 A

A	JAB	INITIAL RELEASE	8/15/14	JWG	103559	ECN	DXF
REV	BY	DESCRIPTION	DATE	APP	ECN		

18090121- W600-1000 To Sled Jacobs <RWH39

ITEM NO.	QTY.	U/M	PART NUMBER	LOC	DESCRIPTION
1	CHART	EA	2671290701		WELDED TUBE, 8" X 8", COATED CS, 19 GA
2	CHART	EA	2671290801		WELDED TUBE, 8" X 20", COATED CS, 19 GA
3	CHART	EA	2671290901		WELDED TUBE, 8" X 39", COATED CS, 19 GA
4	CHART	EA	2671330501		WELDED SLIP TUBE, 8" X 20", COATED CS, 16 GA
5	CHART	EA	2671330601		WELDED SLIP TUBE, 8" X 39", COATED CS, 16 GA
6	6	EA	2671310201		10 90°, 8", COATED CS, 16 GA
7	4	EA	18477901		8" TUBE CONNECTION WELDMENT
8	CHART	EA	2671360201		8" U SHAPED GASKET, 19 GA
9	4	EA	26713202		SLIP TUBE SEAL, 8"
10	CHART	EA	2671350201		8" BOLTED PULL RING, GALVANIZED
11	4	EA	185107930		1100 GASKET, 8" DIA TUBE
12	CHART	EA	2671390201		8" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
13	CHART	EA	18598074		ALL THREAD ADAPTER
14	CHART	FT	2190091004		THREADED ROD, 3/8x16 x 10FT
15	CHART	EA	22500302		FLAT WASHER, 3/8
16	CHART	EA	22100902		HEX NUT, 3/8-16
17	6	EA	21247302		M10 x 15mm HHCS CAD PLATED
18	2	EA	22901003		3/8-16 UNC HEX COUPLING NUT
19	16	EA	21204504		SCREW, HEX HEAD, 3/8-16 X 1
20	16	EA	22300904		LOCKNUT, 3/8-16, WHIZ LOCK CAD PLT



NOTE:
 1. CHARTED ITEMS ON SHEET 2.
 2. LOCATION DIMENSIONS ARE ON SHEET 3.
 3. HANGING HARDWARE CAN BE USED UP TO 19', CUT AS REQUIRED FOR SHORTER INSTALLATIONS. LOCATIONS OF HANGERS ON DRAWING ARE NOT EXACT. PLACE IN GENERAL AREA AS SPACED FROM SLIP JOINT MUST BE SUPPORTED.
 4. THE 10' SECTION OF THE SLED MUST BE QUANTITY 10 (1809012101) OR 9 (1809012102) X 10 FOOT SECTIONS.
 5. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 6. THIS KIT IS FOR RWH 33" AND SMALLER.

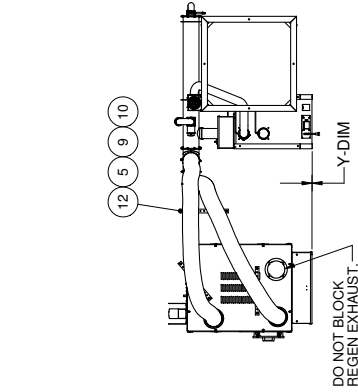
MACHINING TOLERANCES:	
FRACTIONS	±1/32
DECIMAL MACHINING:	
XX:	±0.015
XXX:	±0.005
FORMED SHEET METAL:	±0.015
ANGLES:	±1/2°
FINISH:	125

The Const Group Inc.
 200 West Klamath Drive
 Astoria, OR 97103
CONAIR
W600-1000 TO RESINWORKS SLED
JACOBS TUBE KIT < RWH 39
 JMB
 18090121
 331714
 1 OF 3
 B

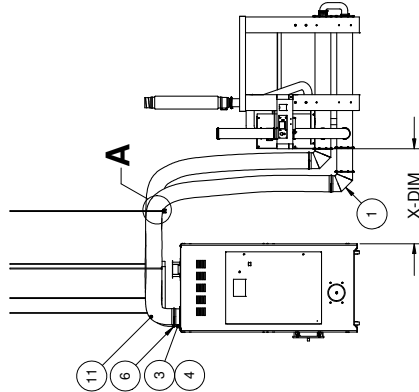
REV	BY	DESCRIPTION	DATE	APP	ECN	DXF
B	JMB	ADDED PIPING NOTE	3/31/16	JWG	104671	
A	JMB	INITIAL RELEASE	9/15/14	JWG	103559	

18090122- W600-1000 To Sled Flex Hose >RWH33

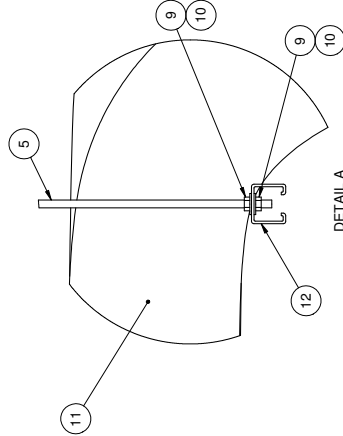
ITEM NO.	QTY.	UOM	PART NUMBER	LOC	DESCRIPTION
1	2	EA	18472735		ELBOW SLIP TO FLANGE, 8"
2	1	EA	18475824		8 OD TUBE WELDMENT
3	2	EA	18475821		8 OD ADAPTER FLANGE
4	3	EA	185107920		11OD GASKET, 8" DIA TUBE
5	60	FT	2190091004		THREADED ROD, 3/16-16 x 10FT
6	4	EA	24900124		HOSE CLAMP 7/8" MIN 8 3/4" MAX I.D.
7	8	EA	22300804		LOCKNUT, 5/16-18, WHIZ LOCK CAD PLT
8	8	EA	21202304		SCREW, HEX HEAD, 5/16-18 X 3/4
9	12	EA	22100902		HEX NUT, 3/8-16
10	12	EA	22500302		FLAT WASHER, 3/8
11	40	FT	2400071002		8" FLEXIBLE TUBING, RED
12	6	FT	2490130101		CHANNEL, TUBING SUPPORT, GALVANIZED



REAR PLACEMENT		
DISTANCE RANGE	X-DIM	Y-DIM
MIN	12"	40"
MAX	36"	64"



FRONT PLACEMENT		
DISTANCE RANGE	X-DIM	Y-DIM
MIN	48"	0"
MAX	68"	12"



- NOTES:
 DIMENSIONS ARE THE SAME REGARDLESS OF LEFT OR RIGHT HAND SIDE.
 1. HANGING HARDWARE FOR CEILING UP TO 19 FT. CUT AS REQUIRED FOR SHORTER INSTALLATIONS.
 2. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 3. ITEM 5, ALL THREAD, SHOULD BE QUANTITY 6 X 10 FOOT SECTIONS.
 4. ITEM 11 IS TO BE SHIPPED AS TWO 20 FOOT SECTIONS.
 5. CUT ITEM 12 INTO THREE PIECES AS NEEDED ON SITE.
 6. 500' 3/400' DRYER AND RESINWORKS SLED SHOWN FOR REFERENCE.
 7. THIS KIT IS FOR RWH 337' AND LARGER.

FRACTIONS		±1/32
DECIMAL MACHINING:		
XX:	±0.015	
XXX:	±0.005	
FINISH:	±1/2"	
FORMED SHEETMETAL:		
ANGLES:	1/2"	
REV	BY	DATE
A	JAB	8/14/14
DESCRIPTION		
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DATE		8/14/14
DESCRIPTION		

18090123- W600-1000 To Sled Jacobs > RWH33

ITEM NO.	QTY.	UOM	PART NUMBER	LOC	DESCRIPTION
1	CHART	EA	2671290701		WELDED TUBE, 8" X 8", COATED CS, 19 GA
2	CHART	EA	2671290801		WELDED TUBE, 8" X 20", COATED CS, 19 GA
3	4	EA	2671290901		WELDED TUBE, 8" X 39", COATED CS, 19 GA
4	4	EA	2671330601		WELDED SLIP TUBE, 8" X 39", COATED CS, 16 GA
5	CHART	EA	2671300201		45° TUBE SEGMENT, 8", COATED CS, 16 GA
6	CHART	EA	2671310201		10 90°, 8", COATED CS, 16 GA
7	4	EA	19477901		8" TUBE CONNECTION WELDMENT
8	CHART	EA	2671396201		8" U SHAPED GASKET, 19 GA
9	4	EA	26713202		SLIP TUBE SEAL, 8"
10	CHART	EA	2671350201		8" BOLTED PULL RING, GALVANIZED
11	2	EA	185107930		1100 GASKET, 8" DIA. TUBE
12	80	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
13	6	EA	18598074		ALL THREAD ADAPTER
14	12	EA	22500302		FLAT WASHER, 3/8
15	12	EA	22100602		HEX NUT, 3/8-16
16	6	EA	21247302		M10 x 15mm HHCS CAD PLATED
17	6	EA	2671396201		8" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
18	2	EA	22901003		3/8-16 UNC HEX COUPLING NUT

RESINWORKS SLED SHOWN FOR REFERENCE.

W600-1000 DRYER SHOWN FOR REFERENCE.

NOTES:
 1. CHARTED ITEMS ON SHEET ?
 2. LOCATION DIMENSIONS ARE ON SHEET 3
 3. HANGING HARDWARE CAN BE USED UP TO 19FT CEILING. CUT AS REQUIRED FOR SHORTER INSTALLATIONS. LOCATIONS OF HANGERS ON DRAWING ARE NOT EXACT. PLACE IN GENERAL ARE AS SPACE PERMITS. SLIT JOINT MUST BE SUPPORTED.
 4. SEWING ALL THREAD, SHOULD BE QUANTITY 8 X 10 FOOT DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 5. THIS KIT IS FOR RWH 39" AND LARGER.
 6. THIS KIT IS FOR RWH 39" AND LARGER.

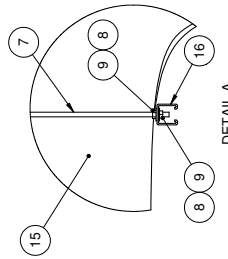
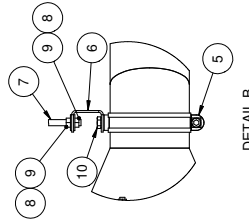
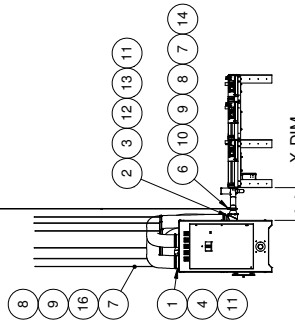
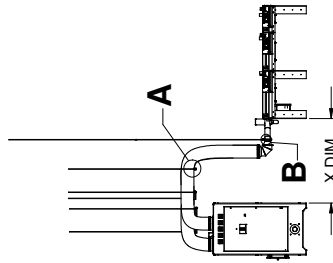
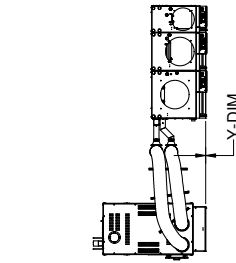
MACHINING TOLERANCES:
 FRACTIONS ± 1/32
 DECIMAL MACHINING: XX: ±0.015
 XXX: ±0.005
 FORMED SHEET METAL: ± 1/32
 ANGLES: ± 1/2°
 FINISH: 123

The Coastal Group Inc.
 200 West Keminger Drive
 JACKSONVILLE, FL 32218
 PHONE: 8141414
 JAB
 W600-1000 DRYER TO SLED
 JACOBS PIPING KIT -> RWH33
 18090123
 B

B	JAB	ADDED TUBING NOTE	3/31/16	JWG	104671	
A	JAB	INITIAL RELEASE	8/14/14	JWG	103559	
REV	BY	DESCRIPTION	DATE	APP	EDN	DXF

