GAYLORD®

TECHNICAL MANUAL
FOR
INSTALLATION, OPERATION
AND MAINTENANCE
OF

THE GAYLORD "ClearAir"™
MODEL "RSPC-TPF" SERIES
POLLUTION CONTROL UNITS (PCU)
WITH COMMAND CENTER MODEL FM-1000-A

WARNING

Improper installation, adjustment, alteration service or maintenance can cause property damage, injury or death. Read the installation, operation and maintenance instructions thoroughly before installing or servicing this equipment. Only trained and qualified service personnel should install or service this equipment.

GAYLORD INDUSTRIES

Breathe easy.

To Our Customers. . .

Congratulations on your recent purchase of a Gaylord ClearAir™ Pollution Control Unit. We are proud to be able to provide you with a quality product that exemplifies our long-standing dedication to quality engineering.

Your unit is assembled from some of the very finest components available and is designed for years of efficient, effective, and trouble free operation. In addition, this unit has undergone rigorous quality control inspections and was fully operationally tested prior to shipment.

If you have further questions, please contact us toll free at 1-800-547-9696, or info@gaylordusa.com. We are more than happy to help.

Sincerely,

Gaylord Industries

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OF
THE GAYLORD "ClearAir"™
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The Gaylord ClearAir™ Unit is designed, engineered and manufactured by
GAYLORD INDUSTRIES
10900 SW Avery St., Tualatin, Oregon 97062

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Air quality is becoming a major concern in America's large cities and as a result, many commercial kitchens will require pollution control equipment in their exhaust systems to comply with the increasing demands of environmental control agencies. In addition, pollution control equipment is being used for kitchens in high-rise buildings allowing the exhaust to discharge out the side of the structure which saves the cost of running the duct up many floors to the roof.

Pollution control in kitchen exhaust systems has typically been accomplished by any one of the following methods - gas fired incinerators, scrubbers, filtration units or electrostatic precipitators. Incinerators and afterburners literally burn the pollutants and, while effective, can be very costly and hazardous to operate. Scrubbers consist of a water bath and extraction baffles to remove the pollutants and though quite effective on grease removal, they typically require the addition of high efficiency filters to abate smoke below control agencies' standards. Filtration units use a series of impingement filters to remove the pollutants and if done properly can be quite effective on both smoke and grease.

The Gaylord pollution control unit, trademarked "ClearAir"™, can be manufactured with either electrostatic precipitation (ESP) or Filtration (TPF). Gaylord Industries has been manufacturing ESP's specifically designed for commercial kitchen exhaust systems since the early 1970's, longer than any other manufacturer. However, when initial cost is a greater concern the TPF unit is a sound alternative.

The ClearAir™ TPF unit is available in several configurations, as illustrated on the following pages, ranging in capacity from 1000 to 32,000 CFM (472 to 15,102 L/s). Most models can include an exhaust fan and odor abatement equipment as an option.

Basic Facts About Smoke
Smoke particles are extremely small and not visible to the human eye unless thousands of them are grouped together to form what we see as smoke. Individual particles are measured in units called microns and one micron equals 1/25,400 of an inch (1/64,516 of a cm).

Smoke generated by commercial cooking equipment has a particulate size of 0.15 microns and it is these very small particles that smoke abatement equipment must remove from the airstream. The amount of smoke being discharged from a kitchen exhaust duct is measured in terms of its density, referred to as opacity - the degree to which emissions block light. A 100% opacity level would be solid black and 0% would be perfectly clear. Control agencies that have adopted smoke pollution ordinances are requiring an opacity level of no more than 20%, which is a very light blue smoke.

Typically, heavy smoke producing cooking such as charbroiling, creates an opacity level of 60% to 70%. Opacity readings are taken by the human eye by viewing the smoke being discharged and then assigning a percentage of opacity to what is seen. Though this method is quite subjective, it is the method practiced by control agency inspectors who are trained and certified in determining opacity percentages. Other more technical methods of determining opacity or particulate density are achieved through the use of opacity meters and cascade impactors. This level of analysis is usually referred to as source testing. Control agencies occasionally require this type of analysis and if so, the testing is conducted by state certified contractors which can be quite costly and time-consuming. The efficiency of an TPF is based on how well it reduces the opacity level of a given airstream.The Gaylord ClearAir™ unit will reduce the opacity level below 20%, thereby meeting the requirements of environmental control agencies.

Basic Facts About Odor
Cooking odors (molecules) generated by the combustion of animal and vegetable matter result in an extremely complex mixture of reactive organic gases (ROG's). A small percentage of these odors may be absorbed by the grease particles but the vast majority exist separately in the airstream. The ROG molecules are much too small to be removed by any type of filter and therefore, other methods must be used. There are several methods with which to manage the odor. One method is to use a media bed. The three most popular types of media bed are activated charcoal, which absorbs and retains the odor molecules, the use of an odor-oxidant media (potassium permanganate) which oxidizes the molecules to solids and then retains them, and a blend of the two. Another method involves the use of a liquid delivered with a finely atomized spray. This spray performs a similar function to potassium permanganate in that it adsorbs or chemically neutralizes odors. This process has the benefit of the end user being able to adjust the amount of spray and thus the effectiveness and cost of the odor control.

The life of the media bed type of odor control is dependent upon several factors such as how much media is used, type of odor, amount of odor molecules, grease loading and air temperature. Typically, any of the above mentioned types of media can remove 85% - 90% of the molecules. Determining the efficiency of odor control can be very subjective, as testing is usually conducted by the human nose. More scientific testing is available through ROG analysis, but this involves considerable costs.

Grease Removal - The Important First Step
Grease particles are also measured in terms of microns and grease generated by commercial cooking equipment has a particulate size of 0.1 microns and up. Pollution control equipment is not limited to removing smoke particles, but will also remove a majority of the grease particles remaining in the airstream. Therefore, the grease extraction efficiency of the exhaust hood plays an important role in the operation and performance of pollution control equipment.

Removal of grease particles before they reach smoke and odor control equipment will significantly increase the smoke abatement efficiency and the life of the odor abatement media.

General

Furnish one (1) Gaylord ClearAir Pollution Control Unit model RSPC-TPF series as manufactured by Gaylord Industries of Tualatin, Oregon in accordance with the following:

The pollution control unit (PCU) shall consist of a smoke control section, odor control section (optional) and an exhaust fan section (optional) all built on a common base as an integral unit. Smoke control shall be accomplished by a three stage high efficiency filter section (TPF). The unit shall be ETL listed and labeled.

Smoke Control Section

The smoke control section shall have three phases of filters The filters shall consist of replaceable 30% pre-filter, 95% bag filter and a replaceable .95 DOP final filter. Replaceable filters shall be mounted in filter slide tracks to prevent air bypass around the ends of the installed filter bank. Filters shall be accessed through removable side access panels with lift and turn latches.

Phase one filters shall have an average efficiency of 25 to 30% and an average arrestance of 90 to 92% in accordance with ASHRAE test standard 52.1-1992. Media support grid shall be on 1" centers with an open area 96%. Filter enclosing frame shall be a rigid, high wet strength beverage board, with diagonal support members 4" deep.

Phase two filters shall have an average efficiency of 90 to 95% in accordance with ASHRAE test standard 52.1-1992. Sealing surface and pocket retainers shall be configured to provide 84% open area. Seams in bag filters shall be sealed with foamseal adhesive to completely eliminate air leakage through stitch holes.

Phase three filters shall be 95% efficient on .03 micron particles (DOP smoke test), 97% efficient on nebulized staphylococcus aerosols, 99+% efficient on atmospheric test dust (ASHRAE standard 52.1-92). The casing shall be 16 gauge steel with corrugated aluminum separators to insure media stability. Media shall be fine-fiber, high strength microfiberglass paper. Media end cuts shall be encapsulated in urethane potting adhesive.

Fire Detection

A thermostat, set at 250º F, shall also be located in the filter section to shut down the exhaust fan in the event of a fire.

☐ **Optional Fire Damper Required in Canada**
The unit shall include a UL listed fire damper, with a 280º F fusible link, located downstream of the filters to prevent passage of fire to the duct downstream of the unit

Control Panel

A Gaylord Kitchen Exhaust System Command Center control panel, Model FM-1000-A, designed for remote location, shall be supplied for the operation of the exhaust fan and monitoring of the PCU. The control panel shall be constructed of 18 gauge stainless steel, number 4 finish, and shall be suitable for surface or recessed mounting. The panel face shall be a hinged door and with a lift and turn flush latch.

The control panel shall include a Programmable Logic Controller (PLC) and a LED display panel to operate and monitor all conditions of the PCU. The panel shall display text showing each PCU condition as it occurs. The control panel shall include push buttons for Starting and Stopping the exhaust fan, and control, monitor and notify of the following conditions; Fan On, Fan Off, Autostart (start the exhaust fan if the hood is provided with an Autostart system), Pre-Filter(s) dirty, Bag Filter(s) dirty, Final Filter(s) dirty, Missing Filter(s), Fire in the PCU, External Fire (chemical system in the hood or PCU discharged), and a Remote Start of the PCU. If the PCU is equipped with a Spray Odor Control system the Control Panel shall include a Low Spray Odor Chemical light. An audible alarm, with an alarm cancel button, shall be included and shall activate whenever the system detects a dirty Pre-Filter, Bag Filter, Final Filter, Missing Filter, Fire in the PCU or External Fire condition.

The Control Panel shall include terminals to allow interfacing with the make-up air system, a building management system (remote start and stop or the exhaust fan system), and a fire alarm system.

☐ *(optional)* Provide Remote Monitoring terminals to allow interfacing with the building management system to monitor all functions of the control panel.

☐ *(optional)* Provide Hood Light Switch on the face of the Control Panel.

Odor Control Options
☐ **Media bed of 50/50 Blend Potassium Permanganate and Carbon Blend**
The unit shall be provided with odor control utilizing a media bed of 50% potassium permanganate 50% carbon blend. There are two design methods of housing the media used in the ClearAir unit. One is called the Loose Fill type and the other is called the Media Panel type.

☐ Loose Fill type – The odor control media shall be housed in steel reusable Media Modules that can be replenished with Loose Fill media. There shall be a 30% pleated media After Filter located immediately downstream of the Media Models. The Modules and After Filters shall be mounted into slide tracks to prevent air bypass around the ends. The Modules and After Filters shall be removable through side access doors with lift and turn latches.

☐ Media Panel type – The odor control media shall be compressed into Media Panels that slide into Media Modules. The Modules shall be mounted into slide tracks to prevent air bypass around the ends. The Modules and shall be removable through side access doors with lift and turn latches.

☐ (*optional*) The unit shall be equipped with a 30% pleated media After Filter located immediately downstream of the Media Models.

☐ The unit shall be equipped with a Single Pass Media Bed

☐ The unit shall be equipped with a Double Pass Media Bed

☐ The unit shall be equipped with a Triple Pass Media Bed

☐ **Spray Odor Control**
The unit shall be provided with a spray odor control system utilizing an odor neutralizer chemical. The odor spray control cabinet shall be mounted on the side of the unit and shall contain a liquid spray compressor piped to the spray nozzle in the fan plenum, adjustable delay timers with fuse protected circuitry factory wired to the unit electrical panel. The cabinet shall include one 5 gallon container of Gaylord Formula GS-710 Odor Neutralizer. The cabinet shall contain a heater to prevent freezing of the odor neutralizer, if mounted outdoors.

Exhaust Fan Options
☐ **Exhaust Fan (Standard Centrifugal Fan)**
The unit shall include a centrifugal exhaust fan, Listed to U.L. 762. The exhaust fan shall be an SWSI upblast arrangement #9 or #10 with a non-overloading BI or AF wheel. The motor, drives, bearings and fan mounting base shall be located out of the exhaust air stream as required by the IMC (International Mechanical Code) and NFPA-96. The fan shall be AMCA certified and bear the AMCA seal for performance. The fan housing shall be constructed of heavy gauge steel. The fan bearings shall be heavy duty self-aligning pillow block type rigidly mounted on heavy structural steel supports. The motor shall be ODP three phase mounted on a common base with the fan and shall be pre-wired to the electrical cabinet located on the unit. The electrical cabinet shall include a disconnect switch, motor starter, overloads and fuses. The factory provided drive assembly shall be adjustable pitch on 5 HP and smaller, fixed pitch on 7.5 HP and larger. It shall also be sized for a minimum 1.5 service factor. After final system balancing, fixed pitch sheaves shall be provided and installed by the air balancing contractor to provide proper flow at actual installed conditions.

☐ **Exhaust Fan (Optional Tubular Fan)**
The unit shall include a tubular centrifugal exhaust fan, Listed to U.L. 762. The exhaust fan shall be an arrangement #10 with a non-overloading BI, AF wheel. The motor, drives, bearings and fan mounting base shall be located out of the exhaust air stream as required by the IMC (International Mechanical Code) and NFPA-96. The fan shall be AMCA certified and bear the AMCA seal for performance. The fan housing shall be constructed of heavy gauge steel. The fan bearings shall be heavy duty rigidly mounted on heavy structural steel supports. The motor shall be ODP three phase mounted on a common base with the fan and shall be pre-wired to the electrical cabinet located on the unit. The electrical cabinet shall include a disconnect switch, motor starter, overloads and fuses. The factory provided drive assembly shall be adjustable pitch on 5 HP and smaller and fixed pitch on 7.5 HP and larger. It shall also be sized for a minimum 1.5 service factor. After final system balancing, fixed pitch sheaves shall be provided and installed by the air balancing contractor to provide proper flow at actual installed conditions.

☐ **Exhaust Fan Housing**
The exhaust fan section of the unit shall be enclosed with the same material as the smoke control section. There shall be a removable panel for access to the fan.

Unit Construction
The unit housing shall be constructed of a minimum of 16 gauge G90 bright galvanized steel. The perimeter base shall be 12 gauge formed channel with lifting lugs at each corner and along the length as required. The internal housing shall be externally welded liquid tight for compliance to the International Mechanical Code and NFPA-96 grease duct construction requirements.

Fire Extinguishing System Options
Specifier Note: NFPA-96 requires a fire extinguishing system for protection of the smoke and odor control sections and protection of the duct down stream of any filters or dampers. Not all authorities having jurisdiction require protection. Check with your AHJ. If required, specify one of the following systems.

☐ **Wet chemical system**
Provide a complete factory mounted Ansul wet chemical fire extinguishing system, including nozzles piping and detection runs. Pipe penetrating the unit cabinet shall use a UL listed fitting. System shall be installed in accordance with the manufacturer's recommendations, the systems listing and NFPA-96. The Ansul Automan cabinet shall be mounted on the side of the unit for easy access, certification and service. If mounted outdoors, a heater shall be provided.

☐ **Water spray sprinkler fire system**
Specifier Note: Units that are located indoors may be factory pre-piped for a wet pipe building sprinkler system.

Provide a pre-piped water spray fire system installed in accordance with NFPA-96. The unit shall be piped with one pendent type sprinkler nozzle located in the smoke control section, one in the odor control section, if equipped with 50/50 media bed, and one in the exhaust fan section for interconnection to the building sprinkler system by the appropriate trades. Pipe penetrating the unit cabinet shall use a UL listed fitting. Nozzles shall be the bulb type rated at 325° F.

Check Out and Demonstration
Upon completion of installation, the entire pollution control system, including the kitchen exhaust hoods, shall be commissioned by factory certified personnel. Start-up shall include checking all filters, filter monitoring station, odor control and exhaust fan. The appropriate maintenance personnel shall be given a technical manual and a complete demonstration of the system, including operation and maintenance procedures. Upon completion of the commissioning, a detailed start-up report shall be made available to the architect and owner certifying proper system operation. Changes required in fan drive components shall be performed by the air balancing contractor under the direction of the factory certified person(s) performing the start-up.

The assigned model number of a ClearAir™ RSPC-TPF unit will indicate the number of Filter Banks and if it has spray odor control, single or double pass odor control, if it has an exhaust fan plus other data. The following example shows the make-up of a model number.