18090130- W1300-2400 To Sled Flex Hose <RWH39

ITEM NO.	QTY.	UOM	PART NUMBER	LOC	DESCRIPTION
1	2	EA	18475805		12" OD ADAPTER FLANGE
2	2	EA	18427286		ELBOW SLIP TO FLANGE, 8"
3	2	EA	185107930		110D GASKET, 8" DIA TUBE
4	2	EA	185107916		12 OD GASKET
5	2	EA	2671390101		5" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
6	2	EA	18589074		ALL THREAD ADAPTER
7	100	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
8	16	EA	22500302		FLAT WASHER, 3/8
9	16	EA	22100902		HEX NUT, 3/8-16
10	2	EA	212473902		M10 x 15mm HHCS CAD PLATED
11	4	EA	24600126		HOSE CLAMP, 11.38" MIN.-12.14" MAX I.D.
12	16	EA	212023904		SCREW, HEX HEAD, 5/16-18 X 3/4
13	16	EA	22800804		LOCKNUT, 5/16-18, WHIZ LOCK CAD PLT
14	2	EA	22801003		3/8-16 UNC HEX COUPLING NUT
15	40	FT	2400071101		1/2" FLEXIBLE DUCTING, BLACK
16	9	FT	2490130101		CHANNEL, TUBING SUPPORT, GALVANIZED



NOTE:
 1. DIMENSIONS ARE THE SAME REGARDLESS OF LEFT OR RIGHT ORIENTATION.
 2. HANGING HARDWARE CAN BE USED FOR CEILING UP TO 19', CUT AS REQUIRED FOR SHORTER INSTALLATIONS.
 3. PLATE AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 4. ITEM 7, ALL THREAD, SHOULD BE QUANTITY 10 X 10 FOOT SECTIONS.
 5. ITEM 15 SHOULD BE SHIPPED IN TWO 20 FOOT SECTIONS.
 6. CUT ITEM 16 INTO THREE PIECES AS NEEDED ON SITE.
 7. W1300-2400 DRYER AND RESINWORKS SLED SHOWN FOR REFERENCE.
 8. THIS KIT IS FOR RWH 33" AND SMALLER.

FRONT ORIENTATION

	X-DIM	Y-DIM
MIN	75"	0"
MAX	100"	12"

REAR ORIENTATION

	X-DIM	Y-DIM
MIN	12"	80"
MAX	36"	100"

MACHINING TOLERANCES:

FRACTIONS ±1/32
 DECIMAL MACHINING: XX: ±0.015
 XXX: ±0.005
 FORMED SHEETMETAL: ±1/2"
 ANGLES: 125

1 OF 1

18090130

COVAIR
 The Covalent Group, Inc.
 200 West Koningst Drive
 Cranberry Twp, PA, 15905

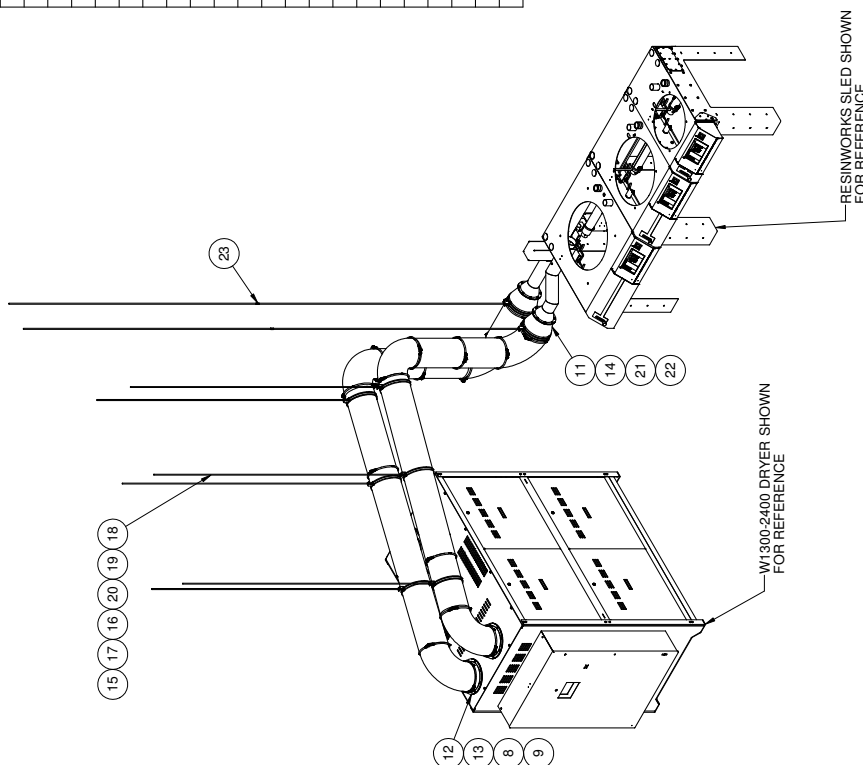
W1300-2400 DRYER TO SLED FLEX PIPING KIT < RWH39

DATE: 12/20/13

REV	BY	DESCRIPTION	DATE	APP	EON	DXF
A	JAB	INITIAL RELEASE	8/18/14	JWG	103359	

18090131- W1300-2400 To Sled Jacobs <RWH39

ITEM NO.	QTY	UM	PART NUMBER	LOC	DESCRIPTION
1	CHART	EA	2671300301		45" TUBE SEGMENT, 12", COATED CS, 16 GA
2	6	EA	2671910301		1D 90°, 12", COATED CS, 16 GA
3	CHART	EA	2671260701		WELDED TUBE, 12" X 20", COATED CS, 19 GA
4	CHART	EA	2671260801		WELDED TUBE, 12" X 39", COATED CS, 19 GA
5	CHART	EA	2671260901		WELDED TUBE, 12" X 78", COATED CS, 19 GA
6	CHART	EA	2671300901		WELDED SLIP TUBE, 12" X 20", COATED CS, 16 GA
7	4	EA	2671301001		WELDED SLIP TUBE, 12" X 39", COATED CS, 16 GA
8	18	EA	2671350301		12" BOLTED PULL RING, GALVANIZED
9	14	EA	2671360301		12" U SHAPED GASKET, 19 GA
10	4	EA	2671320301		SLIP TUBE SEAL, 12"
11	2	EA	18477910		8" X 12" HARD PIPE FLANGE TO JACOB TUBE
12	2	EA	18477902		12" TUBE CONNECTION WELDMENT
13	2	EA	18507916		12 OD GASKET
14	2	EA	18507930		11 OD GASKET, 8" DIA TUBE
15	CHART	EA	2671360301		12" CEILING JOINT CLAMP, GALVANIZED, HIGH TEMP
16	CHART	EA	18580074		ALL THREAD ADAPTER
17	CHART	EA	21247302		M10 x 15mm HHCS CAD PLATED
18	CHART	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
19	CHART	EA	22100902		HEX NUT, 3/8-16
20	CHART	EA	22500302		FLAT WASHER, 3/8
21	16	EA	21202304		SCREW, HEX HEAD, 5/16-18 X 3/4
22	16	EA	22300804		LOCKNUT, 5/16-18, WHIZ LOCK CAD PLT
23	2	EA	22901003		3/8-16 UNC HEX COUPLING NUT



- NOTE:**
1. CHARTED ITEMS ON SHEET 2.
 2. LOCATION DIMENSIONS ARE ON SHEET 3.
 3. HANGING HARDWARE CAN BE USED UP TO 19'. CUT AS REQUIRED FOR SHORTER INSTALLATIONS. LOCATIONS OF HANGERS ON DRAWING ARE NOT EXACT. PLACE IN GENERAL AREAS AS SHOWN.
 4. ALL THROUGH HOLES SHOULD BE QUANTITY 8 (18090131 01) OR 10 (18090131 02) X 10 FOOT SECTIONS.
 5. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE
 6. THIS KIT IS FOR RWH 33" AND SMALLER.

MACHINING TOLERANCES:	
FRACTIONS	± 1/32
DECIMAL MACHINING:	
XX:	+0.015
XXX:	+0.005
FORMED SHEET METAL:	+0.015
ANGLES:	± 1/2°
FINISH:	125



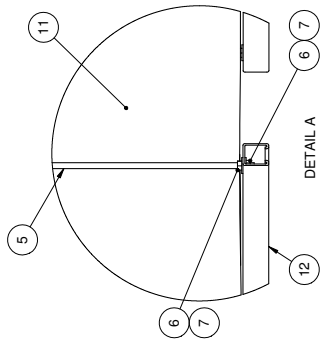
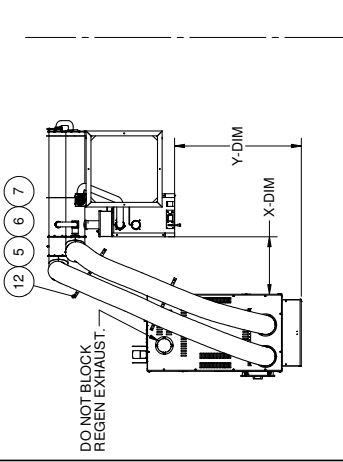
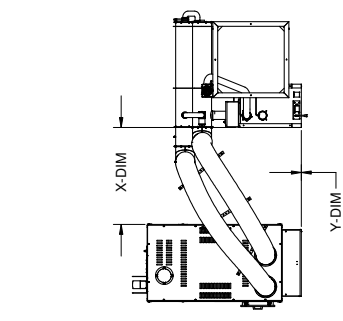
The Conair Group Inc.
200 West Keweenaw Drive
Muskegon, MI 49441-1111

W1300-2400 DRYER TO SLED JACOBS PIPING KIT < RWH 39	
DATE:	3/28/13
BY:	JAB
REV:	1 OF 3
ITEM NO:	18090131
REV:	B

REV	BY	DESCRIPTION	DATE	APP	ECN	IDXF
B	JAB	ADDED TUBE NOTE	3/31/16	JWG	104671	
A	JAB	INITIAL RELEASE	9/19/14	JWG	103559	

18090132- W1300-2400 To Sled Flex Hose > RWH33

ITEM NO.	QTY.	U/M	PART NUMBER	LOC	DESCRIPTION
1	2	EA	18475805		12" OD ADAPTER FLANGE
2	1	EA	18475825		12 OD SPOOL WELDMENT
3	2	EA	18472737		12 OD x 90 ELBOW
4	3	EA	185107916		12 OD GASKET
5	60	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
6	12	EA	22100982		HEX NUT, 3/8-16
7	12	EA	22500302		FLAT WASHER, 3/8
8	8	EA	21202304		SCREW, HEX HEAD, 5/16-18 X 3/4
9	8	EA	22300804		LOCKNUT, 5/16-18, WHIZ LOCK CAD PLT
10	4	EA	24900126		HOSE CLAMP 11.298" MIN-12.1/4" MAX I.D.
11	40	FT	2400071101		12" FLEXIBLE DUCTING, BLACK
12	9	FT	2490130101		CHANNEL, TUBING SUPPORT, GALVANIZED



- NOTES:
 DIMENSIONS ARE THE SAME REGARDLESS OF LEFT OR RIGHT ORIENTATION.
 HANGING HARDWARE CAN BE USED FOR CEILINGS UP TO 19FT. CUT AS REQUIRED FOR SHORTER INSTALLATIONS.
 DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 ITEM 5, ALL THREAD, SHOULD BE QUANTITY 6 X 10 FOOT SECTIONS.
 ITEM 11 TO BE SHIPPED IN TWO 20 FOOT SECTIONS.
 CUT ITEM 12 INTO THREE PIECES AS NEEDED ON SITE.
 USE 20 FOOT DRYER AND RESINWORKS SLED SHOWN FOR REFERENCE.
 THIS KIT IS FOR RWH 33* AND LARGER.

FRONT ORIENTATION

DISTANCE RANGE		Y-DIM
MIN	X-DIM	Y-DIM
61"	80"	0"
MAX		12"

REAR ORIENTATION

DISTANCE RANGE		Y-DIM
MIN	X-DIM	Y-DIM
12"	36"	80"
MAX		100"

MACHINING TOLERANCES:
 FRACTIONS ±1/32
 DECIMAL MACHINING: XX: ±0.015
 XXX: ±0.005
 FORMED SHEETMETAL: ±0.015
 ANGLES: ±1/2°
 FINISH: 125

CONAIR
 The Conair Corp. Inc.
 200 West Koenigsmeyer Drive
 Canby, Ore., U.S.A. 97005

W1300-2400 DRYER TO SLED FLEX PIPING KIT > RWH 33

FORMED SHEETMETAL: ±0.015
 ANGLES: ±1/2°
 FINISH: 125

DATE: 8/14/14
 SHEET: JAB
 DRAWING: 18090132
 REV: A

REV	JAB	INITIAL RELEASE	DATE	JWG	103559	APP	ECN	DXF
BY	DESCRIPTION							
A			8/14/14					

18090133- W1300-2400 To Sled Jacobs>RWH33

ITEM NO.	QTY.	UM	PART NUMBER	LOC.	DESCRIPTION
1	CHART	EA	2671291201		WELDED TUBE, 12" X 8", COATED CS, 19 GA
2	2	EA	2671291301		WELDED TUBE, 12" X 20", COATED CS, 19 GA
3	CHART	EA	2671291401		WELDED TUBE, 12" X 38", COATED CS, 19 GA
4	CHART	EA	2671291501		WELDED TUBE, 12" X 78", COATED CS, 19 GA
5	4	EA	2671331001		WELDED SLIP TUBE, 12" X 38", COATED CS, 16 GA
6	6	EA	2671310301		10 90°, 12", COATED CS, 16 GA
7	CHART	EA	2671306301		45° TUBE SEGMENT, 12", COATED CS, 16 GA
8	4	EA	18477392		12" TUBE CONNECTION WELDMENT
9	1	EA	18475825		12 OD SPOOL WELDMENT
10	3	EA	185107916		12 OD GASKET
11	4	EA	26713293		SLIP TUBE SEAL, 12"
12	CHART	EA	2671356301		12" BOLTED PULL RING, GALVANIZED
13	CHART	EA	2671396301		12" U SHAPED GASKET, 19 GA
14	CHART	EA	2671396301		12" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
15	CHART	FT	2198091004		THREADED ROD, 3/8-16 X 10FT
16	CHART	EA	18588074		ALL THREAD ADAPTER
17	CHART	EA	21247392		M10 x 15mm HHCS CAD PLATED
18	CHART	EA	22500302		FLAT WASHER, 3/8
19	CHART	EA	22100902		HEX NUT, 3/8-16
20	2	EA	22901003		3/8-16 UNC HEX COUPLINGS NUT
21	8	EA	22300804		LOCKNUT, 5/16-18, WHIZ LOCK CAD PLT
22	8	EA	21202304		SCREW, HEX HEAD, 5/16-18 X 3/4

- NOTES:
1. CHARTED ITEMS ON SHEET 2.
 2. LOCATION DIMENSION ARE ON SHEET 3.
 3. HANGING HARDWARE CAN BE USED UP TO 19 FT. CUT AS REQUIRED FOR SHORTER INSTALLATIONS. LOCATIONS OF HANGERS ON DRAWING ARE NOT EXACT. PLACE IN GENERAL AREA AS SPACE PERMITS. ALWAYS SUPPORT SLIP JOINTS.
 4. 10 18090133021 X 10 FOOT SECTIONS OF DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 5. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 6. THIS KIT IS FOR RWH 39" AND LARGER.

MACHINING TOLERANCES:	
FRACTIONS	±1/32
DECIMAL MACHINING:	±0.015
XX:	±0.005
XXX:	±0.015
FORMED SHEETMETAL:	±1/2"
ANGLES:	
FINISH:	

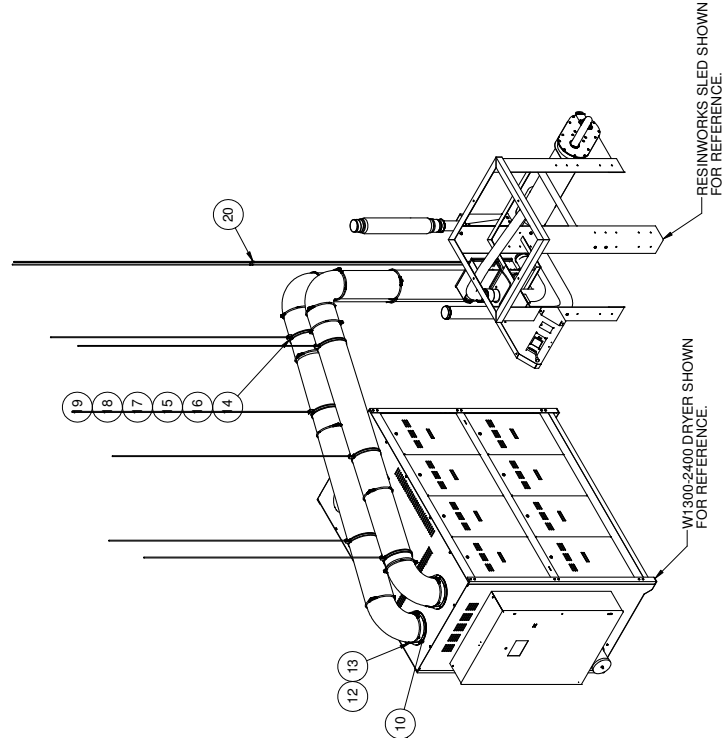


The Copair Group Inc.
200 West Kensington Drive
Cincinnati, OH 45221-1100

W1300-2400 DRYER TO SLED
JACOBS PIPE KIT > RWH 33

JAB 874714
1 OF 3 18090133

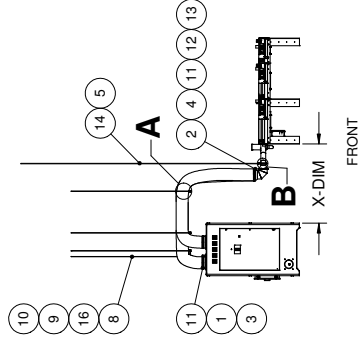
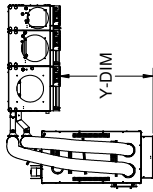
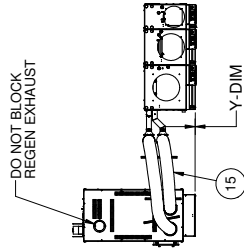
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REV	BY	DESCRIPTION	DATE	APP	ECN	DXF
B	JAB	TUBE ORIENTATION NOTE	3/31/16	JWG	104671	
A	JAB	INITIAL RELEASE	8/14/14	JWG	103559	

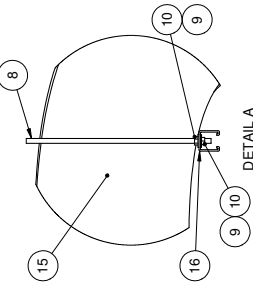
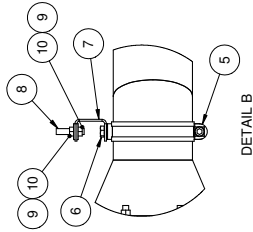
18090140- W3200-5000 To Sled Flex Hose <RWH39

ITEM NO.	QTY.	UM	PART NUMBER	LOC	DESCRIPTION
1	2	EA	18475605		12" OD ADAPTER FLANGE
2	2	EA	18472736		ELBOW SLIP TO FLANGE, 8"
3	2	EA	185107916		12 OD GASKET
4	2	EA	185107930		11 OD GASKET, 8" DIA TUBE
5	2	EA	2671390101		5" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
6	2	EA	21247302		M10 x 15mm HHCS CAD PLATED
7	2	EA	18598074		ALL THREAD ADAPTER
8	100	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
9	16	EA	22500302		FLAT WASHER, 3/8
10	16	EA	22100902		HEX NUT, 3/8-16
11	4	EA	24900126		HOSE CLAMP 11 3/8" MIN- 12 1/4" MAX I.D.
12	16	EA	21204504		SCREW, HEX HEAD, 3/8-16 X 1
13	16	EA	22300904		LOCKNUT, 3/8-16, WHIZ LOCK CAD P/LT
14	2	EA	22801003		3/8-16 UNC HEX COUPLING NUT
15	40	FT	2400071101		12" FLEXIBLE DUCTING, BLACK
16	9	FT	2490130101		CHANNEL, TUBING SUPPORT, GALVANIZED



	X-DIM	Y-DIM
MIN	75"	0"
MAX	100"	12"

	X-DIM	Y-DIM
MIN	12"	90"
MAX	36"	115"



- NOTE:** DIMENSIONS ARE THE SAME REGARDLESS OF LEFT OR RIGHT DRYER. HIGH TEMP FLEX HOSE CAN BE USED FOR UP TO 19' CUT AS REQUIRED FOR SHORTER INSTALLATIONS. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
- ITEM 8, ALL THREAD, SHOULD BE QUANTITY 10 X 10 FOOT SECTIONS.
 - ITEM 15 IS TO BE SHIPPED IN TWO 20 FOOT SECTIONS. ITEMS 16 AND 17 ARE TO BE SHIPPED AS ORDERED ON SITE.
 - THIS KIT IS FOR RWH39 AND SMALLER.

MACHINING TOLERANCES:

FRACTIONS ±1/32
DECIMAL MACHINING: XX: ±0.015
XXX: ±0.005

FORMED SHEET METAL: ANGLES: ±1/2"
FINISH: 125

CO-STAR
The Co-Star Company
200 West Kemmerer Drive
Cannbury, Tenn., PA, 15068

W3200-5000 DRYER TO SLED FLEX DUCT KIT < RWH39

FORMED SHEET METAL: ANGLES: ±1/2"
FINISH: 125

1 OF 1

18090140

REV	BY	DATE	DESCRIPTION	APP	ECN	DXF
A	JWG	8/19/14				

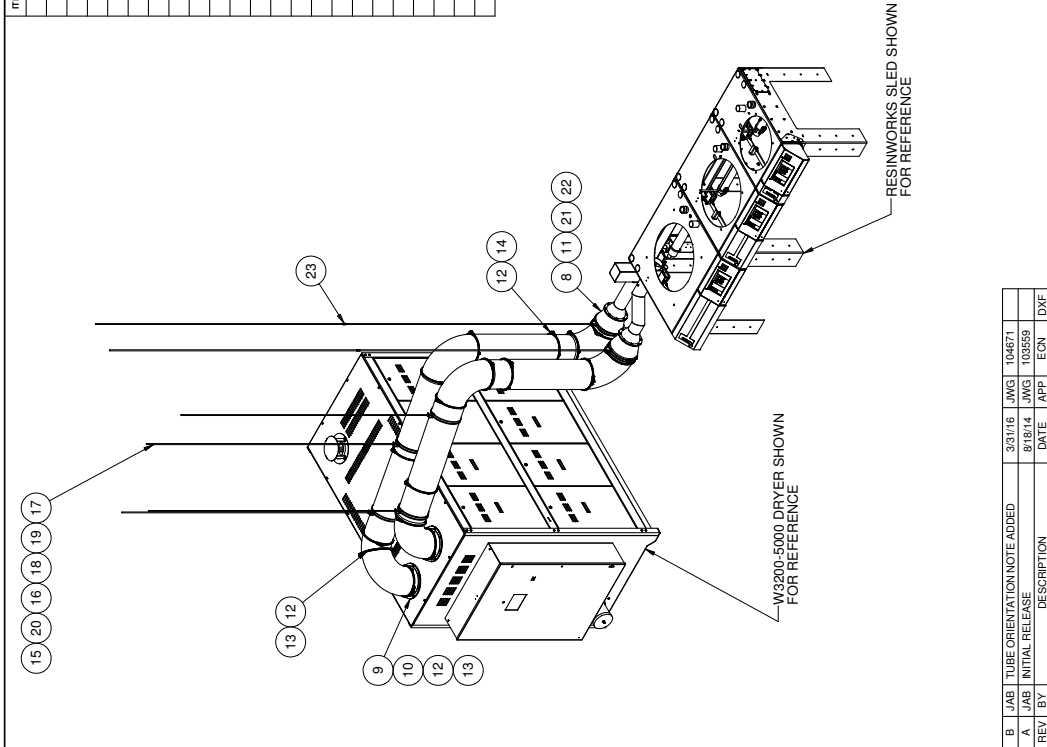
18090141- W3200-5000 To Sled Jacobs <RWH39