The model number of your ClearAir™ unit along with other data can be found on the nameplate which is attached to the electrical control panel on the ClearAir™ unit. Refer to page 38.
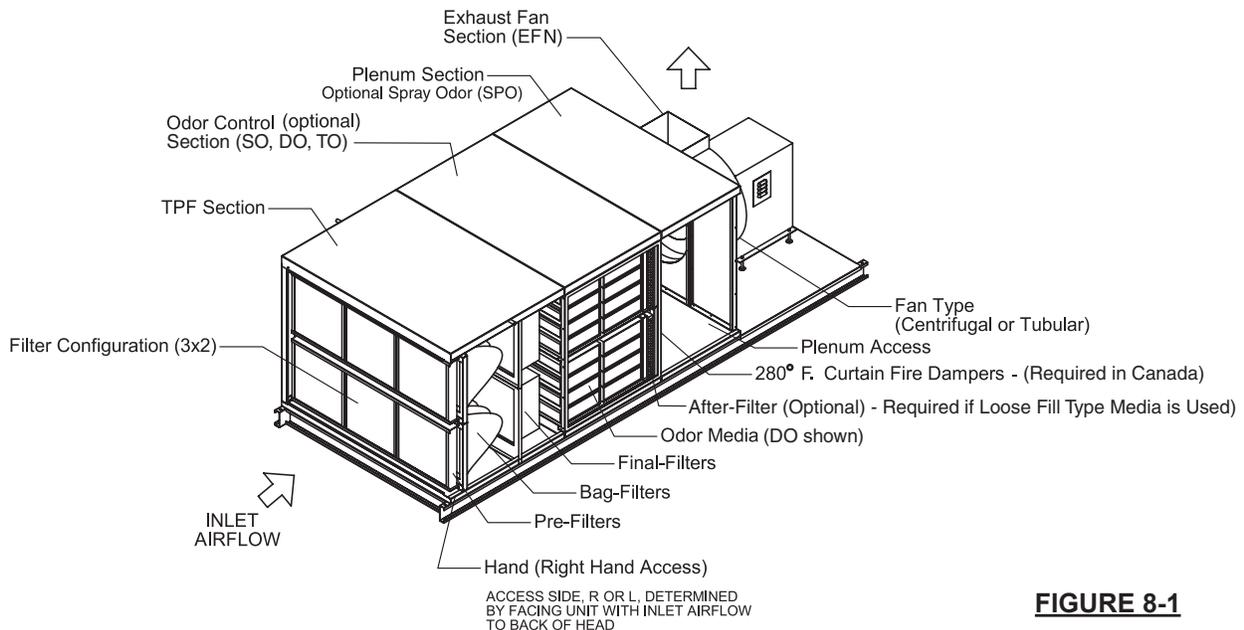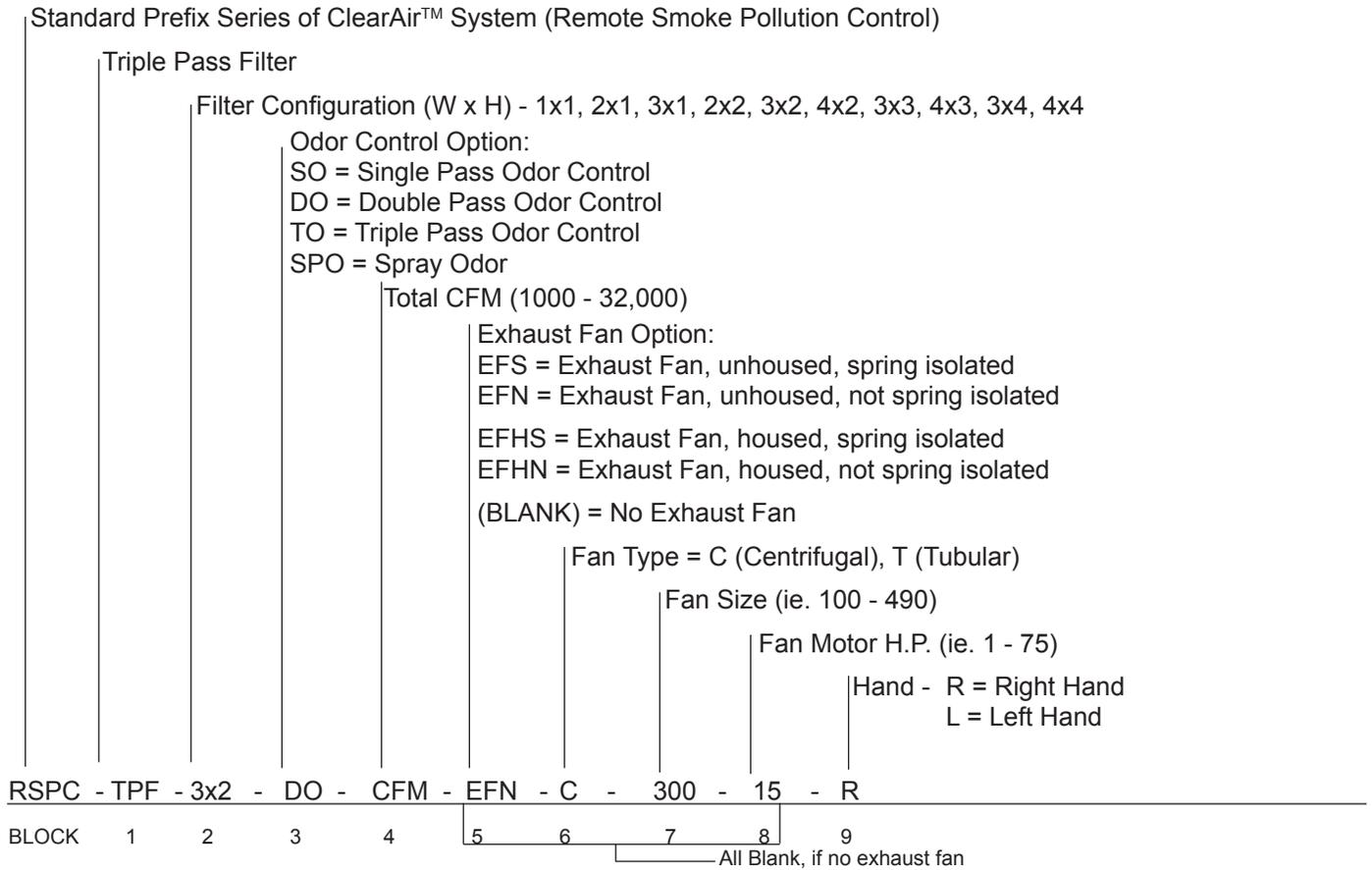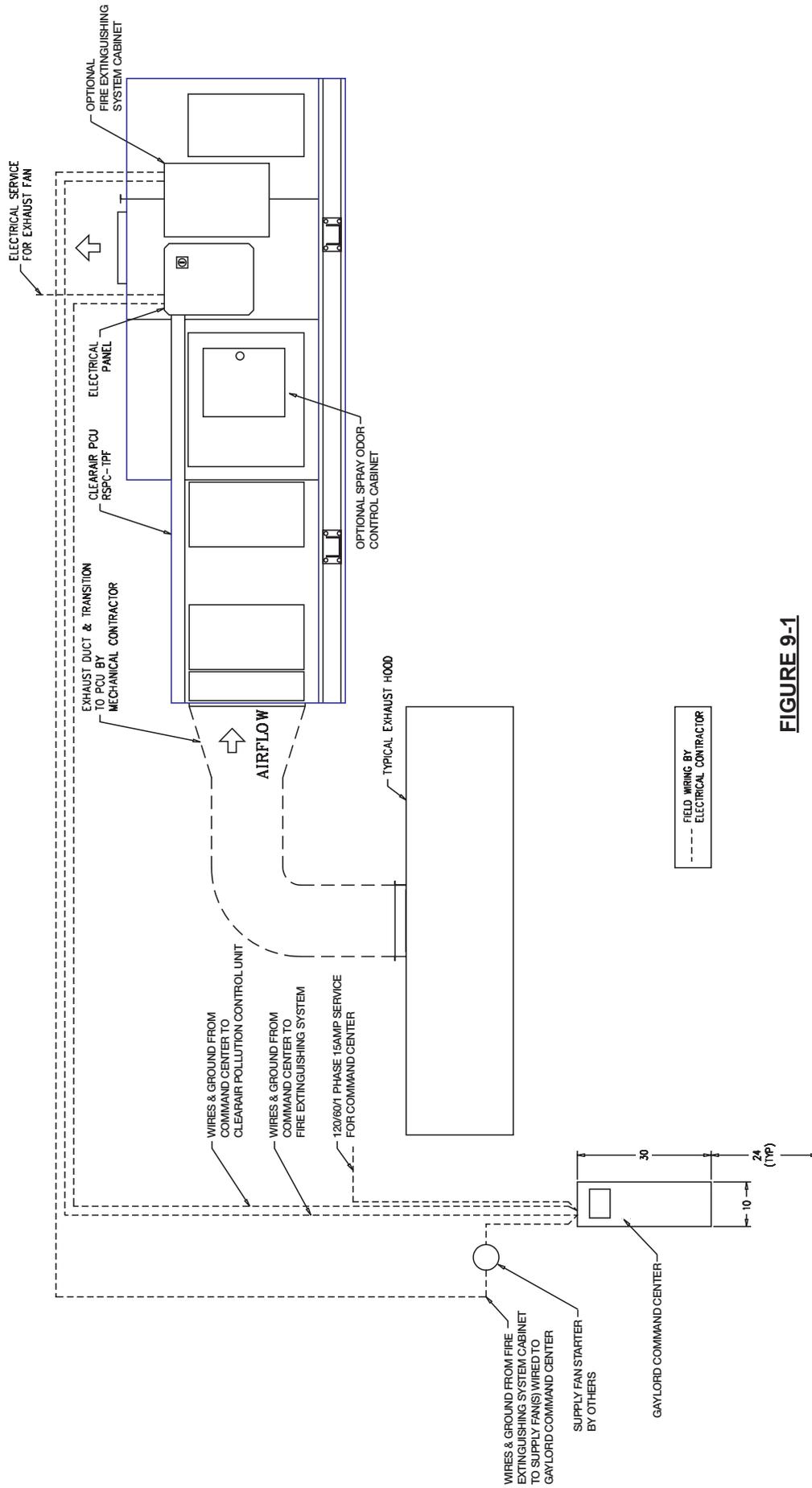
Standard Prefix Series of ClearAir™ System (Remote Smoke Pollution Control)

Triple Pass Filter

Filter Configuration (W x H) - 1x1, 2x1, 3x1, 2x2, 3x2, 4x2, 3x3, 4x3, 3x4, 4x4

Odor Control Option:
SO = Single Pass Odor Control
DO = Double Pass Odor Control
TO = Triple Pass Odor Control
SPO = Spray Odor

Total CFM (1000 - 32,000)

Exhaust Fan Option:
EFS = Exhaust Fan, unhoused, spring isolated
EFN = Exhaust Fan, unhoused, not spring isolated

EFHS = Exhaust Fan, housed, spring isolated
EFHN = Exhaust Fan, housed, not spring isolated

(BLANK) = No Exhaust Fan

Fan Type = C (Centrifugal), T (Tubular)

Fan Size (ie. 100 - 490)

Fan Motor H.P. (ie. 1 - 75)

Hand - R = Right Hand
L = Left Hand

| RSPC | - TPF | - 3x2 | - DO | - CFM | - EFN | - C | - 300 | - 15 | - R |
| BLOCK | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

All Blank, if no exhaust fan

Exhaust Fan Section (EFN)
Plenum Section Optional Spray Odor (SPO)
Odor Control (optional) Section (SO, DO, TO)
TPF Section
Fan Type (Centrifugal or Tubular)
Plenum Access
Filter Configuration (3x2)
280° F. Curtain Fire Dampers - (Required in Canada)
After-Filter (Optional) - Required if Loose Fill Type Media is Used)
Odor Media (DO shown)
Final-Filters
Bag-Filters
INLET AIRFLOW
Pre-Filters
Hand (Right Hand Access)
ACCESS SIDE, R OR L, DETERMINED BY FACING UNIT WITH INLET AIRFLOW TO BACK OF HEAD

FIGURE 8-1

OPTIONAL
FIRE EXTINGUISHING
SYSTEM CABINET

ELECTRICAL SERVICE
FOR EXHAUST FAN

ELECTRICAL
PANEL

CLEARAIR PCU
RSPC-TPF

OPTIONAL SPRAY ODOR
CONTROL CABINET

EXHAUST DUCT & TRANSITION
TO PCU BY
MECHANICAL CONTRACTOR

AIRFLOW

AIRFLOW

TYPICAL EXHAUST HOOD

WIRES & GROUND FROM
COMMAND CENTER TO
CLEARAIR POLLUTION CONTROL UNIT

WIRES & GROUND FROM
COMMAND CENTER TO
FIRE EXTINGUISHING SYSTEM

120/60/1 PHASE 15AMP SERVICE
FOR COMMAND CENTER

WIRES & GROUND FROM FIRE
EXTINGUISHING SYSTEM CABINET
TO SUPPLY FAN(S) WIRED TO
GAYLORD COMMAND CENTER

SUPPLY FAN STARTER
BY OTHERS

GAYLORD COMMAND CENTER

30

24
(TYP)

10

FIELD WIRING BY
ELECTRICAL CONTRACTOR

FIGURE 9-1

**TYPICAL INTERFACE SCHEMATIC
FOR HOODS WITH RSPC-TPF**

DOES NOT REPRESENT
ACTUAL LOCATION OF EQUIPMENT

SAMPLE ClearAir™ CONFIGURATIONS

The ClearAir unit is available in sizes ranging in capacity from 1000 to 32,000 CFM (472 to 15,102 L/s). Each unit is equipped with Three Phase Filters for smoke control, and may include an exhaust fan, odor abatement equipment and fire extinguishing system as an option. The following illustrations are examples of the most common configurations.

KEY

AF	= After Filter - optional	FD	= Optional Curtain Fire
	Required if Loose Fill Type		Damper Required in Canada
	Odor Control Media is Used	FF	= 95% DOP Final Filter
BF	= 95% Bag Filter	PF	= 30% Pre-Filter
DO	= Double Pass Odor	SO	= Single Pass Odor
EF	= Exhaust Fan–un-housed	SPO	= Spray Odor Cabinet
EFH	= Exhaust Fan–housed	TO	= Triple Pass Odor
			(not illustrated)

OUTLET TO FAN

PF   BF   FF
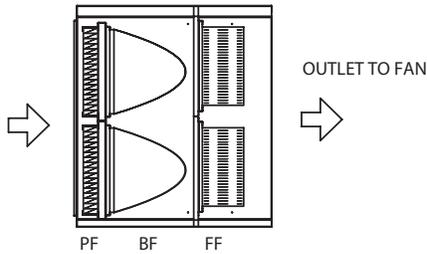
RSPC-TPF
SMOKE CONTROL ONLY
(REMOTE FAN)

FIGURE 10-1

OUTLET TO FAN

PF   BF   FF   SO   FD   AF

RSPC-TPF-SO
SMOKE CONTROL
WITH SINGLE PASS MEDIA BED ODOR CONTROL
(REMOTE FAN)

FIGURE 10-2

OUTLET TO FAN

PF   BF   FF   FD
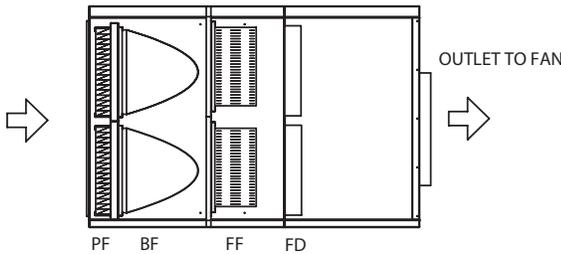
RSPC-TPF
SMOKE CONTROL WITH PLENUM
(REMOTE FAN)

FIGURE 10-3

OUTLET TO FAN

PF   BF   FF   DO   AF FD
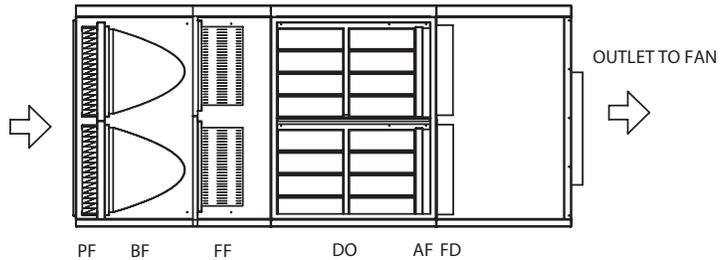
RSPC-TPF-DO
SMOKE CONTROL
WITH DOUBLE PASS MEDIA BED ODOR CONTROL
(REMOTE FAN)

FIGURE 10-4

OUTLET TO FAN

PF   BF   FF   FD   **SPO**
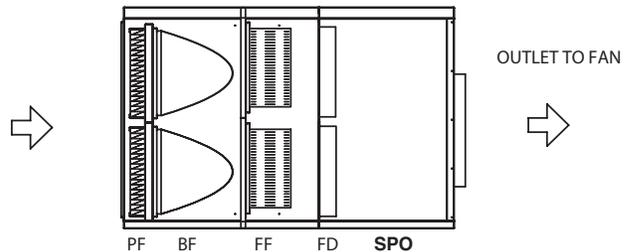
SMOKE CONTROL
WITH SPRAY ODOR CONTROL
(REMOTE FAN)

FIGURE 10-5

SAMPLE ClearAir™ CONFIGURATIONS

RSPC-TPF-EF

FAN DISCHARGE

PF　BF　　FF　FD　　　　EF

SMOKE CONTROL
WITH EXHAUST FAN AND OPTIONAL FIRE DAMPER
FIGURE 11-1

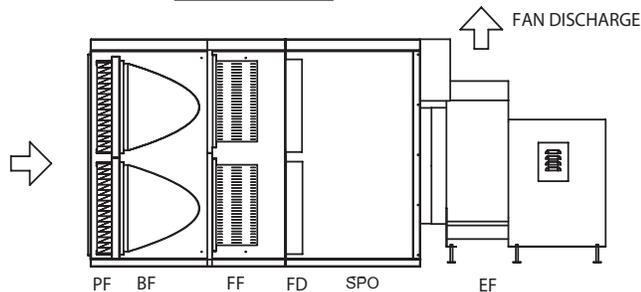**RSPC-TPF-SO-EF**

FAN DISCHARGE

PF　BF　FF　　SO **AF** FD　　　　EF
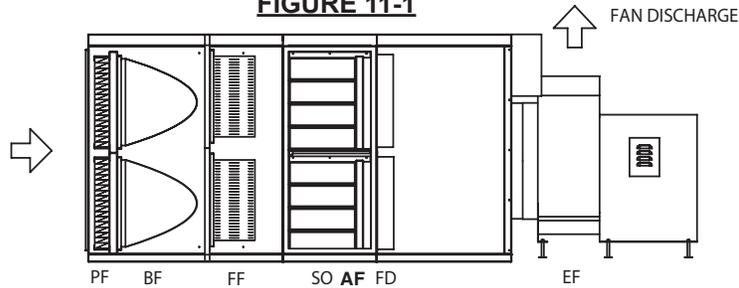
SMOKE CONTROL
WITH SINGLE PASS MEDIA BED, ODOR CONTROL,
EXHAUST FAN AND OPTIONAL FIRE DAMPER
FIGURE 11-2

RSPC-TPF-DO-EFH

FAN DISCHARGE

PF　BF　FF　　　DO　　AF FD　　　EF
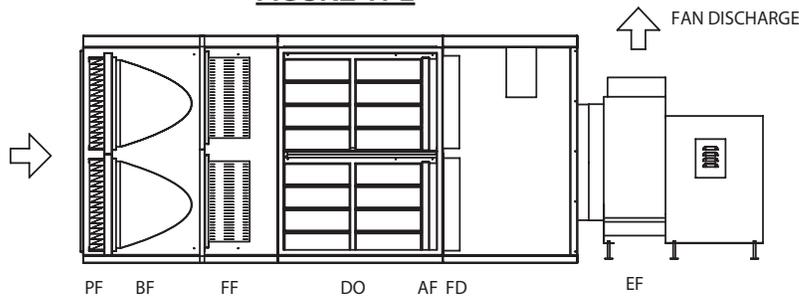
SMOKE CONTROL
WITH DOUBLE PASS ODOR CONTROL
AND EXHAUST FAN
FIGURE 11-3

RSPC-TPF-SPO-EF

FAN DISCHARGE

PF　BF　　FF　FD　SPO　　EF

SMOKE CONTROL
WITH SPRAY ODOR CONTROL
AND EXHAUST FAN
FIGURE 11-4

The Kitchen Exhaust System Command Center, Model FM-1000-A, controls and monitors all functions of the Gaylord ClearAir pollution control unit (PCU). All functions are indicated on the LED display on the face of the Command Center. The Command Center is typically located in the kitchen area, near the ventilator and performs the following:

• Manually Starting and Stopping the exhaust fan.