ITEM NO.	QTY.	U/M	PART NUMBER	LOC	DESCRIPTION
1	CHART	EA	2671300301		45" TUBE SEGMENT, 12", COATED CS, 16 GA
2	6	EA	2671310301		1D 90", 12", COATED CS, 16 GA
3	CHART	EA	2671281301		WELDED TUBE, 12" X 30", COATED CS, 19 GA
4	CHART	EA	2671281401		WELDED TUBE, 12" X 39", COATED CS, 19 GA
5	CHART	EA	2671281501		WELDED TUBE, 12" X 78", COATED CS, 19 GA
6	CHART	EA	2671309001		WELDED SLIP TUBE, 12" X 20", COATED CS, 16 GA
7	3	EA	2671331001		WELDED SLIP TUBE, 12" X 39", COATED CS, 16 GA
8	2	EA	18477910		8" X 12" HARD PIPE FLANGE TO JACOB TUBE
9	2	EA	18477902		12" TUBE CONNECTION WELDMENT
10	2	EA	185107916		12 OD GASKET
11	2	EA	185107930		1" OD GASKET, 8" DIA TUBE
12	18	EA	2671350301		12" BOLTED PULL RING, GALVANIZED
13	14	EA	2671366301		12" U SHAPED GASKET, 13 GA
14	4	EA	26715203		SLIP TUBE SEAL, 12"
15	CHART	EA	2671390301		12" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
16	CHART	EA	18598074		ALL THREAD ADAPTER
17	CHART	FT	2190031004		THREADED ROD, 3/8" x 10FT
18	CHART	EA	22500302		FLAT WASHER, 3/8
19	CHART	EA	22100902		HEX NUT, 3/8" x 16
20	CHART	EA	21242302		M10 x 15mm HHCS CAD PLATED
21	16	EA	21202304		SCREW, HEX HEAD, 5/16" x 18 X 3/4
22	16	EA	22500804		LOCKNUT, 5/16" x 18, WHIZ LOCK CAD PLT
23	2	EA	22901003		3/8-16 UNC HEX COUPLING NUT

- NOTE: CHARTED ITEMS ON SHEET 2.
 1. LOCATION DIMENSIONS ARE ON SHEET 3.
 2. HANGING HARDWARE CAN BE USED UP TO 18". CUT AS REQUIRED.
 3. HANGERS ON DRAWING ARE NOT EXACT. PLACE IN GENERAL AREA AS SPACE PERMITS.
 4. ITEM 17, ALL THREAD, SHOULD BE QUANTITY 8 (1809014101) OR 10 (1809014102) X 10 FOOT SECTIONS.
 5. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 6. THIS KIT IS FOR RWH 33" AND SMALLER.

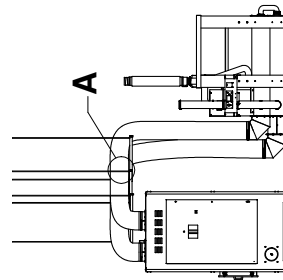
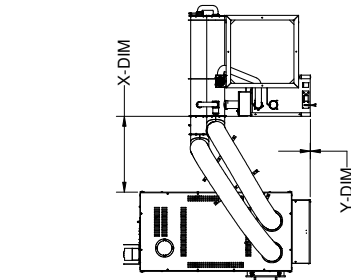
MACHINING TOLERANCES:		
FRACTIONS	±.132	
DECIMAL MACHINING:		
XX:	+0.015	
XXX:	+0.005	
FORMED SHEETMETAL:	+0.015	
ANGLES:	+12°	
FINISH:	125	

The Comair Group Inc. 10000 W. Highway 100 Comairway Park, PA 15065	
COMPANY:	W3200-5000 TO RESINWORK SLED
PROJECT:	JACOBS KIT < RWH 39
JOB:	
DATE:	3/28/14
1 OF 3	18090141
B	B



18090142- W3200-5000 To Sled Flex Hose > RWH33

ITEM NO.	QTY.	UOM	PART NUMBER	LOC	DESCRIPTION
1	2	EA	18472737		12 OD x 90 ELBOW
2	1	EA	18473825		12 OD SPOOL WELDMENT
3	2	EA	18473805		12" OD ADAPTER FLANGE
4	3	EA	185107916		12 OD GASKET
5	60	FT	2190091004		THREADED ROD, 3/8-16 x 10FT
6	12	EA	22500802		FLAT WASHER, 3/8
7	12	EA	22100901		HEX NUT, 3/8-16
8	8	EA	22300804		LOCKNUT, 9/16-18, WHIZ LOCK CAD PLT
9	8	EA	21202004		SCREW, HEX HEAD, 5/16-18 X 3/4
10	4	EA	24900126		HOSE CLAMP 1/38" MIN - 12 1/4" MAX I.D.
11	50	FT	2480071101		12" FLEXIBLE DUCTING, BLACK
12	9	FT	2490130101		CHANNEL, TUBING SUPPORT, GALVANIZED

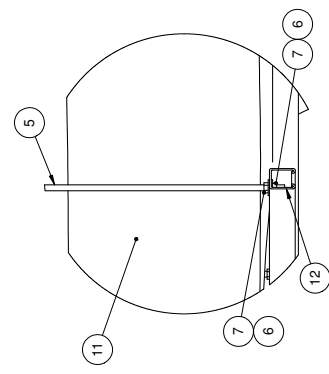


FRONT ORIENTATION

DISTANCE RANGE			
	X-DIM	Y-DIM	
MIN	50"	0"	
MAX	80"	12"	

REAR ORIENTATION

DISTANCE RANGE			
	X-DIM	Y-DIM	
MIN	12"	90"	
MAX	36"	115"	



DETAIL A

NOTES:
 1. HANGING HARDWARE CAN BE USED FOR UP TO 19FT CEILINGS.
 2. DRYER AND SLED ARE TO BE ON THE SAME HORIZONTAL PLANE.
 3. CUT AS REQUIRED FOR SHORTER INSTALLATIONS.
 4. ITEM 5, ALL THREAD, SHOULD BE QUANTITY 6 X 10 FOOT SECTIONS.
 5. CUT ITEM 11 INTO TWO PIECES AS NEEDED ON SITE.
 6. CUT ITEM 12 INTO THREE PIECES AS NEEDED ON SITE.
 7. REFER TO RWH33 FOR DRYER AND RESINWORKS SLED SHOWN FOR REFERENCE.
 8. THIS KIT IS FOR RWH 39" AND LARGER.

MACHINING TOLERANCES:

FRACTIONS: ±1/32
 DECIMAL MACHINING: XX: ±0.015
 XXX: ±0.005
 FORMED SHEET METAL: ±1/2"
 ANGLES: 125
 FINISH: A

The Coak Group Inc.
 200 West Keninger Drive
 Channahon, IL 61515

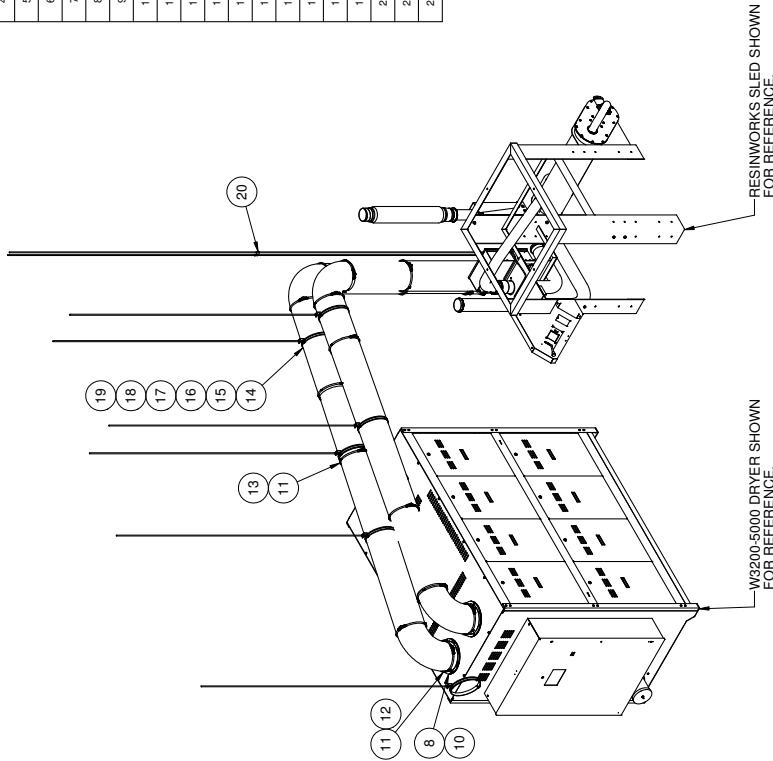
W3200-5000 DRYER TO SLED FLEX PIPING KIT > RWH 33

DATE: 8/15/14
 DRAWN BY: JAB
 CHECKED BY: JAB
 1 OF 1
 18090142

REV	BY	DESCRIPTION	DATE	APP	ECN	DXF
A	JAB	INITIAL RELEASE	8/15/14	JWG	103559	

18090143- W3200-5000 To Sled Jacobs > RWH33

ITEM NO.	QTY.	UM	PART NUMBER	LOC	DESCRIPTION
1	CHART	EA	2671291201		WELDED TUBE, 12" X 6", COATED CS, 19 GA
2	CHART	EA	2671291301		WELDED TUBE, 12" X 20", COATED CS, 19 GA
3	CHART	EA	2671291401		WELDED TUBE, 12" X 39", COATED CS, 19 GA
4	CHART	EA	2671291501		WELDED TUBE, 12" X 78", COATED CS, 19 GA
5	4	EA	2671331001		WELDED SLIP TUBE, 12" X 39", COATED CS, 16 GA
6	CHART	EA	2671300301		45° TUBE SEGMENT, 12", COATED CS, 16 GA
7	6	EA	2671310301		1D 90°, 12", COATED CS, 16 GA
8	4	EA	184773902		12" TUBE CONNECTION WELDMENT
9	1	EA	18475825		12 OD SPOOL WELDMENT
10	3	EA	185107916		12 OD GASKET
11	CHART	EA	26713550301		12" BOLTED PULL RING, GALVANIZED
12	CHART	EA	2671360301		12" U SHAPED GASKET, 19 GA
13	4	EA	267132303		SLIP TUBE SEAL, 12"
14	CHART	EA	2671390301		12" CEILING MOUNT CLAMP, GALVANIZED, HIGH TEMP
15	CHART	EA	18598074		ALL THREAD ADAPTER
16	CHART	FT	2190991004		THREADED ROD, 3/8-16 X 10FT
17	CHART	EA	22500302		FLAT WASHER, 3/8
18	CHART	EA	22100902		HEX NUT, 3/8-16
19	CHART	EA	212473902		M10 X 15mm HHCS CAD PLATED
20	2	EA	22901003		3/8-16 UNC HEX COUPLING NUT
21	8	EA	21202304		SCREW, HEX HEAD, 5/16-18 X 3/4
22	8	EA	22300804		LOCKNUT, 5/16-18, WHIZ LOCK CAD PLT



- NOTES:
1. CHARTED ITEMS ON SHEET 2.
 2. LOCATION DIMENSIONS ON SHEET 3.
 3. LOCATION DIMENSIONS CAN BE USED UP TO 19FT CEILINGS, CUT AS REQUIRED FOR SHORTER INSTALLATION LOCATIONS OF 19 FT OR LESS. THIS KIT IS NOT DESIGNED FOR A LARGE AREA AS SPACE PERMITS. ALWAYS SUPPORT SLIP JOINT.
 4. ITEM 16, ALL THREAD, SHOULD BE QUANTITY 8 (1809014301) OR 10 (1809014302) X 10 FOOT SECTIONS.
 5. DRYER AND SLED ARE ON SAME HORIZONTAL PLANE.
 6. THIS KIT IS FOR RWH 39" AND LARGER.

MACHINING TOLERANCES:		
FRACTIONS	± 1/32	
DECIMAL MACHINING:		
XX:	+0.015	
XXX:	+0.005	
FORMED SHEET METAL:	+0.015	
ANGLES:	± 1/2°	
FINISH:	125	

COMAIR
The Comair Group Inc.
200 West Koenigsmeyer Drive
Cincinnati, OH 45224-1000

W3200-5000 DRYER TO SLED
JACOB PIPING KIT > RWH 33

DATE: 8/15/14
JOB: 18090143

REV	BY	DATE	APP	EON	DXF
B	JAB	3/31/16	JWG	104671	
A	JAB	8/15/14	JWG	103559	

Addendum - AA

Communication Protocols for

Common Controls

**Modbus Communications, Ethernet Communications, DeviceNet Gateway
Communications and SPI Communications**

DISCLAIMER: Conair shall not be liable for errors contained in this User Guide or for incidental, consequential damages in connection with the furnishing, performance or use of this information. Conair makes no warranty of any kind with regard to this information, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose.

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Modbus Communications

Description of Modbus Communications	AA-2
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Communication Hardware	AA-2
Using the Modbus Parameter List	AA-2

Description of Modbus Communications

The common controls series of products from Conair use standard Modbus communications protocol to allow the user to access the control boards for supervisory type functions. For example, you may want to display the drying temperature for all hoppers in a facility in one central location. By connecting all the dryers to a central computer, the temperatures and setpoints can be displayed in one location using a standard SCADA software program such as Wonderware or RSVIEW.

Depending on the particular common controls board, the Modbus serial communication interface may be either RS-232 (DC-2 control board) or RS-485 (DC control board). Converters may be ordered with the product to convert from one to the other. The RS-485 standard allows multiple controllers to be daisy-chained together over longer distances while the RS-232 allows direct connection to most personal computers without an interface adapter.

Installing the Modbus Communication Hardware

The hardware required for Modbus communications is included with the product when it is shipped. Connectors and cabling must be supplied by the user or ordered from Conair. A converter is available if your controls do not use the standard communications you desire. See Appendix A for the proper cabling and connection information for both types of interface.

Using the Modbus Parameter List

The Modbus interface uses standard Modbus protocol to communicate with a common controls system. The data that may be retrieved is arranged in a parameter list. By using the Modbus register read and write commands, the desired data may be read from or written to the controller. The list of data that may be set or retrieved with the common controls system is arranged in Modbus registers 500 to 539. See Appendix A for the data contained in this area for your particular type of equipment. DC-2 control parameters are used on a dryer with a DC-2 control panel and DC plus control parameters are used with Hopper Temperature Controllers (HTC) or ResinWorks.

Using the Modbus Parameter List

(continued)



CAUTION: The list of data that may be read and written to by the user is arranged in a specific location (parameters 500 to 540). Writing to a location with improper data, or writing to an incorrect location outside of the specified range may cause your common controls system to become inoperative or to operate in a manner that may damage your process. Be certain that you understand each parameter and its effect before changing anything. Conair recommends that you initially attempt to read from the registers and do not attempt any writes. Once the information you are trying to read has been confirmed as accurate, you can program your new/additional data.

Ethernet Communications

Description of Ethernet Communications . . . AB-2

Installing the Ethernet

 Communication Hardware AB-2

Using the Ethernet Parameter List AB-3

Description of Ethernet Communications

Modbus TCP/IP is a protocol that takes the basic Modbus command set that was originally developed for serial communications, and applies it to the Ethernet standard via TCP/IP protocol. Beginning in 2006 this protocol can be ordered as an option on the Common Control's dryers. When the option is ordered, an additional Ethernet module is soldered on to the main control board of the dryer. This Ethernet module can not be added to an existing dryer control board. Adding the option to an existing dryer will require replacing the main control board with a new board containing the Ethernet module. Depending on the revision level and display type, the display board may need to be replaced. For easier set-up, a short length of Ethernet cable is run from the connector on the control board to an Ethernet receptacle mounted on the control enclosure. This allows you to plug into the Ethernet port without having to open the control enclosure.

Installing the Ethernet Communication Hardware

The control boards are shipped with a default Internet Protocol (IP) address of 010.001.010.254. In order for your dryer to communicate with your network, this default IP address should be changed to match the network structure used in your plant. Changing the IP address is accomplished through the DC-2 operator interface display board.

To change the IP address:

- 1 Enter the supervisory level password (0210).** See your dryer manual for directions if necessary.
- 2 Once the password has been entered, go to “Setup”>”Other”>Comm.**
- 3 When the “Comm” menu is displayed, scroll down through the list until “IP Addr Part 1” is displayed.** This is the first octet (first three numbers) of the IP address. For example if the IP address is 192.168.0.100, “192” would be shown as the value in this field. If desired, change the first octet at this location.
- 4 Once you have entered the correct value, scroll down one more time until “IP Addr Part 2” is displayed.** This is the second octet (first three numbers) of the IP address and may be changed if necessary.

(continued)

Installing the Ethernet Communication Hardware (continued)

- 4** Once you have entered the correct value, scroll down one more time until “IP Addr Part 2” is displayed. This is the second octet (first three numbers) of the IP address and may be changed if necessary.
- 5** Scrolling further down you will see additional fields for the remaining IP address octets, the subnet mask and the gateway. Once all fields have been changed, cycling the power to the dryer will complete the process and re-initialize the Ethernet interface.

Using the Ethernet Parameter List

Please refer to page Appendix A for a list of the parameters that are available with the Modbus TCP/IP interface.



CAUTION: Writing to a location with improper data, or writing to an incorrect location outside of the specified range may cause your common controls system to become inoperative or to operate in a manner that may damage your process. Be certain that you understand each parameter and its effect before changing anything. Conair recommends that you initially attempt to read from the registers and do not complete any writes. Once the information you are trying to read has been confirmed as accurate, you can now program in your new or additional data.



NOTE: The list of parameters that may be read and written to via Modbus TCP/IP is extensive. Some of these parameters are naturally a part of the operation of the machine and others may be obscure configuration settings. The parameter list in Appendix A includes a column with a recommendation as to whether the parameter should be accessed by a user program. Addresses that are not consecutive indicate that there are other parameters present which are not recommended for usage by the user.

DeviceNet Communications

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Using the LED Status Indicators	AC-5
Configuring the DeviceNet Software	
Installing the EDS Files	AC-5
EDS File Parameter List	
Configuration Options	AC-6
Adding the Gateway to the Scan List . . .	AC-8
Explicitly Writing to the Gateway	AC-11
Gateway Parameter List	AC-12



Description of DeviceNet Communications

The Conair Common Control board set allows you to add DeviceNet communications for information interchange with PLC systems or higher level supervisory computer systems. The DeviceNet communication is accomplished with a gateway device that converts the Modbus communications already existing on the DC-2 display board or the DC control cabinet , but may also be purchased with a DIN rail mounted enclosure. It is available with RS-232 (for the DC-2 control) or RS-485 (DC control) communications capability. These instructions assume the user is familiar with basic DeviceNet configuration and use. If not, please refer to manuals from your DeviceNet provider before attempting to use this function.

Installing the DeviceNet Communication Hardware

The DeviceNet Gateway is designed to mount to three standoffs which are attached to the door of the control cabinet below the main control board. Note that the gateway circuit board has two holes to mount the gateway and the board just rests on the third standoff to help stabilize the board. Cable 188629-04 connects between the gateway's three pin connector and the control board, connector J4. The DeviceNet drop cable is then ran to the five pin connector on the gateway.

Using the DeviceNet Communication Dip Switch Settings

The gateway has two groups of DIP switches for setup. The first set of switches (labeled S1 on the circuit board or next to the "address" label on the enclosure) is used to configure the address of the gateway on the DeviceNet network and the baud rate used by the gateway for DeviceNet communications. The second set of switches (labeled S2 on the circuit board or next the "number of controllers label) is used to set the number of controllers attached to the gateway (only for RS-485 communications), to set the baud rate used to communicate between the gateway and the dryer, and to set the number of words of data transferred from the gateway to the DeviceNet scanner (10 or 20 words of data). See next page for dip switch configuration.

Using the DeviceNet Communication Dip Switch Settings

(continued)

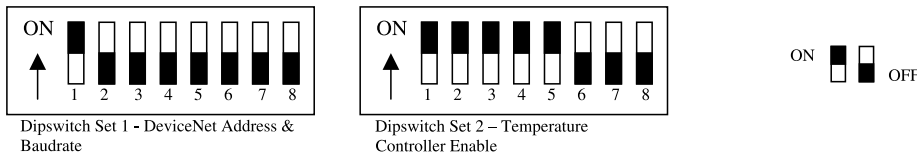


Figure I – Dipswitch Layout

Address (Decimal)	SW1 2 ⁰	SW2 2 ¹	SW3 2 ²	SW4 2 ³	SW5 2 ⁴	SW6 2 ⁵
Default						
01	ON	OFF	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF
40	OFF	OFF	OFF	ON	OFF	ON

Table 1 - Dipswitch Set 1 - DeviceNet Address

Baud Rate / Mode	SW7 2 ⁶	SW8 2 ⁷
125K	OFF	OFF
250K	ON	OFF
500K	OFF	ON
Software	ON	ON

Table 2 - Dipswitch Set 1 - DeviceNet Baud Rate

Dip switch 1 provides the DeviceNet MacId address and baud rate using the standard switch configurations found in most DeviceNet products. Switches 7 and 8 of switch set 1 allow the user to use DeviceNet software configuration tools to set the MacId address and baud rate. Factory default switch settings are 125k , Address 63.

(continued)

Using the DeviceNet Communication Dip Switch Settings (continued)

Number Controllers	SW5	SW6	SW7	SW8
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON

Table 3 - Dipswitch Set 2 - Enable Athena Controllers

Dip switch set 2 identifies the Modbus addresses of controllers connected to the DeviceNet interface. From one to eight controllers can be enable for communication through a single Athena DeviceNet interface module.

ModBus Baud Rate	SW4
19200	ON
9600	OFF

Table 4 – Dipswitch Set 2 - Modbus Baud Rate

Dip switch set 2 position 4 identifies the baud rate used to read parameters on Modbus.

Modbus Parameters	SW1	SW2
User Configurable	OFF	OFF
Parameters 500 – 519	OFF	ON
Parameters 500 - 509	ON	OFF
User Configurable	ON	ON

Table 5 – Dipswitch Set 2 - Modbus Parameter List

Dip switch set 2 positions 1-2 identify the parameter list for the Conair controllers.

Using the LED Status Indicators

There are two LEDs on the gateway which display the status of the communications. The first LED, which is located between the dip switches (labeled “Controllers” on the gateways with the enclosure), display the status of the Modbus communications between the gateway and the control circuit board. The second LED (labeled “DeviceNet” on the gateways with the enclosure) display the status of the DeviceNet communications.