• Automatically starts the make-up air system if the system is interfaced with the Command Center.

• Allows Autostart of exhaust fan if the ventilator includes optional Autostart feature.

• Notification that the exhaust is on via Autostart, if ventilator includes this option.

• Visual and audible notification that a Pre-filter(s) is dirty.

• Visual and audible notification that a Bag Filter(s) is dirty.

• Visual and audible notification that a Final Filter(s) is dirty.

• Visual and audible notification that a filter(s) is missing.

• Visual and audible notification that there is a fire in the ClearAir pollution control unit.

• Terminals to interface with a building management system to allow Remote Starting and Stopping of the exhaust fan.

• Optional terminals to interface with a building management system to monitor all functions of the control.

FIGURE 12-1
COMMAND CENTER
MODEL FM-1000-A

Starting the Exhaust Fan
To start the exhaust fan press the F1 button.

Pressing the F1 button will result in:
1. There is a one minute delay, STAND BY, before the exhaust fan will come on.
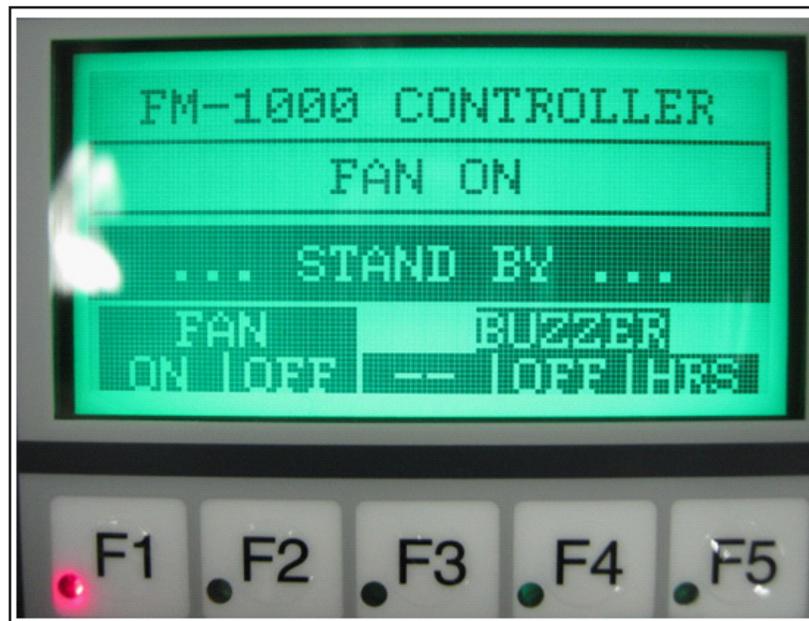2. The display panel will read as shown.

FIGURE 13-1
DISPLAY PANEL
FAN ON
STAND BY CONDITION

Starting the Exhaust Fan (continued)

At the end of one minute delay the following will occur:
1. The exhaust fan will come on.
2. The make-up air system will come on if interfaced with the control.
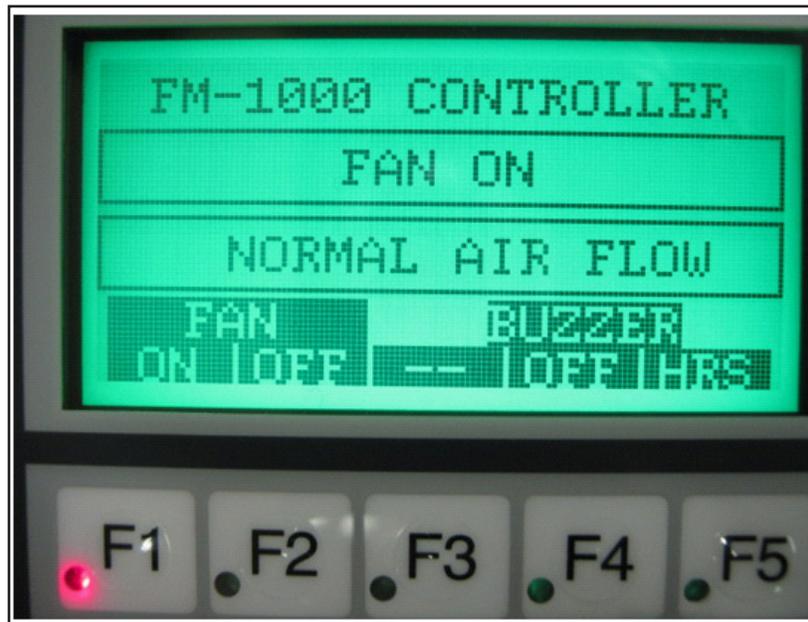3. The display panel will read as shown.

FIGURE 14-1
DISPLAY PANEL
FAN ON CONDITION

Stopping the Exhaust Fan
To stop the exhaust fan press the **F2** button.

Pressing the F2 button will result in:
1. The exhaust fan will shut off.
2. The make-up air will shut off if the make-up air system is interfaced with the control.
3. The display panel will read as shown.

Note:
If the ventilator(s) is equipped with optional Autostart controls the exhaust fan may continue to run after **F2** is pushed. Refer to Page 16 for details.
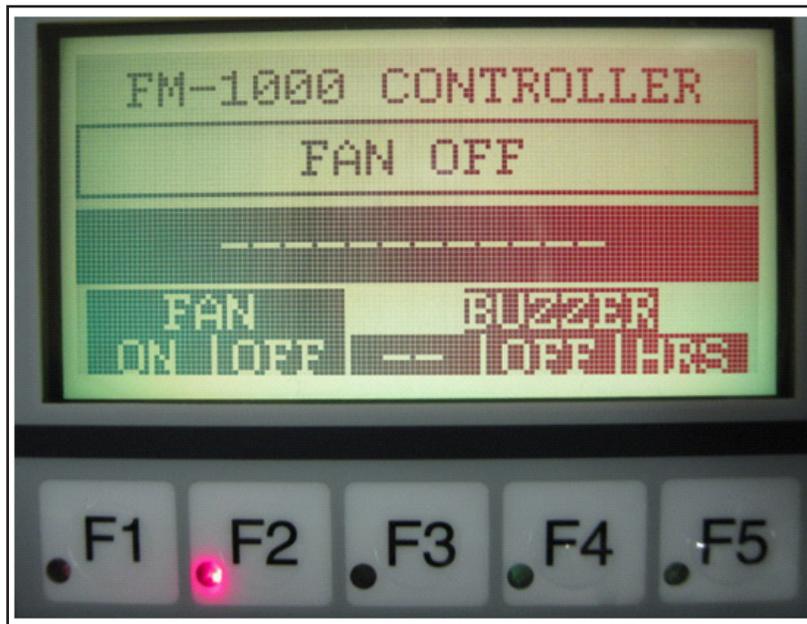

FIGURE 15-1
DISPLAY PANEL
FAN OFF CONDITION

Code Requirements

Some municipalities require the exhaust fan to start automatically whenever cooking operations occur to comply with International Mechanical Code (IMC) paragraph 507.2.1.1. This can be accomplished by the use of Gaylord Autostart Model TST.

Description of Autostart Control

There is one or more Autostart Thermostats mounted in the canopy of the ventilator(s). The thermostat is factory set at approximately 90 degrees F ±10. If the temperature of the thermostat reaches the set point, and the exhaust fan is off, the exhaust fan will automatically start. The display panel will read as shown in Figure 16-1.

FIGURE 16-1
DISPLAY PANEL
FAN ON
STAND BY CONDITION

After the temperature of the thermostat drops below the set point, the Command Center starts a 60 minute shut off countdown, shown in the upper right hand corner of the display panel (refer to Figure 16-2). At the conclusion of the countdown the exhaust fan will automatically shut off.

Note: Once a countdown has started, the exhaust fan may be manually shut off by pushing **F2**.

Countdown Clock in Minutes

FIGURE 16-2
DISPLAY PANEL
FAN OFF
COUNTDOWN CONDITION

Pre-Filters
If one or more Pre-Filters are dirty an audible alarm will come on and the display panel will read PRE-FILTER DIRTY – LOW AIR as shown in Figure 17-1. The audio alarm may be silenced by pushing **F4**, however if the dirty Pre-Filters are not replaced the audible alarm will come back on the next time the exhaust fan is started.

Note: Dirty Pre-Filters will cause low air in the ventilator typically causing smoke loss into the kitchen. Replace the filters as described on page 26.

FIGURE 17-1
DISPLAY PANEL
DIRTY PRE-FILTER CONDITION

Bag-Filters

If one or more Bag Filters are dirty an audible alarm will come on and the display panel will read BAG FILTER DIRTY, LOW AIR as shown in Figure 18-1. The audible alarm may be silenced by pushing **F4**, however if the dirty Bag Filters are not replaced the audible alarm will come back on the next time the exhaust fan is started.

Note: Dirty Bag Filters will cause low air in the ventilator typically causing smoke loss into the kitchen. Replace the filters as described on page 26.

FIGURE 18-1
DISPLAY PANEL
DIRTY BAG FILTER CONDITION

Final Filters

If one or more Final Filters are dirty an audible alarm will come on and the display panel will read FINAL FILTER DIRTY, LOW AIR as shown in Figure 19-1. The audible alarm may be silenced by pushing **F4**, however if the dirty Final Filters are not replaced the audible alarm will come back on the next time the exhaust fan is started.

Note: Dirty Final Filters will cause low air in the ventilator typically causing smoke loss into the kitchen. Replace the filters as described on page 26.

FIGURE 19-1
DISPLAY PANEL
FINAL FILTER CONDITION

Missing Filters

If one or more filters are missing an audible alarm will come on and the display panel will read MISSING FILTER, HIGH AIR as shown in Figure 20-1. The audible alarm may be silenced by pushing **F4**, however if the missing filters are not replaced the audible alarm will come back on the next time the exhaust fan is started.

Note: Missing filters in the ClearAir Unit will cause inefficient operation and smoke loss into the atmosphere. It will also cause high exhaust air in the ventilators resulting in reduced grease extraction efficiency, and unbalanced air in the kitchen. Install required filters as described on pages 26.
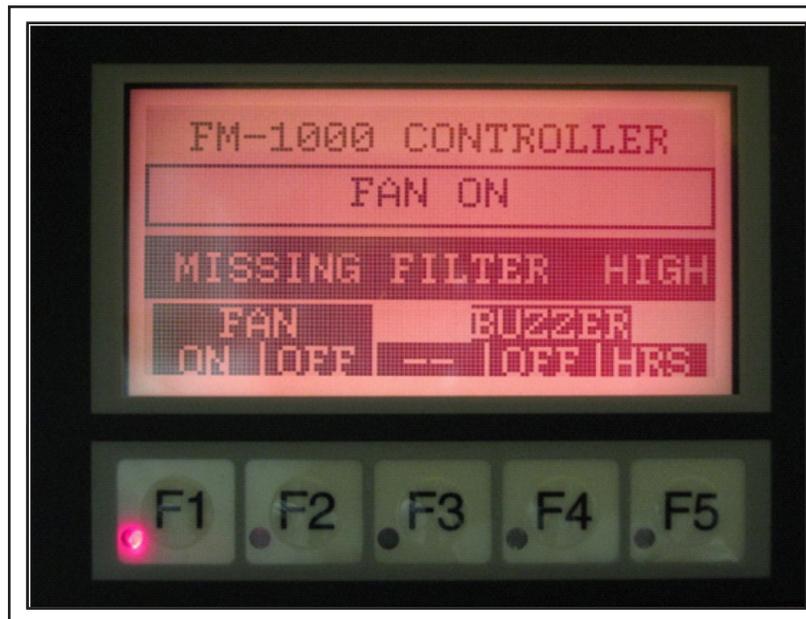

FIGURE 20-1
DISPLAY PANEL
MISSING FILTER CONDITION

Fire Condition
A fire thermostat, factory set at approximately 250 degrees F., is located in the filter section of the PCU. Upon activation, the following will occur:
1. The exhaust fan will shut off.
2. An audible alarm will come on.
3. The make-up air system (supply fan) will shut off if the system is interfaced with the Command Center.
4. A Fire signal is sent to the building fire alarm or building management system if interfaced with the control.
5. The display panel will read as shown in Figure 21-1.

Note: The audible alarm may be canceled by pushing **F4**.

Once the thermostat drops below the set point the following will occur:
1. The audible alarm shuts off.
2. The system goes to a FAN OFF condition, as shown in Figure 15-1, and the exhaust fan may be restarted.

FIGURE 21-1
DISPLAY PANEL
FIRE IN THE PCU CONDITION

External Fire Condition

An External Fire Condition is when a chemical fire extinguishing system, such as an Ansul or Amerex system, discharges either in the PCU or in the ventilator. An External Fire Condition may occur if the building management system or other building fire system notifies the Command Center of a fire. When an External Fire Condition is initiated the following occurs:

1. The exhaust fan stays on.
2. An audible alarm will come on.
3. The make-up air system (supply fan) will shut off if the system is interfaced with the Command Center.
4. A Fire signal is sent to the building fire alarm or building management system if interfaced with the Command Center.
5. The display panel will read as shown in Figure 22-1.

Note: The audible alarm may be canceled by pushing **F4**.

FIGURE 22-1
DISPLAY PANEL
EXTERNAL FIRE CONDITION

External Fire Condition

After a discharge of a chemical fire extinguishing system, the system must be recharged before the exhaust fan can be restarted. Contact your fire extinguishing system company to recharge and recertify the fire system. The display panel will read as shown in Figure 23-1 until the system is recharged. It may be necessary to reset the fire protection system to start the Make Up Air and stop the exhaust fan.

FIGURE 23-1
DISPLAY PANEL
EXTERNAL FIRE CONDITION
RESET SYSTEM

Remote Starting and Stopping the PCU

The Command Center, Model FM-1000-A, has terminals for interfacing to a remote start and stop control, such as a building management system, to allow starting and stopping the exhaust fan remotely and automatically. This method of control causes identical actions as pushing **F1 (FAN ON)** and **F2 (FAN OFF)**. When started or stopped remotely the display panel will read REMOTE START as shown on Figure 24-1, or REMOTE STOP (not shown).
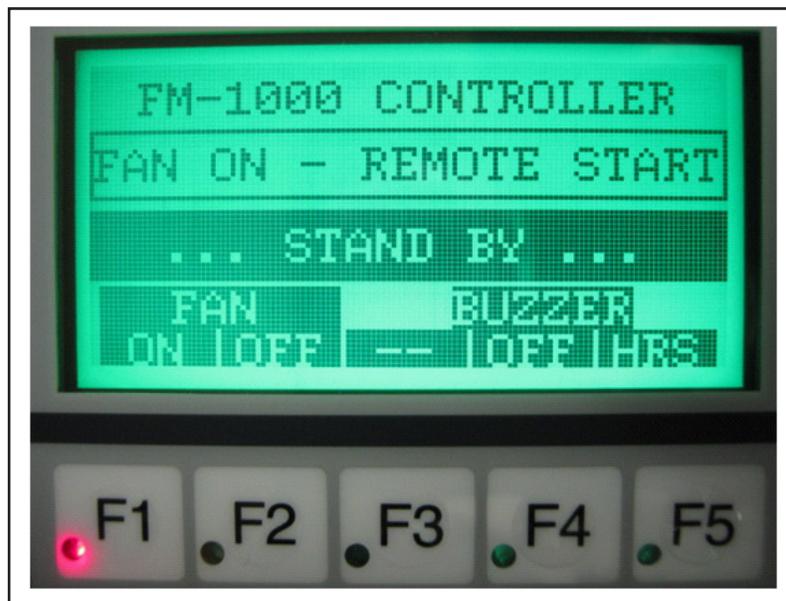

FIGURE 24-1
DISPLAY PANEL
REMOTE START CONDITION

Spray Odor Control Option

The PCU may be equipped with a Spray Odor Control option instead of a media bed odor control system. The Spray Odor Control system is mounted in a panel mounted on the PCU (refer to Figure 9-1 on page 9). The Command Center monitors the presence of the Spray Odor Chemical in the chemical container. If the Spray Odor Chemical is low the red Low Spray Odor Chemical light on the face of the Command Center will illuminate and continue to illuminate until the container is filled (refer to Figure 25-1). Refer to Page 29 for instructions and where to purchase the Spray Odor Chemical.

Low Odor Control Chemical Light

FIGURE 25-1
COMMAND CENTER
LOW SPRAY ODOR CHEMICAL CONDITION

General Description

Smoke particles are removed from the airstream by the smoke laden exhaust air passing through a series of three high efficiency filters. The first set of filters are called Pre-Filters (PF), the second set are called Bag Filters (BF) and the third are called Final Filters (FF). The filters are installed in Racks and the number of filters in a Rack is determined by the amount of exhaust air (CFM) the PCU is designed to handle. The model number of the PCU incorporates numbers to identify the quantity of filters in each rack. Refer to Model Number Explanation on page 8.

The life of each of the three types of filters vary considerably depending upon the type of cooking equipment, the type of food being cooked, the amount of smoke being generated and the number of hours and days of operation. Generally the greater amount of grease and smoke generated the fewer days of life the filters have. Table T-26-1 below shows an approximate number of filter changes per year, for each type of filter, based on the duty of cooking. This Table is a starting point and is not to be considered as accurate for cost purposes. Your results will vary.

Table T-26-1

Approximate Number of Filter Changes Per Year				
Type of Cooking Equipment	Pre-Filter	Bag Filter	Final Filter	Total Filters Changed per Year
Light Duty Ovens, steamers and kettles	17	2	1.5	20.5
Medium Duty Braising pans, tilting skillets, fryers, griddles, grooved griddles, open burner ranges, hot top ranges, and conveyor ovens	26	3	2	31
Heavy Duty Gas and electric char broilers, upright broilers, woks and conveyor broilers	52	6	4	62
Extra Heavy Duty Solid fuel broilers	122	8	6	136

Operation

To achieve maximum smoke removal it is necessary to have clean filters. The filters are monitored by a series of pressure switches mounted near each of the three filter Racks. As the filters build up with grease and smoke particles the pressure switches react to the increased pressure and send a signal to the Command Center. If the filters are clean within design parameters the display will read NORMAL AIR FLOW. If any of the three types of filters are dirty, the display will read either PRE-FILTERS DIRTY – LOW AIR, BAG FILTERS DIRTY – LOW AIR, OR FINAL FILTERS DIRTY – LOW AIR. If the filters are not changed when the display indicates, the result will be reduced grease extraction efficiency and smoke loss at the ventilator. If a filter is missing, the pressure switch(es) will feel a low pressure and send a signal to the Command Center, and the display will read MISSING FILTER.

Filter Replacement

To replace any of the three types of filters, Pre-Filter, Bag Filter, or Final Filter, proceed as follows:

1. Turn off exhaust fan.
2. Open Filter Access Door.
3. Remove the wing nuts and the Filter Clamp Panel.
4. Slide Filters out of the Racks.
5. Slide in the new filters making sure the arrow on the end of the Pre-Filter or Bag Filter is facing in the direction of air flow.
   Important Note: The Final Filter is installed with the arrow on the filter facing towards the direction of air flow.
6. Replace the Filter Clamp Panel and wing nuts.
7. Replace the Filter Access Door.
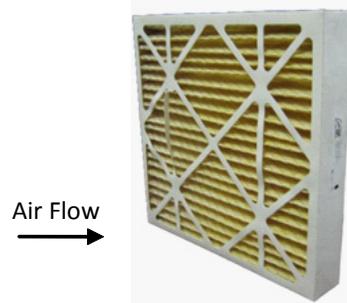8. The exhaust fan can now be turned on.

Air Flow

FIGURE 26-1
PRE-FILTER

Air Flow

FIGURE 26-2
BAG FILTER

Air Flow

FIGURE 26-3
FINAL FILTER

General Description

ClearAir units that include media bed odor control have a suffix in the model number of "SO" for single pass, "DO" suffix for double pass and "TO" for triple pass odor control. Refer to the Nameplate on the unit. (see page 39 for a sample Nameplate).

ODOR CONTROL MODULES
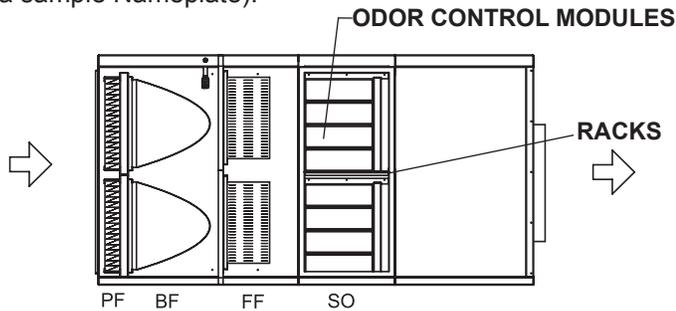
RACKS

PF   BF   FF   SO
FIGURE 27-1

The odor control media utilizes a blend of 50% potassium permanganate and 50% activated carbon. The media is housed in Odor Control Modules as shown in Figure 27-1. As the air is drawn through the Modules the potassium permanganate oxidizes the lighter odor molecules and chemically changes them into harmless solids which remain in the media, and the carbon absorbs the heavier odor molecules. The Odor Control Modules are mounted into slide tracks for easy removal and replacement and to prevent air bypass around the ends.

The life of the odor control media is dependent upon several factors such as the type of odor, amount of odor molecules, grease loading and the exhaust air temperature. The media has a flat efficiency curve, meaning that the efficiency, or effectiveness, stays constant until the media has expended and then the efficiency drops off rapidly. The carbon portion of the media's efficiency drops continually during its life. Thus a regular schedule of change out of odor control media needs to be established and followed.

There are two types of Odor Control Media Modules used in the ClearAir unit. One is called the Media Panel Type and the other is called the Loose Fill type.

With the Media Panel type the odor control media is compressed into 18" x 24" x 1.25" Media Panels which slide into a Module (see Figure 28-1). The Module(s) then slide into the Racks in the PCU (refer to Figure 27-1). As an option the unit may be equipped with a 30% pleated media After Filter located immediately downstream of the Media Models.

With the Loose Fill type the odor control media is housed in steel reusable Media Modules that can be replenished with Loose Fill media (refer to Figure 29-1). With Loose Fill media a 30% pleated media After Filter located immediately downstream of the Media Models is required.

Service and Maintenance

Generally the life of the Odor Control Media is the number of days shown in Table T-27-1. However every cooking condition varies and therefore it is important to establish

Odor Control Media Bed Inspection Frequency Chart	
Type of Cooking Equipment	Frequency In Days
Light Duty Ovens, steamers and kettles	120
Medium Duty Braising pans, tilting skillets, fryers, griddles, grooved griddles, open burner ranges, hot top ranges, and conveyor ovens	90
Heavy Duty Gas and electric char broilers, upright broilers, woks and conveyor broilers	60
Extra Heavy Duty Solid fuel broilers	30

TABLE T-27-1

FIGURE 27-2
ODOR CONTROL MEDIA MONITORING TUBE

ODOR CONTROL MEDIA MONITORING TUBE
(USE GREASE PENCIL)
LAST REFILL

_____
DATE   INITIAL
LAST INSPECTION

_____
DATE   INITIAL
FORM NO. OCMM 797

FIGURE 27-3

the frequency of inspection and replacement of the media. If the unit has Double or Triple Pass Odor Control the life expectancy between the first, second and third pass will vary. To assist in determining if the media has expended an Odor Control Media Monitoring Tube is provided (see Figure 27-2). This tube is mounted in the odor control plenum of the PCU so that it is exposed to the odor molecules in the exhaust air, the same as the Media Modules. The tube is identified by the label shown in Figure 27-3. The label includes an area where the date of the last inspection and Media Panel installation can be filled in with a grease pencil.

To inspect the Media Monitoring Tube, using an open end wrench, turn the tube nut counter clockwise and remove the Monitoring Tube assembly. The Media starts off a dark purple so if the media in the Monitoring Tube is Dark Purple it is still good. If the Media is dark brown, break a granule open and if the inside is light tan there is very little life left and the Media should be replaced. If the outside of the granules are light tan the Media is completely expended and the Media must be replaced. If you are unable to determine the status of the Media send a small sample, one teaspoon, to Green Ladder Technologies if the unit uses the Media Panel type or Cameron Great Lakes if the unit has the Loose Fill type. Note the date of installation on the sample. They will conduct a life test and advise the results by e-mail, fax or phone. Refer to pages 28 and 29 for contact information.

Once the media in the Monitoring Tube has expended, and you wish to continue checking with the Media Monitoring Tube it must be replaced with a new one. To order new Media Monitor Tube contact Gaylord Industries.

Ordering New Media Panels

The Media Panels slide into Modules, and there are two Media Panels per Module (see Figure 28-1). To order new Medial Panels contact Green Ladder Technologies.

Green Ladder Technologies, LLC
1502 Louis Bork Drive
Batavia, IL 60510

E-mail: info@greenladdertech.com

Phone: 630-457-1872
Fax: 630-482-2760

Replacing Media Panels

Caution: Each Module weighs approximately 28 lbs. and may be awkward to handle, particularly from the upper racks. It is highly recommend that a heavy duty steel wheeled ladder be used when removing the upper modules.

Caution: Exhaust Fan must be off before opening the Odor Control Media Access Door

To replace the Media Panels proceed as follows:
1. Turn off the exhaust fan.
2. Open the Odor Media Access Door on the PCU.
3. Carefully slide out the Modules.
4. Place the module on edge with the open side up, "V" side down (refer to Figure 28-1).
5. Flip the Locking Clip up (refer to Figure 28-1).
6. Pull out both Media Panels (refer to Figure 28-2)
7. Slide in the new Media Panels make sure the label stating "Inlet Side" is facing out. The two stiffening rods on the back of the panel should be facing the inside of the "V".
8. Flip the Locking Clip down.
9. Carefully slide the Modules, with the label facing you, back into the Racks making sure the "V" of the Module is facing the airflow as shown in Figure 28-1.
10. Replace the Odor Media Access Door.
11. Dispose the used Media Panels. The used panels are not recyclable.
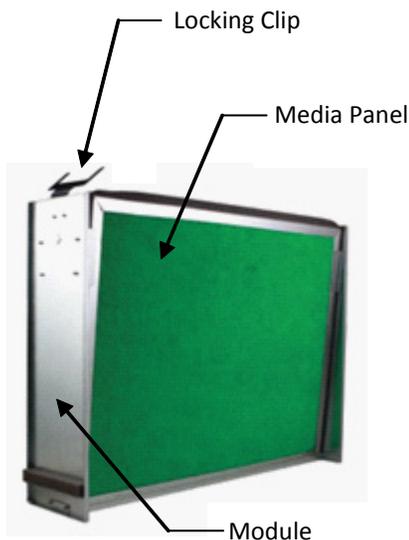

FIGURE 28-1
BOTH MEDIA PANELS
IN PLACE

FIGURE 28-2
LIFTING OUT ONE
MEDIA PANEL

FIGURE 28-3
ONE MEDIA PANEL
REMOVED

Replacing Loose Fill Media
There are two methods of replacing the media, the "Advancing Program" or Site Refill.

Advancing Program - This is a program offered by Cameron/Great Lakes, Inc. where they will ship recycled pre-filled Modules in exchange for used Modules. The pre-filled Modules are shipped two to a box, box size 25" x 25" x 13", which weigh approximately 90 lbs. The boxes are palletized, 36 to a pallet, and are shrink wrapped. Three primary advantages of the "Advancing Program" are: 1) virtually no requirement for storage except for the short period of time needed to switch the new modules for the expended ones 2) minimizes unit down time and 3) avoids filling on site.

Cameron Great Lakes
2335 NW 29th
Portland, OR 97210
800-777-4044
630-377-0711

To participate in the "Advancing Program" proceed as follows:

1. Contact the local Cameron/Great Lakes distributor and order the number of Modules required.

2. Upon receipt, remove the depleted Modules and replace with the new Modules.

3. Empty the media from the depleted Modules into containers for disposal.

4. Pack the empty used Modules into the boxes the new ones came in and ship back to the distributor.

Site Refill - Site refill involves the purchase and storage of new media, emptying and refilling the modules and disposing of the spent media. New media may be purchased from your local Cameron Great Lakes distributor. For the name and phone number of the local distributor call Cameron/Great Lakes.

New media comes in standard five gallon buckets which weigh 40 lbs each. One bucket will refill approximately 1.33 modules. It is recommended that new media is purchased no more than 2 weeks in advance of its use. The buckets should be protected against physical damage as KOR48/carbon will begin to oxidize any odor molecule when exposed to atmosphere. The buckets should be stored in a cool dry area.

Removing and Refilling the Modules
Caution - each Module weighs approximately 30 lbs. and may be awkward to handle particularly in the upper racks. It is highly recommended that a heavy duty steel wheeled ladder be used when removing the upper Modules.

Caution - Exhaust fan must be off before opening the odor control media access door.

Refilling the Modules is a relatively simple task not requiring any special tools. Follow steps 1-13:
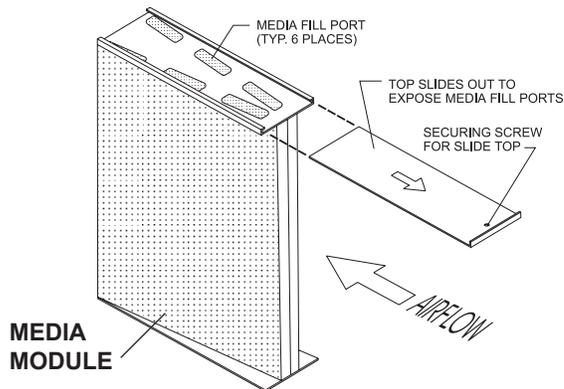
1. Turn off exhaust fan.

2. Open Media Access Door

FIGURE 29-1

3. Carefully slide out the Modules

4. Set the Module on end so the securing screw is on top.

5. Remove the securing screw and slide the cover plate off.

6. Place the filling jig over opening.

7. Pour the media into the Module.

8. To eliminate voids, shake or vibrate the Module to ensure that the media settles.

9. Continue adding media until Module is full.
   Caution: Do not overfill as it may cause the sides to bulge.

10. Replace cover plate and install securing screw.

11. Optional - some dusting may occur on initial start up of the unit. To minimize this, vacuum or blow out the Modules.
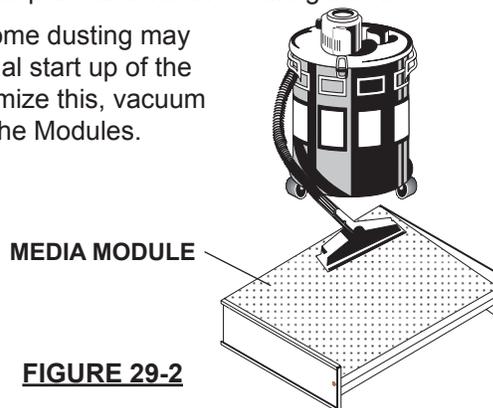

MEDIA MODULE

FIGURE 29-2

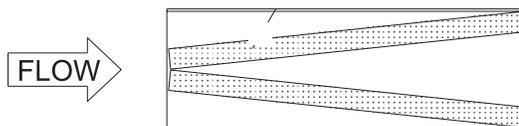12. Slide the Modules back into the rack being cautious that the airflow label is matching the airflow of the unit.

FIGURE 29-3
MEDIA MODULE - SECTION VIEW

13. Replace the Odor Media Access Door.

OVERVIEW

The Spray Odor Control system is housed in a cabinet mounted on the PCU (refer to Figure 9-1 on page 9). The major components are a spray nozzle, air compressor, timers and a 5 gallon tank to hold the Spray Odor solution (refer to Figure 43-1 on page 43). The compressor pulls the solution up through the pick-up tube in the tank by creating a vacuum, and then pushes it out through an atomizing nozzle into the plenum after the Final Filters. The spray is not on constant, but is timed on and off, the length of time on dependent upon the amount of odor created by the cooking process.

SETTING THE TIMERS

The Spray Odor Unit operates on spray-on and spray-off timed cycles while the PCU unit is in the "Fan On" mode.