1. Controller Status LED (between dip switches)

Color	State	Indication
None	Off	No power
Red	Solid	No controllers online
Red	Flashing	“Illegal Date” error
Green	Solid	Normal operation - All controllers online
Green	Flashing	One or more controllers offline or not present

2. DeviceNet Status LED

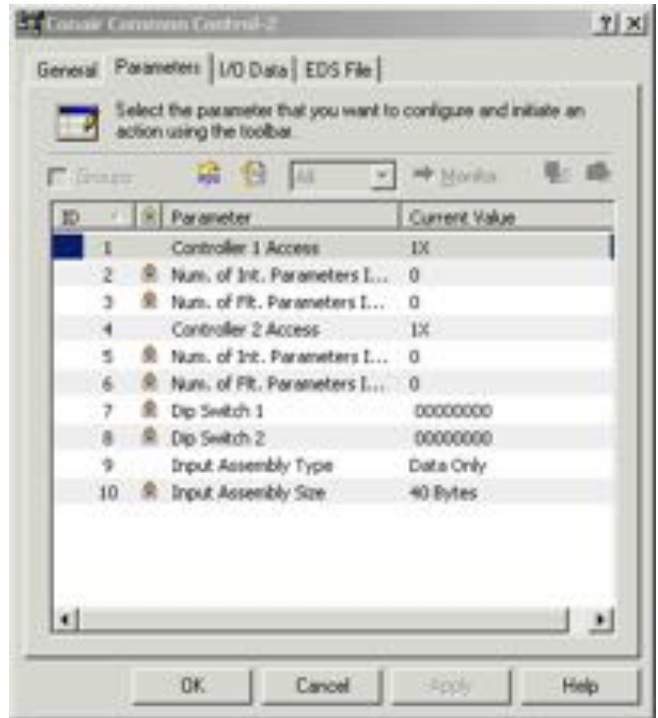
Color	State	Indication
None	Off	No power
Red	Solid	Unrecoverable DeviceNet fault
Red	Flashing	Output error or configuration error
Green	Solid	Normal operation
Green	Flashing	Device is in idle mode or not allocated to a master

Configuring the DeviceNet Software

Installing the EDS Files

There are multiple EDS (electronic date sheet) files associated with the gateway depending on how many controllers are attached to a gateway. The files are named based on the number of controllers (i.e. an EDS file for a gateway with three controllers attached is named 3Conair.EDS). Choose the appropriate file for your application and install it using your DeviceNet network’s EDS installer options. Once the EDS files are installed they will be shown under the “Conair Common Control” heading in the EDS file manager. If you install more than one of the EDS files the files will all be named “Conair Common Control” with the hexadecimal designator to differentiate the different files. By opening the devices parameter list you can tell how many controllers are associated with the EDS file.

Configuring the DeviceNet Software Installing the EDS Files (continued)



Configuring the DeviceNet Software EDS File Parameter List Configuration Options

Once the EDS file has been installed the gateway may be added to a network configuration. There are a number of parameters that may be configured for each gateway to optimize it for your application. The number of parameters will vary depending on how many controllers are attached to a gateway.

Configuring the DeviceNet Software

EDS File Parameter List Configuration

Options (continued)

There are seven types of parameters:

Parameter 1 Controller Access 1X, 10X, 100X

This parameter controls, the format of the data that is retrieved from the controller. If 1X is chosen the data will be retrieved as a whole number with no implied decimal place. For example, if a process temperature was retrieved and the real value of the temperature was 225.3927, the temperature would be read as 225 using the 1X register format. If 10X was chosen the raw data would be retrieved as 2253, requiring the user to add the implied decimal point to show the temperature as 225.3. Similarly, if the data was retrieved in the 100X format the raw data would be 22539 requiring the user to add the decimal place to display it as 225.39.

Parameter 2 Number of Int. Parameters 0 to 40

This field will display how many integer parameters are retrieved from the controller. This will be either 10 or 20 depending on the position of dip switch 2, switches 1 and 2.

Parameter 3 Number of Flt Parameters 0 to 10

This field will display how many floating point parameters are retrieved from the controller. The default is zero and is not normally changed by the user. If your application requires the use of floating point numbers, please consult with a Conair representative.

Parameter 4 Dip switch 1 Combination of 1's and 0's

This field shows the actual positions of dip switch 1 on the gateway.

Parameter 5 Dip switch 2 Combination of 1's and 0's

This field shows the actual positions of dip switch 2 on the gateway.

Configuring the DeviceNet Software

EDS File Parameter List Configuration

Options (continued)

Parameter 6 Input Assembly Type Status only, Status w/data, Data only

This field will choose whether the data retrieved consists of only the process data from the controller (data only), the status bytes from the gateway (status only), or the data and the status bytes (status w/data).



NOTE: When this field is modified the change must be applied. The size of the data block being retrieved (see parameter 7) will change based on the configuration of this parameter.

Parameter 7 Input Assembly Size 0 to 160

This field will display the actual size of the input data that is being retrieved from the gateway to the master on the DeviceNet network. See the section on adding the gateway to the scan list for further information on the parameter.

Configuring the DeviceNet Software

Adding the Gateway to the Scan List

Adding the gateway to a scan list requires that the data area is sized correctly and mapped to the correct locations.

To add the gateway to the scan list:

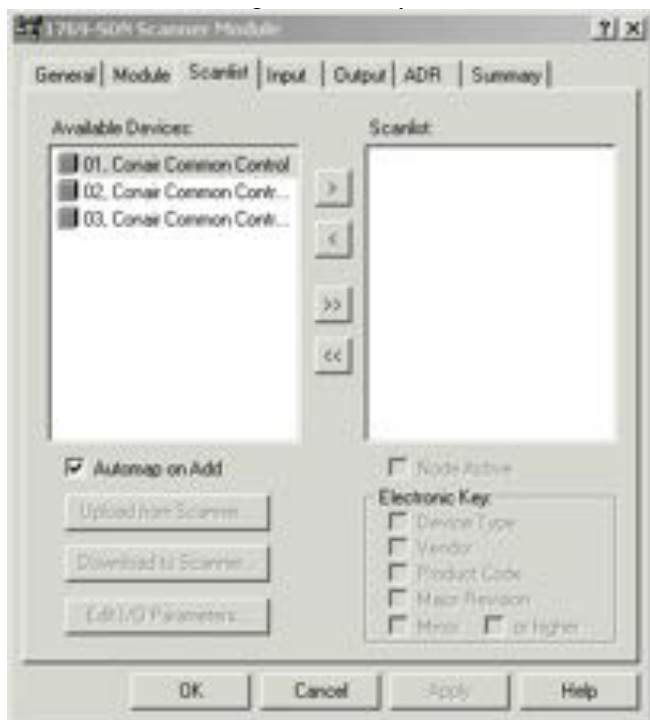
- 1** Set all dip switches as described in the *“DeviceNet communications section, entitled Using the DeviceNet communication dip switch settings”*.
- 2** Go online with the device on the network and set the parameters described in the *“DeviceNet communications section, entitled Configuring the DeviceNet software, EDS File Parameter List Configuration Options”*.
- 3** Once the parameters are set, download the parameters to the gateway using the *“Apply”* button.

Configuring the DeviceNet Software

Adding the Gateway to the Scan List

(continued)

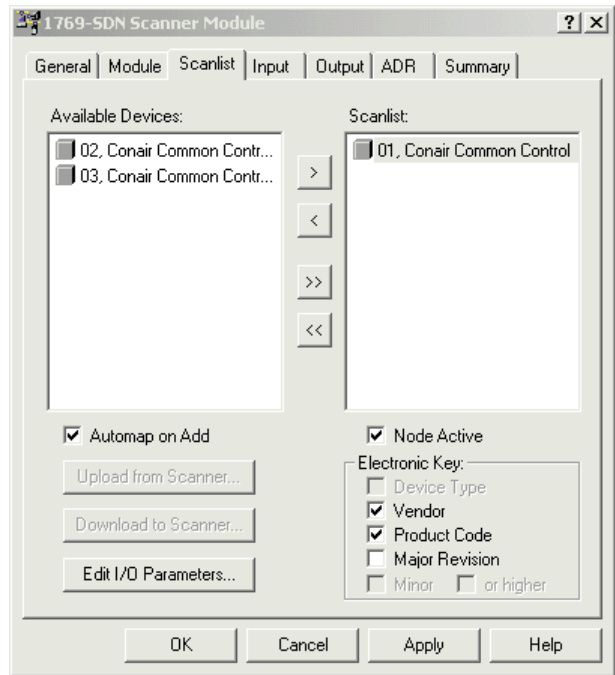
- 4 Close the parameter list and reopen**, once you have applied your parameters. Check Parameter 7 to see how many bytes of data are in the input assembly size.
- 5 Go online with the scanner and move the gateway from the “Available Devices” area to the “Scanlist” area** using the arrow key. After the gateway has been moved, the “Edit I/O Parameters” button should be accessible.



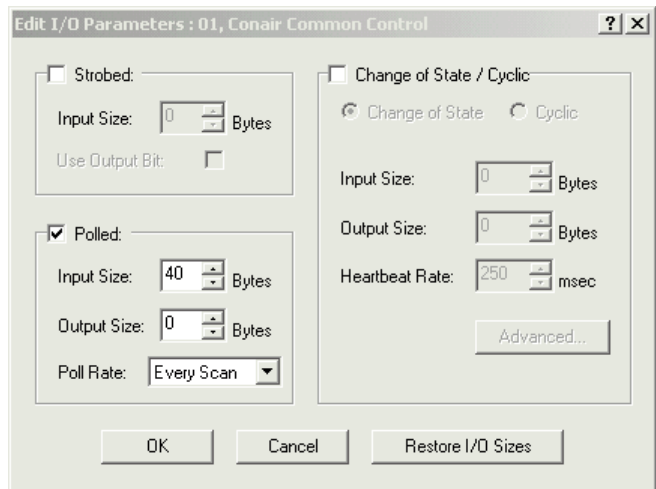
Configuring the DeviceNet Software

Adding the Gateway to the Scan List

(continued)



Press the “Edit I/O Parameter” button to to the configure the I/O parameters.



Configuring the DeviceNet Software

Adding the Gateway to the Scan List (continued)

- 6** Select the “OK” button once you have modified your input field size to match the number of bytes shown in Parameter 7. Since the actual data size being used differs from the maximum possible data size, you will get an error message noting this. Click the “OK” button to keep the data size you have entered.
- 7** Once the I/O parameters have been modified, the gateway may be mapped to your desired I/O area using the Input tab. Depending on whether your controller is 16 bit (Allen Bradley Micrologix) or 32 bit (Allen Bradley Controllogix) the data may transfer either as individual words (16 bit) or two parameter words may be combined into a DINT (32 bit). All parameters should now be accessible from the programmable logic controller. (PLC)

Configuring the DeviceNet Software

Explicitly Writing to the Gateway

As discussed above, the information from the Common Controls Systems can be set up to be read directly as inputs in a PLC system. In order to write data to the gateway it must be written in a DeviceNet Explicit message. The method was chosen to ensure that data is written once, only when the PLC decides it should be written. This reduces bandwidth on the network and ensures that the data is sent only when it is required. Note that parameters 530 to 539 are set up as the registers to write to the common controls devices. Please see your DeviceNet system provider’s information on using explicit messaging for more details.

Configuring the DeviceNet Software Gateway Parameter List

Similarly to the Modbus communications, the Common Controls parameters that are available are stored in registers 500 to 539. The dip switches determine how much of the list is transferred to the PLC. If the dip switch is set for ten words, Modbus parameters 500 to 509 will be transferred to the input image of the scanner. If the dip switches are set for twenty words, Modbus parameters 500 to 519 will be transferred to the scanner. See Appendix A for the actual parameters that are available from the type of common control device that your system is using.

SPI Communications

- Description of SPI Communications AD-2
- Installing the SPI
 - Communication Hardware AD-2
- Configuring the SPI
 - Communication Software. AD-2
- Supported Dryer SPI Commands AD-4



Description of SPI Communications

The Society of Plastics Industry (SPI) has defined a standard protocol to be used for interconnecting plastics equipment. This protocol uses the RS-485 standard as the physical connection and defines stand addresses and commands to communicate with the various kinds of equipment in common use at a typical plastics facility. For example, a dryer is specified as Device ID 22 hex, a chiller is Device ID 21 hex. The data retrieved for each type of equipment is defined in the standard. For a dryer or other piece of equipment to be in compliance with the SPI standard you must be able to retrieve certain parameters such as the setpoint process temperature, high and low temperature deviation alarms, temperature to the process, temperature to the process, etc. Some parameters are also designated as optional parameters that may or may not be available depending on the equipment provider's discretion.

Installing the SPI Communication Hardware

The SPI option is available with the DC-2 display boards. The display boards have a RS-232 port built into the board. The RS-232 to RS-485 converters are provided and mount on the inside of the door of the electrical cabinet. The RS-485 SPI signal is then brought to the outside of the cabinet by a 9 pin D-sub connector. Refer to Conair drawing 130024 and 188629 in Appendix A for details of the installation. The RS-485 SPI signal is available on pins 4 and 5 of the DB-9 connector. Pins 8 and 9 also have the RS-485 connection (parallel with pins 4 and 5) to assist in daisy-chaining equipment together.