The Spray Odor Control includes two (2) timers, one (1) for the "Cycle Timer" (this is the spray "OFF" timer) and one (1) for the "Spray Timer" (this is the spray "ON" timer). Both timers are calibrated and can be set between 5 and 600 seconds. The factory/setting is always 15 seconds "ON" and 15 seconds "OFF".

CAUTION: Always de-energize the PCU before opening the Electrical and Timer Control Panel inside the Odor Spray Cabinet.

ADJUSTING THE TIMERS

To adjust the spray odor cycle and timers, open the Spray Odor Cabinet, and remove the screwed-in-place timer control cover plate. Adjust as necessary for satisfactory odor control.

Cycle Timer

To set the "Off" period, turn the dial to the desired off time interval.

Spray Timer

To set the "On" period, turn the dial to the desired on time interval.

COMPRESSOR

The air pressure is factory set at 20 psi. If the solution is not being pulled up through the pick-up tube adjust the pressure slightly up or down until the climbs up the tube.

SPRAY ODOR CONTROL SPRAY NOZZLE ASSEMBLY

NOZZLE MAINTENANCE

To obtain the best performance from your nozzle, it may become necessary to clean it periodically.

The nozzle may become clogged and cease spraying due to factors such as dust, foreign particles accumulated in the orifice, and/or leakage in the air or liquid section of the nozzle.

The following procedure should be done to maintain the nozzle's performance:

1. Check the air line, which is connected from the compressor unit to the compression fitting and threaded into the air inlet side of the nozzle, for any leakage.

2. Check the liquid suction line, which is connected to the liquid inlet side of the nozzle, and ensure that it is immersed in the odor control solution.

3. If it appears that the nozzle is only blowing air and does not lift up the odor control solution out of the container, do the following:

Remove the cleanout plug from the nozzle body and, using a very thin pin or wire, clean the hole in the fluid cap (orifice) and replace the cleanout plug. Remove the foot valve from the liquid container and inspect screen for clogging. Brush clean if clogged.

SPRAY ODOR CHEMICAL

In order for the spray odor system to work correctly the system must be supplied with a chemical solution. This solution in conjunction with the delivery nozzle system that finely atomizes the spray is what makes the system work. We recommend the use of **FORMULA GS-710**. This material has been effective at removing between 80% and 90% of the odors from the kitchen exhaust in many applications. For the contact information of the nearest distributor of **FORMULA GS-710**:

Gaylord Industries
10900 SW Avery Street
Tualatin, OR 97062
Phone: (800) 547-9696
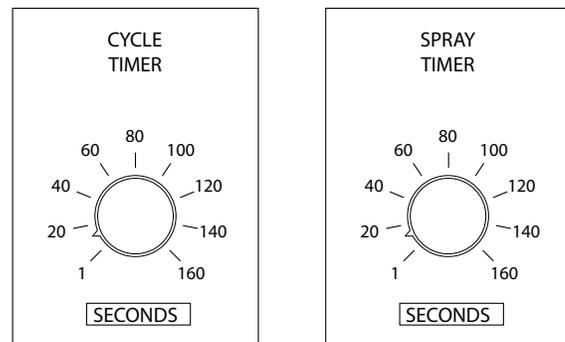Fax: (503) 692-6048
Website www.gaylordusa.com

FIGURE 30-1
CYCLE AND SPRAY TIMER

GENERAL

The exhaust fan in the ClearAir™ Unit is a heavy duty type. The size of the fan, motor, and drives have been chosen for the most efficient operation.

FAN PREVENTIVE MAINTENANCE

Every six months conduct the following maintenance:

1. Check for condition and tension of belts. Replace cracked, glazed or frayed belts. Re-check tension after 48 hours and re-tension if necessary. Do not over-tighten belts or bearing damage may result. Belt should depress its width when pressed firmly inward at midway point between the pulleys and belt should be tight enough to prevent slippage. When replacing worn belt, replace motor pulley if "shoulder" has a worn-in groove.

2. Check fan and motor bearings for possible binding, noise or overheating. Lubricate fan in accordance with instructions on fan housing.

3. Motors generally used are of the sleeve bearing type and require periodic oiling. A good grade of ASE No. 10 lubricating oil should be inserted into the oiler connections on each end of the motor about every two months. Not more than a teaspoonful should be used; over-oiling will result in oil drip.

TROUBLESHOOTING

1. **Reduced Airflow:**
   a. Blower impellers operating in wrong direction.
   b. Belt slippage or belts broken.
   c. Overload, starter cutout.

2. **Noise in Blower:**
   a. Bad bearings.
   b. Loose tie rods or blades.
   c. Blower wheels loose on shaft, wheels rubbing on housing.
   d. Drive pulley loose on shaft.
   e. Foreign object located in blower wheel or blower housing.

Necessary Action - Correct situation found immediately, as continued operation can shorten life of component parts and result in poor airflow and eventual general shut-down of system until needed repair is made.

Daily Maintenance

The Command Center should be looked at once a day to check if notification of dirty filters is displayed. If the display reads DIRTY FILTERS, they should be replaced. A scheduled should be developed, based on the operation of this kitchen, to replace the filters on a regular basis. Refer to page 26 for details.

Six Months

Remove the filters and inspect the interior of the unit for grease build up. If needed the unit should be cleaned to the same standards as the grease duct as described in NFPA 96.

Annually

The exhaust fan belts should be checked for wear and tension. If the belt is cracked, frayed, or other wise displaying signs of damage it should be replaced.

Fire Damper

The ClearAir unit may be equipped with a fire damper on the outlet side of the final filter. There are fusible links on the dampers that will sense a fire. NFPA-96 requires these fuse links be replaced annually. Replace with a 280°F (138°C) link of the same type.

Fuse Link Replacement

1. Open the plenum access door.

2. Remove the defective link.

3. Replace with a new link by wrapping the link support across the blades and securing at the clip on the other side of the frame.

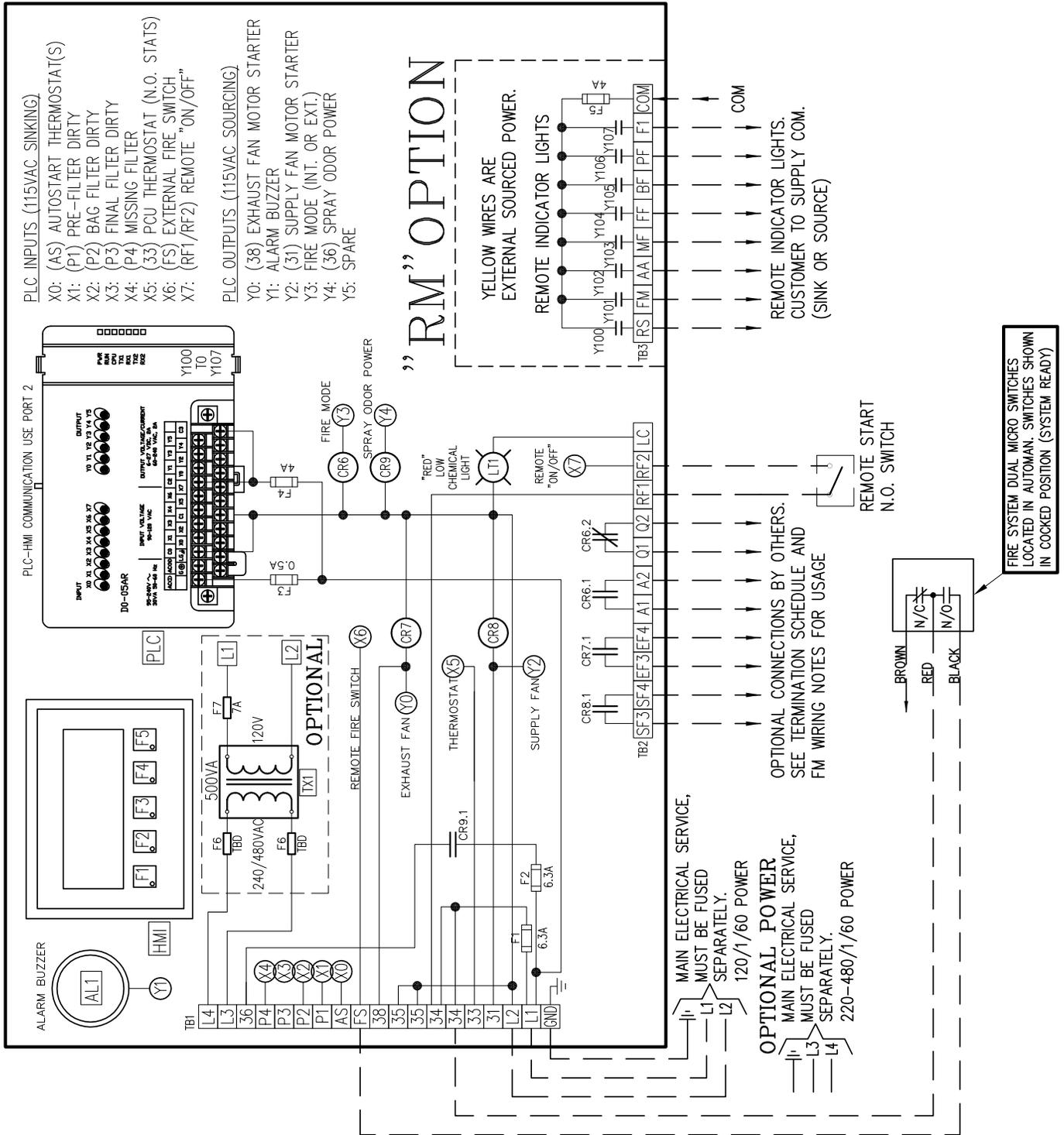4. Replace the plenum access doors

5. Start the fan.

Table T-33-1

FM-1000-A Componant Schedule			
Tag	Description	Size	Gaylord Part No.
PLC	Programable Logic Controller		20110
HMI	Human Machine Interface		20111
CBL	HMI Cable	6.56 Ft.	20107
AL1	Sonalert	120VAC	19319
CR6	Control Relay	DPDT	30828
	Socket	SPDT	30837
CR7	Control Relay	SPDT	30827
	Socket	SPDT	30836
CR8	Control Relay	SPDT	30827
	Socket	SPDT	30836
CR9	Control Relay	SPDT	30827
	Socket	SPDT	30836
F1	Fuse - Main	6.3A	17061
F2	Fuse - Spray Odor	6.3A	17601
F3	Fuse - PLC Power	0.5A	18153
F4	Fuse - PLC Outputs	4A	16822
F5	Fuse - Remote Outputs	4A	16822
F6	Fuse - TX Primary	7A	16508
F7	Fuse - TX Secondary	3.5A	16504
LT1	Low Chemical Light - Red	120VAC	19318

Table T-33-2

PLC Input /Output TABLE

"ON" & "OFF" applies to the LED light status for each PLC channel, Input and Output							
Input Side		**Ouput Side**					
X = Input Channel Number		**Y = Output Channel Number**					
Signal Source - Description		Exhaust Fan	Audible Alarm	Make-Up Air System	Fire Mode (Internal or External)	Spray Odor Control	Spare
		Y0	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
Autostart Thermostat(s) Activates	**X0**	ON	OFF	ON	OFF	ON	NA
Pre-Filter Dirty	**X1**	ON	ON	ON	OFF	ON	NA
Bag Filter Dirty	**X2**	ON	ON	ON	OFF	ON	NA
Final Filter Dirty	**X3**	ON	ON	ON	OFF	ON	NA
Missing Filter	**X4**	ON	ON	ON	OFF	ON	NA
PCU Thermostat Activates (Internal Fire)	**X5**	OFF	ON	ON	OFF	OFF	NA
Fire System Discharges (External Fire)	**X6**	OFF	INON	ON	OFF	OFF	NA
PCU Started From Remote Source	**X7**	ON	OFF	ON	OFF	ON	NA

FILTER MONITORING STATION   FM−1000−A

ALARM BUZZER   DISPLAY   PLC−HMI COMMUNICATION USE PORT 2

F1 F2 F3 F4 F5

L1 L2 GND 31 33 34 35 36 38 P1 P2 P3 P4 SF3 SF4 EF3 EF4 A11 A12 Q11 Q12 FS AS RF1 RF2 LC

TRM	\-\- SUPPLY VOLTAGE \-\- 120 VAC, 60 Hz. 5 AMPS MAXIMUM − CONNECTED LOAD TERMINATION SCHEDULE	TYPE
L1	MAIN POWER CONNECTION : HOT	120VAC
L2	MAIN POWER CONNECTION : NEUTRAL	0 V
31	OUTPUT−SUP. FAN STARTER (2 AMP MAX.)	120VAC
33	INPUT − THERMOSTAT RETURN	120VAC
34	FUSED SUPPLY TO PRESS. SW. & T−STAT	120VAC
35	120VAC NEUTRAL LEG	0 V
36	OUTPUT − SPRAY ODOR POWER	120VAC
38	OUTPUT−EXH. FAN STARTER (2 AMP MAX.)	120VAC
P1	INPUT − PRESSURE SWITCH #1	120VAC
P2	INPUT − PRESSURE SWITCH #2	120VAC
P3	INPUT − PRESSURE SWITCH #3	120VAC
P4	INPUT − PRESSURE SWITCH #4	120VAC
SF3	N.O. DRY CONTACTS FOR SUPPLY FAN	N/A
SF4	REMOTE CONTROL CENTER	N/A
EF3	N.O. DRY CONTACTS FOR EXHAUST FAN	N/A
EF4	REMOTE CONTROL CENTER	N/A
A11	N.O. DRY CONTACTS FOR INTERFACE TO	N/A
A12	BUILDING FIRE ALARM / MONITOR SYSTEM	N/A
Q11	N.C. DRY CONTACTS FOR INTERFACE TO	N/A
Q12	BUILDING FIRE ALARM / MONITOR SYSTEM	N/A
FS	INPUT FROM REMOTE FIRE SWITCH	120VAC
AS	INPUT − AUTOSTART THERMOSTAT(S)	120VAC
RF1	REMOTE ON/OFF SWITCH TERMINALS	N/A
RF2	WIRE TO N.O. SWITCH	N/A
LC	INPUT − LOW CHEMICAL (SPRAY ODOR)	120VAC

L
N

MAIN ELECTRICAL SERVICE,
MUST BE FUSED
SEPARATELY.
120/1/60 POWER

BROWN
RED   N/C
BLACK   N/O

FIRE SYSTEM DUAL MICRO SWITCHES
LOCATED IN AUTOMAN. SWITCHES SHOWN
IN COCKED POSITION (SYSTEM READY)

33 34 35 36 38 P1 P2 P3 P4

PCU ELECTRICAL COMPARTMENT

REFER TO
PCU WIRING DIAGRAM
FOR DETAILS

SUPPLY FAN(S),
MOTOR, MAGNETIC
STARTER SWITCH AND
FAN ELECTRICAL
SERVICE BY OTHERS.

FILTER MONITORING
STATION WIRING NOTES

FM−1) IF THERMOSTAT TEMPERATURE RISES ABOVE 250°F,
THE EXHAUST AND SUPPLY FAN WILL SHUT OFF, AND
A MESSAGE STATING: "FIRE IN UNIT" ON THE FILTER
MONITORING STATION WILL BE DISPLAYED.

FM−2) TERMINALS Q11 & Q12 (N/C DRY CONTACTS) OPEN IN
THE EVENT OF A FIRE.

FM−3) TERMINALS A11 & A12 (N/O DRY CONTACTS) CLOSE
IN THE EVENT OF A FIRE.

─ ─ ─ FIELD WIRING BY OTHERS
───── WIRING BY MANUFACTURER

Table T-36-1

FM-1000-A Terminal Voltages					
Terminal	Description	Fan Off	Fan On	Int. Fire	Ext. Fire
L1	Main Power Connection : Hot	120 VAC	120 VAC	120 VAC	120 VAC
L2	Main Power Connection : Neutral	Common			
31	Output - Supply Fan Motor Starter	0 VAC	120 VAC	0 VAC	0 VAC
33	Input - Thermostat Return (N.C. Stats)	120 VAC	120 VAC	0 VAC	120 VAC
34	Fused Supply to Fire Switch, etc.	120 VAC	120 VAC	120 VAC	120 VAC
35	120vac Neutral Leg	Common			
36	Output - Spray Odor Power (optional)	0 VAC	120 VAC	0 VAC	0 VAC
38	Output - Exhaust Fan Motor Starter	0 VAC	120 VAC	0 VAC	120 VAC
P1	Input - Pressure Switch #1	0 VAC	120 VAC	0 VAC	120 VAC
P2	Input - Pressure Switch #2	0 VAC	if filter is	0 VAC	if filter is
P3	Input - Pressure Switch #3	0 VAC	dirty	0 VAC	dirty
P4	Input - Pressure Switch #4	0 VAC	120 VAC if filter is missing	0 VAC	120 VAC if filter is missing
SF3 SF4	N.O. Dry Contacts for Supply Fan Remote Control	Open	Closed	Open	Open
EF3 EF4	N.O. Dry Contacts for Exhaust Fan Remote Control	Open	Closed	Open	Closed
A11 A12	N.O. Dry Contacts for Interface to Building Fire Alarm / Monitor System	Open	Open	Closed	Closed
Q11 Q12	N.C. Dry Contacts for Interface to Building Fire Alarm / Monitor System	Closed	Closed	Open	Open
FS	Input From External Fire Sw.	0 VAC	0 VAC	0 VAC	120 VAC
AS	Input - Autostart Thermostat in Hood	120 VAC when Autostart Thermostat(s) rise above temperature setpoint			
RF1	Remote On/Off Switch Terminals Wired to N.O. Switch	120 VAC	120 VAC	120 VAC	120 VAC
RF2		120 VAC when Remote N.O. On/Off Switch is closed ("ON")			
	Optional "RM" Terminals (Remote Monitoring)				
RS	Remote Start Active	BMS when Remote N.O. On/Off Switch is closed ("ON")			
FM	External Fire Mode Active	0	0	0	BMS
AA	Autostart Mode Active	BMS when Autostart thermostats above temperature setpoint			
MF	Missing Filter				
FF	Final Filter Dirty				
BF	Bag Filter Dirty				
PF	Pre-Filter Dirty				
F1	Output - Exhaust Fan Motor Starter	0	BMS	0	BMS
COM	Common	BMS Voltage (0-220VAC)			

PCU PRESSURE SWITCH SETTINGS

PRESSURE SWITCHES

There are four Pressure Switches as show on Figure 37-1, Figures 38-1, and 38-2. The Pressures Switches are used to detect a dirty or missing filter and send a signal to the Command Center. Pressure Switches PS1, PS2 and PS3 are factory set to a static pressure as shown on the Table T-38-1. Pressure Switch PS4 is used to detect a missing filter and must be set after the PCU is installed. To set PS4 proceed as follows:

SETTING THE MISSING FILTER PRESSURE SWITCH

To set the Missing Filter Pressure Switch, PS4, proceed as follows:

1. Open each of the three Filter Access Doors on the PCU and check to make sure all filters are in place. If a filter is missing you cannot proceed with the adjustment until the missing filter(s) is installed.
2. Close and latch all Filter Access Doors and push F1 on the Command Center. After the one minute STAND BY delay the exhaust fan will start.
3. Look at the Command Center display panel. If the display panel reads FAN ON, NORMAL AIR, proceed to step num ber 4. If the display reads FAN ON, MISSING FILTER - HIGH AIR, adjust Pressure Switch PS4 as follows: (NOTE: during a MISSING FILTER condition the Command Center audible alarm is on. To silence the alarm push F4)

CAUTION: Do not touch live electrical terminals. Contact with live power will result in immediate injury or death to personnel.

  a) The Pressure Switches are located inside the Electrical Panel (refer to Figure 38-2). Turn the Safety Disconnect Switch and open the panel door.
  b) Using a crescent wrench, turn the Safety Disconnect door shaft clockwise to energize the Electrical Panel.
  c) Push F1 on the Command Center to start the exhaust fan.
  d) On Pressure Switch PS4 loosen the Cover Plate Hold Down Screw and remove the Cover Plate (refer to Figure 37-1).
  e) Wait for the one minute STAND BY delay until the exhaust fans starts.
  f) Turn the Pressure Switch Adjusting Screw (refer to Figure 37-2) clockwise until the display panel reads FAN ON, NORMAL AIR, and then turn the screw another 1/2 turn clockwise.Proceed to step 4.

4. Look at the Command Center display panel. If the display reads FAN ON, NORMAL AIR, proceed as follows:
  a) Open the Pre-Filter Access Door, remove one filter, and replace and latch the access door.
  b) Loosen the Cover Plate Hold Down Screw and remove the Cover Plate (refer to Figure 37-1).
  c) Turn the Pressure Switch Adjusting Screw (refer to Figure 37-2) counter clockwise until the display panel reads FAN ON, MISSING FILTER - HIGH, and then turn the screw another 1/2 turn counter clock wise.
  (NOTE: the Command Center audible alarm will come on during a MISSING FILTER condition. To silence the alarm, push F4)

  d) Replace the missing filter.
  e) Double check the display panel to make sure it reads FAN ON, NORMAL AIR.
  f) Adjustment of PS4 is now complete. Replace the Cover Plate and tighten the hold down screw.
  g) Using a crescent wrench, turn the Safety Disconnect door shaft counter clockwise to de-energize the Electrical Panel.
  h) Close the Electrical Panel Door and turn the Safety Disconnect Switch clockwise to energize the panel. The adjustment is complete.

COVER PLATE HOLD DOWN SCREW

FIGURE 37-1
PRESSURE SWITCH
COVER ON

PRESSURE SWITCH ADJUSTING SCREW
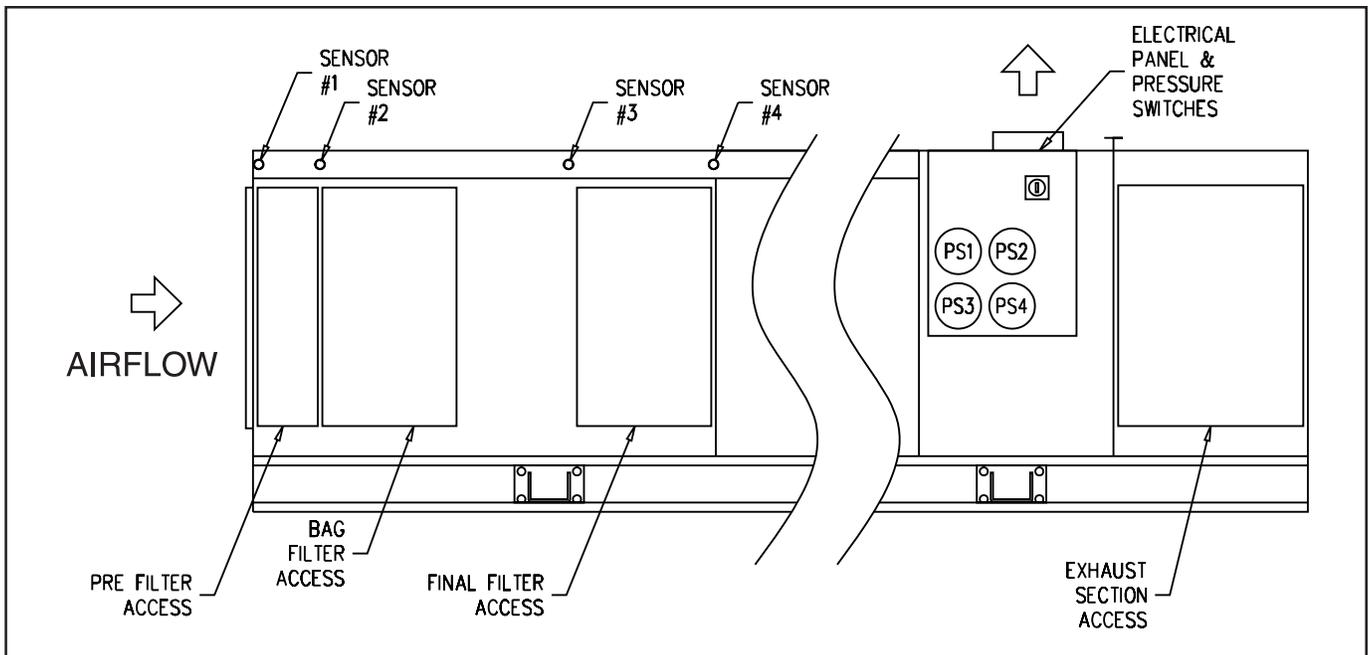
FIGURE 37-2
PRESSURE SWITCH
COVER OFF

37

PCU PRESSURE SWITCH TUBING DIAGRAM

Table T-38-1

Pressure Switch Settings		
Pressure Sw. No.	Sensing Pressure For	Factory Pressure Setting
PS1	Pre-Filter	.50" W.G. (.124 KPA)
PS2	Bag Filter	1.25 W.G. (.310 KPA)
PS3	Final Filter	2.00" W.G (.497 KPA)
PS4	Missing Filter	(not set)
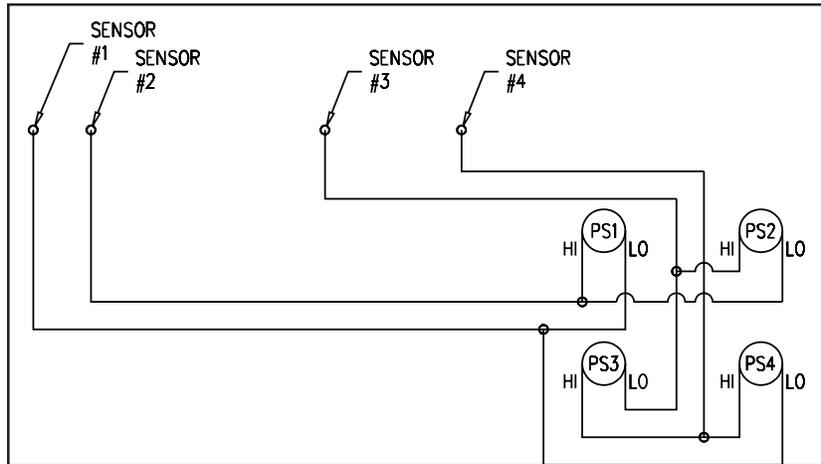
FIGURE 38-1
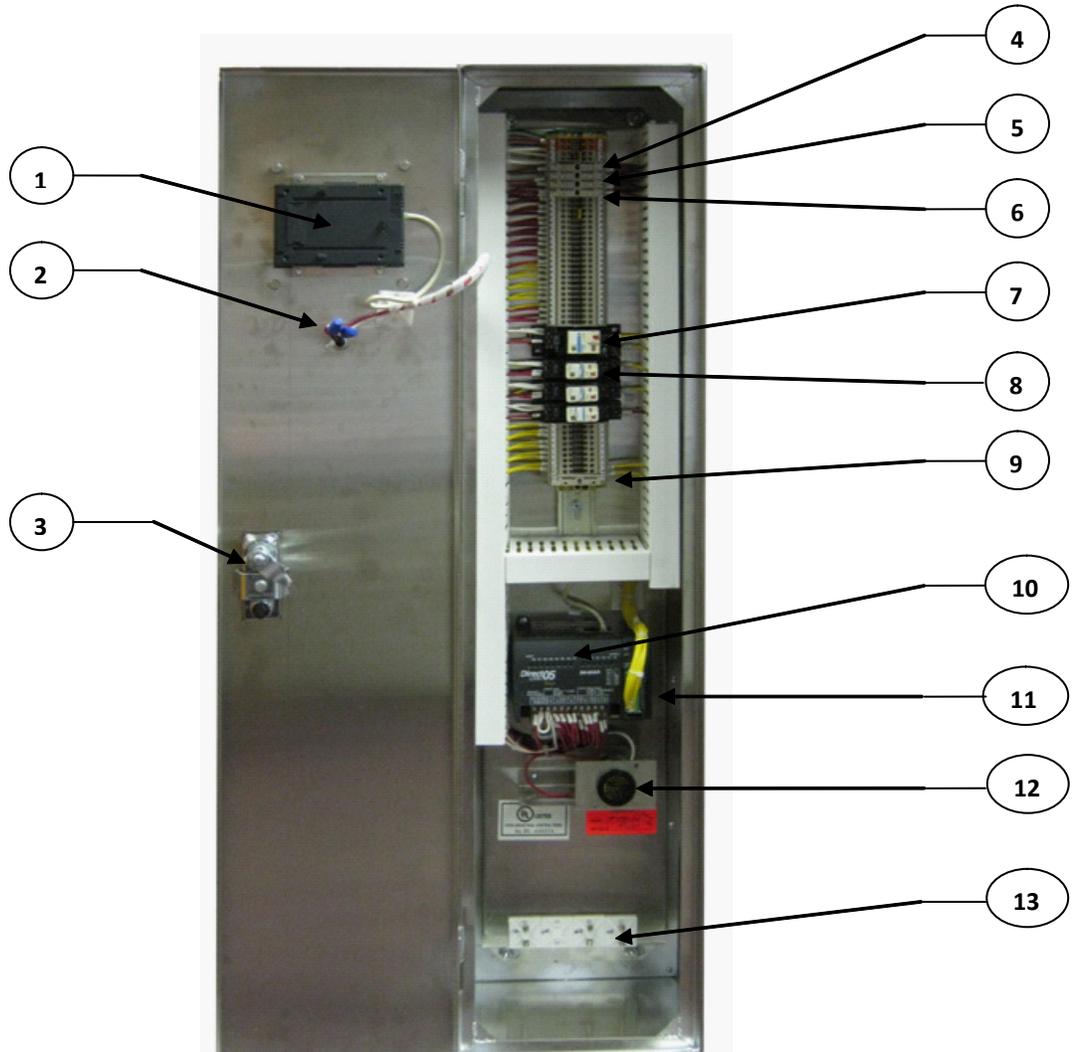**TUBING DIAGRAM**

FIGURE 38-2
SENSOR LOCATION

38

NAMEPLATE SAMPLE

The ClearAir™ nameplate is located on the electrical compartment access door of the unit. If inquiring on service or ordering parts, please have model number and serial number available.

GAYLORD

"ClearAir"™

SMOKE POLLUTION CONTROL UNIT
MODEL NUMBER

RSPC-TPF-

SERIAL NUMBER

SUITABLE FOR USE WITH CONTROL MODEL NO.

FOR EITHER INDOOR OR OUTDOOR INSTALLATION

GAYLORD INDUSTRIES

10900 S.W. AVERY STREET
TUALATIN, OREGON 97062

FOR NAME OF THE NEAREST SERVICE AGENCY CALL:

800-547-9696
Or Visit www.gaylordusa.com

The ClearAir™ unit Model RSPC-TPF Series is ETL Listed under the category Air Filtering Device, Report #3028598-1

C **ETL** US
LISTED

FORM NO. CATPFNP 902/19039   42106

ENGINEERING DATA
FILTER SECTION

CFM

INT. STATIC PRESSURE   "W.G.

VOLTS	PHASE	HERTZ	AMPS	WATTS
	1			

MAX. FUSE SIZE   AMPS

MAX. BREAKER SIZE   AMPS

OPTIONAL FAN SECTION

CFM
TOTAL STATIC PRESSURE   "W.G.
EXHAUST FAN POWER CIRCUIT:

VOLTS	PHASE	HERTZ	AMPS
			FLA

MIN. CIRCUIT AMPACITY

MAX. FUSE SIZE   AMPS

MAX. BREAKER SIZE   AMPS

-CAUTION-
THE FILTER INDICATOR LIGHTS SHOULD BE INSPECTED FRE-QUENTLY TO ENSURE THAT COLLECTED GREASE IS BEING REMOVED BY THE FILTER. REFER TO THE TECHNICAL MANUAL FOR SPECIFIC INSTRUCTIONS.

FIGURE 39-1
ClearAir™ **NAMEPLATE**

FIGURE 40-1
COMMAND CENTER
MODEL FM-1000-A

Table T-40-1

Pc No.	Description	Comments	Gaylord Part Number
1	Human Machine Interface (HMI)	Shown from back	20111
2	Low Odor Control Chemical Light	Shown from back	19318
3	Lift and Turn Latch	Shown from back	11118
4	Fuse – 6.3A	For F1 & F2	17061
5	Fuse – 0.5A	For F3	18153
6	Fuse – 4.0A	For F4	16822
7	Control Relay	DPDT	30828
8	Control Relay (three required)	SPDT	30827
9	Fuse – 4.0A	For F5	16822
10	PLC (Programmable Logic Control		20108
11	PLC Remote Monitoring Module	Optional	20113
12	Sonalert Alarm		19319
13	Spare Fuses		NA

Table T-41-1

PC No.	Description	Gaylord Part No.	Illustration
1	30% Pre-Filter	30074	
2	90% Bag Filter	30515	
3	95% DOP Final Filter	30514	
4	Odor Control Media Monitoring Tube	30913	
5	Safety Interlock Pressure SW		
	Pre-Filter, SP = 0.50 WG	19663	
	Bag Filter, SP = 1.25 WG	19664	
	Final Filter, SP = 2.00 WG	19666	
	Missing Filter, SP Not Set		
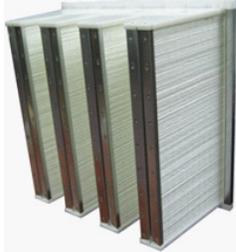
Table T-41-1 (continued)

	PCU Parts		
6	Fire Thermostat (15" long, 250 deg. F. N.O.	18782	
7	Latch - For Pre-Filter Access Door	19821	
8	Latch - For Bag Filter and Final Filter Access Door	19771	
9	Latch - For Fan Housing Access Door	19547	
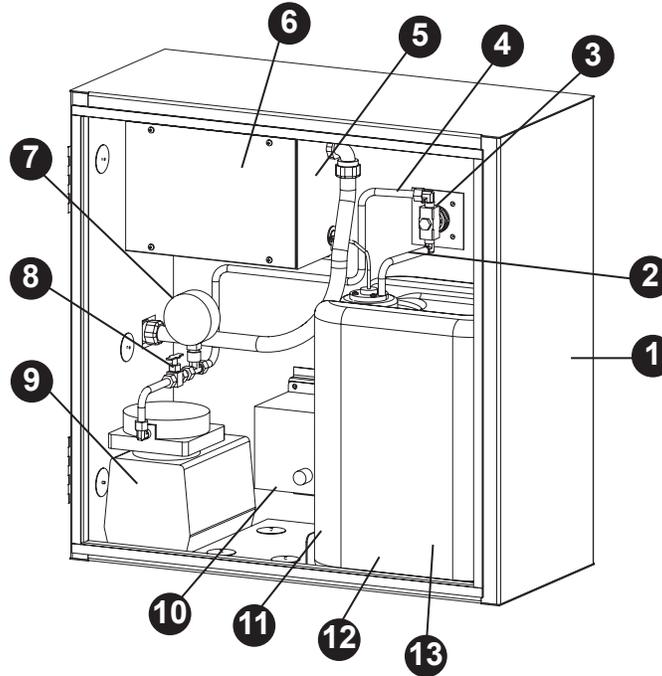
FIGURE 43-1
SPRAY ODOR CONTROL CABINET

Table T-43-1

Pc. No.	Description	Gaylord Part No.
	Spray Odor Component Schedule	
1	Spray Odor Cabinet Assembly (25"x25")	19119
2	1/4" I.D. Flexible Suction Tube	10272
3	Spray Nozzle Assembly	19065
4	3/8" Copper Tubing	11000
5	Electrical Box	N/A
6	Cycle and Spray Timer Relay (Behind Panel)	19073
7	Pressure Gauge	10276
8	Needle Valve	19070
9	Air Compressor	19072
10	Heater	19075
11	5 Gallon (18.9 Liter) Container of GS-710	19097
12	Level Sensor for Spray Odor Chemical (In Tank)	19071
13	1/4" Foot Valve (In Tank)	10269

APPENDIX A: RECEIVING AND INSTALLATION

APPENDIX B: START UP INSTRUCTIONS

RECEIVING

Most ClearAir™ units are shipped in one piece. However, some units, because of size or special jobsite conditions, may be shipped in multiple sections. Follow the instructions provided with the unit to join sections back together. If the unit includes media bed odor control, the odor control media is packaged separately. Verify against the shipping documents that you have received all items and note any shipping damage, obvious or hidden, to your carrier and on your Bill of Lading. If damage is found, immediately file a claim with the transport company. All units are thoroughly inspected and fully operation tested at the factory prior to shipment.