Configuring the SPI Communication Software

The SPI protocol option must be turned on and configured in the operator display before it may be used.

To setup the SPI communications:

- 1 Enter the supervisory level password (0210).** See your dryer manual for directions if necessary.

Configuring the SPI Communication Software (continued)

- 2** Once the password has been entered, go to “Setup”>”Other”>Comm.
- 3** When the “Comm” menu is displayed, scroll down through the menu and set the “Protocol” to”SPI”. Set the slave ID to a unique address on the RS-485 network master. Once you have completed entering in your information, return to the opening menu and cycle the power on your equipment to establish the new settings.

In order to connect Conair equipment to a host computer system, Conair can provide an SPI-DDE server which will allow DDE compliant software packages such as Wonderware or Excel to connect to the SPI network with minimal programming required.

For more information on the SPI protocol, you can obtain the SPI Communication protocol manual by contacting:

The Society of Plastics Industry, Inc.
1801 K Street, NW, Suite 600K
Washington, D.C. 20006
(202) 974-5200 Fax (202) 296-7005
www.plasticsindustry.com

Supported Dryer SPI Commands

SPI protocol defines two different modes, “Select” and “Poll”. “Select” commands are used to set or change the information in the dryer. For example, to change a temperature setpoint from 200°F to 250°F {93°C to 121°C} a “Select” command is used. “Poll” commands are used to read the information without changing or modifying it. For example, when you simply want to display the actual process temperature. In either case two hex command bytes are sent to the equipment to specify what communication action to take.

The following list shows the “Select” and “Poll” bytes along with a description of the information that may be retrieved from Conair dryers.

1. **Echo** - Allows the master to test a piece of equipment by writing 4 bytes of information to the equipment and then reading it back.

Select: 20h, 21h Poll: 20h, 20h

2. **Version** - Read the SPI version from the equipment.

Select: NA Poll: 20h, 22h

3. **Setpoint Process Temperature** - Sets and retrieves the process temperature setpoint.

Select: 20h, 31h Poll: 20h, 30h

4. **Alarm, High Temperature Deviation** - Sets and retrieves the high temperature deviation alarm setpoint. Not that in Conair dryers there is actually only deviation setpoint that is used for both high and low temperature deviation. The last value written to either the high or the low will be the value that is used.

Select: 20h, 33h Poll: 20h, 34h

5. **Alarm, Low Temperature Deviation** - Sets and retrieves the low temperature deviation alarm setpoint. Not that in Conair dryers there is actually only deviation setpoint that is used for both high and low temperature deviation. The last value written to either the high or the low will be the value that is used.

Select: 20h, 35h Poll: 20h, 34h (continued)

Supported Dryer SPI Commands

(continued)

6. **Status, Process** - Indicates that the status of the process with each “bit” showing a particular condition.

The “bits” are defined as follows:

Bit 0 - Processing (dryer running)

Bit1 - Alarm, System (any alarm that indicates a problem that may affect the drying operation)

Bit3 - Alarm, Machine (any alarm that indicates a problem with the dryer itself)

Bit4 - Alarm, High Temperature Deviation

Bit5 - Alarm, Low Temperature Deviation

Bit6 - Reserved

Bit7 - Reserved

Bit8 - Alarm, Filter clogged

Bit9 - Alarm, Low flow

Bit10 - Alarm, High Dewpoint

Bit11- Reserved

Bit12 - Reserved

Bit13 - Reserved

Bit14 - Temperature out of band deviation

Bit15 - Not used

Select: NA

Poll: 20h, 40h

(continued)

Supported Dryer SPI Commands

(continued)

7. **Status, Machine 1** - Indicates that the status of the dryer itself with each “bit” showing a particular condition.

The “bits” are defined as follows:

Bit0 - Processing (dryer running)

Bit1 - Alarm, System (any alarm that indicates a problem that may affect the drying operation)

Bit2 - Alarm, Process (any alarm that indicates a problem with the process itself)

Bit3 - Alarm, Machine (any alarm that indicates a problem with the dryer itself)

Bit4 - Alarm, High Temperature (any temperature input)

Bit5 - Alarm, Low Temperature (any temperature input)

Bit6 - Reserved

Bit7 - Reserved

Bit8 - Reserved

Bit9 - Alarm, Low flow

Bit10 - Alarm, High voltage (not supported)

Bit11 - Alarm, Low voltage (not supported)

Bit12 - Alarm, High current (not supported)

Bit13 - Alarm, Low current (not supported)

Bit14 - Alarm, Phase

Bit15- Not used

Select: NA

Poll: 20h, 42h

(continued)

Supported Dryer SPI Commands

(continued)

8. **Status, Machine 2** - This word shows the status of the Dryer itself with each bit showing a particular condition.

The “bits” are defined as follows:

Bit0 - Processing (dryer running)

Bit1 - Alarm, System (any alarm that indicates a problem that may affect the drying operation)

Bit2 - Alarm, Process (any alarm that indicates a problem with the process itself)

Bit3 - Alarm, Machine (any alarm that indicates a problem with the dryer itself)

Bit4 - Fault Sensor

Bit5 - Fault, Calibration

Bit6 - Reserved

Bit7 - Reserved

Bit8 - Reserved

Bit9 - Reserved

Bit10 - Reserved

Bit11 - Reserved

Bit12 - Reserved

Bit13 - Reserved

Bit14 - Reserved

Bit15- Reserved

Select: NA

Poll: 20h, 44h

Modbus RS-232/485 Serial Communication Parameters (continued)

Modbus Register Number	Description	Comments
535	Start Command	1 = start
536	Stop Command	1 = stop
537	Alarm Acknowledge	
538	Process Temperature Setpoint	
539	Process Temperature Setpoint	

DC Plus Control Parameters - Used on ResinWorks and Hopper Temperature Controllers (HTC)

Modbus Register Number	Description	Comments
500	Product Type	
501	Process Temperature Setpoint	
502	Process Actual Temperature	
503	Process Temperature Setpoint (Setback)	
504	Return Air Temperature Out of Hopper	
505	Return Air Setpoint (Setback)	
506	Load Rate Setpoint (Setback)	
507	Average Load Rate Actual (Setback)	
508	Operational Mode	
509	Running Status	
510	Process Heater Output Actual %	
511	Alarms	
512	RTD Integrity Alarms	
513	Regeneration Actual Temperature	
514	Regeneration Heater Output Actual %	
515	Process Protect Actual Temperature	
516	Product Type	
517	Product Type	
518	Product Type	
519	Product Type	

Modbus RS-232/485 Serial Communication Parameters

DC-2 Control Parameters - Used on dryers with DC-2 Controls

Read Area

Modbus Register Number	Description	Comments
500	Product Type	
501	Process Temperature Setpoint	
502	Process Actual Temperature	
503	Process Temperature Setpoint (Setback)	
504	Return Air Temperature Out of Hopper	
505	Return Air Setpoint (Setback)	
506	Regeneration Actual Temperature	
507	Dewpoint Actual	
508	Operational Mode	
509	Running Status	
510	Return Air Actual	
511	Shutdown Alarms	
512	Passive Alarms	
513	Load Rate Setpoint (Setback)	
514	Average Load Rate Actual (Setback)	
515	Process Heater Output Actual %	
516	Regeneration Heater Output Actual %	
517	Process Protect Actual Temperature	
518	Product Type	
519	Product Type	

Write Area

Modbus Register Number	Description	Comments
530	Process Temperature Setpoint	
531	Process Temperature Setpoint (Setback)	
532	Return Air Setpoint (Setback)	
533	Load Rate Setpoint (Setback)	
534	PM 1 Dewpoint Setpoint	(continued)

Modbus RS-232/485 Serial Communication Parameters (continued)

Modbus Register Number	Description	Comments
535	Start Command	1 = start
536	Stop Command	1 = stop
537	Alarm Acknowledge	
538	Process Temperature Setpoint	
539	Process Temperature Setpoint	

DC Plus Control Parameters - Used on ResinWorks and Hopper Temperature Controllers (HTC)

Modbus Register Number	Description	Comments
500	Product Type	
501	Process Temperature Setpoint	
502	Process Actual Temperature	
503	Process Temperature Setpoint (Setback)	
504	Return Air Temperature Out of Hopper	
505	Return Air Setpoint (Setback)	
506	Load Rate Setpoint (Setback)	
507	Average Load Rate Actual (Setback)	
508	Operational Mode	
509	Running Status	
510	Process Heater Output Actual %	
511	Alarms	
512	RTD Integrity Alarms	
513	Regeneration Actual Temperature	
514	Regeneration Heater Output Actual %	
515	Process Protect Actual Temperature	
516	Product Type	
517	Product Type	
518	Product Type	
519	Product Type	

Modbus RS-232/485 Serial Communication Parameters (continued)

DC Plus Control Parameters - Used on ResinWorks and Hopper Temperature Controllers (HTC)

Modbus Register Number	Description	Comments
530	Process Temperature Setpoint	
531	Process Temperature Setpoint (Setback)	
532	Return Air Setpoint (Setback)	
533	Load Rate Setpoint (Setback)	
534	PM 1 Dewpoint Setpoint	
535	Start Command	1 = start
536	Stop Command	1 = stop
537	Alarm Acknowledge	
538	Process Temperature Setpoint	
539	Process Temperature Setpoint	

Related Drawings

130023 - Common Controls DeviceNet Gateway Assemblies, D dryers
130023-02 - CDDS DeviceNet Gateway Assembly
130023-03 - Common Controls DeviceNet Gateway Assemblies, W dryers
13024 - Common Controls SPI Communications Assembly
188629 - Common Controls 24 VAC Power and Comms Cables
18865201 - W15-100 Dryer SPI Control Communications Assembly
18865202 - WMDC15-100 Dryer SPI Control Communications Assembly
18865203 - W150-5000 Dryer SPI Control Communications Assembly
18865204 - W15-100 Dryer Modbus Control Communications Assembly
18865205 - WMDC15-100 Dryer Modbus Control Communications Assembly
18865206 - W150-500 Dryer Modbus Control Communications Assembly
18865207 - W15-100 Dryer DeviceNet Control Communications Assembly
18865208 - WMDC15-100 Dryer DeviceNet Control Communications Assembly
18865209 - W150-5000 Dryer DeviceNet Control Communications Assembly
18865210 - W Dryer Ethernet Control Communications Assembly

Modbus TCP/IP Communications Parameters

Legends:
 F Floating Point Parameter
 I Integer Parameter
 RO Read Only
 WO Write Only

DC+ Dryer/Resin

Revision 005 09/23/2007

Param #	Modbus Register	Type	Description	Default	Range
0	1	I	Dryer Model	5	5 - DC Dryer
1	2	I, RO	Control Board Software Version		6 - DC Resin 1 ~ 9999 (Example: v1.05 = 0105)
2	3	F, RO	Process Temp @ Inlet to hopper		Sensor Span (-32768) = Low Error +32767 = High Error
3	4	F, RO	Regen Temp after Regen heatbox		Sensor Span (-32768) = Low Error +32767 = High Error
4	5	F, RO	Return Air Temp Out of Hopper		Sensor Span (-32768) = Low Error +32767 = High Error
5	6	F, RO	Process Protect Temp		Sensor Span (-32768) = Low Error +32767 = High Error
6	7	F, RO	Channel 4 Input Value		Sensor Span (-32768) = Low Error +32767 = High Error
7	8	I, RO	Error Message		0 -- No error 1 ~ 255 Parameter value out of range (Param# + 1)
					8 bit value. MSB=7. LSB=0. This returns the actual physical states of the port pins. ----- 0 Process Heater Box High Temperature Switch 1 Regen Heater Box High Temp Switch(Dryer) / Dryer Running(Resin) 2 Bed Drive motor Switch 3 Process Blower Overload(Dryer) / Mass Airflow Switch(Resin) 4 Unused 5 Unused 6 Unused 7 Unused
9	10	I, RO	Digital Input		
					8 bit values. MSB=7. LSB=0. This returns the actual physical states of the port pins. ----- 0 Blower ON/Off 1 Bed Drive Motor 2 Process Heater 3 Regen Heater 4 Heater Isolation Contactor 5 Alarm Output 6 Unused 7 Unused
10	11	I, RO	Digital Output		
					16 bit value. MSB=15. LSB=0. This returns the current operating mode. Bit Value : No = 0 Yes = 1 ----- 0 Power Up 1 Standby 2 Starting 3 Stopping 4 Autotuning 5 Calibrating 6 Running 7 Indexing 8 Index End 9 Index Reset 10 Test Mode
11	12	I, RO	Operating Mode	1	