Verify that the electrical and air flow ratings on the unit name plate agrees with jobsite requirements. If a contradiction arises notify the factory prior to proceeding with installation.

SAFETY CONSIDERATIONS

Installing and servicing the ClearAir™ unit can be hazardous due to the presence of electrical components. Only trained and qualified service personnel should install or service this equipment.

Untrained personnel can perform basic maintenance, such as cleaning and replacing filters. All other operations should be performed by trained service personnel. When installing or servicing, observe precautions in literature and on tags and labels attached to unit.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly.

WARNING

Before installing or servicing system, always turn off main power to system. There may be more than one disconnect switch. Electrical shock can cause personal injury or death.

RIGGING

All units are provided with a minimum of four (4) lifting points for rigging attachment. WARNING: Use all lifting points provided. (Refer to Page B-2.) Spreader bars are mandatory to prevent contact and damage to the unit by lifting hooks, straps, cables, or chains. Consult the mechanical or structural engineer before moving the unit across the roof deck.

INSTALLATION CODES

This unit requires external plumbing and electrical connections to be made in the field. It is recommended that the Authority Having Jurisdiction (AHJ) be consulted regarding local codes and installation procedures. Gaylord Industries is not responsible for obtaining necessary approvals and permits which may be required for installation, nor is it responsible for verifying that the unit has been installed in accordance with national, state, and local codes. In the absence of locally adopted codes use the latest editions of the National Electrical Code (NEC) and the International Mechanical Code (IMC). Connections of the exhaust duct to the inlet and outlet of the ClearAir™ unit must be fully welded to comply with NFPA-96.

INSTALLATION PRECAUTIONS

1. The services of qualified contractors are essential for safe and proper installation of this equipment.

2. The air volumes and external static pressures that are listed on the unit are for the middle of the operating range of the filters. The initial air volume should be at least 10% higher than the listed CFM. As the filters load up the air volume will drop. This is inherent to this type of unit. If the unit is set up at or below the design CFM, as the filters load up, the kitchen hood may experience smoke loss problems. Please consult the factory if you have questions.

3. The unit is designed for installation on a level surface.

4. When installed in an enclosed space a fire rated enclosure may be required for the unit and associated duct work. Consult the Authority Having Jurisdiction.

5. Consult the Authority Having Jurisdiction regarding requirements covering the point of termination of the exhaust outlet of this unit. Minimum distances must usually be maintained between the exhaust outlet and any outside air intakes and/or adjacent structures or property lines.

6. Do not apply power to the unit until all electrical connections have been made and a pre-start-up preliminary inspection has been completed.

7. Allow a minimum of 36 inches clearance in front of the filter access door and electrical compartment door for service and routine maintenance.

SHORT TERM STORAGE

Units that include media bed odor control are provided with media which is shipped separate from the unit. Media must be stored in a dry place with less than 95% relative humidity.

LONG TERM STORAGE (OVER ONE MONTH)

If the unit is equipped with an exhaust fan it must be re-lubricated as soon as it arrives. To prevent corrosion all bearings should receive grease and be rotated the first of every month. Turn the wheel by hand while greasing bearings. A clean 1/16" bead of grease must appear on each side of each bearing. Refer to specific bearing lubricating instructions on the fan. Also, refer to bearing lubricating instructions found in the exhaust fan section of this manual.

Bearings which are to be stored or idle for an extended period of time should be wrapped in a neutral grease-proof paper, foil, or plastic film. Compounds can be recommended by the bearing manufacturer to provide protection for several months to several years.

After long-term storage, grease should be purged from the bearings and fresh grease injected prior to start-up.
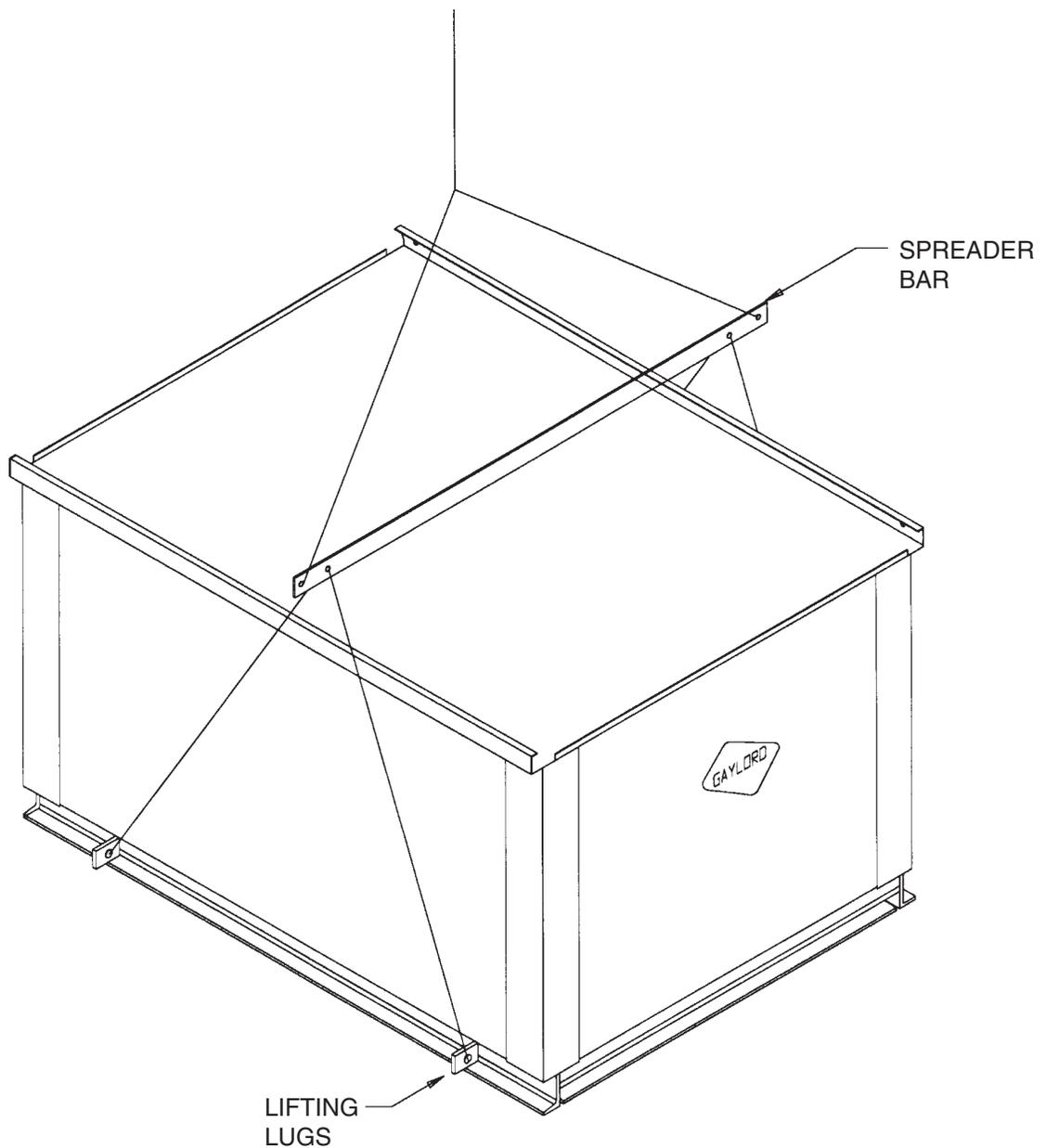
SPREADER
BAR

LIFTING
LUGS

FIGURE A-2-1

1. All units are provided with a minimum of four lifting points for rigging attachment. All lifting
   points must be used.
2. Spreader bars are mandatory to prevent contact and damage to the unit by lifting hooks,
   straps, cables or chains.

1. Attach "TPF Section" to "Media Bed Odor Control Section":

Bolt "TPF Section" and "Media Bed Odor Control Section" bases together on outside of unit, using $^3/_4$" holes. Tek screw walls and roofs together, using $^3/_{16}$" holes. Continuously weld: floor, wall, and roof seams from inside of unit.

2. Attach "Media Bed Odor Control Section" to "Plenum Section" (if applicable):

Bolt "Media Bed Odor Control Section" and "Plenum Section" bases together on outside, using $^3/_4$" holes. From inside plenum, tek screw walls and roofs together, using $^3/_{16}$" holes. Continuously weld: floor, wall, and roof seams from inside of unit.

3. Attach Fan Inlet to "Plenum Section" outlet:

Push "Exhaust Fan Section" about 7" from "Plenum Section". Tek screw & caulk fan duradyne to plenum interconnect ring, at 5" intervals (minimum). Duradyne is pre-attached to fan inlet side.

4. Attach "Plenum Section" to "Exhaust Fan Section":

Bolt "Plenum Section" and "Exhaust Fan Section" bases together on outside, using $^3/_4$" holes. From inside of plenum, tek screw walls and roofs together, using $^3/_{16}$" holes. Continuously weld floor seam from inside plenum. "Exhaust Fan Section" walls and roof to remain removable for exhaust fan replacement, tek screw and bolt only.

5. Assemble "Media Bed Odor Control Section" (if applicable):

Refer to "Media Bed Odor Control Section assembly instructions" drawing".

6. Attach "TPF Chase"

Bolt "TPF Chase" to rest of assembled unit. Connect Pressure tubing from sensors 1-4 to Pressure Switches 1-4 in the "Electrical Panel", refer to Pressure Switch Tubing Diagram on page 38. Connect Thermostat wires from Thermostat to Electrical Panel, refer to Wiring Diagram on page 34 & 35.
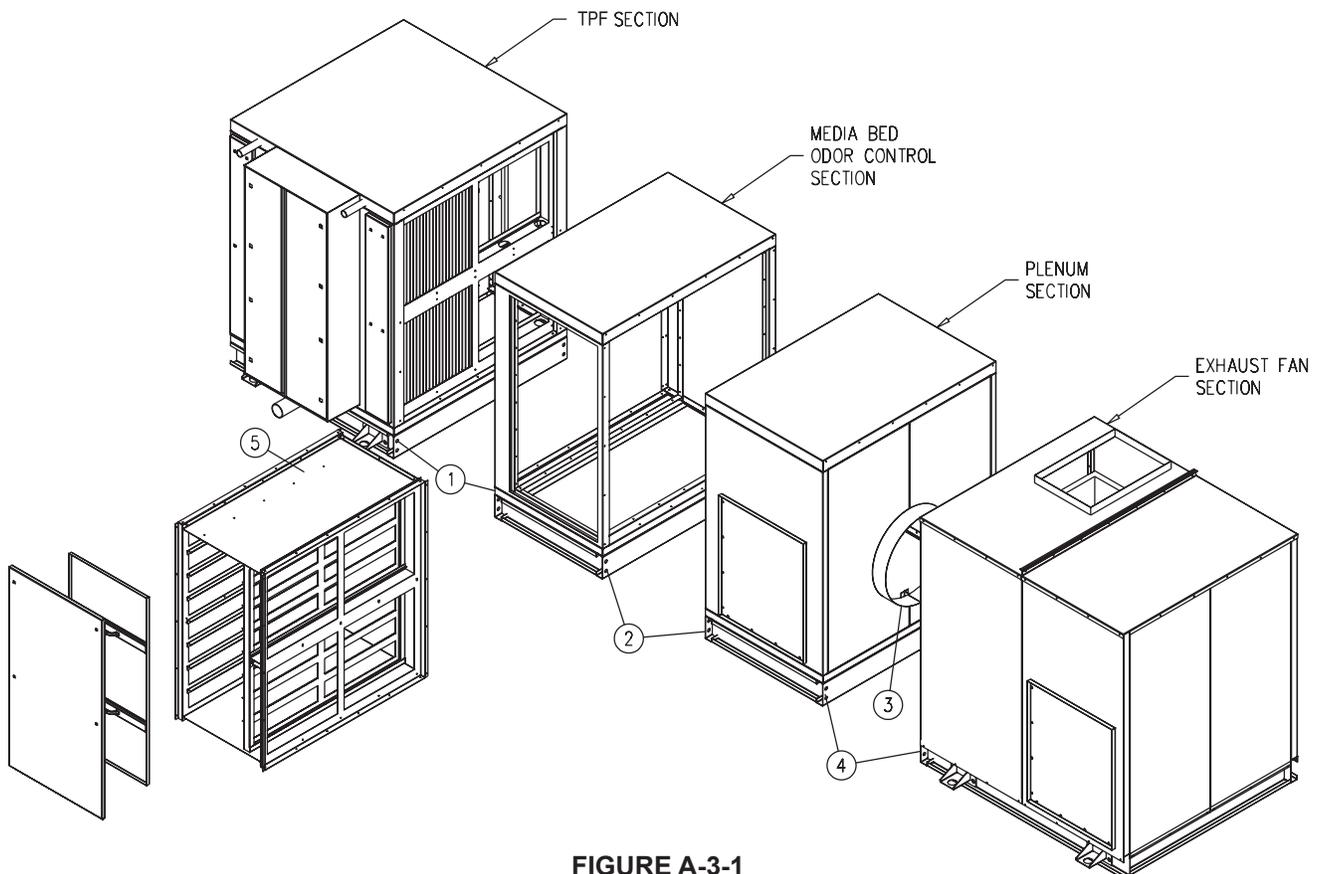

FIGURE A-3-1

NOTE: Assemble this section, only after the rest of the unit has been assembled.