Rev. H

Modbus TCP/IP Communications Parameters (continued)

12	13	I, RO	Running Status	0	<p>Bit values. MSB=7. LSB=0. This returns the actual running status. Bit value: No = 0 Yes = 1</p> <p>=====</p> <p>0 Ready To Run 1 Setback Active 2 Shutdown Alarm active 3 Passive Alarm active 4 Alarm Silenced 5 60 Sec. Before Index 6 Unused 7 Unused</p>
13	14	I, RO	Alarm Status	0	<p>Bit values. MSB=15. LSB=0. This returns the actual shutdown alarm status. Bit value: Inactive = 0 Active = 1</p> <p>=====</p> <p>0 Process High Temperature (A1) 1 Process Temperature Loop Break (A2) 2 Process Heater Box High Temperature (A3) 3 Regen High Temperature (A26) 4 Regen Temperature Loop Break (A35) 5 Regen Heater Box High Temperature (A4) 6 Carousel Index Too Long (A5) 7 Carousel Index Failure (A6) 8 RTD Integrity (A10) 9 EEprom Error (A39) 10 Process Protect High Temperature (A49) 11 Process Differential (A50) 12 Process Blower Overload (A53) 13 Air Flow Alarm(A54) 14 Regen Temperature Deviation (F3) 15 Process Temperature Deviation (P1)</p>
14	15	I	Alarm Enables	0xDFFF	<p>Bit values. MSB=15. LSB=0. Bits to enable/disable any passive alarm. Bit value: Inactive = 0 Active = 1</p> <p>=====</p> <p>0 Process High Temperature (A1) 1 Process Temperature Loop Break (A2) 2 Process Heater Box High Temperature (A3) 3 Regen High Temperature (A26) 4 Regen Temperature Loop Break (A35) 5 Regen Heater Box High Temperature (A4) 6 Carousel Index Too Long (A5) 7 Carousel Index Failure (A6) 8 RTD Integrity (A10) 9 EEprom Error (A39) 10 Process Protect High Temperature (A49) 11 Process Differential (A50) 12 Process Blower Overload (A53) 13 Air Flow Alarm(A54) 14 Regen Temperature Deviation (F3) 15 Process Temperature Deviation (P1)</p>
15	16	I	Passive or Shutdown Alarm	0x1FFF	<p>Bit values. MSB=15. LSB=0. Bits to turn a passive alarm into a shutdown alarm. Bit value: Inactive = 0 Active = 1</p> <p>=====</p> <p>0 Process High Temperature (A1) 1 Process Temperature Loop Break (A2) 2 Process Heater Box High Temperature (A3) 3 Regen High Temperature (A26) 4 Regen Temperature Loop Break (A35) 5 Regen Heater Box High Temperature (A4) 6 Carousel Index Too Long (A5) 7 Carousel Index Failure (A6) 8 RTD Integrity (A10) 9 EEprom Error (A39) 10 Process Protect High Temperature (A49) 11 Process Differential (A50) 12 Process Blower Overload (A53) 13 Air Flow Alarm(A54) 14 Regen Temperature Deviation (F3) 15 Process Temperature Deviation (P1)</p>

Modbus TCP/IP Communications Parameters (continued)

					<p>Bit values. MSB=7. LSB=0. This returns the actual RTD integrity status. Bit value: Good = 0 Bad = 1</p> <p>=====</p> <p>0 Process Probe 1 Regen/Return Probe 2 Protect Probe 3 Input4 Probe 4 Unused 5 Unused 6 Unused 7 Unused</p>
16	17	I, RO	Temp Input Integrity Status	0	
18	19		Reserved		
20	21	I	Index Running Time Alarm Setpoint	25 s	1 - 255 Sec.
21	22	F	Setback Return Temperature Setpoint	140 °F	70 °F - 450 °F
22	23	F	Setback Temperature Band	20 °F	0 - 100 °F
23	24	F	Setback Process Setpoint	140 °F	70 °F - 450 °F
24	25	F	Process Setpoint	140 °F	70 °F - Process Setpoint High Limit
25	26	F, RO	Active Process Setpoint		70 - 450 °F
26	27	I, RO	Process Sensor Type	0	0 - RTD
27	28	F	Process Temperature Offset	0	(-100 - 100) °F
28	29	I	Process Heater Output %	0	0 - 100
29	30	I	Process Heater Manual Mode	0	0 - automatic mode, 1 - manual mode
30	31	I	Process Heat Output Cycle Time	2	0 - 200 msec.
31	32	F	Process Heat Proportional Band	30	1 - 255 Sec.
32	33	F	Process Heat Integral	16	1 - 600 °F.
33	34	F	Process Heat Derivative	2	0.0 - 999 Sec.
34	35	F	Process High Alarm Setpoint	385 °F	0.0 - 999 Sec.
35	36	I	Process High Alarm Delay	20 s	70 - 450 °F
36	37	F	Process Deviation Alarm Setpoint	10 °F	0 - 255 Seconds
37	38	I	Process Deviation Alarm Delay	5 s	3 - 25 °F
					Time in seconds for Process loop break temperature band change towards setpoint. 0 - Disabled 1 - 255 Seconds
38	39	I	Process Loop Break Time	20 s	
39	40	F	Process Loop Break Temperature Band	3 °F	0 - 50 °F
55	56	I, RO	Calibrating Channel	0	
					0 Cal operation complete 1 Cal in progress 2 Cal operation failed 3 Cal aborted
56	57	I, RO	Calibration Operation Status	0	
					0 Process Autotune 1 Regen Autotune
57	58	I, RO	Autotuning Channel	0	
					0 Autotune Complete 1 Autotune Aborted 2 No-Output Error 3 SP & PV too Close Error 4 Output Type Mismatch 5 Autotune Timeout 6 Autotune Failed 7 Waiting for Settling 8 Autotune Heating Running 9 Autotune Cooling Running
58	59	I, RO	Autotune Operation Status	0	

Modbus TCP/IP Communications Parameters (continued)

59	60	I	Process Protect Sensor Type	0	0 RTD 1 4-20 mA 2 0-10 V
60	61	F	Process Protect Temp Offset	0	(-100 - 100) °F
61	62	I	Channel 4 Sensor Type	0	0 RTD 1 4-20 mA 2 0-10 V
62	63	F	Channel 4 Temp Offset	0	(-100 - 100)
63	64	F	Process Setpoint High Limit	400 °F	70 - 450 °F
64	65	F, RO	RTD Zero Calibration Value1	0	
65	66	F, RO	RTD Span Calibration Value1	1	
66	67	F, RO	RTD Zero Calibration Value2	0	
67	68	F, RO	RTD Span Calibration Value2	1	
68	69	F, RO	RTD Zero Calibration Value3	0	
69	70	F, RO	RTD Span Calibration Value3	1	
70	71	F, RO	RTD Zero Calibration Value4	0	
71	72	F, RO	RTD Span Calibration Value4	1	
72	73	F, RO	0-20 mA Zero Calibration Valuec	0	
73	74	F, RO	0-20 mA Span Calibration Valuec	1	
74	75	F, RO	0-20 mA Zero Calibration Value4	0	
75	76	F, RO	0-20 mA Span Calibration Value4	1	
76	77	F, RO	0-10 V Zero Calibration Value3	0	
77	78	F, RO	0-10 V Span Calibration Value3	1	
78	79	F, RO	0-10 V Zero Calibration Value4	0	
79	80	F, RO	0-10 V Span Calibration Value4	1	
80	81	I	Communication IC	1	1 - 20
81	82	I, RO	Frequency		
82	83	I	Process Protect RTD Installed	0	0 -- Not Installed 1 -- Installed
83	84	F	Process Protect Hi Alarm Setpoint	550 °F	200 - 750 °F
84	85	I	Process Protect Hi Alarm Delay	5	1 - 255 Sec.
85	86	F	Process Differential Alarm Setpoint	150 °F	50 - 400 °F
86	87	I	Process Differential Alarm Delay	10	1 - 255 Sec.
87	88	I, RO	Output Testing Channel	0	0 - 8
88	89	I	Setback ON/OFF	0	0 -- Off 1 -- On
89	90	I	Setback on Temperature	0	0 -- Disable 1 -- Enable
90	91	I	Setback on Loadrate	1	0 -- Disable 1 -- Enable
91	92	I	Setback Load Rate setpoint	10	1 - 30 load/hr
92	93	I, RO	Setback Actual Load Rate		0 - 31 load/hr
93	94	I	Param# Map to 500	0	0 - 135
94	95	I	Param# Map to 501	24	0 - 135
95	96	I	Param# Map to 502	2	0 - 135
96	97	I	Param# Map to 503	23	0 - 135
97	98	I	Param# Map to 504	4	0 - 135
98	99	I	Param# Map to 505	21	0 - 135
99	100	I	Param# Map to 506	91	0 - 135
100	101	I	Param# Map to 507	92	0 - 135
101	102	I	Param# Map to 508	11	0 - 135
102	103	I	Param# Map to 509	12	0 - 135
103	104	I	Param# Map to 510	28	0 - 135
104	105	I	Param# Map to 511	13	0 - 135
105	106	I	Param# Map to 512	16	0 - 135
106	107	I	Param# Map to 513	3	0 - 135
107	108	I	Param# Map to 514	43	0 - 135
108	109	I	Param# Map to 515	5	0 - 135
109	110	I	Param# Map to 516	0	0 - 135
110	111	I	Param# Map to 517	0	0 - 135
111	112	I	Param# Map to 518	0	0 - 135
112	113	I	Param# Map to 519	0	0 - 135
113	114	I	Param# Map to 520	1	1
114	115	I	Param# Map to 521	1	1
115	116	I	Param# Map to 522	1	1
116	117	I	Param# Map to 523	1	1
117	118	I	Param# Map to 524	1	1
118	119	I	Param# Map to 525	1	1
119	120	I	Param# Map to 526	1	1

Modbus TCP/IP Communications Parameters (continued)

120	121	I	Param# Map to 527	1	1
121	122	I	Param# Map to 528	1	1
122	123	I	Param# Map to 529	1	1
123	124	I	Param# Map to 530	24	0 ~ 248
124	125	I	Param# Map to 531	23	0 ~ 248
125	126	I	Param# Map to 532	21	0 ~ 248
126	127	I	Param# Map to 533	91	0 ~ 248
127	128	I	Param# Map to 534	24	0 ~ 248
128	129	I	Param# Map to 535	202	0 ~ 248
129	130	I	Param# Map to 536	203	0 ~ 248
130	131	I	Param# Map to 537	204	0 ~ 248
131	132	I	Param# Map to 538	24	0 ~ 248
132	133	I	Param# Map to 539	24	0 ~ 248
					0 ~ °F
133	134	I	°F or °C	°F	1 ~ °C
134	135	I	Process Heater Box Hi Alarm Delay	2 s	0 ~ 255 seconds
135	136	I	Air Flow Alarm Delay	10 s	0 ~ 255 seconds
			Reserved		
200	201	I, WO	Start Process Autotune		Write 1 to this address to start autotune
201	202	I, WO	Start Regen Autotune		Write 1 to this address to start autotune
202	203	I, WO	START Dryer		Write 1 to this address to start dryer
203	204	I, WO	STOP Dryer		Write 1 to this address to stop dryer
					Write 1 to this address to silence alarm horn,
204	205	I, WO	Silence Alarm		Write 1 to this address again to reset alarms
205	206	I, WO	Load Default		Write 1 to this address to load default values
					Write 1 to this address to start test mode
206	207	I, WO	Start Test Mode		STOP Dryer will stop the test mode
207	208	I, WO	Test Output		Write 1 ~ 6 to this address to jog 1 output
			Reserved		