1. Slide Odor Rack into unit through door opening. Tek screw rack to floor rails, using $3/16$" holes.

2. Tek screw upper rack to both sides of roof rails.

3. Tek screw first 3 sides to mounting rails from outside of the unit.

4. Attach fourth side by entering odor rack to reach screw holes.

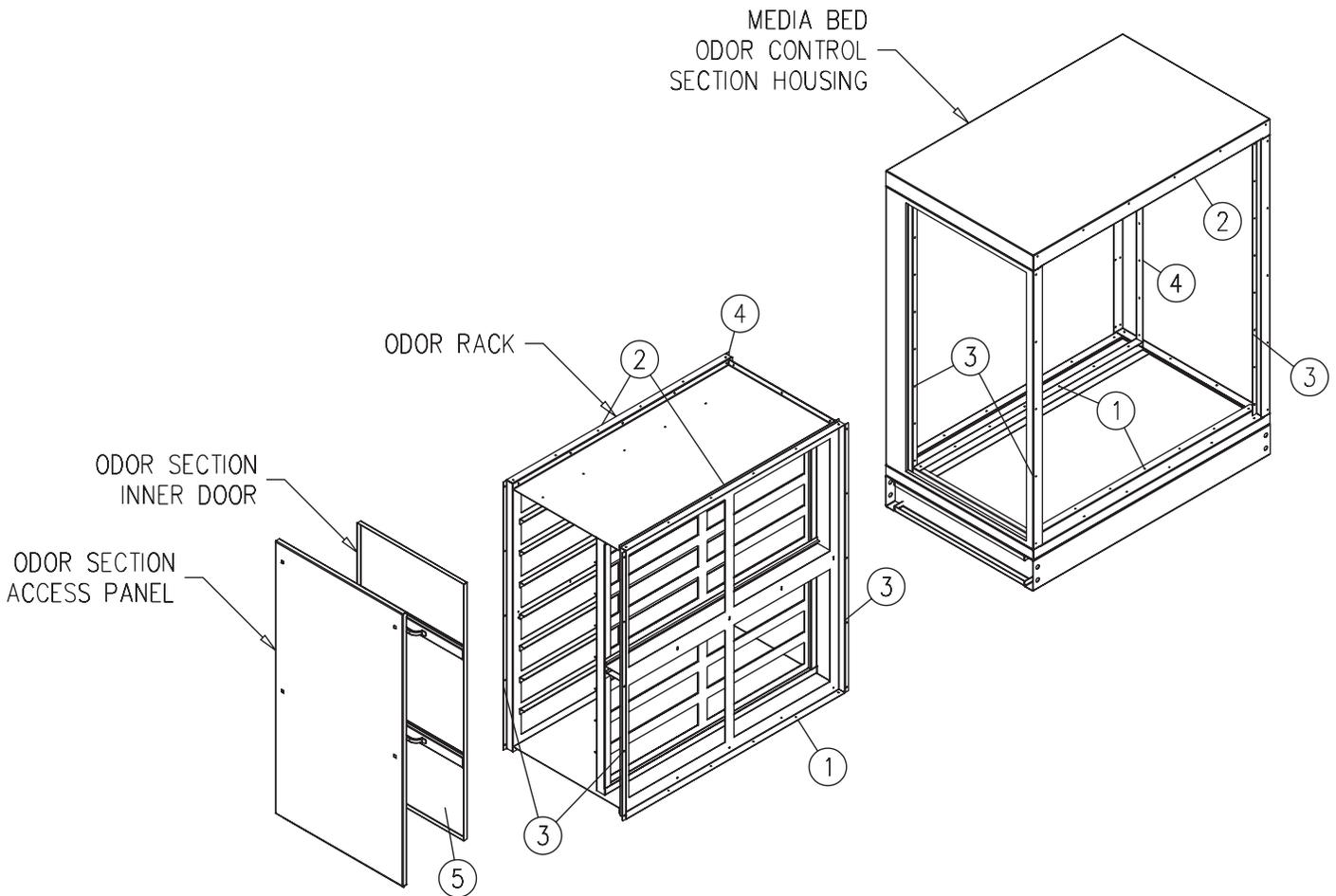5. Attach Odor Section Inner Door, flip latches to secure.

FIGURE A-4-1

INITIAL SET-UP

To prevent fan movement during shipping two metal straps have been placed over the fan and attached to the floor of the unit and four red shipping hold down brackets have been installed at each corner of the fan base. To remove the shipping straps and brackets proceed as follows:

1. Cut the two metal straps and remove.

2. Locate the red shipping hold down brackets and remove the tech screws that hold them to the floor of the unit and remove.

3. Check the fan for free movement, making sure the springs are seated within the top and bottom spring cap.

4. Check the fan for level and level if necessary with the leveling nuts.

PRE-OPERATIONAL MAINTENANCE

Before starting the exhaust fan perform the following pre-operational maintenance:

1. **Set screws & Belts:**
    a. Rotate fan impeller to check for shifting that may have occured during shipment. If necessary, shift wheel position and re-tighten.
    b. Check belt and pulley alignment.
    c. Check tightness of setscrews in blower wheel hub.
    d. Check tightness of set screws in bearing locking collar.
    e. Check tightness of set screws in motor and fan pulleys.
    f. Check tightness of all frame bolts and base bolts.
    g. Check tightness of bearing mounting bolts.
2. **Belt tension.** Take up or relieve tension in belts so that there is approximately 3/4" to 1" deflection under 3 pounds pressure based on 2 1/2 to 3 foot centers on drive. Adjustment of belt tension is accomplished by use of adjustable motor base.

INITIAL FAN LUBRICATION

To prevent corrosion bearings should receive grease and be rotated. Turn the wheel by hand while greasing bearings. A clean 1/16" bead of grease must appear on each side of each bearing. Refer to specific bearing lubricating instructions on the fan.

Bearings which are to be stored or idle for an extended period of time should be wrapped in a neutral grease-proof paper, foil, or plastic film.

After long-term storage, grease should be purged from the bearings and fresh grease injected prior to start-up.

INITIAL OPERATION

After pre-operational checks, unit is ready for operation:
1. Start up blower. Check rotation.
2. If blower impeller is turning in the wrong direction, reverse rotation per instructions furnished by motor manufacturer.
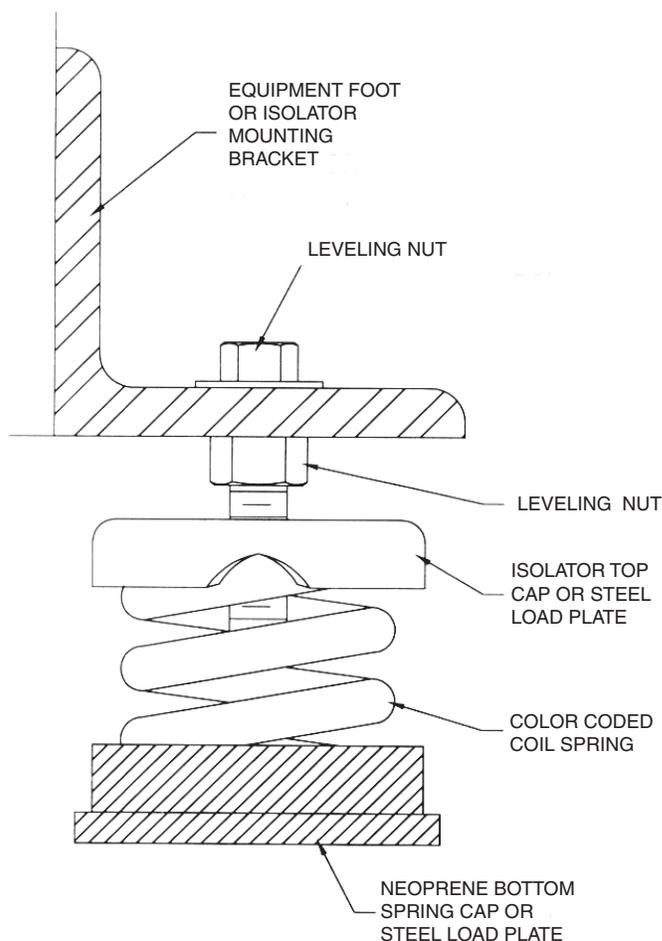

EQUIPMENT FOOT OR ISOLATOR MOUNTING BRACKET

LEVELING NUT

LEVELING NUT

ISOLATOR TOP CAP OR STEEL LOAD PLATE

COLOR CODED COIL SPRING

NEOPRENE BOTTOM SPRING CAP OR STEEL LOAD PLATE

FIGURE A-5-1

Start up Procedure for RSCP-TPF

Check duct work for proper connection to unit. All incoming duct work should be minimum 18 GA SS or 16 GA BI and fully welded or joined per NFPA 96 requirements

Check the fan section and remove shipping braces if supplied per the instructions on pages 30 and 31.

If the unit was shipped in sections, check for proper assembly of the unit on pages A-2, A-3 and A-4. All field joints must be welded grease and water tight.

Check for proper and complete installation of all filters. If some are missing locate them and install per the instructions on page 26.

If a media bed odor control system was provided make sure that it was installed per the instructions on pages 27 and 28.

If a spray odor system was provided, locate the 5 gallon pail of GS-710 provided in the spray odor control cabinet. Remove the lid and install the pick up tube and level sensor. For field adjustments refer to page 29.

Check for proper air flow at the kitchen hood. Make sure that all access panels have been installed in the duct work and all filters or cartridges are in place in the hood. Check for proper air volume per hood manufacturer's instructions. Minimum flow should be the design volume. However, flows of up to 15% high are acceptable. The air flow will drop as the filters become dirty. Starting high will assure smoke capture even with filter loading.

Air volumes of 30 to 50% of design or a strong vibration may indicate that the fan is rotating backwards. Verify Fan rotation. If air flow is still low or there is excessive vibration check fan for loose components, duct discharge blockage, or open access panels. Excessive vibration may be caused by shipping braces that are still in place.

Once the proper air flow is set, the missing filter pressure switch needs to be set per the instructions under **"Pressure Switch Adjustments"** on page 37. Perform the **Filter Removal Test** to verify operation.

GAYLORD®

ClearAir RSPC-TPF Start-Up Inspection Report

This start-up Report Used For RSPC-TPF Pollution Control Units
One Report Must Be Completed For Each Unit

File Number _____
Job Name _____
Address _____

NAMEPLATE DATA:
Model No _____
Serial No _____
CFM _____

Facility Contact Name _____ CSA Contact _____

PRELIMINARY CHECKLIST

UNIT EQUIPPED WITH EXHAUST FAN? ☐ Yes ☐ No
UNIT EQUIPPED WITH ODOR CONTROL? ☐ Yes ☐ No

ALL UNITS:
1. ☐ Open all removable access panels including electrical disconnect panel.
2. ☐ Complete a thorough inspection of the unit for any shipping, handling or installation damages and, if any, note under comments.
3. ☐ Verify all Pre Filters are in place.
4. ☐ Verify all Bag Filers are in place.
5. ☐ Verify all Final Filters are in place.
6. ☐ Verify that the spare fuses are provided inside the Command Center.

IF UNIT EQUIPPED WITH EXHAUST FAN:
7. ☐ Verify that the optional wall insulation is secure and has not loosened in shipment if a housed fan.
8. ☐ Verify that all shipping tiedowns, bolts and braces have been removed from exhaust fan spring isolators.
9. ☐ Verify that the fan floats freely on the spring isolators and the fan wheel turns freely by rotating the pulleys.
10. ☐ Verify that all bearing set collars are tight.
11. ☐ Verify the exhaust discharge is not obstructed or directed toward any structure.
12. ☐ Verify that the spare fan belts are provided inside the fan housing.

IF UNIT IS EQUIPPED WITH MEDIA BED ODOR CONTROL:
14. ☐ Verify that the Media Panels are in place.

IF THE UNIT IS EQUIPPED WITH A FIRE PROTECTION SYSTEM:
15. ☐ Type of fire system: ☐ Wet Chemical ☐ Sprinkler

OPERATIONAL CHECKLIST

SMOKE CONTROLLER SECTION
1. ☐ Close and latch all access doors & panels.
2. ☐ Verify that all circuit breakers are on and power is supplied to the ClearAir electrical panel.
3. ☐ Place the door disconnect switch in the "On" position.
4. ☐ Push **F1** on the Command Center.
   a. Display panel should read FAN ON, STAND BY
      ☐ Yes ☐ No
   b. After a one minute delay the exhaust fan should start and the display panel should read FAN ON, NORMAL AIR
      ☐ Yes ☐ No
5. ☐ Push **F2** on the Command Center.
   a. Display panel should read FAN OFF ☐ Yes ☐ No
6. ☐ Is the ventilator(s) equipped with a Autostart system?
      ☐ Yes ☐ No
7. ☐ Is the Command Center interfaced with the make-up air system? ☐ Yes ☐ No
8. ☐ Is the Command Center interfaced with a building manage ment system? ☐ Yes ☐ No
9. ☐ Is the Command Center interfaced with a building fire alarm system? ☐ Yes ☐ No
10. ☐ Is the Command Center equipped with the Remote Monitor ing option? ☐ Yes ☐ No
11. ☐ Has the Missing Filter Pressure Switch, PS4, been ad justed in accordance with instructions of page 37 of the Technical Manual? ☐ Yes ☐ No

FAN SECTION
2. ☐ Check air flow at kitchen hood and verify air volume is at design or as much as 15% high. If not have:
   a. Balancer adjust sheaves on 5 HP and smaller motors
   b. Balancer change sheaves on 7.5 HP and larger

SPRAY ODOR (If equipped)
1. ☐ Locate container of GS-710
2. ☐ Place GS-710 container in the spray odor cabinet
3. ☐ Remove cap and install pickup tube and level switch
4. ☐ Verify that both timers are set to 15 seconds. This may need to be adjusted to maximize the spray odor effectiveness decreasing the delay or increasing the spraying time will improve the effecti veness of the spray odor. Increasing the delay or decreasing the spray time will reduce the effective- ness of the spray odor system.

Date of Inspection: _____

Inspection Witnessed By:
Name: _____
Title: _____
Signature: _____

Inspection Performed By:
Name: _____
Company: _____

Comments _____
_____
_____
_____
_____
_____
_____
_____
_____

Distribution: Gaylord Industries, Inc. / Customer / Sales Rep

B-2

THE GAYLORD ClearAir™ **POLLUTION CONTROL UNIT**

LIMITED WARRANTY

The Gaylord ClearAir™ Pollution Control Unit is warranted by GAYLORD INDUSTRIES to be free from defects of material and workmanship under normal use when installed, operated and serviced in accordance with factory recommendations.

GAYLORD INDUSTRIES' obligation under this warranty shall be limited to repairing or replacing at its option any part of said equipment which GAYLORD INDUSTRIES' examination shall disclose to its satisfaction to be thus defective, for a period of one (1) year from the date of installation provided proper and acceptable evidence of such installation is recorded at the factory, or 18 months from date of shipment whichever occurs first.

GAYLORD INDUSTRIES SHALL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM A BREACH OF THIS WAR-RANTY.

All replacement parts furnished under this warranty shall be F.O.B. Gaylord Industries Tualatin, Oregon. The owner shall pay the necessary freight delivery charges, and necessary labor for removal and installation of parts, and any federal, state or local taxes.

SPECIFIC ITEMS NOT COVERED BY THIS WARRANTY:

1. Fan belts if equipped with an exhaust fan.

2. Pre filters, bag filters, final filters, and Green Matrix LP media if equipped with odor control.

3. Routine maintenance and cleaning as spelled out in The Gaylord ClearAir™ Model RSPC-TPF Series Unit Technical Manual.

4. Malfunction or improper operation caused by fluctuating electrical or power surges or improper installation.

This is the sole warranty with respect to the aforesaid items. NEITHER GAYLORD INDUSTRIES OR ANY OTHER PARTY MAKES ANY OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESAID OBLIGATIONS ARE HEREBY DISCLAIMED AND EX-CLUDED FROM THIS AGREEMENT.
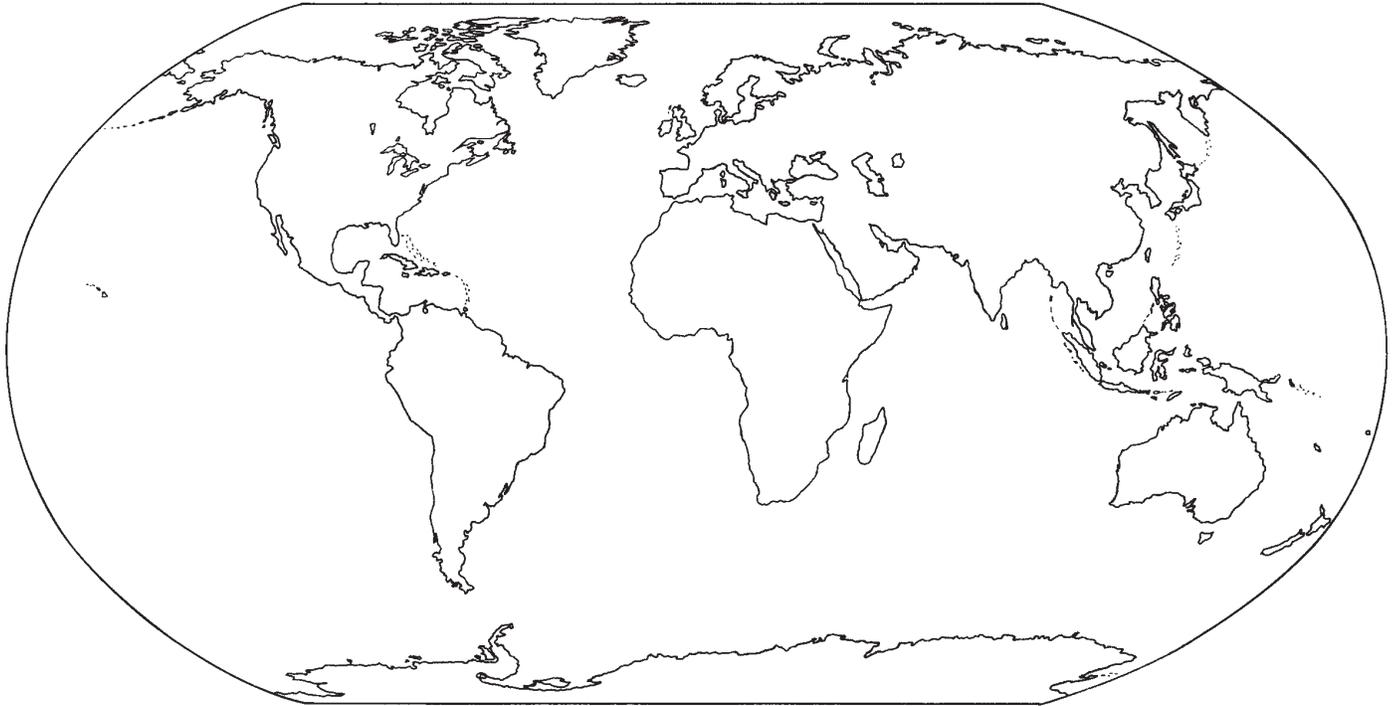
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Phone: 503-691-2010
              1-800-547-9696
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www.gaylordusa.com

LOCAL SERVICE AGENCY